



# 7140 COLLINS HOTEL

*Traffic Study*

David Plummer & Associates



## **Responses to the FTE Comments on behalf of the City of Miami Beach**

*(October 19<sup>th</sup>, 2016)*

### **Re: Review of 7140 Collins Hotel Traffic Impact Analysis**

**Dated September 2016**

- 1. Study Area and Methodology – The report indicated that traffic counts were collected on a Tuesday. However, the methodology called for counts to be collected on a Friday. Please justify the change.**

*Response: The counts were collected on a Friday (September 2<sup>nd</sup>, 2016). The text has been revised.*

- 2. Section 1.4 – This section of the report calls for three car elevators; however, the analysis was based on two. Please clarify.**

*Response: The analysis is correctly based on two car elevators. The text in Section 1.4 has been revised.*

- 3. Exhibit 3 – Please review the geometry shown and analyzed for the intersection of Collins Avenue and 72nd Street.**

*Response: Exhibit 3 has been updated to show the correct lane configuration. The analysis has been updated and intersection capacity worksheet are included in Appendix D.*

- 4. Background Traffic – the calculated growth rate accounted only for stations along NW 71st Street. Please verify the growth rate for arterials such as Collins Avenue.**

*Response: The stations that were considered for the calculated growth rate were closer to the proposed site than the stations located along Collins Avenue. In addition to the growth rate, the traffic associated with committed developments was also taken into account for background traffic.*

- 5. Committed Developments – The study identified various committed developments and their expected trip generation; however, it isn't clear how their trips were distributed and assigned to the study intersections. In addition, please provide the worksheets of how the volumes were developed to facilitate the review process.**

*Response: The Traffic Study for the Deauville Hotel was provided to us by the city of Miami Beach, the trip distribution provided in the study was used for the intersections of the study area. For the rest of the committed developments the city of Miami Beach provided the proposed land use and dwelling units. Trip Generation was used to determine the number of trips during the A.M. and P.M. peak hour. A TAZ number for each appropriate committed development was then used to calculate the cardinal distribution. Committed trips for each development were then assigned based on the cardinal distribution, roadway networks, roadway availability, and roadway conditions. In essence a trip distribution was created for each committed development. Volume development sheet is provided in Appendix C.*

- 6. Exhibit 10 – a 5% (out) was assigned for the SBT at the intersection of Indian Creek Drive at 71st Street that was not carried to the adjacent intersection.**

*Response: Exhibit 10 has been updated to show the correct trip distribution for the hotel. The analysis was completed based on the correct trip distribution.*

**7. Exhibit 11 – Please verify the proposed distribution as the percentages don't add up correctly.**

*Response: Exhibit 11 has been updated to show the correct trip distribution for the hotel. The analysis was completed based on the correct trip distribution.*

**8. Trip Assignment – Please show trip assignment figures. In addition, please provide the worksheets of how the volumes were developed to facilitate the review process.**

*Response: Project trip assignment has been added for both the Hotel and Commercial area, it is included in the report as Exhibit 12 and Exhibit 13, respectively.*

**9. Exhibit 12 – Please show the volumes for the proposed driveways. In addition, please review the Synchro file which didn't account for any vehicles entering the site.**

*Response: The project proposes a directional circular driveway with an inbound access and an outbound access. The outbound access driveway has been modeled in synchro as a stop controlled intersection and intersection capacity worksheet was included in Appendix D. However the inbound access driveway does not require a stop controlled approach. Therefore synchro does not provided a report. Exhibit 12 has been updated to show the inbound and outbound volumes at the proposed driveway.*

**10. Valet Operations – The valet analysis breaks the processing rate into three steps, however it as unclear whether "Process 3 for tandem" takes into account the parking/retrieving time in cases where cars need to be moved in order to access the required spot given the use of tandem and mechanical lifts. In addition, please indicate what types of mechanical lifts are proposed.**

*Response: Yes the time for parking/retrieving vehicles for tandem and mechanical lifts (noted in the report as the park processing time) was accounted for in the valet processing rate calculation. The project is proposing a combination of double stacker mechanical lift, triple stacker mechanical lift, tandem and standard spaces.*

**11. Valet Operations – Please confirm whether no valet service will be offered to the commercial uses.**

*Response: The project is providing valet service for the hotel guest and is looking to provide the valet service to a portion of the retail component. In order to incorporate the retail demand in the valet queueing analysis we assumed 20% of the retail trips during the PM peak hour would use valet service.*

**12. Valet Operation – Please identify/describe the following:**

- **The analysis indicates that the valet station will require parking for two (2) vehicles. Indicate what is the capacity of the valet area.**
- **Identify the location of the valet station in the site plan.**
- **Describe and illustrate the circulation for the valet service.**

*Response: The proposed site accommodates 3 vehicles at the valet drop-off/pick-up area. Site civil has identified the valet station (hotel drop off area) on the site plan and can be found in Appendix H (A-007). The circulation for the valet service can be found in Appendix H.*

**13. Transportation Demand Management plan – Please provide a TDM plan for this project, in order to encourage the use of alternative modes of transportation.**

*Response: The Transportation Demand Management plan (TDM) can be found in Appendix I.*

**14. Site Plan – Please provide bike racks within the site.**

*Response: Site civil has identified the bike racks on the site plan and can be found in Appendix H (A018).*

**15. Parking – Please provide the internal circulation of the site.**

*Response: Site civil has identified the internal circulation on the site plan and can be found in Appendix H (A-018).*

**16. Loading and trash pickup - Please described the proposed loading and trash pickup operations. If necessary please provide the auto turn analysis.**

*Response: Loading and trash pickup description has been added to section 5 of the report. Site civil has provided the auto turn analysis and can be found in Appendix H (A-018).*



## **Additional City of Miami Comments (*October 17<sup>th</sup>, 2016*)**

- 1. Section 4-2: You estimated the committed development trip generation. How did you convert the number of trips to turning movement volumes? How did you assign them?**

*Response: The Traffic Study for the Deauville Hotel was provided to us by the city of Miami Beach, the trip distribution provided in the study was used for the intersections of the study area. For the rest of the committed developments the city of Miami Beach provided the proposed land use and dwelling units. Trip Generation was used to determine the number of trips during the A.M. and P.M. peak hour. A TAZ number for each appropriate committed development was then used to calculate the cardinal distribution. Committed trips for each development were then assigned based on the cardinal distribution, roadway networks, roadway availability, and roadway conditions. In essence a trip distribution was created for each committed development.*

- 2. Section 4-4: Please include the explanation on how you got to the Exhibits 10 and 11.**

*Response: Exhibit 10 shows the inbound and outbound trips being distributed for the Collins Hotel. It should be noted that only the hotel component will use the proposed garage. Exhibit 11 shows the inbound and outbound trips being distributed to the public parking lot located directly north of the site were retail and restaurants guests will park.*

**Prepared By:**  
David Plummer & Associates

**Prepared For:**  
Collins & 72 Street Developers, LLC

**Prepared In:**  
November 2016

**DPA Job #:**  
16204



## TABLE OF CONTENTS

LIST OF EXHIBITS .....	ii
EXECUTIVE SUMMARY .....	iii
1.0 INTRODUCTION .....	1
1.1 Project Background .....	1
1.2 Study Objective .....	1
1.3 Study Area and Methodology .....	3
1.4 Project Site Information .....	5
2.0 EXISTING CONDITIONS .....	6
2.1 Roadway Characteristics .....	6
2.2 Traffic Counts .....	8
2.3 Intersection Data .....	8
2.4 Intersection Capacity Analysis .....	11
3.0 PLANNED AND PROGRAMMED ROADWAY IMPROVEMENTS .....	13
4.0 FUTURE TRAFFIC CONDITIONS .....	14
4.1 Background Traffic and Committed Developments .....	14
4.2 Future without Project Intersection Capacity Analysis .....	15
4.3 Project Trip Generation .....	18
4.4 Project Trip Assignment .....	21
4.5 Future with Project Intersection Capacity Analysis .....	26
5.0 CIRCULATION PLAN .....	31
6.0 QUEUING ANALYSIS .....	34
6.1 Valet Drop-Off / Pick-Up Area .....	34
6.2 Valet Operations .....	36
7.0 CONCLUSIONS .....	45
Appendix A: Site Plan	
Appendix B: Methodology	
Appendix C: Traffic Data	
Appendix D: Intersection Capacity Analysis Worksheets	
Appendix E: Committed Development Documentations	
Appendix F: Trip Generation	
Appendix G: Bus Route Information	
Appendix H: Queuing Documentation	

## LIST OF EXHIBITS

Exhibit 1: Location Map .....	2
Exhibit 2: Existing PM Peak Hour Traffic Volumes .....	9
Exhibit 3: Existing Lane Configurations .....	10
Exhibit 4: Existing Intersection Capacity Analysis .....	12
Exhibit 5: Committed Development Trip Generation .....	14
Exhibit 6: Future without Project PM Peak Hour Traffic Volumes .....	16
Exhibit 7: Future without Project Intersection Capacity Analysis.....	17
Exhibit 8: Project Trip Generation Summary .....	19
Exhibit 9: Cardinal Distribution.....	21
Exhibit 10: Project Trip Distribution (Hotel).....	22
Exhibit 11: Project Trip Distribution (Commercial).....	23
Exhibit 12: Project Trip Assignment (Hotel).....	24
Exhibit 13: Project Trip Assignment (Commercial).....	25
Exhibit 14: Future with Project PM Peak Hour Traffic Volumes .....	27
Exhibit 15: Future with Project Intersection Capacity Analysis.....	28
Exhibit 16: Future with Project with Improvements Intersection Capacity Analysis .....	29
Exhibit 17: Projected Queues and Existing Storage Length.....	30
Exhibit 18: Circulation Plan – Mobility.....	32
Exhibit 19: Circulation Plan – Bus Routes .....	33
Exhibit 20: Demand at Valet Drop-off / Pick-up Area .....	34
Exhibit 21: Valet Processing Rate - Process 1 .....	38
Exhibit 22: Valet Processing Rate - Process 2.....	39
Exhibit 23: Valet Processing Rate - Process 3.....	40
Exhibit 24: Queueing Calculations .....	42



## EXECUTIVE SUMMARY

The project is located at 7140 Collins Avenue in Miami Beach, Florida. The project proposes a 179-room hotel with a 18,652 SF of commercial space on the ground floor. The site is currently occupied by an existing 7,005 SF of commercial space and a vacant lot. The project is proposing a parking garage, providing 141 parking spaces (6 standard, 135 mechanical lift) with two car elevators. The proposed garage will operate as all valet. Access to the project will be via two driveways (one inbound only, one inbound/outbound) creating a circular driveway on Harding Avenue. The proposed project will also access to the public parking lot located directly north of the site. For the purpose of this traffic study, project build-out is anticipated by 2018.

An assessment of the traffic impacts associated with the proposed 7140 Collins Hotel was performed in accordance with the requirements of the city of Miami Beach. The overall LOS for the following intersections will meet the city's LOS standards with the proposed project:

- Abbott Avenue / 72nd Street
- Harding Avenue / 72nd Street
- Collins Avenue / 72nd Street
- Abbott Avenue / 71st Street
- Harding Avenue / 71st Street
- Collins Avenue / 71st Street
- Indian Creek / 71st Street

The northbound and southbound approaches at the Indian Creek Drive and 71<sup>st</sup> Street intersection is currently experiencing delay. To improve the operations of this intersection the project is proposing the following improvement:

- Indian Creek Drive and 71<sup>st</sup> Street Intersection- adjust signal timing to provide additional green time to the northbound and eastbound left movements.

A mobility and circulation plan was completed as part of the study. The plan shows that the project area is currently served by various Miami-Dade Transit bus routes. The project is located in an area

that is conducive for pedestrian and bicycle activities providing shared bike lanes, ample sidewalks, and crosswalks.

In addition, an assessment of circulation as it relates to the valet services during the peak hour was performed. The valet drop-off/pickup area queuing analysis shows that the anticipated queue during the typical PM peak traffic conditions can be accommodated within the project site.



## **1.0 INTRODUCTION**

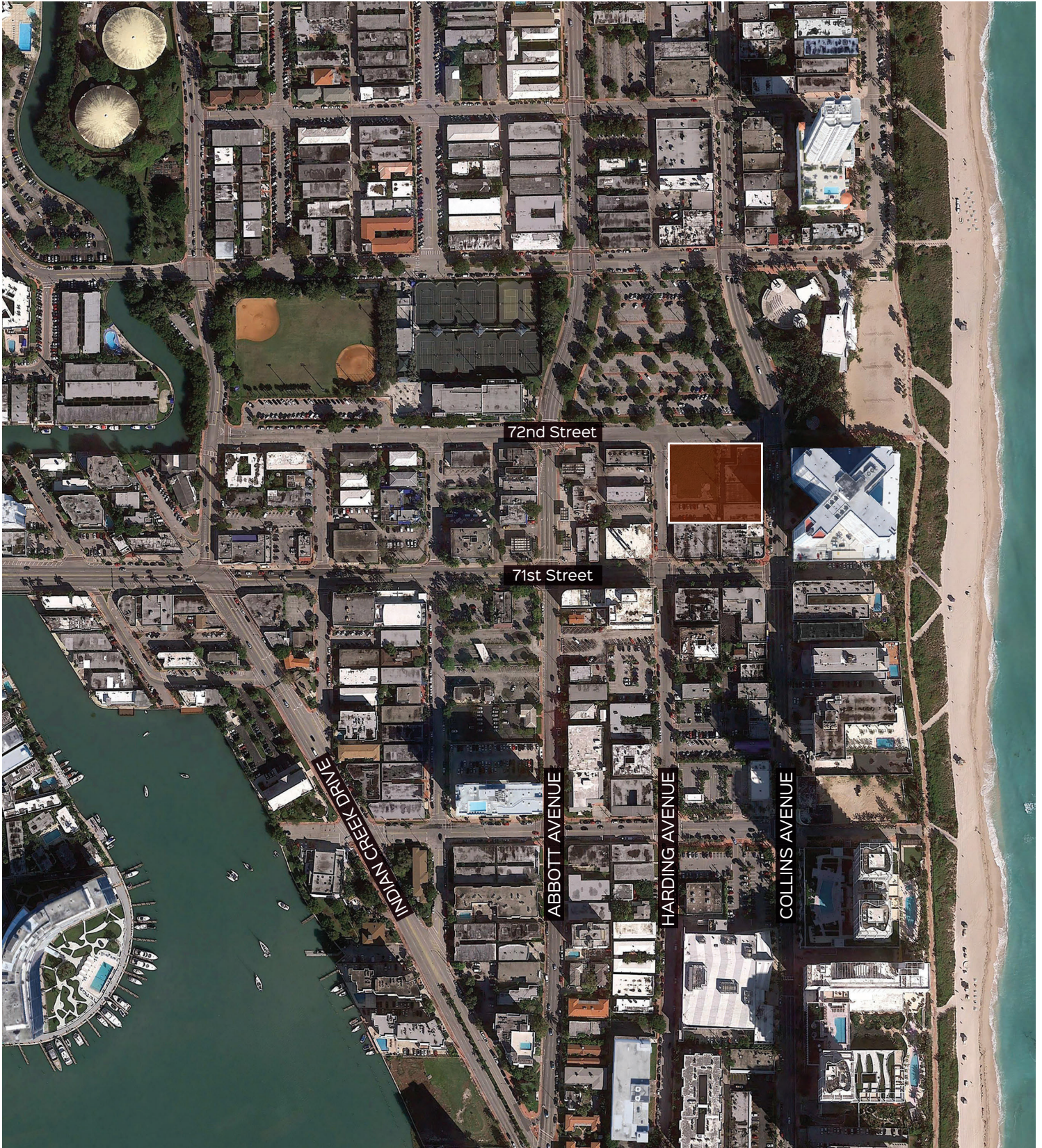
### **1.1 Project Background**

The project is located at 7140 Collins Avenue in Miami Beach, Florida. The project proposes a 179-room hotel with an approximate 18,652 SF of commercial space on the ground. The site is currently vacant in addition to an existing 7,005 SF of commercial space. The project is proposing a parking garage, providing 141 parking spaces (6 standard, 135 mechanical lift) with two car elevators. The proposed garage will operate as all valet. The proposed site plan is included in Appendix A. For the purpose of this traffic study, project build-out is anticipated by 2018.

### **1.2 Study Objective**

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





 Project Location

# Exhibit 1

## Location Map





### 1.3 Study Area and Methodology

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

- Traffic Counts (Intersections) – Two-hour turning movement counts were collected on Friday September 2<sup>nd</sup>, 2016 during the PM (4:30-6:30 PM) peak hours at the following intersections:
  - Collins Avenue / 71st Street (S)
  - Collins Avenue / 72nd Street (S)
  - Harding Avenue / 71st Street (S)
  - Harding Avenue / 72nd Street (U)
  - Abbott Avenue / 71st Street (S)
  - Abbott Avenue / 72nd Street (S)
  - Indian Creek Drive / 71st Street (S)

S = Signalized  
U = Un-signalized
- Signal Location and Timing – Existing signal phasing and timing for the signalized intersections were obtained from Miami-Dade County. Signal timing plans are included in *Appendix C, Traffic Data*.
- Future Transportation Projects – The 2016 *Transportation Improvement Program* (TIP) and the *2040 Long Range Transportation Plan* (LRTP) were reviewed to include future transportation projects which add capacity to the network.
- Background Traffic – Available Florida Department of Transportation (FDOT) and Miami-Dade County (MDC) traffic counts were consulted to determine a growth factor consistent with historical annual growth in the area. The growth factor was applied to the existing traffic volumes to establish background traffic.
- Committed Developments – Future traffic associated with the committed developments in the vicinity of the project site was considered in the analysis.

- Project Trip Generation – Trip generation for the project was estimated using trip generation information published by the Institute of Transportation Engineers (ITE) Trip Generation Manual, 9<sup>th</sup> edition and site-specific data.
- Project Trip Distribution / Trip Assignment – Net new external project vehicular trips were assigned to the adjacent street network using the appropriate cardinal distribution from the Miami-Dade 2040 Long Range Transportation Plan, published by the Metropolitan Planning Organization. Area traffic patterns were considered when assigning project trips. A figure showing all of the assigned project trips to the adjacent transportation network was provided as part of the study.
- Future Traffic Conditions – Project traffic was combined with background traffic and committed development traffic to obtain future conditions with project. Intersection capacity analyses were performed for existing and future with project conditions.
- Circulation Analysis/Plan – A circulation plan is provided depicting the project site, driveways, location of street signs/signals, crosswalks, sidewalks, location of bus facilities, and bike facilities in the vicinity of this project.

## **1.4 Project Site Information**

The project is located at 7140 Collins Avenue in Miami Beach, Florida. The project proposes a 179-room hotel with a 18,652 SF of commercial space on the ground floor. The site is currently occupied by an existing 7,005 SF of commercial space and a vacant lot. The project is proposing a parking garage, providing 141 parking spaces (6 standard, 135 mechanical lift) with two car elevators. The proposed garage will operate as all valet. Access to the project will be via two driveways (one inbound only, one inbound/outbound) creating a circular driveway on Harding Avenue. The proposed project will also access to the public parking lot located directly north of the site.



## 2.0 EXISTING CONDITIONS

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

### 2.1 Roadway Characteristics

#### 71<sup>st</sup> Street (SR 934)

Within the study area, 71<sup>st</sup> Street is a state principal arterial that provides east/west access all along the city of Miami Beach. West of Indian Creek Drive, 71<sup>st</sup> Street is a two-way, four-lane divided roadway. East of Indian Creek Drive, 71<sup>st</sup> Street is a two-way, two-lane divided roadway. There is on-street parking provided on portions of the roadway. Bike lanes are provided along the roadway. FDOT has jurisdiction over this portion of 71<sup>st</sup> Street. The posted speed limit is 30 mph.

#### 72<sup>nd</sup> Street

72<sup>nd</sup> Street is a local roadway that runs east/west between Collins Avenue and Dickens Avenue. It is a two-way, two-lane undivided road. There is on-street parking provided on both side of the roadway. The city of Miami Beach has jurisdiction over 72<sup>nd</sup> Street. The speed limit is not posted on this segment of 72<sup>nd</sup> Street, however, if not posted, the city's speed limit is 30 mph.

#### Collins Avenue (SR A1A)

Collins Avenue is a state principal arterial that provides north/south access throughout the county. Within the study area, Collins Avenue is a one-way, three-lane northbound roadway. There is on-street parking provided on portions of the roadway. FDOT has jurisdiction over Collins Avenue. The posted speed limit is 30 mph.

#### Abbott Avenue

Within the study area, Abbott Avenue is a principal arterial that provides east/west access along the city of Miami Beach. Abbott Avenue is one-way, three-lane southbound roadway that runs between Indian Creek Drive and 72<sup>nd</sup> Street. There is on-street parking provided on portion of the roadway.

A southbound bike lane is provided along the roadway. Miami-Dade County has jurisdiction over this portion of Abbott Avenue. The posted speed limit is 30 mph.

#### Harding Avenue

Harding Avenue is a principal arterial that runs north/south between 67<sup>th</sup> Street and 72<sup>nd</sup> Street. North of 69<sup>th</sup> Street, Harding Avenue is a two-way, two-lane undivided road. There is on-street parking provided on both sides of the roadway. Miami-Dade County has jurisdiction over Harding Avenue. The speed limit is not posted on this segment of Harding Avenue, however, if not posted; the city's speed limit is 30 mph.

#### Indian Creek Drive

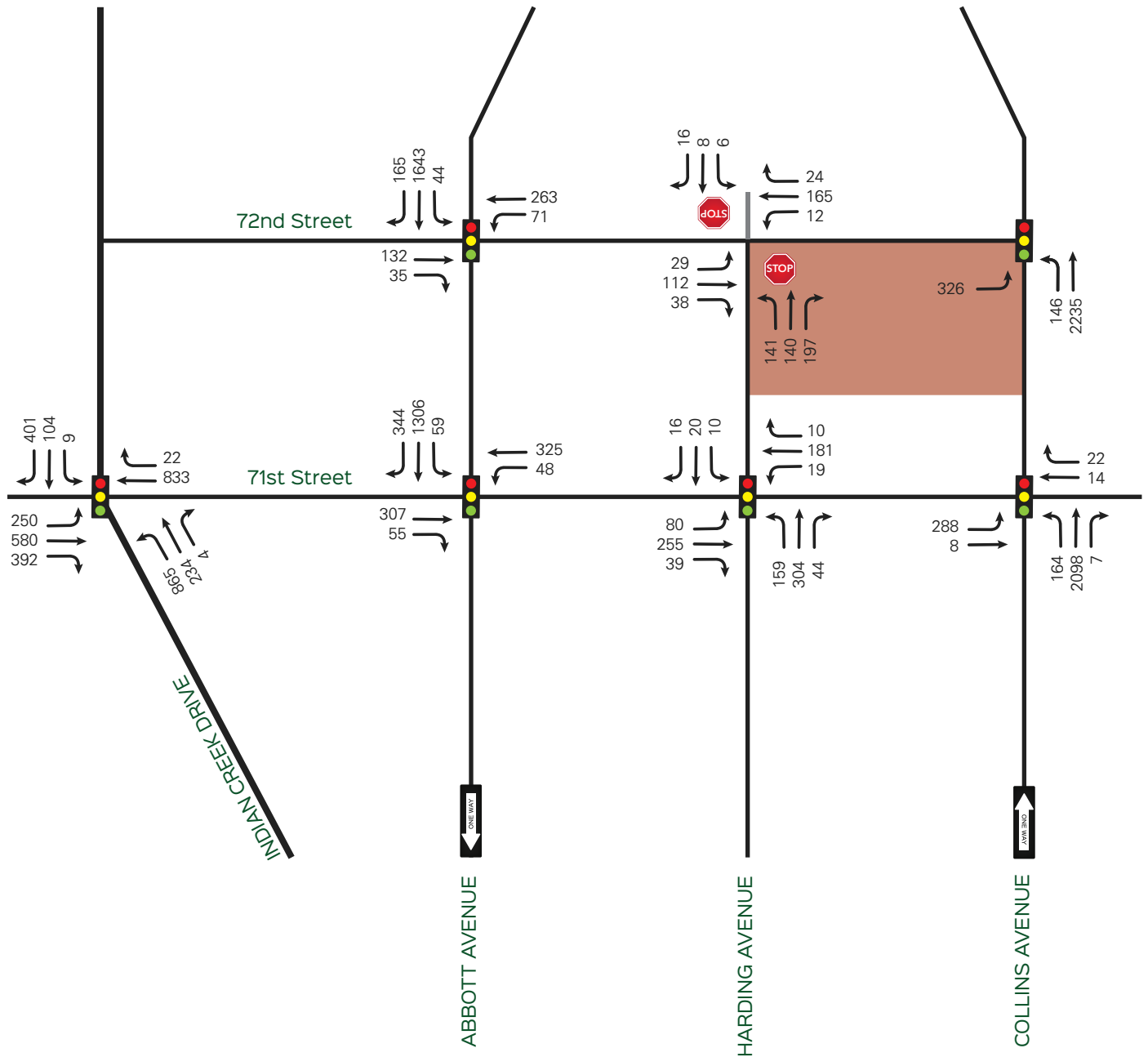
Within the study area, Indian Creek Drive is a minor arterial that runs north/south between 71<sup>st</sup> Street and Abbott Avenue. It is a two-way, four-lane undivided road. There is on-street parking provided on portion of the roadway. A bike lane is provided along the portion of roadway between 71<sup>st</sup> and 69<sup>th</sup> Street. Miami-Dade County has jurisdiction over Indian Creek Drive. The posted speed limit is 30 mph.

## **2.2 Traffic Counts**

Peak hour vehicle turning movement counts were collected on September 2<sup>nd</sup>, 2016 at the study intersections during the Friday PM peak period. A peak season conversion factor of 1.01 (for Miami-Dade County North) corresponding to the dates of the counts was used to adjust the raw traffic counts to peak season conditions. The weekly factor was obtained from FDOT. Existing volumes at the intersection are graphically portrayed in Exhibit 2.

## **2.3 Intersection Data**

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

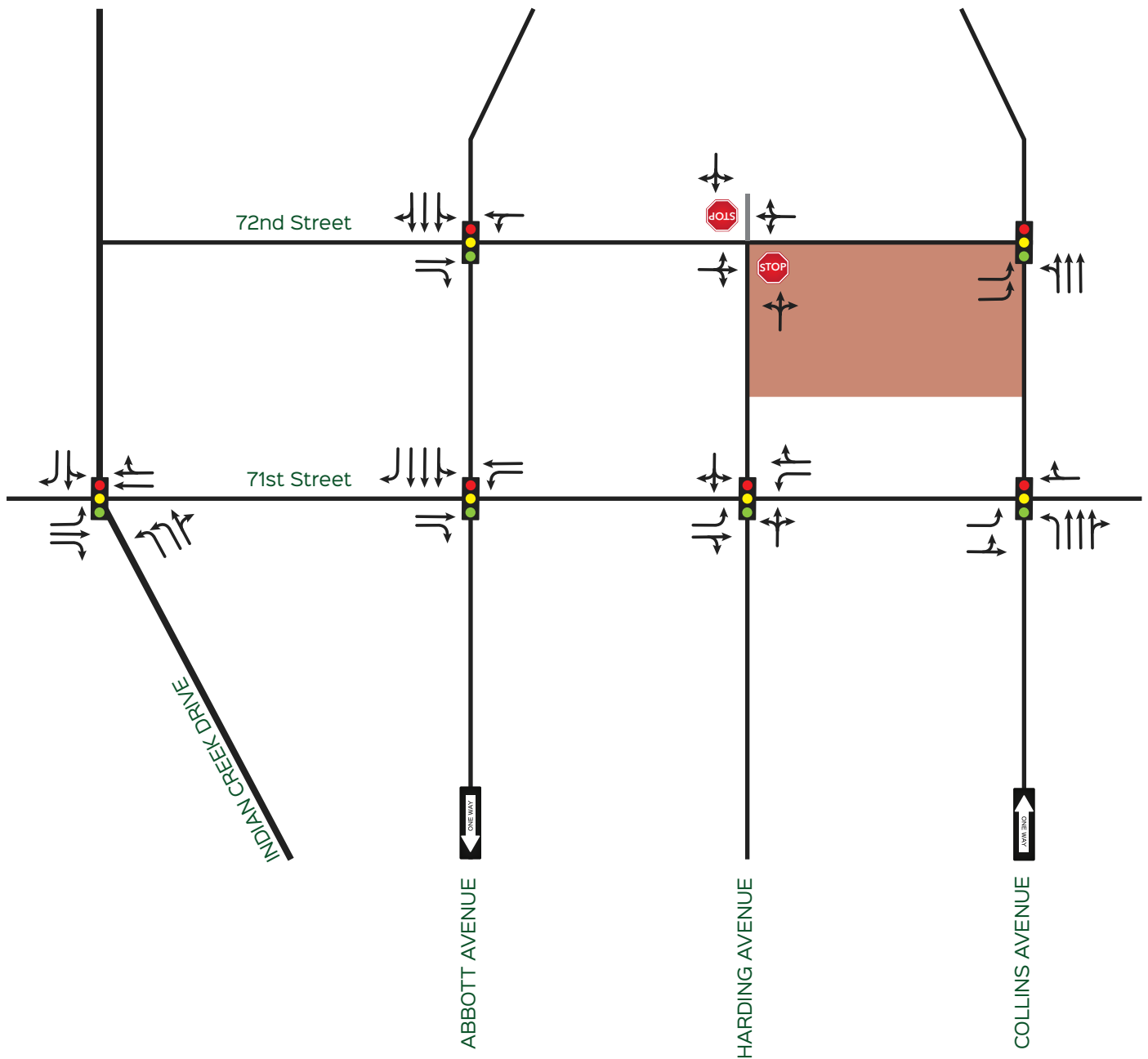


Project Location

## Exhibit 2

Existing PM Peak Hour Traffic Volumes





 Project Location

## Exhibit 3

### Existing Lane Configurations





## 2.4 Intersection Capacity Analysis

The Synchro Software, based on procedures of the *2010 Highway Capacity Manual*, was used to perform intersection capacity analysis at the analyzed intersections. Synchro is a macroscopic analysis and optimization software application that implements the intersection capacity utilization method for determining intersection capacity.

The analysis shows that the overall LOS for all intersections analyzed is currently within city's LOS standards. However, the northbound and southbound approaches at the intersection of Indian Creek Drive / 71<sup>st</sup> Street currently experiences delay. The northbound approach at the un-signalized intersection of Harding Avenue / 72<sup>nd</sup> Street is also experiencing minor delays. This is due to the fact that for un-signalized intersections the software tends to overestimate delay measurements for the minor approaches and does not account for gaps in traffic created by the upstream signalized intersections to allow the minor street traffic flow. If the minor approach delays do reach the software estimates, observed behavior shows drivers will find alternative routes. It can also be noted that both eastbound and westbound approaches during the afternoon peak at the intersection of Collins Avenue / 71<sup>st</sup> Street currently experiences delay. This may be due to the fact that the county (with the consent of the state) gives priority to vehicles travelling north through this area, and, therefore, accepting delays on minor cross-streets. Exhibit 4 shows the resulting LOS for the existing Friday PM peak hour conditions. Analysis worksheets are included in Appendix D.

**Exhibit 4**  
**Existing Intersection Capacity Analysis**  
**Friday PM Peak Hour Condition**

Intersection	Signalized/ Un-signalized	Direction	PM Peak LOS	Delay (Sec)	LOS Standard
Abbott Avenue / 72 <sup>nd</sup> Street	S	SB EB WB <i>Overall</i>	B C C <i>B</i>	13.9 26.0 34.0 <i>17.6</i>	D+20 D+20 D+20 <i>D+20</i>
Harding Avenue / 72 <sup>nd</sup> Street	U	NB SB	E B	44.5 13.4	D+20 D+20
Collins Avenue / 72 <sup>nd</sup> Street	S	NB	C	29.5	D+20
Abbott Avenue / 71 <sup>st</sup> Street	S	SB EB WB <i>Overall</i>	A D D <i>B</i>	2.0 38.4 47.0 <i>14.2</i>	D+20 D+20 D+20 <i>D+20</i>
Harding Avenue / 71 <sup>st</sup> Street	S	NB SB EB WB <i>Overall</i>	D B A B <i>C</i>	37.5 20.0 3.9 16.9 <i>21.9</i>	D+20 D+20 D+20 D+20 <i>D+20</i>
Collins Avenue / 71 <sup>st</sup> Street	S	NB EB WB <i>Overall</i>	A F F <i>B</i>	10.0 87.0 86.5 <i>19.8</i>	D+20 D+20 D+20 <i>D+20</i>
Indian Creek / 71 <sup>st</sup> Street	S	NB SB EB WB <i>Overall</i>	E E D D <i>E</i>	75.2 63.6 52.8 45.3 <i>59.2</i>	D+20 D+20 D+20 D+20 <i>D+20</i>

Source: David Plummer & Associates

### **3.0 PLANNED AND PROGRAMMED ROADWAY IMPROVEMENTS**

The 2016 Miami-Dade County Transportation Improvement Program (TIP) and the 2040 Long Range Transportation Program (LRTP) were reviewed to identify any programmed project within the limits of the study area established. Project within the roadway segments under study are listed below. These documents show no officially programmed or planned capacity improvement projects within the study area prior to completion of the proposed project.

## 4.0 FUTURE TRAFFIC CONDITIONS

### 4.1 Background Traffic and Committed Developments

Average Daily Traffic (ADT) counts published by FDOT were reviewed to determine historic growth in the area. This analysis indicated that the annual growth rate is 0.8% in the past five years. Historic growth rate documentation is included in Appendix C.

Five committed developments in the vicinity of the project site were considered for estimating future traffic volumes in this study: The Deauville Hotel, 6080 Collins Avenue, 6747 Collins Avenue, 6901 Collins Avenue, and 6800 Indian Creek Drive. Exhibit 5 provides a tabulation of PM peak hour trips generated by the committed development, along with the approved land uses. Committed development information is included in Appendix E.

**Exhibit 5**  
**Committed Development Trip Generation**

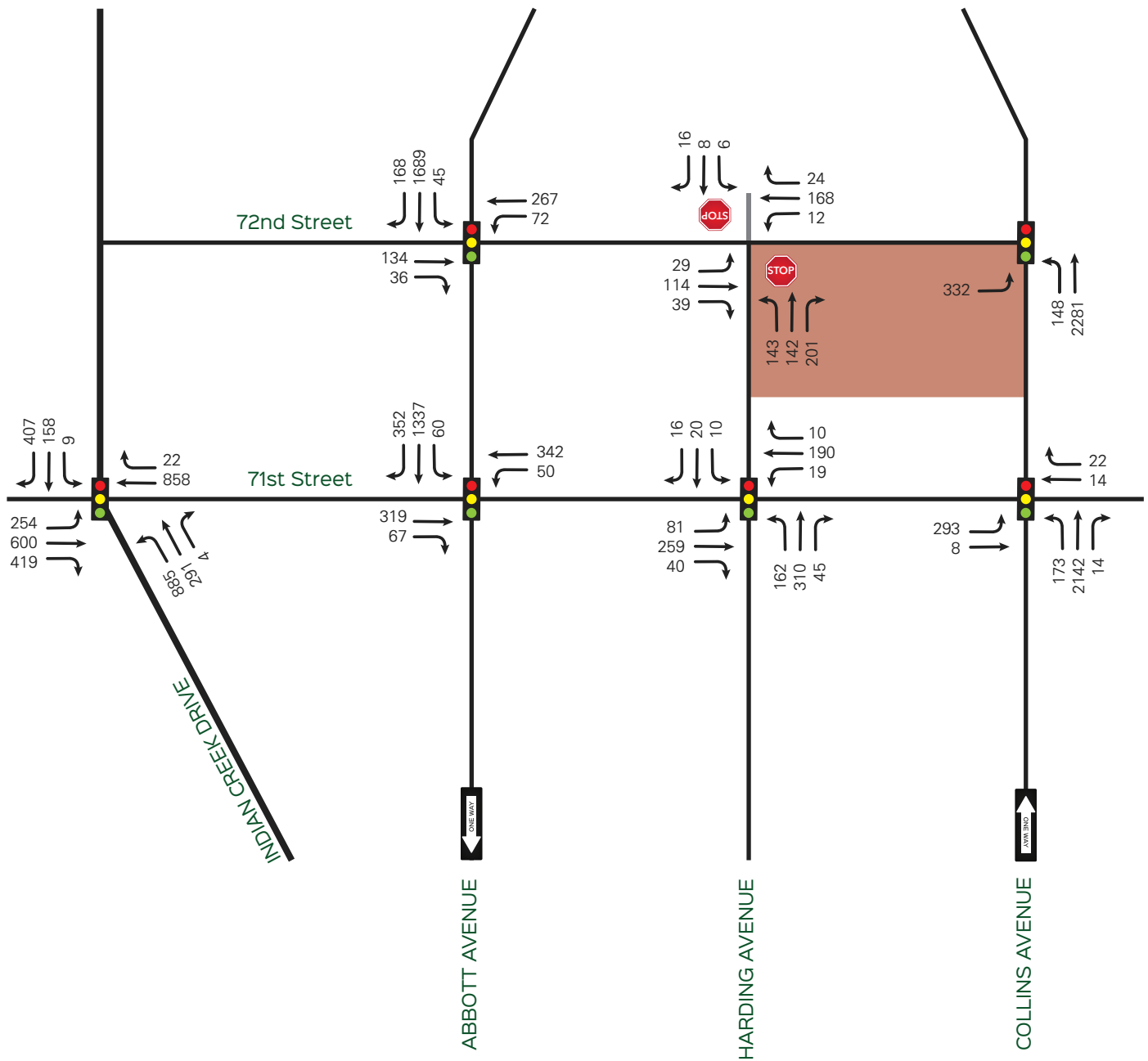
Project	ITE Land Use	Size/Units	PM Peak Hour Vehicle Trips		
			In	Out	Total
Deauville Hotel 6701 Collins Avenue	Hotel (Land Use 310)	968 Rooms	296	285	581
6080 Collins Avenue	Hotel (Land Use 310)	35 Rooms	11	10	21
	Residential Condo (Land Use 230)	35 DU	17	8	25
6747 Collins Avenue	Residential Condo (Land Use 230)	42 DU	20	10	30
6901 Collins Avenue	Residential Condo (Land Use 230)	22 DU	11	6	17
6800 Indian Creek Drive	Residential Condo (Land Use 230)	22 DU	15	7	22

\* Committed development documentation is included in Appendix E.

## 4.2 Future without Project Intersection Capacity Analysis

Future without project turning movement volumes were obtained by adding background traffic with committed development trips. Exhibits 6 show the projected Friday PM peak hour turning movement counts for future without project conditions. As with existing conditions, the overall LOS for all intersections analyzed is currently within the city's LOS standards. However, the northbound and southbound approaches at the intersection of Indian Creek Drive / 71<sup>st</sup> Street continues to experience delay. The results of the analysis also shows the un-signalized intersection of Harding Avenue / 72<sup>nd</sup> continue to experience delays. As previously mentioned this is due to the fact that for un-signalized intersections the software tends to overestimate delay measurements for the minor approaches and does not account for gaps in traffic created by the upstream signalized intersections to allow the minor street traffic flow. Both eastbound and westbound approaches of Collins Avenue / 71<sup>st</sup> Street also continues to experience delays. As previously stated, this condition may be due to the fact that the county (with the consent of the state) gives priority to vehicles travelling east/west through this area, and, therefore, accepting delays on minor cross-streets. Exhibit 7 shows the resulting LOS for the existing Friday PM peak hour conditions. Analysis worksheets are included in Appendix D.





Project Location

## Exhibit 6

Future Without Project PM Peak Hour Traffic Volumes

**Exhibit 7**  
**Future without Project Intersection Capacity Analysis**  
**Friday PM Peak Hour Condition**

Intersection	Signalized/ Un-signalized	Direction	PM Peak LOS	Delay (Sec)	LOS Standard
Abbott Avenue / 72 <sup>nd</sup> Street	S	SB EB WB <i>Overall</i>	B C C <i>B</i>	14.3 25.9 34.5 <i>18.0</i>	D+20 D+20 D+20 <i>D+20</i>
Harding Avenue / 72 <sup>nd</sup> Street	U	NB SB	E B	48.3 13.5	D+20 D+20
Collins Avenue / 72 <sup>nd</sup> Street	S	NB	C	30.2	D+20
Abbott Avenue / 71 <sup>st</sup> Street	S	SB EB WB <i>Overall</i>	A D D <i>B</i>	2.0 37.4 46.5 <i>14.3</i>	D+20 D+20 D+20 <i>D+20</i>
Harding Avenue / 71 <sup>st</sup> Street	S	NB SB EB WB <i>Overall</i>	D B A B <i>C</i>	37.8 19.7 4.2 17.3 <i>22.2</i>	D+20 D+20 D+20 D+20 <i>D+20</i>
Collins Avenue / 71 <sup>st</sup> Street	S	NB EB WB <i>Overall</i>	B F F <i>B</i>	10.3 87.1 86.5 <i>20.0</i>	D+20 D+20 D+20 <i>D+20</i>
Indian Creek / 71 <sup>st</sup> Street	S	NB SB EB WB <i>Overall</i>	E E D D <i>E</i>	79.5 70.4 53.6 46.1 <i>62.2</i>	D+20 D+20 D+20 D+20 <i>D+20</i>

Source: David Plummer & Associates

### 4.3 Project Trip Generation

Trip generation for the proposed project was estimated using the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 9<sup>th</sup> Edition and data collected at local sites with similar land uses within the study area. The ITE manual provides gross trip generation rates and/or equations by land use type. These rates and equations estimate vehicle trip ends at a free-standing site's driveways. The ITE trip generation worksheet is provided in Appendix F.

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

ITE research shows that a certain percent of retail trips are “*pass-by*” trips. These are described as trips “attracted from the traffic passing the site on an adjacent street”. These are not new trips, but trips already using the existing roadway network that stop at the proposed use and go back to their original path. Pass-by trips for this use were established based on guidelines provided in ITE's *Trip Generation Manual*, 9<sup>th</sup> Edition, Volume 1” User's Guide and Handbook. The average pass-by rate published by ITE for Shopping Center and the existing volume of the adjacent street were used to establish the pass-by component.

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



### Exhibit 8 Project Trip Generation Summary

Proposed ITE Land Use Designation <sup>1</sup>	Number of Units	PM Peak Hour Vehicle Trips		
		In	Out	Total
Hotel <i>Land Use Code: 310</i>	179 Units	55	52	107
		<i>Rate = 0.60 <math>\frac{trips}{unit}</math></i>		
		51% in	49% out	
Shopping Center <i>Land Use Code: 820</i>	18,652 SF	93	101	194
		<i>Ln(T) = 0.67Ln(X) + 3.31</i>		
		48% in	52% out	
Subtotal Gross Vehicle Trips		148	153	301
Internalization <sup>2</sup>	PM 4.7%	-7	-7	-14
Pass-By Trips <sup>3</sup> (Shopping Center)	PM 34%	-32	-32	-64
Transit/Pedestrian Trips	10%	-11	-11	-22
Net External Trips (Proposed)		98	103	201

<sup>1</sup>Based on ITE Trip Generation Manual, Ninth Edition

<sup>2</sup>Internal capture is based on ITE Trip Generation Manual User's Guide and Handbook, Ninth Edition,

<sup>3</sup>Pass by is based on ITE Trip Generation Manual User's Guide and Handbook, Ninth Edition,

**Exhibit 8- continued**  
**Existing Trip Generation Summary**

Existing ITE Land Use Designation <sup>1</sup>	Number of Units	PM Peak Hour Vehicle Trips		
		In	Out	Total
Shopping Center <i>Land Use Code: 820</i>	7,005 SF	48	53	101
		$Ln(T) = 0.67Ln(X) + 3.31$		
		48% in	52% out	
Subtotal Gross Vehicle Trips		48	53	101
Pass-By Trips <sup>2</sup> (Shopping Center)	PM 34%	-17	-17	-34
Transit/Pedestrian Trips	10%	-3	-4	-7
Net External Trips (Existing)		28	32	60

Proposed Uses	<b>98</b>	<b>103</b>	<b>201</b>
Existing Uses	-28	-32	-60
<b>Net New External Trips</b>	<b>70</b>	<b>71</b>	<b>141</b>

<sup>1</sup> Based on ITE Trip Generation Manual, Ninth Edition

<sup>2</sup> Pass by is based on ITE Trip Generation Manual User's Guide and Handbook, Ninth Edition,

## 4.4 Project Trip Assignment

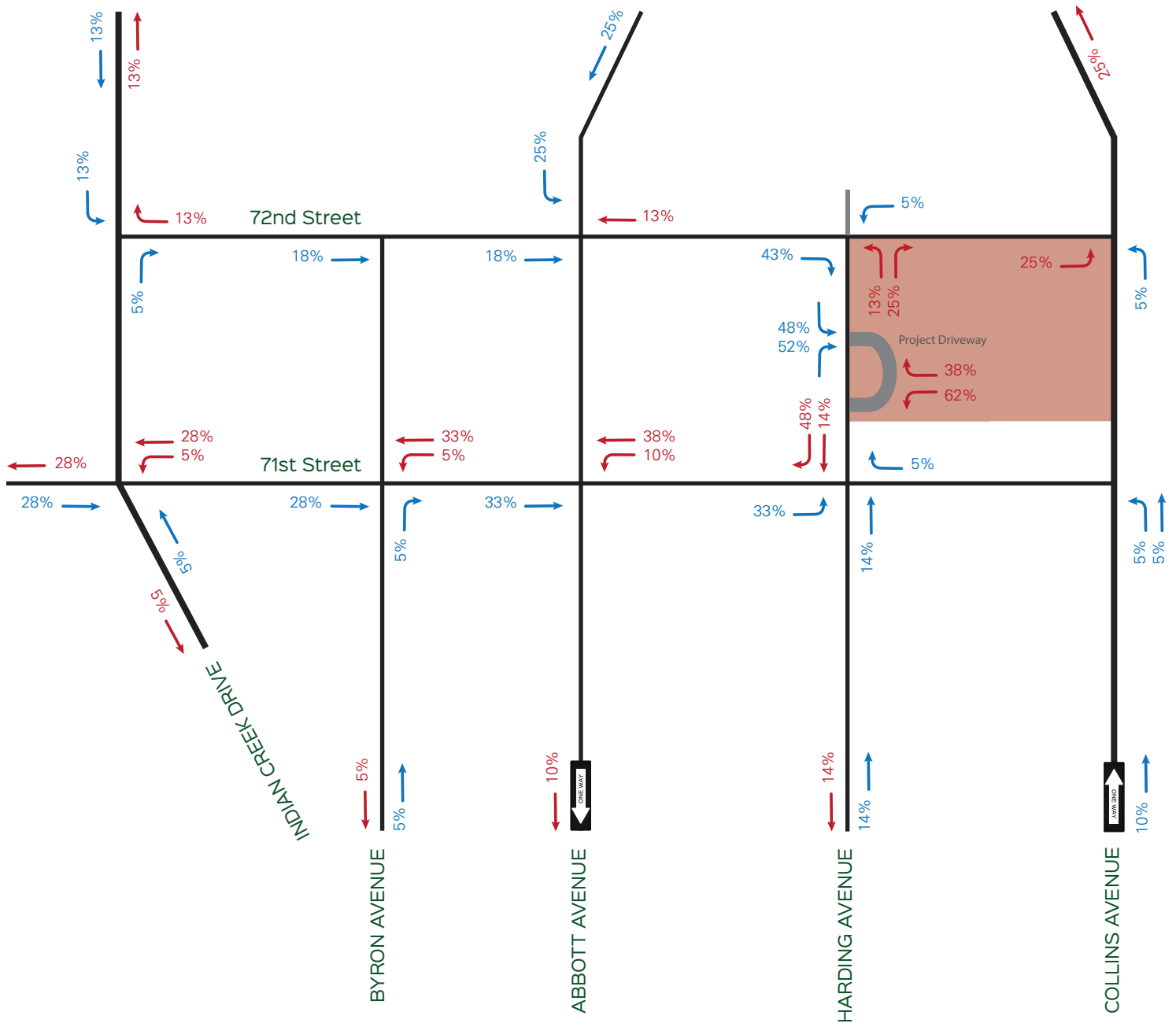
Project traffic was distributed and assigned to the study area using the Cardinal Distribution for TAZ 622 shown in Exhibit 9. The Cardinal Distribution gives a generalized distribution of trips from a TAZ to other parts of Miami-Dade County (see Appendix C). For estimating trip distribution for the project traffic, consideration was given to conditions such as the roadway network accessed by the project traffic, roadways available to travel in the desired direction, and attractiveness of traveling on a specific roadway.

**Exhibit 9**  
**Cardinal Distribution**  
**(TAZ 622)**

Direction	Distribution
NNE	10.95%
ENE	0.00%
ESE	0.00%
SSE	8.15%
SSW	20.60%
WSW	27.59%
WNW	10.99%
NNW	21.81%
Total	100.00%

Source: Long Range Transportation Plan

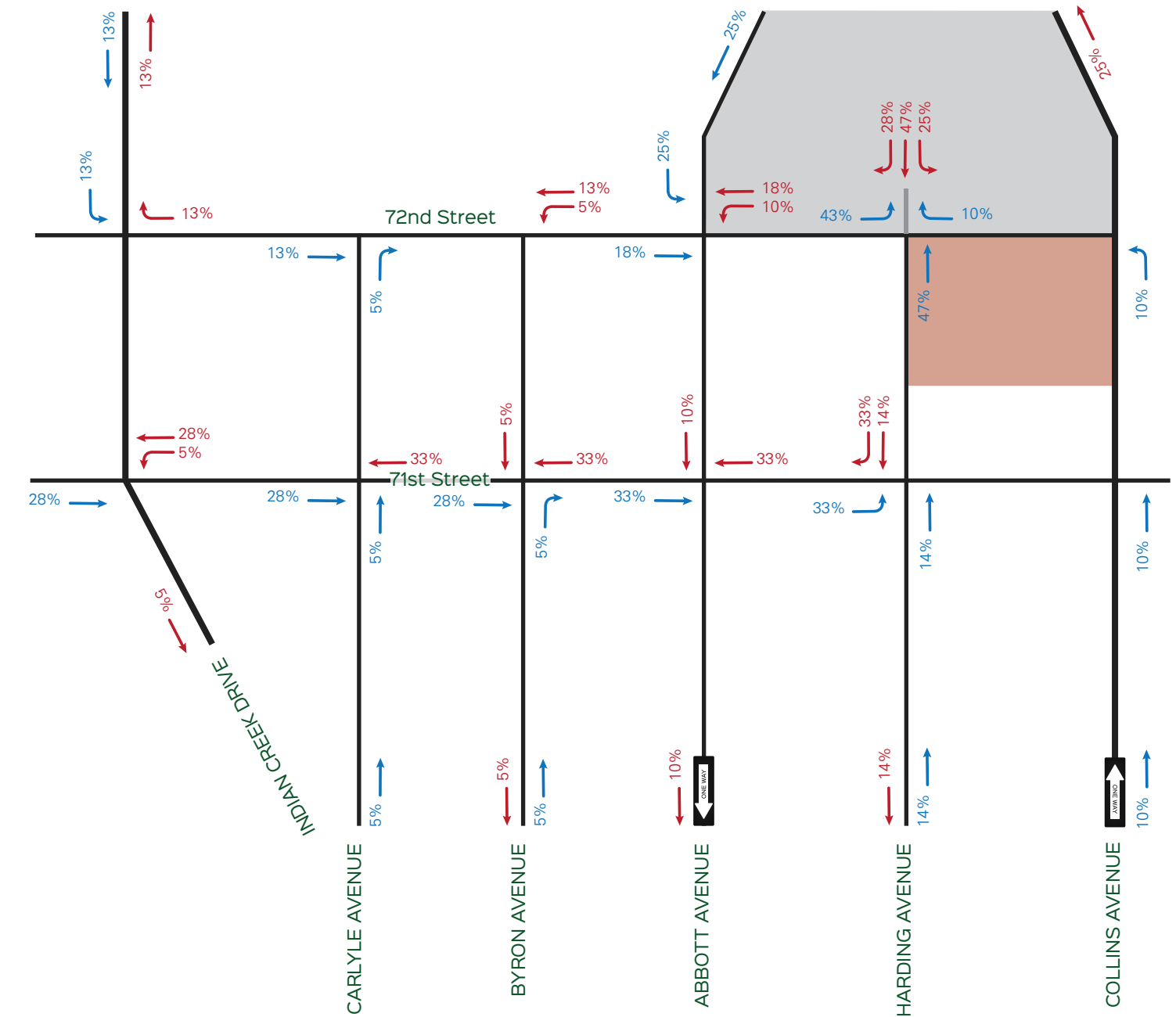
It should be noted that all of the hotel component will use the proposed garage (all valet). The retail component and existing restaurant will have access to the public parking lot located directly north of the site. In order to assign each component individually, two separate project trip distributions were completed. Exhibit 10 and 11 shows the project trip distribution for the hotel and retail component. Exhibit 12 and 13 shows the project trip assignment for the hotel and retail component.



