Bike Lane Feasibility Study

Alton Road (SR 907) at Chase Avenue, City of Miami Beach, FL

Prepared for

City of Miami Beach
Transportation Department

Prepared by
AECOM

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CITY OF MIAMI BEACH

PREPARED FOR

City of Miami Beach, Transportation Department
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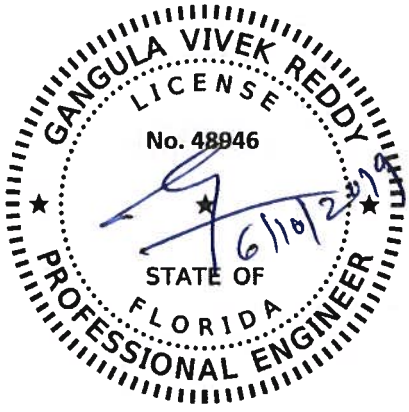

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EXECUTIVE SUMMARY

The purpose of this study is to develop and evaluate potential alternatives to accommodate the southbound left-turn movement by bicyclists at the intersection of Alton Road (SR 907) at Chase Avenue. This intersection is located in the City of Miami Beach. **Figure 1** shows an aerial map of the study area. The ultimate goal is to provide a dedicated path for bicyclists traveling along the Julia Tuttle Causeway to access the shared use path along Chase Avenue (to be built in the future) through the study intersection of Alton Road (SR 907) and Chase Avenue.

A total of seven (7) alternatives were developed to accommodate southbound left-turn bicyclists. A brief description of these seven alternatives is provided below:

Alternative 1: This alternative proposes a 4' designated bicycle lane in the southbound direction by reducing the existing lane width, narrowing the traffic separator, and widening the outside paved shoulder. The existing two southbound lanes are 12' wide and there is a 4' wide concrete traffic separator. This alternative reduces southbound lane width from 12' to 11' and the traffic separator from 4' to 2'. No change is proposed to the northbound lanes. In addition, a bicycle box is proposed to stage bicyclists while they wait for the signal to make a left-turn onto Chase Avenue. Green colored pavement is proposed within the bicycle box.

Alternative 2: This alternative proposes a buffered bicycle lane. The I-195 eastbound off-ramp traffic will be re-routed to turn at the T-intersection with southbound Alton Road to provide room for a buffered bicycle lane along the ramp. The existing outside lane on the bridge (north of the study intersection) will be stripped out to create a buffered bicycle lane approaching the intersection. This will reduce the southbound travel lanes on Alton Road to one lane. Similar to Alternative 1, a bicycle box will be provided to allow bicyclists to wait for the signal to make a southbound left-turn from Alton Road to eastbound Chase Avenue. Green colored pavement is proposed within the bicycle box.

Alternative 3: This alternative proposes a crosswalk on the east leg of the intersection to accommodate the bicycles crossing Chase Avenue. Pedestrian signals, pushbuttons, ADA ramps, and associated signs will also be installed. Southbound bicyclists wishing to access the shared use path along Chase Avenue would have to get off their bicycles at the intersection, push the pedestrian pushbutton, and wait for the signal to cross the north leg of Alton Road. Similarly, bicyclists will have to wait for the signal to cross the east leg (Chase Avenue).

Alternative 4: This alternative is the same as Alternative 1 except that the bicycle box for staging is proposed on the south side of the intersection at the southwest corner, which is consistent with the FHWA's interim approval for two-stage bicycle turn boxes.

Alternative 5: This alternative, like Alternative 4, proposes a bicycle box on the southwest corner of the intersection to allow southbound bicyclists to make a two-stage left-turn to travel east along Chase Avenue. In addition, this alternative provides a connection for bicyclists from the Julia Tuttle Causeway to the existing shared use path located adjacent to the Biscayne Waterway. As such, the bicycle traffic will be separated from vehicular traffic prior to the curve. The bicyclists can continue traveling east along the shared use path and then use the existing sidewalk (located on the west side of Alton Road) towards the Alton Road/ Chase Avenue intersection. However, bicyclists will have to merge into the bicycle lane, which starts just north of the intersection, to access the bicycle box on the southwest corner of the intersection. According to FDOT District 6 Bicycle Coordinator, a feeder bicycle lane is required to comply with FHWA's interim approval of the two-stage bicycle box.

Alternative 6: This alternative provides a dedicated bicycle path as discussed in Alternative 5. Also, this alternative provides a bicycle box on the west leg of the intersection. The FHWA's interim approval for two-stage bicycle turn boxes states that a bicycle box must have a feeder bicycle lane and the bicycle box has to be on the far side of the intersection. Therefore, the bicycle box proposed in this alternative would not be applicable for bicyclists traveling south along Alton Road. Also, due to the fact that the rightmost lane on the west leg is a shared through/right lane, the application of the bicycle box under this alternative does not match with the standard applications as stated in the FHWA's Interim Approval for Optional Use of an Intersection Bicycle Box (IA-18).

Alternative 7: As with Alternatives 5 and 6, this alternative provides a dedicated bicycle path for bicyclists. Also, this alternative provides separate crosswalks for bicyclists on the west, south and east legs. This alternative would modify and relocate the existing pedestrian crosswalks to accommodate exclusive bicycle crosswalks on the south, west and east legs. The alternative would provide dedicated crosswalks for southbound bicyclists (traveling in the shared use path on the west side of Alton Road) to cross North Bay Road and then to cross Alton Road, so they can continue east to access the shared use path along Chase Avenue.

Traffic counts and signal timing data was collected to be able to evaluate potential traffic impacts associated with these seven alternatives. Traffic data was collected on June 1, 2017 and June 3, 2017. Signal timing information was obtained from the Miami-Dade County. Traffic models were created (using Synchro 9.1 software) to evaluate the intersection performance (i.e. LOS, average delay, queuing, etc.) under existing and proposed conditions. In addition, field observations were conducted to assess bicycle activity in the vicinity of the study area.

Based on the analysis conducted as part of this study and coordination with the City of Miami Beach, Alternative 3 is proposed as a potential short-term improvement and Alternative 7 appears to be the preferred long-term improvement.

1. INTRODUCTION

The City of Miami Beach has retained AECOM Technical Services, Inc. (AECOM) to develop and analyze potential alternatives to accommodate the southbound left-turn movement by bicyclists at the intersection of Alton Road and North Bay Road/Chase Avenue (see **Figure 1**). The City of Miami Beach is preparing plans to build a shared use path along the south side of Chase Avenue. Under current conditions, the southbound bicyclist on Alton Road would have to get off his/her bicycle at the intersection, activate the pedestrian signal, wait for the signal to cross the north leg of Alton Road, then wait for traffic to cross Chase Avenue. As there is no crosswalk and pedestrian signal to facilitate crossing Chase Avenue (east leg of the intersection), the bicyclist will have to wait for gaps in traffic to cross Chase Avenue. In addition, bicyclists traveling along the Julia Tuttle Causeway would have to share the travel lane with vehicular traffic through the curved portion of the roadway at the end of the eastbound-off ramp to southbound Alton Road (see **Figure 1**). This is not desirable condition due to potential sight distance issues within the curve and associated conflicts.

Traffic data was collected and traffic analysis was conducted to evaluate potential alternatives to accommodate southbound left-turn bicyclists at the study intersection. The findings/results and recommendations of this study are described in the following sections of this report.

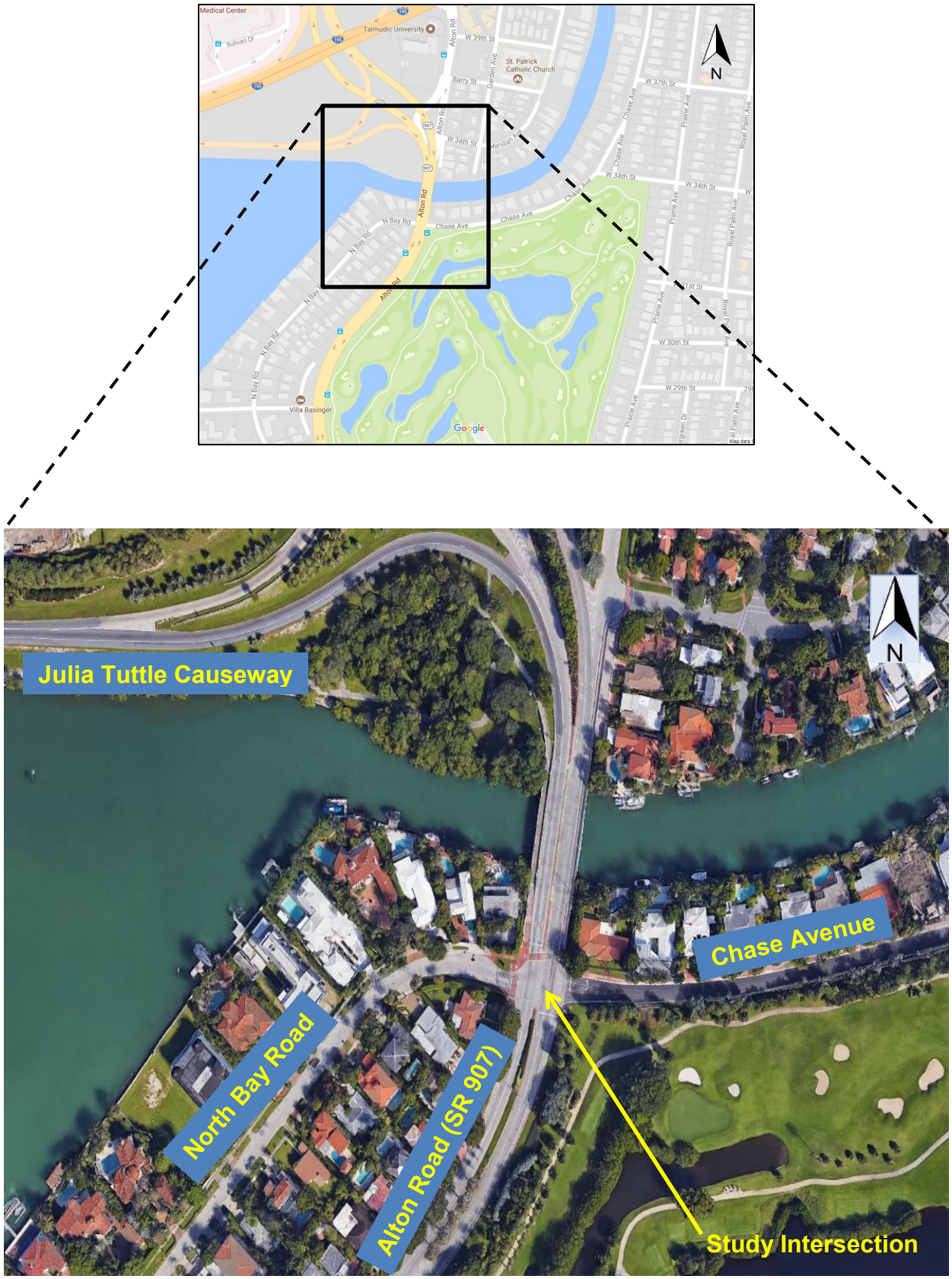


Figure 1 – Aerial Map of the Study Area

2. LITERATURE REVIEW

As part of this study, a review of recent literature related to bicycle safety and innovative features to help improve/promote bicycle use were reviewed. The FHWA recently issued an interim approval for multiple new bicycle related traffic control devices, including the use of an Intersection Bicycle Box and a Two-Stage Bicycle Turn Box.

The intersection bicycle box is a designated area on the approach to a signalized intersection, intended to provide bicycles a space in which to wait in front of stopped motor vehicles during the red signal phase. Positioning the bicycles in the center of the appropriate lane allows them to turn from a position where they have more visibility to the surrounding traffic, effectively reducing conflicts between bicycles and motor vehicles. In addition, the bicycle box can help to group bicycles together to clear intersection more quickly.

The two-stage bicycle turn box is an area set aside for bicyclists to wait and turn at a signalized intersection outside of the traveled path of motor vehicles and other bicycles. When using a two-stage bicycle box to make a left-turn, a bicyclist would proceed on a green signal indication to the turn box on the right-hand side of the travel lanes, then turn left within the turn box and wait for the appropriate signal to proceed through the intersection.

1) Interim Approval for Optional Use of Bicycle Signal Face IA-16 , USDOT (2013)

A study performed by Jeffrey Lindley in 2013 summarizes the results of an evaluation regarding the optional use of bicycle signal faces.

FHWA Evaluation Results: The Office of Transportation Operations has reviewed the available data and considers the experimental bicycle signal face to be satisfactory for the bicycle applications that were tested. Positive operational effects have been documented in the experiments such as a discernible and earlier behavioral adjustment(s) to newly installed bicycle traffic signals and traffic patterns as opposed to other devices, thereby resulting in an increased compliance by bicyclists. Additionally, depending on the specific application of the bicycle signal face, the research and experiments have shown that bicycle signal faces can provide an opportunity to either reduce the overall number of bicycle crashes, or reduce the bicycle crash rate up to 45 percent where bicycle volumes concurrently increase.

The design of the experimental bicycle signal face is not proprietary and can be used by any jurisdiction that requests and obtains approval from the FHWA to use bicycle signal faces in accordance with Paragraphs 14 through 22 of Section 1A.10. The FHWA believes that the experimental bicycle signal face has a low risk of safety or operational concerns.

This Interim Approval does not create a new mandate compelling the use of bicycle signal faces, but will allow agencies to install bicycle signal faces, pending official MUTCD rulemaking, to control bicycle movements at various locations and conditions.

While circular traffic signal indications can be used to control and facilitate bicycle movements as provided in Part 4, consideration should be given to any policy that uses the bicycle signal face to control specific bicycle movements. Agencies should exercise consistency with the decision to introduce bicycle signal faces to a roadway or bicycleway network and use caution with any non-systematic policy to use bicycle signal faces because the intermixing of bicycle traffic signal faces and circular traffic signal indications to control bicycle movements in the same corridor or jurisdiction could create comprehension issues by the roadway user or violate bicyclist expectation.

2) Interim Approval for Optional Use of an Intersection Bicycle Box IA-18 , USDOT (2016)

A study performed by Robert Arnold in 2016, summarizes the results of an evaluation regarding the optional use of an intersection bicycle box.

FHWA Evaluation Results: The Office of Transportation Operations has reviewed the available data and considers the experimental bicycle box to be successful. Positive operational effects have been documented in the experiments after the installation of bicycle boxes, including:

- Reductions in the number of conflicts between bicyclists and turning drivers at the study intersections.
- Reductions in the number of avoidance maneuvers by both bicyclists and motorists.
- Reductions in the number of bicycles and motor vehicles encroaching into pedestrian crosswalks when stopped at an intersection.
- Road-user surveys and observations in multiple experiments showed that motorists and bicyclists understood the purpose and proper usage of the bicycle box.

The design of the intersection bicycle box is not proprietary and can be used by any jurisdiction that requests and obtains Interim Approval from the FHWA to use bicycle boxes in accordance with Paragraphs 14 through 22 of Section IA.10 of the MUTCD. The FHWA believes that the intersection bicycle box has a low risk of safety or operational concerns.

This Interim Approval does not create a new mandate compelling the use of intersection bicycle boxes, but will allow agencies to install intersection bicycle boxes, pending official rulemaking revising the MUTCD, to facilitate more efficient operations at intersections. Interim Approval of a provisional device typically results in its inclusion in a future Notice of Proposed Amendments to revise the MUTCD. However, this Interim Approval does not guarantee adoption of the provisional device, either in whole or in part, in any future rulemaking that revises the MUTCD.

3) Interim Approval for Optional Use of Two-Stage Bicycle Turn Boxes IA-20 , USDOT (2017)

A study performed by Martin Knopp in 2017, summarizes the results of an evaluation regarding the optional use of two-stage bicycle turn boxes.

FHWA Evaluation Results: The Office of Transportation Operations has reviewed the available data and considers the experimental two-stage bicycle tum box to be successful for the applications that were tested. Positive operational effects have been documented in· the experiments after the installation of two-stage bicycle tum boxes. Most significantly, two-stage bicycle tum boxes have been shown to positively influence consistency in the operations of bicyclists making two-stage turns at intersections, a maneuver which had been occurring already at many of the studied locations.

In examining the data recorded at installed locations, these improvements in consistency were noted at a majority of the installed sites. Where the two-stage bicycle tum boxes were installed, bicyclists were making a two-stage tum maneuver within or mostly within the tum box. At some study locations, the only reason bicyclists were not using the two-stage bicycle tum box was that it was already fully occupied by other bicyclists making the same maneuver. Most of the sites where data were collected did not include guide signing to direct or inform bicycle traffic about the location of the tum box; and the data and observations suggest that signing is not required for proper understanding and operations of two-stage bicycle tum boxes.

The available collision data did not show an adverse impact on safety due to the installation of two-stage bicycle tum boxes. Two sites showed a decrease in collisions and two sites showed an increase, although the increases were limited to one collision in a 19-month analysis period.

The design of the two-stage bicycle tum box is not patented or proprietary and may be used by any jurisdiction that requests and obtains Interim Approval from the FHWA to use two stage bicycle tum boxes in accordance with Paragraphs 14 through 22 of Section 1A.10 of the MUTCD. The FHWA believes that the two-stage bicycle tum box as detailed in this memorandum has a low risk of safety or operational concerns and the research analyzed shows that two-stage bicycle tum boxes can provide for a more orderly and consistent flow of traffic.

This Interim Approval does not create a new mandate compelling the use of two-stage bicycle tum boxes. This Interim Approval will allow agencies to install two-stage bicycle tum boxes to facilitate bicycle operations at intersections pending official MUTCD rulemaking.

3. EXISTING CONDITIONS

The study intersection of Alton Road and Chase Avenue is a signalized intersection located in Miami Beach. **Figure 2** shows the existing lane configuration for this intersection.

Alton Road (SR 907) at the study intersection is a four-lane divided roadway with a posted speed limit of 30 mph and is classified as an urban minor arterial. The roadway typical section consists of two through lanes in the northbound direction and two through lanes in the southbound direction. There are sidewalks along both sides of the roadway to the north of the intersection. However, on the south side of the intersection, sidewalk exists only on the west side of the roadway. There are shared bicycle lanes on the north leg of Alton Road. Street lighting is provided on both sides of Alton Road south of the intersection and only along the west side north of the intersection.

Chase Avenue at the subject location is a two-lane undivided roadway to the east and North Bay Road is a one-way roadway at the intersection. Chase Avenue has a posted speed limit of 30 mph. The two-lane portion of Chase Avenue allows traffic to travel eastbound and westbound, and has sidewalk along the north side of the roadway. North Bay Road is a one-way roadway for eastbound traffic and has sidewalks on both sides of the roadway. There is a bicycle lane in the westbound direction (on the west leg only). Lighting is provided along Chase Avenue.

The following movements at the study intersection are prohibited by signage:
Southbound left-turn
Southbound right-turn
Northbound left-turn
Westbound through

The intersection currently provides crosswalks on only the north and west legs of the intersection. There is no designated bicycle lane in the southbound direction. There is a bicycle lane in the northbound direction, which ends at the intersection and does not continue north of the intersection. In order for a bicyclist traveling southbound on Alton Road wishing to go east on Chase Avenue, the bicyclist would have to get off the bicycle at the intersection, and wait for the pedestrian signal to cross the north leg, then wait for gaps in traffic to cross the east leg (Chase Avenue) as there is no crosswalk on the east leg.

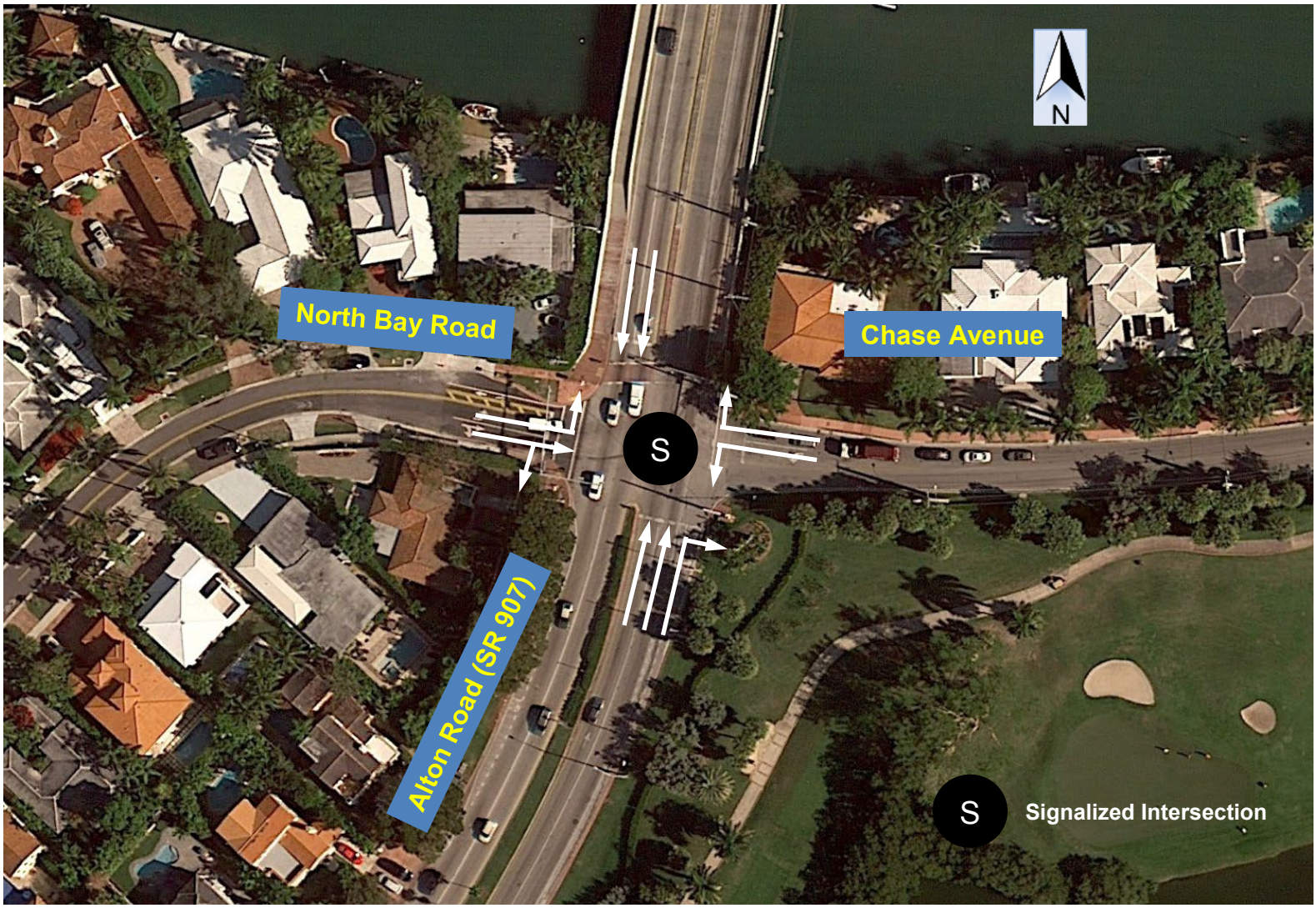


Figure 2 – Intersection Lane Geometry

4. DATA COLLECTION

4.1 Traffic Data

Based on the Florida Traffic Information Online Website, Alton Road (SR 907) carries an Annual Average Daily Traffic (AADT) ranging from 30,500 to 46,000 vehicles per day (based on PTMS Sites 871018 and 870012). As part of this study, 12-hour turning movement counts (TMCs) were collected on Thursday, June 1, 2017 and Saturday, June 3, 2017 at the intersection of Alton Road and Chase Avenue (see **Appendix A**). Also, 12-hour video recordings were collected on Thursday, June 1, 2017 and Saturday, June 3, 2017 at the locations shown below:

- I-195 (SR 112) eastbound off-ramp to Alton Road
- Alton Road at Chase Avenue intersection

TMCs for the study intersection are summarized in **Table 1** below.