## Exhibit 10 (Hotel)

### Project Trip Distribution



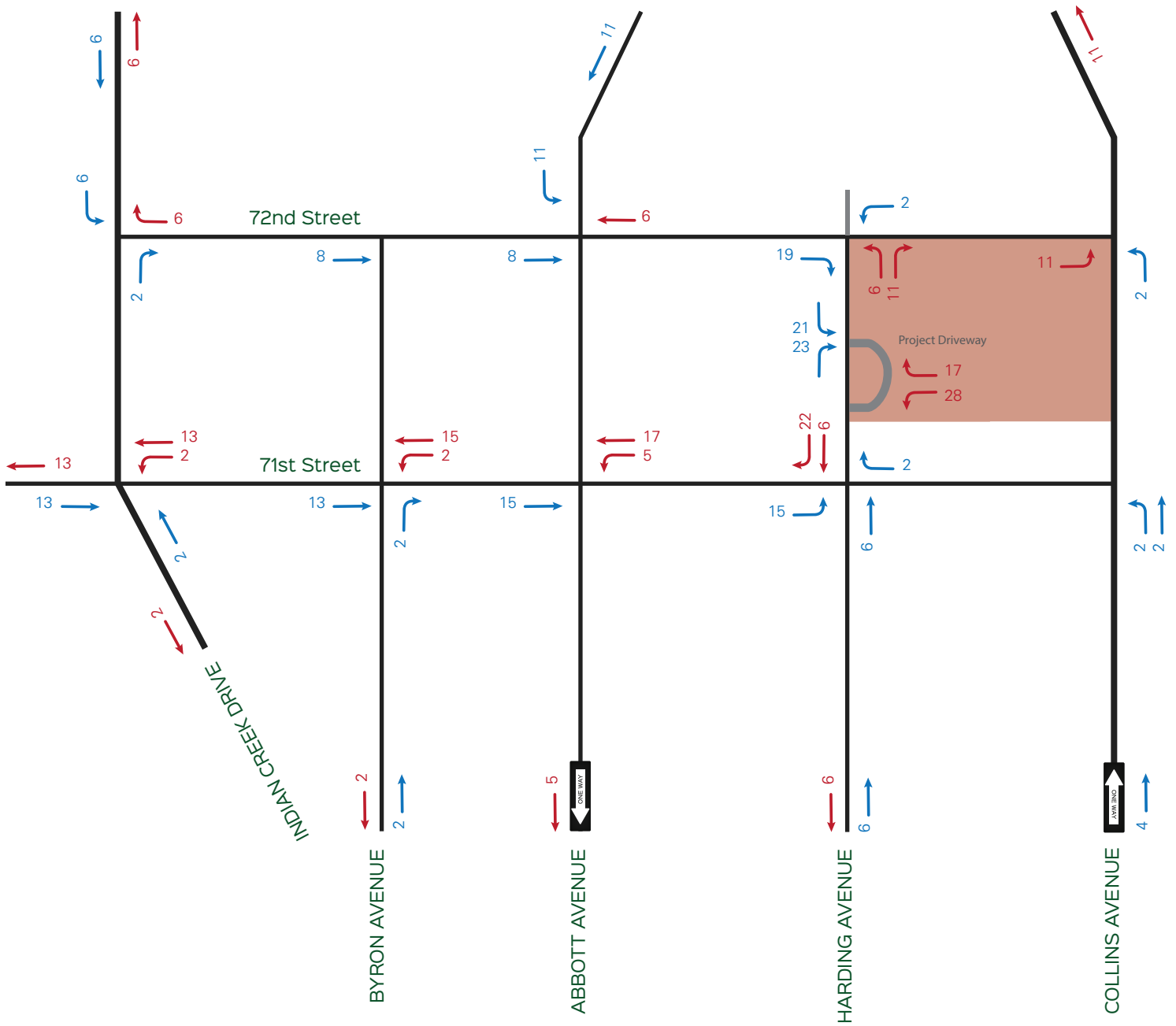


- % IN
- % OUT
- Off-Site Parking Lot
- Project Location

## Exhibit 11 (Commercial)

### Project Trip Distribution



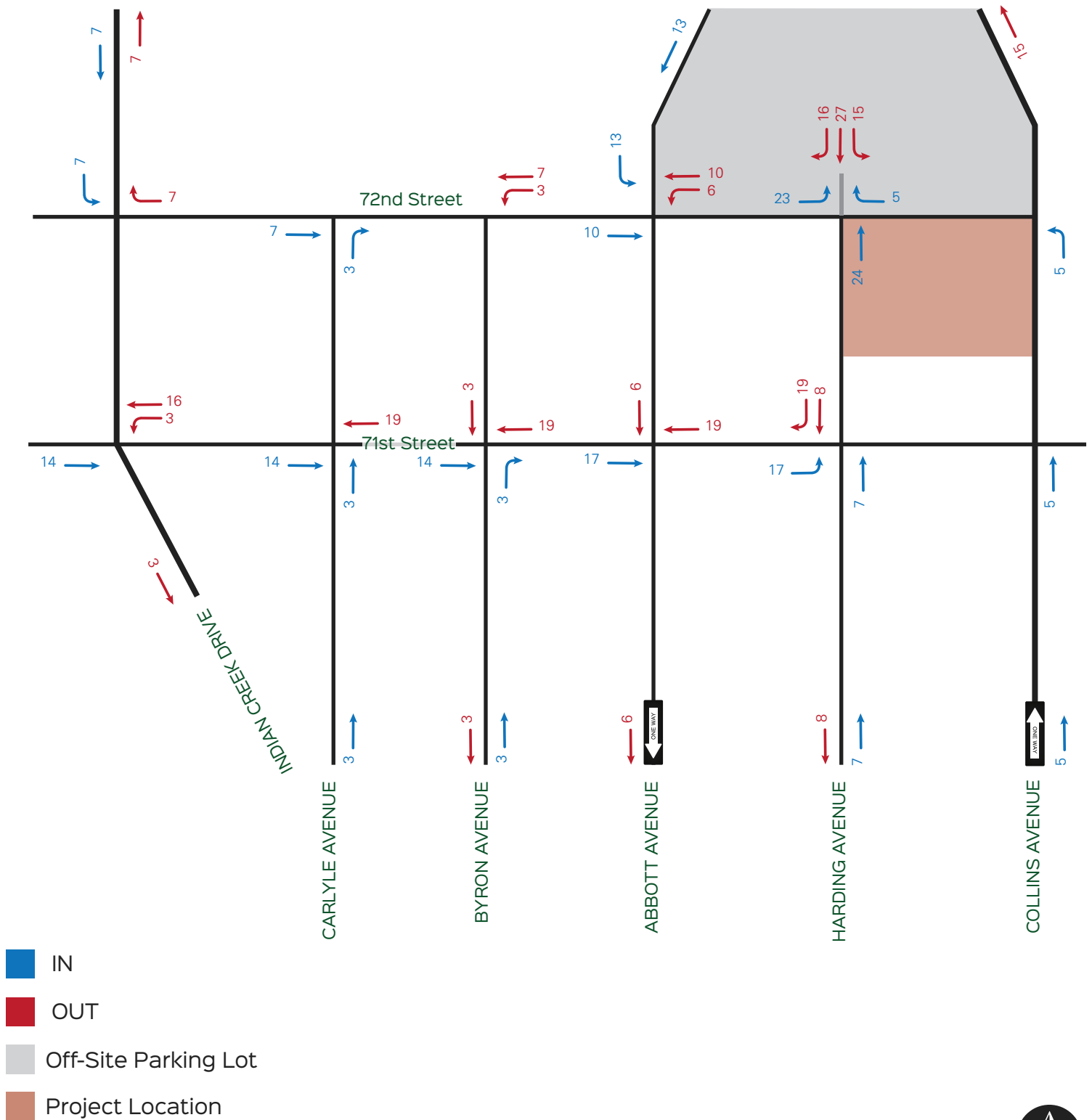


- IN
- OUT
- Project Location

## Exhibit 12 (Hotel)

### Project Trip Assignment





## Exhibit 13 (Commercial)

### Project Trip Assignment

## 4.5 Future with Project Intersection Capacity Analysis

Future background traffic from the previous section and traffic projections for the project were combined to obtain future traffic with project at the analyzed intersections. Exhibit 14 shows the total future with project conditions projected turning movement volumes.

As with existing and future without project conditions the overall LOS for all intersections analyzed is currently within the city's LOS standards. However, the northbound and southbound approaches at the intersection of Indian Creek Drive / 71<sup>st</sup> Street continues to experience delay. The analysis also shows the un-signalized intersection of Harding Avenue / 72<sup>nd</sup> continue to experience delays. This is due to the fact that for un-signalized intersections the software tends to overestimate delay measurements for the minor approaches and does not account for gaps in traffic created by the upstream signalized intersections to allow the minor street traffic flow. Both eastbound and westbound approaches of Collins Avenue / 71<sup>st</sup> Street also continues to experience delays due to the fact that the county (with the consent of the state) gives priority to vehicles travelling east/west through this area, and, therefore, accepting delays on minor cross-streets. It should be noted that this is an existing condition and the project represents a 1% of the total projected intersection volume during the afternoon peak hours. However, in order to improve the operations of this intersection, the project is recommending the following improvements:

- Indian Creek Drive and 71<sup>st</sup> Street intersection – adjust signal timing to provide additional green time to the northbound and eastbound left movements.

Exhibit 15 shows the resulting LOS the Friday peak hour conditions for future with project. Exhibit 16 shows the resulting LOS for the intersection with improvements.

The project driveway was analyzed and results show adequate operations. Intersection capacity worksheets with the recommended improvement are included in Appendix D. Exhibit 17 shows the approximate existing storage length and the projected 95<sup>th</sup> percentile queue at all the left turn lanes for the Friday PM peak hour conditions.

## Exhibit 14: Future with Project PM Peak Hour Traffic Volumes

**Exhibit 15**  
**Future with Project Intersection Capacity Analysis**  
**Friday PM Peak Hour Condition**

Intersection	Signalized/ Un-signalized	Direction	PM Peak LOS	Delay (Sec)	LOS Standard
Abbott Avenue / 72 <sup>nd</sup> Street	S	SB EB WB <i>Overall</i>	B C D <i>B</i>	14.8 25.8 36.9 <i>18.8</i>	D+20 D+20 D+20 <i>D+20</i>
Harding Avenue / 72 <sup>nd</sup> Street	U	NB SB	F C	91.9 19.9	D+20 D+20
Collins Avenue / 72 <sup>nd</sup> Street	S	NB	C	30.3	D+20
Abbott Avenue / 71 <sup>st</sup> Street	S	SB EB WB <i>Overall</i>	A D D <i>B</i>	2.2 38.3 44.8 <i>14.9</i>	D+20 D+20 D+20 <i>D+20</i>
Harding Avenue / 71 <sup>st</sup> Street	S	NB SB EB WB <i>Overall</i>	D B A B <i>C</i>	37.9 19.8 5.0 18.2 <i>22.4</i>	D+20 D+20 D+20 D+20 <i>D+20</i>
Collins Avenue / 71 <sup>st</sup> Street	S	NB EB WB <i>Overall</i>	B F F <i>B</i>	10.3 86.4 86.5 <i>19.9</i>	D+20 D+20 D+20 <i>D+20</i>
Indian Creek / 71 <sup>st</sup> Street	S	NB SB EB WB <i>Overall</i>	E E D D <i>E</i>	79.5 70.4 54.5 46.7 <i>62.5</i>	D+20 D+20 D+20 D+20 <i>D+20</i>
S Project Driveway / Harding Avenue	U	WB	B	12.3	NA

Source: David Plummer & Associates



**Exhibit 16**  
**Future with Project with Improvements Intersection Capacity Analysis**  
**PM Peak Hour Condition**

Intersection	Signalized/ Un-signalized	Direction	PM Peak LOS	Delay (Sec)
Indian Creek / 71 <sup>st</sup> Street	S	NB	E	72.9
		SB	E	66.7
		EB	D	45.0
		WB	D	51.7
		<b>Overall</b>	<b>E</b>	<b>58.0</b>

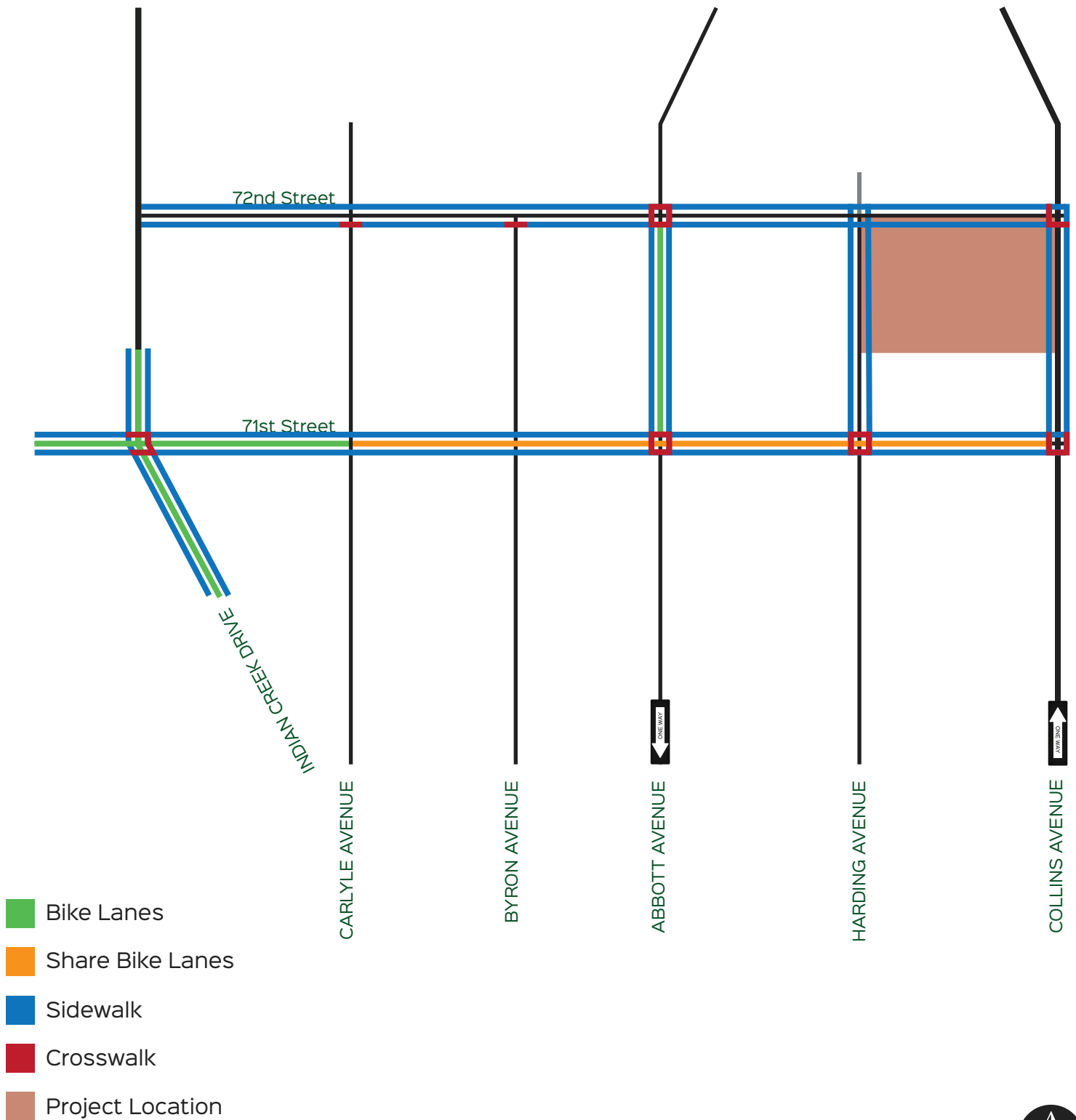
**Exhibit 17**  
**Projected Queues and Existing Storage Length**

Intersection	Direction	95 <sup>th</sup> Percentile Back of Queue (Feet)				Existing Storage Length (Feet)
		Existing	Future without Project	Future with Project	Future with Improvements	
		PM Peak	PM Peak	PM Peak	PM Peak	
Abbott Avenue / 72 <sup>nd</sup> Street	EBL	26	29	29	-	70
Collins Avenue / 72 <sup>nd</sup> Avenue	NBL	1,063	1,087	1,089	-	70
Abbott Avenue / 71 <sup>st</sup> Street	SBL	0	0	1	-	200
	EBL	36	44	43	-	90
	WBL	48	50	51	-	60
Harding Avenue / 71 <sup>st</sup> Street	EBL	44	44	59	-	50
	WBL	11	11	11	-	65
Collins Avenue / 71 <sup>st</sup> Street	NBL	96	102	103	-	150
	EBL	214	215	214	-	100
Indian Creek / 71 <sup>st</sup> Street	NBL	561	581	581	570	370
	SBR	470	483	483	463	60
	EBL	456	466	470	446	160
	WBL	33	76	76	76	180

## 5.0 CIRCULATION PLAN

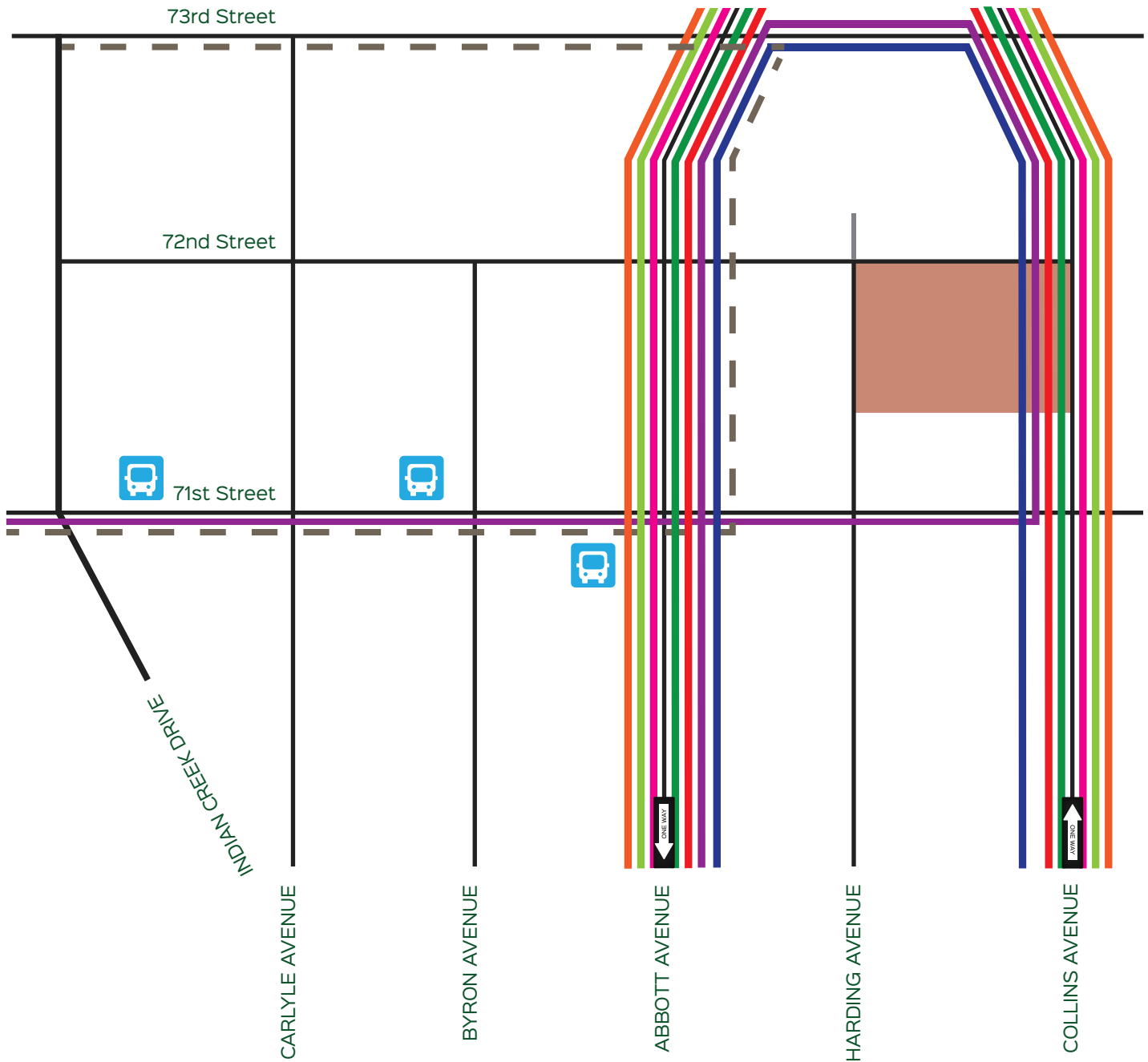
As mentioned before, access to the project will be via two driveways (one inbound only, one inbound/outbound) creating a circular driveway on Harding Avenue. The proposed project will provide a total of 141 parking spaces (including 6 standard and 135 mechanical lift) with two car elevators. The hotel component will use the proposed garage, which will operate as all valet. The retail component and existing restaurant will use the public parking lot located directly north of the site. Loading and trash pickup will enter and exit the proposed site through the southern driveway and can be seen in Appendix H. The project is located in an area that is conducive for pedestrian and bicycle activities. 72<sup>nd</sup> Street, 71<sup>st</sup> Street, Abbott Avenue, Harding Avenue, and Collins Avenue provide sidewalks on both sides of the road. 71<sup>st</sup> Street to Carlye Avenue provides a shared bike lane on both sides of the road, where it then has its own bike lane to Indian Creek Drive. All intersections adjacent to the site, with the exception of Harding Avenue / 72<sup>nd</sup> Street, have clearly marked crosswalks. Signalized intersection provides pedestrian signals. No Citi bikes were found near the area of the project. A mobility plan was prepared for the site (see Exhibit 18). The plan shows the project location, bike lanes, shared bike lanes, sidewalk connections, and pedestrian crosswalks.

The area surrounding the project is served by transit. There are seven bus routes that traverse that area of Miami Beach (Routes: 79, 108, 112, 115, 117, 119, and 120). The closest bus stops to the project site are located on the intersection of Abbott Avenue and 71<sup>ST</sup> Street. Exhibit 19 shows the available bus routes and bus stops in the area. Appendix G shows the bus route maps and schedules.



## Exhibit 18

### Circulation Plan - Mobility



Bus Stop



Project Location

## Exhibit 19

### Circulation Plan - Bus Routes

Bus Routes	
<span style="color: orange;">—</span>	Bus Route 119 (S)
<span style="color: green;">—</span>	Bus Route 108 (H)
<span style="color: magenta;">—</span>	Bus Route 120
<span style="color: blue;">—</span>	Bus Route 117
<span style="color: red;">—</span>	Bus Route 115
<span style="color: purple;">—</span>	Bus Route 79
<span style="color: darkblue;">—</span>	Bus Route 112 (L)
<span style="color: brown;">—</span>	Trolley Route



**NORTH**  
MAP NOT TO SCALE

## 6.0 QUEUING ANALYSIS

### 6.1 Valet Drop-Off / Pick-Up Area

The queuing analysis for the valet drop off/ pick up area was performed based on the methodology outlined in the *Institute of Transportation Engineers (ITE) Transportation and Land Development*. The analysis was performed to determine the number of valet parking attendants required during the peak period so that the queue does not extend past the entrance (95% confidence level analysis). The potential queue at the drop-off area of the valet operations was calculated based on the peak hour traffic published by the Institute of Transportation Engineers (ITE) trip generation rates and/or equations for the proposed development plan. It should be noted that all of the hotel component and a suggested 20% of the retail component will have access to the proposed garage (all valet) during the PM peak hour. The remaining retail component and existing restaurant will use the public parking lot located directly north of the site. Exhibit 18 provides the total project trip generation for the drop-off / pick-up area during peak hour conditions (worst case scenario).

**Exhibit 20**  
**Demand at Valet Drop-off / Pick-up Area**

Proposed ITE Land Use Designation <sup>1</sup>	PM Peak Hour Vehicle Trips			Usual of Garage	PM Peak Hour Vehicle Trips		
	In	Out	Total		In	Out	Total
Hotel (Land Use 310)	45	45	90	100%	45	45	90
Retail (Land Use 826 )	53	58	101	20%	11	12	23
<b>Valet Demand</b>					<b>56</b>	<b>57</b>	<b>113</b>

Source: ITE Trip Generation Manual, 9<sup>th</sup> Edition



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

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

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

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

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

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

## 6.2 Valet Operations

Parking for the proposed garage will be all-valet. As previously mentioned, the project is providing 141 parking spaces (6 standard, 135 tandem). Since the distance from the valet drop/off pick up area differs for inbound and outbound trips, a weighted average was taken of the inbound /outbound valet processing time. The weighted average was based on the inbound/outbound trip distribution, which is 49% inbound and 51% outbound. In order to calculate the number of valet attendants required in a worst case scenario, valet operations were split into the following three processes:

1. The amount of time required for the valet attendant to process a vehicle, drive it to the car elevator, take the car elevator from the ground floor to the parking level, station it in front of the elevator (leaving the vehicle for the next process), take the stairs from the parking level to the ground floor, and walk back to the valet area.
2. The amount of time required for the elevator to arrive at the parking level and back to the ground floor. In order to make sure an elevator will always be available, the process will require one valet attendant per elevator. Since the project provides two car elevators the analyses assumes two service positions.
3. The amount of time required for a valet attendant to drive a vehicle from the car stationed in front of the car elevator at the parking level to the farthest parking space, wait for the mechanical lift to come to its most suspended position, maneuver the vehicle into the parking space, and walk back to the car elevator.

The processing rates were calculated by adding the time it will take a valet attendant to process the vehicles (**processing time**), the time it will take him to park or retrieve a vehicle (**driving time**), the time it will take the car elevator from ground floor to parking level (**car elevator time**), the time it will take him to park or retrieve a vehicle (**mechanical lift processing time** and **park processing time**), and the time it will take him to walk to/from the parking area (**walking time**). A processing time of 51 seconds per vehicle was used in the analysis. This information is based on data collected on a hotel in Miami Beach included in Appendix H. The driving time for the valet attendant was

calculated on a conservative speed of 10 mph, and the walking time for the valet attendant was calculated on a jogging speed of 6ft/sec.

The total processing time for the car elevator was obtained by adding the time it takes for the car elevator to open and close its doors (**Door Open / Close time**), the time it will take the car elevator to travel from the ground floor to the parking level, obtained by using the contract speed of the device (200 ft/min) (see Appendix H) and multiplying the estimated height of 2 floors (25'), plus 1.5 seconds for an acceleration unknown profile system (**Flight time**), and the time associated with **start delay** and the **leveling** of the car elevator. For a conservative analysis, this time was doubled to assume that the car elevator will return to the ground level and to ensure it will always be available for the next vehicle to load. The analysis assumes 25% of the overall demand occurs simultaneously, meaning that when an inbound vehicle travels from the ground level to the parking level an outbound vehicle will return inside the car elevator to the ground level. The rest of the time the car elevator is assumed to return to ground floor empty.

The **mechanical lift time** has a process time of 30 seconds per platform lift. This timing was doubled to assume that every vehicle would need to wait for the lift to come from the most suspended position in order to load. Since the third process time differs for tandem and standard parking, a weighted average of the tandem and standard parking space valet processing time was used. The weighted average was based on the parking space distribution, which is 96% tandem and 4% standard. Valet processing rate for Process 1, 2, and 3 can be seen in Exhibits 21, 22, and 23 respectively.

**Exhibit 21**  
**Valet Processing Rate - Process 1**  
**Valet Drop-off / Pick-up**

**Valet Time (Inbound)**

<i>Processing time:</i>	$51 \text{ sec} / 60 \text{ sec} / 1 \text{ min} = 0.85 \text{ min}$
<i>Driving time:</i>	$168 \text{ ft} * 1 \text{ mile} / 5280 \text{ ft} * 1 \text{ hr} / 10 \text{ miles} * 60 \text{ min} / \text{hr} = 0.19 \text{ min}$
<i>Car Elevator time:</i>	$17.5 \text{ sec} * 1 \text{ min} / 60 \text{ sec} = 0.29 \text{ min}$
<i>Walking time:</i>	$179 \text{ ft} / 6 \text{ ft} / \text{sec} / 60 \text{ sec} / \text{min} = 0.50 \text{ min}$
<b>Total</b>	<b>= <u>1.83 min</u></b>

**Valet Time (Outbound)**

<i>Processing time:</i>	$51 \text{ sec} / 60 \text{ sec} / 1 \text{ min} = 0.85 \text{ min}$
<i>Driving time:</i>	$283 \text{ ft} * 1 \text{ mile} / 5280 \text{ ft} * 1 \text{ hr} / 10 \text{ miles} * 60 \text{ min} / \text{hr} = 0.32 \text{ min}$
<i>Car Elevator time:</i>	$17.5 \text{ sec} * 1 \text{ min} / 60 \text{ sec} = 0.29 \text{ min}$
<i>Walking time:</i>	$179 \text{ ft} / 6 \text{ ft} / \text{sec} / 60 \text{ sec} / \text{min} = 0.50 \text{ min}$
<b>Total</b>	<b>= <u>1.96 min</u></b>

**Weighted Valet Time**

<i>49% Inbound:</i>	$0.49 * 1.83 \text{ min} = 0.90 \text{ min}$
<i>51% Outbound:</i>	$0.51 * 1.96 \text{ min} = 1.00 \text{ min}$
<b>Total</b>	<b>= <u>1.90 min</u></b>

**Exhibit 22**  
**Valet Processing Rate - Process 2**  
**Car Elevator**

**Car Elevator Time (Inbound/ Outbound)**

<i>Door Open / Close time:</i>	$15 \text{ sec} * 1 \text{ min} / 60 \text{ sec} = 0.25 \text{ min}$
<i>Flight time:</i>	$18 \text{ sec} * 1 \text{ min} / 60 \text{ sec} = 0.30 \text{ min}$
<i>Start Delay:</i>	$1 \text{ sec} * 1 \text{ min} / 60 \text{ sec} = 0.017 \text{ min}$
<i>Leveling time:</i>	$1 \text{ sec} * 1 \text{ min} / 60 \text{ sec} = 0.017 \text{ min}$
<b>Total</b>	<b>= <u>0.58 min</u></b>

**Tandem Weighted Valet Time**

<i>49% Inbound:</i>	$0.49 * 0.58 \text{ min} = 0.29 \text{ min}$
<i>51% Outbound:</i>	$0.51 * 0.58 \text{ min} = 0.30 \text{ min}$
<b>Total</b>	<b>= <u>0.59 min</u></b>

**Exhibit 23**  
**Valet Processing Rate - Process 3**  
**Tandem / Mechanical / Standard Parking**

**Tandem Valet Time (Inbound)**

<i><b>Driving time:</b></i>	$427 \text{ ft} * 1 \text{ mile} / 5280 \text{ ft} * 1 \text{ hr} / 10 \text{ miles} * 60 \text{ min} / \text{hr} = \mathbf{0.49 \text{ min}}$
<i><b>Mechanical Lift Processing time:</b></i>	$30 \text{ sec} / \text{lift} * 3 \text{ lift} * 1 \text{ min} / 60 \text{ sec} = \mathbf{1.5 \text{ min}}$
<i><b>Park Processing time:</b></i>	$\mathbf{1 \text{ min}}$
<i><b>Walking time:</b></i>	$155 \text{ ft} / 6 \text{ ft} / \text{sec} / 60 \text{ sec} / \text{min} = \mathbf{0.43 \text{ min}}$
<b>Total</b>	<b>= <u>3.42 min</u></b>

**Tandem Valet Time (Outbound)**

<i><b>Driving time:</b></i>	$197 \text{ ft} * 1 \text{ mile} / 5280 \text{ ft} * 1 \text{ hr} / 10 \text{ miles} * 60 \text{ min} / \text{hr} = \mathbf{0.22 \text{ min}}$
<i><b>Mechanical Lift Processing time:</b></i>	$30 \text{ sec} / \text{lift} * 3 \text{ lift} * 1 \text{ min} / 60 \text{ sec} = \mathbf{1.5 \text{ min}}$
<i><b>Park Processing time:</b></i>	$\mathbf{1 \text{ min}}$
<i><b>Walking time:</b></i>	$197 \text{ ft} / 6 \text{ ft} / \text{sec} / 60 \text{ sec} / \text{min} = \mathbf{0.55 \text{ min}}$
<b>Total</b>	<b>= <u>3.27 min</u></b>

**Tandem Weighted Valet Time**

<i><b>49% Inbound:</b></i>	$0.49 * 3.42 \text{ min} = \mathbf{1.67 \text{ min}}$
<i><b>51% Outbound:</b></i>	$0.51 * 3.27 \text{ min} = \mathbf{1.67 \text{ min}}$
<b>Total</b>	<b>= <u>3.34 min</u></b>

**Exhibit 23- Continued**  
**Valet Processing Rate - Process 3**  
**Tandem / Mechanical / Standard Parking**

**Standard Valet Time (Inbound)**

***Driving time:***  $427 \text{ ft} * 1 \text{ mile} / 5280 \text{ ft} * 1 \text{ hr} / 10 \text{ miles} * 60 \text{ min} / \text{hr} = \mathbf{0.49 \text{ min}}$

***Park Processing time:***  $\mathbf{0.25 \text{ min}}$

***Walking time:***  $155 \text{ ft} / 6 \text{ ft} / \text{sec} / 60 \text{ sec} / \text{min} = \mathbf{0.43 \text{ min}}$

**Total**  $= \mathbf{\underline{1.17 \text{ min}}}$

**Standard Valet Time (Outbound)**

***Driving time:***  $197 \text{ ft} * 1 \text{ mile} / 5280 \text{ ft} * 1 \text{ hr} / 10 \text{ miles} * 60 \text{ min} / \text{hr} = \mathbf{0.22 \text{ min}}$

***Park Processing time:***  $\mathbf{0.50 \text{ min}}$

***Walking time:***  $197 \text{ ft} / 6 \text{ ft} / \text{sec} / 60 \text{ sec} / \text{min} = \mathbf{0.55 \text{ min}}$

**Total**  $= \mathbf{\underline{1.27 \text{ min}}}$

**Standard Weighted Valet Time**

***49% Inbound:***  $0.49 * 1.17 \text{ min} = \mathbf{0.57 \text{ min}}$

***51% Outbound:***  $0.51 * 1.27 \text{ min} = \mathbf{0.65 \text{ min}}$

**Total**  $= \mathbf{\underline{1.22 \text{ min}}}$

**Weighted Tandem / Standard Parking Valet Processing Rate**

**Weighted Valet Time**

***96% Tandem parking:***  $0.96 * 3.34 \text{ min} = \mathbf{3.21 \text{ min}}$

***4% Standard parking:***  $0.04 * 1.22 \text{ min} = \mathbf{0.05 \text{ min}}$

**Total**  $= \mathbf{\underline{3.26 \text{ min}}}$



An iterative approach was used to determine the minimum number of valet attendants required during the PM peak hour to serve the both the entering and exiting vehicles that will ensure that the average valet queue will not extend past the property entrance. Exhibit 24 shows the calculations for the inbound /outbound valet (drop-off /pick-up area) during the PM peak hour for the three processes. The site plan is included as an attachment.

## **Exhibit 24** **Queueing Calculations**

### **Process 1** **Valet Drop-off / Pick-up Queueing Calculations**

$$Q = \text{Processing rate} = \frac{60 \text{ min/hr}}{1.90 \text{ min/process}} = 31.58 \text{ process/hr}$$

$$q = \text{Demand Rate} = 113 \frac{\text{veh}}{\text{hr}}$$

$$N = \text{Service Positions} = 6 \text{ attendants}$$

$$\rho = \text{Utilization factor} = \frac{q}{(NQ)} = \frac{113 \text{ veh/hr}}{6 \times 31.58 \text{ process/hr}} = 0.5963$$

$$Q_m = \text{Table Value} = 0.1930$$

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

$$M = \frac{\ln P(x>M) - \ln(Q_m)}{\ln(\rho)} - 1 = \frac{\ln(0.05) - \ln(0.1930)}{\ln(0.5963)} - 1 = 1.61, \text{ say 2 vehicles}$$

## Process 2 Car Elevator Queue Calculations

$$Q = \text{Processing rate} = \frac{60 \text{ min/hr}}{0.58 \text{ min/process}} = 103.45 \text{ process/hr}$$

$$q = \text{Demand Rate} = 84 \frac{\text{veh}}{\text{hr}}$$

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

$$\rho = \text{Utilization factor} = \frac{q}{(NQ)} = \frac{84 \text{ veh/hr}}{2 \times 103.45 \text{ process/hr}} = 0.4060$$

$$Q_m = \text{Table Value} = 0.2349$$

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

$$M = \frac{\ln P(x>M) - \ln(Q_m)}{\ln(\rho)} - 1 = \frac{\ln(0.05) - \ln(0.2349)}{\ln(0.4060)} - 1 = 0.72, \text{ say 1 queue}$$

## Process 3 Tandem / Mechanical / Standard Parking Queue Calculations

$$Q = \text{Processing rate} = \frac{60 \text{ min/hr}}{3.26 \text{ min/process}} = 18.40 \text{ process/hr}$$

$$q = \text{Demand Rate} = 113 \frac{\text{veh}}{\text{hr}}$$

$$N = \text{Service Positions} = 11 \text{ attendants}$$

$$\rho = \text{Utilization factor} = \frac{q}{(NQ)} = \frac{113 \text{ veh/hr}}{11 \times 18.40 \text{ process/hr}} = 0.5581$$

$$Q_m = \text{Table Value} = 0.0624$$

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

$$M = \frac{\ln P(x>M) - \ln(Q_m)}{\ln(\rho)} - 1 = \frac{\ln(0.05) - \ln(0.0624)}{\ln(0.5581)} - 1 = -0.62, \text{ say no queue}$$

The results of the analysis show that, if all the hotel patrons and a subjective number of retail patrons use the valet service a total of 19 valet attendants would be able to handle the demand during peak hour at the drop-off / pick-up area with an average queue of approximately 2 vehicles or less. A number of valet were assigned to each process in order for the queueing not to exceed the proposed sites accommodation of 3 vehicles per queue. Six valet attendants will be assigned to process one, where they will pick up/ drop off a vehicle to the elevator. Two valet attendants will be assigned to the car elevator (one attendant at each). Eleven valet attendants will be assigned to process three, where they will circulate the parking level to and from the car elevator and maneuver vehicles in and out of the parking spaces.

The analysis suggests that retail component should be limited to 20% of the valet services provided during the PM peak hour. Moreover, for the elevators to always be available the results of Process 2 should not show a queue. If the retail component is restricted to less than 20% during the peak hours then it is expected that the elevators will be available. It should be noted that this scenario only represents the demand during the peak hour. It should also be noted that the queuing analysis considers worst case scenario during the peak hours to make sure that the queues don't spill to the public right-of-way. Once operational the development can assess the actual need for valet attendants.

## 7.0 CONCLUSIONS

An assessment of the traffic impacts associated with the proposed 7140 Collins Hotel was performed in accordance with the requirements of the city of Miami Beach. The overall LOS for the following intersections will meet the city's LOS standards with the proposed project:

- Abbott Avenue / 72nd Street
- Harding Avenue / 72nd Street
- Collins Avenue / 72nd Street
- Abbott Avenue / 71st Street
- Harding Avenue / 71st Street
- Collins Avenue / 71st Street
- Indian Creek / 71st Street

The northbound and southbound approaches at the Indian Creek Drive and 71<sup>st</sup> Street intersection is currently experiencing delay. To improve the operations of this intersection the project is proposing the following improvement:

Indian Creek Drive and 71<sup>st</sup> Street Intersection- adjust signal timing to provide additional green time to the northbound and eastbound left movements

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

In addition, an assessment of circulation as it relates to the valet services during the peak hour was performed. The valet drop-off/pickup area queuing analysis shows that the anticipated queue during the typical peak traffic conditions can be accommodated within the project site.

# **Appendix A**

## **Site Plan**







## **Appendix B**

### **Methodology**



## **7140 Collins Hotel Transportation Impact Study Methodology**

**August 24, 2016**

### **PROJECT LOCATION**

The project is located at 7140 Collins Avenue in Miami Beach, Florida. The project proposes to replace an existing 7,005 SF of commercial space with a new development consisting of a 179-room hotel with approximately 18,652 SF of commercial space on the ground floor. The project is proposing a parking garage, providing 119 parking spaces (11 standard, 108 mechanical lift) with three car elevators. The hotel will operate as all valet. The retail and existing restaurant will not park on-site.

### **PURPOSE**

This methodology will provide the details of the Transportation Impact Study for the proposed development. This methodology is based on discussions from a methodology meeting held with city staff on August 18, 2016. Confirmation of this methodology will be requested from the city and/or its traffic consultant prior to performing the study.

### **TRAFFIC STUDY**

- Traffic Counts (Intersections) – Two-hour turning movement counts (including pedestrians) will be collected for the PM (4:30 – 6:30 PM) peak period on a Friday. The analysis will be conducted for the following intersections:

- Collins Avenue / 71<sup>st</sup> Street (S)
- Collins Avenue / 72<sup>nd</sup> Street (S)
- Harding Avenue / 71<sup>st</sup> Street (S)
- Harding Avenue / 72<sup>nd</sup> Street (U)
- Abbott Avenue / 71<sup>st</sup> Street (S)
- Abbott Avenue / 72<sup>nd</sup> Street (S)
- Indian Creek Drive / 71<sup>st</sup> Street (S)

S= Signalized

U=Un-signalized

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

- Trip Generation – Trip generation for the project was estimated using trip generation information published by the Institute of Transportation Engineers (ITE) Trip Generation Manual, 9<sup>th</sup> edition. As agreed with city staff, a 10% reduction was applied to account for other modes of transportation. Credit for vehicle trips generated by the existing uses was based on ITE Trip Generation Manual, 9<sup>th</sup> edition.

## Trip Generation Analysis

### Proposed Land Uses

Proposed ITE Land Use Designation <sup>1</sup>	Number of Units	PM Peak Hour Vehicle Trips		
		In	Out	Total
Hotel <i>Land Use Code: 310</i>	179 Units	55	52	107
		<i>Rate = 0.60 <math>\frac{trips}{unit}</math></i>		
		51% in	49% out	
Shopping Center <i>Land Use Code: 820</i>	18,652 SF	93	101	194
		<i>Ln(T) = 0.67Ln(X) + 3.31</i>		
		48% in	52% out	
Subtotal Gross Vehicle Trips		148	153	301
Internalization <sup>2</sup>	PM 4.7%	-7	-7	-14
Pass-By Trips (Shopping Center)	PM 34%	-32	-32	-64
Transit/Pedestrian Trips	10%	-11	-11	-22
Net External Trips (Proposed)		98	103	201

<sup>1</sup>Based on ITE Trip Generation Manual, Ninth Edition

<sup>2</sup>Internal capture is based on ITE Trip Generation Manual User's Guide and Handbook, Ninth Edition,

<sup>3</sup>Pass by is based on ITE Trip Generation Manual User's Guide and Handbook, Ninth Edition,

### Existing Land Uses

Existing ITE Land Use Designation <sup>1</sup>	Number of Units	PM Peak Hour Vehicle Trips		
		In	Out	Total
Shopping Center <i>Land Use Code: 820</i>	7,005 SF	48	53	101
		$Ln(T) = 0.67Ln(X) + 3.31$		
		48% in	52% out	
Subtotal Gross Vehicle Trips		48	53	101
Pass-By Trips <sup>2</sup> (Shopping Center)	PM 34%	-17	-17	-34
Transit/Pedestrian Trips	10%	-3	-4	-7
Net External Trips (Existing)		28	32	60

Proposed Uses	<b>98</b>	<b>103</b>	<b>201</b>
Existing Uses	-28	-32	-60
<b>Net New External Trips</b>	<b>70</b>	<b>71</b>	<b>141</b>

<sup>1</sup> Based on ITE Trip Generation Manual, Ninth Edition

<sup>2</sup> Pass by is based on ITE Trip Generation Manual User's Guide and Handbook, Ninth Edition,

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

with historical annual growth in the area. The growth factor will be applied to the existing traffic volumes to establish background traffic. This will be documented in the study.

- Committed Developments – The city will be consulted to determine committed developments in the area. Evidence of the data collected as part of the committed developments will be included in the appendix of the study.
- Future Transportation Projects – The 2016 TIP and the 2040 LRTP will be reviewed and considered in the analysis at project build-out.
- Intersection Capacity Analysis – The intersection capacity analyses will be conducted for the following conditions:
  - Existing conditions
  - Future conditions with Committed Developments
  - Future conditions with Project and Committed Development

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

- A Transportation Demand Management plan (TDM) will be included in the report.

### **CIRCULATION ANALYSIS/PLAN**

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

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

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

### **QUEUING ANALYSIS**

The potential queue at the project drop-off area will be calculated based on the peak hour traffic published by ITE's Trip Generation, Ninth Edition. The project trip generation for the PM peak hour (the critical inbound hour) will be used for the analysis. A processing rate will be used for valet operations. Arrival flow rate from the traffic distribution will be converted to a random distribution using the Poisson formula (if applicable). The queuing analysis will be based on the ITE's Transportation and Land Development publication – using Poisson arrivals and negative exponential service time. Entrance capacity will be a function of the numbers of lanes, number of valet attendance, and geometrics. The analysis, conclusions, and recommendations including the number of valet attendants required during peak hour of operations will be documented in the traffic report.

### **DOCUMENTATION**

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

### **Other Considerations from the City**

- As part of the intersection analysis, a table summarizing/comparing the existing storage length and the proposed queues for all turn lanes will be provided.

- The City reserves the right to request additional analyses including but not limited to, additional traffic counts and level of service analysis for any intersection City staff feels is necessary in order to complete the review process.
- Counts will be schedule not to coincide with any religious or government designated holidays.

w:\16\16204\7140 collins\_methodology.docx

## **Attachment 1**

## Trip Generation Summary

Alternative: Proposed

Phase:

Open Date: 8/22/2016

Project: 7140 Collins Hotel 16204

Analysis Date: 8/22/2016

ITE	Land Use	Weekday Average Daily Trips				Weekday AM Peak Hour of Adjacent Street Traffic				Weekday PM Peak Hour of Adjacent Street Traffic			
		*	Enter	Exit	Total	*	Enter	Exit	Total	*	Enter	Exit	Total
310	HOTEL 1		731	731	1462		56	39	95		55	52	107
	179 Rooms												
820	CENTERSHOPPING 1		1140	1140	2280		35	21	56		93	101	194
	18.65 Gross Leasable Area 1000 SF												
Unadjusted Volume			1871	1871	3742		91	60	151		148	153	301
Internal Capture Trips			0	0	0		1	1	2		7	7	14
Pass-By Trips			0	0	0		0	0	0		32	32	64
Volume Added to Adjacent Streets			1871	1871	3742		90	59	149		109	114	223

Total Weekday Average Daily Trips Internal Capture = 0 Percent

Total Weekday AM Peak Hour of Adjacent Street Traffic Internal Capture = 1 Percent

Total Weekday PM Peak Hour of Adjacent Street Traffic Internal Capture = 5 Percent

\* - Custom rate used for selected time period.

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

**TRIP GENERATION 2014, TRAFFICWARE, LLC**

P. 1



## PM Peak Hour Trip Generation and Internalization

7140 Collins Hotel

<b>Shopping Center</b> <b>Land Use 826</b> <b>18,652 Sq Ft</b>				<b>Hotel</b> <b>Land Use 310</b> <b>179 Dwelling Units</b>							
In		Out		In		Out					
93		101		55		52		301 ITE Trips			
<b>UNBALANCED INTERNALIZATION</b>											
5%				17%							
5		5		9							
2%						16%					
2		2				8					
<b>Shopping Center</b>				<b>Hotel</b>							
In		Out		In		Out					
93		101		55		52		301 ITE Trips			
<b>BALANCED INTERNALIZATION</b>											
-5				-5							
-2						-2					
-2		-5		-5		-2		-14 Internal			
91		96		50		50		287 External Trips			
		3.6%				6.5%		4.7% % Internal			
-32		-32						-64 -34% Shopping Passby			
59		64		50		50		223			
-6		-6		-5		-5		-22 -10% Transit			
53		58		45		45		201 Net New External Trips			

## Trip Generation Summary

Alternative: Existing

Phase:

Project: 7140 Collins Hotel 16204

Open Date: 8/22/2016

Analysis Date: 8/22/2016

ITE	Land Use	Weekday Average Daily Trips				Weekday AM Peak Hour of Adjacent Street Traffic				Weekday PM Peak Hour of Adjacent Street Traffic			
		*	Enter	Exit	Total	*	Enter	Exit	Total	*	Enter	Exit	Total
820	CENTERSHOPPING 2		603	603	1206		19	12	31		48	53	101
	7 Gross Leasable Area 1000 SF												
Unadjusted Volume			603	603	1206		19	12	31		48	53	101
Internal Capture Trips			0	0	0		0	0	0		0	0	0
Pass-By Trips			0	0	0		0	0	0		17	17	34
Volume Added to Adjacent Streets			603	603	1206		19	12	31		31	36	67

Total Weekday Average Daily Trips Internal Capture = 0 Percent

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

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

\* - Custom rate used for selected time period.

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

**TRIP GENERATION 2014, TRAFFICWARE, LLC**

P. 1



# OFFICE OF THE PROPERTY APPRAISER

## Summary Report

Generated On : 8/22/2016

Property Information	
Folio:	02-3211-002-0660
Property Address:	7140 COLLINS AVE Miami Beach, FL 33141-3212
Owner	COLLINS AND 72ND DEVELOPERS LLC
Mailing Address	9537 HARDING AVE MIAMI, FL 33154 USA
Primary Zone	6600 COMMERCIAL - LIBERAL
Primary Land Use	2111 RESTAURANT OR CAFETERIA : RETAIL OUTLET
Beds / Baths / Half	0 / 0 / 0
Floors	1
Living Units	0
Actual Area	Sq.Ft
Living Area	Sq.Ft
Adjusted Area	2,885 Sq.Ft
Lot Size	6,250 Sq.Ft
Year Built	1966



Assessment Information			
Year	2016	2015	2014
Land Value	\$1,500,000	\$1,000,000	\$750,000
Building Value	\$239,376	\$100,000	\$100,000
XF Value	\$11,295	\$0	\$0
Market Value	\$1,750,671	\$1,100,000	\$850,000
Assessed Value	\$1,750,671	\$839,437	\$763,125

Benefits Information				
Benefit	Type	2016	2015	2014
Non-Homestead Cap	Assessment Reduction		\$260,563	\$86,875
Note: Not all benefits are applicable to all Taxable Values (i.e. County, School Board, City, Regional).				

Short Legal Description
11 53 42 NORMANDY BEACH S PB 21-54 LOT 12 BLK 8 LOT SIZE 50.000 X 125 19108-0135 0400 4(2)

Taxable Value Information			
	2016	2015	2014
<b>County</b>			
Exemption Value	\$0	\$0	\$0
Taxable Value	\$1,750,671	\$839,437	\$763,125
<b>School Board</b>			
Exemption Value	\$0	\$0	\$0
Taxable Value	\$1,750,671	\$1,100,000	\$850,000
<b>City</b>			
Exemption Value	\$0	\$0	\$0
Taxable Value	\$1,750,671	\$839,437	\$763,125
<b>Regional</b>			
Exemption Value	\$0	\$0	\$0
Taxable Value	\$1,750,671	\$839,437	\$763,125

Sales Information			
Previous Sale	Price	OR Book-Page	Qualification Description
12/31/2015	\$12,000,000	29913-4723	Qual on DOS, multi-parcel sale
04/01/2000	\$0	00000-00000	Sales which are disqualified as a result of examination of the deed
07/01/1994	\$0	16446-2155	Sales which are disqualified as a result of examination of the deed

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Version:



# OFFICE OF THE PROPERTY APPRAISER

## Summary Report

Generated On : 8/22/2016

Property Information	
Folio:	02-3211-002-0650
Property Address:	7134 COLLINS AVE Miami Beach, FL 33141-3212
Owner	COLLINS AND 72ND DEVELOPERS LLC
Mailing Address	9537 HARDING AVE MIAMI, FL 33154 USA
Primary Zone	6600 COMMERCIAL - LIBERAL
Primary Land Use	1111 STORE : RETAIL OUTLET
Beds / Baths / Half	0 / 0 / 0
Floors	1
Living Units	0
Actual Area	Sq.Ft
Living Area	Sq.Ft
Adjusted Area	4,120 Sq.Ft
Lot Size	6,250 Sq.Ft
Year Built	1952

Assessment Information			
Year	2016	2015	2014
Land Value	\$1,500,000	\$1,000,000	\$687,500
Building Value	\$169,950	\$152,955	\$60,000
XF Value	\$38,616	\$39,086	\$0
Market Value	\$1,708,566	\$1,192,041	\$747,500
Assessed Value	\$1,708,566	\$822,250	\$747,500

Benefits Information				
Benefit	Type	2016	2015	2014
Non-Homestead Cap	Assessment Reduction		\$369,791	
Note: Not all benefits are applicable to all Taxable Values (i.e. County, School Board, City, Regional).				