Table 1 – Peak Hour TMCs (6/1/2017)

Intersection	Movement	AM (10:30 to 11:30)				Midday (1:45 to 2:45)				PM (3:00 to 4:00)			
		EB	WB	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB
Alton Road at Chase Avenue	Right-Turn	5	88	43	-	2	156	54	-	4	194	45	-
	Through	22	-	1236	1691	20	-	1575	1600	13	-	2016	1500
	Left-Turn	83	45	-	-	90	47	-	-	116	72	-	-

Table 2 – Peak Hour TMCs (6/3/2017)

Intersection	Movement	AM (10:45 to 11:45)				Midday (1:45 to 2:45)				PM (2:45 to 3:45)			
		EB	WB	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB
Alton Road at Chase Avenue	Right-Turn	5	85	21	-	2	55	36	-	3	78	23	-
	Through	5	-	1046	1221	12	-	1290	1442	9	-	1298	1612
	Left-Turn	50	20	-	-	60	29	-	-	53	10	-	-

Table 3 – Summary of Pedestrian/Bicycle Counts (6/1/2017)

Intersection	Movement	AM (10:30 to 11:30)				Midday (1:45 to 2:45)				PM (3:00 to 4:00)			
		EB	WB	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB
Alton Road at Chase Avenue	Pedestrian	4	1	1	5	4	0	1	5	2	1	1	3
	Bicycle	2	2	2	1	0	0	1	5	3	1	5	2
	Total	6	3	3	6	4	0	2	10	5	2	6	5

Table 4 – Summary of Pedestrian/Bicycle Counts (6/3/2017)

Intersection	Movement	AM (10:45 to 11:45)				Midday (1:45 to 2:45)				PM (2:45 to 3:45)			
		EB	WB	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB
Alton Road at Chase Avenue	Pedestrian	6	1	1	6	3	0	1	8	0	0	0	0
	Bicycle	1	0	0	3	2	0	0	9	0	0	0	1
	Total	7	1	1	9	5	0	1	17	0	0	0	1

EB = Eastbound; WB = Westbound; NB = Northbound; SB = Southbound

During the weekday count (Thursday, June 1, 2017), a total of 24 bicyclists observed at the study intersection during peak hours, 7 during the AM peak, 6 during the Midday peak and 11 during the PM peak. Out of the 24 bicyclists observed, only 8 utilized a crosswalk.

During the weekend count (Saturday, June 3, 2017), a total of 16 bicyclists observed at the study intersection during peak periods, 4 during the AM peak, 11 during the Midday peak and 1 during the PM peak. Out of the 16 bicyclists observed, only 6 utilized a crosswalk.

5. FIELD REVIEW

A field review at the study intersection was conducted on June 25, 2017 during the AM and PM peak periods to assess bicycle activity in the vicinity of the study area as well as operational conditions at the intersection of SR 907/Alton Road and Chase Avenue.

The following is a summary of field observations.

- Julia Tuttle Causeway (I-195) has eastbound and westbound designated bicycle lanes within the outside paved shoulders (see **Photo 1**). In the eastbound direction, the bicycle lane ends at the eastbound off-ramp to southbound Alton Road (see **Photo 3**). As such, bicyclists will have to share the travel lane on Alton Road. Shared Lane Markings and Bicycles May Use Full Lane signs are located along the eastbound to southbound off-ramp, and along Alton Road within the study area (see **Photo 2**).
- Alternatively, eastbound bicyclists can also take an asphalt bicycle path that is approximately six feet wide. The path starts from the eastbound to southbound exit ramp (see **Photo 3**) and traverses along the west side (sidewalk) of Alton Road.
- Bicyclists were observed in the eastbound bicycle lanes traveling east along I-195.
- The posted speed limit along I-195 is 55 MPH.
- The posted speed limit along Alton Road is 30 mph.
- The intersection of Alton Road and Chase Avenue is a signalized intersection. The following movements are prohibited at this intersection: southbound left and right, northbound left, and westbound through movements. There are exceptions that permit bicycles to make southbound right-turn and westbound through movements through signing (see **Photos 4** and **5**).

- Vehicle detection is through loop detectors in the pavement along Chase Avenue. The loop on the west leg did not appear to detect a bicyclist waiting to make an eastbound left turn movement (see **Photo 6**). The existing loop detectors do not have capability to detect bicyclists.
- Crosswalks with standard markings are located on the north and west legs. Adequate ‘‘Flashing Don’t Walk’’ intervals are provided to cross. The pedestrian signals are not countdown signals.
- Below is a summary of bicycle counts observed on June 25, 2017 between 8:30 and 9:30 AM.
    - northbound through: 11
    - northbound right: 0
    - southbound through: 7
    - southbound right: 0
    - eastbound left: 4
    - eastbound through: 1
    - eastbound right: 0
    - westbound left: 0
    - westbound through: 2
    - westbound right: 1
- Some northbound through bicyclists were observed to continue north/west towards I-195 (see **Photo 7**).
- Below is a count of pedestrians and bicycles on the sidewalk observed on June 25, 2017 between 8:30 AM and 9:30 AM.
    - north leg: 2 pedestrians, 1 bicyclist
    - west leg: 1 bicyclist made eastbound right onto sidewalk
- The concrete traffic separator along the bridge is four feet wide and it is offset by 1.5 feet from the northbound and southbound travel lanes (see **Photo 9**).
- The sidewalk on the west side of Alton Road (north of the study intersection) is 10 feet wide and barrier separated (see **Photo 10**). The sidewalk on the east side of the bridge is six feet wide and not barrier separated.

6. CRASH DATA ANALYSIS

Crash data for the five-year period from 2011 to 2015 was obtained from the Department’s Crash Analysis Reporting System (CARS) and Signal 4 Analytics. No pedestrian/bicycle crash data was found at the study intersection.

STUDY PHOTOGRAPHS

Photo 1 – Looking East: Note bicyle lane along I-195.

Photo 2 – Looking Southeast: Note Shared Lane Pavement Markings.

Photo 3 – Looking Southwest: Note Alternate Bicycle Path.

Photo 4 – Looking South: Note signs that prohibit vehicular movements (southbound left and right turns), except southbound right-turn by bicyclists.

Photo 5 – Looking Northwest: Note sign that prohibits vehicular westbound through movement, except bicycles.

Photo 6 – Looking Northwest: Loop detector did not recognize bicyclist waiting at the eastbound approach.

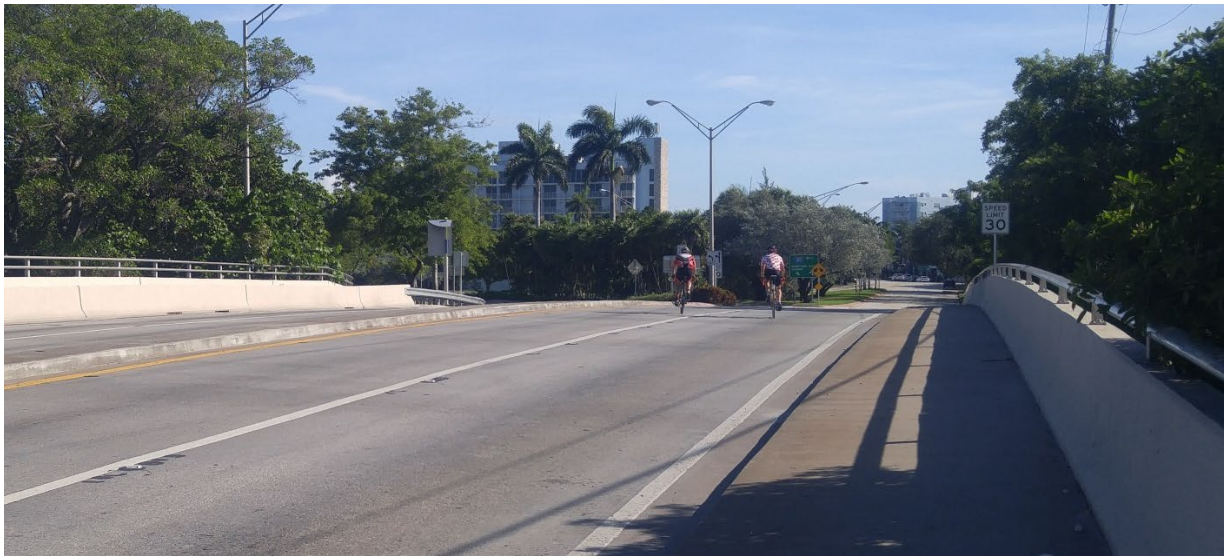


Photo 7 – Looking North: Note bicylists weaving into the left lane, possibly to continue west onto I-195.

Photo 8 – Looking North: Southbound lanes approaching the study intersection.

Photo 9 – Looking North: Note traffic separator along bridge.

Photo 10 – Looking North: Note 10 feet wide sidewalk on the west side, which is barrier separated.

7. OPERATIONAL ANALYSIS

Operational conditions at intersections are typically defined in terms of Level of Service (LOS). The LOS ranges from letter grade 'A' (negligible delays) to 'F' (excessive delay/jammed conditions). The operational analyses for the Alton Road (SR 907)/Chase Avenue intersection were performed using Synchro 10 software to estimate delay and LOS during the AM, Midday and PM peak hours (Appendix E). Intersection characteristics, such as existing traffic volumes, roadway geometry, and signal phasing/timing information were used as input data. Synchro uses the input data in conjunction with procedures documented in the *Highway Capacity Manual (HCM)* to estimate Level of Service (LOS), delay, and queue lengths.

Signal timing data (including time-of-day schedule, phasing information, patterns, cycle length, offset, splits, etc.) for the study intersection was obtained from the Miami-Dade Traffic Signal Division Website (http://www.md-atms.com/). Signal timing data is included in **Appendix B**. The existing and proposed Signal Operating Plans (SOPs) are shown in **Figure 3**.

Existing Traffic Operational Analysis

Traffic operational analysis was conducted to evaluate the existing conditions. **Table 2** summarizes the intersection LOS and delay under existing conditions. The results indicate that the intersection is currently operating at LOS B during the AM, midday, and PM peak hours.

Table 5 – Existing Intersection Summary

Intersection	Intersection Summary		
	AM	Midday	PM
Alton Road at Chase Avenue	10.5 sec/veh; LOS B	14.6 sec/veh; LOS B	17.9 sec/veh; LOS B

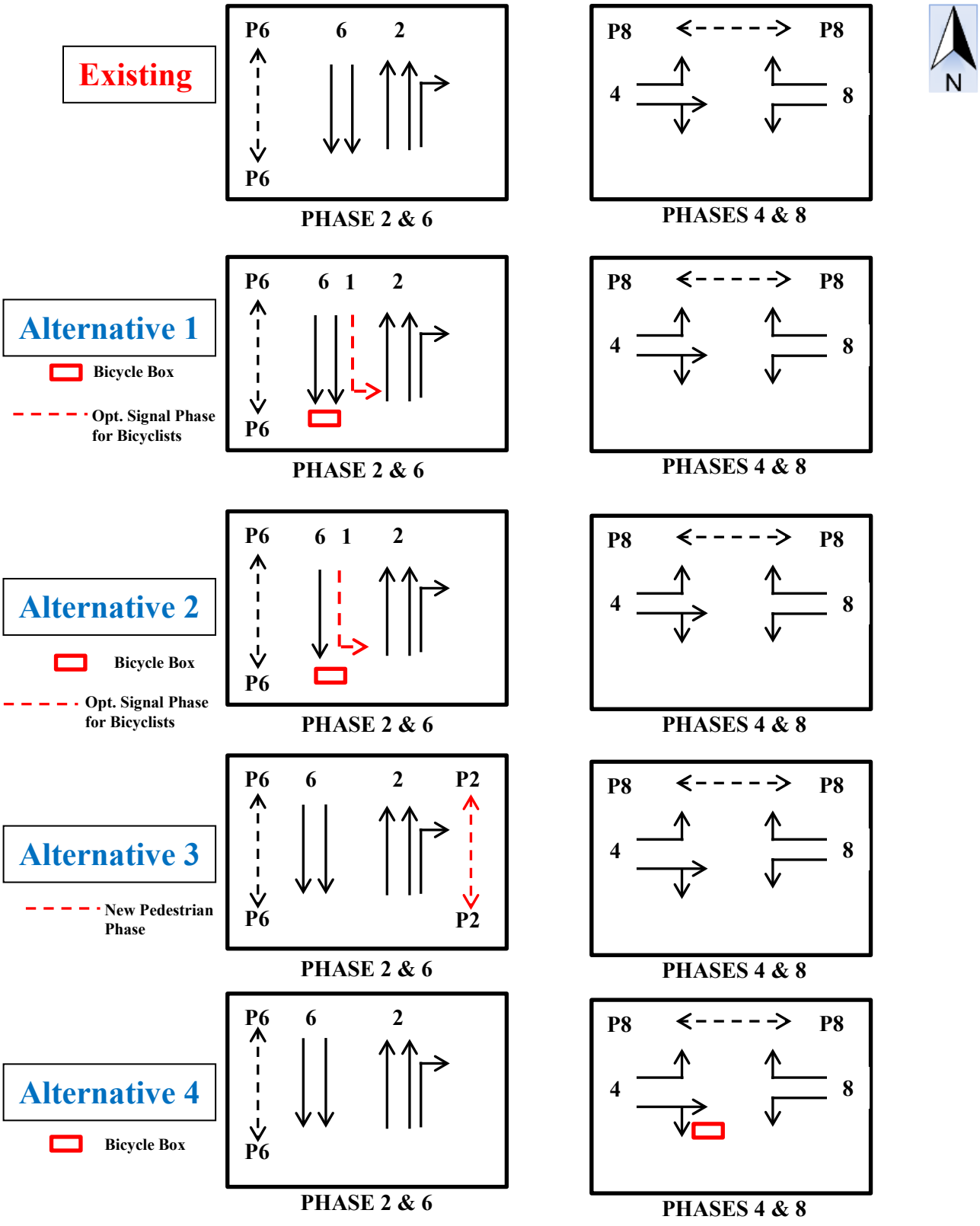


Figure 3 – Existing and Proposed Lane Geometry and Signal Phasing

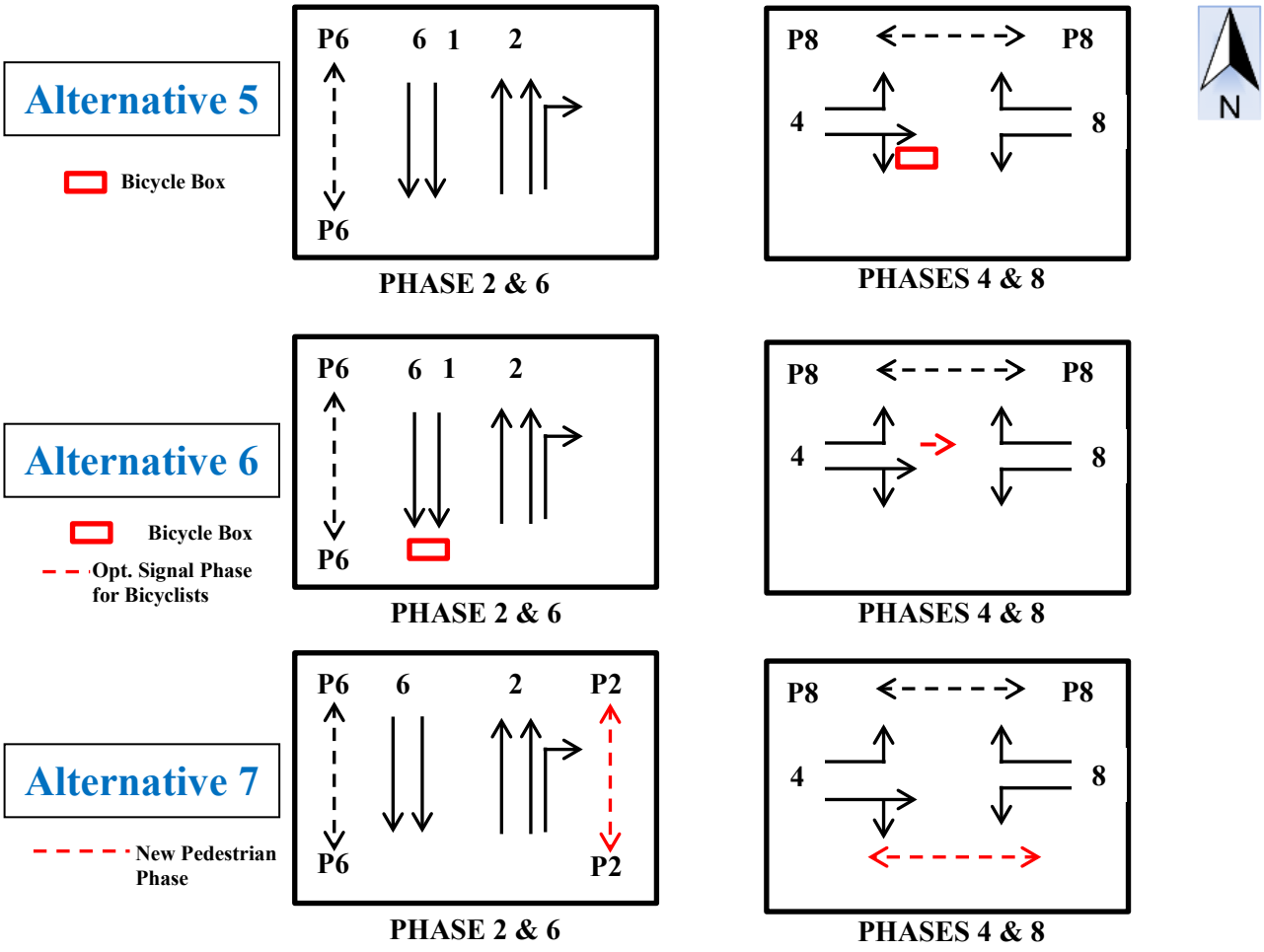


Figure 3 (cont.) – Existing and Proposed Lane Geometry and Signal Phasing

Alternative 1 Operational Analysis

Alternative 1: This alternative proposes a 4' designated bicycle lane in the southbound direction by reducing the existing lane width, narrowing the traffic separator, and widening the outside paved shoulder. This alternative provides a continuous bicycle lane from the I-195 off-ramp up to the study intersection. In addition, a bicycle box is proposed to stage bicyclists while they wait for the signal to make a left-turn onto Chase Avenue. Green colored pavement is proposed within the turn box. The existing two southbound lanes are 12' wide and there is a 4' wide concrete traffic separator. This alternative reduces southbound lane width from 12' to 11' and the traffic separator from 4' to 2'. No changes are proposed to the northbound lanes.

Traffic operational analysis was conducted to evaluate the intersection performance under this Alternative. **Table 3** summarizes the intersection LOS and delay. The results indicate that the intersection under Alternative 1 is expected to operate at LOS B during all peak periods.

Table 6 – Alternative 1 Intersection Summary

Intersection	Intersection Summary		
	AM	Midday	PM
Alton Road at Chase Avenue	10.8 sec/veh; LOS B	14.9 sec/veh; LOS B	18.1 sec/veh; LOS B

Alternative 2 Operational Analysis

Alternative 2: This alternative proposes a buffered bicycle lane. Under this alternative, the I-195 eastbound off-ramp traffic will be re-routed to turn at the T-intersection with southbound Alton Road and that area will be used to provide a buffered bicycle lane along the ramp. The existing outside lane on the bridge will be stripped out to create a buffered bicycle lane approaching the intersection at Chase Avenue. This alternative will bring the total number of southbound lanes on Alton Road from two to one lane. Similar to Alternative 1, a bicycle box will be provided to allow bicyclists to wait for the signal to make a southbound left-turn from Alton Road to eastbound Chase Avenue. Green colored pavement is proposed within the turn box.

Traffic operational analysis was conducted to evaluate the intersection performance under this Alternative. **Table 4** summarizes the intersection LOS and delay. The results indicate that the intersection LOS would be degraded under Alternative 2, from LOS B to LOS E during AM peak and LOS B to LOS F during the midday peak period. In addition, most of the individual movements with the exception of the northbound movement would operate at undesirable LOS (E or worse). As this alternative increases delay significantly and degrades LOS, this was removed from further consideration.

Table 7 – Alternative 2 Intersection Summary

Intersection	Intersection Summary		
	AM	Midday	PM
Alton Road at Chase Avenue	69.7 sec/veh; LOS E	82.5 sec/veh; LOS F	55.3 sec/veh; LOS D

Alternative 3 Operational Analysis

Alternative 3: This alternative proposes a crosswalk on the east leg of the intersection. Pedestrian signals, pushbuttons, ADA ramps, and associated signs will be installed. The crosswalk on the east leg (approximately 53 feet long) requires approximately 15 seconds of FDW. Bicyclists traveling southbound on Alton Road will continue to share the travel lanes under this alternative. Bicyclists wishing to go east on Chase Avenue would have to get off their bicycles at the intersection, push the pedestrian pushbutton, and wait for the signal to cross the north leg of Alton Road. Similarly, bicyclists will have to wait for the signal to cross Chase Avenue.

Traffic operational analysis was conducted to evaluate the intersection performance under this Alternative. **Table 5** summarizes the intersection LOS and delay. The results indicate that the intersection is expected to operate at LOS B or better during peak periods.

Table 8 – Alternative 3 Intersection Summary

Intersection	Intersection Summary		
	AM	Midday	PM
Alton Road at Chase Avenue	10.5 sec/veh; LOS B	14.6 sec/veh; LOS B	17.9 sec/veh; LOS B

Alternative 4 Operational Analysis

Alternative 4: This alternative is the same as Alternative 1 except that the bicycle box for staging is proposed on the south side of the intersection at the southwest corner, which is consistent with the FHWA's Interim Approval for Two Stage Bicycle Turn Boxes.

Traffic operational analysis was conducted to evaluate the intersection performance under this Alternative. **Table 6** summarizes the intersection LOS and delay. The results indicate that the intersection under this alternative would operate at LOS B or better during all peak periods.