Short Legal Description	
11 53 42 NORMANDY BEACHSOUTH PB 21-54 LOT 11 BLK 8 LOT SIZE 50.000 X 125 OR 19108-0135 0400 4 (2)	



Taxable Value Information			
	2016	2015	2014
<b>County</b>			
Exemption Value	\$0	\$0	\$0
Taxable Value	\$1,708,566	\$822,250	\$747,500
<b>School Board</b>			
Exemption Value	\$0	\$0	\$0
Taxable Value	\$1,708,566	\$1,192,041	\$747,500
<b>City</b>			
Exemption Value	\$0	\$0	\$0
Taxable Value	\$1,708,566	\$822,250	\$747,500
<b>Regional</b>			
Exemption Value	\$0	\$0	\$0
Taxable Value	\$1,708,566	\$822,250	\$747,500

Sales Information			
Previous Sale	Price	OR Book-Page	Qualification Description
12/31/2015	\$12,000,000	29913-4723	Qual on DOS, multi-parcel sale
04/01/2000	\$0	19108-0135	Sales which are disqualified as a result of examination of the deed
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**Appendix C**  
**Traffic Data**  
Traffic Volumes  
Signal Timings  
Historic Background Growth  
Cardinal Distribution

## **Traffic Volumes**

### 7140 Collins Hotel- PM Intersection Assignment

INTERSECTION	MOVEMENT	Existing	BACKGROUND		6701 Collins Avenue			6747 Collins Avenue			6800 Indian Creek			6800 Collins Avenue			6901 Collins Avenue			COMMITTED DEVELOPMENTS	FUTURE W/O PROJECT	EXISTING USES			PROJECT (Horn)			PROJECT (Retail)			PASS-BY TRIPS	FUTURE WITH PROJECT
		Peak Period 2016	Growth rate: No. of years	0.8%	2	Out 0	In 0	Total 0	Out 10	In 20	Total 30	Out 7	In 10	Total 22	Out 18	In 28	Total 46	Out 6	In 11			Total 17	Out 32	In 28	Total 60	Out 45	In 45	Total 90	Out 58	In 53		
1. Abbott Avenue / 72nd Street (S)	NBL	0	0	0	0	0%	0%	0	0%	0%	0	0%	0%	0	0%	0%	0	0%	0%	0	0	0	0	0	0	0	0	0	0	0		
	NBT	0	0	0	0	0%	0%	0	0%	0%	0	0%	0%	0	0%	0%	0	0%	0%	0	0	0	0	0	0	0	0	0	0	0		
	NBR	0	0	0	0	0%	0%	0	0%	0%	0	0%	0%	0	0%	0%	0	0%	0%	0	0	0	0	0	0	0	0	0	0	0		
	SBL	44	45	0	0	0%	0%	0	0%	0%	0	0%	0%	0	0%	0%	0	0%	0%	0	45	25%	11	25%	11	25%	13	62	1689	0		
	SBT	1643	1669	0	0	0%	25%	5	0%	25%	5	0%	31%	5	27%	8	25%	3	20	1689	0	0	0	0	0	0	0	0	0	0	0	
	SBR	165	168	0	0	0%	0%	0	0%	0%	0	0%	0%	0	0%	0	0	0	168	0	0	0	0	0	0	0	0	0	0	0	0	
	EBL	0	0	0	0	0%	0%	0	0%	0%	0	0%	0%	0	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	EBT	132	134	0	0	0%	0%	0	0%	0%	0	0%	0%	0	0%	0	0	0	134	0	18%	5	18%	8	18%	10	147	0	0	0	0	
	EBR	35	36	0	0	0%	0%	0	0%	0%	0	0%	0%	0	0%	0	0	0	36	0	0	0	0	0	0	0	0	0	0	0	0	
	WBL	72	71	0	0	0%	0%	0	0%	0%	0	0%	0%	0	0%	0	0	0	72	0	10%	3	10%	3	10%	3	6	75	0	0	0	
PHF = 0.96	WBT	263	267	0	0	0%	0%	0	0%	0%	0	0%	0%	0	0%	0	0	0	267	18%	6	13%	6	18%	10	278	0	0	0	0	0	
	WBR	0	0	0	0	0%	0%	0	0%	0%	0	0%	0%	0	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
TOTAL		2391	0%	0%	0	0%	25%	5	0%	31%	5	0%	27%	8	0%	25%	3	20	2411	28%	43%	21	13%	43%	25	28%	43%	39	0	2454		
2. Harding Avenue / 72nd Street (U)	NBL	141	142	0	0	0%	0%	0	0%	0%	0	0%	0%	0	0%	0%	0	142	0	14%	8	0	0	0	0	0	0	0	0	148		
	NBT	140	142	0	0	0%	0%	0	0%	0%	0	0%	0%	0	0%	0%	0	142	0	13%	0	0	0	0	0	0	0	0	0	153		
	NBR	197	200	0	0	0%	0%	0	0%	0%	0	11%	0	1	0	0	1	201	0	0	11	0	25%	11	0	0	0	0	0	212		
	SBL	8	6	0	0	0%	0%	0	0%	0%	0	0%	0%	0	0%	0%	0	0	0	0	0	0	25%	0	25%	0	15	16	29	0		
	SBT	8	8	0	0	0%	0%	0	0%	0%	0	0%	0%	0	0%	0%	0	8	47%	15	8	47%	15	27	0	0	0	0	0	20		
	SBR	16	16	0	0	0%	0%	0	0%	0%	0	0%	0%	0	0%	0%	0	0	0	0	9	28%	9	28%	16	16	16	40	0	0		
	EBL	29	29	0	0	0%	0%	0	0%	0%	0	0%	0%	0	0%	0	0	29	0	0	0	12	0	0	0	23	16	56	0	0		
	EBT	112	114	0	0	0%	0%	0	0%	0%	0	0%	0%	0	0%	0	0	114	0	0	0	0	0	0	0	0	0	0	0	0	0	
	EBR	38	39	0	0	0%	0%	0	0%	0%	0	0%	0%	0	0%	0	0	38	0	0	0	0	43%	0	0	0	0	0	0	0	0	0
	WBL	12	12	0	0	0%	0%	0	0%	0%	0	0%	0%	0	0%	0	0	12	0	0	0	0	5%	2	0	0	0	0	0	0	0	0
PHF = 0.95	WBT	165	168	0	0	0%	0%	0	0%	0%	0	0%	0%	0	0%	0	0	168	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	WBR	24	24	0	0	0%	0%	0	0%	0%	0	0%	0%	0	0%	0	0	24	0	10%	3	10%	3	10%	5	16	43	0	0	0	0	0
TOTAL		902	0%	0%	0	0%	0%	0	0%	0%	0	11%	0%	1	0%	0%	0	903	100%	24	100%	60	38%	48%	39	100%	100%	110	32	1024		
3. Collins Avenue / 72nd Street (S)	NBL	146	148	0	0	0%	0%	0	0%	0%	0	0%	0%	0	0%	0%	0	148	0	0	0	0	0	0	0	0	0	0	0	153		
	NBT	2235	2271	0	0	0%	31%	0	3	30%	0	1	0	27%	5	31%	0	2	11	2281	0	0	0	0	0	0	0	0	0	2281		
	NBR	0	0	0	0	0%	0%	0	0	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	SBL	0	0	0	0	0%	0%	0	0	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
	SBT	0	0	0	0	0%	0%	0	0	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	SBR	0	0	0	0	0%	0%	0	0	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	EBL	331	332	0	0	0%	11%	0	0	11%	0	1	0	1	0	0	0	332	0	25%	0	25%	11	25%	11	25%	0	0	0	0	0	0
	EBT	0	0	0	0	0%	0%	0	0	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	EBR	0	0	0	0	0%	0%	0	0	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	WBL	0	0	0	0	0%	0%	0	0	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
PHF = 0.94	WBT	0	0	0	0	0%	0%	0	0	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	WBR	0	0	0	0	0%	0%	0	0	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
TOTAL		2750	0%	0%	0	0%	31%	0	3	21%	0%	1	0%	27%	5	31%	0%	2	11	2762	25%	10%	6	25%	5%	14	25%	10%	20	0	2784	
4. Abbott Avenue / 71st Street (S)	NBL	0	0	0	0	0%	0%	0	0%	0%	0	0%	0%	0	0%	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NBT	0	0	0	0	0%	0%	0	0	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NBR	0	0	0	0	0%	0%	0	0	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	SBL	59	60	0	0	0%	0%	0	0	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	SBT	1306	1327	0	0	0%	0%	0	0	0%	0	0	0	0	0	0	0	1306	23%	3	1337	10%	3	1337	10%	3	1340	0	0	0	0	0
	SBR	344	350	0	0	0%	0%	0	0	0%	0	0	0	0	0	0	2	352	0	0	2	0	0	0	0	0	0	0	0	0	0	0
	EBL	0	0	0	0	0%	0%	0	0	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	EBT	307	312	0	0	0%	0%	0	0	0%	0	0	0	0	0	0	0	307	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	EBR	50	56	0	0	0%	20%	5	0	20%	5	0	0	0	0	0	8	319	0	30%	3	11	67	33%	9	33%	15	17	343	0	0	
	WBL	48	49	0	0	0%	0%	0	0	0%	0	0	0	0	0	0	3	49	0	10%	1	0	0	10%	5	0	0	0	0	0	0	0
PHF = 0.96	WBT	325	330	0	0	0%	19%	0	2	19%	0	0	0	40%	7	45%	3	12	342	0	38%	17	38%	17	38%	0	0	0	0	0	0	0
	WBR	0	0	0	0	0%	0%	0	0	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
TOTAL		2483	0%	0%	0	19%	50%	12	0%	31%	5	40%	37%	18	69%	55%	10	44	2628	10%	33%	12	48%	33%	36	10%	33%	23	0	2676		
5. Harding Avenue / 71st Street (U)	NBL	159	162	0	0	0%	0%	0	0	0%	0	0%	0%	0	0%	0%	0	0	162	0	0	0	0	0	0	0	0	0	0	0	0	
	NBT	304	309	0	0	0%	0%	0	0	0%	0	11%	0	1	0	0	0	1	310	0	14%	4	14%	6	14%	7	319	0	0	0	0	
	NBR	44	45	0	0	0%	0%	0	0	0%	0	0	0	0	0	0	0	45	0	0	0	0	0	0	0	0	0	0	0	0	0	
	SBL	10	10	0	0	0%	0%	0	0	0%	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	SBT	20	20	0	0	0%	0%	0	0	0%	0	0	0	0	0	0	0	20	0	14%	4	14%	6	14%	8	30	0	0	0	0	0	
	SBR	16	16	0	0	0%	0%	0	0	0%	0	0	0	0	0	0	0	16	33%	11	33%	11	33%	22	33%	19	46	0	0	0	0	
	EBL	80	81	0	0	0%	0%	0	0	0%	0	0	0	0	0	0	81	15	0	81	33%	9	33%	15	33%	17	104	0	0	0	0	
	EBT	255	259	0	0	0%	0%	0	0	0%	0	0	0	0	0	0	0	259	0	0	0	0	0	0	0	0						

## TURNING MOVEMENT COUNTS

**Project Name:** 7140 Collins Avenue  
**Location:** Abbott Avenue / 72nd Street  
**Observer:** Traffic Survey Specialists, Inc.

**Project Number:** 16204  
**Count Date:** 9/2/2016  
**Day of Week:** Friday

		Abbott Avenue								72nd Street								
TIME INTERVAL		NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				GRAND TOTAL
		L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL	
04:30 PM	04:45 PM	0	0	0	0	9	443	29	481	0	28	12	40	20	67	0	87	608
04:45 PM	05:00 PM	0	0	0	0	11	402	46	459	0	35	8	43	18	56	0	74	576
05:00 PM	05:15 PM	0	0	0	0	13	379	46	438	0	29	10	39	17	70	0	87	564
05:15 PM	05:30 PM	0	0	0	0	11	403	42	456	0	39	5	44	15	67	0	82	582
05:30 PM	05:45 PM	0	0	0	0	7	368	43	418	0	33	8	41	19	57	0	76	535
05:45 PM	06:00 PM	0	0	0	0	9	394	32	435	0	34	10	44	20	63	0	83	562
06:00 PM	06:15 PM	0	0	0	0	14	392	31	437	0	29	9	38	17	57	0	74	549
06:15 PM	06:30 PM	0	0	0	0	4	422	19	445	0	28	12	40	11	37	0	48	533

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

		Abbott Avenue								72nd Street									
TIME INTERVAL		NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				GRAND TOTAL	
		L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL		
04:30 PM	05:30 PM	0	0	0	0	44	1643	165	1852	0	132	35	168	71	263	0	333	2,353	
PEAK HOUR FACTOR					NA				0.95				0.94				0.95	0.96	

Note: 2015 FDOT Peak Season Conversion Factor = 1.01



## TURNING MOVEMENT COUNTS

**Project Name:** 7140 Collins Avenue  
**Location:** Harding Avenue / 72nd Street  
**Observer:** Traffic Survey Specialists, Inc.

**Project Number:** 16204  
**Count Date:** 9/2/2016  
**Day of Week:** Friday

		Harding Avenue								72nd Street								
TIME INTERVAL		NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				GRAND TOTAL
		L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL	
04:30 PM	04:45 PM	29	28	56	113	1	2	1	4	5	26	6	37	5	53	7	65	219
04:45 PM	05:00 PM	31	31	44	106	3	5	6	14	8	31	7	46	2	41	5	48	214
05:00 PM	05:15 PM	38	38	48	124	2	0	5	7	9	25	7	41	3	36	6	45	217
05:15 PM	05:30 PM	42	42	47	131	0	1	4	5	7	29	18	54	2	33	6	41	231
05:30 PM	05:45 PM	41	40	38	119	4	2	2	8	4	31	5	40	1	29	4	34	201
05:45 PM	06:00 PM	44	44	48	136	3	3	6	12	9	26	4	39	0	36	4	40	227
06:00 PM	06:15 PM	36	36	55	127	0	5	10	15	5	27	8	40	3	22	5	30	212
06:15 PM	06:30 PM	27	27	47	101	2	3	7	12	4	28	4	36	3	17	7	27	176

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

		Harding Avenue								72nd Street								
TIME INTERVAL		NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				GRAND TOTAL
		L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL	
04:30 PM	05:30 PM	141	140	197	479	6	8	16	30	29	112	38	180	12	165	24	201	890
PEAK HOUR FACTOR					0.90				0.54				0.82				0.77	0.95

Note: 2015 FDOT Peak Season Conversion Factor = 1.01

## TURNING MOVEMENT COUNTS

**Project Name:** 7140 Collins Avenue  
**Location:** Collins Avenue / 72nd Street  
**Observer:** Traffic Survey Specialists, Inc.

**Project Number:** 16204  
**Count Date:** 9/2/2016  
**Day of Week:** Friday

		Collins Avenue								72nd Street								
TIME INTERVAL		NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				GRAND TOTAL
		L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL	
04:30 PM	04:45 PM	53	524	0	577	0	0	0	0	87	0	0	87	0	0	0	0	664
04:45 PM	05:00 PM	49	516	0	565	0	0	0	0	75	0	0	75	0	0	0	0	640
05:00 PM	05:15 PM	35	538	0	573	0	0	0	0	76	0	0	76	0	0	0	0	649
05:15 PM	05:30 PM	34	588	0	622	0	0	0	0	88	0	0	88	0	0	0	0	710
05:30 PM	05:45 PM	35	562	0	597	0	0	0	0	79	0	0	79	0	0	0	0	676
05:45 PM	06:00 PM	41	525	0	566	0	0	0	0	80	0	0	80	0	0	0	0	646
06:00 PM	06:15 PM	24	484	0	508	0	0	0	0	79	0	0	79	0	0	0	0	587
06:15 PM	06:30 PM	25	479	0	504	0	0	0	0	76	0	0	76	0	0	0	0	580

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

		Collins Avenue								72nd Street									
TIME INTERVAL		NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				GRAND TOTAL	
		L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL		
05:00 PM	06:00 PM	146	2235	0	2382	0	0	0	0	326	0	0	326	0	0	0	0	2,708	
PEAK HOUR FACTOR					0.95				NA				0.92				NA	0.94	

Note: 2015 FDOT Peak Season Conversion Factor = 1.01

## TURNING MOVEMENT COUNTS

**Project Name:** 7140 Collins Avenue  
**Location:** Abbott Avenue / 71st Street  
**Observer:** Traffic Survey Specialists, Inc.

**Project Number:** 16204  
**Count Date:** 9/2/2016  
**Day of Week:** Friday

		Abbott Avenue								71st Street								
TIME INTERVAL		NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				GRAND TOTAL
		L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL	
04:30 PM	04:45 PM	0	0	0	0	10	349	103	462	0	65	21	86	10	50	0	60	608
04:45 PM	05:00 PM	0	0	0	0	10	356	82	448	0	79	13	92	2	61	0	63	603
05:00 PM	05:15 PM	0	0	0	0	8	305	96	409	0	79	28	107	5	67	0	72	588
05:15 PM	05:30 PM	0	0	0	0	12	329	84	425	0	88	9	97	6	71	0	77	599
05:30 PM	05:45 PM	0	0	0	0	16	303	87	406	0	69	10	79	13	79	0	92	577
05:45 PM	06:00 PM	0	0	0	0	16	330	74	420	0	82	14	96	10	78	0	88	604
06:00 PM	06:15 PM	0	0	0	0	9	322	80	411	0	88	16	104	15	81	0	96	611
06:15 PM	06:30 PM	0	0	0	0	17	338	100	455	0	65	14	79	10	84	0	94	628

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

		Abbott Avenue								71st Street								
TIME INTERVAL		NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				GRAND TOTAL
		L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL	
05:30 PM	06:30 PM	0	0	0	0	59	1306	344	1709	0	307	55	362	48	325	0	374	2,444
PEAK HOUR FACTOR					NA				0.93				0.86				0.96	0.96

Note: 2015 FDOT Peak Season Conversion Factor = 1.01

## TURNING MOVEMENT COUNTS

**Project Name:** 7140 Collins Avenue  
**Location:** Harding Avenue / 71st Street  
**Observer:** Traffic Survey Specialists, Inc.

**Project Number:** 16204  
**Count Date:** 9/2/2016  
**Day of Week:** Friday

		Harding Avenue								71st Street								
TIME INTERVAL		NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				GRAND TOTAL
		L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL	
04:30 PM	04:45 PM	25	75	10	110	4	6	1	11	17	57	9	83	6	32	1	39	243
04:45 PM	05:00 PM	32	66	11	109	5	4	4	13	19	58	10	87	6	11	6	23	232
05:00 PM	05:15 PM	37	74	4	115	3	3	4	10	26	54	9	89	1	27	4	32	246
05:15 PM	05:30 PM	36	76	7	119	4	8	2	14	19	68	11	98	7	39	3	49	280
05:30 PM	05:45 PM	48	67	13	128	2	4	2	8	16	59	10	85	2	39	4	45	266
05:45 PM	06:00 PM	39	84	8	131	0	3	6	9	25	61	10	96	4	46	2	52	288
06:00 PM	06:15 PM	34	74	16	124	4	5	6	15	19	64	8	91	6	55	1	62	292
06:15 PM	06:30 PM	26	63	12	101	0	4	1	5	11	62	11	84	8	52	4	64	254

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

		Harding Avenue								71st Street									
TIME INTERVAL		NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				GRAND TOTAL	
		L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL		
05:15 PM	06:15 PM	159	304	44	507	10	20	16	46	80	255	39	374	19	181	10	210	1,137	
PEAK HOUR FACTOR					0.96				0.77				0.94				0.84	0.96	

Note: 2015 FDOT Peak Season Conversion Factor = 1.01

## TURNING MOVEMENT COUNTS

**Project Name:** 7140 Collins Hotel  
**Location:** Collins Avenue / 71st Street  
**Observer:** Traffic Survey Specialists, Inc.

**Project Number:** 16204  
**Count Date:** 9/2/2016  
**Day of Week:** Friday

		Collins Avenue									71st Street								
TIME INTERVAL		NORTHBOUND				SOUTHBOUND					EASTBOUND				WESTBOUND				GRAND TOTAL
		L	T	R	TOTAL	U	L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL	
04:30 PM	04:45 PM	39	490	1	530		0	0	0	0	71	2	0	73	0	2	12	14	617
04:45 PM	05:00 PM	16	512	5	533		0	0	0	0	60	4	0	64	0	5	6	11	608
05:00 PM	05:15 PM	29	508	1	538		0	0	0	0	71	1	0	72	0	4	5	9	619
05:15 PM	05:30 PM	45	528	2	575		0	0	0	0	75	1	0	76	0	3	5	8	659
05:30 PM	05:45 PM	39	543	4	586		0	0	0	0	68	4	0	72	0	4	6	10	668
05:45 PM	06:00 PM	49	498	0	547		0	0	0	0	71	2	0	73	0	3	6	9	629
06:00 PM	06:15 PM	57	435	2	494		0	0	0	0	78	2	0	80	0	3	5	8	582
06:15 PM	06:30 PM	56	420	2	478		0	0	0	0	78	1	0	79	0	7	2	9	566

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

		Collins Avenue									71st Street									
TIME INTERVAL		NORTHBOUND				SOUTHBOUND					EASTBOUND				WESTBOUND				GRAND TOTAL	
		L	T	R	TOTAL	U	L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL		
05:00 PM	06:00 PM	164	2098	7	2268	0	0	0	0	0	288	8	0	296	0	14	22	36	2,601	
PEAK HOUR FACTOR					0.96					NA				0.96				0.90	0.96	

Note: 2015 FDOT Peak Season Conversion Factor = 1.01

## TURNING MOVEMENT COUNTS

**Project Name:** 7140 Collins Avenue  
**Location:** Indian Creek Drive / 71st Street  
**Observer:** Traffic Survey Specialists, Inc.

**Project Number:** 16204  
**Count Date:** 9/2/2016  
**Day of Week:** Friday

		Indian Creek Drive								71st Street								
TIME INTERVAL		NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				GRAND TOTAL
		L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL	
04:30 PM	04:45 PM	156	33	0	189	1	29	110	140	74	120	101	295	0	204	8	212	836
04:45 PM	05:00 PM	177	33	2	212	0	39	103	142	62	137	93	292	0	208	4	212	858
05:00 PM	05:15 PM	217	38	2	257	0	27	110	137	64	147	104	315	1	194	7	202	911
05:15 PM	05:30 PM	174	25	2	201	2	25	103	130	69	159	96	324	0	231	5	236	891
05:30 PM	05:45 PM	257	58	0	315	3	33	88	124	55	118	97	270	1	199	7	207	916
05:45 PM	06:00 PM	204	63	1	268	2	30	111	143	63	169	103	335	0	188	4	192	938
06:00 PM	06:15 PM	221	86	1	308	2	15	95	112	61	128	92	281	0	207	6	213	914
06:15 PM	06:30 PM	154	62	0	216	0	41	114	155	62	91	84	237	2	185	8	195	803

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

		Indian Creek Drive								71st Street								
TIME INTERVAL		NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				GRAND TOTAL
		L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL	L	T	R	TOTAL	
05:15 PM	06:15 PM	865	234	4	1103	9	104	401	514	250	580	392	1222	1	833	22	856	3,696
PEAK HOUR FACTOR					0.87				0.89				0.90				0.90	0.98

Note: 2015 FDOT Peak Season Conversion Factor = 1.01

71ST STREET & A1A  
 MIAMI BEACH, FLORIDA  
 COUNTED BY: ROLANDO MARTINEZ  
 SIGNALIZED

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

Site Code : 00160184  
 Start Date: 09/02/16  
 File I.D. : 71ST\_A1A  
 Page : 1

ALL VEHICLES

A1A					71ST STREET					A1A					71ST 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		
Date 09/02/16																				
16:30	0	0	0	0	0	0	2	12		0	39	490	1		0	71	2	0		
16:45	0	0	0	0	0	0	5	6		0	16	512	5		0	60	4	0		
17:00	0	0	0	0	0	0	4	5		0	29	508	1		0	71	1	0		
17:15	0	0	0	0	0	0	3	5		0	45	528	2		0	75	1	0		
Hr Total	0	0	0	0	0	0	14	28		0	129	2038	9		0	277	8	0		
17:30	0	0	0	0	0	0	4	6		0	39	543	4		0	68	4	0		
17:45	0	0	0	0	0	0	3	6		0	49	498	0		0	71	2	0		
18:00	0	0	0	0	0	0	3	5		0	57	435	2		0	78	2	0		
18:15	0	0	0	0	0	0	7	2		0	56	420	2		0	78	1	0		
Hr Total	0	0	0	0	0	0	17	19		0	201	1896	8		0	295	9	0		
*TOTAL*	0	0	0	0	0	0	31	47		0	330	3934	17		0	572	17	0		

71ST STREET & A1A  
 MIAMI BEACH, FLORIDA  
 COUNTED BY: ROLANDO MARTINEZ  
 SIGNALIZED

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

Site Code : 00160184  
 Start Date: 09/02/16  
 File I.D. : 71ST\_A1A  
 Page : 2

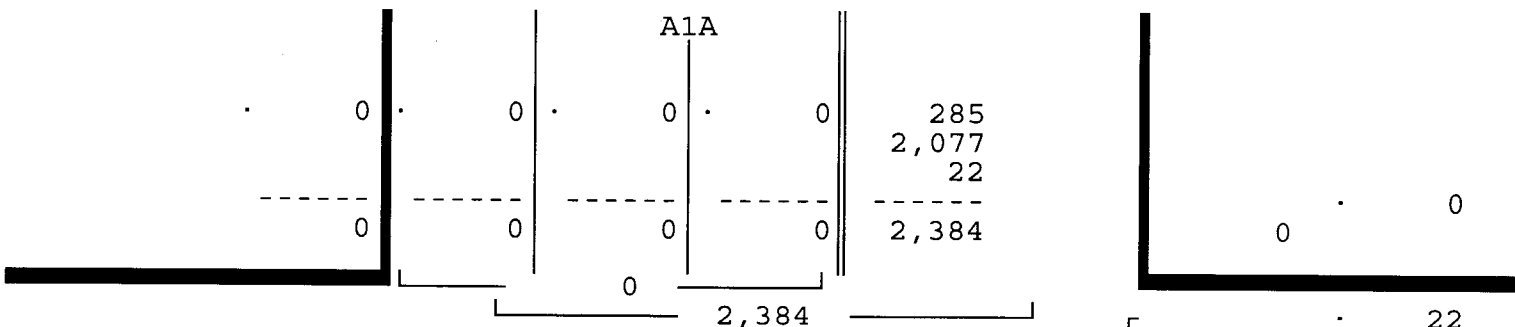
ALL VEHICLES

A1A From North				71ST STREET From East				A1A From South				71ST STREET From West				Total
UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	

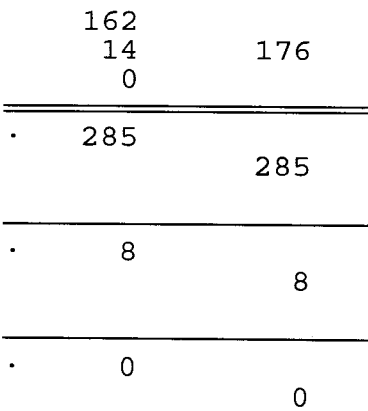
Date 09/02/16

Peak Hour Analysis By Entire Intersection for the Period: 16:30 to 18:30 on 09/02/16

Peak start 17:00					17:00				17:00				17:00			
Volume	0	0	0	0	0	0	14	22	0	162	2077	7	0	285	8	0
Percent	0%	0%	0%	0%	0%	0%	39%	61%	0%	7%	92%	0%	0%	97%	3%	0%
Pk total	0				36				2246				293			
Highest	16:30				17:30				17:30				17:15			
Volume	0	0	0	0	0	0	4	6	0	39	543	4	0	75	1	0
Hi total	0				10				586				76			
PHF	.0				.90				.96				.96			



71ST STREET



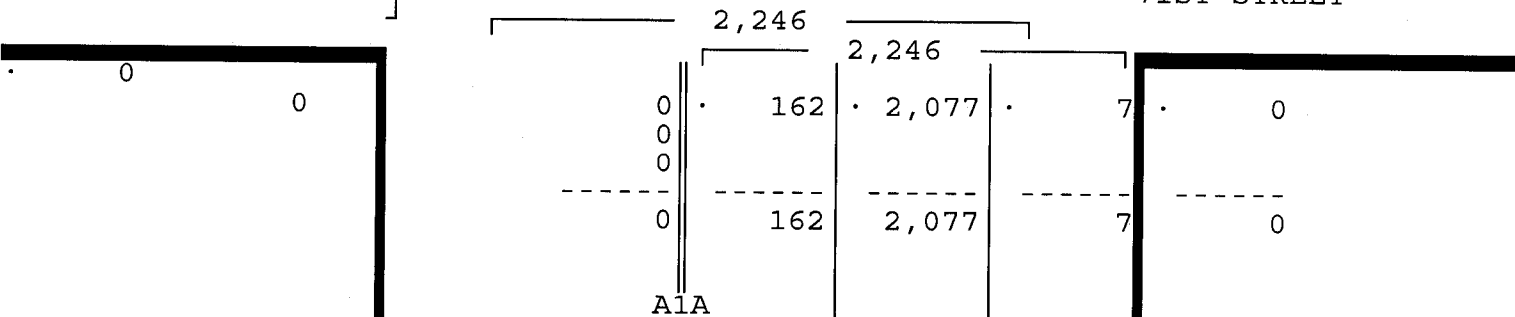
ALL VEHICLES

469

Intersection Total  
2,575

51

71ST STREET





71ST STREET & A1A  
 MIAMI BEACH, FLORIDA  
 COUNTED BY: ROLANDO MARTINEZ  
 SIGNALIZED

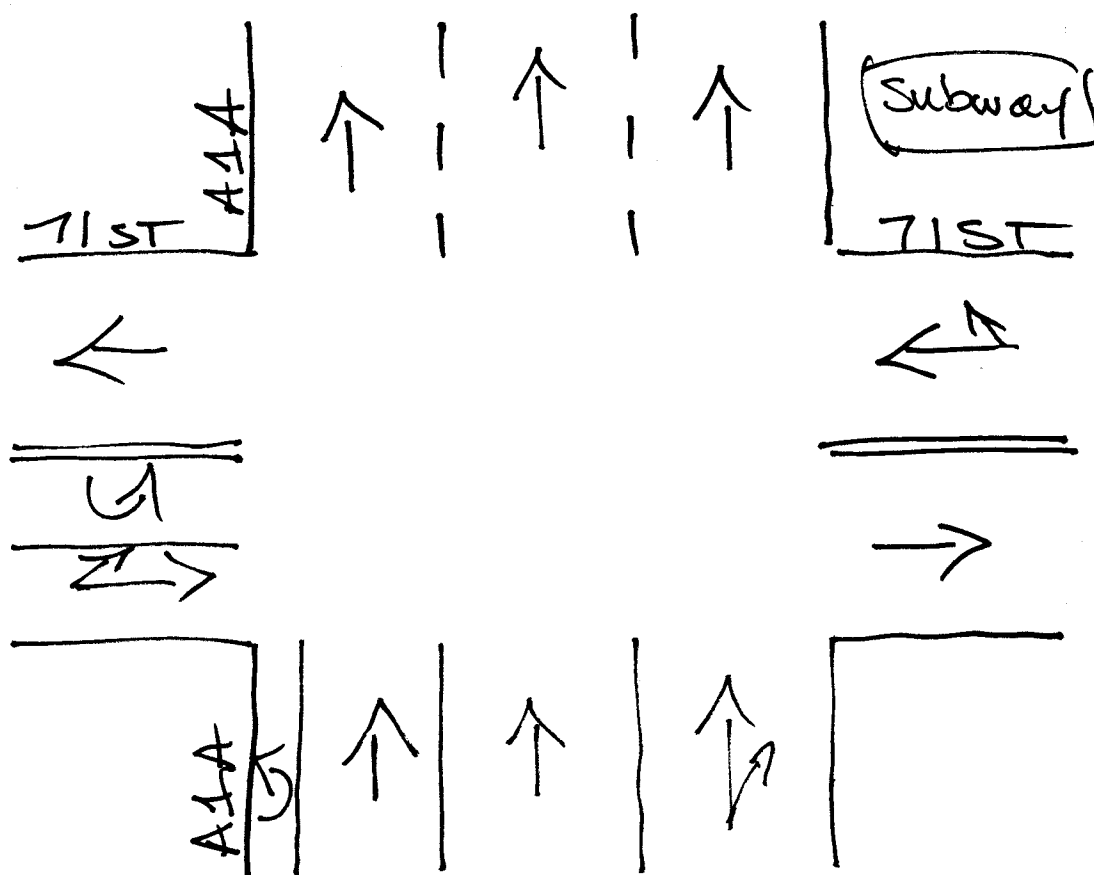
TRAFFIC SURVEY SPECIALISTS, INC.  
 85 SE 4TH AVENUE, UNIT 109  
 DELRAY BEACH, FLORIDA  
 PHONE (561)272-3255

Site Code : 00160184  
 Start Date: 09/02/16  
 File I.D. : 71ST\_A1A  
 Page : 1

PEDESTRIANS & BIKES

Date	A1A From North				71ST STREET From East				A1A From South				71ST STREET From West				Total
	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	
09/02/16																	
16:30	0	0	0	11	0	2	0	5	0	2	0	9	0	1	0	25	55
16:45	0	1	0	4	0	1	0	5	0	2	0	16	0	2	0	22	53
17:00	0	0	0	1	0	1	0	2	0	1	0	9	0	5	0	19	38
17:15	0	1	0	1	0	2	0	4	0	3	0	5	0	1	0	40	57
Hr Total	0	2	0	17	0	6	0	16	0	8	0	39	0	9	0	106	203
17:30	0	0	0	4	0	1	0	0	0	1	0	15	0	1	0	32	54
17:45	0	0	0	8	0	3	0	1	0	1	0	5	0	1	0	51	70
18:00	0	1	0	7	0	0	0	4	0	1	0	13	0	1	0	32	59
18:15	0	0	0	5	0	2	0	1	0	1	0	9	0	0	0	19	37
Hr Total	0	1	0	24	0	6	0	6	0	4	0	42	0	3	0	134	220
*TOTAL*	0	3	0	41	0	12	0	22	0	12	0	81	0	12	0	240	423

↑  
North



Miami Bch, Florida  
September 02, 2016  
drawn by: Luis Palomino  
signalized

72ND STREET & A1A  
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 : 00160184  
Start Date: 09/02/16  
File I.D. : 72ST\_A1A  
Page : 1

ALL VEHICLES

A1A From North					----- From East					A1A From South					72ND STREET From West					
UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		Total
Date 09/02/16 -----																				
16:30	0	0	0	0	0	0	0	0	0	0	53	524	0	0	0	87	0	0	0	664
16:45	0	0	0	0	0	0	0	0	0	0	49	516	0	0	0	75	0	0	0	640
17:00	0	0	0	0	0	0	0	0	0	0	35	538	0	0	0	76	0	0	0	649
17:15	0	0	0	0	0	0	0	0	0	0	34	588	0	0	0	88	0	0	0	710
Hr Total	0	0	0	0	0	0	0	0	0	0	171	2166	0	0	0	326	0	0	0	2663
17:30	0	0	0	0	0	0	0	0	0	0	35	562	0	0	0	79	0	0	0	676
17:45	0	0	0	0	0	0	0	0	0	0	41	525	0	1	0	80	0	0	0	647
18:00	0	0	0	0	0	0	0	0	0	0	24	484	0	1	0	79	0	0	0	588
18:15	0	0	0	0	0	0	0	0	0	0	25	479	0	0	0	76	0	0	0	580
Hr Total	0	0	0	0	0	0	0	0	0	0	125	2050	0	2	0	314	0	0	0	2491
*TOTAL*	0	0	0	0	0	0	0	0	0	0	296	4216	0	2	0	640	0	0	0	5154

72ND STREET & A1A  
 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 : 00160184  
 Start Date: 09/02/16  
 File I.D. : 72ST\_A1A  
 Page : 2

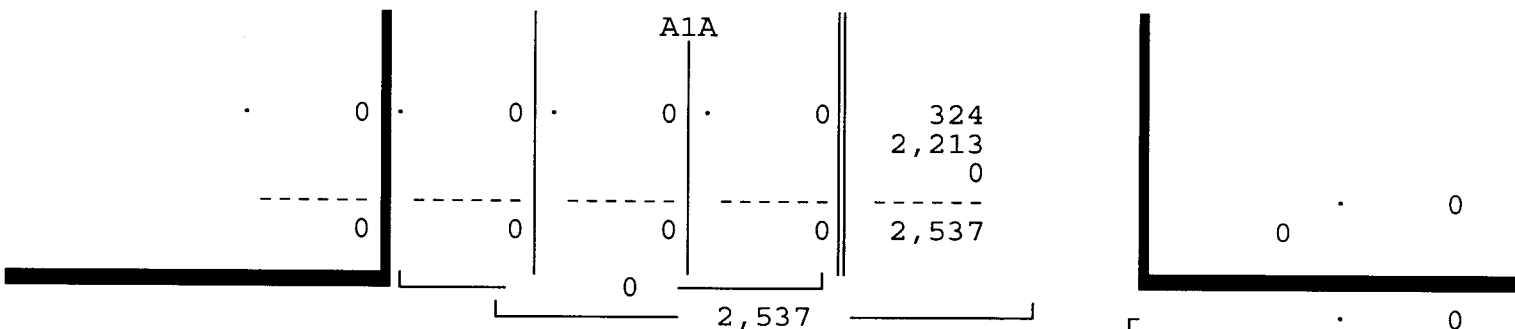
ALL VEHICLES

A1A From North				From East				A1A From South				72ND STREET From West				Total
UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	

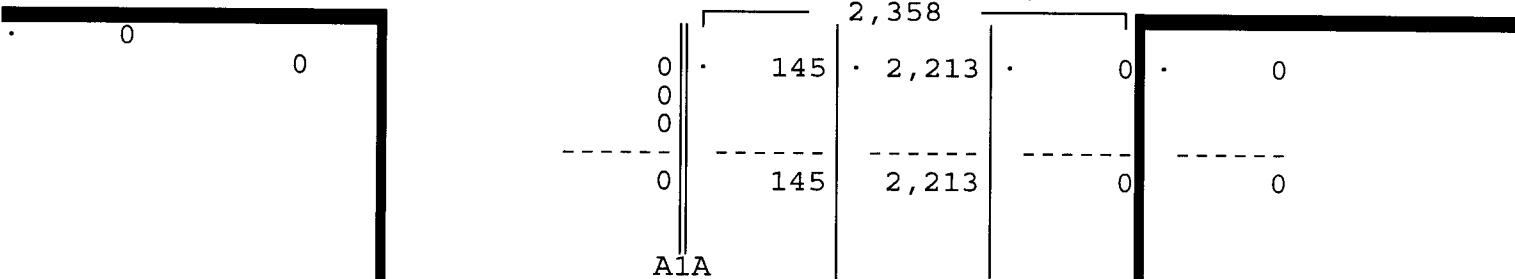
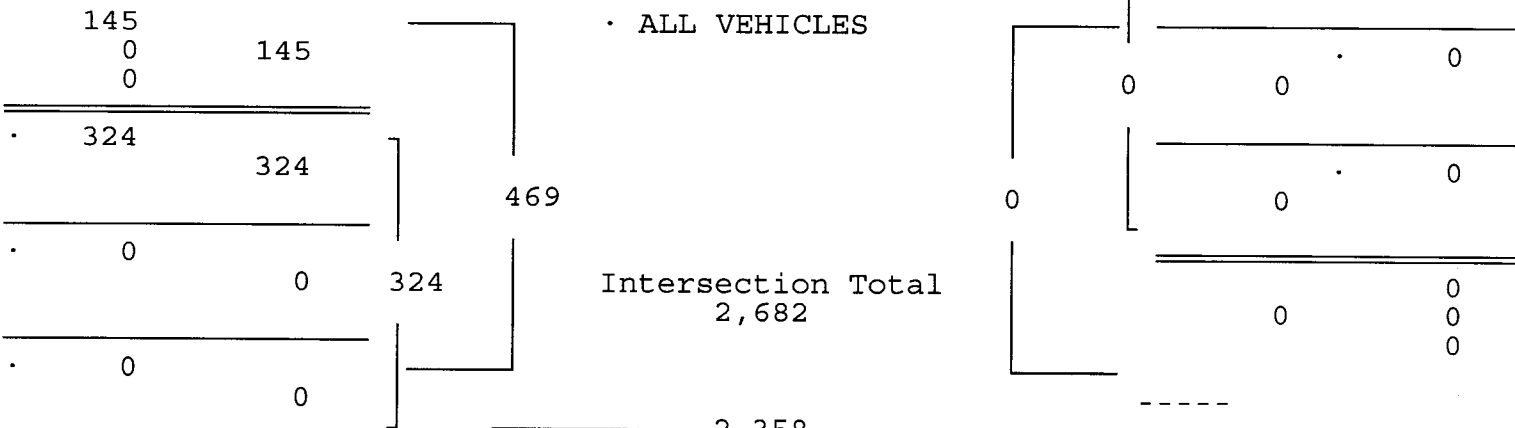
Date 09/02/16

Peak Hour Analysis By Entire Intersection for the Period: 16:30 to 18:30 on 09/02/16

Peak start 17:00				17:00				17:00				17:00				
Volume	0	0	0	0	0	0	0	0	145	2213	0	1	323	0	0	
Percent	0%	0%	0%	0%	0%	0%	0%	0%	6%	94%	0%	0%	100%	0%	0%	
Pk total	0			0				2358				324				
Highest	16:30			16:30				17:15				17:15				
Volume	0	0	0	0	0	0	0	0	34	588	0	0	88	0	0	
Hi total	0			0				622				88				
PHF	.0			.0				.95				.92				



72ND STREET



72ND STREET & A1A  
 MIAMI BEACH, FLORIDA  
 COUNTED BY: ADAM JOHNSON  
 SIGNALIZED

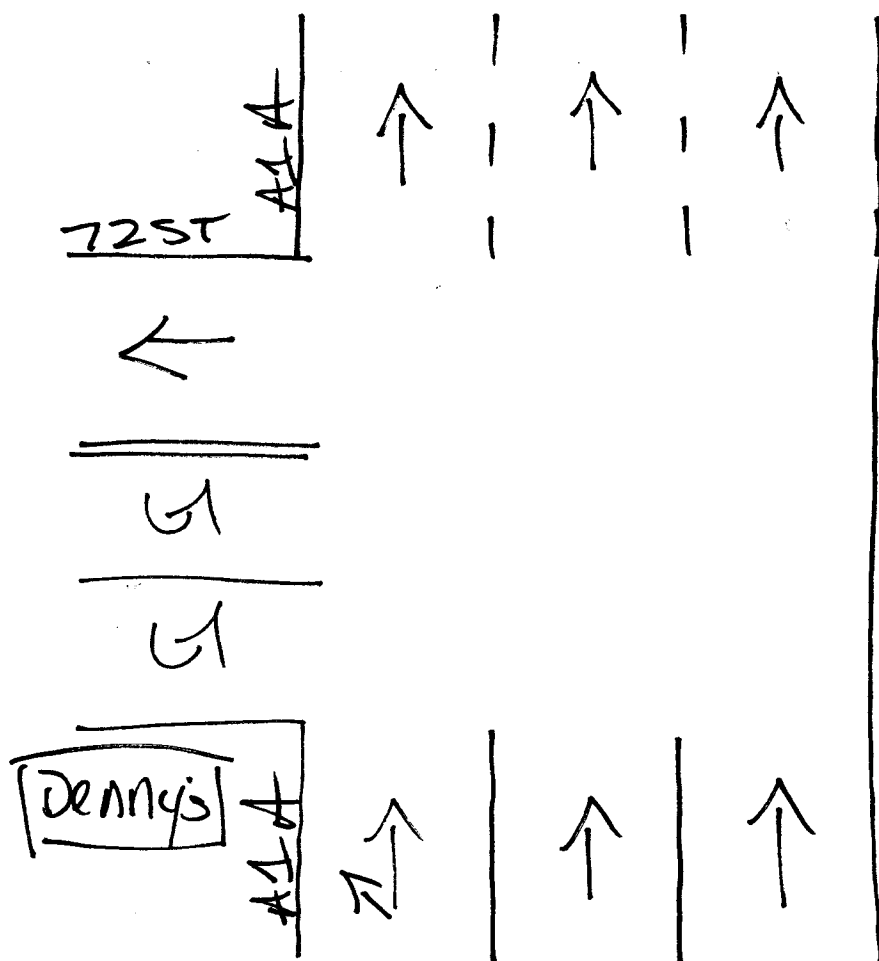
TRAFFIC SURVEY SPECIALISTS, INC.  
 85 SE 4TH AVENUE, UNIT 109  
 DELRAY BEACH, FLORIDA  
 PHONE (561)272-3255

Site Code : 00160184  
 Start Date: 09/02/16  
 File I.D. : 72ST\_A1A  
 Page : 1

PEDESTRIANS & BIKES

A1A From North					----- From East					A1A From South					72ND STREET From West					
Left	BIKES	Right	Peds		Left	BIKES	Right	Peds		Left	BIKES	Right	Peds		Left	BIKES	Right	Peds		
Date 09/02/16																				
16:30	0	0	0	4	0	0	0	0		0	2	0	24		0	0	0	8	38	
16:45	0	0	0	2	0	0	0	0		0	0	0	34		0	0	0	15	51	
17:00	0	0	0	5	0	0	0	0		0	0	0	16		0	0	0	6	27	
17:15	0	0	0	0	0	0	0	0		0	0	0	8		0	0	0	12	20	
Hr Total	0	0	0	11	0	0	0	0		0	2	0	82		0	0	0	41	136	
17:30	0	0	0	4	0	0	0	0		0	0	0	17		0	0	0	28	49	
17:45	0	0	0	0	0	0	0	0		0	0	0	25		0	0	0	44	69	
18:00	0	0	0	2	0	0	0	0		0	0	0	18		0	0	0	28	48	
18:15	0	0	0	1	0	0	0	0		0	0	0	16		0	0	0	24	41	
Hr Total	0	0	0	7	0	0	0	0		0	0	0	76		0	0	0	124	207	
*TOTAL*	0	0	0	18	0	0	0	0		0	2	0	158		0	0	0	165	343	

↑  
North



Miami Bch, Florida  
September 02, 2016  
drawn by: Luis Palomino  
Signalized

71ST STREET & HARDING AVENUE  
 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 : 00160184  
 Start Date: 09/02/16  
 File I.D. : 71STHARD  
 Page : 1

ALL VEHICLES

HARDING AVENUE From North					71ST STREET From East				HARDING AVENUE From South				71ST STREET From West								
UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		UTurn	Left	Thru	Right		Total	
Date 09/02/16 -----																					
16:30	0	4	6	1		0	6	31	1		0	25	75	10		0	17	57	9		242
16:45	0	5	4	4		0	6	11	6		0	32	66	11		0	19	58	10		232
17:00	0	3	3	4		0	1	27	4		0	37	74	4		0	26	54	9		246
17:15	0	4	8	2		0	7	39	3		0	36	76	7		0	19	68	11		280
Hr Total	0	16	21	11		0	20	108	14		0	130	291	32		0	81	237	39		1000
17:30	0	2	4	2		0	2	39	4		0	48	67	13		0	16	59	10		266
17:45	0	0	3	6		0	4	46	2		0	39	84	8		0	25	61	10		288
18:00	0	4	5	6		0	6	55	1		0	34	74	16		0	19	64	8		292
18:15	0	0	4	1		0	8	52	4		0	26	63	12		0	11	62	11		254
Hr Total	0	6	16	15		0	20	192	11		0	147	288	49		0	71	246	39		1100
-----																					
*TOTAL*	0	22	37	26		0	40	300	25		0	277	579	81		0	152	483	78		2100

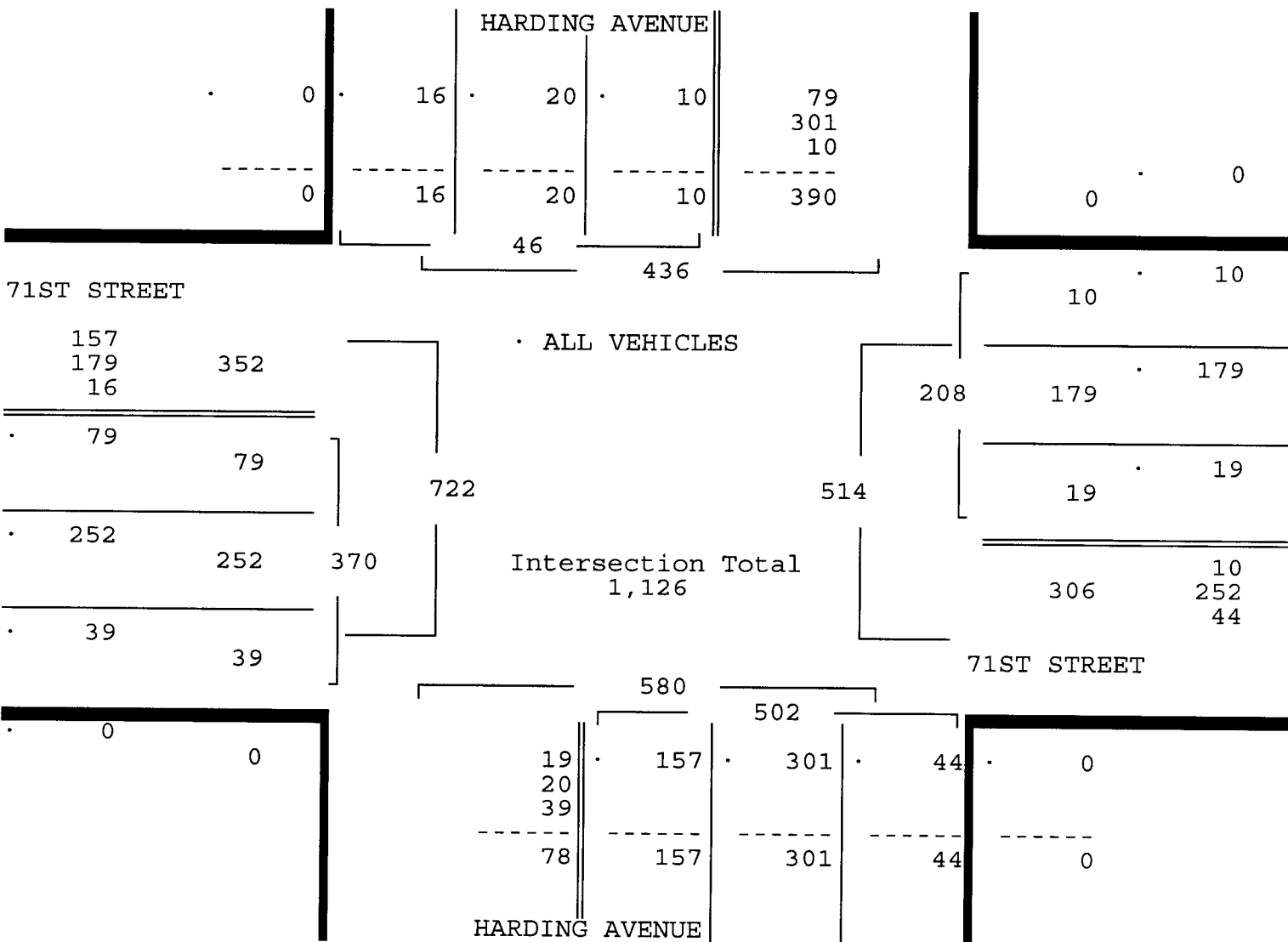
71ST STREET & HARDING AVENUE  
 MIAMI BEACH, FLORIDA  
 COUNTED BY: MICHAEL MALONE  
 SIGNALIZED

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

Site Code : 00160184  
 Start Date: 09/02/16  
 File I.D. : 71STHARD  
 Page : 2

ALL VEHICLES

HARDING AVENUE				71ST STREET				HARDING AVENUE				71ST 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 09/02/16 -----																
Peak Hour Analysis By Entire Intersection for the Period: 16:30 to 18:30 on 09/02/16																
Peak start 17:15				17:15				17:15				17:15				
Volume	0	10	20	16	0	19	179	10	0	157	301	44	0	79	252	39
Percent	0%	22%	43%	35%	0%	9%	86%	5%	0%	31%	60%	9%	0%	21%	68%	11%
Pk total	46				208				502				370			
Highest	18:00				18:00				17:45				17:15			
Volume	0	4	5	6	0	6	55	1	0	39	84	8	0	19	68	11
Hi total	15				62				131				98			
PHF	.77				.84				.96				.94			





71ST STREET & HARDING AVENUE  
 MIAMI BEACH, FLORIDA  
 COUNTED BY: MICHAEL MALONE  
 SIGNALIZED

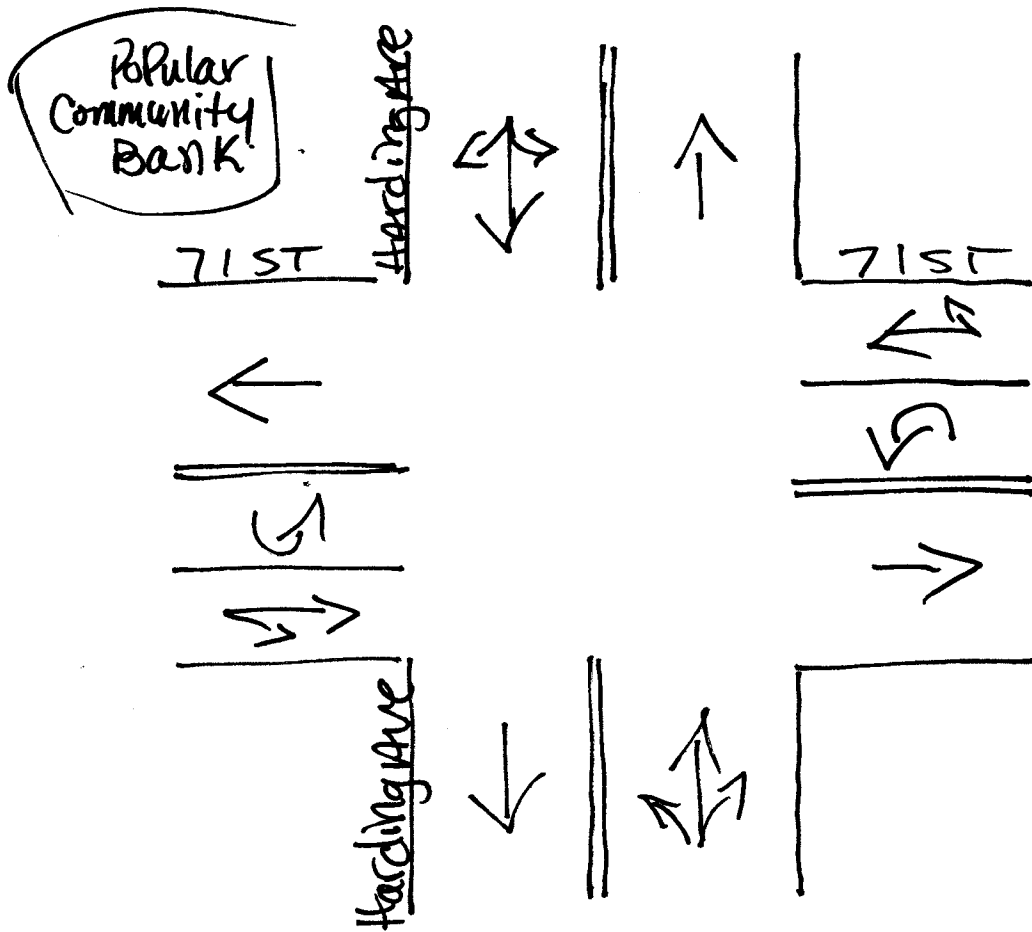
TRAFFIC SURVEY SPECIALISTS, INC.  
 85 SE 4TH AVENUE, UNIT 109  
 DELRAY BEACH, FLORIDA  
 PHONE (561)272-3255

Site Code : 00160184  
 Start Date: 09/02/16  
 File I.D. : 71STHARD  
 Page : 1

PEDESTRIANS & BIKES

Date	HARDING AVENUE From North				71ST STREET From East				HARDING AVENUE From South				71ST STREET From West				Total
	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	
09/02/16																	
16:30	0	10	0	5	0	4	0	2	0	6	0	2	0	4	0	1	34
16:45	0	12	0	0	0	6	0	0	0	18	0	0	0	10	0	0	46
17:00	0	10	0	0	0	7	0	0	0	10	0	0	0	2	0	0	29
17:15	0	5	0	0	0	9	0	0	0	16	0	0	0	7	0	0	37
Hr Total	0	37	0	5	0	26	0	2	0	50	0	2	0	23	0	1	146
17:30	0	7	0	0	0	7	0	0	0	9	0	0	0	6	0	0	29
17:45	0	17	0	1	0	3	0	2	0	9	0	7	0	2	0	3	44
18:00	0	0	0	5	0	2	0	11	0	2	0	21	0	0	0	8	49
18:15	0	18	0	0	0	3	0	3	0	20	0	2	0	3	0	0	49
Hr Total	0	42	0	6	0	15	0	16	0	40	0	30	0	11	0	11	171
*TOTAL*	0	79	0	11	0	41	0	18	0	90	0	32	0	34	0	12	317

North



Miami Bch, Florida  
September 02, 2016  
Drawn by: Luis Palomino  
Signalized

72ND STREET & HARDING AVENUE  
 MIAMI BEACH, FLORIDA  
 COUNTED BY: AMBER PALOMINO  
 NOT SIGNALIZED

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

Site Code : 00160184  
 Start Date: 09/02/16  
 File I.D. : 72STHARD  
 Page : 1

ALL VEHICLES

DRIVEWAY					72ND STREET				HARDING AVENUE				72ND 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 09/02/16																				
16:30	0	1	2	1	0	5	53	7		1	28	5	56		0	5	26	6		196
16:45	0	3	5	6	0	2	41	5		0	31	8	44		0	8	31	7		191
17:00	0	2	0	5	0	3	36	6		0	38	10	48		0	9	25	7		189
17:15	0	0	1	4	0	2	33	6		0	42	9	47		0	7	29	18		198
Hr Total	0	6	8	16	0	12	163	24		1	139	32	195		0	29	111	38		774
17:30	0	4	2	2	0	1	29	4		1	40	8	38		0	4	31	5		169
17:45	0	3	3	6	0	0	36	4		0	44	6	48		0	9	26	4		189
18:00	0	0	5	10	0	3	22	5		0	36	7	55		0	5	27	8		183
18:15	0	2	3	7	1	3	17	7		0	27	6	47		0	4	28	4		156
Hr Total	0	9	13	25	1	7	104	20		1	147	27	188		0	22	112	21		697
*TOTAL*	0	15	21	41	1	19	267	44		2	286	59	383		0	51	223	59		1471

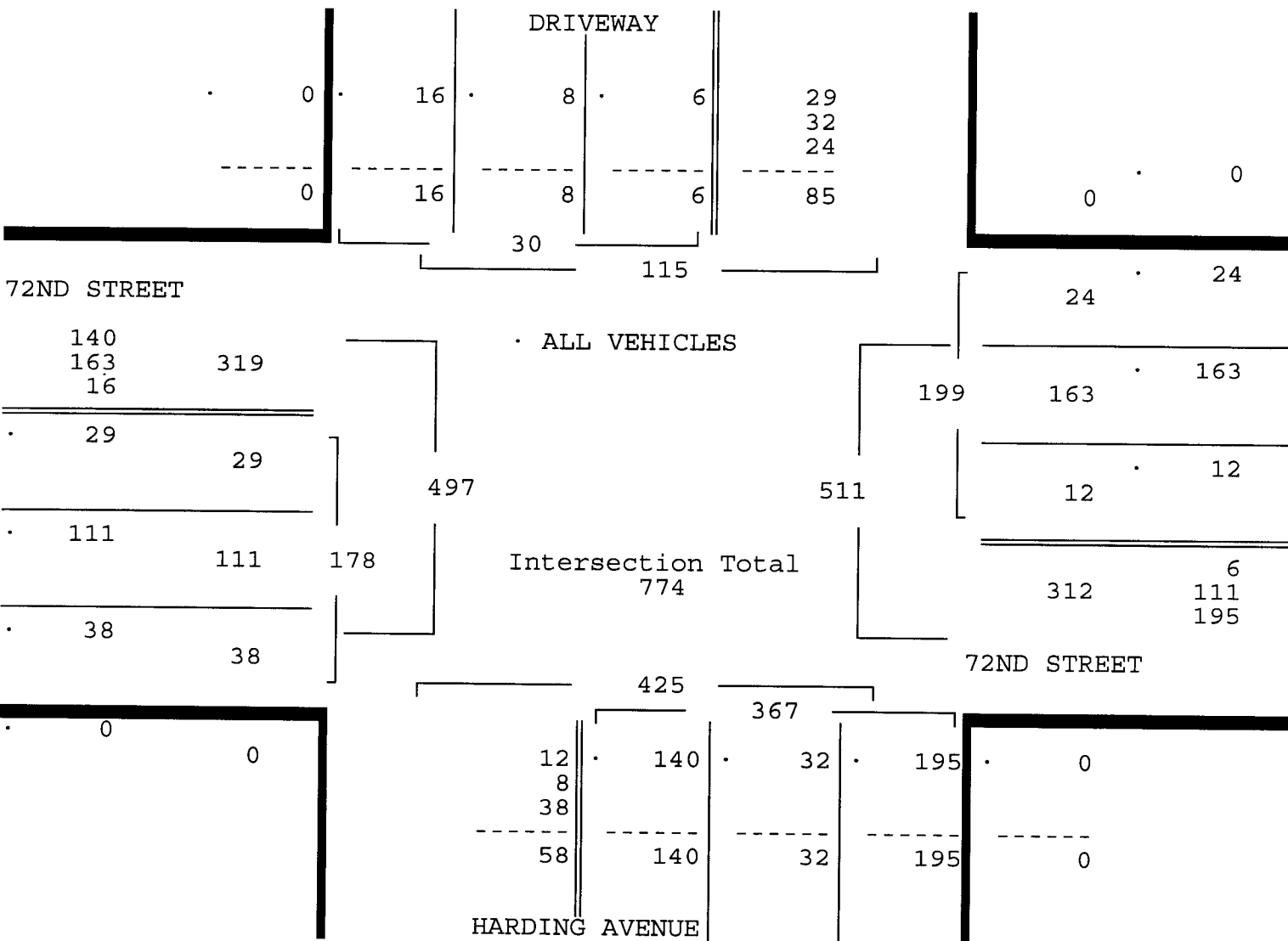
72ND STREET & HARDING AVENUE  
 MIAMI BEACH, FLORIDA  
 COUNTED BY: AMBER PALOMINO  
 NOT SIGNALIZED

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

Site Code : 00160184  
 Start Date: 09/02/16  
 File I.D. : 72STHARD  
 Page : 2

ALL VEHICLES

DRIVEWAY					72ND STREET				HARDING AVENUE				72ND 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 09/02/16 -----																		
Peak Hour Analysis By Entire Intersection for the Period: 16:30 to 18:30 on 09/02/16																		
Peak start 16:30					16:30				16:30				16:30					
Volume	0	6	8	16	0	12	163	24	1	139	32	195	0	29	111	38		
Percent	0%	20%	27%	53%	0%	6%	82%	12%	0%	38%	9%	53%	0%	16%	62%	21%		
Pk total	30				199				367				178					
Highest	16:45				16:30				17:15				17:15					
Volume	0	3	5	6	0	5	53	7	0	42	9	47	0	7	29	18		
Hi total	14				65				98				54					
PHF	.54				.77				.94				.82					



72ND STREET & HARDING AVENUE  
 MIAMI BEACH, FLORIDA  
 COUNTED BY: AMBER PALOMINO  
 NOT SIGNALIZED

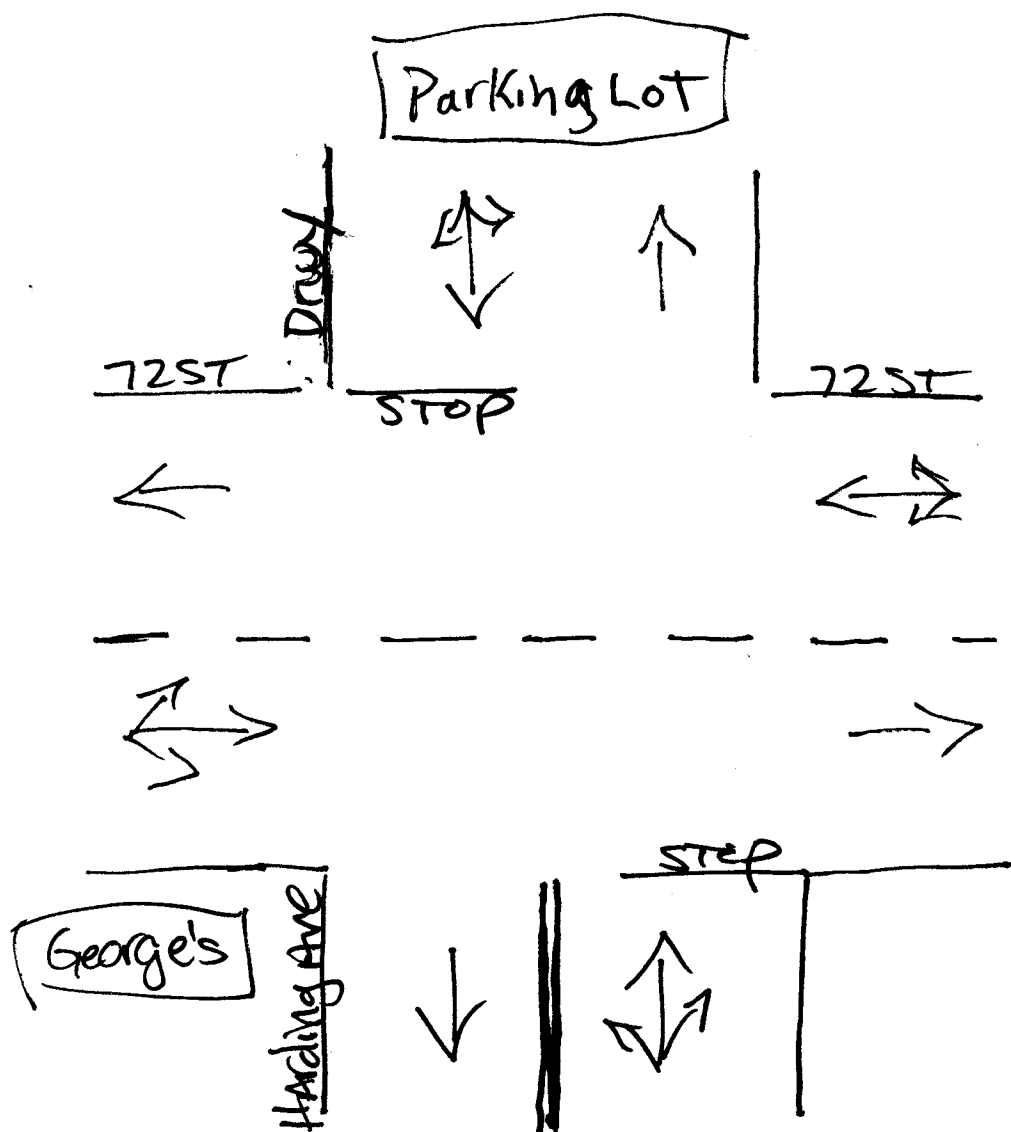
TRAFFIC SURVEY SPECIALISTS, INC.

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

Site Code : 00160184  
 Start Date: 09/02/16  
 File I.D. : 72STHARD  
 Page : 1

PEDESTRIANS & BIKES

	DRIVEWAY From North				72ND STREET From East				HARDING AVENUE From South				72ND STREET From West				Total
	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	
Date 09/02/16																	
16:30	0	1	0	4	0	1	0	1	0	1	0	10	0	0	0	2	20
16:45	0	0	0	6	0	0	0	3	0	0	0	5	0	1	0	4	19
17:00	0	0	0	2	0	0	0	2	0	0	0	6	0	0	0	2	12
17:15	0	0	0	2	0	0	0	1	0	2	0	12	0	0	0	1	18
Hr Total	0	1	0	14	0	1	0	7	0	3	0	33	0	1	0	9	69
17:30	0	0	0	6	0	0	0	5	0	1	0	5	0	0	0	3	20
17:45	0	0	0	6	0	0	0	1	0	0	0	5	0	0	0	7	19
18:00	0	0	0	10	0	0	0	6	0	0	0	5	0	1	0	3	25
18:15	0	0	0	1	0	0	0	1	0	0	0	6	0	0	0	2	10
Hr Total	0	0	0	23	0	0	0	13	0	1	0	21	0	1	0	15	74
*TOTAL*	0	1	0	37	0	1	0	20	0	4	0	54	0	2	0	24	143



North

Miami Bch, Florida  
September 02, 2016  
Drawn by: Luis Palomino  
NOT Signalized

71ST STREET & ABBOTT AVENUE  
 MIAMI BEACH, FLORIDA  
 COUNTED BY: RICHARD MENDEZ  
 SIGNALIZED

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

Site Code : 00160184  
 Start Date: 09/02/16  
 File I.D. : 71STABBO  
 Page : 1

ALL VEHICLES

ABBOTT AVENUE					71ST STREET				ABBOTT AVENUE				71ST 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 09/02/16 -----																					
16:30	0	10	349	103		0	10	50	0		0	0	0	0		0	0	65	21		608
16:45	0	10	356	82		0	2	61	0		0	0	0	0		0	0	79	13		603
17:00	0	8	305	96		0	5	67	0		0	0	0	0		0	0	79	28		588
17:15	0	12	329	84		0	6	71	0		0	0	0	0		0	0	88	9		599
Hr Total	0	40	1339	365		0	23	249	0		0	0	0	0		0	0	311	71		2398
17:30	0	16	303	87		0	13	79	0		0	0	0	0		0	0	69	10		577
17:45	0	16	330	74		0	10	78	0		0	0	0	0		0	0	82	14		604
18:00	0	9	322	80		0	15	81	0		0	0	0	0		0	0	88	16		611
18:15	0	17	338	100		0	10	84	0		0	0	0	0		0	0	65	14		628
Hr Total	0	58	1293	341		0	48	322	0		0	0	0	0		0	0	304	54		2420
-----																					
*TOTAL*	0	98	2632	706		0	71	571	0		0	0	0	0		0	0	615	125		4818

71ST STREET & ABBOTT AVENUE  
 MIAMI BEACH, FLORIDA  
 COUNTED BY: RICHARD MENDEZ  
 SIGNALIZED

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

Site Code : 00160184  
 Start Date: 09/02/16  
 File I.D. : 71STABBO  
 Page : 2

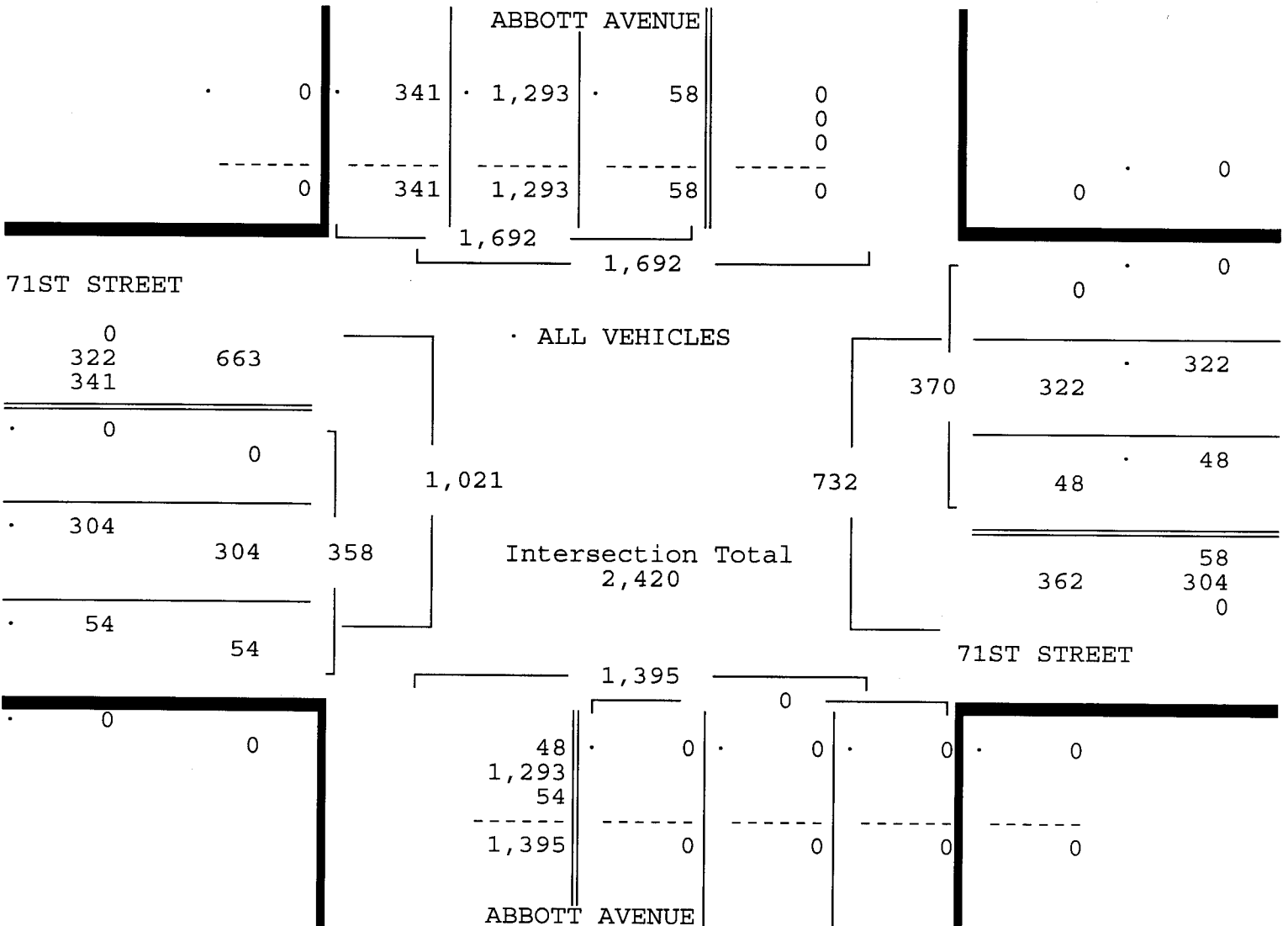
ALL VEHICLES

ABBOTT AVENUE From North				71ST STREET From East				ABBOTT AVENUE From South				71ST STREET From West				Total
UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	UTurn	Left	Thru	Right	

Date 09/02/16

Peak Hour Analysis By Entire Intersection for the Period: 16:30 to 18:30 on 09/02/16

Peak start 17:30				17:30				17:30				17:30				
Volume	0	58	1293	341	0	48	322	0	0	0	0	0	0	304	54	
Percent	0%	3%	76%	20%	0%	13%	87%	0%	0%	0%	0%	0%	0%	85%	15%	
Pk total	1692				370			0				358				
Highest	18:15				18:00			16:30				18:00				
Volume	0	17	338	100	0	15	81	0	0	0	0	0	0	88	16	
Hi total	455				96			0				104				
PHF	.93				.96			.0				.86				





71ST STREET & ABBOTT AVENUE  
 MIAMI BEACH, FLORIDA  
 COUNTED BY: RICHARD MENDEZ  
 SIGNALIZED

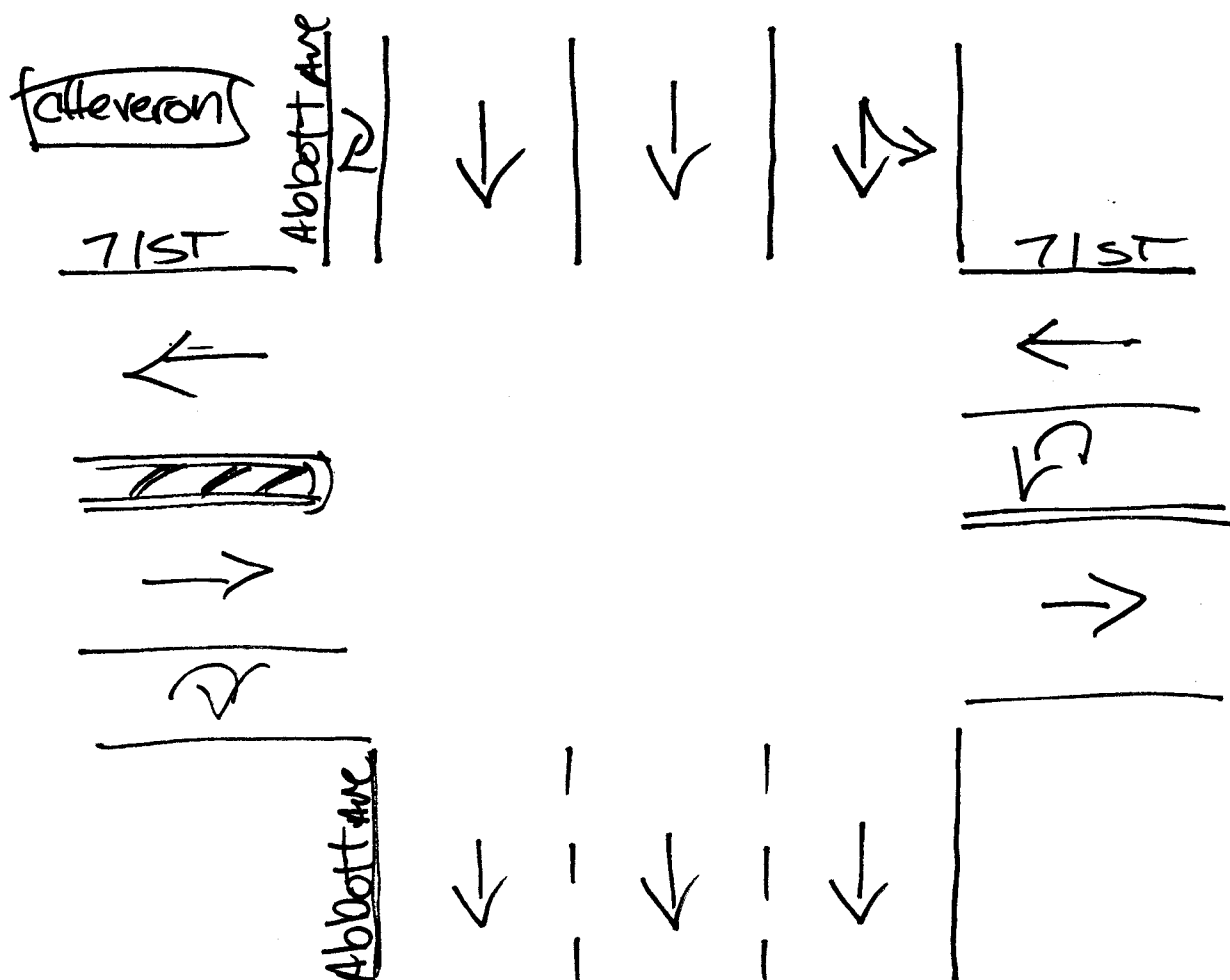
TRAFFIC SURVEY SPECIALISTS, INC.  
 85 SE 4TH AVENUE, UNIT 109  
 DELRAY BEACH, FLORIDA  
 PHONE (561)272-3255

Site Code : 00160184  
 Start Date: 09/02/16  
 File I.D. : 71STABBO  
 Page : 1

PEDESTRIANS & BIKES

ABBOTT AVENUE From North					71ST STREET From East					ABBOTT AVENUE From South					71ST STREET From West					
Left	BIKES	Right	Peds		Left	BIKES	Right	Peds		Left	BIKES	Right	Peds		Left	BIKES	Right	Peds		
Date 09/02/16																				
16:30	0	1	0	10	0	0	0	2		0	1	0	7		0	0	0	7		
16:45	0	2	0	6	0	1	0	2		0	0	0	15		0	0	0	4		
17:00	0	3	0	15	0	2	0	5		0	3	0	14		0	0	0	2		
17:15	0	1	0	8	0	1	0	0		0	1	0	12		0	2	0	3		
Hr Total	0	7	0	39	0	4	0	9		0	5	0	48		0	2	0	16		
17:30	0	1	0	13	0	0	0	0		0	2	0	15		0	0	0	4		
17:45	0	3	0	12	0	1	0	10		0	2	0	17		0	0	0	8		
18:00	0	0	0	8	0	0	0	5		0	3	0	15		0	0	0	6		
18:15	0	1	0	15	0	1	0	8		0	2	0	15		0	0	0	12		
Hr Total	0	5	0	48	0	2	0	23		0	9	0	62		0	0	0	30		
*TOTAL*	0	12	0	87	0	6	0	32		0	14	0	110		0	2	0	46		

North



Miami Bch, Florida  
September 02, 2016  
drawn by: Luis Palomino  
Signalized

72ND STREET & ABBOTT AVENUE  
 MIAMI BEACH, FLORIDA  
 COUNTED BY: MARISA CRUZ  
 SIGNALIZED

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

Site Code : 00160184  
 Start Date: 09/02/16  
 File I.D. : 72STABBO  
 Page : 1

ALL VEHICLES

ABBOTT AVENUE					72ND STREET				ABBOTT AVENUE				72ND 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 09/02/16 -----																				
16:30	0	9	443	29	0	20	67	0		0	0	0	0		0	0	28	12		608
16:45	0	11	402	46	0	18	56	0		0	0	0	0		0	0	35	8		576
17:00	0	13	379	46	0	17	70	0		0	0	0	0		0	0	29	10		564
17:15	0	11	403	42	0	15	67	0		0	0	0	0		0	0	39	5		582
Hr Total	0	44	1627	163	0	70	260	0		0	0	0	0		0	0	131	35		2330
17:30	0	7	368	43	0	19	57	0		0	0	0	0		0	0	33	8		535
17:45	0	9	394	32	0	20	63	0		0	0	0	0		0	0	34	10		562
18:00	0	14	392	31	0	17	57	0		0	0	0	0		0	0	29	9		549
18:15	0	4	422	19	0	11	37	0		0	0	0	0		0	0	28	12		533
Hr Total	0	34	1576	125	0	67	214	0		0	0	0	0		0	0	124	39		2179
-----																				
*TOTAL*	0	78	3203	288	0	137	474	0		0	0	0	0		0	0	255	74		4509

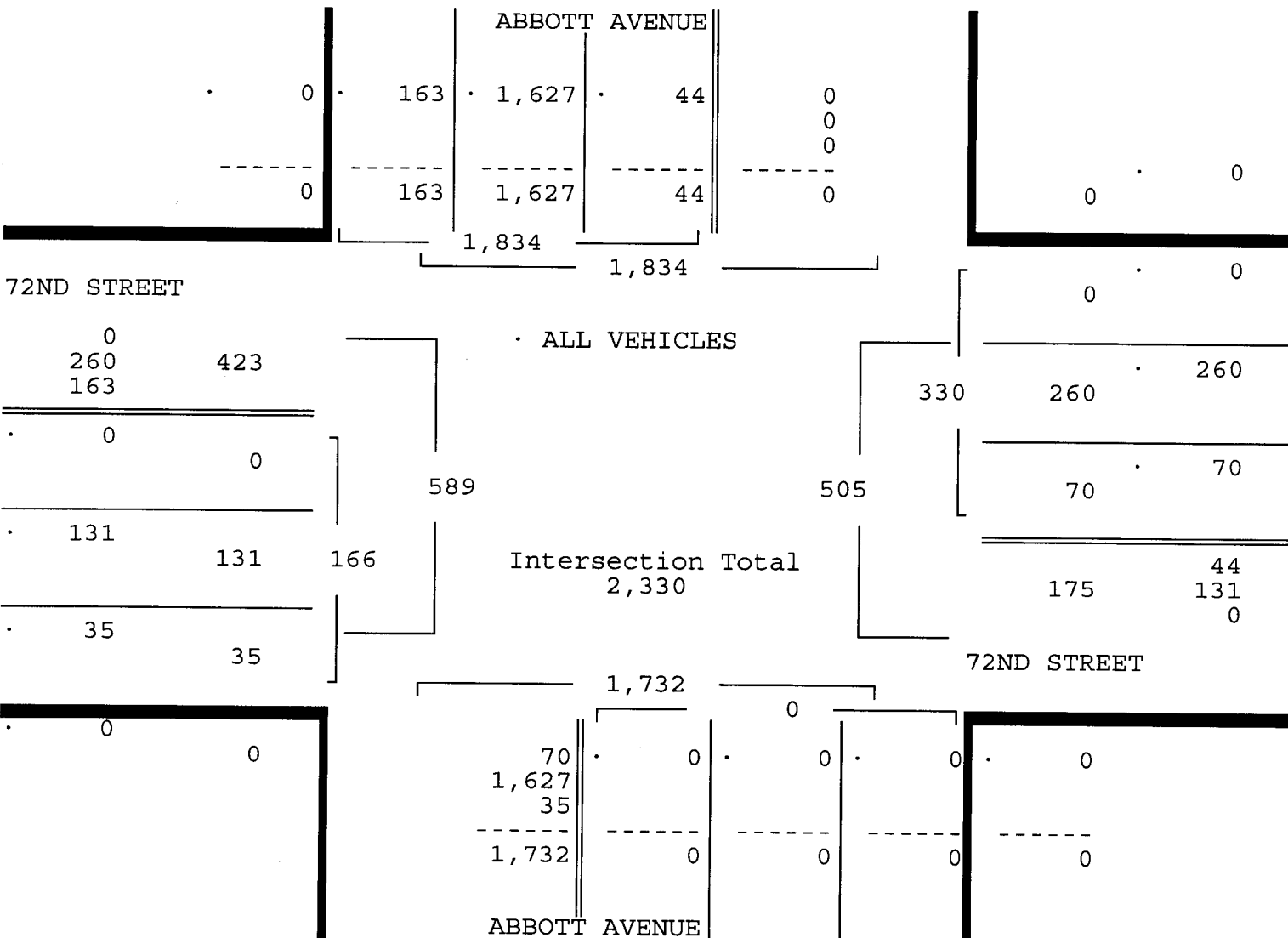
72ND STREET & ABBOTT AVENUE  
 MIAMI BEACH, FLORIDA  
 COUNTED BY: MARISA CRUZ  
 SIGNALIZED

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

Site Code : 00160184  
 Start Date: 09/02/16  
 File I.D. : 72STABBO  
 Page : 2

ALL VEHICLES

ABBOTT AVENUE					72ND STREET					ABBOTT AVENUE					72ND 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		
Date 09/02/16																				Total
Peak Hour Analysis By Entire Intersection for the Period: 16:30 to 18:30 on 09/02/16																				
Peak start 16:30					16:30					16:30					16:30					
Volume	0	44	1627	163	0	70	260	0	0	0	0	0	0	0	0	0	131	35		
Percent	0%	2%	89%	9%	0%	21%	79%	0%	0%	0%	0%	0%	0%	0%	0%	0%	79%	21%		
Pk total	1834				330				0						166					
Highest	16:30				16:30				16:30						17:15					
Volume	0	9	443	29	0	20	67	0	0	0	0	0	0	0	0	0	39	5		
Hi total	481				87				0						44					
PHF	.95				.95				.0						.94					



72ND STREET & ABBOTT AVENUE  
 MIAMI BEACH, FLORIDA  
 COUNTED BY: MARISA CRUZ  
 SIGNALIZED

TRAFFIC SURVEY SPECIALISTS, INC.

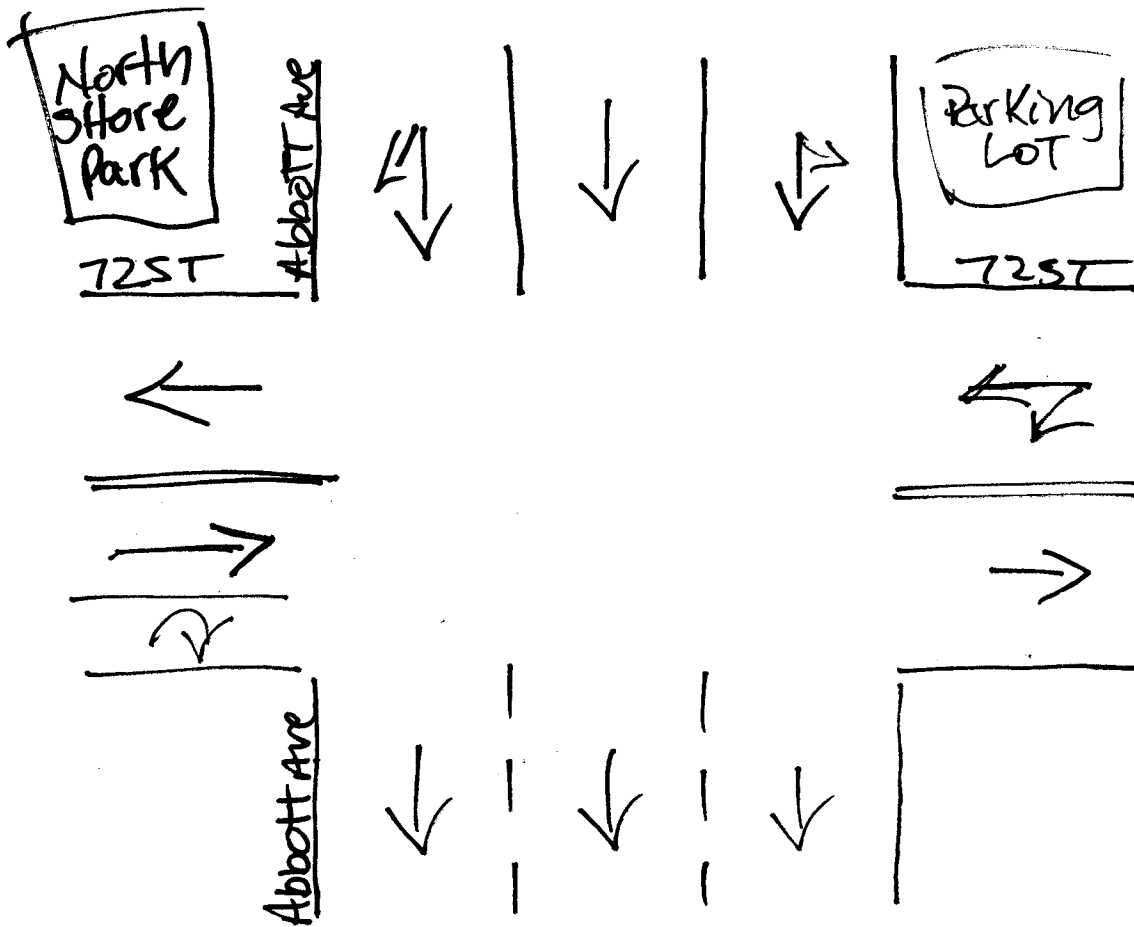
85 SE 4TH AVENUE, UNIT 109  
 DELRAY BEACH, FLORIDA  
 PHONE (561)272-3255

Site Code : 00160184  
 Start Date: 09/02/16  
 File I.D. : 72STABBO  
 Page : 1

PEDESTRIANS & BIKES

Date	ABBOTT AVENUE From North				72ND STREET From East				ABBOTT AVENUE From South				72ND STREET From West				Total
	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	
09/02/16																	
16:30	0	2	0	15	0	0	0	4	0	2	0	6	0	2	0	12	43
16:45	0	0	0	14	0	0	0	5	0	1	0	5	0	0	0	12	37
17:00	0	0	0	10	0	0	0	2	0	3	0	12	0	0	0	5	32
17:15	0	0	0	15	0	2	0	8	0	2	0	6	0	3	0	3	39
Hr Total	0	2	0	54	0	2	0	19	0	8	0	29	0	5	0	32	151
17:30	0	1	0	11	0	0	0	1	0	0	0	6	0	3	0	11	33
17:45	0	1	0	4	0	0	0	0	0	0	0	8	0	1	0	8	22
18:00	0	0	0	17	0	0	0	2	0	1	0	2	0	0	0	13	35
18:15	0	0	0	11	0	1	0	5	0	0	0	5	0	1	0	8	31
Hr Total	0	2	0	43	0	1	0	8	0	1	0	21	0	5	0	40	121
*TOTAL*	0	4	0	97	0	3	0	27	0	9	0	50	0	10	0	72	272

North



Miami Bch, Florida  
September 02, 2016  
Drawn by: Luis Palomino  
Signalized

71ST STREET & INDIAN CREEK DRIVE  
MIAMI BEACH, FLORIDA  
COUNTED BY: SEBASTIAN SALVO  
SIGNALIZED

TRAFFIC SURVEY SPECIALISTS, INC.

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

Site Code : 00160184  
Start Date: 09/02/16  
File I.D. : 71STINDI  
Page : 1

ALL VEHICLES

DICKENS AVENUE					71ST STREET				INDIAN CREEK DRIVE				71ST 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 09/02/16																			
16:30	0	1	29	110	0	0	204	8		0	156	33	0		0	74	120	101	836
16:45	0	0	39	103	0	0	208	4		0	177	33	2		0	62	137	93	858
17:00	0	0	27	110	0	1	194	7		0	217	38	2		0	64	147	104	911
17:15	0	2	25	103	0	0	231	5		0	174	25	2		0	69	159	96	891
Hr Total	0	3	120	426	0	1	837	24		0	724	129	6		0	269	563	394	3496
17:30	0	3	33	88	0	1	199	7		0	257	58	0		0	55	118	97	916
17:45	0	2	30	111	0	0	188	4		0	204	63	1		1	63	169	103	939
18:00	0	2	15	95	0	0	207	6		0	221	86	1		0	61	128	92	914
18:15	0	0	41	114	0	2	185	8		0	154	62	3		0	62	91	84	806
Hr Total	0	7	119	408	0	3	779	25		0	836	269	5		1	241	506	376	3575
*TOTAL*	0	10	239	834	0	4	1616	49		0	1560	398	11		1	510	1069	770	7071

[illegible]



71ST STREET & INDIAN CREEK DRIVE  
 MIAMI BEACH, FLORIDA  
 COUNTED BY: SEBASTIAN SALVO  
 SIGNALIZED

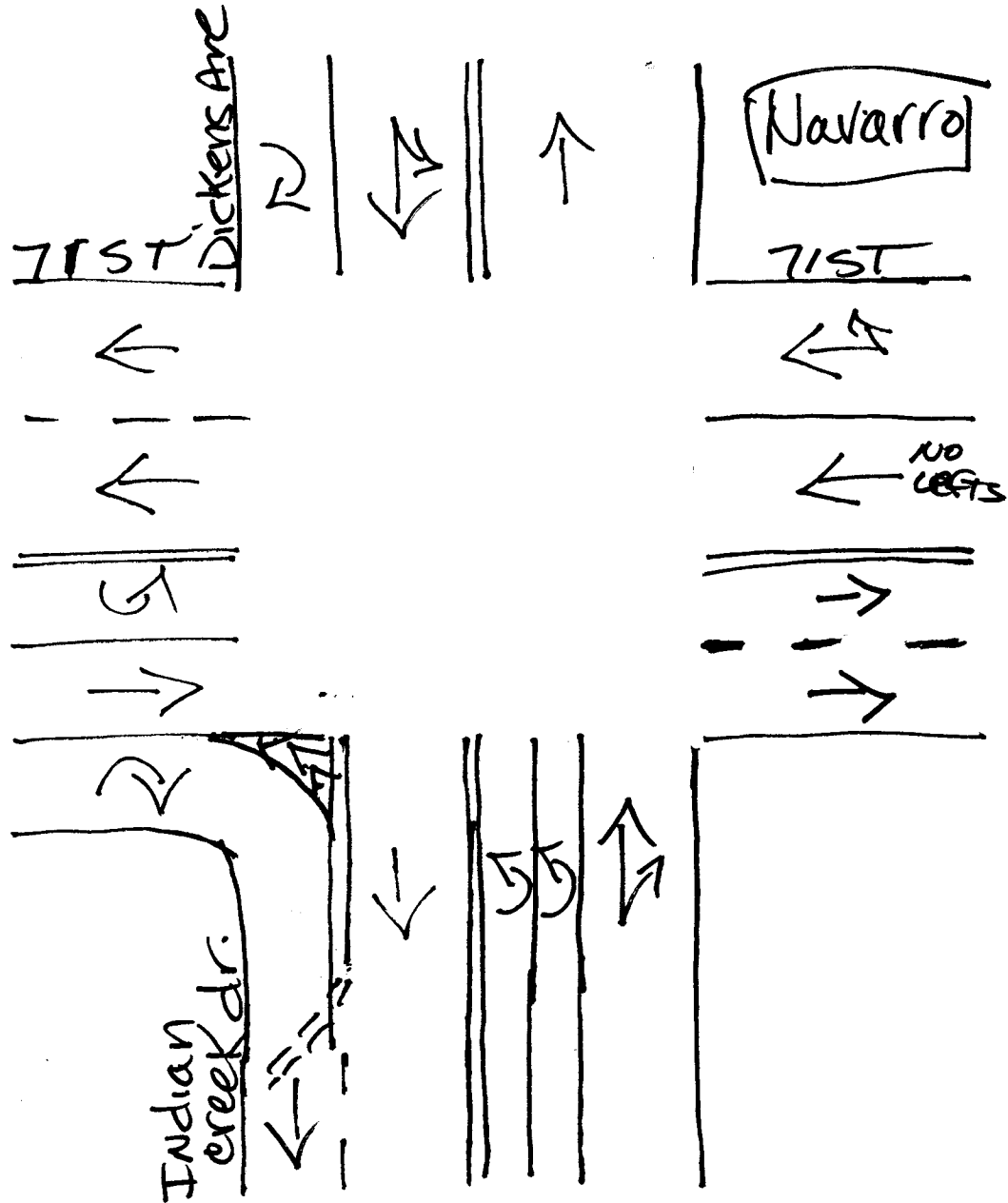
TRAFFIC SURVEY SPECIALISTS, INC.  
 85 SE 4TH AVENUE, UNIT 109  
 DELRAY BEACH, FLORIDA  
 PHONE (561)272-3255

Site Code : 00160184  
 Start Date: 09/02/16  
 File I.D. : 71STINDI  
 Page : 1

PEDESTRIANS & BIKES

DICKENS AVENUE					71ST STREET				INDIAN CREEK DRIVE				71ST STREET				
From North					From East				From South				From West				
	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Left	BIKES	Right	Peds	Total
Date 09/02/16 -----																	
16:30	0	5	0	14	0	0	0	15	0	1	0	9	0	0	0	1	45
16:45	0	6	0	17	0	1	0	14	0	3	0	11	0	0	0	1	53
17:00	0	7	0	12	0	1	0	6	0	3	0	9	0	1	0	1	40
17:15	0	3	0	16	0	2	0	8	0	1	0	9	0	0	0	1	40
Hr Total	0	21	0	59	0	4	0	43	0	8	0	38	0	1	0	4	178
17:30	0	6	0	9	0	0	0	25	0	1	0	11	0	0	0	0	52
17:45	0	8	0	15	0	4	0	17	0	3	0	11	0	1	0	0	59
18:00	0	2	0	12	0	1	0	2	0	1	0	4	0	0	0	0	22
18:15	0	0	0	8	0	0	0	6	0	2	0	13	0	0	0	0	29
Hr Total	0	16	0	44	0	5	0	50	0	7	0	39	0	1	0	0	162
-----																	
*TOTAL*	0	37	0	103	0	9	0	93	0	15	0	77	0	2	0	4	340

North



Miami Bch, Florida  
September 02, 2016  
drawn by: Luis Palomino  
signalized

## **Signal Timings**

**TOD Schedule Report**  
for 2637: Abbott Av&71 St

Print Date:  
4/8/2016

Print Time:  
2:06 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>
2637	Abbott Av&71 St	DOW-6		N/A	0	0	N/A	0	Max 0

**Splits**

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

Active Phase Bank: Phase Bank 1

Phase	Walk			Don't Walk			Min Initial			Veh Ext			Max Limit			Max 2			Yellow	Red	
	Phase Bank																				
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3			
1 -	0	-	0	-	0	-	0	-	0	0	-	0	-	0	-	0	-	0	0	0	
2 SBT	4	-	4	-	4	-	4	-	4	1	-	1	-	1	35	-	35	-	35	4	2.3
3 -	0	-	0	-	0	-	0	-	0	0	-	0	-	0	0	-	0	-	0	0	
4 WBT	4	-	4	-	4	-	4	-	4	1	-	1	-	1	17	-	17	-	17	4	2.3
5 -	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	
7 WBL	0	-	0	-	0	-	0	-	0	5	-	5	-	0	5	-	7	-	0	3	0
8 EBT	4	-	4	-	4	-	4	-	4	1	-	1	-	1	17	-	17	-	17	4	2.3

Last In Service Date: unknown

**Permitted Phases**

**12345678**

Default -2-4--78  
External Permit 0 -2-4-6-8  
External Permit 1 -2-4-6-8  
External Permit 2 -2-4-6-8

**TOD Schedule Report**  
for 2637: Abbott Av&71 St

Print Date:  
4/8/2016

Print Time:  
2:06 AM

Current TOD Schedule	Plan	Cycle	Green Time								Ring Offset	Offset
			1 -	2 SBT	3 -	4 WBT	5 -	6 -	7 WBL	8 EBT		
1		90	0	47	0	31	0	0	0	31	0	30
2		100	0	41	0	47	0	0	0	47	0	27
3		90	0	42	0	36	0	0	0	36	0	3
4		80	0	37	0	31	0	0	0	31	0	65
5		120	0	72	0	36	0	0	0	36	0	109
6		70	0	30	0	28	0	0	0	28	0	20
7		70	0	30	0	28	0	0	0	28	0	20
8		70	0	34	0	24	0	0	0	24	0	28
9		90	0	39	0	39	0	0	6	30	0	17
10		70	0	34	0	24	0	0	0	24	0	29
11		70	0	30	0	28	0	0	0	28	0	20
12		100	0	41	0	47	0	0	0	47	0	35
13		70	0	30	0	28	0	0	0	28	0	28
14		90	0	46	0	32	0	0	6	23	0	41
20		70	0	30	0	28	0	0	0	28	0	20
22		80	0	37	0	31	0	0	0	31	0	54
23		80	0	37	0	31	0	0	0	31	0	54

**Local TOD Schedule**

Time	Plan	DOW
0000	8	Su M T W Th F S
0600	10	Su M T W Th F
0700	1	M T W Th F
0800	10	Su S
1000	14	Su S
1630	12	Su S
1830	10	Su S
1930	10	M T W Th F
2100	13	Su M T W Th F S

**Current Time of Day Function**

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	---5---	Su M T W Th F S
0700	TOD OUTPUTS	-----	M T W Th F
1930	TOD OUTPUTS	---5---	M T W Th F

**Local Time of Day Function**

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	---5---	Su M T W Th F S
0700	TOD OUTPUTS	-----	M T W Th F
1000	TOD OUTPUTS	-----	Su S
1830	TOD OUTPUTS	---5---	Su S
1930	TOD OUTPUTS	---5---	M T W Th F

**\* 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**

**Print Date:**  
**4/8/2016**

**Print Time:**  
**2:06 AM**

## Splits



Phase	<u>Walk</u>			<u>Don't Walk</u>			<u>Min Initial</u>			<u>Veh Ext</u>			<u>Max Limit</u>			<u>Max 2</u>			<u>Yellow</u>	<u>Red</u>							
	Phase Bank																										
	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	5	-	5 - 5	15	-	15 - 15	5	-	5 - 5	1	-	1 - 1	38	-	38 - 38	0	-	0 - 0	4	2.4							
3 -	0	-	0 - 0	0	-	0 - 0	0	-	0 - 0	0	-	0 - 0	0	-	0 - 0	0	-	0 - 0	0	0							
4 WBT	5	-	5 - 5	20	-	20 - 20	7	-	7 - 7	2	-	2 - 2	22	-	22 - 22	30	-	30 - 30	4	2.3							
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 EBT	5	-	5 - 5	20	-	20 - 20	7	-	7 - 7	2	-	2 - 2	22	-	22 - 22	30	-	30 - 30	4	2.4							

### Permitted Phases

12345678

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

**TOD Schedule Report**  
for 2638: Abbott Av&72 St

Print Date:  
4/8/2016

Print Time:  
2:06 AM

Current TOD Schedule	Plan	Cycle	Green Time								Ring Offset	Offset
			1 -	2 SBT	3 -	4 WBT	5 -	6 -	7 -	8 EBT		
1		90	0	52	0	26	0	0	0	26	0	25
2		100	0	62	0	26	0	0	0	26	0	41
3		90	0	52	0	26	0	0	0	26	0	11
4		80	0	42	0	26	0	0	0	26	0	68
5		120	0	82	0	26	0	0	0	26	0	0
6		70	0	32	0	26	0	0	0	26	0	22
7		70	0	32	0	26	0	0	0	26	0	22
8		70	0	32	0	26	0	0	0	26	0	18
9		90	0	52	0	26	0	0	0	26	0	26
10		70	0	32	0	26	0	0	0	26	0	20
11		70	0	32	0	26	0	0	0	26	0	22
12		100	0	62	0	26	0	0	0	26	0	48
13		70	0	32	0	26	0	0	0	26	0	23
14		90	0	52	0	26	0	0	0	26	0	40
20		70	0	32	0	26	0	0	0	26	0	22
22		80	0	42	0	26	0	0	0	26	0	60
23		80	0	42	0	26	0	0	0	26	0	60

**Local TOD Schedule**

Time	Plan	DOW
0000	8	Su M T W Th F S
0600	10	Su M T W Th F
0700	1	M T W Th F
0800	10	Su S
1000	14	Su S
1630	12	Su S
1830	10	Su S
1930	10	M T W Th F
2100	13	Su M T W Th F S

**Current Time of Day Function**

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	-----	SuM T W ThF S

**Local Time of Day Function**

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	-----	SuM T W ThF S

**\* Settings**

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

**No Calendar Defined/Enabled**

**TOD Schedule Report**  
for 2692: Collins Av&71 St


Print Date:  
2/15/2016

Print Time:  
2:17 AM

<u>Asset</u>	<u>Intersection</u>	<u>TOD Schedule</u>	<u>Op Mode</u>	<u>Plan #</u>	<u>Cycle</u>	<u>Offset</u>	<u>TOD Setting</u>	<u>Active PhaseBank</u>	<u>Active Maximum</u>
2692	Collins Av&71 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>
PED	NBT	EBT	WBT	NBL	-	-	-
0	0	0	0	0	0	0	0

N/A    

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 PED	4 - 4 - 4	16 - 16 - 16	0 - 0 - 0	0 - 0 - 0	20 - 20 - 20	20 - 20 - 20	0	0
2 NBT	4 - 4 - 4	10 - 10 - 10	4 - 4 - 4	1 - 1 - 1	16 - 16 - 16	0 - 0 - 0	4	2
3 EBT	4 - 4 - 4	15 - 15 - 15	7 - 7 - 7	1 - 1 - 1	12 - 12 - 12	33 - 21 - 21	4	2
4 WBT	0 - 0 - 0	0 - 0 - 0	7 - 7 - 7	2.5 - 2.5 - 2.5	7 - 7 - 7	20 - 12 - 12	4	2
5 NBL	0 - 0 - 0	0 - 0 - 0	5 - 5 - 5	1 - 1 - 1	20 - 20 - 20	20 - 20 - 20	4	2
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 12345---  
External Permit 0 -----  
External Permit 1 -----  
External Permit 2 -----

<u>Current</u>	<u>Green Time</u>											
<u>TOD Schedule</u>	<u>Plan</u>	<u>Cycle</u>	1	2	3	4	5	6	7	8	<u>Ring Offset</u>	<u>Offset</u>
			PED	NBT	EBT	WBT	NBL	-	-	-		
1		90	23	16	19	14	16	0	0	0	0	15
2		140	21	75	19	7	75	0	0	0	0	26
3		180	24	89	31	18	89	0	0	0	0	83
4		180	20	102	30	10	102	0	0	0	0	80
5		90	21	20	19	12	20	0	0	0	0	68
6		100	21	26	19	16	26	0	0	0	0	23
12		90	20	26	19	7	26	0	0	0	0	60
13		70	29	9	19	**	9	0	0	0	0	26
14		90	19	20	19	14	20	0	0	0	0	78

**Local TOD Schedule**

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



**TOD Schedule Report**  
**for 2692: Collins Av&71 St**

Print Date:  
**2/15/2016**

Print Time:  
**2:17 AM**

Current Time of Day Function				Local Time of Day Function				* Settings
<u>Time</u>	<u>Function</u>	<u>Settings *</u>	<u>Day of Week</u>	<u>Time</u>	<u>Function</u>	<u>Settings *</u>	<u>Day of Week</u>	
0000	TOD OUTPUTS	-----	SuM T W ThF S	0000	TOD OUTPUTS	-----	SuM T W ThF S	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 2725: Indian Creek Dr&71 St

Print Date:  
5/9/2016

Print Time:  
8:48 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>
2725	Indian Creek Dr&71 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>
EBL	WBT	-	-	-	EBT	NBT	SBT
0	0	0	0	0	0	0	0