Table 9 – Alternative 4 Intersection Summary

Intersection	Intersection Summary		
	AM	Midday	PM
Alton Road at Chase Avenue	10.8 sec/veh; LOS B	14.9 sec/veh; LOS B	18.1 sec/veh; LOS B

Alternative 5 Operational Analysis

This alternative, like Alternative 4, proposes a bicycle box on the southwest corner of the intersection to allow southbound bicyclists to make left-turn to travel east along Chase Avenue. In addition, this alternative provides a connection for bicyclists from the I-195 off-ramp (prior to the north-south split) to the existing shared used path located adjacent to the Biscayne Waterway. As such, the bicycle traffic will be separated from the vehicular traffic prior to the curve. The bicyclists can continue traveling along the shared use path towards the Alton Road/Chase Avenue intersection using the existing sidewalk (approximately 10' wide, barrier separated) on the west side. However, bicyclists will have to merge into the feeder bicycle lane (north of the intersection) to access the proposed bicycle box on the far side of the intersection. According to FDOT District 6 Bicycle Coordinator, this transition from the shared use path to the feeder bicycle lane is required to comply with FHWA's interim approval for the Two Stage Bicycle Turn Boxes. From an operational standpoint, this alternative will be similar to Alternative 4. The intersection would operate at LOS B or better during all peak periods.

Alternative 6 Operational Analysis

Alternative 6 does not include any changes to signal timing or lane configurations. Therefore, this alternative is not expected have any potential negative traffic impacts. The intersection LOS is expected to be B or better.

Alternative 7 Operational Analysis

Alternative 7 proposes new crosswalks on the south and east legs. The existing Walk and Flashing Don't Walk phases will be able to accommodate the proposed crosswalk on the south leg. As such, the proposed crosswalk on the south leg will not have any negative traffic impacts. Time to crosswalk the east leg was analyzed as part of Alternative 3. Therefore, the results of the operational analysis for Alternative 3 are applicable to Alternative 7. The intersection is expected to operate at LOS B or better under this alternative.

8. BICYCLE DETECTION TECHNOLOGY ASSESMENT

Potential bicycle detection systems that are applicable to this project were reviewed. The following is a brief summary of pros and cons for potential bicycle detection alternatives.

Inductive loops

Inductive loops can be used to detect and service bicycles in the bicycle box. This technology works by coiling wire in a specific orientation within the pavement and utilizing electric current to create magnetic field above the pavement surface. When a ferrous object is present in this magnetic field, the detector card in the signal cabinet actuates and places a call to the traffic signal controller to provide a green indication. Inductive loops for bicycle detection require adjustment of the sensitivity of the detector card to increase the sensitivity enough to detect a ferrous object, but making the detector too sensitive can place false calls. False calls could be placed by vehicles driving in an adjacent lane, in this case southbound vehicles along Alton Road, which can be remedied by setting delay timing for the bicycle loop. Another physical challenge is the existing metal water valve cover and storm manhole cover in close proximity to the proposed location of the bicycle box. Metal in general may make this type of detection challenging. However, the interference can possibly be mitigated by adjusting the location of the loop and bicycle box.

Another disadvantage of an inductive loop would be the additional saw cuts required to complete the installation of the bicycle detector inductive loop. This can be accommodated by placing a near side pull box to run the lead in wire and utilizing conduit back to the controller cabinet. The additional pavement cuts may result in premature failure of the bicycle and vehicle detection along this approach. Even if the North Bay Road approach were resurfaced and all fresh loops were cut, the nature of inductance loops requires bicycles to stop in a specific location and be oriented in a specific direction to be detected, which can be accomplished by signing and pavement markings. Given the current composite, carbon fiber and non-ferrous bicycle materials that are available today, the inductive loops may not be a reliable detection solution for all bicycle users. Advantage of this technology is that the existing staff would be familiar with the operation and troubleshooting. For these reasons, other detection technologies such as radar, traditional video or thermal video would likely be better alternatives.

Wavetronix Matrix Radar

The intersection is well within the recommended operating limits of the Wavetronix Matrix. A single Matrix installed on the existing mast arm on the SW corner of the intersection would operate within the 140 foot range and could provide detection to the bicycle box. The same Matrix radar would also be capable of providing vehicle and bicycle detection where the two (2) existing 6’x30’ inductive pavement loops exist along North Bay Road. This technology works by utilizing multiple radar beams to scan and track objects moving along the road surface. This radar would be capable of tracking and detecting a cyclist in either the bicycle box, or along North Bay Road where the inductive loops exist today. The conditions that are unfavorable for this technology include extremely heavy rain or occlusion due to tall vehicles crossing between the radar unit and the detection zone. The occlusion would only be an issue if the radar were

mounted on the mast arm on the opposite side of Alton Road from the desired detection zone(s). This sensor must be mounted at a minimum of 12 feet. If mounting the detector on the opposite side of Alton Road is required, then it could be mounted on a shepherd hood or other similar extension pole to gain elevation above the existing mast arm. Mounting the unit farther away and higher would make the unit more susceptible to being shifted by high winds.

Another potential drawback of this technology is unfamiliarity of staff with regards to setting up, troubleshooting and making adjustments. In addition, there is a higher initial cost to deploy this technology as compared to the cost of cutting a traditional loop. However, the cost of one radar unit would likely be similar to cutting the two (2) loops along eastbound North Bay Road. Considering the environment at the location, the Wavetronix construction would likely suffer less degradation to the harsh climate, salt air, flying hurricane debris compared to either the infrared or dome Intersection Video Detection System (IVDS) alternatives. Also, due to the close proximity between the unit mounted on the mast arm on the SW corner and the detection zone, this technology would likely be least degraded due to fog or heavy rain as compared to any of the preferred alternatives.

Another benefit of the radar over IVDS is that no maintenance would be required after the initial setup, whereas the IVDS would require periodic cleaning of the lens. This IVDS maintenance could result in the camera alignment shifting and thereby requiring frequent adjustment of the detection zones. Radar technology should not be affected by interference from power lines or cell towers in the vicinity. Unit can be setup for remote monitoring, troubleshooting and reporting. Local field support and training would be provided from Wavetronix staff based in Orlando, Florida.

Flir Thermicam Video Detection Camera

A thermal imaging video detection camera could be installed on the mast arm opposite of the desired detection zone. This location would likely suffer from occlusion by tall vehicles passing between the camera and the detection zone. These effects could be minimized by mounting the camera higher. However, the higher the camera is mounted on extension arms above the mast, the more opportunity for movement of the camera during windy conditions, which would render it less effective. The advantage of this technology is that the image it utilizes to determine if a vehicle or bicycle is in the detection zone visibly appears the same during daytime or at night; thereby eliminating the detection issues associated with traditional IVDS, such as glare, shadows, changing seasons, etc. One advantage of this system over the radar is that it is possible to interconnect and monitor the image and detection reliability from a remote location during all weather conditions. Similar to radar, this camera could be configured to provide bicycle or vehicle detection and replace the existing inductance loops providing vehicle detection, especially if the loop were to ever fail in the future. The thermal camera has a higher initial cost than a loop. The thermal camera operates by detecting changes in heat and is capable of detecting subtle differences, which can lead to false calls on extremely hot days. Also, dense fog will render this technology less effective. Local field support and training would be provided from staff based in Sanford, Florida.

Gridsmart Bell Camera

This technology utilizes a single 'fish eye' camera mounted at least 30 feet above the intersection to view and provide vehicle and bicycle detection along all approaches to the intersection. This installation could possibly be achieved by mounting the camera on an arm on the existing concrete pole on the southeast corner or by attaching an arm to the existing street light on the southwest corner of the intersection. The primary advantage of this technology is that, a single camera could provide detection for all approaches. The camera tries to eliminate issues with glare by orienting the camera so that it looks straight down. This camera may still experience issues due to shadows moving across the pavement. This device may receive interference from adjacent overhead power lines, and the manufacturer recommends mounting at least 10 feet from any power lines. Local field support and training would be provided from staff based in Tampa, Florida.

MS Sedco SmartWalk XP

This is a radar based detection technology that is capable of 'looking' at the two-stage bicycle box and placing a locked call when an object is detected, similar to how a pedestrian button places a call to activate a pedestrian phase. The disadvantage of this technology is that any motion, even by pedestrians walking through the zone that do not intend to cross Alton Road would place a locked call. This would likely result in placing calls when bicycles are not actually crossing and would result in inefficient signal operations. The advantage of this alternative is that it is small, unobtrusive, would likely be the easiest of all to configure and the least expensive alternative to install.

Conclusion

Several alternative bicycle detection solutions exist that utilize different proven technologies. Each alternative has unique advantages and disadvantages. Based on the intersection configuration, the most reliable technology appears to be the Wavetronix Matrix radar. Inductive loops can also be used as an alternative. See Appendix D for Wavetronix Matrix Footprints for the study intersection.

9. AGENCY COORDINATION

As part of the coordination effort, AECOM contacted FDOT and the Florida Bicycle Association to get their input on proposed improvements.

AECOM contacted the FDOT Statewide Bicycle Pedestrian Coordinator (Ms. Mary O'Brien) as well as the FDOT District 6 Bicycle/Pedestrian and ADA Coordinator (Ms. Elizabeth Stacey) to get their input on the proposed alternatives. Ms. Stacey stated that the two-stage bicycle box is highly recommended as it is a low cost and very effective alternative. She also stated that the Miami-Dade County has received an approval from FHWA to implement the two-stage bicycle boxes. Ms. Stacey stated (during a teleconference conducted on 3/28/2017) that FDOT may not approve Alternative 6 due to potential vehicle-bicycle conflicts on the west leg.

AECOM contacted the Executive Director of the Florida Bicycle Association (Ms. Becky Alfonso) to get their input on the proposed alternatives. Ms. Alfonso stated that she would share the information with local cyclists and also suggested we contact David Henderson of the Miami-Dade Transportation Planning Organization, since he is very familiar with the area. AECOM has contacted Mr. David Henderson and waiting for his input.

10. CONCLUSIONS AND RECOMMENDATIONS

As part of this study, a total of seven alternatives to accommodate the southbound bicycle left-turn movement were analyzed. A brief description of these alternatives and associated advantages and disadvantages are discussed below.

Alternative 1

- This alternative provides a 4' designated bicycle lane by narrowing the southbound travel lanes (from 12' to 11'), traffic separator on the north leg (from 4' to 2'), and widening the paved shoulder. Also, this alternative provides a bicycle box on the north leg (in front of southbound travel lanes) to provide bicyclists a staging area to wait and make a southbound left-turn at the subject intersection.
- Traffic operational analysis was conducted to evaluate the intersection performance under this Alternative. The results indicate that the intersection would operate at LOS B during peak periods.
- While this alternative has minimal operational impacts on the intersection as a whole, the reduction of lane width and traffic separator may not be desirable and the proposed bicycle box on the near side is not consistent with the FHWA's interim approval for two-stage bicycle turn boxes. Also, bicyclists arriving at the intersection on green indication would have to wait in the bicycle lane for red indication to get into the bicycle box. If they try to weave through vehicular traffic to access the bicycle box, it can cause conflicts and/or crashes. Therefore, this alternative was eliminated from further consideration.

Alternative 2

- Alternative 2 provides a buffered bicycle lane by eliminating one of the southbound travel lanes approaching the intersection. This will bring the total number of southbound lanes from two to one. Similar to Alternative 1, a bicycle box will also be provided to allow bicyclists to make a southbound left-turn at the subject intersection.
- Traffic operational analysis was conducted to evaluate the intersection performance under this alternative. The results indicate that the intersection LOS would degrade from LOS B to LOS E/F. In addition, most of the individual movements with the exception of the northbound movement would operate at an unacceptable LOS (E or F).
- Bicyclists arriving at the intersection on green indication would have to wait in the bicycle lane for red indication to get into the bicycle box. If they try to weave through vehicular traffic to access the bicycle box, it can cause conflicts and/or crashes.
- This alternative was eliminated from further consideration due to potential negative operational/safety impacts as discussed above.

Alternative 3

- Alternative 3 installs a crosswalk on the east leg of the intersection. Bicyclists traveling southbound on Alton Road will continue to share the roadway with vehicular traffic, but would

have a controlled crosswalk to safely cross the east leg to access the shared use path along Chase Avenue.

- Traffic operational analysis was conducted to evaluate the intersection performance under this Alternative. The results indicate that the intersection would operate at LOS B or better.
- This alternative has minimal operational impacts and can be implemented relatively quickly. Therefore, this alternative is a potential short-term alternative.

Alternative 4

- This alternative provides a 4' designated bicycle lane by narrowing the southbound lanes (from 12' to 11'), and the traffic separator on the north leg (from 4' to 2'), and widening the paved shoulder. Alternative 4 implements a bicycle box in the southwest corner of the intersection to allow southbound bicyclists to make a two-stage left-turn at the subject intersection.
- Traffic operational analysis was conducted to evaluate the intersection performance under this alternative. The results indicate that the intersection would operate at LOS B or better during peak periods.
- This alternative has minimal operational impacts on the intersection as a whole and implements a bicycle box consistent with the FHWA's interim approval for two-stage bicycle turn boxes. As such, this is a potential mid-term alternative.

Alternative 5

- This alternative, similar to Alternative 4, would implement a bicycle box on the southeast corner of the intersection to allow southbound bicyclists to make a two-stage left-turn at the intersection. Also, this alternative provides a connection from the I-195 off-ramp, prior to the northbound/southbound split, to the shared use path along the Biscayne Waterway. The bicyclists traveling along the ramp can shift to the proposed connecting path to travel east along the shared use path and continue south along the existing sidewalk (located on the west side of Alton Road). However, in order to access the bicycle box on the south side of the roadway, a feeder bicycle lane is needed. As such, a short bicycle lane is proposed on the north leg. Bicyclists will have to merge into the bicycle lane prior to the intersection from the sidewalk. To accommodate this transition, the existing sidewalk needs to be reconstructed to match the existing pavement elevation at the merge point along the southbound Alton Road. Green colored pavement is proposed within the turn box and the merge area.
- From an operational standpoint, this alternative will be similar to Alternative 4. The intersection is expected to operate at LOS B or better during all peak periods.
- During the comment/review process, the City of Miami Beach expressed concerns regarding the short bicycle lane north of the intersection (south of the bridge) due to potential sight distance issues. As such, this alternative was eliminated from further consideration.

Alternative 6

- This alternative provides a bicycle box on the west leg of the intersection, in front of the left-turn lane and the shared through/right lane. The FHWA's interim approval for Two-Stage Bicycle Turn Boxes states that a bicycle box must have a feeder bicycle lane and the bicycle box has to be on the far side of the intersection. Therefore, the bicycle box proposed in this alternative would not be applicable for bicyclists traveling south along Alton Road. Also, due to the fact that the rightmost lane on the west leg is a shared through/right lane, the application of the bicycle box under this alternative does not match with the standard applications as stated in the FHWA's Interim Approval for Optional Use of an Intersection Bicycle Box (IA-18). Furthermore, this option may cause potential conflicts between eastbound vehicles and bicycles. Bicyclists arriving at the intersection on green indication would have to wait in the bicycle lane until red indication to get into the bicycle box. If they try to weave through vehicular traffic to access the bicycle box, it can cause conflicts and/or crashes. As such, this alternative was eliminated from further consideration.

Alternative 7

- This alternative provides separate crosswalks for bicyclists on the west, south and east legs. This alternative would modify and relocate the existing pedestrian crosswalks to accommodate exclusive bicycle crosswalks on the south, west and east legs, in addition to the pedestrian crosswalks. As such, this alternative would accommodate southbound bicyclists traveling in the shared use path on the west side of Alton Road to cross North Bay Road and then cross Alton Road (on the south leg) using the bicycle crosswalks, so they can continue east to access the shared use path along Chase Avenue. No bicycle lane would be required on the north leg of Alton Road. Also, no bicycle box would be required on the southwest corner of the intersection.
- From a safety standpoint, this alternative is the preferred option as it separates bicycle traffic from vehicular traffic along the ramp and along Alton Road.
- The operational impacts of this alternative would be similar to that of Alternative 3. The intersection is expected to operate at LOS B or better under this alternative.
- Based on the results of the analyses conducted as part of this study, this alternative seems to be a potential mid-term alternative.

Based on the advantages and disadvantages of each alternative, and coordination with the City of Miami Beach, it is suggested that Alternative 3 be implemented as a short-term improvement, and Alternative 7 be considered for implementation as a long-term improvement. A preliminary estimate of construction cost for Alternative 7 is approximately $362,439 (Appendix F).

APPENDIX A – TURNING MOVEMENT COUNTS

Study Name Alton Dr at Chase Ave Weekday
Start Date 06/01/2017
Start Time 7:00 AM
Site Code 1
Project Miami Projects: 03-AltonChase Bike Plan

Type Road
Classification All Vehicles (no classification)

	Alton Rd Southbound				Chase Ave Westbound				Alton Rd Northbound				Chase Ave Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
7:00 AM	1	431	2	1	29	0	2	0	5	187	0	0	1	1	10	0
7:15 AM	0	342	0	0	29	0	4	0	2	263	0	0	0	2	16	0
7:30 AM	0	413	0	0	36	0	8	0	1	213	0	0	0	0	14	0
7:45 AM	0	433	1	0	28	0	5	0	6	208	1	0	0	4	22	0
8:00 AM	0	421	1	0	24	0	9	0	12	271	0	0	1	5	19	0
8:15 AM	0	386	0	0	30	0	19	0	35	247	0	0	0	9	19	0
8:30 AM	0	448	0	1	38	0	24	0	15	264	0	0	1	5	16	0
8:45 AM	0	454	0	0	29	0	22	0	9	262	0	0	0	3	24	0
9:00 AM	0	342	1	0	27	0	18	0	8	225	0	0	1	7	11	0
9:15 AM	0	281	1	1	18	0	17	0	7	198	0	0	1	2	13	0
9:30 AM	0	276	0	0	23	0	12	0	6	229	0	0	0	2	16	0
9:45 AM	0	243	0	0	28	0	13	0	4	260	0	0	0	6	20	0
10:00 AM	0	198	0	0	13	0	15	0	8	273	0	0	1	3	25	0
10:15 AM	0	274	0	0	14	0	11	0	7	256	0	0	0	4	22	0
10:30 AM	0	470	0	0	26	0	13	0	13	284	0	0	1	2	18	0
10:45 AM	0	413	0	1	15	0	11	0	11	329	0	0	0	9	27	0
11:00 AM	0	405	0	0	25	0	10	0	9	327	1	0	1	3	17	0
11:15 AM	1	403	0	0	22	0	11	0	10	294	0	0	3	8	19	0
11:30 AM	0	400	0	0	13	0	11	0	6	306	0	0	1	2	15	0
11:45 AM	1	409	0	0	18	0	9	0	7	308	0	0	0	3	19	0
12:00 PM	1	375	0	0	25	0	17	0	5	314	0	0	2	4	11	0
12:15 PM	0	344	0	0	30	1	15	0	7	335	0	0	1	0	15	0
12:30 PM	0	362	0	0	23	0	8	0	6	337	0	0	0	2	20	0
12:45 PM	0	386	0	1	22	0	11	0	7	325	0	0	3	3	18	0
1:00 PM	0	367	0	0	28	0	10	0	12	368	0	0	2	5	16	0
1:15 PM	0	345	0	0	30	0	10	0	10	406	0	0	1	5	26	0
1:30 PM	0	367	0	0	25	0	5	0	6	348	0	0	1	3	20	0
1:45 PM	0	359	0	0	31	0	14	0	11	335	0	0	1	7	27	0
2:00 PM	1	376	0	0	31	0	18	0	16	362	0	0	1	3	27	0
2:15 PM	3	427	0	0	40	0	7	0	11	418	0	0	0	7	22	0
2:30 PM	1	437	1	0	54	0	8	0	16	459	0	0	0	3	14	0
2:45 PM	0	385	1	0	42	0	16	0	19	424	0	0	1	12	28	1
3:00 PM	0	362	1	0	48	0	10	0	12	525	0	0	1	2	22	0
3:15 PM	0	390	0	0	56	0	37	0	12	523	0	0	0	4	28	0
3:30 PM	0	384	0	0	61	0	9	0	5	477	0	0	2	4	31	0
3:45 PM	0	363	0	0	28	0	16	0	16	486	0	0	1	2	35	0
4:00 PM	0	333	0	0	30	0	17	0	6	529	0	0	0	3	27	0
4:15 PM	0	350	1	0	23	0	10	0	8	480	0	0	0	3	34	0
4:30 PM	0	306	0	0	33	0	9	0	7	460	0	0	1	3	23	0
4:45 PM	1	363	0	0	29	0	10	0	4	444	0	0	0	3	24	0
5:00 PM	1	373	2	0	22	0	9	0	6	459	0	0	0	2	23	0
5:15 PM	0	348	0	1	36	0	8	0	6	487	0	0	0	1	36	0
5:30 PM	0	358	0	0	26	0	7	0	12	456	0	0	1	7	23	0
5:45 PM	0	361	0	0	16	0	8	0	6	404	0	0	1	9	38	0
6:00 PM	0	372	0	0	17	0	6	0	5	396	0	0	2	0	20	0
6:15 PM	0	349	0	0	23	0	12	0	10	416	0	0	2	3	25	0
6:30 PM	0	360	0	0	22	0	4	0	6	407	0	0	0	3	16	0
6:45 PM	0	366	0	0	20	0	8	0	5	361	0	0	2	6	16	0
Total	**11**	**17710**	**12**	**6**	**1356**	**1**	**563**	**0**	**433**	**16945**	**2**	**0**	**38**	**189**	**1027**	**1**

Study Name Alton Dr at Chase Ave Weekday
Start Date 06/01/2017
Start Time 7:00 AM
Site Code 1
Project Miami Projects: 03-AltonChase Bike Plan

Type Road
Classification Bicycles on Road

	Alton Rd Southbound				Chase Ave Westbound				Alton Rd Northbound				Chase Ave Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
7:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
7:15 AM	0	0	3	0	0	0	0	0	0	1	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0
7:45 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	1	0
9:15 AM	0	0	0	0	1	0	0	0	0	1	0	0	0	0	2	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0
12:15 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	1	1	0	0	0	0	0	0	1	1	0	0	0	0	1	0
12:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
1:30 PM	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0
1:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
3:45 PM	0	0	0	0	1	0	0	0	0	3	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0
6:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**2**	**14**	**4**	**0**	**2**	**3**	**0**	**0**	**1**	**26**	**0**	**0**	**0**	**6**	**10**	**0**

Study Name Alton Dr at Chase Ave Weekday
Start Date 06/01/2017
Start Time 7:00 AM
Site Code 1
Project Miami Projects: 03-AltonChase Bike Plan