Active Phase Bank: Phase Bank 1

<u>Phase</u>	<u>Walk</u>	<u>Don't Walk</u>	<u>Min Initial</u>	<u>Veh Ext</u>	<u>Max Limit</u>	<u>Max 2</u>	<u>Yellow</u>	<u>Red</u>
	<u>Phase Bank</u>							
	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3		
1 EBL	0 - 0 - 0	0 - 0 - 0	5 - 5 - 5	2 - 2 - 2	12 - 12 - 20	20 - 0 - 20	3.7	2
2 WBT	4 - 4 - 4	23 - 23 - 23	4 - 4 - 4	1 - 1 - 1	30 - 30 - 30	0 - 0 - 0	4	2.5
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 EBT	4 - 4 - 4	23 - 23 - 23	4 - 4 - 4	1 - 1 - 1	30 - 30 - 30	0 - 0 - 0	4	2.5
7 NBT	4 - 4 - 4	18 - 18 - 18	7 - 7 - 7	2.5 - 2.5 - 2.5	22 - 20 - 16	45 - 0 - 38	4	2.5
8 SBT	0 - 0 - 0	0 - 0 - 0	7 - 7 - 7	4 - 2.5 - 4	22 - 25 - 18	45 - 0 - 35	4	2.5

Last In Service Date: unknown

**Permitted Phases**

**12345678**

Default 12---678  
External Permit 0 -2---678  
External Permit 1 -2---678  
External Permit 2 -2---678

<u>Current</u>	<u>Green Time</u>											
<u>TOD Schedule</u>	<u>Plan</u>	<u>Cycle</u>	1	2	3	4	5	6	7	8	<u>Ring Offset</u>	<u>Offset</u>
			EBL	WBT	-	-	-	EBT	NBT	SBT		
2		140	17	47	0	0	0	70	36	16	0	7
3		140	17	44	0	0	0	67	32	23	0	98
4		110	16	27	0	0	0	49	23	20	0	31
5		100	5	29	0	0	0	41	25	16	0	89
12		130	17	34	0	0	0	57	32	23	0	98
14		120	18	29	0	0	0	53	23	26	0	93
15		130	5	58	0	0	0	70	30	12	0	50
22		140	15	45	0	0	0	66	40	16	0	7

**Local TOD Schedule**

<u>Time</u>	<u>Plan</u>	<u>DOW</u>
0000	Free	Su M T W Th F S
0600	5	M T W Th F
0700	14	Su S
0700	14	M T W Th F
0915	4	M T W Th F
1400	12	F
1500	3	M T W Th F
1645	2	M T W Th F
1730	22	M T W Th F
2000	4	M T W Th F
2300	Free	Su M T W Th F S

**TOD Schedule Report**  
**for 2725: Indian Creek Dr&71 St**

Print Date:  
**5/9/2016**

Print Time:  
**8:48 AM**

Current Time of Day Function				Local Time of Day Function				* Settings
<u>Time</u>	<u>Function</u>	<u>Settings *</u>	<u>Day of Week</u>	<u>Time</u>	<u>Function</u>	<u>Settings *</u>	<u>Day of Week</u>	
0000	TOD OUTPUTS	-----1	SuM T W ThF S	0000	TOD OUTPUTS	-----1	SuM T W ThF S	Blank - FREE - Phase Bank 1, Max 1
0600	TOD OUTPUTS	-----	M T W ThF	0600	TOD OUTPUTS	-----	M T W ThF	Blank - Plan - Phase Bank 1, Max 2
1430	TOD OUTPUTS	-----3--	M T W ThF	0700	TOD OUTPUTS	-----	Su S	1 - Phase Bank 2, Max 1
1600	TOD OUTPUTS	-----	M T W ThF	1430	TOD OUTPUTS	-----3--	M T W ThF	2 - Phase Bank 2, Max 2
2300	TOD OUTPUTS	-----1	SuM T W ThF S	1600	TOD OUTPUTS	-----	M T W ThF	3 - Phase Bank 3, Max 1
				2300	TOD OUTPUTS	-----1	SuM T W ThF S	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 3544: Harding Av&71 St

Print Date:  
2/28/2015

Print Time:  
2:12 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>
3544	Harding Av&71 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>
EBL	WBT	-	NBT	WBL	EBT	-	SBT
0	0	0	0	0	0	0	0
							

Active Phase Bank: Phase Bank 1

<u>Phase</u>	<u>Walk</u>			<u>Don't Walk</u>			<u>Min Initial</u>			<u>Veh Ext</u>			<u>Max Limit</u>			<u>Max 2</u>			<u>Yellow</u>	<u>Red</u>
	<u>Phase Bank</u>																			
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3		
1 EBL	0	-	0	0	-	0	5	-	5	-	5	2	-	2	-	5	12	-	0	0
2 WBT	7	-	7	9	-	6	7	-	7	-	7	1	-	2.5	-	40	50	-	0	2.1
3 -	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	-	0	0
4 NBT	7	-	7	16	-	16	7	-	7	-	7	1	-	2.5	-	21	30	-	0	2.3
5 WBL	0	-	0	0	-	0	5	-	5	-	5	2	-	2	-	5	12	-	0	0
6 EBT	7	-	7	9	-	6	7	-	7	-	7	1	-	2.5	-	40	50	-	0	2.1
7 -	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	-	0	0
8 SBT	7	-	7	16	-	16	7	-	7	-	7	1	-	2.5	-	21	30	-	0	2.3

Last In Service Date: 03/17/2010 16:48

**Permitted Phases**

**12345678**

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

**TOD Schedule Report**  
for 3544: Harding Av&71 St

Print Date:  
2/28/2015

Print Time:  
2:12 AM

Current TOD Schedule	Plan	Cycle	Green Time								Ring Offset	Offset
			1 EBL	2 WBT	3 -	4 NBT	5 WBL	6 EBT	7 -	8 SBT		
1		90	6	34	0	35	6	34	0	35	0	41
2		80	4	39	0	22	4	39	0	22	0	47
3		90	4	31	0	40	4	31	0	40	0	26
4		80	**	46	0	22	**	46	0	22	0	47
5		120	4	79	0	22	4	79	0	22	0	6
6		70	4	29	0	22	4	29	0	22	0	5
7		70	4	29	0	22	4	29	0	22	0	5
8		70	4	29	0	22	4	29	0	22	0	61
9		90	4	49	0	22	4	49	0	22	0	12
10		70	4	29	0	22	4	29	0	22	0	60
11		70	4	29	0	22	4	29	0	22	0	5
12		100	4	39	0	42	4	39	0	42	0	48
13		70	4	29	0	22	4	29	0	22	0	5
14		90	4	31	0	40	4	31	0	40	0	81
20		70	4	29	0	22	4	29	0	22	0	5
22		80	4	30	0	31	4	30	0	31	0	19
23		80	4	30	0	31	4	30	0	31	0	19

**Local TOD Schedule**

Time	Plan	DOW
0000	13	Su M T W Th F S
0030	8	M T W Th F
0100	8	Su S
0600	10	M T W Th F
0700	1	M T W Th F
1000	14	Su S
1830	10	Su S
1930	10	M T W Th F
2100	13	Su M T W Th F S

**Current Time of Day Function**

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	---5---	Su M T W Th F S
1000	TOD OUTPUTS	-----	Su S
2100	TOD OUTPUTS	---5---	Su M T W Th F S

**Local Time of Day Function**

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	---5---	Su M T W Th F S
0600	TOD OUTPUTS	-----	M T W Th F
1000	TOD OUTPUTS	-----	Su S
2100	TOD OUTPUTS	---5---	Su M T W Th F S

**\* Settings**

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

**No Calendar Defined/Enabled**

**TOD Schedule Report**  
for 3880: Collins Av&72 St

Print Date:  
2/15/2016

Print Time:  
2:39 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>
3880	Collins Av&72 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>
-	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 -	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	
2 NBT	6	-	6	6	-	6	6	-	6	1	-	1	1	-	1	39	-	39	39	4	2.8
3 -	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	-	0	0	0	
4 EBT	6	-	6	6	-	6	6	-	6	7	-	7	7	-	7	21	-	21	21	4	2.8
5 -	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	
7 -	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	

Last In Service Date: unknown

**Permitted Phases**

**12345678**

Default -2-4----

External Permit 0 -----

External Permit 1 -----

External Permit 2 -----

**TOD Schedule Report**  
for 3880: Collins Av&72 St

Print Date:  
2/15/2016

Print Time:  
2:39 AM

Current TOD Schedule	Plan	Cycle	Green Time								Ring Offset	Offset
			1 -	2 NBT	3 -	4 EBT	5 -	6 -	7 -	8 -		
1		90	0	57	0	19	0	0	0	0	0	53
2		140	0	107	0	19	0	0	0	0	0	42
3		180	0	143	0	23	0	0	0	0	0	125
4		180	0	143	0	23	0	0	0	0	0	119
5		90	0	57	0	19	0	0	0	0	0	89
6		100	0	67	0	19	0	0	0	0	0	57
8		70	0	37	0	19	0	0	0	0	0	34
10		70	0	37	0	19	0	0	0	0	0	0
12		90	0	57	0	19	0	0	0	0	0	77
13		70	0	37	0	19	0	0	0	0	0	49
14		90	0	57	0	19	0	0	0	0	0	12

**Local TOD Schedule**

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

**Current Time of Day Function**

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	-----	SuM T W ThF S

**Local Time of Day Function**

Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	-----	SuM T W ThF S

**\* Settings**

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

**No Calendar Defined/Enabled**

## **Historic Background Growth**



**Historic Growth Trend**  
***7140 Collins Hotel***

Station	Location	2010	2011	2012	2013	2014	2015
5189	SR 934 /71 ST, 200' W SR A1A / HARDING AV	13,800	12,000	16,600	11,600	12,000	11,700
0115	SR 934 / NORMANDY DR. WB. 100' W RUE VERSAILLES	18,000	18,000	21,500	18,500	17,500	18,000
5191	SR 934 / NE 79TH ST / NORTH BAY CSWY / 71ST ST, 100' W OF RUE VERSAILLESE	16,500	18,500	19,500	20,500	16,500	19,000
TOTAL		48,300	48,500	57,600	50,600	46,000	48,700
Yearly Growth			0.4%	18.8%	-12.2%	-9.1%	5.9%
Growth Trend							0.8%

# **Cardinal Distribution**

TAZ 622

DIRECTION	2010	2040	2018
NNE	10.60%	11.90%	10.95%
ENE	0.00%	0.00%	0.00%
ESE	0.00%	0.00%	0.00%
SSE	6.90%	11.60%	8.15%
SSW	21.00%	19.50%	20.60%
WSW	28.10%	26.20%	27.59%
WNW	11.10%	10.70%	10.99%
NNW	22.40%	20.20%	21.81%

32.81%	10.95%
48.19%	8.15%

32.76%	0.00%
38.59%	28.75%

**Appendix D**  
**Intersection Capacity Analysis Worksheets**


## **Existing Conditions**

# HCM 2010 Signalized Intersection Summary

## 1: 72nd Street & Abbott Avenue

Existing Friday PM


9/9/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗		↖					↖	↑↑↑	↗
Traffic Volume (veh/h)	0	132	35	71	263	0	0	0	0	44	1643	165
Future Volume (veh/h)	0	132	35	71	263	0	0	0	0	44	1643	165
Number	3	8	18	7	4	14				5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.93	0.96		1.00				1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1863	1900	1863	0				1900	1863	1900
Adj Flow Rate, veh/h	0	138	36	74	274	0				46	1711	172
Adj No. of Lanes	0	1	1	0	1	0				0	3	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	2	2	0				0	2	0
Cap, veh/h	0	495	390	121	367	0				72	2819	292
Arrive On Green	0.00	0.27	0.27	0.27	0.27	0.00				0.60	0.60	0.60
Sat Flow, veh/h	0	1863	1467	273	1380	0				119	4693	487
Grp Volume(v), veh/h	0	138	36	348	0	0				717	595	617
Grp Sat Flow(s),veh/h/ln	0	1863	1467	1653	0	0				1857	1695	1747
Q Serve(g_s), s	0.0	5.3	1.7	12.3	0.0	0.0				22.6	19.4	19.6
Cycle Q Clear(g_c), s	0.0	5.3	1.7	17.6	0.0	0.0				22.6	19.4	19.6
Prop In Lane	0.00		1.00	0.21		0.00				0.06		0.28
Lane Grp Cap(c), veh/h	0	495	390	488	0	0				1115	1018	1050
V/C Ratio(X)	0.00	0.28	0.09	0.71	0.00	0.00				0.64	0.58	0.59
Avail Cap(c_a), veh/h	0	538	424	526	0	0				1115	1018	1050
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	0.00	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	26.2	24.9	30.6	0.0	0.0				11.7	11.1	11.1
Incr Delay (d2), s/veh	0.0	0.1	0.0	3.4	0.0	0.0				2.8	2.5	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	4.9	1.2	13.3	0.0	0.0				18.0	14.7	15.4
LnGrp Delay(d),s/veh	0.0	26.3	24.9	34.0	0.0	0.0				14.5	13.5	13.5
LnGrp LOS		C	C	C						B	B	B
Approach Vol, veh/h		174			348						1929	
Approach Delay, s/veh		26.0			34.0						13.9	
Approach LOS		C			C						B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		60.1		29.9				29.9				
Change Period (Y+Rc), s		6.0		6.0				6.0				
Max Green Setting (Gmax), s		52.0		26.0				26.0				
Max Q Clear Time (g_c+I1), s		24.6		19.6				7.3				
Green Ext Time (p_c), s		5.6		1.2				1.9				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			17.6									
HCM 2010 LOS			B									

Timings  
1: 72nd Street & Abbott Avenue

Existing Friday PM

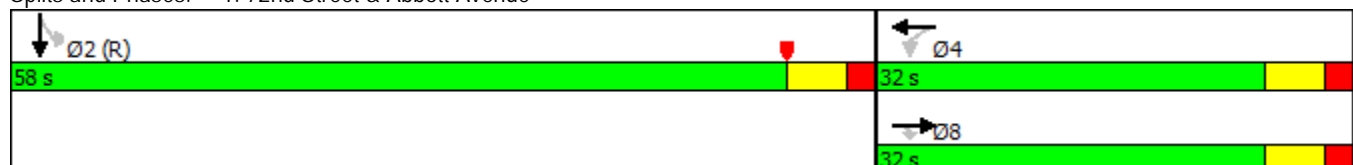
9/9/2016





												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗		↖						↑↑↑	
Traffic Volume (vph)	0	132	35	71	263	0	0	0	0	44	1643	165
Future Volume (vph)	0	132	35	71	263	0	0	0	0	44	1643	165
Confl. Peds. (#/hr)	29		54	54		29	32		19	19		32
Confl. Bikes (#/hr)			2			8			2			5
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type		NA	Perm	Perm	NA					Perm	NA	
Protected Phases		8			4						2	
Permitted Phases			8	4						2		
Detector Phase		8	8	4	4					2	2	
Switch Phase												
Minimum Initial (s)		7.0	7.0	7.0	7.0					5.0	5.0	
Minimum Split (s)		32.0	32.0	32.0	32.0					28.0	28.0	
Total Split (s)		32.0	32.0	32.0	32.0					58.0	58.0	
Total Split (%)		35.6%	35.6%	35.6%	35.6%					64.4%	64.4%	
Yellow Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	
All-Red Time (s)		2.0	2.0	2.0	2.0					2.0	2.0	
Lost Time Adjust (s)		0.0	0.0		0.0						0.0	
Total Lost Time (s)		6.0	6.0		6.0						6.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode		None	None	None	None					C-Max	C-Max	

Intersection Summary

Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 25 (28%), Referenced to phase 2:SBTL and 6:, Start of Yellow  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated

Splits and Phases: 1: 72nd Street & Abbott Avenue



Intersection												
Int Delay, s/veh	24.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	29	112	38	12	165	24	141	140	197	6	8	16
Future Vol, veh/h	29	112	38	12	165	24	141	140	197	6	8	16
Conflicting Peds, #/hr	14	0	33	33	0	14	9	0	7	7	0	9
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	31	118	40	13	174	25	148	147	207	6	8	17
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	213	0	0	191	0	0	465	470	178	609	478	209
Stage 1	-	-	-	-	-	-	232	232	-	226	226	-
Stage 2	-	-	-	-	-	-	233	238	-	383	252	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1357	-	-	1383	-	-	508	492	865	407	486	831
Stage 1	-	-	-	-	-	-	771	713	-	777	717	-
Stage 2	-	-	-	-	-	-	770	708	-	640	698	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1345	-	-	1374	-	-	458	453	832	218	448	813
Mov Cap-2 Maneuver	-	-	-	-	-	-	458	453	-	218	448	-
Stage 1	-	-	-	-	-	-	728	673	-	747	700	-
Stage 2	-	-	-	-	-	-	730	691	-	363	659	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.3			0.5			44.5			13.4		
HCM LOS							E			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	560	1345	-	-	1374	-	-	461				
HCM Lane V/C Ratio	0.898	0.023	-	-	0.009	-	-	0.069				
HCM Control Delay (s)	44.5	7.7	0	-	7.6	0	-	13.4				
HCM Lane LOS	E	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	10.6	0.1	-	-	0	-	-	0.2				














# HCM 2010 Signalized Intersection Summary

## 3: 72nd Street & Collins Avenue









Existing Friday PM

10/20/2016

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations	 			  				
Traffic Volume (veh/h)	326	0	146	2235	0	0		
Future Volume (veh/h)	326	0	146	2235	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	1863	0	1900	1863				
Adj Flow Rate, veh/h	347	0	155	2378				
Adj No. of Lanes	2	0	0	3				
Peak Hour Factor	0.94	0.94	0.94	0.94				
Percent Heavy Veh, %	2	0	2	2				
Cap, veh/h	0	0	301	4389				
Arrive On Green	0.00	0.00	0.32	0.32				
Sat Flow, veh/h	0		289	4720				
Grp Volume(v), veh/h	0.0		941	1592				
Grp Sat Flow(s),veh/h/ln			1771	1543				
Q Serve(g_s), s			77.4	76.4				
Cycle Q Clear(g_c), s			79.1	76.4				
Prop In Lane			0.16					
Lane Grp Cap(c), veh/h			1725	2965				
V/C Ratio(X)			0.55	0.54				
Avail Cap(c_a), veh/h			1725	2965				
HCM Platoon Ratio			0.33	0.33				
Upstream Filter(I)			0.76	0.76				
Uniform Delay (d), s/veh			29.4	28.5				
Incr Delay (d2), s/veh			0.9	0.5				
Initial Q Delay(d3),s/veh			0.0	0.0				
%ile BackOfQ(95%),veh/ln			48.3	41.2				
LnGrp Delay(d),s/veh			30.3	29.0				
LnGrp LOS			C	C				
Approach Vol, veh/h				2533				
Approach Delay, s/veh				29.5				
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		7.0						
Max Green Setting (Gmax), s		143.0						
Max Q Clear Time (g_c+I1), s		81.1						
Green Ext Time (p_c), s		11.8						
Intersection Summary								
HCM 2010 Ctrl Delay			29.5					
HCM 2010 LOS			C					

Timings  
3: 72nd Street & Collins Avenue

Existing Friday PM  
10/20/2016

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	326	0	146	2235	0	0
Future Volume (vph)	326	0	146	2235	0	0
Confl. Peds. (#/hr)	9	66	90			
Confl. Bikes (#/hr)						
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Turn Type	Prot		Perm	NA		
Protected Phases	4			2		
Permitted Phases			2			
Detector Phase	4		2	2		
Switch Phase						
Minimum Initial (s)	7.0		6.0	6.0		
Minimum Split (s)	26.0		26.0	26.0		
Total Split (s)	30.0		150.0	150.0		
Total Split (%)	16.7%		83.3%	83.3%		
Yellow Time (s)	4.0		4.0	4.0		
All-Red Time (s)	3.0		3.0	3.0		
Lost Time Adjust (s)	0.0			0.0		
Total Lost Time (s)	7.0			7.0		
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None		C-Max	C-Max		

Intersection Summary

Cycle Length: 180  
 Actuated Cycle Length: 180  
 Offset: 125 (69%), Referenced to phase 2:NBTL and 6:, Start of Yellow  
 Natural Cycle: 70  
 Control Type: Actuated-Coordinated

Splits and Phases: 3: 72nd Street & Collins Avenue



# HCM Signalized Intersection Capacity Analysis

Existing Friday PM

## 4: Abbott Avenue & 71st Street

9/9/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↑						↑↑↑	↗
Traffic Volume (vph)	0	307	55	48	325	0	0	0	0	59	1306	344
Future Volume (vph)	0	307	55	48	325	0	0	0	0	59	1306	344
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	6.0	6.0						6.0	6.0
Lane Util. Factor		1.00	1.00	1.00	1.00						0.91	1.00
Frpb, ped/bikes		1.00	0.95	1.00	1.00						1.00	0.92
Flpb, ped/bikes		1.00	1.00	0.99	1.00						1.00	1.00
Frt		1.00	0.85	1.00	1.00						1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00						1.00	1.00
Satd. Flow (prot)		1863	1507	1744	1863						5064	1456
Flt Permitted		1.00	1.00	0.31	1.00						1.00	1.00
Satd. Flow (perm)		1863	1507	569	1863						5064	1456
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)	0	320	57	50	339	0	0	0	0	61	1360	358
RTOR Reduction (vph)	0	0	28	0	0	0	0	0	0	0	0	75
Lane Group Flow (vph)	0	320	29	50	339	0	0	0	0	0	1421	283
Confl. Peds. (#/hr)	48		23	23		48	30		23	23		30
Confl. Bikes (#/hr)			9			5			3			
Turn Type		NA	Perm	Perm	NA					custom	NA	Perm
Protected Phases		8			4						2	
Permitted Phases			8	4						6		2
Actuated Green, G (s)		20.1	20.1	20.1	20.1						57.9	57.9
Effective Green, g (s)		20.1	20.1	20.1	20.1						57.9	57.9
Actuated g/C Ratio		0.22	0.22	0.22	0.22						0.64	0.64
Clearance Time (s)		6.0	6.0	6.0	6.0						6.0	6.0
Vehicle Extension (s)		1.0	1.0	1.0	1.0						1.0	1.0
Lane Grp Cap (vph)		416	336	127	416						3257	936
v/s Ratio Prot		0.17			c0.18							
v/s Ratio Perm			0.02	0.09							0.28	0.19
v/c Ratio		0.77	0.09	0.39	0.81						0.44	0.30
Uniform Delay, d1		32.8	27.7	29.8	33.2						8.0	7.1
Progression Factor		1.00	1.00	1.16	1.17						0.24	0.02
Incremental Delay, d2		7.5	0.0	0.7	9.9						0.3	0.7
Delay (s)		40.3	27.7	35.3	48.7						2.3	0.8
Level of Service		D	C	D	D						A	A
Approach Delay (s)		38.4			47.0			0.0			2.0	
Approach LOS		D			D			A			A	

### Intersection Summary





















HCM 2000 Control Delay	14.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Timings  
4: Abbott Avenue & 71st Street

Existing Friday PM

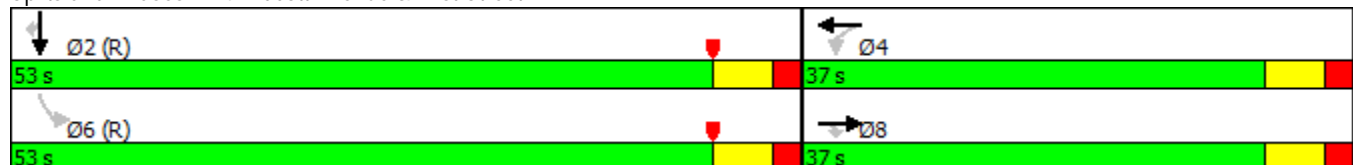
9/9/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											  	
Traffic Volume (vph)	0	307	55	48	325	0	0	0	0	59	1306	344
Future Volume (vph)	0	307	55	48	325	0	0	0	0	59	1306	344
Confl. Peds. (#/hr)	48		23	23		48	30		23	23		30
Confl. Bikes (#/hr)			9			5			3			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type		NA	Perm	Perm	NA					custom	NA	Perm
Protected Phases		8			4						2	
Permitted Phases			8	4						6		2
Detector Phase		8	8	4	4					6	2	2
Switch Phase												
Minimum Initial (s)		4.0	4.0	4.0	4.0					5.0	4.0	4.0
Minimum Split (s)		28.0	28.0	28.0	28.0					24.0	28.0	28.0
Total Split (s)		37.0	37.0	37.0	37.0					53.0	53.0	53.0
Total Split (%)		41.1%	41.1%	41.1%	41.1%					58.9%	58.9%	58.9%
Yellow Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
All-Red Time (s)		2.0	2.0	2.0	2.0					2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0						0.0	0.0
Total Lost Time (s)		6.0	6.0	6.0	6.0						6.0	6.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode		None	None	None	None					C-Max	C-Max	C-Max

Intersection Summary

Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 30 (33%), Referenced to phase 2:SBT and 6:SBL, Start of Yellow  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated

Splits and Phases: 4: Abbott Avenue & 71st Street





















# HCM 2010 Signalized Intersection Summary

## 5: Harding Avenue & 71st Street

Existing Friday PM




















9/9/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	255	39	19	181	10	159	304	44	10	20	16
Future Volume (veh/h)	80	255	39	19	181	10	159	304	44	10	20	16
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.92	0.98		0.92	0.98		0.94	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	83	266	41	20	189	10	166	317	46	10	21	17
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	577	729	112	568	750	40	218	348	49	123	247	176
Arrive On Green	0.09	0.94	0.94	0.02	0.43	0.43	0.34	0.34	0.34	0.34	0.34	0.34
Sat Flow, veh/h	1774	1557	240	1774	1745	92	482	1015	143	216	719	513
Grp Volume(v), veh/h	83	0	307	20	0	199	529	0	0	48	0	0
Grp Sat Flow(s),veh/h/ln	1774	0	1797	1774	0	1838	1639	0	0	1449	0	0
Q Serve(g_s), s	2.3	0.0	1.5	0.6	0.0	6.2	26.4	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	2.3	0.0	1.5	0.6	0.0	6.2	28.1	0.0	0.0	1.7	0.0	0.0
Prop In Lane	1.00		0.13	1.00		0.05	0.31		0.09	0.21		0.35
Lane Grp Cap(c), veh/h	577	0	841	568	0	790	615	0	0	546	0	0
V/C Ratio(X)	0.14	0.00	0.36	0.04	0.00	0.25	0.86	0.00	0.00	0.09	0.00	0.00
Avail Cap(c_a), veh/h	588	0	841	647	0	790	690	0	0	613	0	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.55	0.00	0.55	0.99	0.00	0.99	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	12.3	0.0	1.6	13.7	0.0	16.4	28.6	0.0	0.0	20.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.1	0.0	0.0	0.8	9.0	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.0	0.0	0.9	0.5	0.0	6.0	20.3	0.0	0.0	1.4	0.0	0.0
LnGrp Delay(d),s/veh	12.3	0.0	1.6	13.7	0.0	17.2	37.5	0.0	0.0	20.0	0.0	0.0
LnGrp LOS	B		A	B		B	D			B		
Approach Vol, veh/h		390			219			529			48	
Approach Delay, s/veh		3.9			16.9			37.5			20.0	
Approach LOS		A			B			D			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.4	44.7		36.9	5.0	48.1		36.9				
Change Period (Y+Rc), s	4.5	6.0		6.0	3.0	6.0		6.0				
Max Green Setting (Gmax), s	4.5	34.0		35.0	6.0	34.0		35.0				
Max Q Clear Time (g_c+I1), s	4.3	8.2		30.1	2.6	3.5		3.7				
Green Ext Time (p_c), s	0.0	1.1		0.8	0.0	1.1		1.4				
Intersection Summary												
HCM 2010 Ctrl Delay			21.9									
HCM 2010 LOS			C									

Timings  
5: Harding Avenue & 71st Street

Existing Friday PM

9/9/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	255	39	19	181	10	159	304	44	10	20	16
Future Volume (vph)	80	255	39	19	181	10	159	304	44	10	20	16
Confl. Peds. (#/hr)	6		28	28		6	11		13	13		11
Confl. Bikes (#/hr)			36			29			21			15
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2			4			8		
Detector Phase	1	6		5	2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	4.5	7.0		5.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	9.0	24.0		9.0	24.0		29.0	29.0		29.0	29.0	
Total Split (s)	9.0	40.0		9.0	40.0		41.0	41.0		41.0	41.0	
Total Split (%)	10.0%	44.4%		10.0%	44.4%		45.6%	45.6%		45.6%	45.6%	
Yellow Time (s)	3.5	4.0		3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	2.0		0.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	4.5	6.0		3.0	6.0			6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	None		None	C-Max		None	None		None	None	

Intersection Summary

Cycle Length: 90

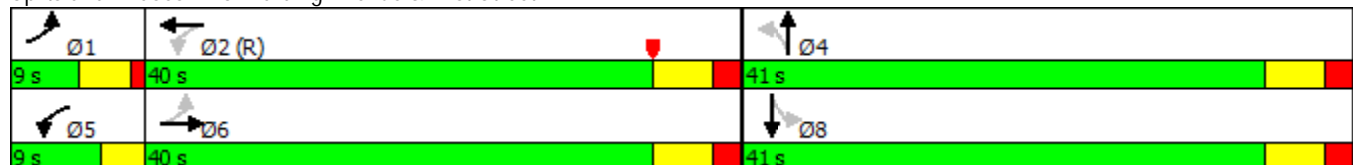
Actuated Cycle Length: 90

Offset: 41 (46%), Referenced to phase 2:WBTL, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Splits and Phases: 5: Harding Avenue & 71st Street





















# HCM Signalized Intersection Capacity Analysis

## 6: Collins Avenue & 71st Street

Existing Friday PM




















9/16/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	288	8	0	0	14	22	164	2098	7	0	0	0
Future Volume (vph)	288	8	0	0	14	22	164	2098	7	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0		6.0	6.0				
Lane Util. Factor	*1.00	0.95			1.00		1.00	0.91				
Frpb, ped/bikes	1.00	1.00			0.92		1.00	1.00				
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00				
Frt	1.00	1.00			0.92		1.00	1.00				
Flt Protected	1.00	0.96			1.00		0.95	1.00				
Satd. Flow (prot)	1863	1692			1575		1770	5082				
Flt Permitted	1.00	0.96			1.00		0.95	1.00				
Satd. Flow (perm)	1863	1692			1575		1770	5082				
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)	300	8	0	0	15	23	171	2185	7	0	0	0
RTOR Reduction (vph)	0	0	0	0	22	0	0	0	0	0	0	0
Lane Group Flow (vph)	210	98	0	0	16	0	171	2192	0	0	0	0
Confl. Peds. (#/hr)	14		34	34		14	142		7	7		142
Confl. Bikes (#/hr)			6			1			7			8
Turn Type	Split	NA			NA		Prot	NA				
Protected Phases	3	3			4		5	2				
Permitted Phases												
Actuated Green, G (s)	23.6	23.6			6.5		131.9	131.9				
Effective Green, g (s)	23.6	23.6			6.5		131.9	131.9				
Actuated g/C Ratio	0.13	0.13			0.04		0.73	0.73				
Clearance Time (s)	6.0	6.0			6.0		6.0	6.0				
Vehicle Extension (s)	1.0	1.0			2.5		1.0	1.0				
Lane Grp Cap (vph)	244	221			56		1297	3723				
v/s Ratio Prot	c0.11	0.06			c0.01		0.10	c0.43				
v/s Ratio Perm												
v/c Ratio	0.86	0.44			0.28		0.13	0.59				
Uniform Delay, d1	76.6	72.1			84.5		7.1	11.3				
Progression Factor	0.77	0.78			1.00		1.00	1.00				
Incremental Delay, d2	23.0	0.5			2.0		0.0	0.7				
Delay (s)	81.9	56.6			86.5		7.1	12.0				
Level of Service	F	E			F		A	B				
Approach Delay (s)		73.9			86.5			11.6			0.0	
Approach LOS		E			F			B			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			19.8				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.62									
Actuated Cycle Length (s)			180.0				Sum of lost time (s)			20.0		
Intersection Capacity Utilization			66.2%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

Timings  
6: Collins Avenue & 71st Street

Existing Friday PM

9/16/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								  				
Traffic Volume (vph)	288	8	0	0	14	22	164	2098	7	0	0	0
Future Volume (vph)	288	8	0	0	14	22	164	2098	7	0	0	0
Confl. Peds. (#/hr)	14		34	34		14	142		7	7		142
Confl. Bikes (#/hr)			6			1			7			8
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)	30%											
Turn Type	Split	NA			NA		Prot	NA				
Protected Phases	3	3			4		5	2				
Permitted Phases												
Detector Phase	3	3			4		5	2				
Switch Phase												
Minimum Initial (s)	7.0	7.0			7.0		5.0	4.0				
Minimum Split (s)	25.0	25.0			13.0		11.0	32.0				
Total Split (s)	37.0	37.0			24.0		95.0	95.0				
Total Split (%)	20.6%	20.6%			13.3%		52.8%	52.8%				
Yellow Time (s)	4.0	4.0			4.0		4.0	4.0				
All-Red Time (s)	2.0	2.0			2.0		2.0	2.0				
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0				
Total Lost Time (s)	6.0	6.0			6.0		6.0	6.0				
Lead/Lag	Lead	Lead			Lag							
Lead-Lag Optimize?	Yes	Yes			Yes							
Recall Mode	None	None			None		None	C-Max				

Intersection Summary

Cycle Length: 180






Actuated Cycle Length: 180

Offset: 83 (46%), Referenced to phase 2:NBT and 6:, Start of Yellow

Natural Cycle: 115

Control Type: Actuated-Coordinated

Splits and Phases: 6: Collins Avenue & 71st Street

 Ø2 (R)	 Ø3	 Ø4	 Ø7
95 s	37 s	24 s	24 s
 Ø5			
95 s			



Timings  
6: Collins Avenue & 71st Street

Existing Friday PM  
9/16/2016






















Lane Group	Ø7
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Growth Factor	
Heavy Vehicles (%)	
Bus Blockages (#/hr)	
Parking (#/hr)	
Mid-Block Traffic (%)	
Shared Lane Traffic (%)	
Turn Type	
Protected Phases	7
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	24.0
Total Split (s)	24.0
Total Split (%)	13%
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Intersection Summary	

# HCM Signalized Intersection Capacity Analysis

## 7: Indian Creek Drive & 71st Street

Existing Friday PM

9/13/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	250	580	392	0	833	22	865	234	4	9	104	401
Future Volume (vph)	250	580	392	0	833	22	865	234	4	9	104	401
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		6.0		6.0	6.0			6.0	6.0
Lane Util. Factor	1.00	1.00	1.00		0.95		0.97	1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00		1.00	1.00			1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00		1.00	1.00			1.00	1.00
Frt	1.00	1.00	0.85		1.00		1.00	1.00			1.00	0.85
Flt Protected	0.95	1.00	1.00		1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1770	1863	1583		3511		3433	1852			1855	1583
Flt Permitted	0.95	1.00	1.00		1.00		0.95	1.00			1.00	1.00
Satd. Flow (perm)	1770	1863	1583		3511		3433	1852			1855	1583
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	255	592	400	0	850	22	883	239	4	9	106	409
RTOR Reduction (vph)	0	0	64	0	1	0	0	1	0	0	0	51
Lane Group Flow (vph)	255	592	336	0	871	0	883	242	0	0	115	359
Confl. Peds. (#/hr)	52		35	35		52	1		52	52		1
Confl. Bikes (#/hr)			6			19			7			1
Turn Type	Prot	NA	pt+ov		NA		Split	NA		Split	NA	pt+ov
Protected Phases	1	6	6 7		2		7	7		8	8	8 1
Permitted Phases												
Actuated Green, G (s)	17.0	70.0	112.0		47.0		36.0	36.0			16.0	39.0
Effective Green, g (s)	17.0	70.0	112.0		47.0		36.0	36.0			16.0	39.0
Actuated g/C Ratio	0.12	0.50	0.80		0.34		0.26	0.26			0.11	0.28
Clearance Time (s)	6.0	6.0			6.0		6.0	6.0			6.0	
Vehicle Extension (s)	2.0	1.0			1.0		2.5	2.5			4.0	
Lane Grp Cap (vph)	214	931	1266		1178		882	476			212	440
v/s Ratio Prot	c0.14	0.32	0.21		c0.25		c0.26	0.13			0.06	c0.23
v/s Ratio Perm												
v/c Ratio	1.19	0.64	0.27		0.74		1.00	0.51			0.54	0.81
Uniform Delay, d1	61.5	25.7	3.6		41.1		52.0	44.4			58.5	47.1
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	122.9	3.3	0.5		4.2		30.6	3.9			9.6	15.2
Delay (s)	184.4	29.0	4.1		45.3		82.6	48.3			68.2	62.3
Level of Service	F	C	A		D		F	D			E	E
Approach Delay (s)		52.8			45.3			75.2			63.6	
Approach LOS		D			D			E			E	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			59.2				HCM 2000 Level of Service				E	
HCM 2000 Volume to Capacity ratio			0.92									
Actuated Cycle Length (s)			140.0				Sum of lost time (s)			24.0		
Intersection Capacity Utilization			88.4%				ICU Level of Service			E		
Analysis Period (min)			15									
c Critical Lane Group												

Timings  
7: Indian Creek Drive & 71st Street

Existing Friday PM

9/13/2016

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	250	580	392	0	833	22	865	234	4	9	104	401
Future Volume (vph)	250	580	392	0	833	22	865	234	4	9	104	401
Confl. Peds. (#/hr)	52		35	35		52	1		52	52		1
Confl. Bikes (#/hr)			6			19			7			1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type	Prot	NA	pt+ov		NA		Split	NA		Split	NA	pt+ov
Protected Phases	1	6	6 7		2		7	7		8	8	8 1
Permitted Phases												
Detector Phase	1	6	6 7		2		7	7		8	8	8 1
Switch Phase												
Minimum Initial (s)	5.0	4.0			4.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	20.0	40.0			40.0		35.0	35.0		22.0	22.0	
Total Split (s)	23.0	76.0			53.0		42.0	42.0		22.0	22.0	
Total Split (%)	16.4%	54.3%			37.9%		30.0%	30.0%		15.7%	15.7%	
Yellow Time (s)	4.0	4.0			4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0			2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0			0.0	
Total Lost Time (s)	6.0	6.0			6.0		6.0	6.0			6.0	
Lead/Lag	Lead				Lag		Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes				Yes		Yes	Yes		Yes	Yes	
Recall Mode	Max	Max			C-Max		Max	Max		Max	Max	

Intersection Summary

Cycle Length: 140

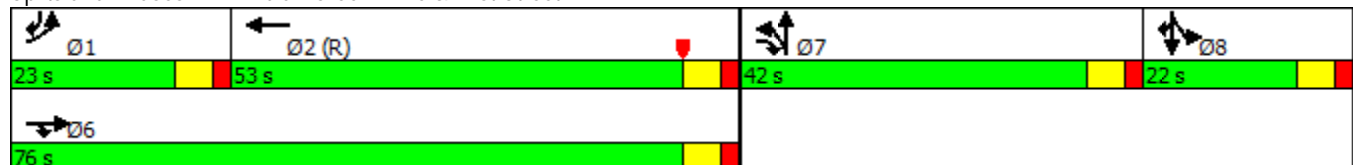
Actuated Cycle Length: 140

Offset: 7 (5%), Referenced to phase 2:WBT, Start of Yellow

Natural Cycle: 120

Control Type: Actuated-Coordinated

Splits and Phases: 7: Indian Creek Drive & 71st Street





















## **Future without Project Conditions**

HCM 2010 Signalized Intersection Summary  
1: 72nd Street & Abbott Avenue

Future Without Project Friday PM



















9/14/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											  	
Traffic Volume (veh/h)	0	134	36	72	267	0	0	0	0	45	1689	168
Future Volume (veh/h)	0	134	36	72	267	0	0	0	0	45	1689	168
Number	3	8	18	7	4	14				5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.93	0.96		1.00				1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1863	1900	1863	0				1900	1863	1900
Adj Flow Rate, veh/h	0	140	38	75	278	0				47	1759	175
Adj No. of Lanes	0	1	1	0	1	0				0	3	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	2	2	0				0	2	0
Cap, veh/h	0	498	392	121	366	0				71	2818	289
Arrive On Green	0.00	0.27	0.27	0.27	0.27	0.00				0.60	0.60	0.60
Sat Flow, veh/h	0	1863	1468	272	1372	0				119	4700	482
Grp Volume(v), veh/h	0	140	38	353	0	0				735	611	635
Grp Sat Flow(s),veh/h/ln	0	1863	1468	1644	0	0				1857	1695	1748
Q Serve(g_s), s	0.0	5.4	1.8	12.7	0.0	0.0				23.6	20.3	20.5
Cycle Q Clear(g_c), s	0.0	5.4	1.8	18.1	0.0	0.0				23.6	20.3	20.5
Prop In Lane	0.00		1.00	0.21		0.00				0.06		0.28
Lane Grp Cap(c), veh/h	0	498	392	488	0	0				1113	1016	1048
V/C Ratio(X)	0.00	0.28	0.10	0.72	0.00	0.00				0.66	0.60	0.61
Avail Cap(c_a), veh/h	0	538	424	523	0	0				1113	1016	1048
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	0.00	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	26.1	24.8	30.7	0.0	0.0				11.9	11.3	11.3
Incr Delay (d2), s/veh	0.0	0.1	0.0	3.8	0.0	0.0				3.1	2.6	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	5.0	1.3	13.5	0.0	0.0				18.9	15.3	16.0
LnGrp Delay(d),s/veh	0.0	26.2	24.9	34.5	0.0	0.0				15.0	13.9	13.9
LnGrp LOS		C	C	C						B	B	B
Approach Vol, veh/h		178			353						1981	
Approach Delay, s/veh		25.9			34.5						14.3	
Approach LOS		C			C						B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		60.0		30.0				30.0				
Change Period (Y+Rc), s		6.0		6.0				6.0				
Max Green Setting (Gmax), s		52.0		26.0				26.0				
Max Q Clear Time (g_c+I1), s		25.6		20.1				7.4				
Green Ext Time (p_c), s		5.9		1.1				2.0				
Intersection Summary												
HCM 2010 Ctrl Delay			18.0									
HCM 2010 LOS			B									

Timings  
1: 72nd Street & Abbott Avenue

Future Without Project Friday PM

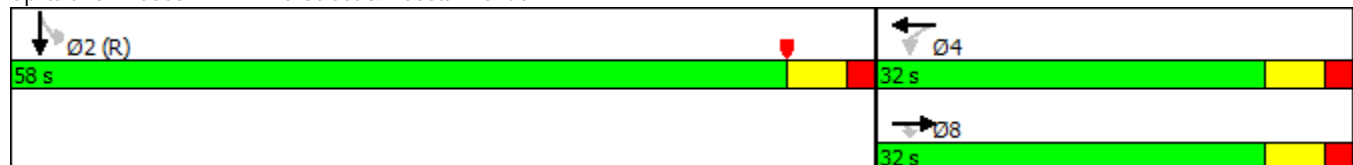
9/14/2016





												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											  	
Traffic Volume (vph)	0	134	36	72	267	0	0	0	0	45	1689	168
Future Volume (vph)	0	134	36	72	267	0	0	0	0	45	1689	168
Confl. Peds. (#/hr)	29		54	54		29	32		19	19		32
Confl. Bikes (#/hr)			2			8			2			5
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type		NA	Perm	Perm	NA					Perm	NA	
Protected Phases		8			4						2	
Permitted Phases			8	4						2		
Detector Phase		8	8	4	4					2	2	
Switch Phase												
Minimum Initial (s)		7.0	7.0	7.0	7.0					5.0	5.0	
Minimum Split (s)		32.0	32.0	32.0	32.0					28.0	28.0	
Total Split (s)		32.0	32.0	32.0	32.0					58.0	58.0	
Total Split (%)		35.6%	35.6%	35.6%	35.6%					64.4%	64.4%	
Yellow Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	
All-Red Time (s)		2.0	2.0	2.0	2.0					2.0	2.0	
Lost Time Adjust (s)		0.0	0.0		0.0						0.0	
Total Lost Time (s)		6.0	6.0		6.0						6.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode		None	None	None	None					C-Max	C-Max	

Intersection Summary

Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 25 (28%), Referenced to phase 2:SBTL and 6:, Start of Yellow  
 Natural Cycle: 65  
 Control Type: Actuated-Coordinated

Splits and Phases: 1: 72nd Street & Abbott Avenue














Intersection												
Int Delay, s/veh	26.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	29	114	39	12	168	24	143	142	201	6	8	16
Future Vol, veh/h	29	114	39	12	168	24	143	142	201	6	8	16
Conflicting Peds, #/hr	14	0	33	33	0	14	9	0	7	7	0	9
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	31	120	41	13	177	25	151	149	212	6	8	17
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	216	0	0	194	0	0	471	476	181	618	484	212
Stage 1	-	-	-	-	-	-	235	235	-	229	229	-
Stage 2	-	-	-	-	-	-	236	241	-	389	255	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1354	-	-	1379	-	-	503	488	862	402	483	828
Stage 1	-	-	-	-	-	-	768	710	-	774	715	-
Stage 2	-	-	-	-	-	-	767	706	-	635	696	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1342	-	-	1370	-	-	453	450	829	212	445	810
Mov Cap-2 Maneuver	-	-	-	-	-	-	453	450	-	212	445	-
Stage 1	-	-	-	-	-	-	725	670	-	745	698	-
Stage 2	-	-	-	-	-	-	728	689	-	356	657	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.2			0.5			48.3			13.5		
HCM LOS							E			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	556	1342	-	-	1370	-	-	454				
HCM Lane V/C Ratio	0.92	0.023	-	-	0.009	-	-	0.07				
HCM Control Delay (s)	48.3	7.7	0	-	7.7	0	-	13.5				
HCM Lane LOS	E	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	11.3	0.1	-	-	0	-	-	0.2				

# HCM 2010 Signalized Intersection Summary

## 3: 72nd Street & Collins Avenue

Future Without Project Friday PM

10/20/2016









								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations	 			  				
Traffic Volume (veh/h)	332	0	148	2281	0	0		
Future Volume (veh/h)	332	0	148	2281	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	1863	0	1900	1863				
Adj Flow Rate, veh/h	353	0	157	2427				
Adj No. of Lanes	2	0	0	3				
Peak Hour Factor	0.94	0.94	0.94	0.94				
Percent Heavy Veh, %	2	0	2	2				
Cap, veh/h	0	0	298	4392				
Arrive On Green	0.00	0.00	0.32	0.32				
Sat Flow, veh/h	0		286	4723				
Grp Volume(v), veh/h	0.0		962	1622				
Grp Sat Flow(s),veh/h/ln			1771	1543				
Q Serve(g_s), s			79.6	78.2				
Cycle Q Clear(g_c), s			81.2	78.2				
Prop In Lane			0.16					
Lane Grp Cap(c), veh/h			1726	2965				
V/C Ratio(X)			0.56	0.55				
Avail Cap(c_a), veh/h			1726	2965				
HCM Platoon Ratio			0.33	0.33				
Upstream Filter(I)			0.74	0.74				
Uniform Delay (d), s/veh			30.1	29.1				
Incr Delay (d2), s/veh			1.0	0.5				
Initial Q Delay(d3),s/veh			0.0	0.0				
%ile BackOfQ(95%),veh/ln			49.4	41.9				
LnGrp Delay(d),s/veh			31.1	29.6				
LnGrp LOS			C	C				
Approach Vol, veh/h				2584				
Approach Delay, s/veh				30.2				
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		7.0						
Max Green Setting (Gmax), s		143.0						
Max Q Clear Time (g_c+I1), s		83.2						
Green Ext Time (p_c), s		12.3						
Intersection Summary								
HCM 2010 Ctrl Delay			30.2					
HCM 2010 LOS			C					



Timings  
3: 72nd Street & Collins Avenue

Future Without Project Friday PM

10/20/2016

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	332	0	148	2281	0	0
Future Volume (vph)	332	0	148	2281	0	0
Confl. Peds. (#/hr)	9	66	90			
Confl. Bikes (#/hr)						
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Turn Type	Prot		Perm	NA		
Protected Phases	4			2		
Permitted Phases			2			
Detector Phase	4		2	2		
Switch Phase						
Minimum Initial (s)	7.0		6.0	6.0		
Minimum Split (s)	26.0		26.0	26.0		
Total Split (s)	30.0		150.0	150.0		
Total Split (%)	16.7%		83.3%	83.3%		
Yellow Time (s)	4.0		4.0	4.0		
All-Red Time (s)	3.0		3.0	3.0		
Lost Time Adjust (s)	0.0			0.0		
Total Lost Time (s)	7.0			7.0		
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None		C-Max	C-Max		

Intersection Summary

Cycle Length: 180  
 Actuated Cycle Length: 180  
 Offset: 125 (69%), Referenced to phase 2:NBTL and 6:, Start of Yellow  
 Natural Cycle: 70  
 Control Type: Actuated-Coordinated

Splits and Phases: 3: 72nd Street & Collins Avenue























# HCM Signalized Intersection Capacity Analysis

## 4: Abbott Avenue & 71st Street

Future Without Project Friday PM



















9/14/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											  	
Traffic Volume (vph)	0	319	67	50	342	0	0	0	0	60	1337	352
Future Volume (vph)	0	319	67	50	342	0	0	0	0	60	1337	352
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	6.0	6.0						6.0	6.0
Lane Util. Factor		1.00	1.00	1.00	1.00						0.91	1.00
Frpb, ped/bikes		1.00	0.95	1.00	1.00						1.00	0.92
Flpb, ped/bikes		1.00	1.00	0.99	1.00						1.00	1.00
Frt		1.00	0.85	1.00	1.00						1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00						1.00	1.00
Satd. Flow (prot)		1863	1508	1745	1863						5064	1456
Flt Permitted		1.00	1.00	0.30	1.00						1.00	1.00
Satd. Flow (perm)		1863	1508	555	1863						5064	1456
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)	0	332	70	52	356	0	0	0	0	62	1393	367
RTOR Reduction (vph)	0	0	28	0	0	0	0	0	0	0	0	72
Lane Group Flow (vph)	0	332	42	52	356	0	0	0	0	0	1456	295
Confl. Peds. (#/hr)	48		23	23		48	30			23	23	30
Confl. Bikes (#/hr)			9			5				3		
Turn Type		NA	Perm	Perm	NA					custom	NA	Perm
Protected Phases		8			4						2	
Permitted Phases			8	4						6		2
Actuated Green, G (s)		20.9	20.9	20.9	20.9						57.1	57.1
Effective Green, g (s)		20.9	20.9	20.9	20.9						57.1	57.1
Actuated g/C Ratio		0.23	0.23	0.23	0.23						0.63	0.63
Clearance Time (s)		6.0	6.0	6.0	6.0						6.0	6.0
Vehicle Extension (s)		1.0	1.0	1.0	1.0						1.0	1.0
Lane Grp Cap (vph)		432	350	128	432						3212	923
v/s Ratio Prot		0.18			c0.19							
v/s Ratio Perm			0.03	0.09							0.29	0.20
v/c Ratio		0.77	0.12	0.41	0.82						0.45	0.32
Uniform Delay, d1		32.3	27.3	29.3	32.8						8.4	7.5
Progression Factor		1.00	1.00	1.14	1.16						0.24	0.02
Incremental Delay, d2		7.2	0.1	0.7	10.3						0.4	0.7
Delay (s)		39.5	27.4	34.2	48.2						2.4	0.8
Level of Service		D	C	C	D						A	A
Approach Delay (s)		37.4			46.5			0.0			2.0	
Approach LOS		D			D			A			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			14.3			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.55									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)				12.0		
Intersection Capacity Utilization			65.2%			ICU Level of Service				C		
Analysis Period (min)			15									
c Critical Lane Group												

Timings  
4: Abbott Avenue & 71st Street

Future Without Project Friday PM

9/14/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	319	67	50	342	0	0	0	0	60	1337	352
Future Volume (vph)	0	319	67	50	342	0	0	0	0	60	1337	352
Confl. Peds. (#/hr)	48		23	23		48	30		23	23		30
Confl. Bikes (#/hr)			9			5			3			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type		NA	Perm	Perm	NA					custom	NA	Perm
Protected Phases		8			4						2	
Permitted Phases			8	4						6		2
Detector Phase		8	8	4	4					6	2	2
Switch Phase												
Minimum Initial (s)		4.0	4.0	4.0	4.0					5.0	4.0	4.0
Minimum Split (s)		28.0	28.0	28.0	28.0					24.0	28.0	28.0
Total Split (s)		37.0	37.0	37.0	37.0					53.0	53.0	53.0
Total Split (%)		41.1%	41.1%	41.1%	41.1%					58.9%	58.9%	58.9%
Yellow Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
All-Red Time (s)		2.0	2.0	2.0	2.0					2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0						0.0	0.0
Total Lost Time (s)		6.0	6.0	6.0	6.0						6.0	6.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode		None	None	None	None					C-Max	C-Max	C-Max

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 30 (33%), Referenced to phase 2:SBT and 6:SBL, Start of Yellow