Type Crosswalk
Classification Bicycles on Crosswalk

	Alton Rd Southbound			Chase Ave Westbound			Alton Rd Northbound			Chase Ave Eastbound		
Start Time	Peds CW	Peds CCW	Peds Combined	Peds CW	Peds CCW	Peds Combined	Peds CW	Peds CCW	Peds Combined	Peds CW	Peds CCW	Peds Combined
7:00 AM	0	3		0	0		0	0		0	0	
7:15 AM	0	1		0	0		0	0		0	0	
7:30 AM	0	0		0	0		0	0		0	0	
7:45 AM	1	0		0	0		0	0		0	0	
8:00 AM	1	1		0	0		0	0		0	0	
8:15 AM	0	0		0	0		0	0		0	0	
8:30 AM	0	2		0	0		0	0		0	0	
8:45 AM	0	0		0	0		0	0		0	0	
9:00 AM	0	0		0	0		0	0		0	0	
9:15 AM	0	1		0	0		0	0		1	0	
9:30 AM	0	1		0	0		0	0		0	1	
9:45 AM	0	0		0	0		0	1		0	0	
10:00 AM	1	2		0	0		0	0		0	0	
10:15 AM	0	0		0	0		0	0		0	0	
10:30 AM	0	1		0	0		0	0		0	0	
10:45 AM	0	0		0	0		0	0		0	0	
11:00 AM	0	0		0	0		0	0		0	0	
11:15 AM	0	0		0	0		0	0		0	0	
11:30 AM	0	0		0	0		0	0		0	0	
11:45 AM	0	0		0	0		0	0		0	0	
12:00 PM	0	0		0	0		0	0		0	0	
12:15 PM	0	0		0	0		0	0		0	0	
12:30 PM	0	0		0	0		0	0		0	0	
12:45 PM	0	0		0	0		0	0		0	0	
1:00 PM	0	1		0	0		0	1		0	0	
1:15 PM	0	0		0	0		0	0		0	3	
1:30 PM	0	0		0	0		0	0		0	0	
1:45 PM	3	1		0	0		0	0		0	0	
2:00 PM	0	0		0	0		0	0		0	0	
2:15 PM	0	0		0	0		0	0		0	0	
2:30 PM	0	0		0	0		0	0		0	0	
2:45 PM	0	0		0	0		0	0		0	1	
3:00 PM	0	0		0	0		0	0		0	0	
3:15 PM	0	0		0	0		0	0		0	0	
3:30 PM	0	0		0	0		0	0		0	0	
3:45 PM	0	1		0	0		0	0		0	2	
4:00 PM	0	0		0	0		0	0		0	0	
4:15 PM	0	0		0	0		0	0		0	0	
4:30 PM	0	0		0	0		0	0		0	0	
4:45 PM	0	0		0	0		0	0		0	0	
5:00 PM	1	0		0	0		0	0		0	0	
5:15 PM	0	0		0	0		0	0		0	0	
5:30 PM	0	0		0	0		0	0		0	0	
5:45 PM	0	3		0	0		0	0		0	0	
6:00 PM	0	0		0	0		0	0		0	0	
6:15 PM	1	1		0	0		0	0		0	0	
6:30 PM	0	0		0	0		0	0		0	0	
6:45 PM	0	0		0	0		0	0		0	0	
Total	**8**	**19**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**1**	**7**	

Study Name Alton Dr at Chase Ave Weekday
Start Date 06/01/2017
Start Time 7:00 AM
Site Code 1
Project Miami Projects: 03-AltonChase Bike Plan

Type Crosswalk
Classification Pedestrians

	Alton Rd Southbound			Chase Ave Westbound			Alton Rd Northbound			Chase Ave Eastbound		
Start Time	Peds CW	Peds CCW	eds Combin	Peds CW	Peds CCW	eds Combin	Peds CW	Peds CCW	eds Combin	Peds CW	Peds CCW	eds Combin
7:00 AM	1	0		0	0		0	0		0	0	
7:15 AM	1	1		0	1		0	0		0	1	
7:30 AM	1	1		0	0		0	0		1	1	
7:45 AM	1	2		0	0		0	0		0	0	
8:00 AM	1	0		0	0		0	0		0	0	
8:15 AM	1	3		0	0		0	0		0	1	
8:30 AM	0	3		0	2		0	2		0	1	
8:45 AM	5	2		0	0		0	1		2	1	
9:00 AM	0	0		0	0		0	2		0	0	
9:15 AM	0	0		0	0		1	0		0	0	
9:30 AM	1	0		0	0		0	0		0	0	
9:45 AM	3	1		0	0		0	1		1	0	
10:00 AM	2	1		0	1		0	1		0	0	
10:15 AM	0	0		0	0		0	0		0	0	
10:30 AM	0	0		0	1		0	1		0	0	
10:45 AM	2	1		0	0		0	0		0	4	
11:00 AM	1	0		0	0		0	0		0	0	
11:15 AM	0	1		0	0		0	0		0	0	
11:30 AM	0	4		0	0		0	1		0	2	
11:45 AM	0	0		0	0		0	0		0	0	
12:00 PM	0	4		0	0		0	0		0	0	
12:15 PM	2	0		0	0		0	0		0	0	
12:30 PM	0	0		0	0		0	0		0	0	
12:45 PM	0	1		0	0		0	0		0	0	
1:00 PM	1	3		0	0		0	0		2	0	
1:15 PM	0	0		0	1		0	0		0	0	
1:30 PM	0	0		0	0		0	1		0	0	
1:45 PM	1	1		0	0		0	0		2	0	
2:00 PM	0	0		0	0		0	0		0	1	
2:15 PM	0	2		0	0		0	0		0	1	
2:30 PM	0	1		0	0		0	1		0	0	
2:45 PM	1	5		0	0		1	0		1	2	
3:00 PM	0	0		0	1		0	1		1	0	
3:15 PM	3	0		0	0		0	0		1	0	
3:30 PM	0	0		0	0		0	0		0	0	
3:45 PM	0	0		0	0		0	0		0	0	
4:00 PM	0	0		0	0		0	0		1	0	
4:15 PM	0	1		0	0		0	0		0	1	
4:30 PM	0	0		0	0		0	0		0	0	
4:45 PM	0	1		0	0		0	0		0	0	
5:00 PM	0	1		0	0		0	0		0	0	
5:15 PM	1	0		0	0		0	0		0	0	
5:30 PM	1	0		0	1		0	1		0	0	
5:45 PM	2	0		0	0		0	0		0	0	
6:00 PM	0	0		0	0		0	1		0	0	
6:15 PM	4	0		0	0		0	1		3	0	
6:30 PM	5	0		0	0		0	0		1	0	
6:45 PM	1	6		1	0		0	0		0	3	
Total	**42**	**46**	**0**	**1**	**8**	**0**	**2**	**15**	**0**	**16**	**19**	

Study Name Alton Dr at Chase Ave Weekday
Start Date 06/01/2017
Start Time 7:00 AM
Site Code 1
Project Miami Projects: 03-AltonChase Bike Plan

Type Road
Classification Totals

	Alton Rd Southbound				Chase Ave Westbound				Alton Rd Northbound				Chase Ave Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
7:00 AM	1	431	2	1	29	0	2	0	5	188	0	0	1	1	10	0
7:15 AM	0	342	3	0	29	0	4	0	2	264	0	0	0	2	16	0
7:30 AM	0	413	0	0	36	0	8	0	1	215	0	0	0	0	14	0
7:45 AM	0	433	2	0	28	0	5	0	6	208	1	0	0	4	22	0
8:00 AM	0	423	1	0	24	0	9	0	12	271	0	0	1	5	19	0
8:15 AM	0	386	0	0	30	0	19	0	35	250	0	0	0	9	19	0
8:30 AM	0	448	0	1	38	0	24	0	15	264	0	0	1	5	16	0
8:45 AM	0	454	0	0	29	0	22	0	9	263	0	0	0	3	24	0
9:00 AM	0	342	1	0	27	0	18	0	8	227	0	0	1	7	12	0
9:15 AM	0	281	1	1	19	0	17	0	7	199	0	0	1	2	15	0
9:30 AM	0	276	0	0	23	0	12	0	6	229	0	0	0	2	16	0
9:45 AM	0	243	0	0	28	1	13	0	4	260	0	0	0	6	20	0
10:00 AM	0	198	0	0	13	0	15	0	8	273	0	0	1	3	25	0
10:15 AM	0	274	0	0	14	0	11	0	7	257	0	0	0	4	22	0
10:30 AM	0	470	0	0	26	0	13	0	13	285	0	0	1	2	18	0
10:45 AM	0	413	0	1	15	0	11	0	11	330	0	0	0	9	27	0
11:00 AM	0	405	0	0	25	2	10	0	9	327	1	0	1	3	17	0
11:15 AM	1	403	0	0	22	0	11	0	10	294	0	0	3	8	21	0
11:30 AM	0	400	0	0	13	0	11	0	6	306	0	0	1	2	15	0
11:45 AM	1	411	0	0	18	0	9	0	7	308	0	0	0	3	19	0
12:00 PM	1	376	0	0	25	0	17	0	5	314	0	0	2	4	13	0
12:15 PM	1	344	0	0	30	1	15	0	7	335	0	0	1	0	15	0
12:30 PM	1	363	0	0	23	0	8	0	7	338	0	0	0	2	21	0
12:45 PM	0	387	0	1	22	0	11	0	7	325	0	0	3	3	18	0
1:00 PM	0	367	0	0	28	0	10	0	12	368	0	0	2	5	16	0
1:15 PM	0	345	0	0	30	0	10	0	10	406	0	0	1	6	26	0
1:30 PM	0	368	0	0	25	0	5	0	6	350	0	0	1	3	20	0
1:45 PM	0	360	0	0	31	0	14	0	11	335	0	0	1	7	27	0
2:00 PM	1	376	0	0	31	0	18	0	16	362	0	0	1	3	27	0
2:15 PM	3	427	0	0	40	0	7	0	11	418	0	0	0	7	22	0
2:30 PM	1	437	1	0	54	0	8	0	16	460	0	0	0	3	14	0
2:45 PM	0	385	1	0	42	0	16	0	19	424	0	0	1	12	28	1
3:00 PM	0	363	1	0	48	0	10	0	12	525	0	0	1	3	22	0
3:15 PM	0	390	0	0	56	0	37	0	12	524	0	0	0	4	28	0
3:30 PM	0	384	0	0	61	0	9	0	5	478	0	0	2	4	31	0
3:45 PM	0	363	0	0	29	0	16	0	16	489	0	0	1	2	35	0
4:00 PM	0	333	0	0	30	0	17	0	6	531	0	0	0	3	27	0
4:15 PM	0	350	1	0	23	0	10	0	8	480	0	0	0	3	35	0
4:30 PM	0	306	0	0	33	0	9	0	7	460	0	0	1	3	23	0
4:45 PM	1	365	0	0	29	0	10	0	4	444	0	0	0	4	24	0
5:00 PM	1	373	2	0	22	0	9	0	6	459	0	0	0	2	24	0
5:15 PM	0	348	0	1	36	0	8	0	6	487	0	0	0	1	36	0
5:30 PM	0	358	0	0	26	0	7	0	12	456	0	0	1	8	23	0
5:45 PM	0	361	0	0	16	0	8	0	6	404	0	0	1	9	38	0
6:00 PM	0	373	0	0	17	0	6	0	5	397	0	0	2	1	20	0
6:15 PM	0	350	0	0	23	0	12	0	10	416	0	0	2	4	25	0
6:30 PM	0	360	0	0	22	0	4	0	6	407	0	0	0	3	16	0
6:45 PM	0	366	0	0	20	0	8	0	5	361	0	0	2	6	16	0
Total	**13**	**17724**	**16**	**6**	**1358**	**4**	**563**	**0**	**434**	**16971**	**2**	**0**	**38**	**195**	**1037**	**1**

Study Name Alton Dr at Chase Ave Weekend Day
Start Date 06/03/2017
Start Time 7:00 AM
Site Code 1-B
Project Miami Projects: 03-AltonChase Bike Plan

Type Road
Classification All Vehicles (no classification)

	Alton Rd Southbound				Chase Ave Westbound				Alton Rd Northbound				Chase Ave Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
7:00 AM	0	163	0	0	5	0	1	0	1	95	0	0	1	0	5	0
7:15 AM	0	217	1	0	5	1	2	0	0	119	0	0	1	1	2	0
7:30 AM	0	234	0	0	12	0	0	0	1	94	0	0	0	0	6	0
7:45 AM	0	246	0	0	10	0	4	0	4	122	0	0	0	0	4	0
8:00 AM	0	260	0	0	2	0	1	0	1	111	0	0	0	0	5	0
8:15 AM	0	236	0	0	16	0	4	0	5	136	0	0	0	2	4	0
8:30 AM	0	257	0	0	10	0	3	0	0	132	0	0	0	0	5	0
8:45 AM	0	299	0	0	10	0	3	0	4	121	0	0	0	1	4	0
9:00 AM	0	268	0	0	12	0	8	0	2	154	0	0	1	1	10	0
9:15 AM	0	277	0	1	14	0	3	0	3	151	0	0	0	5	13	0
9:30 AM	0	298	0	0	21	0	5	0	4	174	0	0	0	2	14	0
9:45 AM	0	355	2	0	15	0	7	0	7	204	0	0	1	3	10	0
10:00 AM	0	305	0	0	16	0	3	0	5	195	0	0	0	0	14	0
10:15 AM	2	282	0	0	19	0	5	0	2	243	0	0	2	3	14	0
10:30 AM	1	288	0	0	15	0	3	0	9	266	0	0	0	4	7	0
10:45 AM	0	323	0	0	18	0	7	0	6	231	0	0	2	1	10	0
11:00 AM	0	271	0	0	25	0	2	0	3	280	0	0	2	1	9	0
11:15 AM	0	291	0	0	14	0	6	0	6	234	0	0	0	2	19	0
11:30 AM	0	333	1	0	28	0	5	0	6	301	0	0	1	0	12	0
11:45 AM	0	333	1	0	17	0	5	0	5	252	0	0	2	2	19	0
12:00 PM	2	306	0	1	14	0	4	0	4	284	0	0	0	1	14	0
12:15 PM	0	294	0	0	21	0	7	0	7	271	1	1	1	5	10	0
12:30 PM	0	330	0	0	21	0	5	0	5	292	0	0	1	3	15	0
12:45 PM	0	323	1	0	20	0	9	0	6	260	0	0	1	2	19	0
1:00 PM	1	312	1	0	11	0	5	0	4	251	0	0	1	2	13	0
1:15 PM	0	358	0	0	25	0	10	0	5	295	0	0	0	1	12	0
1:30 PM	0	336	0	0	16	0	6	0	4	272	0	0	0	5	17	0
1:45 PM	1	355	0	0	15	0	8	0	11	326	0	0	0	0	12	0
2:00 PM	0	307	1	0	9	0	8	0	8	297	0	0	1	5	18	0
2:15 PM	0	388	2	1	18	0	10	0	12	348	0	0	0	3	23	0
2:30 PM	0	386	0	0	13	0	3	0	5	319	0	1	1	4	7	0
2:45 PM	0	450	1	0	24	0	1	0	5	299	0	0	1	2	10	0
3:00 PM	0	360	0	0	15	0	5	0	3	339	0	0	0	3	13	0
3:15 PM	0	394	1	0	26	0	1	0	11	341	0	0	2	1	13	0
3:30 PM	1	408	0	0	13	0	3	0	4	319	0	0	0	3	17	0
3:45 PM	1	349	0	0	21	1	4	0	8	311	0	0	2	2	12	0
4:00 PM	0	352	0	0	24	0	4	0	10	311	0	0	1	4	16	0
4:15 PM	0	363	1	0	21	0	8	0	4	347	0	0	0	2	12	0
4:30 PM	0	346	0	1	23	0	4	0	5	287	0	0	2	1	7	0
4:45 PM	0	381	0	0	20	0	9	0	9	324	0	0	0	5	12	0
5:00 PM	0	351	0	0	24	0	4	0	6	341	0	0	1	3	8	0
5:15 PM	0	389	0	0	16	0	3	0	5	344	0	0	1	0	10	0
5:30 PM	0	394	0	0	20	0	2	0	3	322	0	0	1	1	10	0
5:45 PM	0	390	1	0	14	0	3	0	3	325	0	0	0	1	13	0
6:00 PM	0	383	0	0	26	0	5	0	6	286	0	0	1	3	13	0
6:15 PM	1	378	0	0	12	0	5	0	2	292	0	0	0	3	10	0
6:30 PM	0	359	0	0	11	0	4	1	6	316	0	0	2	0	12	0
6:45 PM	0	372	0	1	14	0	7	0	4	260	0	0	1	4	9	0
Total	**10**	**15650**	**14**	**5**	**791**	**2**	**224**	**1**	**239**	**12194**	**1**	**2**	**34**	**97**	**543**	**0**

Study Name Alton Dr at Chase Ave Weekend Day
Start Date 06/03/2017
Start Time 7:00 AM
Site Code 1-B
Project Miami Projects: 03-AltonChase Bike Plan

Type Road
Classification Bicycles on Road

	Alton Rd Southbound				Chase Ave Westbound				Alton Rd Northbound				Chase Ave Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
7:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
8:00 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	2	2	0	0	0	0	1	0	0	1	0	0	0	1	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**3**	**16**	**0**	**0**	**1**	**1**	**1**	**0**	**0**	**8**	**0**	**1**	**0**	**5**	**1**	**0**

Study Name Alton Dr at Chase Ave Weekend Day
Start Date 06/03/2017
Start Time 7:00 AM
Site Code 1-B
Project Miami Projects: 03-AltonChase Bike Plan

Type Crosswalk
Classification Bicycles on Crosswalk

	Alton Rd Southbound			Chase Ave Westbound			Alton Rd Northbound			Chase Ave Eastbound		
Start Time	Peds CW	Peds CCW	eds Combin	Peds CW	Peds CCW	eds Combin	Peds CW	Peds CCW	eds Combin	Peds CW	Peds CCW	eds Combin
7:00 AM	0	0		0	0		0	0		0	0	
7:15 AM	0	0		0	0		0	0		0	0	
7:30 AM	0	0		0	0		0	0		0	0	
7:45 AM	0	0		0	0		0	0		0	0	
8:00 AM	0	0		0	0		0	0		0	0	
8:15 AM	0	0		0	0		0	0		0	0	
8:30 AM	0	1		0	0		0	0		0	0	
8:45 AM	0	0		0	0		0	0		0	0	
9:00 AM	0	1		0	0		0	0		0	0	
9:15 AM	0	0		0	0		0	0		0	0	
9:30 AM	0	0		0	0		0	0		0	0	
9:45 AM	0	0		0	0		0	0		0	0	
10:00 AM	0	0		0	0		0	0		0	0	
10:15 AM	0	0		1	0		0	0		0	0	
10:30 AM	0	0		0	0		0	0		0	0	
10:45 AM	0	0		0	0		0	0		0	0	
11:00 AM	0	0		0	0		0	0		0	0	
11:15 AM	0	0		0	0		0	0		0	0	
11:30 AM	0	0		0	0		0	0		0	0	
11:45 AM	0	0		0	0		0	0		0	0	
12:00 PM	0	0		0	0		0	0		0	0	
12:15 PM	0	0		0	0		0	0		0	0	
12:30 PM	0	0		0	0		0	0		0	0	
12:45 PM	0	0		0	0		0	0		0	0	
1:00 PM	0	0		0	0		0	0		0	0	
1:15 PM	0	0		0	0		0	0		0	0	
1:30 PM	0	0		0	0		0	0		0	0	
1:45 PM	0	0		0	0		0	0		0	0	
2:00 PM	1	1		0	0		0	0		1	0	
2:15 PM	0	1		0	0		0	0		0	1	
2:30 PM	0	0		0	0		0	0		0	0	
2:45 PM	0	0		0	0		0	0		0	0	
3:00 PM	0	0		0	0		0	0		0	0	
3:15 PM	0	0		0	0		0	0		0	0	
3:30 PM	0	1		0	0		0	0		0	0	
3:45 PM	2	0		0	0		0	0		0	2	
4:00 PM	0	0		0	0		0	0		0	0	
4:15 PM	0	0		0	0		0	0		0	0	
4:30 PM	0	0		0	0		0	0		0	0	
4:45 PM	0	0		0	0		0	0		0	0	
5:00 PM	0	0		0	0		0	0		0	0	
5:15 PM	0	2		0	0		0	0		0	2	
5:30 PM	0	0		0	0		0	0		0	0	
5:45 PM	0	0		0	0		0	0		0	0	
6:00 PM	0	0		0	0		0	0		0	0	
6:15 PM	0	0		0	0		0	0		0	0	
6:30 PM	0	0		0	0		0	0		0	0	
6:45 PM	0	0		0	0		0	0		0	0	
Total	**3**	**7**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**5**	**0**

Study Name Alton Dr at Chase Ave Weekend Day
Start Date 06/03/2017
Start Time 7:00 AM
Site Code 1-B
Project Miami Projects: 03-AltonChase Bike Plan

Type Crosswalk
Classification Pedestrians

	Alton Rd Southbound			Chase Ave Westbound			Alton Rd Northbound			Chase Ave Eastbound		
Start Time	Peds CW	Peds CCW	eds Combin	Peds CW	Peds CCW	eds Combin	Peds CW	Peds CCW	eds Combin	Peds CW	Peds CCW	eds Combin
7:00 AM	0	1		0	0		0	0		0	1	
7:15 AM	0	0		0	0		0	0		0	1	
7:30 AM	2	0		1	0		1	0		1	0	
7:45 AM	0	2		0	0		0	0		0	2	
8:00 AM	0	0		0	0		0	0		0	0	
8:15 AM	0	0		0	0		0	0		0	0	
8:30 AM	5	0		0	0		0	2		0	0	
8:45 AM	3	1		0	0		1	0		0	0	
9:00 AM	0	0		0	0		0	0		0	0	
9:15 AM	1	0		0	0		0	0		1	0	
9:30 AM	0	1		0	0		1	1		0	1	
9:45 AM	0	0		0	0		0	0		0	0	
10:00 AM	3	1		0	0		0	0		0	1	
10:15 AM	0	0		0	0		0	0		0	0	
10:30 AM	0	1		0	0		0	0		0	1	
10:45 AM	0	3		0	0		0	1		0	3	
11:00 AM	0	2		0	1		0	0		0	2	
11:15 AM	0	1		0	0		0	0		0	1	
11:30 AM	0	0		0	0		0	0		0	0	
11:45 AM	0	1		0	0		1	0		0	0	
12:00 PM	1	0		0	0		0	0		1	0	
12:15 PM	2	0		0	0		0	1		0	0	
12:30 PM	0	0		0	0		0	0		0	0	
12:45 PM	0	0		0	0		0	1		0	0	
1:00 PM	1	0		0	0		1	0		1	0	
1:15 PM	0	0		0	0		0	0		0	0	
1:30 PM	1	1		0	0		1	0		0	0	
1:45 PM	0	5		0	0		0	1		0	0	
2:00 PM	0	1		0	0		0	0		0	1	
2:15 PM	2	0		0	0		0	0		2	0	
2:30 PM	0	0		0	0		0	0		0	0	
2:45 PM	0	0		0	0		0	0		0	0	
3:00 PM	0	0		0	0		0	0		0	0	
3:15 PM	0	0		0	0		0	0		0	0	
3:30 PM	0	0		0	0		0	0		0	0	
3:45 PM	0	9		0	0		0	0		0	4	
4:00 PM	0	0		0	0		0	0		1	1	
4:15 PM	0	0		0	0		0	0		0	0	
4:30 PM	2	0		0	0		0	0		0	0	
4:45 PM	0	0		0	0		0	0		0	0	
5:00 PM	0	0		0	0		0	0		0	0	
5:15 PM	0	1		0	0		0	0		0	0	
5:30 PM	1	0		0	0		0	0		0	0	
5:45 PM	0	0		0	0		0	0		0	0	
6:00 PM	4	0		0	0		0	0		2	2	
6:15 PM	0	0		0	0		0	0		0	1	
6:30 PM	0	0		0	0		0	2		0	0	
6:45 PM	0	1		0	0		0	1		0	0	
Total	**28**	**32**	**0**	**1**	**1**	**0**	**6**	**10**	**0**	**9**	**22**	

Study Name Alton Dr at Chase Ave Weekend Day
Start Date 06/03/2017
Start Time 7:00 AM
Site Code 1-B
Project Miami Projects: 03-AltonChase Bike Plan

Type Road
Classification Totals

	Alton Rd Southbound				Chase Ave Westbound				Alton Rd Northbound				Chase Ave Eastbound			
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn
7:00 AM	0	163	0	0	5	0	1	0	1	96	0	0	1	0	5	0
7:15 AM	0	217	1	0	5	1	2	0	0	119	0	0	1	1	2	0
7:30 AM	0	236	0	0	12	0	0	0	1	94	0	0	0	0	6	0
7:45 AM	0	246	0	0	10	0	4	0	4	122	0	0	0	1	4	0
8:00 AM	0	262	0	0	2	0	1	0	1	111	0	0	0	0	5	0
8:15 AM	0	237	0	0	16	0	4	0	5	136	0	0	0	3	4	0
8:30 AM	0	257	0	0	10	0	3	0	0	133	0	0	0	0	5	0
8:45 AM	0	299	0	0	10	0	3	0	4	121	0	0	0	1	4	0
9:00 AM	0	268	0	0	12	0	8	0	2	154	0	0	1	1	10	0
9:15 AM	2	279	0	1	14	0	4	0	3	152	0	0	0	6	13	0
9:30 AM	0	298	0	0	21	0	5	0	4	174	0	0	0	2	14	0
9:45 AM	1	355	2	0	15	0	7	0	7	204	0	0	1	3	10	0
10:00 AM	0	305	0	0	16	0	3	0	5	196	0	0	0	0	14	0
10:15 AM	2	282	0	0	19	0	5	0	2	243	0	1	2	3	14	0
10:30 AM	1	288	0	0	15	0	3	0	9	266	0	0	0	4	7	0
10:45 AM	0	323	0	0	18	0	7	0	6	231	0	0	2	2	10	0
11:00 AM	0	271	0	0	25	0	2	0	3	280	0	0	2	1	9	0
11:15 AM	0	292	0	0	14	0	6	0	6	234	0	0	0	2	19	0
11:30 AM	0	335	1	0	28	0	5	0	6	301	0	0	1	0	12	0
11:45 AM	0	333	1	0	17	0	5	0	5	252	0	0	2	2	19	0
12:00 PM	2	306	0	1	14	0	4	0	4	284	0	0	0	1	14	0
12:15 PM	0	294	0	0	21	0	7	0	7	272	1	1	1	5	10	0
12:30 PM	0	330	0	0	21	0	5	0	5	292	0	0	1	3	15	0
12:45 PM	0	323	1	0	20	0	9	0	6	260	0	0	1	2	19	0
1:00 PM	1	312	1	0	11	0	5	0	4	251	0	0	1	2	13	0
1:15 PM	0	358	0	0	25	1	10	0	5	295	0	0	0	1	12	0
1:30 PM	0	336	0	0	16	0	6	0	4	272	0	0	0	5	17	0
1:45 PM	1	361	0	0	15	0	8	0	11	326	0	0	0	0	12	0
2:00 PM	0	307	1	0	9	0	8	0	8	297	0	0	1	5	18	0
2:15 PM	0	388	2	1	18	0	10	0	12	348	0	0	0	3	23	0
2:30 PM	0	386	0	0	13	0	3	0	5	319	0	1	1	4	7	0
2:45 PM	0	450	1	0	24	0	1	0	5	299	0	0	1	2	10	0
3:00 PM	0	360	0	0	15	0	5	0	3	339	0	0	0	3	13	0
3:15 PM	0	394	1	0	26	0	1	0	11	341	0	0	2	1	13	0
3:30 PM	1	408	0	0	13	0	3	0	4	319	0	0	0	3	17	0
3:45 PM	1	349	0	0	21	1	4	0	8	311	0	0	2	2	12	0
4:00 PM	0	352	0	0	24	0	4	0	10	311	0	0	1	5	16	0
4:15 PM	0	363	1	0	21	0	8	0	4	347	0	0	0	2	12	0
4:30 PM	0	346	0	1	24	0	4	0	5	287	0	0	2	1	7	0
4:45 PM	0	381	0	0	20	0	9	0	9	325	0	0	0	5	12	0
5:00 PM	0	351	0	0	24	0	4	0	6	341	0	0	1	3	8	0
5:15 PM	0	389	0	0	16	0	3	0	5	345	0	0	1	0	10	0
5:30 PM	0	394	0	0	20	0	2	0	3	322	0	0	1	1	10	0
5:45 PM	0	390	1	0	14	0	3	0	3	325	0	0	0	1	13	0
6:00 PM	0	383	0	0	26	0	5	0	6	287	0	0	1	3	13	0
6:15 PM	1	378	0	0	12	0	5	0	2	292	0	0	0	3	11	0
6:30 PM	0	359	0	0	11	0	4	1	6	316	0	0	2	0	12	0
6:45 PM	0	372	0	1	14	0	7	0	4	260	0	0	1	4	9	0
Total	**13**	**15666**	**14**	**5**	**792**	**3**	**225**	**1**	**239**	**12202**	**1**	**3**	**34**	**102**	**544**	**0**

6/1/2017 - Summary of Peak Hour TMCs

Leg	Alton Rd					Chase Ave					Alton Rd					Chase Ave					
Direction	Southbound					Westbound					**Northbound**					Eastbound					
Start Time	Right	Thru	Left	U-Turn	**App Total**	Right	Thru	Left	U-Turn	**App Total**	Right	Thru	Left	U-Turn	**App Total**	Right	Thru	Left	U-Turn	**App Total**	**Int Total**
2017-06-01 10:30:00	0	470	0	0	**470**	26	0	13	0	**39**	13	285	0	0	**298**	1	2	18	0	**21**	**828**
2017-06-01 10:45:00	0	413	0	1	**414**	15	0	11	0	**26**	11	330	0	0	**341**	0	9	27	0	**36**	**817**
2017-06-01 11:00:00	0	405	0	0	**405**	25	2	10	0	**37**	9	327	1	0	**337**	1	3	17	0	**21**	**800**
2017-06-01 11:15:00	1	403	0	0	**404**	22	0	11	0	**33**	10	294	0	0	**304**	3	8	21	0	**32**	**773**
Grand Total	1	1691	0	1	**1693**	88	2	45	0	**135**	43	1236	1	0	**1280**	5	22	83	0	**110**	**3218**

Leg	Alton Rd					Chase Ave					Alton Rd					Chase Ave					
Direction	Southbound					Westbound					Northbound					Eastbound					
Start Time	Right	Thru	Left	U-Turn	**App Total**	Right	Thru	Left	U-Turn	**App Total**	Right	Thru	Left	U-Turn	**App Total**	Right	Thru	Left	U-Turn	**App Total**	**Int Total**
2017-06-01 13:45:00	0	360	0	0	**360**	31	0	14	0	**45**	11	335	0	0	**346**	1	7	27	0	**35**	**786**
2017-06-01 14:00:00	1	376	0	0	**377**	31	0	18	0	**49**	16	362	0	0	**378**	1	3	27	0	**31**	**835**
2017-06-01 14:15:00	3	427	0	0	**430**	40	0	7	0	**47**	11	418	0	0	**429**	0	7	22	0	**29**	**935**
2017-06-01 14:30:00	1	437	1	0	**439**	54	0	8	0	**62**	16	460	0	0	**476**	0	3	14	0	**17**	**994**
Grand Total	5	1600	1	0	**1606**	156	0	47	0	**203**	54	1575	0	0	**1629**	2	20	90	0	**112**	**3550**

Leg	Alton Rd					Chase Ave					Alton Rd					Chase Ave					
Direction	Southbound					Westbound					Northbound					Eastbound					
Start Time	Right	Thru	Left	U-Turn	**App Total**	Right	Thru	Left	U-Turn	**App Total**	Right	Thru	Left	U-Turn	**App Total**	Right	Thru	Left	U-Turn	**App Total**	**Int Total**
2017-06-01 15:00:00	0	363	1	0	**364**	48	0	10	0	**58**	12	525	0	0	**537**	1	3	22	0	**26**	**985**
2017-06-01 15:15:00	0	390	0	0	**390**	56	0	37	0	**93**	12	524	0	0	**536**	0	4	28	0	**32**	**1051**
2017-06-01 15:30:00	0	384	0	0	**384**	61	0	9	0	**70**	5	478	0	0	**483**	2	4	31	0	**37**	**974**
2017-06-01 15:45:00	0	363	0	0	**363**	29	0	16	0	**45**	16	489	0	0	**505**	1	2	35	0	**38**	**951**
Grand Total	0	1500	1	0	**1501**	194	0	72	0	**266**	45	2016	0	0	**2061**	4	13	116	0	**133**	**3961**

6/3/2017 - Summary of Peak Hour TMCs

Leg	Alton Rd					Chase Ave					Alton Rd					Chase Ave					
Direction	Southbound					Westbound					Northbound					Eastbound					
Start Time	Right	Thru	Left	U-Turn	**App Total**	Right	Thru	Left	U-Turn	**App Total**	Right	Thru	Left	U-Turn	**App Total**	Right	Thru	Left	U-Turn	**App Total**	**Int Total**
2017-06-03 10:45:00	0	323	0	0	**323**	18	0	7	0	**25**	6	231	0	0	**237**	2	2	10	0	**14**	**599**
2017-06-03 11:00:00	0	271	0	0	**271**	25	0	2	0	**27**	3	280	0	0	**283**	2	1	9	0	**12**	**593**
2017-06-03 11:15:00	0	292	0	0	**292**	14	0	6	0	**20**	6	234	0	0	**240**	0	2	19	0	**21**	**573**
2017-06-03 11:30:00	0	335	1	0	**336**	28	0	5	0	**33**	6	301	0	0	**307**	1	0	12	0	**13**	**689**
Grand Total	0	1221	1	0	**1222**	85	0	20	0	**105**	21	1046	0	0	**1067**	5	5	50	0	**60**	**2454**

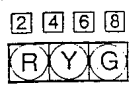
Leg	Alton Rd					Chase Ave					Alton Rd					Chase Ave					
Direction	Southbound					Westbound					Northbound					Eastbound					
Start Time	Right	Thru	Left	U-Turn	**App Total**	Right	Thru	Left	U-Turn	**App Total**	Right	Thru	Left	U-Turn	**App Total**	Right	Thru	Left	U-Turn	**App Total**	**Int Total**
2017-06-03 13:45:00	1	361	0	0	**362**	15	0	8	0	**23**	11	326	0	0	**337**	0	0	12	0	**12**	**734**
2017-06-03 14:00:00	0	307	1	0	**308**	9	0	8	0	**17**	8	297	0	0	**305**	1	5	18	0	**24**	**654**
2017-06-03 14:15:00	0	388	2	1	**391**	18	0	10	0	**28**	12	348	0	0	**360**	0	3	23	0	**26**	**805**
2017-06-03 14:30:00	0	386	0	0	**386**	13	0	3	0	**16**	5	319	0	1	**325**	1	4	7	0	**12**	**739**
Grand Total	1	1442	3	1	**1447**	55	0	29	0	**84**	36	1290	0	1	**1327**	2	12	60	0	**74**	**2932**

Leg	Alton Rd					Chase Ave					Alton Rd					Chase Ave					
Direction	Southbound					Westbound					Northbound					Eastbound					
Start Time	Right	Thru	Left	U-Turn	**App Total**	Right	Thru	Left	U-Turn	**App Total**	Right	Thru	Left	U-Turn	**App Total**	Right	Thru	Left	U-Turn	**App Total**	**Int Total**
2017-06-03 14:45:00	0	450	1	0	**451**	24	0	1	0	**25**	5	299	0	0	**304**	1	2	10	0	**13**	**793**
2017-06-03 15:00:00	0	360	0	0	**360**	15	0	5	0	**20**	3	339	0	0	**342**	0	3	13	0	**16**	**738**
2017-06-03 15:15:00	0	394	1	0	**395**	26	0	1	0	**27**	11	341	0	0	**352**	2	1	13	0	**16**	**790**
2017-06-03 15:30:00	1	408	0	0	**409**	13	0	3	0	**16**	4	319	0	0	**323**	0	3	17	0	**20**	**768**
Grand Total	1	1612	2	0	**1615**	78	0	10	0	**88**	23	1298	0	0	**1321**	3	9	53	0	**65**	**3089**

APPENDIX B – AS-BUILTS AND SIGNAL TIMING SHEETS

STATE PROJ. NO.	SHEET NO.
87060-3569	107

SIGNAL HEAD DETAILS



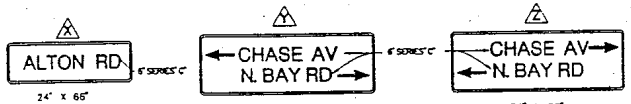
3-SECT., 1-WAY
8 AS.
650-1-131

1-SECT., 1-WAY
8 AS.
653-171

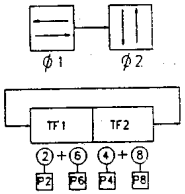
9" X 12"
(4 REQ'D)
665-11

NOTE: SIGNAL HEADS 2,4,6,8, TO HAVE TUNNEL VISORS, 24 REQ'D 659-106

STREET NAME SIGNS



SIGNAL OPERATION



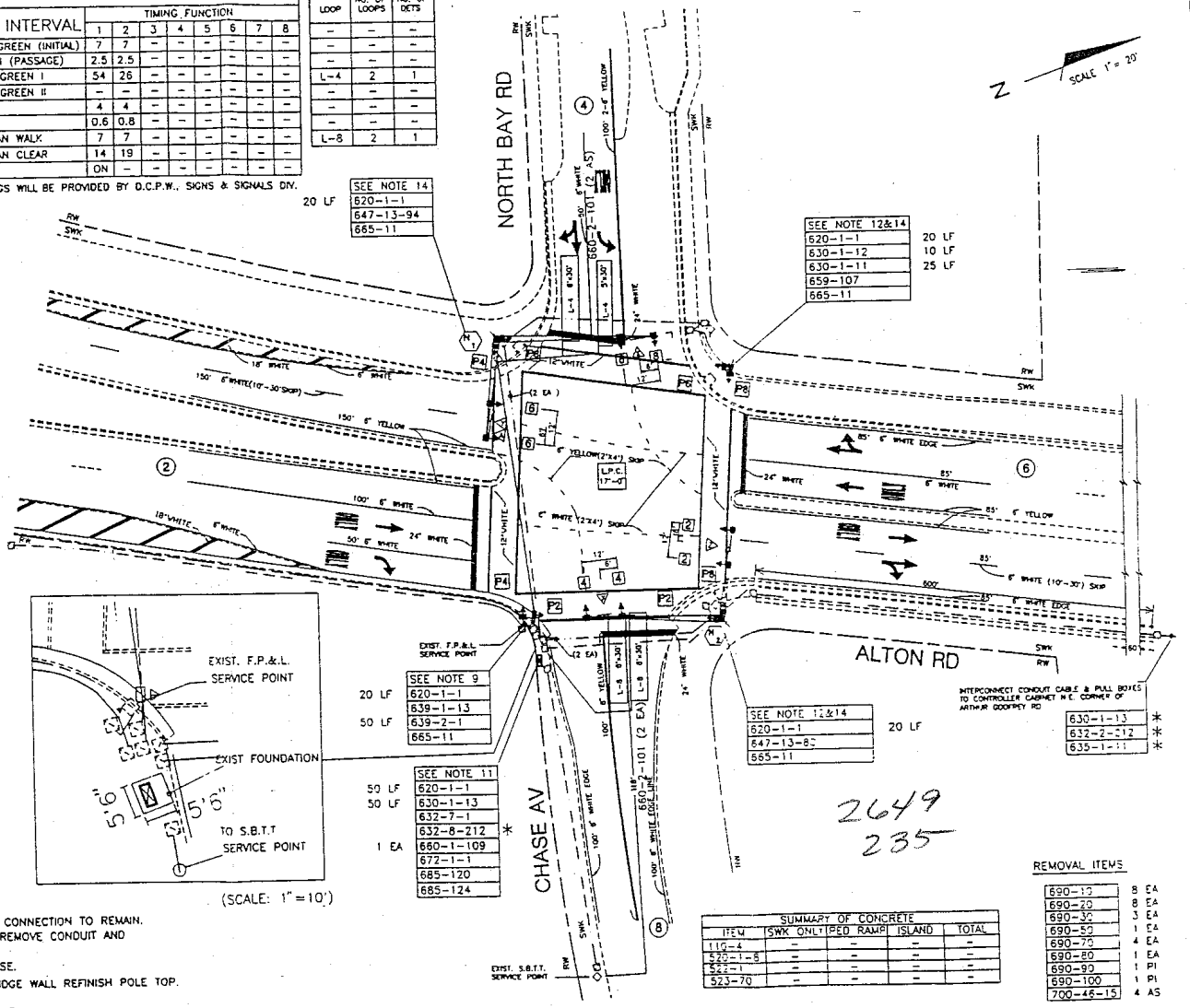
SUMMARY OF PAV. MARKINGS		
ITEM NO.	UNIT	TOTAL
(1) 706-1-12	EA	50
(2) 706-1-12	EA	40
711-2	LF	70
711-3	EA	1
711-4	EA	1
711-5 Y	LF	40
711-5	LF	44
711-6-61 Y	LF	760
711-6-61	LF	1214
711-6-81	LF	-
711-6-121	LF	-
711-6-181 Y	LF	-
711-6-181	LF	-
711-6-241	LF	-
711-7	SF	-

ALL PAVEMENT MARKINGS, MESSAGES AND ARROWS SHALL BE THERMOPLASTIC. REFER TO STANDARDS INDEX 17352.
1 of 2 AND 2 of 2.
ALL PAVEMENT MARKINGS SHALL BE WHITE, UNLESS OTHERWISE INDICATED.
(1) - BI-DIRECTIONAL AMBER/AMBER
(2) - MONO-DIRECTIONAL COLORLESS

CONTROLLER TIMING								
TIMING INTERVAL	TIMING FUNCTION							
	1	2	3	4	5	6	7	8
MINIMUM GREEN (INITIAL)	7	7	-	-	-	-	-	-
EXTENSION (PASSAGE)	2.5	2.5	-	-	-	-	-	-
MAXIMUM GREEN I	54	26	-	-	-	-	-	-
MAXIMUM GREEN II	-	-	-	-	-	-	-	-
YELLOW	4	4	-	-	-	-	-	-
ALL RED	0.6	0.8	-	-	-	-	-	-
PEDESTRIAN WALK	7	7	-	-	-	-	-	-
PEDESTRIAN CLEAR	14	19	-	-	-	-	-	-
RECALL	ON	-	-	-	-	-	-	-

FINAL TIMINGS WILL BE PROVIDED BY D.C.P.W., SIGNS & SIGNALS DIV.

DETECTORS FOR LOOPS		
LOOP	NO. OF LOOPS	NO. OF DETS
-	-	-
-	-	-
-	-	-
L-4	2	1
-	-	-
-	-	-
-	-	-
L-8	2	1



SUMMARY OF CONCRETE				
ITEM	SWK ONLY	PED RAMP	ISLAND	TOTAL
110-4	-	-	-	-
520-1-8	-	-	-	-
522-1	-	-	-	-
523-70	-	-	-	-

REMOVAL ITEMS	
690-10	8 EA
690-20	8 EA
690-30	3 EA
690-50	1 EA
690-70	4 EA
690-80	1 EA
690-90	1 PI
690-100	1 PI
700-46-15	4 AS

NOTES

1.- MAJOR STREET : ALTON RD.
MINOR STREET : N.BAY RD / CHASE AV.
2 - SIGNAL OPERATING PLAN NO 1 AS PER F.D.O.T. INDEX 17870.
3.- CONTROLLER MICROPROCESSOR MODEL 170 TYPE, ITEM NUMBER 672-1-1, TO INCLUDE CABINET. WHEN NO CONFLICT EXISTS WITH THE ADA GUIDELINES, THE CABINET SHALL BE INSTALLED WITH TELCO DOOR FACING THE ADJACENT ROADWAY ON EXISTING FOUNDATION.
4.- FLASHING OPERATION: ALTON RD, YELLOW.
N. BAY RD / CHASE AV, RED.
5.- THE DEMAND WATTAGE FOR THIS INTERSECTION IS 1265 WATTS.
6.- LOOP DETECTOR AMPLIFIER CHANNELS SHALL NOT HAVE MORE THAN TWO LOOPS ATTACHED.
7.- SOUTHERN BELL SERVICE POINT PER MR. BOB JONES PHONE 795-1435.
8.- F.P.&L SERVICE POINT PER MR. TOM HOOGDON PHONE 347-7872.
9.- REMOVE EXISTING FP&L SERVICE WIRE AND INSTALL NEW SERVICE CONNECTION. SBT&T SERVICE AND CONNECTION TO REMAIN.
10.- CONTRACTOR TO USE EXISTING PULL BOXES AND CONDUIT AS REQUIRED , OTHERWISE ABANDON OR REMOVE CONDUIT AND PULL BOXES IN CONFLICT WITH DESIGN.
11.- CONTRACTOR TO REMOVE EXISTING CABINET AND INSTALL NEW CONTROLLER CABINET ON EXISTING BASE.
12.- EXISTING CONCRET POLES ON N.E. AND N.W. CORNER TO BE CUT FLUSH WITH THE TOP OF THE BRIDGE WALL REFINISH POLE TOP.
14.- FOR INSTALLATION OF PEDESTRIAN SIGNAL ON N.W. CORNER SEE DETAIL ON SHEET NO. XX.
15.- MAST ARM POLE (M1) SHALL BE 20'-0" TYPE III SEE MAST ARM DETAIL SHEET FOR A 1'-0" BUILD UP SECTION. MAST ARM POLE (M2) SHALL BE 20'-0" TYPE III AND INSTALL BEHIND BRIDGE WALL. SEE MAST ARM DETAIL SHEET NO 119.
15.- THERE WILL BE NO INTERCONNECT CONDUIT & CABLE RUNNING FROM MICHIGAN AV. EXISTING S.B.T.& T. WILL BE USED FOR COMMUNICATIONS.

*NOT CONSIDERED PART OF BID:
PROPOSED INTERCONNECT CABLE,CONDUIT & PULL BOXES BETWEEN INTERSECTIONS WILL BE INSTALLED UNDER SEPARATE CONTRACT.

ALTON RD & CHASE AV / NORTH BAY RD

ID No. 2649
CAT. No. II-D

INT 87

DATE	BY	DESCRIPTION	BY	DESCRIPTION	DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

	NAME	DATE		NAME	DATE
DESIGNED BY	D.B.	9/92	DRAWN BY	D.R.	10/92
CHECKED BY	F.R.A.	9/92	CHECKED BY	D.B.	10/92

SUPERVISED BY: F.R.A.