Natural Cycle: 60

Control Type: Actuated-Coordinated

Splits and Phases: 4: Abbott Avenue & 71st Street





















# HCM 2010 Signalized Intersection Summary

## 5: Harding Avenue & 71st Street

Future Without Project Friday PM




















9/14/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	81	259	40	19	190	10	162	310	45	10	20	16
Future Volume (veh/h)	81	259	40	19	190	10	162	310	45	10	20	16
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.92	0.98		0.92	0.98		0.94	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	84	270	42	20	198	10	169	323	47	10	21	17
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	563	719	112	560	742	37	221	354	50	124	250	178
Arrive On Green	0.09	0.93	0.93	0.02	0.42	0.42	0.35	0.35	0.35	0.35	0.35	0.35
Sat Flow, veh/h	1774	1554	242	1774	1750	88	482	1014	143	217	716	511
Grp Volume(v), veh/h	84	0	312	20	0	208	539	0	0	48	0	0
Grp Sat Flow(s),veh/h/ln	1774	0	1796	1774	0	1838	1639	0	0	1444	0	0
Q Serve(g_s), s	2.3	0.0	1.8	0.6	0.0	6.6	26.9	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	2.3	0.0	1.8	0.6	0.0	6.6	28.7	0.0	0.0	1.7	0.0	0.0
Prop In Lane	1.00		0.13	1.00		0.05	0.31		0.09	0.21		0.35
Lane Grp Cap(c), veh/h	563	0	831	560	0	779	624	0	0	552	0	0
V/C Ratio(X)	0.15	0.00	0.38	0.04	0.00	0.27	0.86	0.00	0.00	0.09	0.00	0.00
Avail Cap(c_a), veh/h	573	0	831	639	0	779	690	0	0	611	0	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.55	0.00	0.55	0.99	0.00	0.99	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	12.6	0.0	1.9	14.0	0.0	16.8	28.3	0.0	0.0	19.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.1	0.0	0.0	0.8	9.4	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.0	0.0	1.3	0.5	0.0	6.4	20.8	0.0	0.0	1.4	0.0	0.0
LnGrp Delay(d),s/veh	12.6	0.0	1.9	14.0	0.0	17.7	37.8	0.0	0.0	19.7	0.0	0.0
LnGrp LOS	B		A	B		B	D			B		
Approach Vol, veh/h		396			228			539			48	
Approach Delay, s/veh		4.2			17.3			37.8			19.7	
Approach LOS		A			B			D			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.4	44.2		37.4	5.0	47.6		37.4				
Change Period (Y+Rc), s	4.5	6.0		6.0	3.0	6.0		6.0				
Max Green Setting (Gmax), s	4.5	34.0		35.0	6.0	34.0		35.0				
Max Q Clear Time (g_c+I1), s	4.3	8.6		30.7	2.6	3.8		3.7				
Green Ext Time (p_c), s	0.0	1.1		0.7	0.0	1.1		1.4				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				22.2								
HCM 2010 LOS				C								

Timings  
5: Harding Avenue & 71st Street

Future Without Project Friday PM

9/14/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	81	259	40	19	190	10	162	310	45	10	20	16
Future Volume (vph)	81	259	40	19	190	10	162	310	45	10	20	16
Confl. Peds. (#/hr)	6		28	28		6	11		13	13		11
Confl. Bikes (#/hr)			36			29			21			15
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2			4			8		
Detector Phase	1	6		5	2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	4.5	7.0		5.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	9.0	24.0		9.0	24.0		29.0	29.0		29.0	29.0	
Total Split (s)	9.0	40.0		9.0	40.0		41.0	41.0		41.0	41.0	
Total Split (%)	10.0%	44.4%		10.0%	44.4%		45.6%	45.6%		45.6%	45.6%	
Yellow Time (s)	3.5	4.0		3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	2.0		0.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	4.5	6.0		3.0	6.0			6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	None		None	C-Max		None	None		None	None	

Intersection Summary

Cycle Length: 90

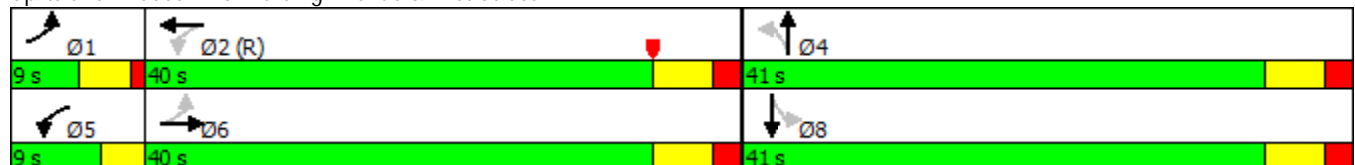
Actuated Cycle Length: 90

Offset: 41 (46%), Referenced to phase 2:WBTL, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Splits and Phases: 5: Harding Avenue & 71st Street





















# HCM Signalized Intersection Capacity Analysis

## 6: Collins Avenue & 71st Street

Future Without Project Friday PM




















9/16/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	293	8	0	0	14	22	173	2142	14	0	0	0
Future Volume (vph)	293	8	0	0	14	22	173	2142	14	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0		6.0	6.0				
Lane Util. Factor	*1.00	0.95			1.00		1.00	0.91				
Frpb, ped/bikes	1.00	1.00			0.92		1.00	1.00				
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00				
Frt	1.00	1.00			0.92		1.00	1.00				
Flt Protected	1.00	0.96			1.00		0.95	1.00				
Satd. Flow (prot)	1863	1692			1575		1770	5078				
Flt Permitted	1.00	0.96			1.00		0.95	1.00				
Satd. Flow (perm)	1863	1692			1575		1770	5078				
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	305	8	0	0	15	23	180	2231	15	0	0	0
RTOR Reduction (vph)	0	0	0	0	22	0	0	0	0	0	0	0
Lane Group Flow (vph)	213	100	0	0	16	0	180	2246	0	0	0	0
Confl. Peds. (#/hr)	14		34	34		14	142		7	7		142
Confl. Bikes (#/hr)			6			1			7			8
Turn Type	Split	NA			NA		Prot	NA				
Protected Phases	3	3			4		5	2				
Permitted Phases												
Actuated Green, G (s)	23.8	23.8			6.5		131.7	131.7				
Effective Green, g (s)	23.8	23.8			6.5		131.7	131.7				
Actuated g/C Ratio	0.13	0.13			0.04		0.73	0.73				
Clearance Time (s)	6.0	6.0			6.0		6.0	6.0				
Vehicle Extension (s)	1.0	1.0			2.5		1.0	1.0				
Lane Grp Cap (vph)	246	223			56		1295	3715				
v/s Ratio Prot	c0.11	0.06			c0.01		0.10	c0.44				
v/s Ratio Perm												
v/c Ratio	0.87	0.45			0.28		0.14	0.60				
Uniform Delay, d1	76.5	72.0			84.5		7.2	11.6				
Progression Factor	0.77	0.78			1.00		1.00	1.00				
Incremental Delay, d2	23.4	0.5			2.0		0.0	0.7				
Delay (s)	82.2	56.5			86.5		7.2	12.4				
Level of Service	F	E			F		A	B				
Approach Delay (s)		74.0			86.5			12.0			0.0	
Approach LOS		E			F			B			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			20.0				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.64									
Actuated Cycle Length (s)			180.0				Sum of lost time (s)			20.0		
Intersection Capacity Utilization			67.3%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

Timings  
6: Collins Avenue & 71st Street

Future Without Project Friday PM

9/16/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								  				
Traffic Volume (vph)	293	8	0	0	14	22	173	2142	14	0	0	0
Future Volume (vph)	293	8	0	0	14	22	173	2142	14	0	0	0
Confl. Peds. (#/hr)	14		34	34		14	142		7	7		142
Confl. Bikes (#/hr)			6			1			7			8
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)	30%											
Turn Type	Split	NA			NA		Prot	NA				
Protected Phases	3	3			4		5	2				
Permitted Phases												
Detector Phase	3	3			4		5	2				
Switch Phase												
Minimum Initial (s)	7.0	7.0			7.0		5.0	4.0				
Minimum Split (s)	25.0	25.0			13.0		11.0	32.0				
Total Split (s)	37.0	37.0			24.0		95.0	95.0				
Total Split (%)	20.6%	20.6%			13.3%		52.8%	52.8%				
Yellow Time (s)	4.0	4.0			4.0		4.0	4.0				
All-Red Time (s)	2.0	2.0			2.0		2.0	2.0				
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0				
Total Lost Time (s)	6.0	6.0			6.0		6.0	6.0				
Lead/Lag	Lead	Lead			Lag							
Lead-Lag Optimize?	Yes	Yes			Yes							
Recall Mode	None	None			None		None	C-Max				

Intersection Summary

Cycle Length: 180






Actuated Cycle Length: 180

Offset: 83 (46%), Referenced to phase 2:NBT and 6:, Start of Yellow

Natural Cycle: 115

Control Type: Actuated-Coordinated

Splits and Phases: 6: Collins Avenue & 71st Street

 Ø2 (R)	 Ø3	 Ø4	 Ø7
95 s	37 s	24 s	24 s
 Ø5			
95 s			

Timings  
6: Collins Avenue & 71st Street

Future Without Project Friday PM  
9/16/2016

Lane Group	Ø7
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Growth Factor	
Heavy Vehicles (%)	
Bus Blockages (#/hr)	
Parking (#/hr)	
Mid-Block Traffic (%)	
Shared Lane Traffic (%)	
Turn Type	
Protected Phases	7
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	24.0
Total Split (s)	24.0
Total Split (%)	13%
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Intersection Summary	
























# HCM Signalized Intersection Capacity Analysis

## 7: Indian Creek Drive & 71st Street

Future Without Project Friday PM





















9/14/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	254	600	419	0	858	22	885	291	4	9	158	407
Future Volume (vph)	254	600	419	0	858	22	885	291	4	9	158	407
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		6.0		6.0	6.0			6.0	6.0
Lane Util. Factor	1.00	1.00	1.00		0.95		0.97	1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00		1.00	1.00			1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00		1.00	1.00			1.00	1.00
Frt	1.00	1.00	0.85		1.00		1.00	1.00			1.00	0.85
Flt Protected	0.95	1.00	1.00		1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1770	1863	1583		3512		3433	1854			1858	1583
Flt Permitted	0.95	1.00	1.00		1.00		0.95	1.00			1.00	1.00
Satd. Flow (perm)	1770	1863	1583		3512		3433	1854			1858	1583
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	259	612	428	0	876	22	903	297	4	9	161	415
RTOR Reduction (vph)	0	0	33	0	1	0	0	0	0	0	0	51
Lane Group Flow (vph)	259	612	395	0	897	0	903	301	0	0	170	365
Confl. Peds. (#/hr)	52		35	35		52	1		52	52		1
Confl. Bikes (#/hr)			6			19			7			1
Turn Type	Prot	NA	pt+ov		NA		Split	NA		Split	NA	pt+ov
Protected Phases	1	6	6 7		2		7	7		8	8	8 1
Permitted Phases												
Actuated Green, G (s)	17.0	70.0	112.0		47.0		36.0	36.0			16.0	39.0
Effective Green, g (s)	17.0	70.0	112.0		47.0		36.0	36.0			16.0	39.0
Actuated g/C Ratio	0.12	0.50	0.80		0.34		0.26	0.26			0.11	0.28
Clearance Time (s)	6.0	6.0			6.0		6.0	6.0			6.0	
Vehicle Extension (s)	2.0	1.0			1.0		2.5	2.5			4.0	
Lane Grp Cap (vph)	214	931	1266		1179		882	476			212	440
v/s Ratio Prot	c0.15	0.33	0.25		c0.26		c0.26	0.16			0.09	c0.23
v/s Ratio Perm												
v/c Ratio	1.21	0.66	0.31		0.76		1.02	0.63			0.80	0.83
Uniform Delay, d1	61.5	26.1	3.7		41.5		52.0	46.1			60.5	47.4
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	129.9	3.6	0.6		4.6		36.5	6.3			26.5	16.3
Delay (s)	191.4	29.7	4.4		46.1		88.5	52.4			86.9	63.7
Level of Service	F	C	A		D		F	D			F	E
Approach Delay (s)		53.6			46.1			79.5			70.4	
Approach LOS		D			D			E			E	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			62.2				HCM 2000 Level of Service				E	
HCM 2000 Volume to Capacity ratio			0.94									
Actuated Cycle Length (s)			140.0				Sum of lost time (s)			24.0		
Intersection Capacity Utilization			92.7%				ICU Level of Service			F		
Analysis Period (min)			15									
c Critical Lane Group												

Timings  
7: Indian Creek Drive & 71st Street

Future Without Project Friday PM

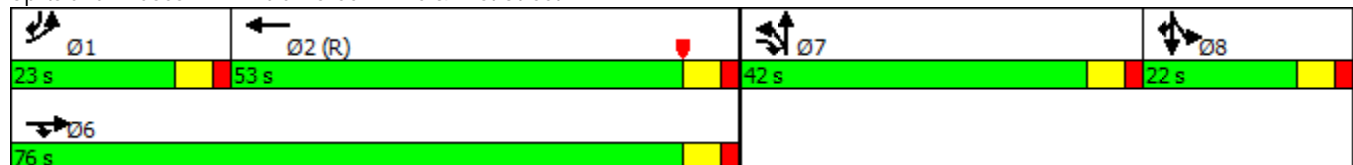
9/14/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	254	600	419	0	858	22	885	291	4	9	158	407
Future Volume (vph)	254	600	419	0	858	22	885	291	4	9	158	407
Confl. Peds. (#/hr)	52		35	35		52	1		52	52		1
Confl. Bikes (#/hr)			6			19			7			1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type	Prot	NA	pt+ov		NA		Split	NA		Split	NA	pt+ov
Protected Phases	1	6	6 7		2		7	7		8	8	8 1
Permitted Phases												
Detector Phase	1	6	6 7		2		7	7		8	8	8 1
Switch Phase												
Minimum Initial (s)	5.0	4.0			4.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	20.0	40.0			40.0		35.0	35.0		22.0	22.0	
Total Split (s)	23.0	76.0			53.0		42.0	42.0		22.0	22.0	
Total Split (%)	16.4%	54.3%			37.9%		30.0%	30.0%		15.7%	15.7%	
Yellow Time (s)	4.0	4.0			4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0			2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0			0.0	
Total Lost Time (s)	6.0	6.0			6.0		6.0	6.0			6.0	
Lead/Lag	Lead				Lag		Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes				Yes		Yes	Yes		Yes	Yes	
Recall Mode	Max	Max			C-Max		Max	Max		Max	Max	

Intersection Summary

Cycle Length: 140  
 Actuated Cycle Length: 140  
 Offset: 7 (5%), Referenced to phase 2:WBT, Start of Yellow  
 Natural Cycle: 120  
 Control Type: Actuated-Coordinated

Splits and Phases: 7: Indian Creek Drive & 71st Street




## **Future with Project Conditions**

# HCM 2010 Signalized Intersection Summary

## 1: 72nd Street & Abbott Avenue

Future With Project Friday PM



















9/15/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗		↖					↖	↑↑↑	↗
Traffic Volume (veh/h)	0	147	36	75	280	0	0	0	0	62	1689	168
Future Volume (veh/h)	0	147	36	75	280	0	0	0	0	62	1689	168
Number	3	8	18	7	4	14				5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.93	0.96		1.00				1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1863	1900	1863	0				1900	1863	1900
Adj Flow Rate, veh/h	0	153	38	78	292	0				65	1759	175
Adj No. of Lanes	0	1	1	0	1	0				0	3	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	2	2	0				0	2	0
Cap, veh/h	0	506	399	120	363	0				97	2772	284
Arrive On Green	0.00	0.27	0.27	0.27	0.27	0.00				0.59	0.59	0.59
Sat Flow, veh/h	0	1863	1469	263	1336	0				163	4659	477
Grp Volume(v), veh/h	0	153	38	370	0	0				741	616	641
Grp Sat Flow(s),veh/h/ln	0	1863	1469	1600	0	0				1855	1695	1749
Q Serve(g_s), s	0.0	5.9	1.7	14.0	0.0	0.0				24.3	20.8	21.1
Cycle Q Clear(g_c), s	0.0	5.9	1.7	19.9	0.0	0.0				24.3	20.8	21.1
Prop In Lane	0.00		1.00	0.21		0.00				0.09		0.27
Lane Grp Cap(c), veh/h	0	506	399	483	0	0				1103	1009	1041
V/C Ratio(X)	0.00	0.30	0.10	0.77	0.00	0.00				0.67	0.61	0.62
Avail Cap(c_a), veh/h	0	538	425	511	0	0				1103	1009	1041
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	0.00	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	26.0	24.5	31.2	0.0	0.0				12.3	11.6	11.7
Incr Delay (d2), s/veh	0.0	0.1	0.0	5.7	0.0	0.0				3.3	2.8	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	5.5	1.3	14.6	0.0	0.0				19.4	15.6	16.4
LnGrp Delay(d),s/veh	0.0	26.1	24.5	36.9	0.0	0.0				15.6	14.4	14.4
LnGrp LOS		C	C	D						B	B	B
Approach Vol, veh/h		191			370						1999	
Approach Delay, s/veh		25.8			36.9						14.8	
Approach LOS		C			D						B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		59.5		30.5				30.5				
Change Period (Y+Rc), s		6.0		6.0				6.0				
Max Green Setting (Gmax), s		52.0		26.0				26.0				
Max Q Clear Time (g_c+I1), s		26.3		21.9				7.9				
Green Ext Time (p_c), s		5.9		0.9				2.1				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay			18.8									
HCM 2010 LOS			B									

Timings  
1: 72nd Street & Abbott Avenue

Future With Project Friday PM

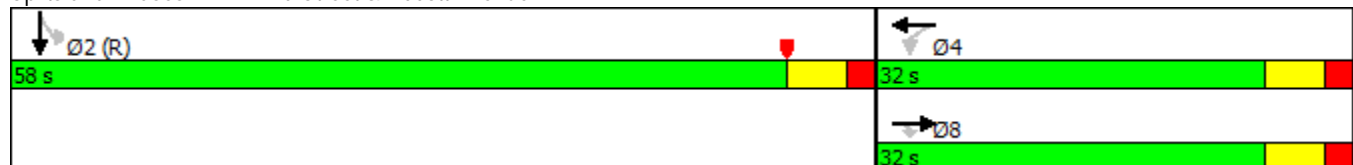
9/16/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											  	
Traffic Volume (vph)	0	147	36	75	280	0	0	0	0	62	1689	168
Future Volume (vph)	0	147	36	75	280	0	0	0	0	62	1689	168
Confl. Peds. (#/hr)	29		54	54		29	32		19	19		32
Confl. Bikes (#/hr)			2			8			2			5
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type		NA	Perm	Perm	NA					Perm	NA	
Protected Phases		8			4						2	
Permitted Phases			8	4						2		
Detector Phase		8	8	4	4					2	2	
Switch Phase												
Minimum Initial (s)		7.0	7.0	7.0	7.0					5.0	5.0	
Minimum Split (s)		32.0	32.0	32.0	32.0					28.0	28.0	
Total Split (s)		32.0	32.0	32.0	32.0					58.0	58.0	
Total Split (%)		35.6%	35.6%	35.6%	35.6%					64.4%	64.4%	
Yellow Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	
All-Red Time (s)		2.0	2.0	2.0	2.0					2.0	2.0	
Lost Time Adjust (s)		0.0	0.0		0.0						0.0	
Total Lost Time (s)		6.0	6.0		6.0						6.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode		None	None	None	None					C-Max	C-Max	

Intersection Summary

Cycle Length: 90  
 Actuated Cycle Length: 90  
 Offset: 25 (28%), Referenced to phase 2:SBTL and 6:, Start of Yellow  
 Natural Cycle: 65  
 Control Type: Actuated-Coordinated

Splits and Phases: 1: 72nd Street & Abbott Avenue














Intersection												
Int Delay, s/veh	48.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	56	98	58	14	152	43	149	154	212	29	20	40
Future Vol, veh/h	56	98	58	14	152	43	149	154	212	29	20	40
Conflicting Peds, #/hr	14	0	33	33	0	14	9	0	7	7	0	9
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	59	103	61	15	160	45	157	162	223	31	21	42
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	219	0	0	197	0	0	538	534	174	677	541	206
Stage 1	-	-	-	-	-	-	285	285	-	226	226	-
Stage 2	-	-	-	-	-	-	253	249	-	451	315	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1350	-	-	1376	-	-	454	452	869	367	448	835
Stage 1	-	-	-	-	-	-	722	676	-	777	717	-
Stage 2	-	-	-	-	-	-	751	701	-	588	656	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1338	-	-	1367	-	-	379	406	836	174	402	817
Mov Cap-2 Maneuver	-	-	-	-	-	-	379	406	-	174	402	-
Stage 1	-	-	-	-	-	-	665	623	-	729	699	-
Stage 2	-	-	-	-	-	-	677	683	-	301	604	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	2.1			0.5			91.9			19.9		
HCM LOS							F			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	502	1338	-	-	1367	-	-	335				
HCM Lane V/C Ratio	1.08	0.044	-	-	0.011	-	-	0.28				
HCM Control Delay (s)	91.9	7.8	0	-	7.7	0	-	19.9				
HCM Lane LOS	F	A	A	-	A	A	-	C				
HCM 95th %tile Q(veh)	17	0.1	-	-	0	-	-	1.1				

# HCM 2010 Signalized Intersection Summary

## 3: 72nd Street & Collins Avenue

Future With Project Friday PM









10/24/2016

								
Movement	EBL	EBR	NBL	NBT	SBT	SBR		
Lane Configurations	 			  				
Traffic Volume (veh/h)	350	0	153	2281	0	0		
Future Volume (veh/h)	350	0	153	2281	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	1863	0	1900	1863				
Adj Flow Rate, veh/h	372	0	163	2427				
Adj No. of Lanes	2	0	0	3				
Peak Hour Factor	0.94	0.94	0.94	0.94				
Percent Heavy Veh, %	2	0	2	2				
Cap, veh/h	0	0	309	4379				
Arrive On Green	0.00	0.00	0.32	0.32				
Sat Flow, veh/h	0		297	4709				
Grp Volume(v), veh/h	0.0		964	1626				
Grp Sat Flow(s),veh/h/ln			1768	1543				
Q Serve(g_s), s			80.4	78.4				
Cycle Q Clear(g_c), s			81.6	78.4				
Prop In Lane			0.17					
Lane Grp Cap(c), veh/h			1723	2965				
V/C Ratio(X)			0.56	0.55				
Avail Cap(c_a), veh/h			1723	2965				
HCM Platoon Ratio			0.33	0.33				
Upstream Filter(I)			0.74	0.74				
Uniform Delay (d), s/veh			30.2	29.2				
Incr Delay (d2), s/veh			1.0	0.5				
Initial Q Delay(d3),s/veh			0.0	0.0				
%ile BackOfQ(95%),veh/ln			49.5	42.0				
LnGrp Delay(d),s/veh			31.2	29.7				
LnGrp LOS			C	C				
Approach Vol, veh/h				2590				
Approach Delay, s/veh				30.3				
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		7.0						
Max Green Setting (Gmax), s		143.0						
Max Q Clear Time (g_c+I1), s		83.6						
Green Ext Time (p_c), s		12.4						
Intersection Summary								
HCM 2010 Ctrl Delay			30.3					
HCM 2010 LOS			C					

Timings  
3: 72nd Street & Collins Avenue

Future With Project Friday PM

10/24/2016

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	350	0	153	2281	0	0
Future Volume (vph)	350	0	153	2281	0	0
Confl. Peds. (#/hr)	9	66	90			
Confl. Bikes (#/hr)						
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Turn Type	Prot		Perm	NA		
Protected Phases	4			2		
Permitted Phases			2			
Detector Phase	4		2	2		
Switch Phase						
Minimum Initial (s)	7.0		6.0	6.0		
Minimum Split (s)	26.0		26.0	26.0		
Total Split (s)	30.0		150.0	150.0		
Total Split (%)	16.7%		83.3%	83.3%		
Yellow Time (s)	4.0		4.0	4.0		
All-Red Time (s)	3.0		3.0	3.0		
Lost Time Adjust (s)	0.0			0.0		
Total Lost Time (s)	7.0			7.0		
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None		C-Max	C-Max		

Intersection Summary

Cycle Length: 180  
 Actuated Cycle Length: 180  
 Offset: 125 (69%), Referenced to phase 2:NBTL and 6:, Start of Yellow  
 Natural Cycle: 70  
 Control Type: Actuated-Coordinated

Splits and Phases: 3: 72nd Street & Collins Avenue

























# HCM Signalized Intersection Capacity Analysis

## 4: Abbott Avenue & 71st Street

Future With Project Friday PM



















9/15/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											  	
Traffic Volume (vph)	0	343	67	55	359	0	0	0	0	60	1340	352
Future Volume (vph)	0	343	67	55	359	0	0	0	0	60	1340	352
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0	6.0	6.0						6.0	6.0
Lane Util. Factor		1.00	1.00	1.00	1.00						0.91	1.00
Frpb, ped/bikes		1.00	0.95	1.00	1.00						1.00	0.92
Flpb, ped/bikes		1.00	1.00	0.99	1.00						1.00	1.00
Frt		1.00	0.85	1.00	1.00						1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00						1.00	1.00
Satd. Flow (prot)		1863	1508	1747	1863						5064	1456
Flt Permitted		1.00	1.00	0.27	1.00						1.00	1.00
Satd. Flow (perm)		1863	1508	505	1863						5064	1456
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)	0	357	70	57	374	0	0	0	0	62	1396	367
RTOR Reduction (vph)	0	0	27	0	0	0	0	0	0	0	0	68
Lane Group Flow (vph)	0	357	43	57	374	0	0	0	0	0	1459	299
Confl. Peds. (#/hr)	48		23	23		48	30		23	23		30
Confl. Bikes (#/hr)			9			5			3			
Turn Type		NA	Perm	Perm	NA					custom	NA	Perm
Protected Phases		8			4						2	
Permitted Phases			8	4						6		2
Actuated Green, G (s)		21.8	21.8	21.8	21.8						56.2	56.2
Effective Green, g (s)		21.8	21.8	21.8	21.8						56.2	56.2
Actuated g/C Ratio		0.24	0.24	0.24	0.24						0.62	0.62
Clearance Time (s)		6.0	6.0	6.0	6.0						6.0	6.0
Vehicle Extension (s)		1.0	1.0	1.0	1.0						1.0	1.0
Lane Grp Cap (vph)		451	365	122	451						3162	909
v/s Ratio Prot		0.19			c0.20							
v/s Ratio Perm			0.03	0.11							0.29	0.21
v/c Ratio		0.79	0.12	0.47	0.83						0.46	0.33
Uniform Delay, d1		32.0	26.6	29.1	32.3						8.9	8.0
Progression Factor		1.00	1.00	1.10	1.12						0.24	0.02
Incremental Delay, d2		8.6	0.1	0.9	10.2						0.4	0.7
Delay (s)		40.6	26.6	33.1	46.6						2.5	0.9
Level of Service		D	C	C	D						A	A
Approach Delay (s)		38.3			44.8			0.0			2.2	
Approach LOS		D			D			A			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			14.8			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.56									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			65.9%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

Timings  
4: Abbott Avenue & 71st Street

Future With Project Friday PM

9/15/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	343	67	55	359	0	0	0	0	60	1340	352
Future Volume (vph)	0	343	67	55	359	0	0	0	0	60	1340	352
Confl. Peds. (#/hr)	48		23	23		48	30		23	23		30
Confl. Bikes (#/hr)			9			5			3			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type		NA	Perm	Perm	NA					custom	NA	Perm
Protected Phases		8			4						2	
Permitted Phases			8	4						6		2
Detector Phase		8	8	4	4					6	2	2
Switch Phase												
Minimum Initial (s)		4.0	4.0	4.0	4.0					5.0	4.0	4.0
Minimum Split (s)		28.0	28.0	28.0	28.0					24.0	28.0	28.0
Total Split (s)		37.0	37.0	37.0	37.0					53.0	53.0	53.0
Total Split (%)		41.1%	41.1%	41.1%	41.1%					58.9%	58.9%	58.9%
Yellow Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
All-Red Time (s)		2.0	2.0	2.0	2.0					2.0	2.0	2.0
Lost Time Adjust (s)		0.0	0.0	0.0	0.0						0.0	0.0
Total Lost Time (s)		6.0	6.0	6.0	6.0						6.0	6.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode		None	None	None	None					C-Max	C-Max	C-Max

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 30 (33%), Referenced to phase 2:SBT and 6:SBL, Start of Yellow

Natural Cycle: 60

Control Type: Actuated-Coordinated

Splits and Phases: 4: Abbott Avenue & 71st Street





















# HCM 2010 Signalized Intersection Summary

## 5: Harding Avenue & 71st Street

Future With Project Friday PM




















9/15/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	104	259	40	19	190	12	162	319	45	10	30	46
Future Volume (veh/h)	104	259	40	19	190	12	162	319	45	10	30	46
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.92	0.98		0.92	0.99		0.94	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	108	270	42	20	198	12	169	332	47	10	31	48
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	556	709	110	546	711	43	220	363	50	81	226	307
Arrive On Green	0.10	0.91	0.91	0.02	0.41	0.41	0.36	0.36	0.36	0.36	0.36	0.36
Sat Flow, veh/h	1774	1554	242	1774	1729	105	472	1021	140	102	636	864
Grp Volume(v), veh/h	108	0	312	20	0	210	548	0	0	89	0	0
Grp Sat Flow(s),veh/h/ln	1774	0	1796	1774	0	1834	1633	0	0	1602	0	0
Q Serve(g_s), s	3.1	0.0	2.1	0.6	0.0	6.9	25.9	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	3.1	0.0	2.1	0.6	0.0	6.9	29.3	0.0	0.0	3.3	0.0	0.0
Prop In Lane	1.00		0.13	1.00		0.06	0.31		0.09	0.11		0.54
Lane Grp Cap(c), veh/h	556	0	819	546	0	754	632	0	0	614	0	0
V/C Ratio(X)	0.19	0.00	0.38	0.04	0.00	0.28	0.87	0.00	0.00	0.14	0.00	0.00
Avail Cap(c_a), veh/h	556	0	819	626	0	754	687	0	0	665	0	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.51	0.00	0.51	0.99	0.00	0.99	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	12.8	0.0	2.2	14.6	0.0	17.6	27.9	0.0	0.0	19.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.1	0.0	0.0	0.9	10.0	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.7	0.0	1.6	0.5	0.0	6.5	21.2	0.0	0.0	2.7	0.0	0.0
LnGrp Delay(d),s/veh	12.8	0.0	2.3	14.6	0.0	18.5	37.9	0.0	0.0	19.8	0.0	0.0
LnGrp LOS	B		A	B		B	D			B		
Approach Vol, veh/h		420			230			548			89	
Approach Delay, s/veh		5.0			18.2			37.9			19.8	
Approach LOS		A			B			D			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.0	43.0		38.0	5.0	47.1		38.0				
Change Period (Y+Rc), s	4.5	6.0		6.0	3.0	6.0		6.0				
Max Green Setting (Gmax), s	4.5	34.0		35.0	6.0	34.0		35.0				
Max Q Clear Time (g_c+I1), s	5.1	8.9		31.3	2.6	4.1		5.3				
Green Ext Time (p_c), s	0.0	1.1		0.7	0.0	1.1		1.6				
<b>Intersection Summary</b>												
HCM 2010 Ctrl Delay				22.4								
HCM 2010 LOS				C								

Timings  
5: Harding Avenue & 71st Street

Future With Project Friday PM

9/15/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	104	259	40	19	190	12	162	319	45	10	30	46
Future Volume (vph)	104	259	40	19	190	12	162	319	45	10	30	46
Confl. Peds. (#/hr)	6		28	28		6	11		13	13		11
Confl. Bikes (#/hr)			36			29			21			15
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2			4			8		
Detector Phase	1	6		5	2		4	4		8	8	
Switch Phase												
Minimum Initial (s)	4.5	7.0		5.0	7.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	9.0	24.0		9.0	24.0		29.0	29.0		29.0	29.0	
Total Split (s)	9.0	40.0		9.0	40.0		41.0	41.0		41.0	41.0	
Total Split (%)	10.0%	44.4%		10.0%	44.4%		45.6%	45.6%		45.6%	45.6%	
Yellow Time (s)	3.5	4.0		3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	2.0		0.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Total Lost Time (s)	4.5	6.0		3.0	6.0			6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	None		None	C-Max		None	None		None	None	

Intersection Summary

Cycle Length: 90

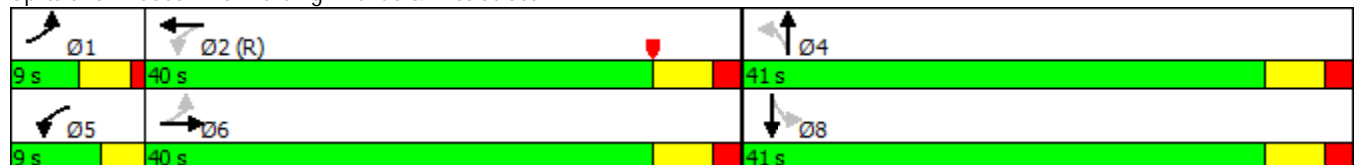
Actuated Cycle Length: 90

Offset: 41 (46%), Referenced to phase 2:WBTL, Start of Yellow

Natural Cycle: 65

Control Type: Actuated-Coordinated

Splits and Phases: 5: Harding Avenue & 71st Street






















# HCM Signalized Intersection Capacity Analysis

## 6: Collins Avenue & 71st Street

Future With Project Friday PM




















9/16/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								  				
Traffic Volume (vph)	293	8	0	0	14	22	175	2147	14	0	0	0
Future Volume (vph)	293	8	0	0	14	22	175	2147	14	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0		6.0	6.0				
Lane Util. Factor	*1.00	0.95			1.00		1.00	0.91				
Frpb, ped/bikes	1.00	1.00			0.92		1.00	1.00				
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00				
Frt	1.00	1.00			0.92		1.00	1.00				
Flt Protected	1.00	0.96			1.00		0.95	1.00				
Satd. Flow (prot)	1863	1692			1575		1770	5078				
Flt Permitted	1.00	0.96			1.00		0.95	1.00				
Satd. Flow (perm)	1863	1692			1575		1770	5078				
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	305	8	0	0	15	23	182	2236	15	0	0	0
RTOR Reduction (vph)	0	0	0	0	22	0	0	0	0	0	0	0
Lane Group Flow (vph)	213	100	0	0	16	0	182	2251	0	0	0	0
Confl. Peds. (#/hr)	14		34	34		14	142		7	7		142
Confl. Bikes (#/hr)			6			1			7			8
Turn Type	Split	NA			NA		Prot	NA				
Protected Phases	3	3			4		5	2				
Permitted Phases												
Actuated Green, G (s)	23.8	23.8			6.5		131.7	131.7				
Effective Green, g (s)	23.8	23.8			6.5		131.7	131.7				
Actuated g/C Ratio	0.13	0.13			0.04		0.73	0.73				
Clearance Time (s)	6.0	6.0			6.0		6.0	6.0				
Vehicle Extension (s)	1.0	1.0			2.5		1.0	1.0				
Lane Grp Cap (vph)	246	223			56		1295	3715				
v/s Ratio Prot	c0.11	0.06			c0.01		0.10	c0.44				
v/s Ratio Perm												
v/c Ratio	0.87	0.45			0.28		0.14	0.61				
Uniform Delay, d1	76.5	72.0			84.5		7.2	11.6				
Progression Factor	0.76	0.78			1.00		1.00	1.00				
Incremental Delay, d2	23.3	0.5			2.0		0.0	0.7				
Delay (s)	81.6	56.3			86.5		7.2	12.4				
Level of Service	F	E			F		A	B				
Approach Delay (s)		73.5			86.5			12.0			0.0	
Approach LOS		E			F			B			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			19.9				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.64									
Actuated Cycle Length (s)			180.0				Sum of lost time (s)			20.0		
Intersection Capacity Utilization			67.4%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

Timings  
6: Collins Avenue & 71st Street

Future With Project Friday PM

9/16/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								  				
Traffic Volume (vph)	293	8	0	0	14	22	175	2147	14	0	0	0
Future Volume (vph)	293	8	0	0	14	22	175	2147	14	0	0	0
Confl. Peds. (#/hr)	14		34	34		14	142		7	7		142
Confl. Bikes (#/hr)			6			1			7			8
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)	30%											
Turn Type	Split	NA			NA		Prot	NA				
Protected Phases	3	3			4		5	2				
Permitted Phases												
Detector Phase	3	3			4		5	2				
Switch Phase												
Minimum Initial (s)	7.0	7.0			7.0		5.0	4.0				
Minimum Split (s)	25.0	25.0			13.0		11.0	32.0				
Total Split (s)	37.0	37.0			24.0		95.0	95.0				
Total Split (%)	20.6%	20.6%			13.3%		52.8%	52.8%				
Yellow Time (s)	4.0	4.0			4.0		4.0	4.0				
All-Red Time (s)	2.0	2.0			2.0		2.0	2.0				
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0				
Total Lost Time (s)	6.0	6.0			6.0		6.0	6.0				
Lead/Lag	Lead	Lead			Lag							
Lead-Lag Optimize?	Yes	Yes			Yes							
Recall Mode	None	None			None		None	C-Max				

Intersection Summary

Cycle Length: 180






Actuated Cycle Length: 180

Offset: 83 (46%), Referenced to phase 2:NBT and 6:, Start of Yellow

Natural Cycle: 115

Control Type: Actuated-Coordinated

Splits and Phases: 6: Collins Avenue & 71st Street

 Ø2 (R)	 Ø3	 Ø4	 Ø7
95 s	37 s	24 s	24 s
 Ø5			
95 s			

Timings  
6: Collins Avenue & 71st Street

Future With Project Friday PM  
9/16/2016























Lane Group	Ø7
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Growth Factor	
Heavy Vehicles (%)	
Bus Blockages (#/hr)	
Parking (#/hr)	
Mid-Block Traffic (%)	
Shared Lane Traffic (%)	
Turn Type	
Protected Phases	7
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	1.0
Minimum Split (s)	24.0
Total Split (s)	24.0
Total Split (%)	13%
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Intersection Summary	

# HCM Signalized Intersection Capacity Analysis

## 7: Indian Creek Drive & 71st Street

Future With Project Friday PM

10/24/2016





















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	256	619	419	0	870	24	885	293	4	9	158	407
Future Volume (vph)	256	619	419	0	870	24	885	293	4	9	158	407
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		6.0		6.0	6.0			6.0	6.0
Lane Util. Factor	1.00	1.00	1.00		0.95		0.97	1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00		1.00	1.00			1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00		1.00	1.00			1.00	1.00
Frt	1.00	1.00	0.85		1.00		1.00	1.00			1.00	0.85
Flt Protected	0.95	1.00	1.00		1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1770	1863	1583		3509		3433	1854			1858	1583
Flt Permitted	0.95	1.00	1.00		1.00		0.95	1.00			1.00	1.00
Satd. Flow (perm)	1770	1863	1583		3509		3433	1854			1858	1583
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	261	632	428	0	888	24	903	299	4	9	161	415
RTOR Reduction (vph)	0	0	33	0	1	0	0	0	0	0	0	51
Lane Group Flow (vph)	261	632	395	0	911	0	903	303	0	0	170	365
Confl. Peds. (#/hr)	52		35	35		52	1		52	52		1
Confl. Bikes (#/hr)			6			19			7			1
Turn Type	Prot	NA	pt+ov		NA		Split	NA		Split	NA	pt+ov
Protected Phases	1	6	6 7		2		7	7		8	8	8 1
Permitted Phases												
Actuated Green, G (s)	17.0	70.0	112.0		47.0		36.0	36.0			16.0	39.0
Effective Green, g (s)	17.0	70.0	112.0		47.0		36.0	36.0			16.0	39.0
Actuated g/C Ratio	0.12	0.50	0.80		0.34		0.26	0.26			0.11	0.28
Clearance Time (s)	6.0	6.0			6.0		6.0	6.0			6.0	
Vehicle Extension (s)	2.0	1.0			1.0		2.5	2.5			4.0	
Lane Grp Cap (vph)	214	931	1266		1178		882	476			212	440
v/s Ratio Prot	c0.15	0.34	0.25		c0.26		c0.26	0.16			0.09	c0.23
v/s Ratio Perm												
v/c Ratio	1.22	0.68	0.31		0.77		1.02	0.64			0.80	0.83
Uniform Delay, d1	61.5	26.5	3.7		41.7		52.0	46.2			60.5	47.4
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	133.4	4.0	0.6		5.0		36.5	6.4			26.5	16.3
Delay (s)	194.9	30.5	4.4		46.7		88.5	52.6			86.9	63.7
Level of Service	F	C	A		D		F	D			F	E
Approach Delay (s)		54.5			46.7			79.5			70.4	
Approach LOS		D			D			E			E	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			62.5				HCM 2000 Level of Service				E	
HCM 2000 Volume to Capacity ratio			0.95									
Actuated Cycle Length (s)			140.0				Sum of lost time (s)			24.0		
Intersection Capacity Utilization			93.2%				ICU Level of Service			F		
Analysis Period (min)			15									
c Critical Lane Group												



Timings  
7: Indian Creek Drive & 71st Street

Future With Project Friday PM

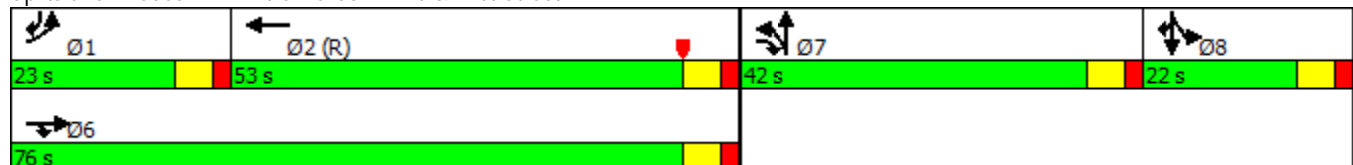
10/24/2016




												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	256	619	419	0	870	24	885	293	4	9	158	407
Future Volume (vph)	256	619	419	0	870	24	885	293	4	9	158	407
Confl. Peds. (#/hr)	52		35	35		52	1		52	52		1
Confl. Bikes (#/hr)			6			19			7			1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type	Prot	NA	pt+ov		NA		Split	NA		Split	NA	pt+ov
Protected Phases	1	6	6 7		2		7	7		8	8	8 1
Permitted Phases												
Detector Phase	1	6	6 7		2		7	7		8	8	8 1
Switch Phase												
Minimum Initial (s)	5.0	4.0			4.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	20.0	40.0			40.0		35.0	35.0		22.0	22.0	
Total Split (s)	23.0	76.0			53.0		42.0	42.0		22.0	22.0	
Total Split (%)	16.4%	54.3%			37.9%		30.0%	30.0%		15.7%	15.7%	
Yellow Time (s)	4.0	4.0			4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0			2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0			0.0	
Total Lost Time (s)	6.0	6.0			6.0		6.0	6.0			6.0	
Lead/Lag	Lead				Lag		Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes				Yes		Yes	Yes		Yes	Yes	
Recall Mode	Max	Max			C-Max		Max	Max		Max	Max	

Intersection Summary

Cycle Length: 140  
 Actuated Cycle Length: 140  
 Offset: 7 (5%), Referenced to phase 2:WBT, Start of Yellow  
 Natural Cycle: 120  
 Control Type: Actuated-Coordinated

Splits and Phases: 7: Indian Creek Drive & 71st Street

























Intersection						
Int Delay, s/veh	1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	28	17	432	0	0	53
Future Vol, veh/h	28	17	432	0	0	53
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	30	18	470	0	0	58
Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	528	470	0	0	470	0
Stage 1	470	-	-	-	-	-
Stage 2	58	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	511	594	-	-	1092	-
Stage 1	629	-	-	-	-	-
Stage 2	965	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	511	594	-	-	1092	-
Mov Cap-2 Maneuver	511	-	-	-	-	-
Stage 1	629	-	-	-	-	-
Stage 2	965	-	-	-	-	-
Approach	WB		NB		SB	
HCM Control Delay, s	12.3		0		0	
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	- 539	1092	-		
HCM Lane V/C Ratio	-	- 0.091	-	-		
HCM Control Delay (s)	-	- 12.3	0	-		
HCM Lane LOS	-	- B	A	-		
HCM 95th %tile Q(veh)	-	- 0.3	0	-		

# HCM Signalized Intersection Capacity Analysis

## 7: Indian Creek Drive & 71st Street

Future With Project Friday PM w IMP

9/16/2016























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	256	626	419	0	872	24	885	293	4	9	158	407
Future Volume (vph)	256	626	419	0	872	24	885	293	4	9	158	407
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		6.0		6.0	6.0			6.0	6.0
Lane Util. Factor	1.00	1.00	1.00		0.95		0.97	1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00		1.00	1.00			1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00		1.00	1.00			1.00	1.00
Frt	1.00	1.00	0.85		1.00		1.00	1.00			1.00	0.85
Flt Protected	0.95	1.00	1.00		1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	1770	1863	1583		3509		3433	1854			1858	1583
Flt Permitted	0.95	1.00	1.00		1.00		0.95	1.00			1.00	1.00
Satd. Flow (perm)	1770	1863	1583		3509		3433	1854			1858	1583
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	261	639	428	0	890	24	903	299	4	9	161	415
RTOR Reduction (vph)	0	0	33	0	1	0	0	0	0	0	0	50
Lane Group Flow (vph)	261	639	395	0	913	0	903	303	0	0	170	366
Confl. Peds. (#/hr)	52		35	35		52	1		52	52		1
Confl. Bikes (#/hr)			6			19			7			1
Turn Type	Prot	NA	pt+ov		NA		Split	NA		Split	NA	pt+ov
Protected Phases	1	6	6 7		2		7	7		8	8	8 1
Permitted Phases												
Actuated Green, G (s)	19.0	69.0	112.0		44.0		37.0	37.0			16.0	41.0
Effective Green, g (s)	19.0	69.0	112.0		44.0		37.0	37.0			16.0	41.0
Actuated g/C Ratio	0.14	0.49	0.80		0.31		0.26	0.26			0.11	0.29
Clearance Time (s)	6.0	6.0			6.0		6.0	6.0			6.0	
Vehicle Extension (s)	2.0	1.0			1.0		2.5	2.5			4.0	
Lane Grp Cap (vph)	240	918	1266		1102		907	489			212	463
v/s Ratio Prot	c0.15	0.34	0.25		c0.26		c0.26	0.16			0.09	c0.23
v/s Ratio Perm												
v/c Ratio	1.09	0.70	0.31		0.83		1.00	0.62			0.80	0.79
Uniform Delay, d1	60.5	27.4	3.7		44.5		51.4	45.3			60.5	45.5
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	83.4	4.4	0.6		7.2		28.8	5.8			26.5	12.8
Delay (s)	143.9	31.8	4.4		51.7		80.3	51.1			86.9	58.4
Level of Service	F	C	A		D		F	D			F	E
Approach Delay (s)		45.0			51.7			72.9			66.7	
Approach LOS		D			D			E			E	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			58.0				HCM 2000 Level of Service				E	
HCM 2000 Volume to Capacity ratio			0.94									
Actuated Cycle Length (s)			140.0				Sum of lost time (s)			24.0		
Intersection Capacity Utilization			93.2%				ICU Level of Service			F		
Analysis Period (min)			15									
c Critical Lane Group												

# Timings

## 7: Indian Creek Drive & 71st Street

Future With Project Friday PM w IMP

9/16/2016

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	256	626	419	0	872	24	885	293	4	9	158	407
Future Volume (vph)	256	626	419	0	872	24	885	293	4	9	158	407
Confl. Peds. (#/hr)	52		35	35		52	1		52	52		1
Confl. Bikes (#/hr)			6			19			7			1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Turn Type	Prot	NA	pt+ov		NA		Split	NA		Split	NA	pt+ov
Protected Phases	1	6	6 7		2		7	7		8	8	8 1
Permitted Phases												
Detector Phase	1	6	6 7		2		7	7		8	8	8 1
Switch Phase												
Minimum Initial (s)	5.0	4.0			4.0		7.0	7.0		7.0	7.0	
Minimum Split (s)	20.0	40.0			40.0		35.0	35.0		22.0	22.0	
Total Split (s)	25.0	75.0			50.0		43.0	43.0		22.0	22.0	
Total Split (%)	17.9%	53.6%			35.7%		30.7%	30.7%		15.7%	15.7%	
Yellow Time (s)	4.0	4.0			4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0			2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0			0.0	
Total Lost Time (s)	6.0	6.0			6.0		6.0	6.0			6.0	
Lead/Lag	Lead				Lag		Lead	Lead		Lag	Lag	
Lead-Lag Optimize?	Yes				Yes		Yes	Yes		Yes	Yes	
Recall Mode	Max	Max			C-Max		Max	Max		Max	Max	

### Intersection Summary

Cycle Length: 140






Actuated Cycle Length: 140

Offset: 7 (5%), Referenced to phase 2:WBT, Start of Yellow

Natural Cycle: 120

Control Type: Actuated-Coordinated

Splits and Phases: 7: Indian Creek Drive & 71st Street

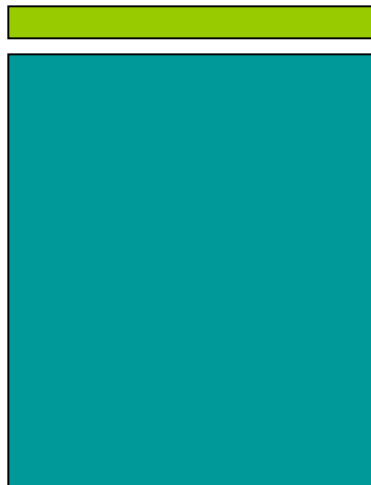
 Ø1	 Ø2 (R)	 Ø7	 Ø8
25 s	50 s	43 s	22 s
 Ø6			
75 s			

## **Appendix E**

### **Committed Development Documentation**

# Deauville Hotel

traffic study



prepared for:  
**Deauville Hotel**

**Traf Tech**  
ENGINEERING, INC.

**August 2016**

**Revised September 2016**

## TRIP GENERATION

The trip generation for the project was based on information contained in the Institute of Transportation Engineer's (ITE) *Trip Generation Manual* (9<sup>th</sup> 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 trips associated with the proposed development.

<b>Table 1 Trip Generation Summary Deauville Hotel</b>					
<b>Land Use</b>	<b>Size</b>	<b>Daily Trips</b>	<b>PM Peak Hour Trips</b>		
			<b>In</b>	<b>Out</b>	<b>Total</b>
Existing - Hotel	539 Rooms	4,404	165	158	323
Proposed - Hotel	968 Rooms	7,909	296	285	581
Difference	429 Rooms	3,505	131	127	258
<b>Total New Trips</b>		<b>3,505</b>	<b>131</b>	<b>127</b>	<b>258</b>

*Compiled by: TrafTech Engineering, Inc. (July 2016).*

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

As indicated in Table 1, the external new trips anticipated to be generated by the proposed project consist of approximately 3,505 daily trips and approximately 258 trips during the weekday PM peak hour (131 inbound and 127 outbound). The trip generation rate used to determine the trips associated with the proposed use is presented below:

### **ITE Land Use 310 – Hotel**

#### Daily Trips

$$T = 8.17 (X)$$

Where T = average daily vehicle trip ends

X = number of rooms

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

$$T = 0.60 (X) \text{ (51\% inbound and 49\% outbound)}$$

Where T = average AM peak hour vehicle trip ends

X = number of rooms

## TRIP DISTRUBUTION AND TRAFFIC ASSIGNMENT

---

The trip distribution and traffic assignment for the project were based on Miami-Dade County's Cardinal Distribution information for the study area. Table 2 summarizes the County's cardinal distribution data for Traffic Analysis Zone 627, which is applicable to the project site from the latest SERPM data published by Miami-Dade County.

<b>TABLE 2</b>		
<b>Project Trip Distribution</b>		
<b>Deauville Hotel</b>		
<b>Direction</b>		<b>% of Total Trips</b>
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
<b>Total</b>		100.00%

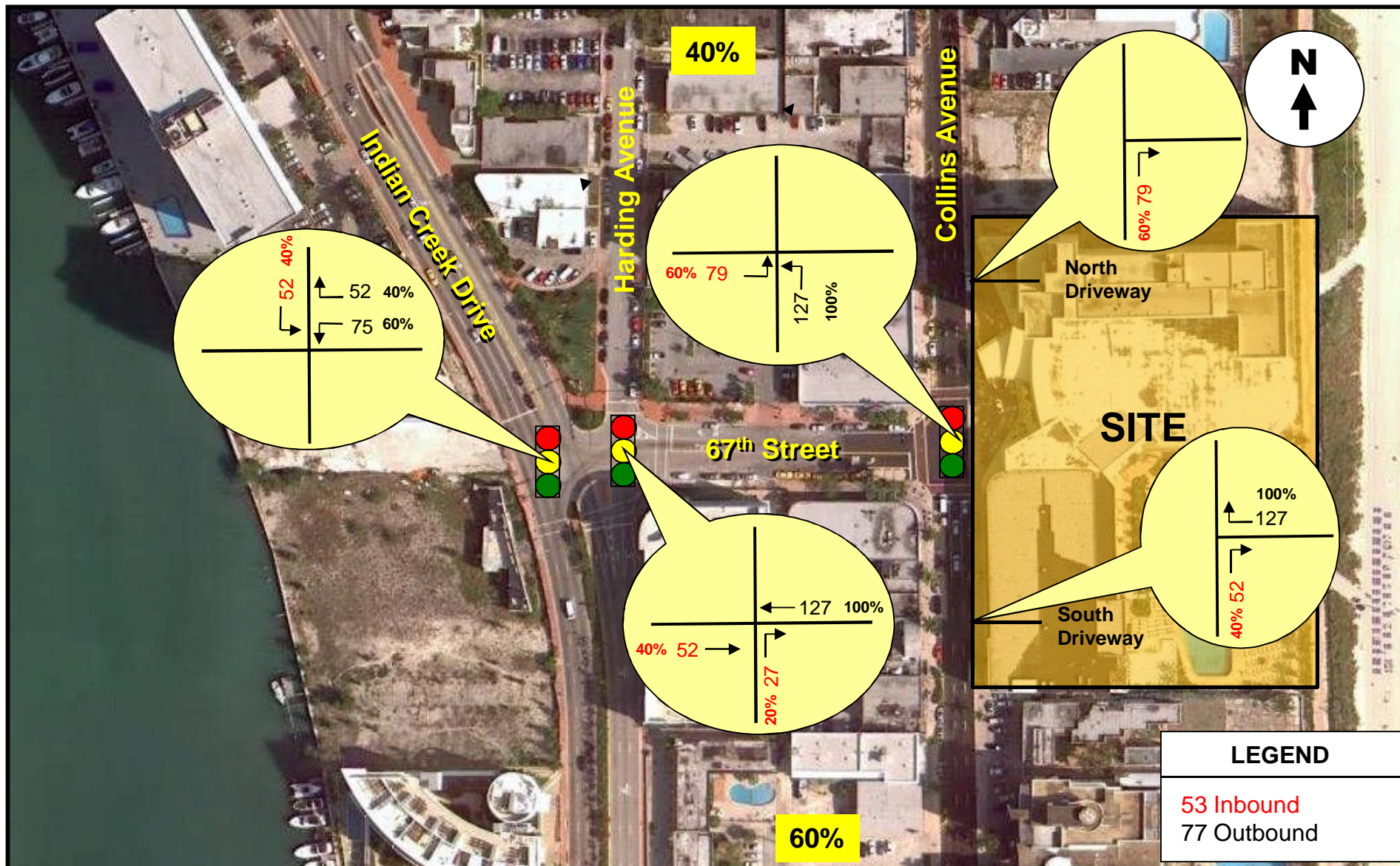
*Source: Miami-Dade County (2040 SERPM)*

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

- 60% from the south via Collins Avenue/Indian Creek Drive
- 40% to and from the north via Indian Creek Drive/Collins Avenue

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.