FLORIDA DEPARTMENT OF TRANSPORTATION
APPROVED BY: FRANK R. ALEMAN
DATE: 11/92

R. ALEMAN & ASSOCIATES, INC.

SIGNALIZATION PLAN

Sect 235 ; T7 ; P2

TOD Schedule Report

for 2649: Alton Rd&Chase Av&N Bay Rd

Print Date: 4/19/2019

Print Time: 7:35 AM

Asset	Intersection	TOD Schedule	Op Mode	Plan #	Cycle	Offset	TOD Setting	Active PhaseBank	Active Maximum
2649	Alton Rd&Chase Av&N Bay Rd	DOW-6	TOD	[09] MID-AFT./AFTNOO	120	0	N/A	1	Max 2

Splits

PH 1	PH 2	PH 3	PH 4	PH 5	PH 6	PH 7	PH 8
-	NBT	-	EBT	-	SBT	-	WBT
0	73	0	34	0	73	0	34

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 - 0	0 - 0 - 0	0	0
2 NBT	7 - 7 - 7	20 - 20 - 20	7 - 7 - 7	1 - 1 - 1	35 - 35 - 35	0 - 35 - 35	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 EBT	0 - 0 - 0	0 - 0 - 0	7 - 7 - 7	2.5 - 2.5 - 2.5	12 - 12 - 15	34 - 12 - 25	4	2.8
5 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
6 SBT	7 - 7 - 7	20 - 20 - 20	7 - 7 - 7	1 - 1 - 1	35 - 35 - 35	0 - 35 - 35	4	2.4
7 -	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0 - 0 - 0	0	0
8 WBT	4 - 4 - 4	29 - 29 - 29	7 - 7 - 7	2.5 - 2.5 - 2.5	12 - 12 - 15	34 - 12 - 25	4	2.8

Last In Service Date: unknown

Permitted Phases

	12345678
Default	-2-4-6-8
External Permit 0	-2-4-6-8
External Permit 1	-2-4-6-8
External Permit 2	-2-4-6-8

TOD Schedule Report

for 2649: Alton Rd&Chase Av&N Bay Rd

Print Date: 4/19/2019

Print Time: 7:35 AM

Current TOD Schedule	Plan	Cycle	Green Time 1 -	2 NBT	3 -	4 EBT	5 -	6 SBT	7 -	8 WBT	Ring Offset	Offset
	Free											
0500	2	90	0	43	0	34	0	43	0	34	0	0
0545	3	100	0	53	0	34	0	53	0	34	0	0
0630	9	120	0	73	0	34	0	73	0	34	0	0
1900	2	90	0	43	0	34	0	43	0	34	0	0
	1	90	0	43	0	34	0	43	0	34	0	0
	4	90	0	43	0	34	0	43	0	34	0	0
	5	90	0	43	0	34	0	43	0	34	0	0
	6	90	0	43	0	34	0	43	0	34	0	0
	10	90	0	43	0	34	0	43	0	34	0	0
	21	90	0	43	0	34	0	43	0	34	0	0
	26	180	0	133	0	34	0	133	0	34	0	0

Local TOD Schedule

Time	Plan	DOW
0000	Free	Su M T W Th F S
0500	2	M T W Th F
0545	3	M T W Th F
0600	2	Su S
0630	9	M T W Th F
0800	9	Su S
1900	2	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
0000	TOD LOCAL MULTIFU	----4---	SuM T W ThF S
0500	TOD LOCAL MULTIFU	--------	SuM T W ThF S

Local Time of Day Function

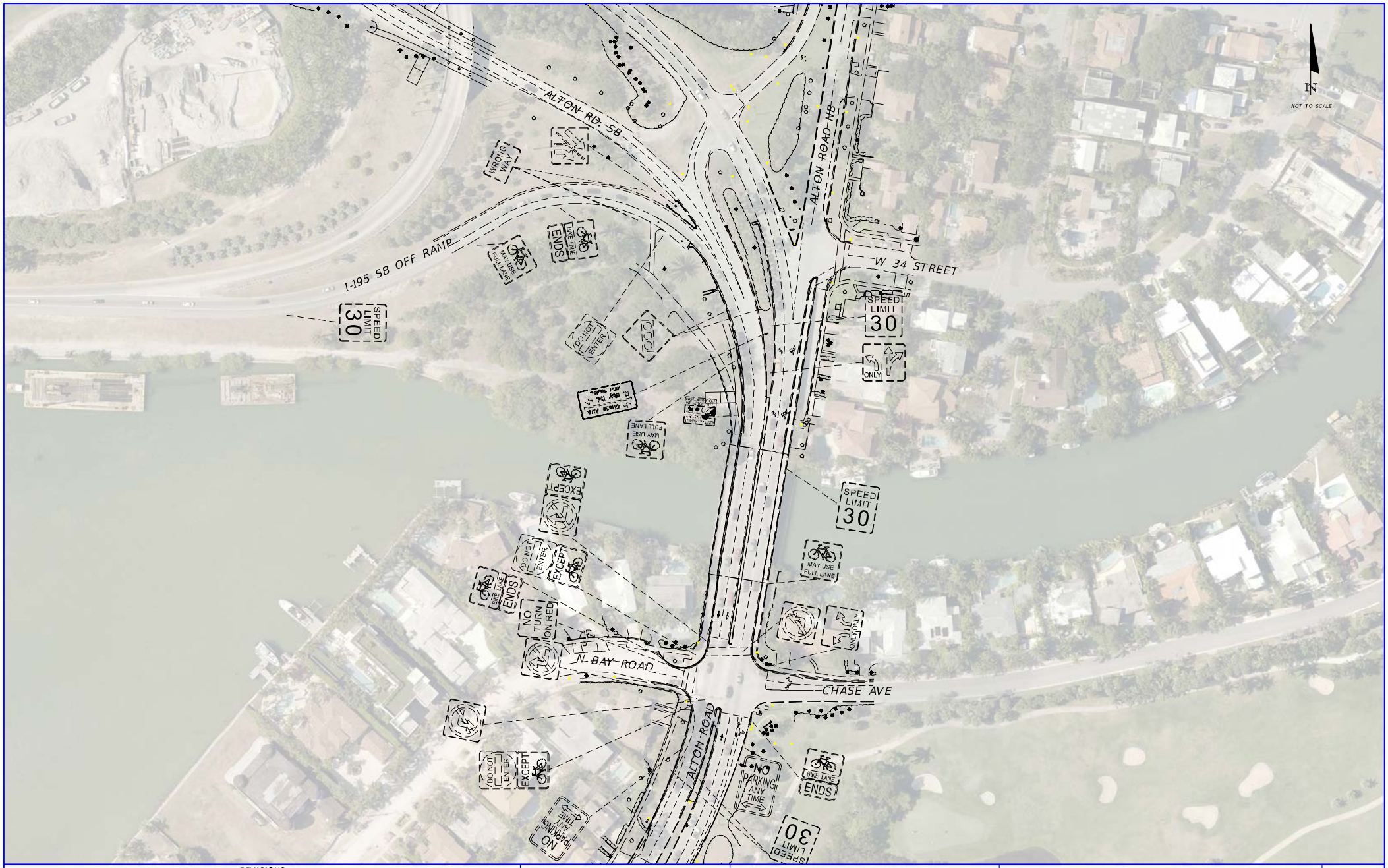
Time	Function	Settings *	Day of Week
0000	TOD OUTPUTS	--------	SuM T W ThF S
0000	TOD OUTPUTS	--------	S
0000	TOD LOCAL MULTIFUNCT	----4---	SuM T W ThF S
0500	TOD LOCAL MULTIFUNCT	--------	SuM T W ThF S
0815	PED RECALL	8-------	S
0830	PED RECALL	--------	S
0915	PED RECALL	8-------	S
0930	PED RECALL	--------	S
1120	PED RECALL	8-------	S
1135	PED RECALL	--------	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

APPENDIX C – EXISTING AND PROPOSED CONDITION SKETCHES



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR-907	DADE	N/A

EXISTING CONDITION DIAGRAM

SHEET NO.

3/30/2018 1:33:24 PM R:\Transportation\Boca_Traffic_Projects\Traffic\District 6\Alton Road and Chase Ave\E

NOT TO SCALE

PROP. TYPE F CURB & GUTTER

PROP. GUARDRAIL

PROP. TYPE F CURB & GUTTER

PROP. 2' TRAFFIC SEPARATOR

SPEED LIMIT 30

SPEED LIMIT 30

SPEED LIMIT 30

SPEED LIMIT 30

WRONG WAY

ONE WAY

BIKE LANE ENDS

MAY USE FULL LANE

DO NOT ENTER

EXCEPT

BIKE LANE ENDS

NO TURN ON RED

STOP HERE ON RED

EXCEPT BICYCLES

MAY USE FULL LANE

ONLY

NO PARKING ANY TIME

BIKE LANE ENDS

NO PARKING ANY TIME

ALTON ROAD

N BAY ROAD

4' 11' 11'

6" WHITE

PROP. 24" STOP BAR

6" YELLOW

PROP. 2' TRAFFIC SEPARATOR

6" YELLOW

EXIST. 24" STOP BAR

PROP. 24" STOP BAR EXTENSION

SHOULDER WIDENING

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR-907	DADE	N/A

ALTERNATIVE 1
CONCEPT PLAN
ALTON RD AND CHASE AVE

SHEET NO.

11/8/2018 11:52:53 AM R:\Transportation\Boca _Traffic Projects\Traffic\District 6\Alton Road and Chase Ave\P

PROP. OFF RAMP CONNECTION

PROP. 24" STOP BAR

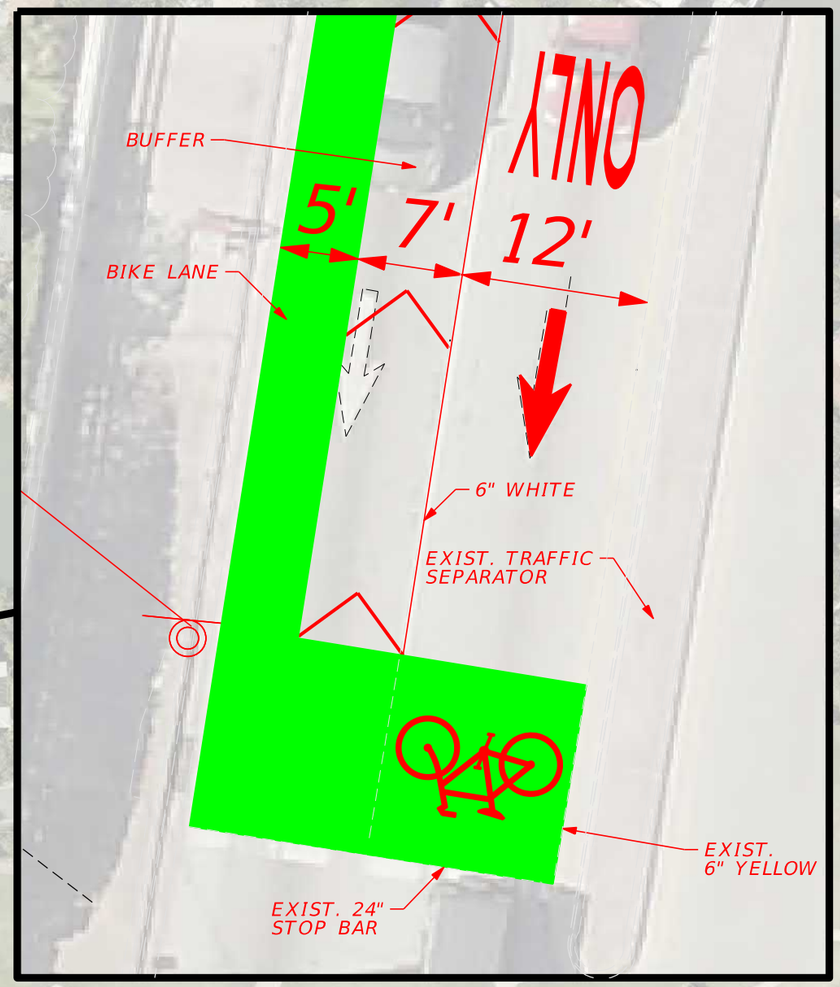
5' MIN. BIKE LANE

6" WHITE

18" WHITE

5' BUFFERED BIKE LANE

NOT TO SCALE



EXISTING PAVEMENT REMOVAL

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

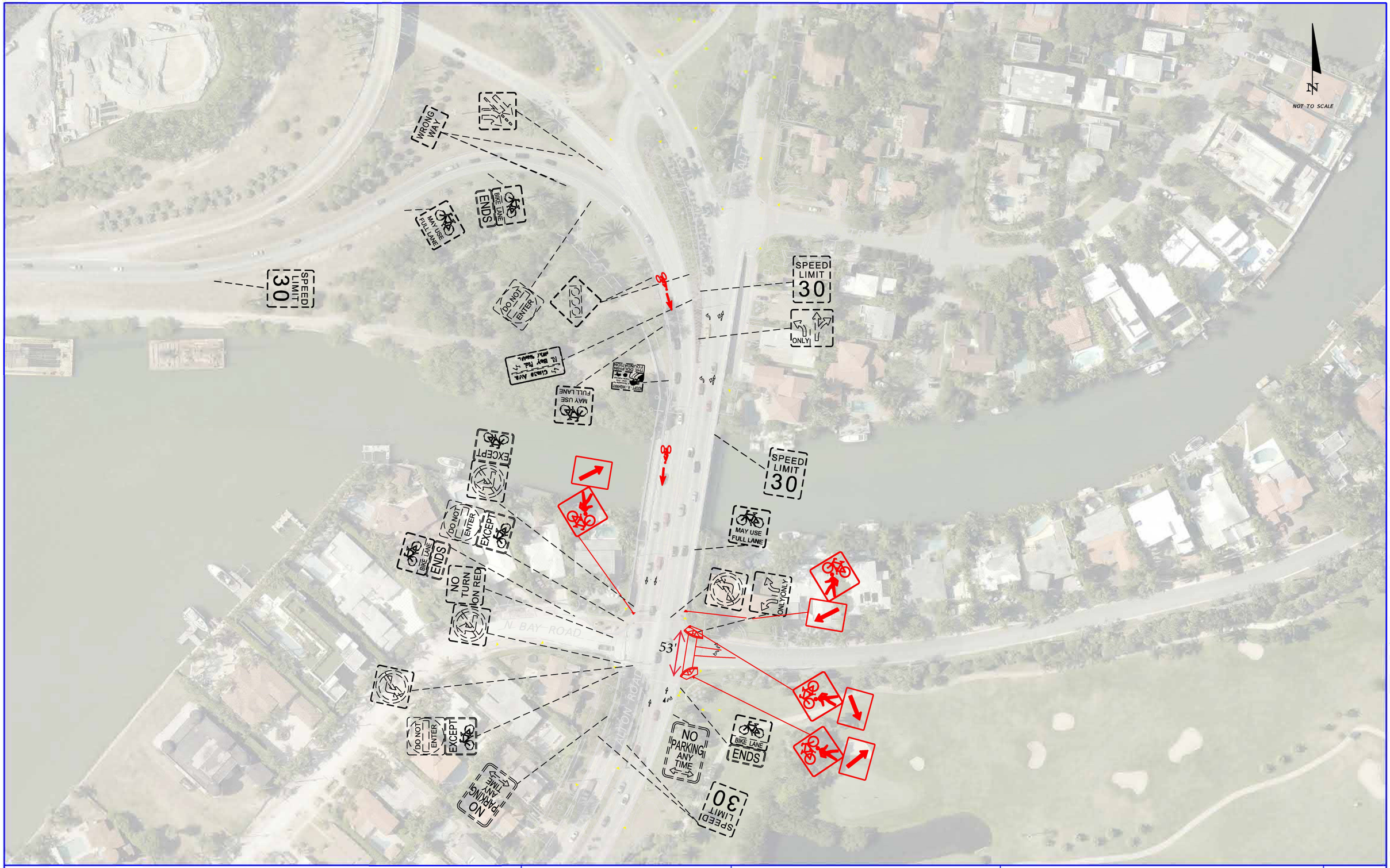
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR-907	DADE	N/A

ALTERNATIVE 2
CONCEPT PLAN
ALTON RD AND CHASE AVE

SHEET NO.

11/8/2018 11:53:48 AM R:\Transportation\Boca _Traffic Projects\Traffic\District 6\Alton Road and Chase Ave\P



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR-907	DADE	N/A

ALTERNATIVE 3
CONCEPT PLAN
ALTON RD AND CHASE AVE

SHEET NO.

11/8/2018 11:53:56 AM R:\Transportation\Boca _Traffic Projects\Traffic\District 6\Alton Road and Chase Ave\P

NOT TO SCALE

PROP. TYPE F CURB & GUTTER

PROP. GUARDRAIL

PROP. 2' TRAFFIC SEPARATOR

PROP. TYPE F CURB & GUTTER

6" WHITE

6" YELLOW

6" YELLOW

4' 11' 11'

EXIST. 24" STOP BAR

PROP. 2' TRAFFIC SEPARATOR

PROP. 24" STOP BAR EXTENSION

SHOULDER WIDENING

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR-907	DADE	N/A

ALTERNATIVE 4
CONCEPT PLAN
ALTON RD AND CHASE AVE

SHEET NO.

11/8/2018 11:54:05 AM R:\Transportation\Boca _Traffic Projects\Traffic\District 6\Alton Road and Chase Ave\P

ALTON RD. SB

I-195 SB OFF RAMP

ALTON RD. NB

W 34 STREET

N. BAY ROAD

CHASE AVE.

ALTON ROAD

NOT TO SCALE

REMOVE EXIST. ASPHALT BIKE RAMP

PROP. BIKE ROUTE

10' MIN. FROM NEAR FACE OF BULKHEAD WALL

REPAVE EXIST. ASPHALT PATH

EXIST. 10'± CONC. SWK.

EXIST. BRIDGE

CONSTRUCT TYPE F DROP CURB & GUTTER, LOWER CONC. SWK. TO MATCH DEPRESSED CURB.

PROP. 4' CONC. SEPARATOR

11' 11' 11' 11'

REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR-907	DADE	N/A

ALTERNATIVE 5
CONCEPT PLAN
ALTON RD AND CHASE AVE

SHEET NO.

11/8/2018 11:54:14 AM R:\Transportation\Boca _Traffic Projects\Traffic\District 6\Alton Road and Chase Ave\P

NOTES:

1. PROPOSE WIDENING ON THE WEST LEG AT INTERSECTION N. BAY ROAD & ALTON ROAD IN ORDER TO FIT PROPOSED BIKE LANE.

NOT TO SCALE

ALTON RD. SB

ALTON RD. NB

W 34 STREET

I-195 SB OFF RAMP

N. BAY ROAD

CHASE AVE.

ALTON RD.

REMOVE EXIST. ASPHALT BIKE RAMP

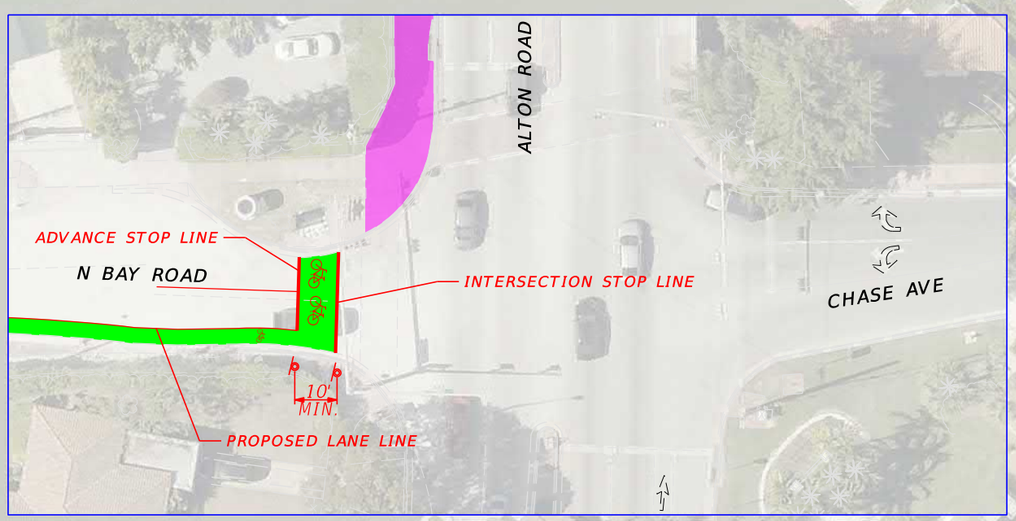
PROP. BIKE ROUTE

10' MIN. FROM NEAR FACE OF BULKHEAD WALL

REPAVE EXIST. ASPHALT PATH

EXIST. MULTI-USE PATH

PROPOSED BIKE ROUTE



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

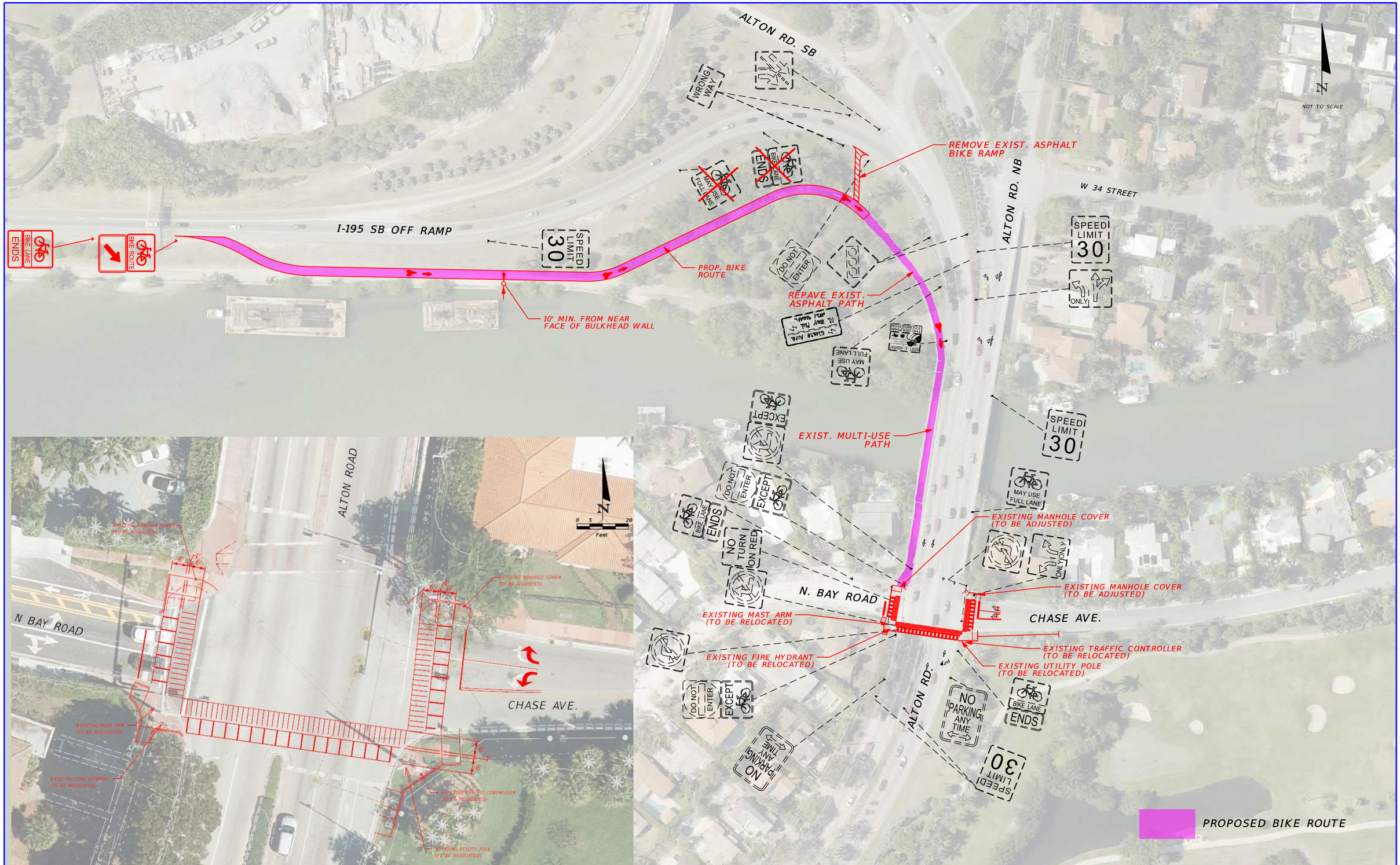
STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR-907	DADE	N/A

ALTERNATIVE 6
CONCEPT PLAN
ALTON RD AND CHASE AVE

SHEET NO.