## Trip Generation Summary

Alternative: Alternative 1

Phase:

Project: Collins Hotel

Open Date: 9/13/2016

Analysis Date: 9/13/2016

ITE	Land Use	Weekday Average Daily Trips				Weekday AM Peak Hour of Adjacent Street Traffic				Weekday PM Peak Hour of Adjacent Street Traffic			
		*	Enter	Exit	Total	*	Enter	Exit	Total	*	Enter	Exit	Total
230	CONDO 1		129	129	258		4	18	22		17	8	25
	35 Dwelling Units												
310	HOTEL 1		143	143	286		11	8	19		11	10	21
	35 Rooms												
Unadjusted Volume			272	272	544		15	26	41		28	18	46
Internal Capture Trips			0	0	0		0	0	0		0	0	0
Pass-By Trips			0	0	0		0	0	0		0	0	0
Volume Added to Adjacent Streets			272	272	544		15	26	41		28	18	46

Total Weekday Average Daily Trips Internal Capture = 0 Percent

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

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

\* - Custom rate used for selected time period.

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

**TRIP GENERATION 2014, TRAFFICWARE, LLC**

P. 1

## Trip Generation Summary

Alternative: Alternative 1

Phase:

Open Date: 9/13/2016

Project: Collins Hotel 16204

Analysis Date: 9/13/2016

ITE	Land Use	Weekday Average Daily Trips				Weekday AM Peak Hour of Adjacent Street Traffic				Weekday PM Peak Hour of Adjacent Street Traffic			
		*	Enter	Exit	Total	*	Enter	Exit	Total	*	Enter	Exit	Total
230	CONDO 1		151	151	302		4	22	26		20	10	30
	42 Dwelling Units												
Unadjusted Volume			151	151	302		4	22	26		20	10	30
Internal Capture Trips			0	0	0		0	0	0		0	0	0
Pass-By Trips			0	0	0		0	0	0		0	0	0
Volume Added to Adjacent Streets			151	151	302		4	22	26		20	10	30

Total Weekday Average Daily Trips Internal Capture = 0 Percent

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

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

\* - Custom rate used for selected time period.

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

**TRIP GENERATION 2014, TRAFFICWARE, LLC**

P. 1

## Trip Generation Summary

Alternative: Alternative 1

Phase:

Open Date: 9/13/2016

Project: Collins Hotel 16204

Analysis Date: 9/13/2016

ITE	Land Use	Weekday Average Daily Trips				Weekday AM Peak Hour of Adjacent Street Traffic				Weekday PM Peak Hour of Adjacent Street Traffic			
		*	Enter	Exit	Total	*	Enter	Exit	Total	*	Enter	Exit	Total
230	CONDO 1		113	113	226		3	17	20		15	7	22
	30 Dwelling Units												
Unadjusted Volume			113	113	226		3	17	20		15	7	22
Internal Capture Trips			0	0	0		0	0	0		0	0	0
Pass-By Trips			0	0	0		0	0	0		0	0	0
Volume Added to Adjacent Streets			113	113	226		3	17	20		15	7	22

Total Weekday Average Daily Trips Internal Capture = 0 Percent

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

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

\* - Custom rate used for selected time period.

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

**TRIP GENERATION 2014, TRAFFICWARE, LLC**

P. 1

## Trip Generation Summary

Alternative: Alternative 1

Phase:

Project: Collins Hotel

Open Date: 9/13/2016

Analysis Date: 9/13/2016

ITE	Land Use	Weekday Average Daily Trips				Weekday AM Peak Hour of Adjacent Street Traffic				Weekday PM Peak Hour of Adjacent Street Traffic			
		*	Enter	Exit	Total	*	Enter	Exit	Total	*	Enter	Exit	Total
230	CONDO 1		86	86	172		3	12	15		11	6	17
	22 Dwelling Units												
Unadjusted Volume			86	86	172		3	12	15		11	6	17
Internal Capture Trips			0	0	0		0	0	0		0	0	0
Pass-By Trips			0	0	0		0	0	0		0	0	0
Volume Added to Adjacent Streets			86	86	172		3	12	15		11	6	17

Total Weekday Average Daily Trips Internal Capture = 0 Percent

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

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

\* - Custom rate used for selected time period.

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

**TRIP GENERATION 2014, TRAFFICWARE, LLC**

P. 1

# **Appendix F**

## **Trip Generation**

## Trip Generation Summary

Alternative: Existing

Phase:

Project: 7140 Collins Hotel 16204

Open Date: 8/22/2016

Analysis Date: 8/22/2016

ITE	Land Use	Weekday Average Daily Trips				Weekday AM Peak Hour of Adjacent Street Traffic				Weekday PM Peak Hour of Adjacent Street Traffic			
		*	Enter	Exit	Total	*	Enter	Exit	Total	*	Enter	Exit	Total
820	CENTERSHOPPING 2		603	603	1206		19	12	31		48	53	101
	7 Gross Leasable Area 1000 SF												
Unadjusted Volume			603	603	1206		19	12	31		48	53	101
Internal Capture Trips			0	0	0		0	0	0		0	0	0
Pass-By Trips			0	0	0		0	0	0		17	17	34
Volume Added to Adjacent Streets			603	603	1206		19	12	31		31	36	67

Total Weekday Average Daily Trips Internal Capture = 0 Percent

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

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

\* - Custom rate used for selected time period.

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

**TRIP GENERATION 2014, TRAFFICWARE, LLC**

P. 1

## Trip Generation Summary

Alternative: Proposed

Phase:

Open Date: 8/22/2016

Project: 7140 Collins Hotel 16204

Analysis Date: 8/22/2016

ITE	Land Use	Weekday Average Daily Trips				Weekday AM Peak Hour of Adjacent Street Traffic				Weekday PM Peak Hour of Adjacent Street Traffic			
		*	Enter	Exit	Total	*	Enter	Exit	Total	*	Enter	Exit	Total
310	HOTEL 1		731	731	1462		56	39	95		55	52	107
	179 Rooms												
820	CENTERSHOPPING 1		1140	1140	2280		35	21	56		93	101	194
	18.65 Gross Leasable Area 1000 SF												
Unadjusted Volume			1871	1871	3742		91	60	151		148	153	301
Internal Capture Trips			0	0	0		1	1	2		7	7	14
Pass-By Trips			0	0	0		0	0	0		32	32	64
Volume Added to Adjacent Streets			1871	1871	3742		90	59	149		109	114	223

Total Weekday Average Daily Trips Internal Capture = 0 Percent

Total Weekday AM Peak Hour of Adjacent Street Traffic Internal Capture = 1 Percent

Total Weekday PM Peak Hour of Adjacent Street Traffic Internal Capture = 5 Percent

\* - Custom rate used for selected time period.

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

**TRIP GENERATION 2014, TRAFFICWARE, LLC**

P. 1



## PM Peak Hour Trip Generation and Internalization

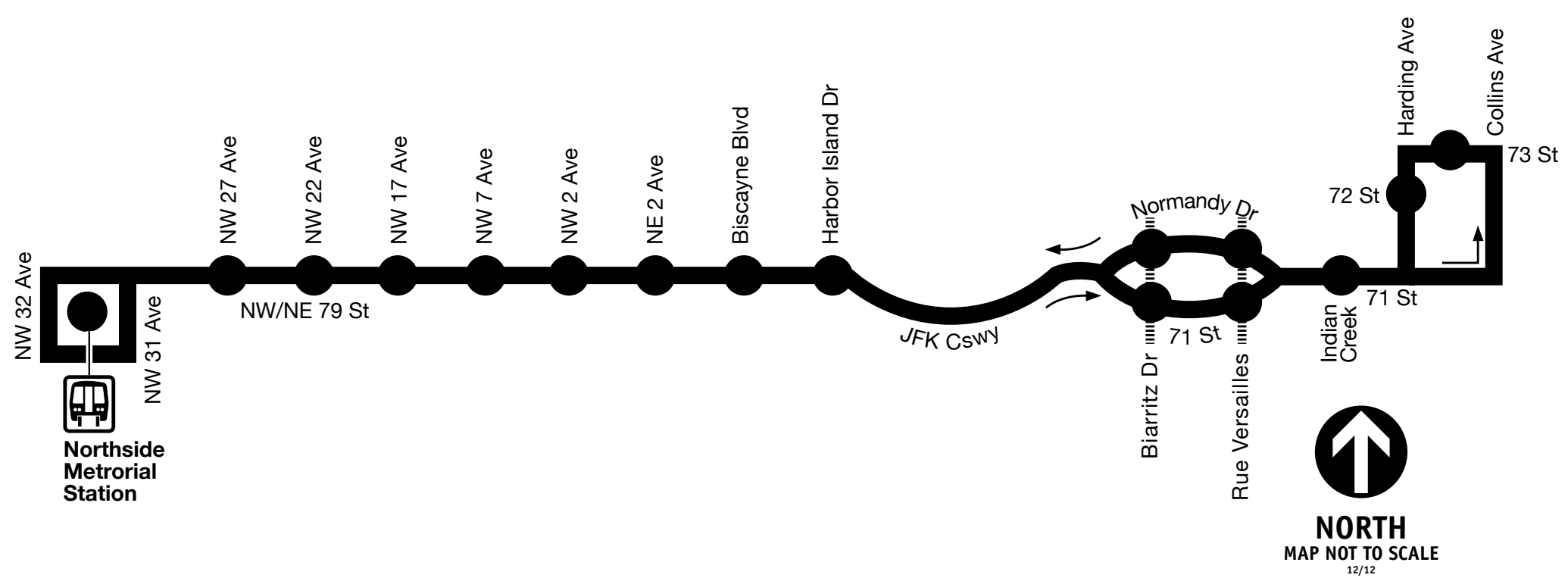
7140 Collins Hotel

Shopping Center Land Use 826 18,652 Sq Ft		Hotel Land Use 310 179 Dwelling Units		
In	Out	In	Out	
93	101	55	52	301 ITE Trips
<b>UNBALANCED INTERNALIZATION</b>				
<div> <div>5%</div> <div>5</div> <div>2%</div> <div>2</div> </div>		5	<div> <div>17%</div> <div>9</div> <div>16%</div> <div>8</div> </div>	
		2		
Shopping Center		Hotel		
In	Out	In	Out	
93	101	55	52	301 ITE Trips
<b>BALANCED INTERNALIZATION</b>				
<div> <div>-5</div> <div>-2</div> </div>		-5	-2	
-2	-5	-5	-2	-14 Internal
91	96	50	50	287 External Trips
	3.6%		6.5%	4.7% % Internal
-32	-32			-64 -34% Shopping Passby
59	64	50	50	223
-6	-6	-5	-5	-22 -10% Transit
53	58	45	45	201 Net New External Trips

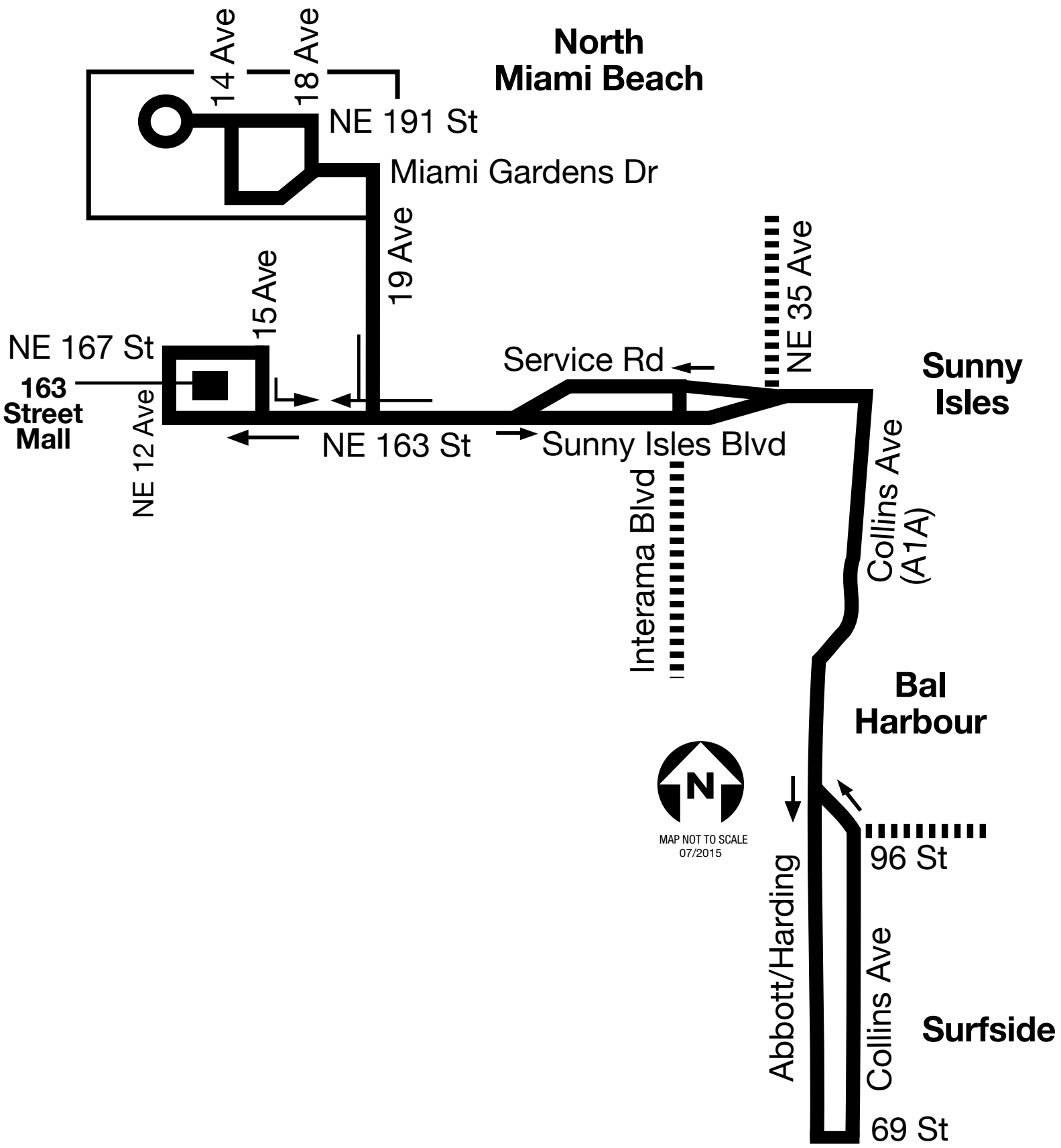
## **Appendix G**

### **Bus Route Information**

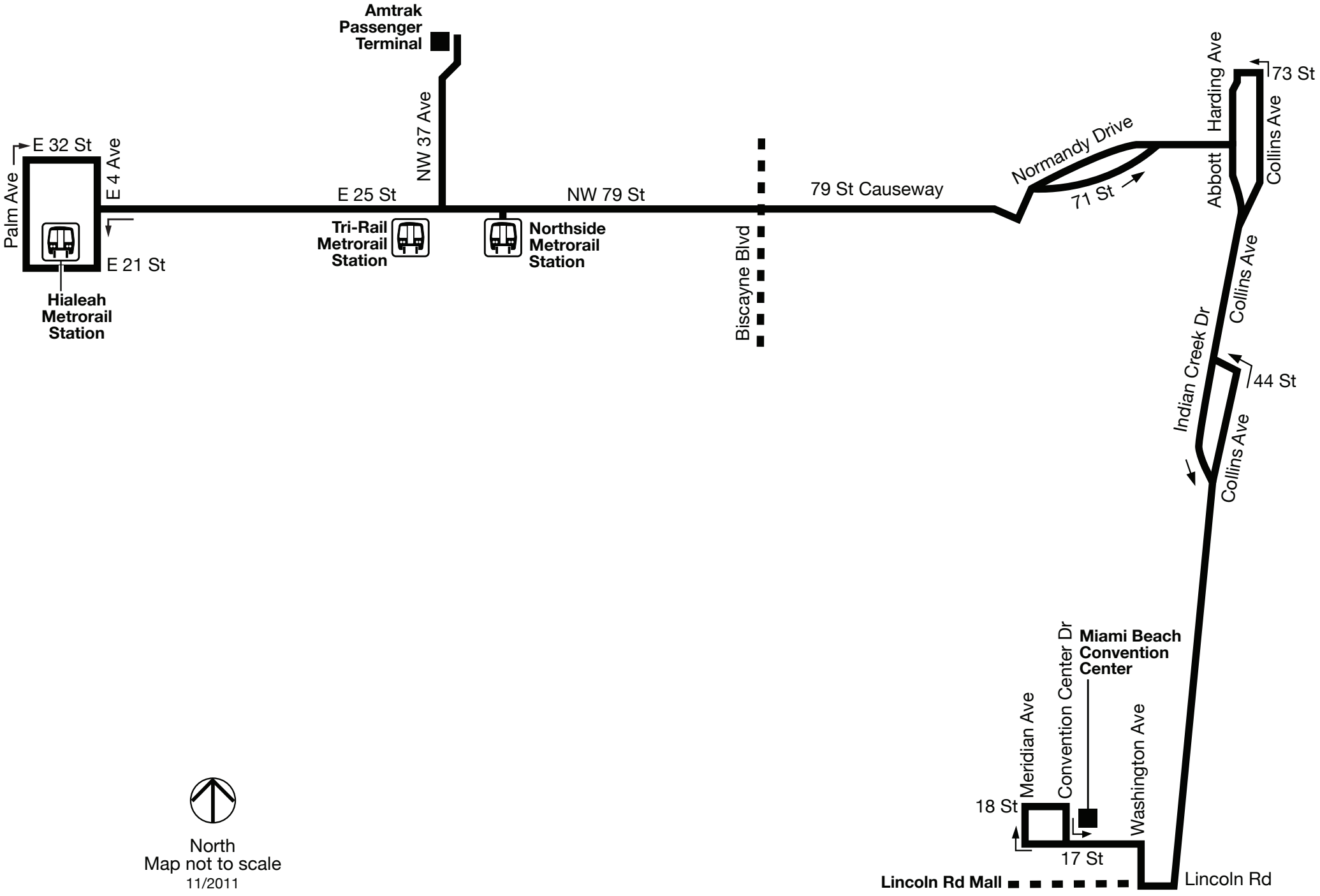
# Route 79 Street MAX



# Route H



# Route L



# Route 115

## Mid-North Beach Connection

### Clockwise



Mount Sinai  
Medical  
Center

41 St

Alton Rd

17 St

Washington Ave

Lincoln Rd

Dade Blvd

Pine Tree Dr

Sheridan Ave

Pine Tree Dr

LaGorce

Alton Rd

63 St

Indian Creek Dr

Abbott/Harding

77 St

85 St

88 St

Harding

Collins Ave

# Route 117

## Mid-North Beach Connection

### Counterclockwise



Mount Sinai  
Medical  
Center



41 St

Alton Rd

Alton Rd

Alton Rd

17 St

Dade  
Blvd

Washington  
Ave

Sheridan Ave



Pine Tree Dr

Lincoln Rd

James Ave

Pine Tree Dr

Abbott/Harding

Dickens

77 St

Hawthorne

85 St

Harding

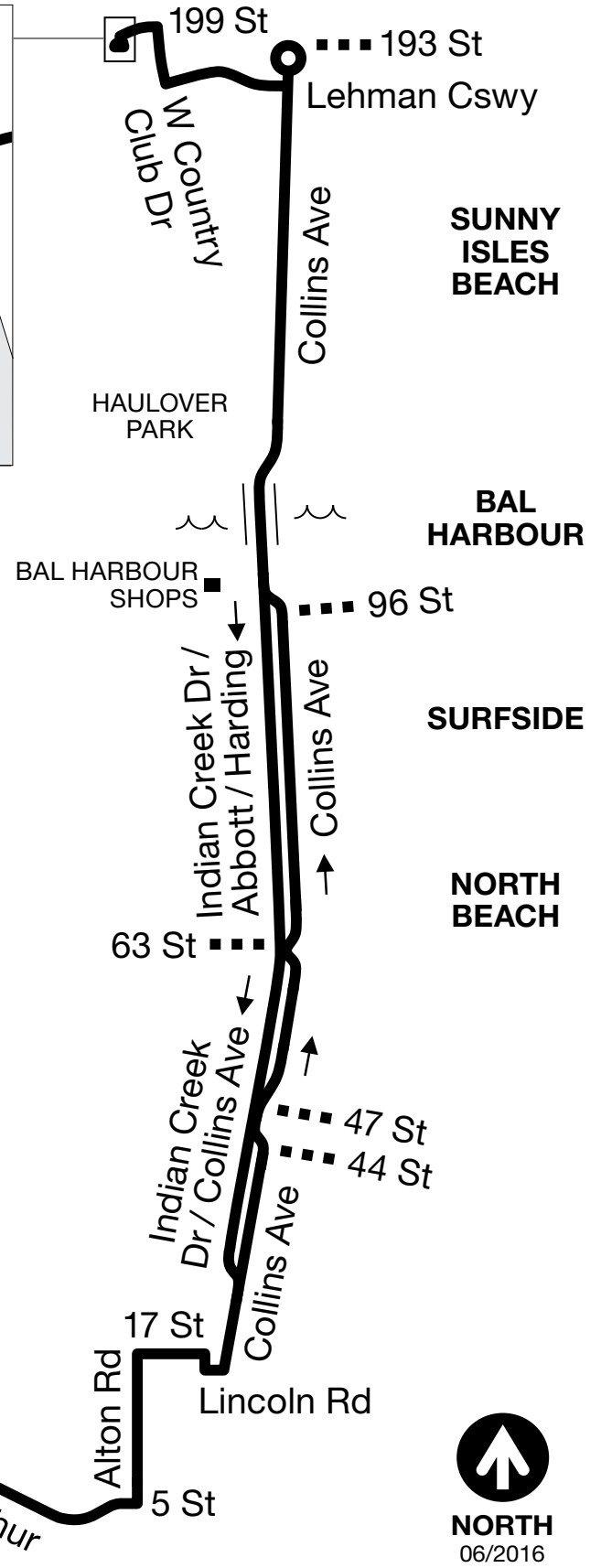
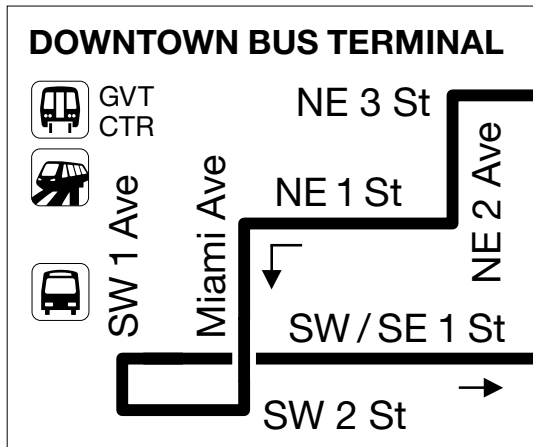
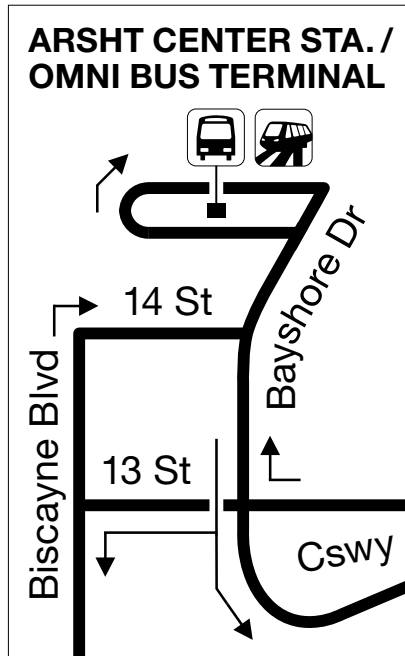
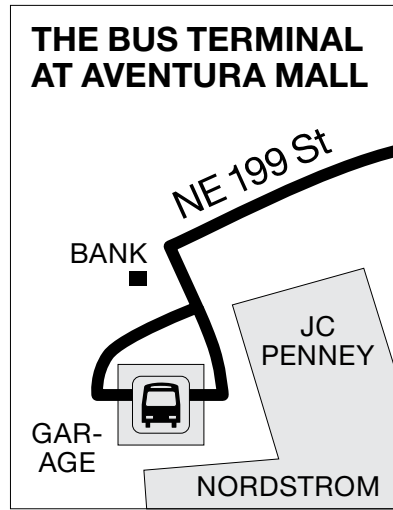
Indian Creek Dr

Collins Ave

73 St

Collins Ave

88 St



[www.miamidade.gov/transit](http://www.miamidade.gov/transit) **311** (305.468.5900) TDD: 305.468.5402

MiamiDadeTransit @IRideMDT @IRideMDT MDT TRACKER / MDT TRANSIT WATCH



DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS

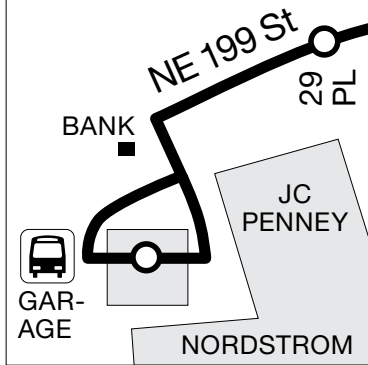




# 120

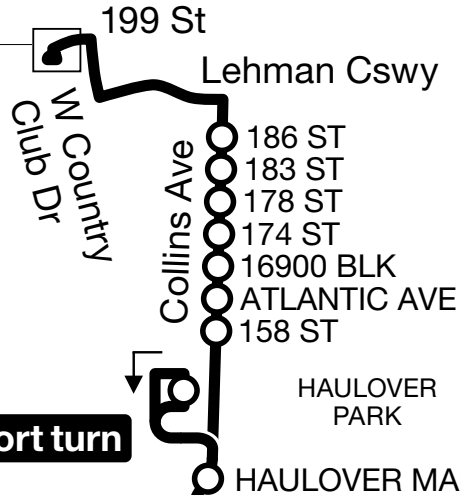
BEACH MAX

## THE BUS TERMINAL AT AVENTURA MALL



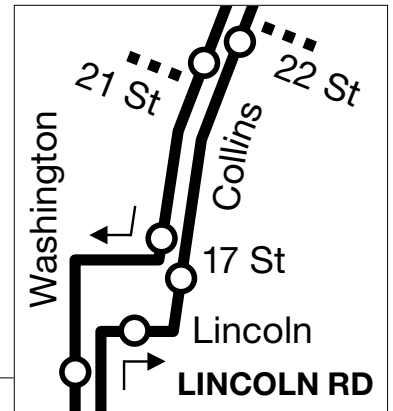
**short turn**

**SUNNY ISLES BEACH**



**SURFSIDE**

**NORTH BEACH**

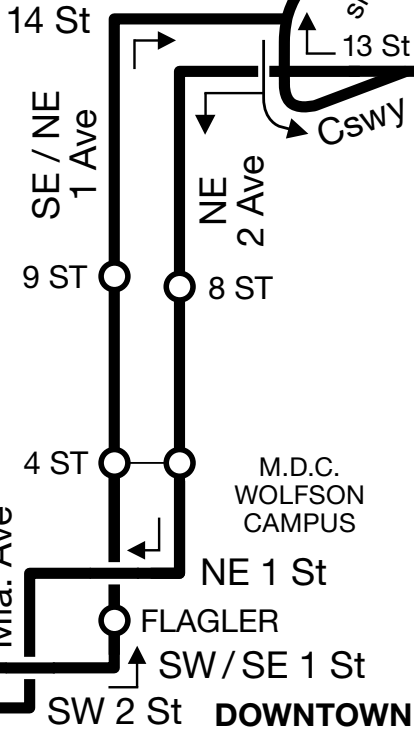


**SOUTH BEACH**



**NORTH**  
06/2016

ARSHT CTR STA. / OMNI BUS TERM.



GVT CTR



BUS TERM.



**LIMITED STOPS**  
entire route

[www.miamidade.gov/transit](http://www.miamidade.gov/transit)

**311** (305.468.5900) TDD: 305.468.5402



MiamiDadeTransit



@IRideMDT



@IRideMDT



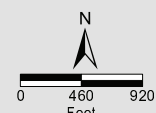
MDT TRACKER / MDT TRANSIT WATCH



DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS



**Revised Figure 1**  
**North Beach Circulator (Trolley) Route**



Map data is provided by Esri, DeLorme, GeoEye, IGN, Aerotech, Earthstar, IGN, etc. Map data is provided by Esri, DeLorme, GeoEye, IGN, Aerotech, Earthstar, IGN, etc. Map data is provided by Esri, DeLorme, GeoEye, IGN, Aerotech, Earthstar, IGN, etc.

## **Appendix H**

### **Queuing Documentation**



NOT FOR CONSTRUCTION



revuelta

architecture  
international

Miami

Santiago, Chile

revuelta-  
architecture.com

2950 SW 27th Ave  
Suite 110  
Miami, FL 33135

T: 305.590.5000  
F: 305.590.5040

Project

72+ COLLINS HOTEL

7140 Collins Avenue  
Miami Beach, FL 33141

Permit Revisions

Owner Information

RETI

9537 Harding Avenue  
Surfside, Florida 33154

(305) 867-6344

Consultant

Design by

Luis O. Revuelta

AR-000792

ZONING REVISION

Date  
10.17.16

Scale  
AS SHOWN  
Project No.  
1505  
Sheet Name  
GROUND LEVEL  
Sheet No.

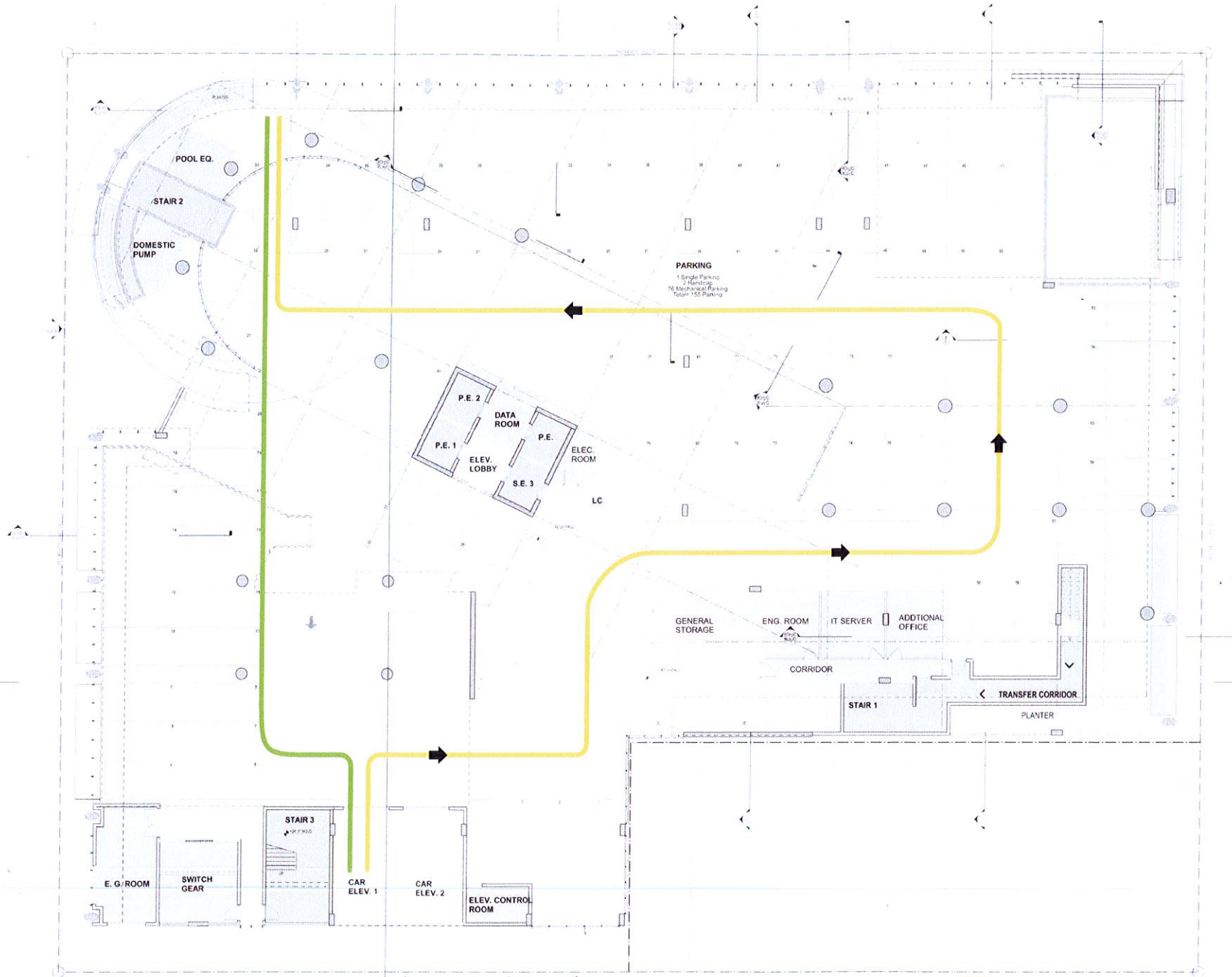
A-101







## Valet Operation Circulation (Ground Level)



Valet Operation Circulation (Level 2)

IN

OUT

LEVEL 2 - PARKING BOH | 1

N

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

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

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

where:

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

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

$Q$  = service rate per channel (vehicles per hour)

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

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

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

**TABLE 8-11**  
Table of  $Q_M$  Values

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

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

$N$  = number of channels (service positions)

### Solution

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

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

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

Step 4:  $Q_M = 0.7303$  by interpolation between 0.8 and 0.9 for  $N = 6$  from the table of  $Q_M$  values (see Table 8-11).

Step 5: The acceptable probability of the queue,  $M$ , being longer than the storage, 18 spaces in this example, was stated to be 5%.  $P(x > M) = 0.05$ , and:

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

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



# Attachment 2

## Grand Beach Hotel

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

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

**Total Processing Time: 0:50:10**  
**Average Processing Time: 0:00:51**

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

Date:	<u>9/27/2016</u>	Quote #:	<u>168050</u>	Rev #:	<u>2</u>
Customer:	<u>SCHINDLER ELEVATOR CORPORATION</u>	Address:	<u>13800 NW 2ND STREET SUITE 140</u>		
Attn:	<u>Tyler Wolfe</u>	City:	<u>SUNRISE</u>		
		State:	<u>FL</u>	Zip:	<u>33325</u>
From:	<u>Dean Saxton</u>	Fax:	<u>(954) 626-5599</u>		
		Phone:	<u>(954) 626-5555</u>		
RE:	Job Name: <u>72 Collins Hotel, 7140 Collins Avenue</u>				
	Job Location: <u>Miami Beach, FL</u>				
This quotation is based on: <u>limited info</u>					
Provided by: <u>Tyler Wolfe</u> On: <u>9/22/2016</u>					

### Material Cost Per Car:

Sales Tax: **EXEMPT**

### Total Quote Per Car:

**TERMS: NET 30 DAYS OR PER AGREEMENT. RETAINAGE NOT ALLOWED - FREIGHT NOT INCLUDED**

This Quotation is Good thru 11/26/2016 - 10% cancellation fee applicable after preparation of approval drawings.

Best practice on lead times for drawings is 3 weeks after receipt of purchase order (PO); shipment in 9-12

weeks after receipt of all approved drawings, required project data, and resolution of any open issues.

FOB in Mankato, MN. Actual manufacturing lead time is dependent upon factory load and vendor lead times.

Customer is responsible to pay all applicable taxes as prescribed by law, regardless of amount quoted above.

### Elevator Type: Twin Jack Holeless Two Stage Freight

Capacity:	<u>8000</u> lbs	Platform Width:	<u>11'-4"</u>	Landings:	<u>2</u>
Loading Class:	<u>B</u>	Platform Depth:	<u>24'-0"</u>	Front Openings:	<u>2</u>
Gross Weight:	<u>22856</u> lbs	Hoistway Width:	<u>14'-1"</u>	Rear Openings:	<u>0</u>
Travel:	<u>25'-0"</u>	Hoistway Depth:	<u>24'-8 1/4"</u>	Side Openings:	<u>0</u>
Speed Up:	<u>200</u> Fpm	Overhead Height:	<u>15'-10"</u>	Door Width:	<u>11'-0"</u>
Seismic Zone:	<u>0</u>	Pit Depth:	<u>4'-6"</u>	Door Height:	<u>8'-0"</u>
IBC Compliant:	<u>2012</u>	Cab Height:	<u>8'-0"</u>		
Machine Room:	<u>NEMA 1</u>	Inside Clear Width:	<u>11'-0"</u>	Voltage:	<u>460 - 480</u>
Hoistway:	<u>NEMA 1</u>	Inside Clear Depth:	<u>23'-4 1/2"</u>	Phase:	<u>3</u>
Code Year:	<u>ASME A17.1b-2009 Addenda to A17.1-</u>				

**For Standard Exceptions and Additional Qualifications see last pages of quote.**

Shipment of materials must be made within 12 months of book date. Materials NOT shipped within 12 months may be subject to an escalation fee for inflationary purposes and increases in material costs. If original customer provided information changes, price may change. Price may change upon review of additional and / or updated information.

Customer agrees: (i) to pay for all labor and materials referenced according to the Terms; (ii) to pay a late charge equal to twelve percent (12%) on any unpaid sums due which are not paid according to the Terms; (iii) to pay all costs of collecting any unpaid balance, including attorney's fees, court costs, filing fees, and all other collection related expenses incurred by MEI.; (iv) that all actions, claims or proceedings shall be commenced and maintained exclusively in the State of Minnesota and be governed by and construed in accordance with Minnesota law; (v) to pay all applicable taxes as prescribed by law. MEI does not accept liquidated damages.

**From:** [tyler.wolfe@us.schindler.com](mailto:tyler.wolfe@us.schindler.com) [<mailto:tyler.wolfe@us.schindler.com>]  
**Sent:** Tuesday, September 27, 2016 4:40 PM  
**To:** Hernando Marin <[hmarin@revuelta.com](mailto:hmarin@revuelta.com)>; Juan Espinosa <[Juan.Espinosa@dplummer.com](mailto:Juan.Espinosa@dplummer.com)>  
**Cc:** [Dean.Collins@us.schindler.com](mailto:Dean.Collins@us.schindler.com); Grace Dillon <[grace@clarocorp.com](mailto:grace@clarocorp.com)>;  
[magdalena.krstanoski@us.schindler.com](mailto:magdalena.krstanoski@us.schindler.com); Marielena Guedez <[mguedez@revuelta.com](mailto:mguedez@revuelta.com)>  
**Subject:** RE: 72 Collins Hotel

Gentlemen,

I have attached a document I received from the car lift manufacturer that includes some of the information you requested. I have been unsuccessful in finding their door performance times or acceleration rates in order to calculate a true "floor to floor" time for the purposes of your traffic study. I have used my own knowledge and experience, combined with some approximations to figure a rough floor-to-floor performance time below. I need to be clear that this is not a fully supported engineering time and should be used as a rough "ball park" to meet your needs. It is going to be much closer than you simply using a 200FPM / 25ft calculation on your own.

Door Close Time + Start Delay + Flight Time + Leveling + Full Door Open Time

I have been unable to get the true door close and door open times, so I have used metrics I have on file from other door systems to estimate a conservative door close time of 4s and a door open time of 3.5s. I have also used a start delay of 0.5s, another 1.5s added to account for the unknown acceleration profile of the system.

**4s Door Close Time + 0.5s Start Delay + (7.5s + 1.5s) Flight Time + 0.5s Leveling + 3.5s Door Open = 17.5 Seconds**

For the purpose of your traffic study, a floor-to-floor performance time of 17.5 seconds should be about right. Let me know if you need any additional information at this point to finish your study.

I have also requested some preliminary drawings to assist you in your plans. This system is going to require a machine room of 180 square feet and we have used the hoistway measurements included in the plans you sent.

Hernando also asked about glass doors for this automobile lift during our call. That is not possible on vertical bi-parting freight doors such as those provided on the automobile lift. We can provide an upgraded finish of brushed stainless doors for the ground floor for aesthetics if you would like.

Give me a call if you need any additional information or if you have questions about any of the information provided in the attachment.

---

Tyler Wolfe | New Installation Sales  
Phone 954.626.5578 | Mobile 954.598.3833 | Fax 954.626.5599  
[tyler.wolfe@us.schindler.com](mailto:tyler.wolfe@us.schindler.com)

Schindler Elevator Corporation | NI  
13800 NW 2nd St, Suite 140 | Sunrise, FL 33325, USA  
[www.us.schindler.com](http://www.us.schindler.com)

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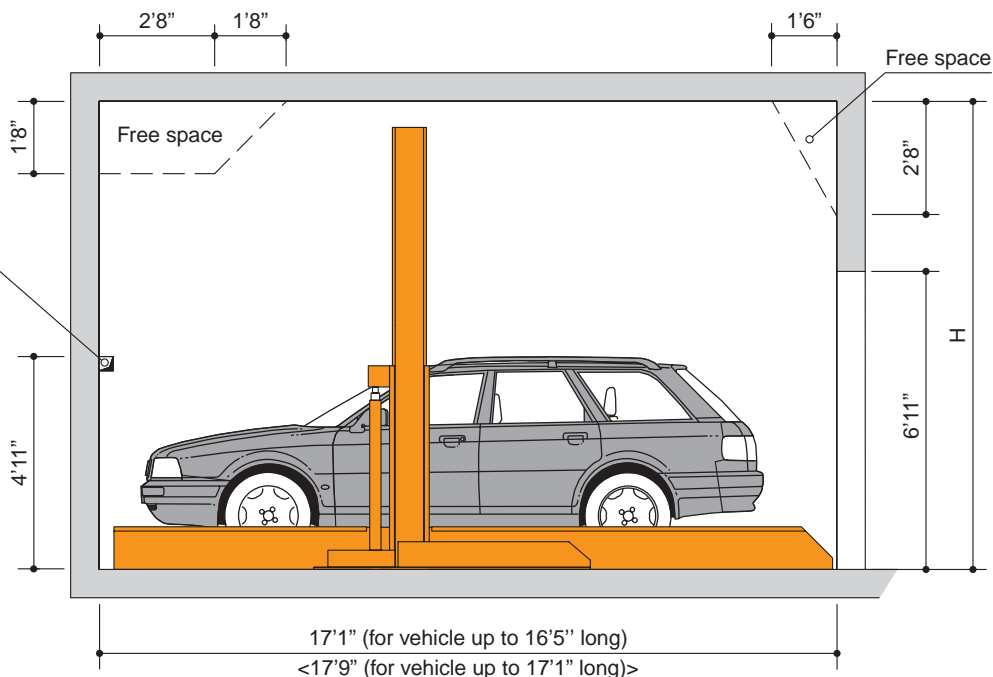
## Basement garage

Space requirements are minimum finished dimensions in inch

for dividing walls:

cutting through 10 x 10 (for ducts for cables, pipes etc.) of dividing wall

**PLEASE NOTE:** Before lowering the platform the lower vehicle must be removed.



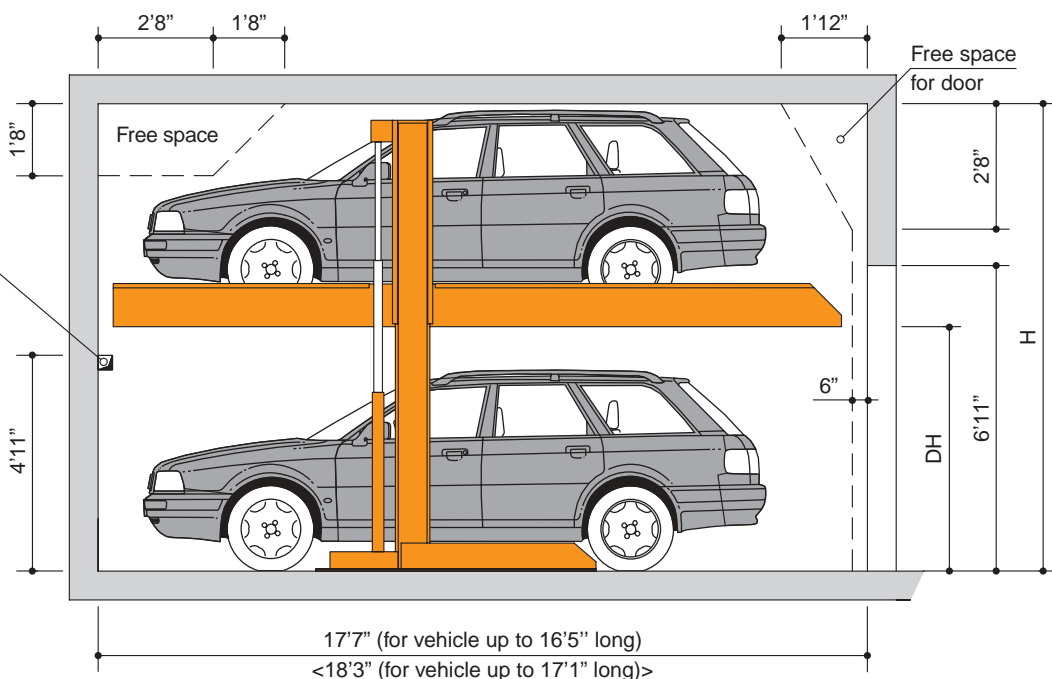
## Garage with door in front of the car parking system

Space requirements are minimum finished dimensions in inch

for dividing walls:

cutting through 10 x 10 (for ducts for cables, pipes etc.) of dividing wall

**PLEASE NOTE:** Before lowering the platform the lower vehicle must be removed.




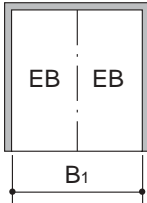
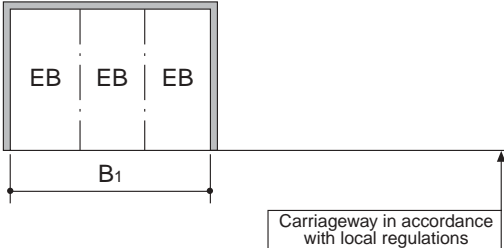
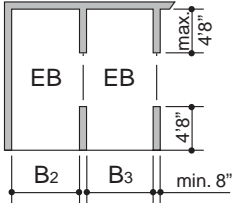
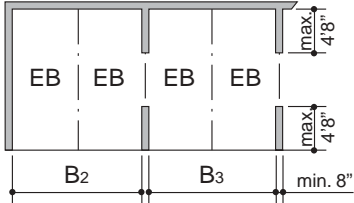
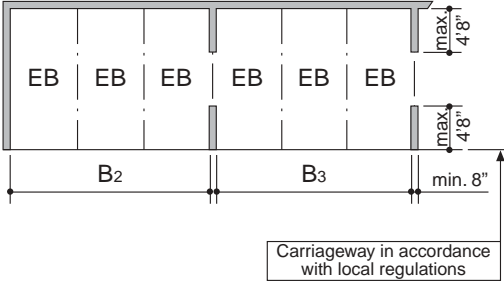
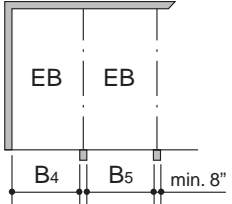
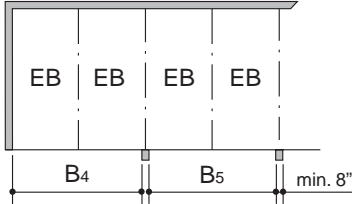
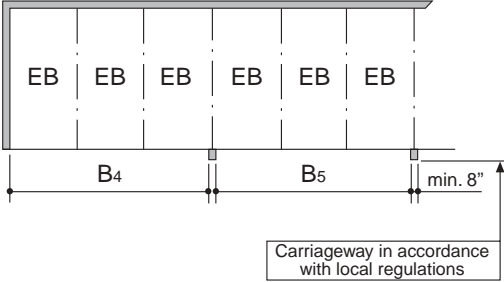
Type	H	DH	Suitable for	Maximum vehicle dimensions
<b>G 61-160</b>	<b>10'6"</b>	<b>5'3"</b>	upper: standard passenger cars & station wagons, max. veh. height 4'11" lower: standard passenger cars & station wagons, max. veh. height 4'11"	Length 16'5" <17'1"> Height see "Suitable for" Width 6'3" Weight 2,000 kg Wheel load 500 kg
<b>G 61-170</b>	<b>10'10"</b>	<b>5'7"</b>	upper: standard passenger cars & station wagons, max. veh. height 4'11" lower: standard passenger cars & station wagons, max. veh. height 5'3"	
<b>G 61-180</b>	<b>11'2"</b>	<b>5'11"</b>	upper: standard passenger cars & station wagons, max. veh. height 4'11" lower: standard passenger cars & station wagons, max. veh. height 5'8"	
<b>G 61-190</b>	<b>11'6"</b>	<b>6'3"</b>	upper: standard passenger cars & station wagons, max. veh. height 4'11" lower: standard passenger cars & station wagons, max. veh. height 5'12"	
<b>G 61-200</b>	<b>11'10"</b>	<b>6'7"</b>	upper: standard passenger cars & station wagons, max. veh. height 4'11" lower: standard passenger cars & station wagons, max. veh. height 6'3"	
<b>G 61-210</b>	<b>12'2"</b>	<b>6'11"</b>	upper: standard passenger cars & station wagons, max. veh. height 4'11" lower: standard passenger cars & station wagons, max. veh. height 6'7"	

If dimension height "H" is increased by customer, correspondingly higher vehicles may be parked on the upper platform(s).

## Widths – Basement Garage

## Series G 61 (Horizontal)

All space requirements are minimum finished dimensions in cm

	Single Platform (EB)	Twin Unit (2 x EB)	Triple Unit (3 x EB)
Dividing Walls			
Internal Columns			
External Columns			

	Usable Platform Width	Dividing Walls B <sub>1</sub>	Internal Columns B <sub>2</sub> B <sub>3</sub>		External Columns B <sub>4</sub> B <sub>5</sub>	
EB	7'7"	8'7"	8'5"	8'3"	8'3"	7'11"
	7'11"	8'11"	8'9"	8'7"	8'7"	8'3"
	8'3"	9'3"	9'1"	8'11"	8'11"	8'7"
2 x EB	7'7"	17'1"	16'11"	16'9"	16'9"	16'6"
	7'11"	17'9"	17'7"	17'5"	17'5"	17'1"
	8'3"	18'5"	18'3"	18'1"	18'1"	17'9"
3 x EB	7'7"	25'8"	25'6"	25'4"	25'4"	24'12"
	7'11"	26'7"	26'5"	26'3"	26'3"	25'12"
	8'3"	27'7"	27'5"	27'3"	27'3"	26'11"

 Standard width = parking space width 7'7"

### PLEASE NOTE:

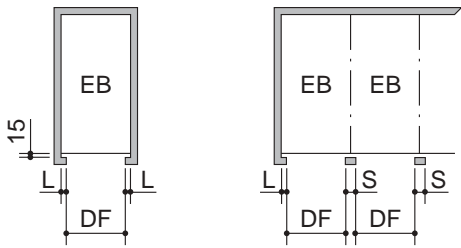
- End parking spaces are generally more difficult to drive into. Therefore we recommend for end parking spaces our wider platforms.
- Parking on standard width platforms with larger vehicles may make getting into and out of the vehicle difficult. This depends on type of vehicle, approach and above all on the individual driver's skill.

Widths – Garage with door in front of the car parking system

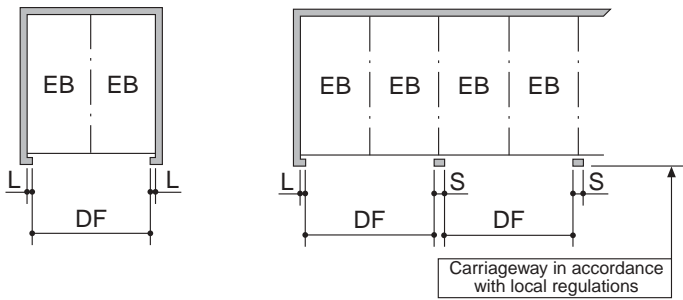
Series G 61  
(Horizontal)

All space requirements are minimum finished dimensions in inch

Single Platform (EB)



Twin Unit (2 x EB)

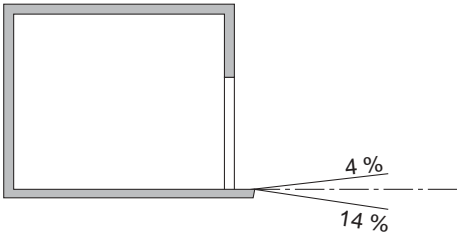


	Usable Platform Width	DF	L	S
EB	7'7"	7'10"	5"	10"
	7'11"	8'3"	5"	10"
	8'3"	8'3"	6"	12"
2 x EB	7'7"	15'7"	9"	1'6"
	7'11"	16'6"	8"	1'4"
	8'3"	17'1"	8"	1'4"

DF = door entrance width

Door dimensions require coordination with door supplier.