11/8/2018 11:54:36 AM R:\Transportation\Boca _Traffic Projects\Traffic\District 6\Alton Road and Chase Ave\P



REVISIONS			
DATE	DESCRIPTION	DATE	DESCRIPTION

STATE OF FLORIDA
DEPARTMENT OF TRANSPORTATION

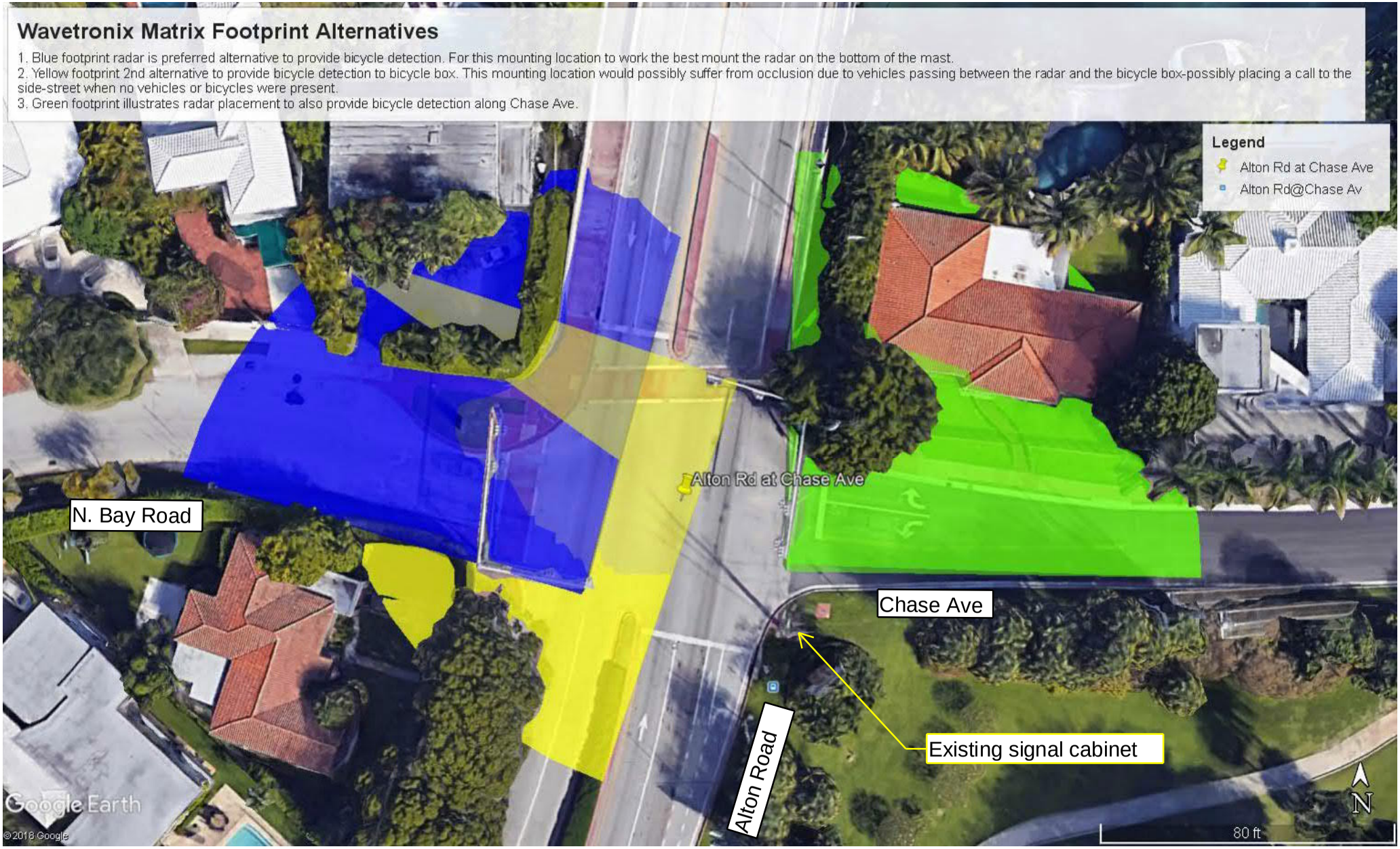
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
SR-907	DADE	N/A

ALTERNATIVE 7
CONCEPT PLAN
ALTON RD AND CHASE AVE

SHEET NO.

11/8/2018 11:54:44 AM R:\Transportation\Boca _Traffic Projects\Traffic\District 6\Alton Road and Chase Ave\P

APPENDIX D – WAVETRONIX MATRIX FOOTPRINTS


Wavetronix Matrix Footprint Alternatives
1. Blue footprint radar is preferred alternative to provide bicycle detection. For this mounting location to work the best mount the radar on the bottom of the mast.
2. Yellow footprint 2nd alternative to provide bicycle detection to bicycle box. This mounting location would possibly suffer from occlusion due to vehicles passing between the radar and the bicycle box-possibly placing a call to the side-street when no vehicles or bicycles were present.
3. Green footprint illustrates radar placement to also provide bicycle detection along Chase Ave.
Legend
Alton Rd at Chase Ave
Alton Rd@Chase Av
Alton Rd at Chase Ave
N. Bay Road
Chase Ave
Alton Road
Existing signal cabinet
Google Earth
©2018 Google
N
80 ft

APPENDIX E – SYNCHRO RESULTS

Lanes, Volumes, Timings
1:

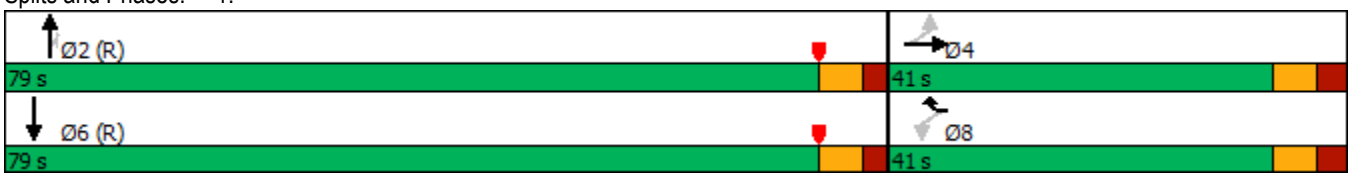
04/19/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	83	22	5	45	0	88	0	1236	43	0	1691	0
Future Volume (vph)	83	22	5	45	0	88	0	1236	43	0	1691	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		40	0		50	0		0
Storage Lanes	1		0	1		1	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.973				0.850			0.850			
Flt Protected	0.950			0.950								
Satd. Flow (prot)	1770	1812	0	1770	0	1583	0	3539	1583	0	3539	0
Flt Permitted	0.950			0.739								
Satd. Flow (perm)	1770	1812	0	1377	0	1583	0	3539	1583	0	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5				66			35			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		421			541			453			353	
Travel Time (s)		9.6			12.3			10.3			8.0	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	86	23	5	46	0	91	0	1274	44	0	1743	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	86	28	0	46	0	91	0	1274	44	0	1743	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			6	
Link Offset(ft)		-3			0			0			0	
Crosswalk Width(ft)		20			20			25			45	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1		1		2	1		2	
Detector Template	Left	Thru		Left		Right		Thru	Right		Thru	
Leading Detector (ft)	20	100		20		20		100	20		100	
Trailing Detector (ft)	0	0		0		0		0	0		0	
Detector 1 Position(ft)	0	0		0		0		0	0		0	
Detector 1 Size(ft)	20	6		20		20		6	20		6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Detector 1 Queue (s)	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Detector 1 Delay (s)	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA		Perm		Prot		NA	Perm		NA	
Protected Phases		4				8		2			6	
Permitted Phases	4			8		8			2			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8		8		2	2		6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0		7.0		7.0	7.0		7.0	
Minimum Split (s)	39.5	39.5		39.8		39.8		33.0	33.0		33.4	
Total Split (s)	41.0	41.0		41.0		41.0		79.0	79.0		79.0	
Total Split (%)	34.2%	34.2%		34.2%		34.2%		65.8%	65.8%		65.8%	
Maximum Green (s)	34.2	34.2		34.2		34.2		72.6	72.6		72.6	
Yellow Time (s)	4.0	4.0		4.0		4.0		4.0	4.0		4.0	
All-Red Time (s)	2.8	2.8		2.8		2.8		2.4	2.4		2.4	
Lost Time Adjust (s)	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Total Lost Time (s)	6.8	6.8		6.8		6.8		6.4	6.4		6.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	2.5		2.5		2.5		1.0	1.0		1.0	
Recall Mode	None	None		None		None		C-Max	C-Max		C-Max	
Walk Time (s)				4.0		4.0					7.0	
Flash Dont Walk (s)				29.0		29.0					20.0	
Pedestrian Calls (#/hr)				4		4					6	
Act Effct Green (s)	14.4	14.4		14.4		14.4		92.4	92.4		92.4	
Actuated g/C Ratio	0.12	0.12		0.12		0.12		0.77	0.77		0.77	
v/c Ratio	0.41	0.13		0.28		0.37		0.47	0.04		0.64	
Control Delay	51.6	37.4		48.3		19.4		7.0	2.8		9.4	
Queue Delay	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Total Delay	51.6	37.4		48.3		19.4		7.0	2.8		9.4	
LOS	D	D		D		B		A	A		A	
Approach Delay		48.1			29.1			6.8			9.4	
Approach LOS		D			C			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 119.6 (100%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.64			
Intersection Signal Delay: 10.5		Intersection LOS: B	
Intersection Capacity Utilization 69.0%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 1:



Lanes, Volumes, Timings
1:

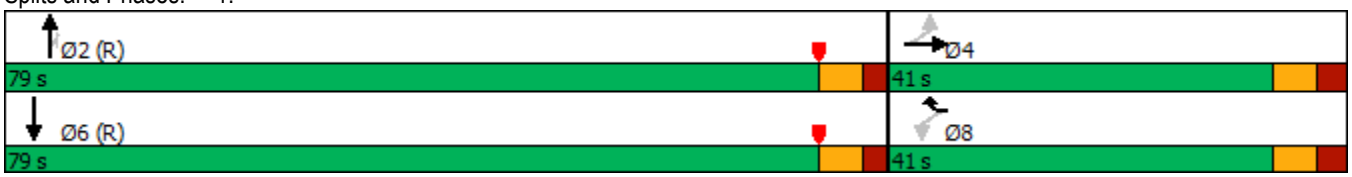
04/19/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	20	2	47	0	156	0	1575	54	0	1600	0
Future Volume (vph)	90	20	2	47	0	156	0	1575	54	0	1600	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		40	0		50	0		0
Storage Lanes	1		0	1		1	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.987				0.850			0.850			
Flt Protected	0.950			0.950								
Satd. Flow (prot)	1770	1839	0	1770	0	1583	0	3539	1583	0	3539	0
Flt Permitted	0.950			0.742								
Satd. Flow (perm)	1770	1839	0	1382	0	1583	0	3539	1583	0	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				31			35			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		421			541			453			353	
Travel Time (s)		9.6			12.3			10.3			8.0	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	101	22	2	53	0	175	0	1770	61	0	1798	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	101	24	0	53	0	175	0	1770	61	0	1798	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			6	
Link Offset(ft)		-3			0			0			0	
Crosswalk Width(ft)		20			20			25			45	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1		1		2	1		2	
Detector Template	Left	Thru		Left		Right		Thru	Right		Thru	
Leading Detector (ft)	20	100		20		20		100	20		100	
Trailing Detector (ft)	0	0		0		0		0	0		0	
Detector 1 Position(ft)	0	0		0		0		0	0		0	
Detector 1 Size(ft)	20	6		20		20		6	20		6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Detector 1 Queue (s)	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Detector 1 Delay (s)	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA		Perm		Prot		NA	Perm		NA	
Protected Phases		4				8		2			6	
Permitted Phases	4			8		8			2			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8		8		2	2		6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0		7.0		7.0	7.0		7.0	
Minimum Split (s)	39.5	39.5		39.8		39.8		33.0	33.0		33.4	
Total Split (s)	41.0	41.0		41.0		41.0		79.0	79.0		79.0	
Total Split (%)	34.2%	34.2%		34.2%		34.2%		65.8%	65.8%		65.8%	
Maximum Green (s)	34.2	34.2		34.2		34.2		72.6	72.6		72.6	
Yellow Time (s)	4.0	4.0		4.0		4.0		4.0	4.0		4.0	
All-Red Time (s)	2.8	2.8		2.8		2.8		2.4	2.4		2.4	
Lost Time Adjust (s)	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Total Lost Time (s)	6.8	6.8		6.8		6.8		6.4	6.4		6.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	2.5		2.5		2.5		1.0	1.0		1.0	
Recall Mode	None	None		None		None		C-Max	C-Max		C-Max	
Walk Time (s)				4.0		4.0					7.0	
Flash Dont Walk (s)				29.0		29.0					20.0	
Pedestrian Calls (#/hr)				9		9					4	
Act Effct Green (s)	18.0	18.0		18.0		18.0		88.8	88.8		88.8	
Actuated g/C Ratio	0.15	0.15		0.15		0.15		0.74	0.74		0.74	
v/c Ratio	0.38	0.09		0.26		0.67		0.68	0.05		0.69	
Control Delay	47.6	37.3		44.5		50.1		11.4	3.6		11.6	
Queue Delay	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Total Delay	47.6	37.3		44.5		50.1		11.4	3.6		11.6	
LOS	D	D		D		D		B	A		B	
Approach Delay		45.6			48.8			11.1			11.6	
Approach LOS		D			D			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 119.6 (100%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay: 14.6		Intersection LOS: B	
Intersection Capacity Utilization 75.7%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1:



Lanes, Volumes, Timings
1: 04/19/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	116	13	4	72	0	194	0	2016	45	0	1500	0
Future Volume (vph)	116	13	4	72	0	194	0	2016	45	0	1500	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		40	0		50	0		0
Storage Lanes	1		0	1		1	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.967				0.850			0.850			
Flt Protected	0.950			0.950								
Satd. Flow (prot)	1770	1801	0	1770	0	1583	0	3539	1583	0	3539	0
Flt Permitted	0.950			0.746								
Satd. Flow (perm)	1770	1801	0	1390	0	1583	0	3539	1583	0	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				31			35			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		421			541			453			353	
Travel Time (s)		9.6			12.3			10.3			8.0	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	123	14	4	77	0	206	0	2145	48	0	1596	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	123	18	0	77	0	206	0	2145	48	0	1596	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			6	
Link Offset(ft)		-3			0			0			0	
Crosswalk Width(ft)		20			20			25			45	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1		1		2	1		2	
Detector Template	Left	Thru		Left		Right		Thru	Right		Thru	
Leading Detector (ft)	20	100		20		20		100	20		100	
Trailing Detector (ft)	0	0		0		0		0	0		0	
Detector 1 Position(ft)	0	0		0		0		0	0		0	
Detector 1 Size(ft)	20	6		20		20		6	20		6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Detector 1 Queue (s)	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Detector 1 Delay (s)	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA		Perm		Prot		NA	Perm		NA	
Protected Phases		4				8		2			6	
Permitted Phases	4			8		8			2			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8		8		2	2		6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0		7.0		7.0	7.0		7.0	
Minimum Split (s)	39.5	39.5		39.8		39.8		33.0	33.0		33.4	
Total Split (s)	41.0	41.0		41.0		41.0		79.0	79.0		79.0	
Total Split (%)	34.2%	34.2%		34.2%		34.2%		65.8%	65.8%		65.8%	
Maximum Green (s)	34.2	34.2		34.2		34.2		72.6	72.6		72.6	
Yellow Time (s)	4.0	4.0		4.0		4.0		4.0	4.0		4.0	
All-Red Time (s)	2.8	2.8		2.8		2.8		2.4	2.4		2.4	
Lost Time Adjust (s)	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Total Lost Time (s)	6.8	6.8		6.8		6.8		6.4	6.4		6.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	2.5		2.5		2.5		1.0	1.0		1.0	
Recall Mode	None	None		None		None		C-Max	C-Max		C-Max	
Walk Time (s)				4.0		4.0					7.0	
Flash Dont Walk (s)				29.0		29.0					20.0	
Pedestrian Calls (#/hr)				4		4					1	
Act Effct Green (s)	19.8	19.8		19.8		19.8		87.0	87.0		87.0	
Actuated g/C Ratio	0.16	0.16		0.16		0.16		0.72	0.72		0.72	
v/c Ratio	0.42	0.06		0.34		0.72		0.84	0.04		0.62	
Control Delay	47.2	31.5		45.5		52.9		17.2	3.4		10.9	
Queue Delay	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Total Delay	47.2	31.5		45.5		52.9		17.2	3.4		10.9	
LOS	D	C		D		D		B	A		B	
Approach Delay		45.2			50.9			16.9			10.9	
Approach LOS		D			D			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 119.6 (100%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow			
Natural Cycle: 110			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 17.9		Intersection LOS: B	
Intersection Capacity Utilization 90.8%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 1:

Lanes, Volumes, Timings
1:

04/19/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	83	22	5	45	0	88	0	1236	43	0	1691	0
Future Volume (vph)	83	22	5	45	0	88	0	1236	43	0	1691	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	11	11	11
Storage Length (ft)	0		0	0		40	0		50	0		0
Storage Lanes	1		0	1		1	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.973				0.850			0.850			
Flt Protected	0.950			0.950								
Satd. Flow (prot)	1770	1812	0	1770	0	1583	0	3539	1583	0	3421	0
Flt Permitted	0.950			0.739								
Satd. Flow (perm)	1770	1812	0	1377	0	1583	0	3539	1583	0	3421	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5				66			35			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		421			541			453			353	
Travel Time (s)		9.6			12.3			10.3			8.0	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	86	23	5	46	0	91	0	1274	44	0	1743	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	86	28	0	46	0	91	0	1274	44	0	1743	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			6	
Link Offset(ft)		-3			0			0			0	
Crosswalk Width(ft)		20			20			25			45	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1		1		2	1		2	
Detector Template	Left	Thru		Left		Right		Thru	Right		Thru	
Leading Detector (ft)	20	100		20		20		100	20		100	
Trailing Detector (ft)	0	0		0		0		0	0		0	
Detector 1 Position(ft)	0	0		0		0		0	0		0	
Detector 1 Size(ft)	20	6		20		20		6	20		6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Detector 1 Queue (s)	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Detector 1 Delay (s)	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA		Perm		Prot		NA	Perm		NA	
Protected Phases		4				8		2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8			2			
Detector Phase	4	4		8		8		2	2		6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0		7.0		7.0	7.0		7.0	
Minimum Split (s)	39.5	39.5		39.8		39.8		33.0	33.0		33.4	
Total Split (s)	41.0	41.0		41.0		41.0		79.0	79.0		79.0	
Total Split (%)	34.2%	34.2%		34.2%		34.2%		65.8%	65.8%		65.8%	
Maximum Green (s)	34.2	34.2		34.2		34.2		72.6	72.6		72.6	
Yellow Time (s)	4.0	4.0		4.0		4.0		4.0	4.0		4.0	
All-Red Time (s)	2.8	2.8		2.8		2.8		2.4	2.4		2.4	
Lost Time Adjust (s)	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Total Lost Time (s)	6.8	6.8		6.8		6.8		6.4	6.4		6.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	2.5		2.5		2.5		1.0	1.0		1.0	
Recall Mode	None	None		None		None		C-Max	C-Max		C-Max	
Walk Time (s)				4.0		4.0					7.0	
Flash Dont Walk (s)				29.0		29.0					20.0	
Pedestrian Calls (#/hr)				4		4					6	
Act Effct Green (s)	14.4	14.4		14.4		14.4		92.4	92.4		92.4	
Actuated g/C Ratio	0.12	0.12		0.12		0.12		0.77	0.77		0.77	
v/c Ratio	0.41	0.13		0.28		0.37		0.47	0.04		0.66	
Control Delay	51.6	37.4		48.3		19.4		7.0	2.8		9.9	
Queue Delay	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Total Delay	51.6	37.4		48.3		19.4		7.0	2.8		9.9	
LOS	D	D		D		B		A	A		A	
Approach Delay		48.1			29.1			6.8			9.9	
Approach LOS		D			C			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 119.6 (100%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 10.8		Intersection LOS: B	
Intersection Capacity Utilization 69.0%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 1:

Lanes, Volumes, Timings
1:

04/19/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	20	2	47	0	156	0	1575	54	0	1600	0
Future Volume (vph)	90	20	2	47	0	156	0	1575	54	0	1600	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	11	11	11
Storage Length (ft)	0		0	0		40	0		50	0		0
Storage Lanes	1		0	1		1	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.987				0.850			0.850			
Flt Protected	0.950			0.950								
Satd. Flow (prot)	1770	1839	0	1770	0	1583	0	3539	1583	0	3421	0
Flt Permitted	0.950			0.742								
Satd. Flow (perm)	1770	1839	0	1382	0	1583	0	3539	1583	0	3421	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				31			35			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		421			541			453			353	
Travel Time (s)		9.6			12.3			10.3			8.0	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	101	22	2	53	0	175	0	1770	61	0	1798	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	101	24	0	53	0	175	0	1770	61	0	1798	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			6	
Link Offset(ft)		-3			0			0			0	
Crosswalk Width(ft)		20			20			25			45	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1		1		2	1		2	
Detector Template	Left	Thru		Left		Right		Thru	Right		Thru	
Leading Detector (ft)	20	100		20		20		100	20		100	
Trailing Detector (ft)	0	0		0		0		0	0		0	
Detector 1 Position(ft)	0	0		0		0		0	0		0	
Detector 1 Size(ft)	20	6		20		20		6	20		6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Detector 1 Queue (s)	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Detector 1 Delay (s)	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA		Perm		Prot		NA	Perm		NA	
Protected Phases		4				8		2			6	