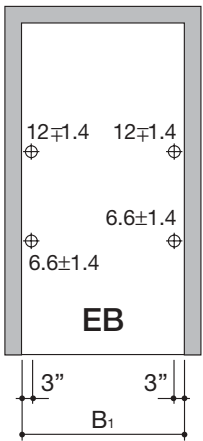
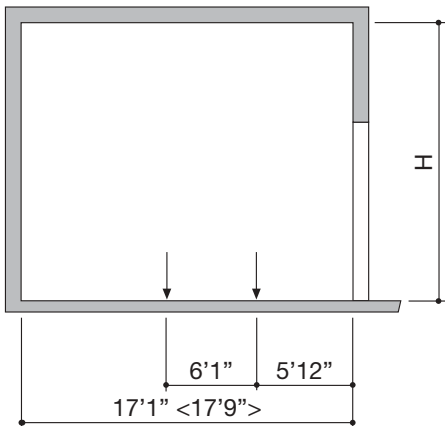
Approach



These illustrated maximum approach angles must **NOT** be exceeded. Incorrect approach angles will cause **SERIOUS MANEOUVRING & POSITIONING PROBLEMS** on the parking system for which the local agency of Klaus accepts no responsibility.

Load plan

forces in kN  
dimensions in inch



Units are bolted to the floor. Drilling depth approx. 6"

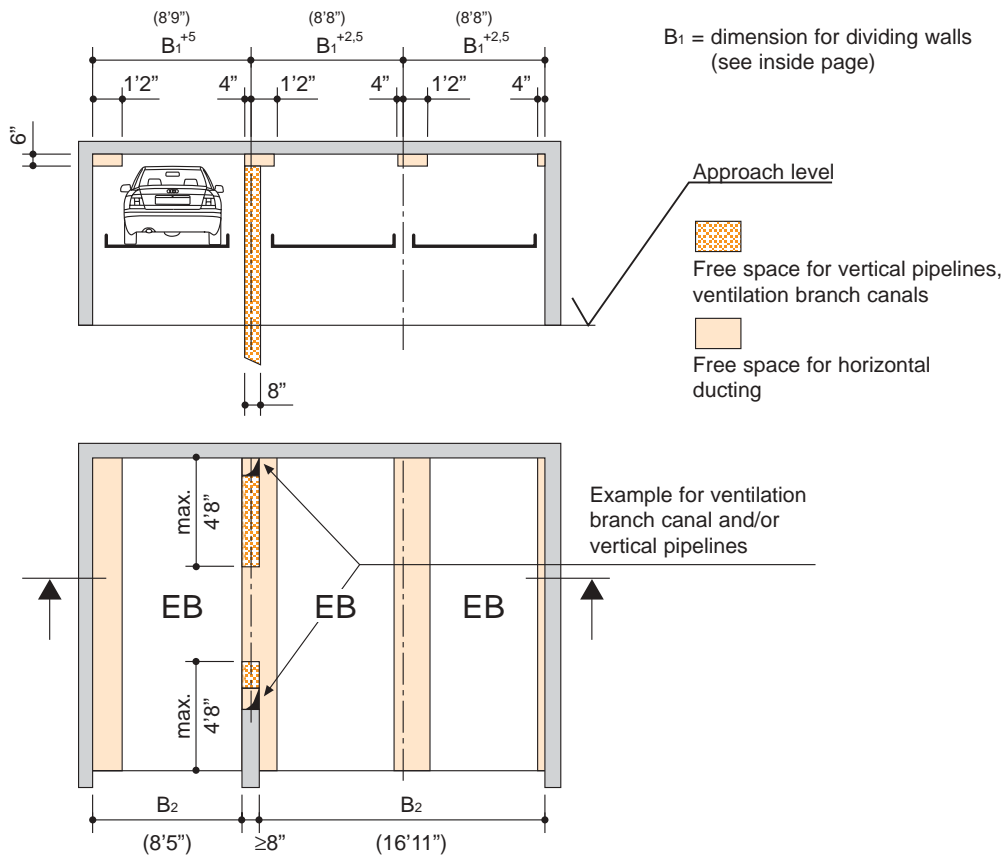
## Installation Data

Garage ventilation, drainage, heating, electrical wiring

## Series G 61 (Horizontal)

### Free space for longitudinal and vertical ducts (e.g. ventilation)

dimensions in inch



## Electrical Data

dimensions in inch

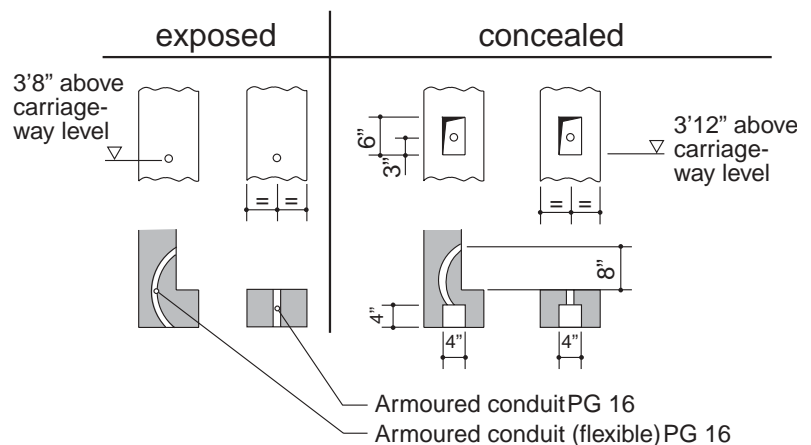
### Generally to be effected by customer:

- electrical wiring 5 x 2.5 mm<sup>2</sup> per unit
- delayed-action mains fuse 3 x 16 A per unit
- "EMERGENCY-OFF"/main power supply switch, lockable, per unit

### Electrical wiring:

Electrical wiring is carried out by the customer or by the local agency of Klaus in accordance with our circuit diagram/s. (Please see the respective quotation at hand)

### Cable conduits and recesses for operating element



### Technical Data as of issue 06/98:

We reserve the right to change this specification without further notice.

Stamp

### Units

Low-noise power units mounted to rubber-bonded-to-metal mountings are installed. Nevertheless we recommend to build the parking system's garage separately from the dwelling house.

### Safety railings

Any safety railings which become necessary due to the installation of the system at access points, walkways, traffic lanes etc. will have to be provided/paid for by customer.

### The following documents can be supplied upon request:

wall recess plans  
test sheet on airborne and solid-borne sound



**KLAUS Multiparking GmbH**  
Hermann-Krum-Straße 2  
D-88319 Aitrach  
Fon +49 (0) 75 65 5 08-0  
Fax +49 (0) 75 65 5 08-88  
info@multiparking.com  
www.multiparking.com

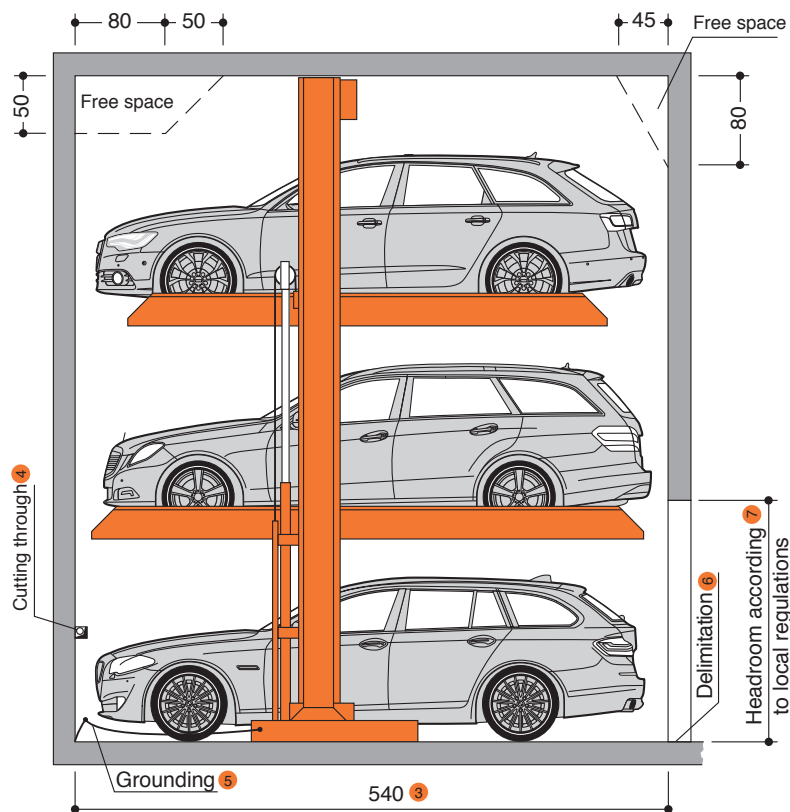
## PRODUCT DATA



# singleup3015

2000 kg

### Garage without door (basement garage)



### Dimensions

All space requirements are minimum finished dimensions.

Tolerances for space requirements<sup>+3</sup><sub>-0</sub>.<sup>2</sup>  
Dimensions in cm.

EB (single platform) = 2 vehicles

### Suitable for

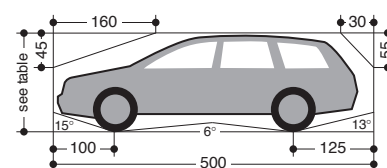
Standard passenger cars:  
Limousine, station wagon, SUV, van  
according to clearance and maximal  
surface load.

width 190 cm

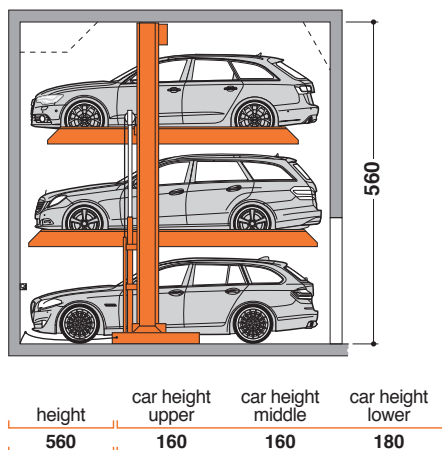
weight max. 2000 kg

wheel load max. 500 kg

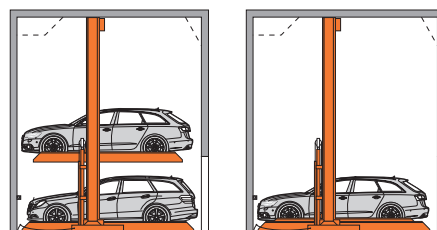
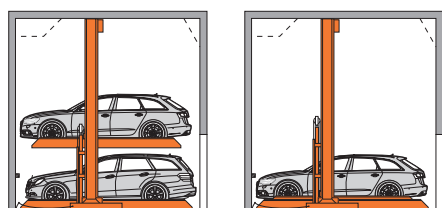
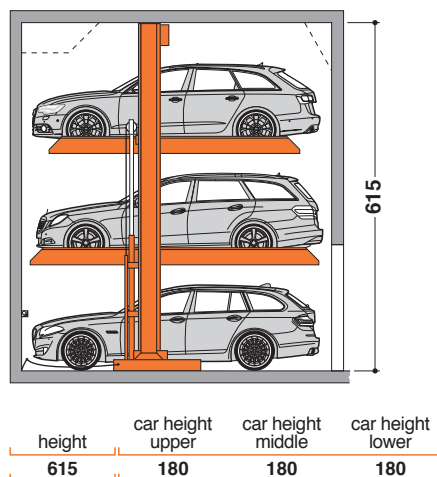
### Clearance profile



### 3015-560



### 3015-615 1

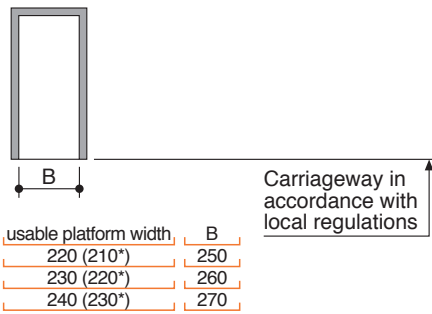


- 1 Standard type
- 2 To follow the minimum finished dimensions, make sure to consider the tolerances according to VOB, part C (DIN 18330 and 18331) and the DIN 18202.
- 3 If the total length is greater, the max. vehicle length for the lower parking space increases accordingly.
- 4 For dividing walls: cutting through 10 x 10 cm.

- 5 Potential equalization from foundation grounding connection to system (provided by the customer).
- 6 In compliance with DIN EN 14 010, 10 cm wide yellow-black markings compliant to ISO 3864 must be applied by the customer to the edge of the platform in the access area to mark the danger zone in front of the supporting surface of the upper platform edge (see „Load Plan“ Page 4).
- 7 Must be at least as high as the greatest car height + 5 cm.

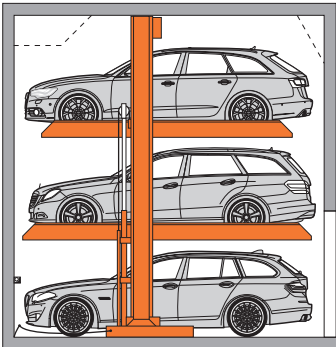


## Width dimensions for garage without door (basement garage)



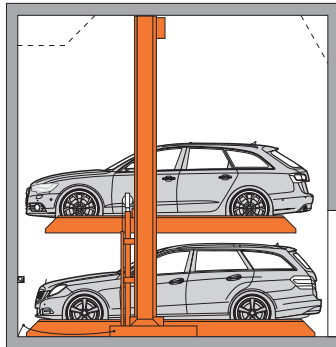
## Function

### System lifted



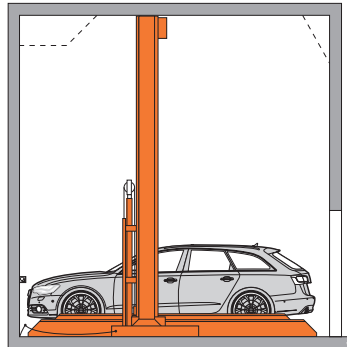
Before lowering the platforms, the vehicle parked in the lower parking space must be driven off!

### System in middle position

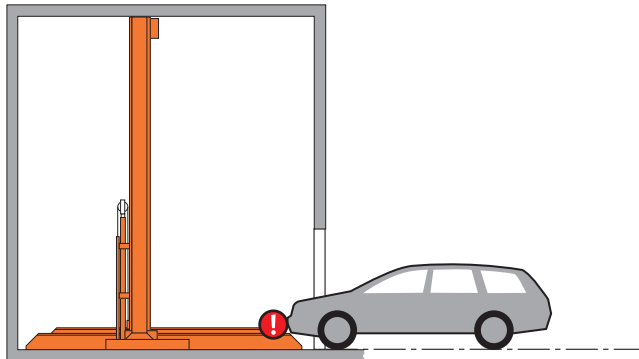


Before lowering the upper platform, the vehicle parked on the lower platform must also be driven off!

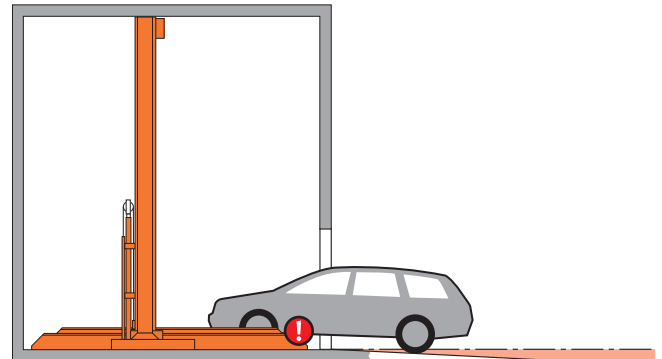
### System lowered



## Approach



horizontal

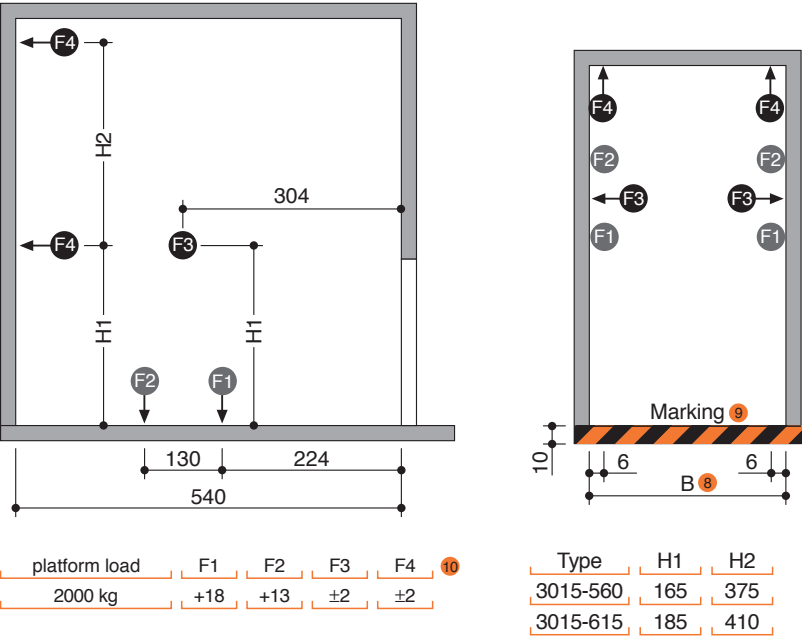


maximum  
ascending  
slope 14 %



The illustrated maximum approach angles must not be exceeded. Incorrect approach angles will cause serious manoeuvring & positioning problems on the parking system for which the local agency of KLAUS Multiparking accepts no responsibility.

Load plan



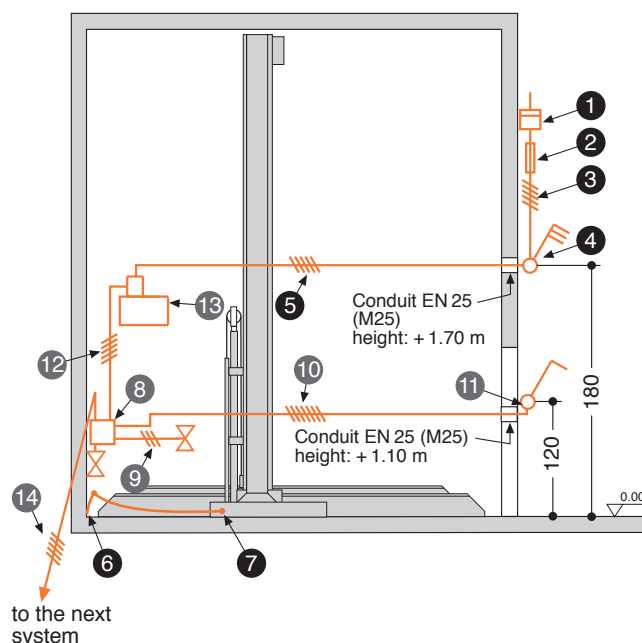
**!** Units are dowelled to the floor. Drilling depth: approx. 15 cm.  
Floor and walls are to be made of concrete (quality minimum C20/25)!

The dimensions for the points of support are rounded values. If the exact position is required, please contact KLAUS Multiparking.

- 8 Dimension B see page 2
- 9 Marking compliant to ISO 3864 (colors used in this illustration are not ISO 3864 compliant)
- 10 All forces in kN

## Electrical installation

### Installation diagram



### Electrical data (to be performed by the customer)

No.	Quantity	Description	Position	Frequency
1	1	Electricity meter	in the supply line	
2	1	Main fuse: 3 x fuse 16 A (slow) or circuit breaker 3 x 16 A (trigger characteristic K or C)	in the supply line	1 per unit
3	1	Supply line 5 x 2.5 mm <sup>2</sup> (3 PH + N + PE) with marked wire and protective conductor	to main switch	1 per unit
4	1	Lockable main switch	defined at the plan evaluation	1 per unit
5	1	Supply line 5 x 2.5 mm <sup>2</sup> (3 PH + N + PE) with marked wire and protective conductor	from main switch to unit	1 per unit
6	every 10 m	Foundation earth connector	corner pit floor	
7	1	Equipotential bonding in accordance with DIN EN 60204 from foundation earth connector to the system		1 per system

### Electrical data (included in delivery of KLAUS Multiparking)

No.	Description
8	Terminal box
9	Control line 3 x 0.75 mm <sup>2</sup> (PH + N + PE)
10	Control line 7 x 1.5 mm <sup>2</sup> with marked wire and protective conductor
11	Operating device
12	Control line 5 x 1.5 mm <sup>2</sup> with marked wire and protective conductor
13	Hydraulic unit 3.0 kW, three-phase current, 400 V / 50 Hz
14	Control line 5 x 1.5 mm <sup>2</sup> with marked wire and protective conductor

## Technical data

### Field of application

By default, the system can only be used for a fixed number of users. If required for different users, would you please contact us.

### Units

Low-noise power units mounted to rubber-bonded-to metal mountings are installed. Nevertheless we recommend that parking system's garage be built separately from the dwelling.

### Available documents

- wall recess plans
- maintenance offer/contract
- declaration of conformity
- test sheet on airborne and slid-borne sound

### Building application documents

According to LBO and GaVo (garage regulations) the Multiparking systems are subject to approval. We will provide the required building application documents.

### Corrosion protection

See separate sheet regarding corrosion protection.

### Care

To avoid damages resulting from corrosion, make sure to follow our cleaning and care instructions and to provide good ventilation of your garage.

### Railings

If there are traffic routes next to or behind the installations, railings compliant to DIN EN ISO 13857 must be installed by the customer. Railings must also be in place during construction.

### Environmental conditions

Environmental conditions for the area of multiparking systems: Temperature range -10 to +40° C. Relative humidity 50% at a maximum outside temperature of +40° C.

If lifting or lowering times are specified, they refer to an environmental temperature of +10° C and with the system set up directly next to the hydraulic unit. At lower temperatures or with longer hydraulic lines, these times increase.

### CE Certification

The systems offered correspond to DIN EN 14010 and the EC Machinery Directive 2006/42/EG.

### Sound insulation

According to DIN 4109 (Sound insulation in buildings), para. 4, annotation 4, KLAUS Multiparkers are part of the building services (garage systems).

### Normal sound insulation:

DIN 4109, para. 4, Sound insulation against noises from building services.

Table 4 in para. 4.1 contains the permissible sound level values emitted from building services for personal living and working areas. According to line 2 the maximum sound level in personal living and working areas must not exceed 30 dB (A). *Noises created by users are not subject to the requirements (see table 4, DIN 4109).*

The following measures are to be taken to comply with this value:

- Sound protection package according to offer/order (KLAUS Multiparking GmbH)
- Minimum sound insulation of building  $R'_w = 57$  dB (to be provided by customer)

### Increased sound insulation (special agreement):

Draft DIN 4109-10, Information on planning and execution, proposals for increased sound insulation.

Agreement: Maximum sound level in personal living and working areas 25 dB (A). *Noises created by users are not subject to the requirements (see table 4, DIN 4109).*

The following measures are to be taken to comply with this value:

- Sound protection package according to offer/order (KLAUS Multiparking GmbH)
- Minimum sound insulation of building  $R'_w = 62$  dB (to be provided by customer)

Note: User noises are noises created by individual users in our Multiparking systems. These can be noises from accessing the platforms, slamming of vehicle doors, motor and brake noises.

## To be performed by the customer

### Safety fences

Any constraints that may be necessary according to DIN EN ISO 13857 in order to provide protection, for pathways directly in front, next to or behind the unit. This is also valid during construction.

### Numbering of parking spaces

Consecutive numbering of parking spaces.

### Building services

Any required lighting, ventilation, fire extinguishing and fire alarm systems as well as clarification and compliance with the relevant regulatory requirements.

### Marking

According to DIN EN 14 010, a warning that identifies this danger area must be placed in the entrance area that conforms to ISO 3864. This must be done according to EN 92/58/EWG for systems without a pit 10 cm from the edge of the platform.

### Wall cuttings

Any necessary wall cuttings according to page 1.

### Electrical supply to the main switch / Foundation earth connector

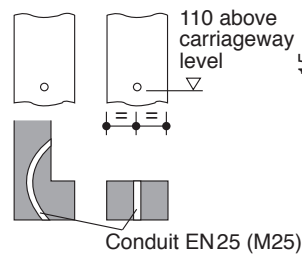
Suitable electrical supply to the main switch and the control wire line must be provided by the customer during installation. The functionality can be monitored on site by our fitters together with the electrician. If this cannot be done during installation for some reason for which the customer is responsible, the customer must commission an electrician at their own expense and risk.

In accordance with DIN EN 60204 (Safety of Machinery. Electrical Equipment), grounding of the steel structure is necessary, provided by the customer (distance between grounding max. 10 m).

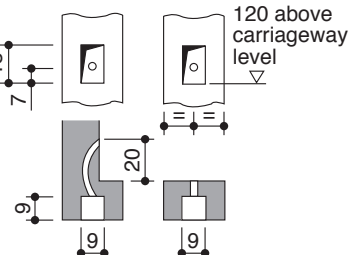
### Operating device

Cable conduits and recesses for operating device (for double wing doors: please contact the local agency of KLAUS Multiparking).

#### Operating device exposed



#### Operating device concealed



If the following are not included in the quotation, they will also have to be provided / paid for by the customer:

- Mounting of contactor and terminal box to the wall valve, complete wiring of all elements in accordance with the circuit diagram
- Costs for final technical approval by an authorized body
- Main switch
- Control line from main switch to hydraulic unit

## Description Single platform (EB)

### General description

Multiparking system providing dependent parking spaces for 3 cars one on top of the other each. The lower vehicle parks directly on the floor plate. The vehicle parked on the bottom must be driven out before lowering the platform.

Dimensions are in accordance with the underlying dimensions of height and width

The parking bays are accessed horizontally (installation deviation  $\pm 1\%$ ).

The user is responsible for positioning the vehicle.

Operation via operating device with hold-to-run-device using master keys.

The operating elements are usually mounted either in front of the column or on the outside of the door frame

Operating instructions are attached to each operator's stand.

For garages with doors at the front of the parking system the special dimensional requirements have to be taken into account.

### Multiparking system consisting of:

- 2 steel pillars with base plates (mounted on the floor)
- 2 sliding platforms (mounted to the steel pillars with sliding bearings)
- 2 platforms
- 1 mechanic synchronization control system (to ensure synchronous operation of the hydraulic cylinders while lowering and lifting the platform)
- 2 hydraulic cylinder
- 1 automatic mechanical locking system (prevents accidental lowering of the platforms)
- Dowels, screws, connecting elements, bolts, etc.
- The platforms and parking spaces are end-to-end accessible for parking!

### Platforms consisting of:

- Platform base sections
- Cantilever access plates
- Side members
- Cross members
- Screws, nuts, washers, distance tubes, etc..

### Hydraulic system consisting of:

- Hydraulic cylinder
- Solenoid valve
- Hydraulic conduits
- Screwed joints
- High-pressure hoses
- Installation material

### Electric system consisting of:

- Operating device (Emergency Stop, lock, 1 master key per parking space)
- Terminal box at wall valve

### Hydraulic unit consisting of:

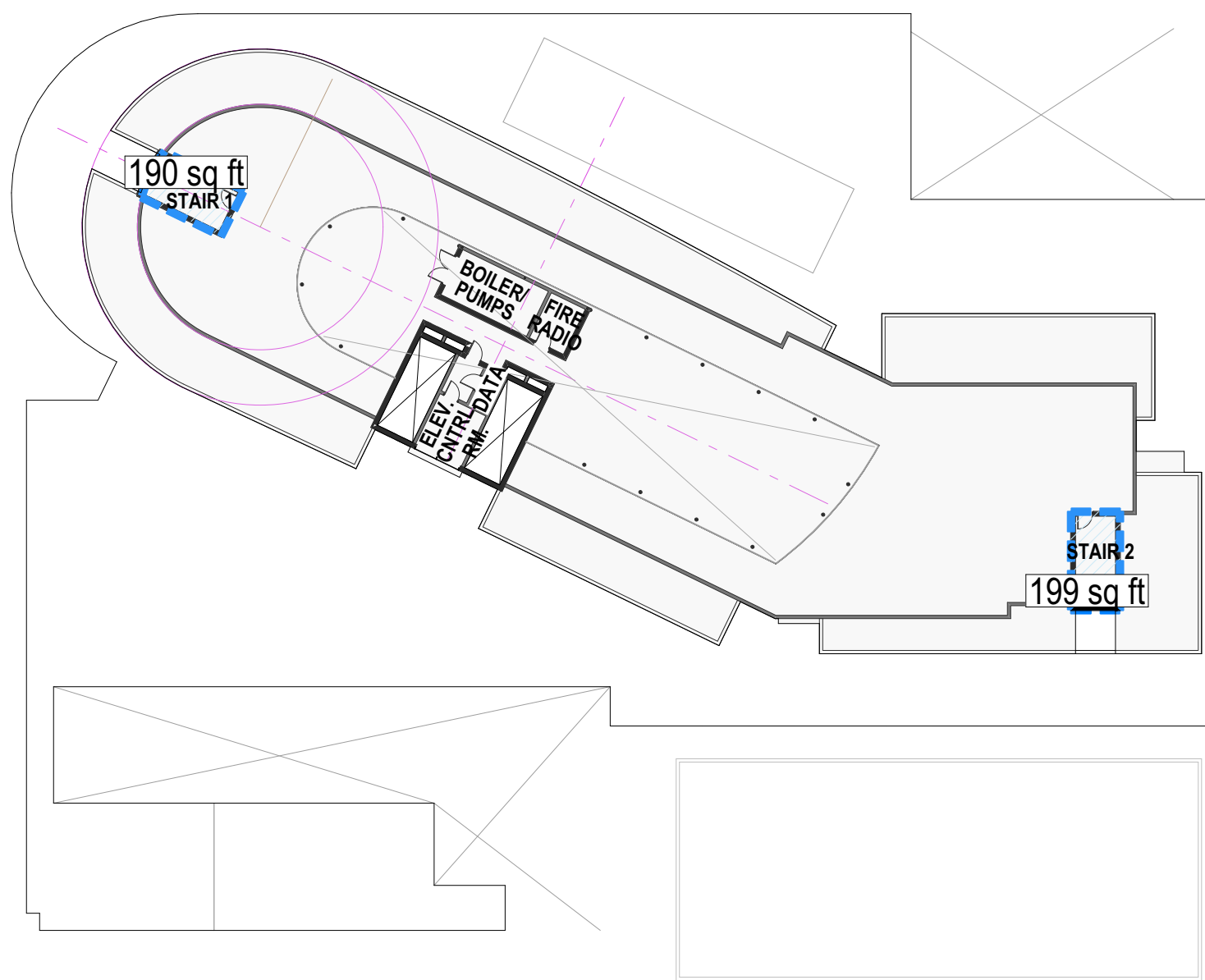
- Hydraulic power unit (low-noise, installed onto a console with a rubber-bonded-to-metal mounting)
- Hydraulic oil reservoir
- Oil filling
- Internal geared wheel pump
- Pump holder
- Clutch
- 3-phase-AC-motor
- Contactor (with thermal overcurrent relay and control fuse)
- Test manometer
- Pressure relief valve
- Hydraulic hoses (which reduce noise transmission onto the hydraulic pipe)

## We reserve the right to change this specification without further notice

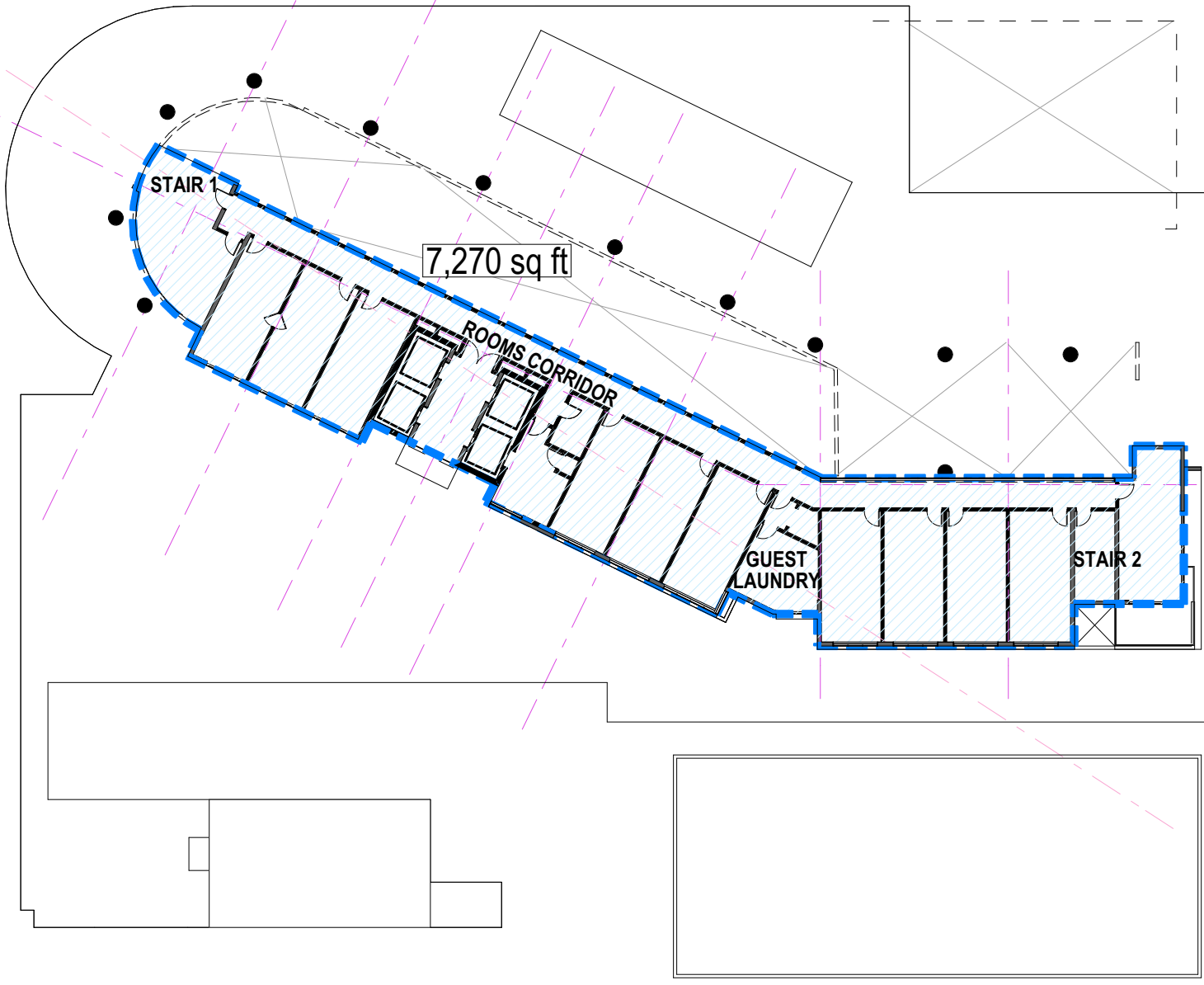
KLAUS Multiparking reserves the right in the course of technical progress to use newer or other technologies, systems, processes, procedures or standards in the fulfillment of their obligations other than those originally offered provided the customer derives no disadvantage from their so doing.

Page 1	Section
Dimensions	Car data
Page 2	Width dim.
Function	Approach
Page 3	Load plan
Seite 4	Electrical installation
Technical data	
Page 5	To be performed by the customer
Description	

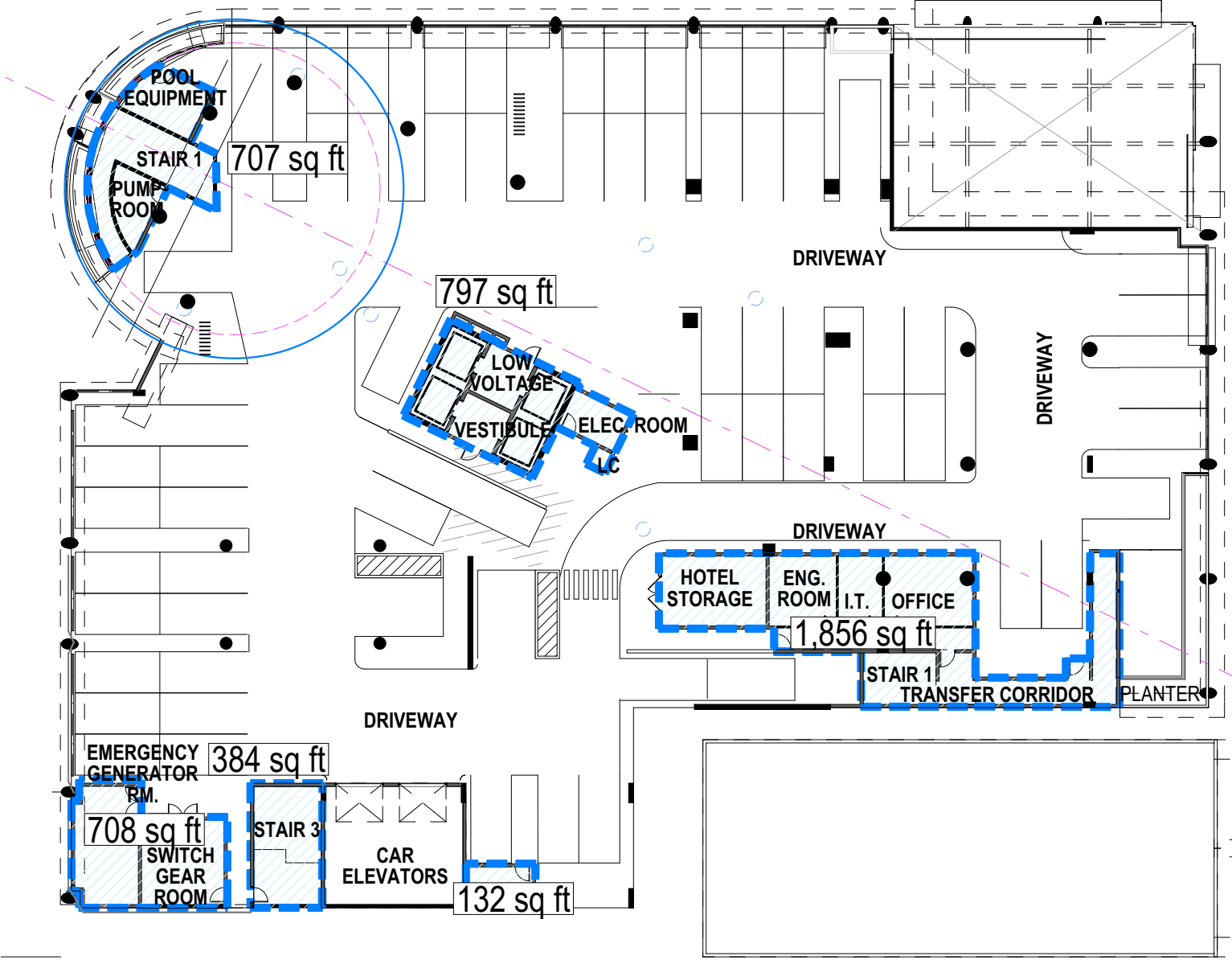




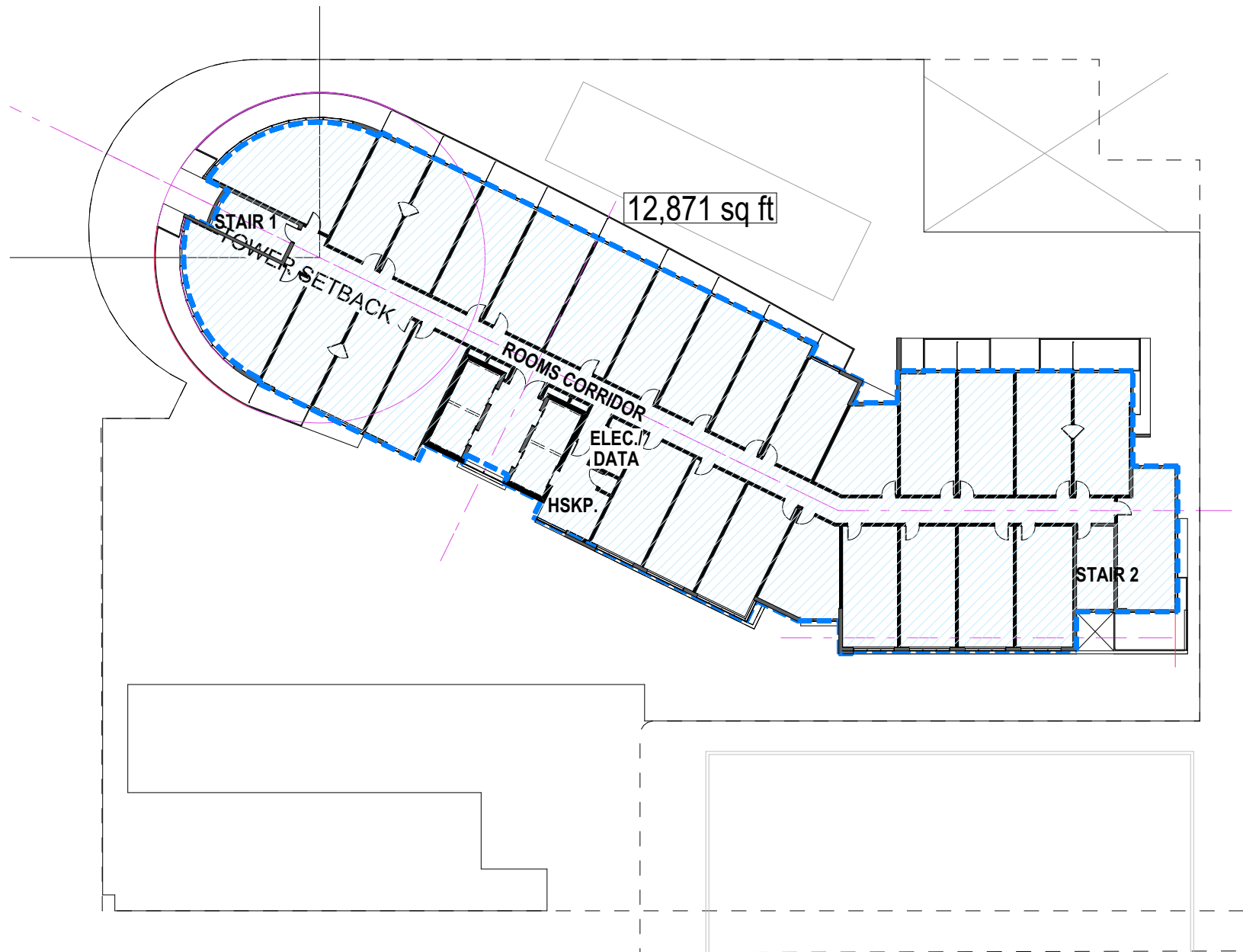
LEVEL ROOF | 6  
Total FAR= 389 sq ft



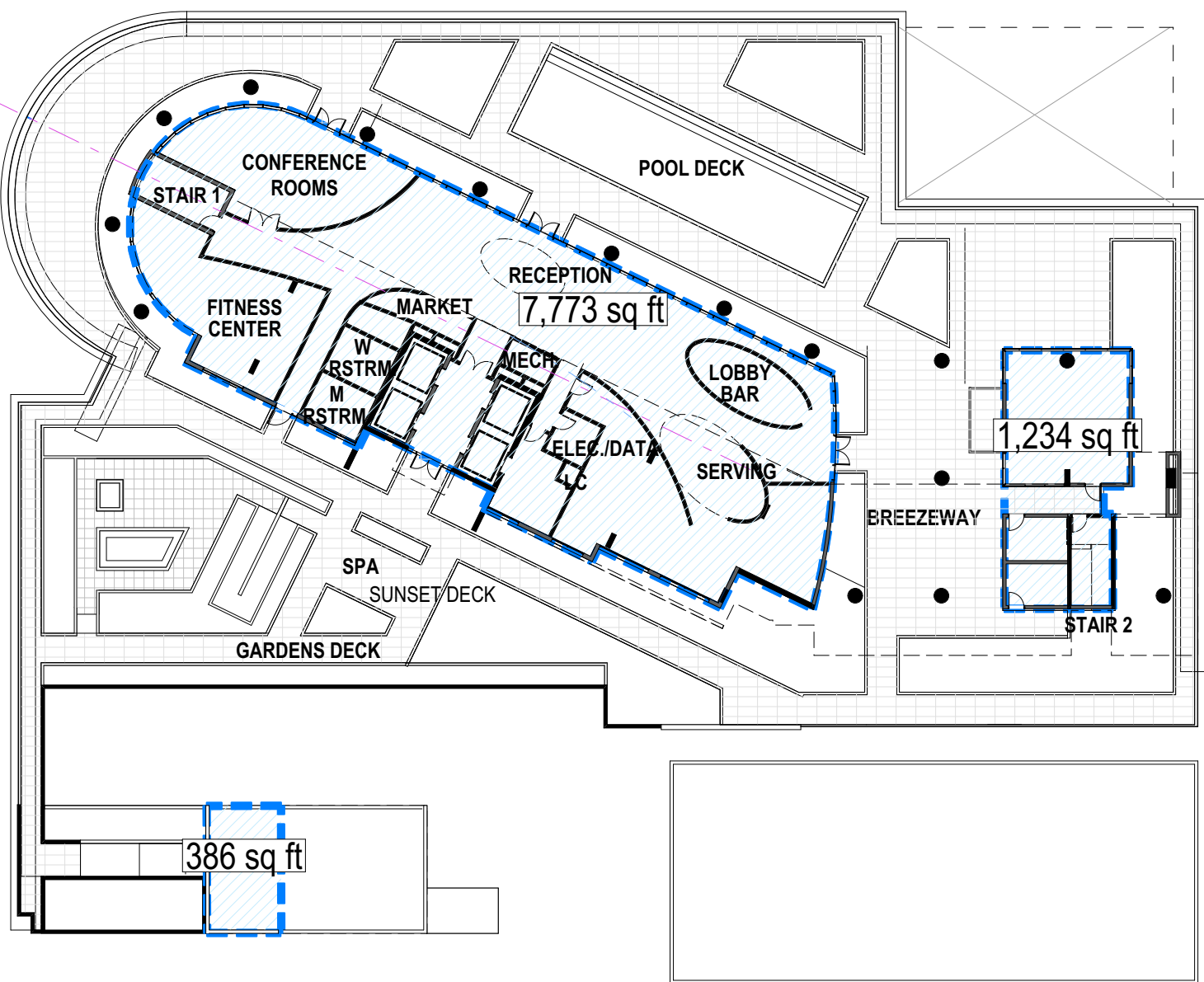
LEVEL 4 - LOBBY AMENITIES / ROOMS | 4  
Total FAR= 7,270 sq ft



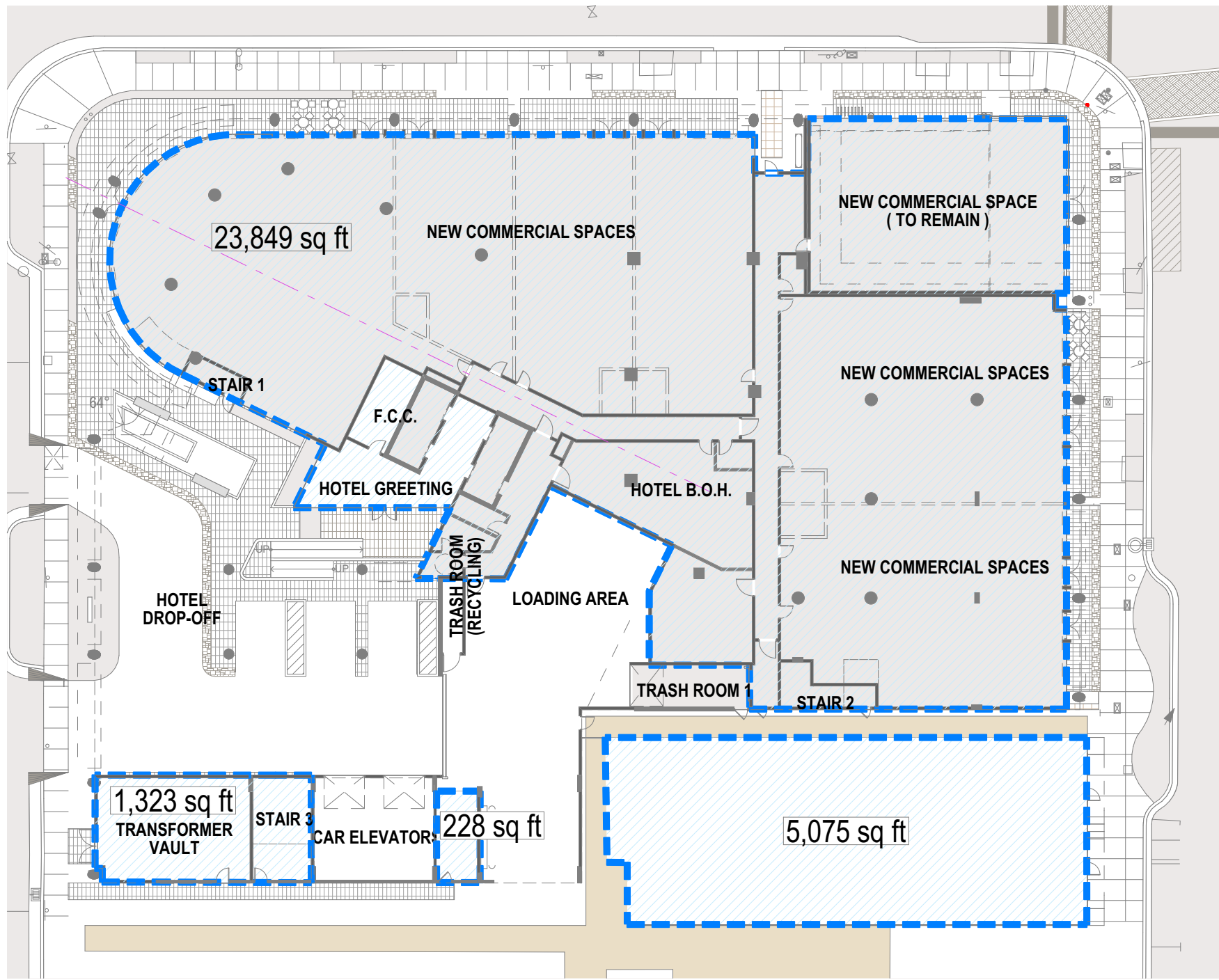
LEVEL 2 - PARKING / BOH | 2  
Total FAR= 4,584 sq ft



LEVEL 5th thru 10 - ROOMS | 5  
Total FAR= 77,226 sq ft



LEVEL 3 - LOBBY/AMENITIES | 3  
Total FAR= 9,393 sq ft



GROUND LEVEL - DROP OFF / RETAIL | 1  
Total FAR= 30,475 sq ft

NOTES:  
PER MIAMI BEACH CODE, MECHANICAL EQUIPMENT ROOMS LOCATED ABOVE MAIN ROOF DECK ARE EXCLUDED FROM F.A.R.  
FOR F.A.R. ENLARGED DRAWINGS, REFER TO APPENDIX I

F.A.R. CALCULATION

	S.F.	RATIO	S.F.
LOT AREA	49,890	2.75	137,198
MINUS AREA USED BY LOT 7118/7122			5,075
MINUS AREA USED BY LOT 7140			2,695

F.A.R. AVAILABLE 129,428

F.A.R. BREAKDOWN	
LEVEL	AREA (SQ. FT.)
GROUND LEVEL	
	228
	1,323
	5,075
	23,849
	30,475 sq ft
LEVEL 2 - PARKING / BOH	
	132
	384
	707
	708
	797
	1,856
	4,584 sq ft
LEVEL 3 - LOBBY / AMENITIES	
	386
	1,234
	7,773
	9,393 sq ft
LEVEL 4 - ROOMS / AMENITIES	
	7,270
	7,270 sq ft
LEVEL 5	
	12,871
	12,871 sq ft
LEVEL 6	
	12,871
	12,871 sq ft
LEVEL 7	
	12,871
	12,871 sq ft
LEVEL 8	
	12,871
	12,871 sq ft
LEVEL 9	
	12,871
	12,871 sq ft
LEVEL 10	
	12,871
	12,871 sq ft
ROOF	
	190
	199
	389 sq ft
TOTAL F.A.R.	129,337 sq ft

FAR NOT USED 52 sq ft

F.A.R. CALCULATION SUMMARY | 1  
N.T.S.







**AUTO-TURN ANALYSIS**  
SCALE 1/16"=1'-0"  
ELEVATION = +6'-0" NGVD





# **Appendix I**

## **Transportation Demand Management Plan**

## **7140 Collins Hotel**

### **TRANSPORTATION DEMAND MANAGEMENT PLAN**

The project's design and location will reduce the project vehicular traffic volumes as follows:

- The project will provide the residents of the hotel and retail space with accessibility to mass transit. This feature will allow residents and employers/employees to use mass transit for their trip to/from work.

The development will also do the following to further reduce peak hour vehicle trips:

- Will encourage employers/employees to sign up and use ride matching services offered through the Hotel. Employers/employees who sign up will receive monetary payment as an incentive.
- Will encourage employers/employees to participate in ridesharing programs (such as Uber and Lyft) through South Florida Commuter Services. Employers who participate will be reimbursed for a percentage of the cost of ridesharing services. Available information will be obtained and distributed to all employers/landlords in the development.
- Miami-Dade County Transportation Agency current local and regional mass transit route and schedule information will be provided to potential transit users in a prominent public area of the development. The information provided and maintained on the premises will be updated, when necessary, at no less than six month intervals.
- Promote mass transit use by encouraging employers/employees to purchase transit passes and make them available to employees at discount.
- Employees will have full access to the bike racks located within the parking garage.
- Encourage employers/employees to implement staggered work hours.

Implementation of these items will result in a minimum of ten percent (10%) reduction of peak hour vehicle trips. The performance of the plan will be monitored by measuring actual afternoon peak hour volumes at the project driveways and comparing the counts against total project trips based on the Institute of Transportation Engineers (ITE) trip generation rates.