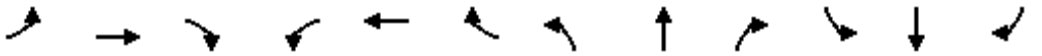
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8			2			
Detector Phase	4	4		8		8		2	2		6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0		7.0		7.0	7.0		7.0	
Minimum Split (s)	39.5	39.5		39.8		39.8		33.0	33.0		33.4	
Total Split (s)	41.0	41.0		41.0		41.0		79.0	79.0		79.0	
Total Split (%)	34.2%	34.2%		34.2%		34.2%		65.8%	65.8%		65.8%	
Maximum Green (s)	34.2	34.2		34.2		34.2		72.6	72.6		72.6	
Yellow Time (s)	4.0	4.0		4.0		4.0		4.0	4.0		4.0	
All-Red Time (s)	2.8	2.8		2.8		2.8		2.4	2.4		2.4	
Lost Time Adjust (s)	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Total Lost Time (s)	6.8	6.8		6.8		6.8		6.4	6.4		6.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	2.5		2.5		2.5		1.0	1.0		1.0	
Recall Mode	None	None		None		None		C-Max	C-Max		C-Max	
Walk Time (s)				4.0		4.0					7.0	
Flash Dont Walk (s)				29.0		29.0					20.0	
Pedestrian Calls (#/hr)				9		9					4	
Act Effct Green (s)	18.0	18.0		18.0		18.0		88.8	88.8		88.8	
Actuated g/C Ratio	0.15	0.15		0.15		0.15		0.74	0.74		0.74	
v/c Ratio	0.38	0.09		0.26		0.67		0.68	0.05		0.71	
Control Delay	47.6	37.3		44.5		50.1		11.4	3.6		12.3	
Queue Delay	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Total Delay	47.6	37.3		44.5		50.1		11.4	3.6		12.3	
LOS	D	D		D		D		B	A		B	
Approach Delay		45.6			48.8			11.1			12.3	
Approach LOS		D			D			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 119.6 (100%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.71			
Intersection Signal Delay: 14.9		Intersection LOS: B	
Intersection Capacity Utilization 75.7%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1:

Lanes, Volumes, Timings
1:

04/19/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	116	13	4	72	0	194	0	2016	45	0	1500	0
Future Volume (vph)	116	13	4	72	0	194	0	2016	45	0	1500	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	12	12	11	11	11
Storage Length (ft)	0		0	0		40	0		50	0		0
Storage Lanes	1		0	1		1	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.967				0.850			0.850			
Flt Protected	0.950			0.950								
Satd. Flow (prot)	1770	1801	0	1770	0	1583	0	3539	1583	0	3421	0
Flt Permitted	0.950			0.746								
Satd. Flow (perm)	1770	1801	0	1390	0	1583	0	3539	1583	0	3421	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				31			35			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		421			541			453			353	
Travel Time (s)		9.6			12.3			10.3			8.0	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	123	14	4	77	0	206	0	2145	48	0	1596	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	123	18	0	77	0	206	0	2145	48	0	1596	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			6	
Link Offset(ft)		-3			0			0			0	
Crosswalk Width(ft)		20			20			25			45	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.04	1.04	1.04
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1		1		2	1		2	
Detector Template	Left	Thru		Left		Right		Thru	Right		Thru	
Leading Detector (ft)	20	100		20		20		100	20		100	
Trailing Detector (ft)	0	0		0		0		0	0		0	
Detector 1 Position(ft)	0	0		0		0		0	0		0	
Detector 1 Size(ft)	20	6		20		20		6	20		6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Detector 1 Queue (s)	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Detector 1 Delay (s)	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA		Perm		Prot		NA	Perm		NA	
Protected Phases		4				8		2			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4			8		8			2			
Detector Phase	4	4		8		8		2	2		6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0		7.0		7.0	7.0		7.0	
Minimum Split (s)	39.5	39.5		39.8		39.8		33.0	33.0		33.4	
Total Split (s)	41.0	41.0		41.0		41.0		79.0	79.0		79.0	
Total Split (%)	34.2%	34.2%		34.2%		34.2%		65.8%	65.8%		65.8%	
Maximum Green (s)	34.2	34.2		34.2		34.2		72.6	72.6		72.6	
Yellow Time (s)	4.0	4.0		4.0		4.0		4.0	4.0		4.0	
All-Red Time (s)	2.8	2.8		2.8		2.8		2.4	2.4		2.4	
Lost Time Adjust (s)	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Total Lost Time (s)	6.8	6.8		6.8		6.8		6.4	6.4		6.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	2.5		2.5		2.5		1.0	1.0		1.0	
Recall Mode	None	None		None		None		C-Max	C-Max		C-Max	
Walk Time (s)				4.0		4.0					7.0	
Flash Dont Walk (s)				29.0		29.0					20.0	
Pedestrian Calls (#/hr)				4		4					1	
Act Effct Green (s)	19.8	19.8		19.8		19.8		87.0	87.0		87.0	
Actuated g/C Ratio	0.16	0.16		0.16		0.16		0.72	0.72		0.72	
v/c Ratio	0.42	0.06		0.34		0.72		0.84	0.04		0.64	
Control Delay	47.2	31.5		45.5		52.9		17.2	3.4		11.4	
Queue Delay	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Total Delay	47.2	31.5		45.5		52.9		17.2	3.4		11.4	
LOS	D	C		D		D		B	A		B	
Approach Delay		45.2			50.9			16.9			11.4	
Approach LOS		D			D			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 119.6 (100%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow			
Natural Cycle: 110			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 18.1		Intersection LOS: B	
Intersection Capacity Utilization 90.8%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 1:

Lanes, Volumes, Timings
1: 04/19/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	83	22	5	45	0	88	0	1236	43	0	1691	0
Future Volume (vph)	83	22	5	45	0	88	0	1236	43	0	1691	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		40	0		50	0		0
Storage Lanes	1		0	1		1	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frt		0.973				0.850			0.850			
Flt Protected	0.950			0.950								
Satd. Flow (prot)	1770	1812	0	1770	0	1583	0	3539	1583	0	1863	0
Flt Permitted	0.950			0.739								
Satd. Flow (perm)	1770	1812	0	1377	0	1583	0	3539	1583	0	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5				66			35			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		421			541			453			353	
Travel Time (s)		9.6			12.3			10.3			8.0	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	86	23	5	46	0	91	0	1274	44	0	1743	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	86	28	0	46	0	91	0	1274	44	0	1743	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			6	
Link Offset(ft)		-3			0			0			0	
Crosswalk Width(ft)		20			20			25			45	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1		1		2	1		2	
Detector Template	Left	Thru		Left		Right		Thru	Right		Thru	
Leading Detector (ft)	20	100		20		20		100	20		100	
Trailing Detector (ft)	0	0		0		0		0	0		0	
Detector 1 Position(ft)	0	0		0		0		0	0		0	
Detector 1 Size(ft)	20	6		20		20		6	20		6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Detector 1 Queue (s)	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Detector 1 Delay (s)	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA		Perm		Prot		NA	Perm		NA	
Protected Phases		4				8		2			6	
Permitted Phases	4			8		8			2			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8		8		2	2		6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0		7.0		7.0	7.0		7.0	
Minimum Split (s)	39.5	39.5		39.8		39.8		33.0	33.0		33.4	
Total Split (s)	41.0	41.0		41.0		41.0		79.0	79.0		79.0	
Total Split (%)	34.2%	34.2%		34.2%		34.2%		65.8%	65.8%		65.8%	
Maximum Green (s)	34.2	34.2		34.2		34.2		72.6	72.6		72.6	
Yellow Time (s)	4.0	4.0		4.0		4.0		4.0	4.0		4.0	
All-Red Time (s)	2.8	2.8		2.8		2.8		2.4	2.4		2.4	
Lost Time Adjust (s)	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Total Lost Time (s)	6.8	6.8		6.8		6.8		6.4	6.4		6.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	2.5		2.5		2.5		1.0	1.0		1.0	
Recall Mode	None	None		None		None		C-Max	C-Max		C-Max	
Walk Time (s)				4.0		4.0					7.0	
Flash Dont Walk (s)				29.0		29.0					20.0	
Pedestrian Calls (#/hr)				4		4					6	
Act Effct Green (s)	14.4	14.4		14.4		14.4		92.4	92.4		92.4	
Actuated g/C Ratio	0.12	0.12		0.12		0.12		0.77	0.77		0.77	
v/c Ratio	0.41	0.13		0.28		0.37		0.47	0.04		1.22	
Control Delay	51.6	37.4		48.3		19.4		7.0	2.8		121.8	
Queue Delay	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Total Delay	51.6	37.4		48.3		19.4		7.0	2.8		121.8	
LOS	D	D		D		B		A	A		F	
Approach Delay		48.1			29.1			6.8			121.8	
Approach LOS		D			C			A			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 119.6 (100%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.22			
Intersection Signal Delay: 69.7		Intersection LOS: E	
Intersection Capacity Utilization 111.3%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 1:

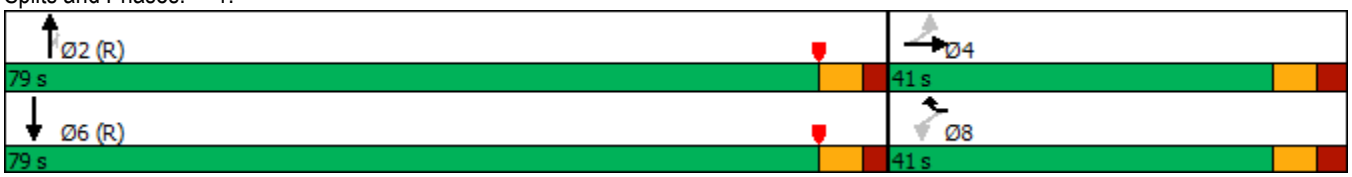
Lanes, Volumes, Timings
1: 04/19/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	20	2	47	0	156	0	1575	54	0	1600	0
Future Volume (vph)	90	20	2	47	0	156	0	1575	54	0	1600	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		40	0		50	0		0
Storage Lanes	1		0	1		1	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frt		0.987				0.850			0.850			
Flt Protected	0.950			0.950								
Satd. Flow (prot)	1770	1839	0	1770	0	1583	0	3539	1583	0	1863	0
Flt Permitted	0.950			0.742								
Satd. Flow (perm)	1770	1839	0	1382	0	1583	0	3539	1583	0	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				31			35			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		421			541			453			353	
Travel Time (s)		9.6			12.3			10.3			8.0	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	101	22	2	53	0	175	0	1770	61	0	1798	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	101	24	0	53	0	175	0	1770	61	0	1798	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			6	
Link Offset(ft)		-3			0			0			0	
Crosswalk Width(ft)		20			20			25			45	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1		1		2	1		2	
Detector Template	Left	Thru		Left		Right		Thru	Right		Thru	
Leading Detector (ft)	20	100		20		20		100	20		100	
Trailing Detector (ft)	0	0		0		0		0	0		0	
Detector 1 Position(ft)	0	0		0		0		0	0		0	
Detector 1 Size(ft)	20	6		20		20		6	20		6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Detector 1 Queue (s)	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Detector 1 Delay (s)	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA		Perm		Prot		NA	Perm		NA	
Protected Phases		4				8		2			6	
Permitted Phases	4			8		8			2			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8		8		2	2		6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0		7.0		7.0	7.0		7.0	
Minimum Split (s)	39.5	39.5		39.8		39.8		33.0	33.0		33.4	
Total Split (s)	41.0	41.0		41.0		41.0		79.0	79.0		79.0	
Total Split (%)	34.2%	34.2%		34.2%		34.2%		65.8%	65.8%		65.8%	
Maximum Green (s)	34.2	34.2		34.2		34.2		72.6	72.6		72.6	
Yellow Time (s)	4.0	4.0		4.0		4.0		4.0	4.0		4.0	
All-Red Time (s)	2.8	2.8		2.8		2.8		2.4	2.4		2.4	
Lost Time Adjust (s)	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Total Lost Time (s)	6.8	6.8		6.8		6.8		6.4	6.4		6.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	2.5		2.5		2.5		1.0	1.0		1.0	
Recall Mode	None	None		None		None		C-Max	C-Max		C-Max	
Walk Time (s)				4.0		4.0					7.0	
Flash Dont Walk (s)				29.0		29.0					20.0	
Pedestrian Calls (#/hr)				9		9					4	
Act Effct Green (s)	18.0	18.0		18.0		18.0		88.8	88.8		88.8	
Actuated g/C Ratio	0.15	0.15		0.15		0.15		0.74	0.74		0.74	
v/c Ratio	0.38	0.09		0.26		0.67		0.68	0.05		1.30	
Control Delay	47.6	37.3		44.5		50.1		11.4	3.6		162.0	
Queue Delay	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Total Delay	47.6	37.3		44.5		50.1		11.4	3.6		162.0	
LOS	D	D		D		D		B	A		F	
Approach Delay		45.6			48.8			11.1			162.0	
Approach LOS		D			D			B			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 119.6 (100%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.30			
Intersection Signal Delay: 82.5		Intersection LOS: F	
Intersection Capacity Utilization 106.9%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 1:



Lanes, Volumes, Timings
1:

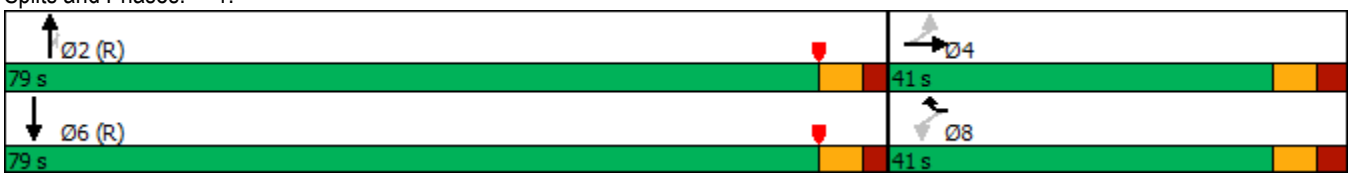
04/19/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	116	13	4	72	0	194	0	2016	45	0	1500	0
Future Volume (vph)	116	13	4	72	0	194	0	2016	45	0	1500	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		40	0		50	0		0
Storage Lanes	1		0	1		1	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frt		0.967				0.850			0.850			
Flt Protected	0.950			0.950								
Satd. Flow (prot)	1770	1801	0	1770	0	1583	0	3539	1583	0	1863	0
Flt Permitted	0.950			0.746								
Satd. Flow (perm)	1770	1801	0	1390	0	1583	0	3539	1583	0	1863	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				31			35			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		421			541			453			353	
Travel Time (s)		9.6			12.3			10.3			8.0	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	123	14	4	77	0	206	0	2145	48	0	1596	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	123	18	0	77	0	206	0	2145	48	0	1596	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			6	
Link Offset(ft)		-3			0			0			0	
Crosswalk Width(ft)		20			20			25			45	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1		1		2	1		2	
Detector Template	Left	Thru		Left		Right		Thru	Right		Thru	
Leading Detector (ft)	20	100		20		20		100	20		100	
Trailing Detector (ft)	0	0		0		0		0	0		0	
Detector 1 Position(ft)	0	0		0		0		0	0		0	
Detector 1 Size(ft)	20	6		20		20		6	20		6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Detector 1 Queue (s)	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Detector 1 Delay (s)	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA		Perm		Prot		NA	Perm		NA	
Protected Phases		4				8		2			6	
Permitted Phases	4			8		8			2			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8		8		2	2		6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0		7.0		7.0	7.0		7.0	
Minimum Split (s)	39.5	39.5		39.8		39.8		33.0	33.0		33.4	
Total Split (s)	41.0	41.0		41.0		41.0		79.0	79.0		79.0	
Total Split (%)	34.2%	34.2%		34.2%		34.2%		65.8%	65.8%		65.8%	
Maximum Green (s)	34.2	34.2		34.2		34.2		72.6	72.6		72.6	
Yellow Time (s)	4.0	4.0		4.0		4.0		4.0	4.0		4.0	
All-Red Time (s)	2.8	2.8		2.8		2.8		2.4	2.4		2.4	
Lost Time Adjust (s)	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Total Lost Time (s)	6.8	6.8		6.8		6.8		6.4	6.4		6.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	2.5		2.5		2.5		1.0	1.0		1.0	
Recall Mode	None	None		None		None		C-Max	C-Max		C-Max	
Walk Time (s)				4.0		4.0					7.0	
Flash Dont Walk (s)				29.0		29.0					20.0	
Pedestrian Calls (#/hr)				4		4					1	
Act Effct Green (s)	19.8	19.8		19.8		19.8		87.0	87.0		87.0	
Actuated g/C Ratio	0.16	0.16		0.16		0.16		0.72	0.72		0.72	
v/c Ratio	0.42	0.06		0.34		0.72		0.84	0.04		1.18	
Control Delay	47.2	31.5		45.5		52.9		17.2	3.4		109.7	
Queue Delay	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Total Delay	47.2	31.5		45.5		52.9		17.2	3.4		109.7	
LOS	D	C		D		D		B	A		F	
Approach Delay		45.2			50.9			16.9			109.7	
Approach LOS		D			D			B			F	

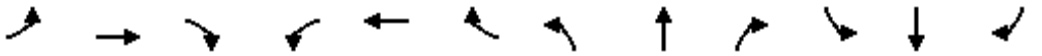
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 119.6 (100%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.18			
Intersection Signal Delay: 55.3		Intersection LOS: E	
Intersection Capacity Utilization 103.0%		ICU Level of Service G	
Analysis Period (min) 15			

Splits and Phases: 1:



Lanes, Volumes, Timings
1:

04/19/2019



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	83	22	5	45	0	88	0	1236	43	0	1691	0
Future Volume (vph)	83	22	5	45	0	88	0	1236	43	0	1691	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		40	0		50	0		0
Storage Lanes	1		0	1		1	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.973				0.850			0.850			
Flt Protected	0.950			0.950								
Satd. Flow (prot)	1770	1812	0	1770	0	1583	0	3539	1583	0	3539	0
Flt Permitted	0.950			0.739								
Satd. Flow (perm)	1770	1812	0	1377	0	1583	0	3539	1583	0	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5				66			35			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		421			541			453			353	
Travel Time (s)		9.6			12.3			10.3			8.0	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	86	23	5	46	0	91	0	1274	44	0	1743	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	86	28	0	46	0	91	0	1274	44	0	1743	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			6	
Link Offset(ft)		-3			0			0			0	
Crosswalk Width(ft)		20			20			25			45	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1		1		2	1		2	
Detector Template	Left	Thru		Left		Right		Thru	Right		Thru	
Leading Detector (ft)	20	100		20		20		100	20		100	
Trailing Detector (ft)	0	0		0		0		0	0		0	
Detector 1 Position(ft)	0	0		0		0		0	0		0	
Detector 1 Size(ft)	20	6		20		20		6	20		6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Detector 1 Queue (s)	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Detector 1 Delay (s)	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA		Perm		Prot		NA	Perm		NA	
Protected Phases		4				8		2			6	
Permitted Phases	4			8		8			2			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8		8		2	2		6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0		7.0		7.0	7.0		7.0	
Minimum Split (s)	39.5	39.5		39.8		39.8		33.4	33.4		33.4	
Total Split (s)	41.0	41.0		41.0		41.0		79.0	79.0		79.0	
Total Split (%)	34.2%	34.2%		34.2%		34.2%		65.8%	65.8%		65.8%	
Maximum Green (s)	34.2	34.2		34.2		34.2		72.6	72.6		72.6	
Yellow Time (s)	4.0	4.0		4.0		4.0		4.0	4.0		4.0	
All-Red Time (s)	2.8	2.8		2.8		2.8		2.4	2.4		2.4	
Lost Time Adjust (s)	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Total Lost Time (s)	6.8	6.8		6.8		6.8		6.4	6.4		6.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	2.5		2.5		2.5		1.0	1.0		1.0	
Recall Mode	None	None		None		None		C-Max	C-Max		C-Max	
Walk Time (s)				4.0		4.0		7.0	7.0		7.0	
Flash Dont Walk (s)				29.0		29.0		20.0	20.0		20.0	
Pedestrian Calls (#/hr)				4		4		3	3		6	
Act Effct Green (s)	14.4	14.4		14.4		14.4		92.4	92.4		92.4	
Actuated g/C Ratio	0.12	0.12		0.12		0.12		0.77	0.77		0.77	
v/c Ratio	0.41	0.13		0.28		0.37		0.47	0.04		0.64	
Control Delay	51.6	37.4		48.3		19.4		7.0	2.8		9.4	
Queue Delay	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Total Delay	51.6	37.4		48.3		19.4		7.0	2.8		9.4	
LOS	D	D		D		B		A	A		A	
Approach Delay		48.1			29.1			6.8			9.4	
Approach LOS		D			C			A			A	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 119.6 (100%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.64			
Intersection Signal Delay: 10.5		Intersection LOS: B	
Intersection Capacity Utilization 69.0%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 1:

Lanes, Volumes, Timings
1:

04/19/2019

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	20	2	47	0	156	0	1575	54	0	1600	0
Future Volume (vph)	90	20	2	47	0	156	0	1575	54	0	1600	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		40	0		50	0		0
Storage Lanes	1		0	1		1	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.987				0.850			0.850			
Flt Protected	0.950			0.950								
Satd. Flow (prot)	1770	1839	0	1770	0	1583	0	3539	1583	0	3539	0
Flt Permitted	0.950			0.742								
Satd. Flow (perm)	1770	1839	0	1382	0	1583	0	3539	1583	0	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				31			35			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		421			541			453			353	
Travel Time (s)		9.6			12.3			10.3			8.0	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	101	22	2	53	0	175	0	1770	61	0	1798	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	101	24	0	53	0	175	0	1770	61	0	1798	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			6	
Link Offset(ft)		-3			0			0			0	
Crosswalk Width(ft)		20			20			25			45	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1		1		2	1		2	
Detector Template	Left	Thru		Left		Right		Thru	Right		Thru	
Leading Detector (ft)	20	100		20		20		100	20		100	
Trailing Detector (ft)	0	0		0		0		0	0		0	
Detector 1 Position(ft)	0	0		0		0		0	0		0	
Detector 1 Size(ft)	20	6		20		20		6	20		6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Detector 1 Queue (s)	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Detector 1 Delay (s)	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA		Perm		Prot		NA	Perm		NA	
Protected Phases		4				8		2			6	
Permitted Phases	4			8		8			2			

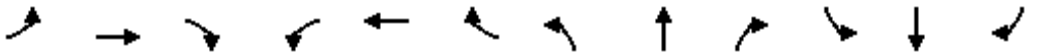
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8		8		2	2		6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0		7.0		7.0	7.0		7.0	
Minimum Split (s)	39.5	39.5		39.8		39.8		33.4	33.4		33.4	
Total Split (s)	41.0	41.0		41.0		41.0		79.0	79.0		79.0	
Total Split (%)	34.2%	34.2%		34.2%		34.2%		65.8%	65.8%		65.8%	
Maximum Green (s)	34.2	34.2		34.2		34.2		72.6	72.6		72.6	
Yellow Time (s)	4.0	4.0		4.0		4.0		4.0	4.0		4.0	
All-Red Time (s)	2.8	2.8		2.8		2.8		2.4	2.4		2.4	
Lost Time Adjust (s)	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Total Lost Time (s)	6.8	6.8		6.8		6.8		6.4	6.4		6.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	2.5		2.5		2.5		1.0	1.0		1.0	
Recall Mode	None	None		None		None		C-Max	C-Max		C-Max	
Walk Time (s)				4.0		4.0		7.0	7.0		7.0	
Flash Dont Walk (s)				29.0		29.0		20.0	20.0		20.0	
Pedestrian Calls (#/hr)				9		9		0	0		4	
Act Effct Green (s)	18.0	18.0		18.0		18.0		88.8	88.8		88.8	
Actuated g/C Ratio	0.15	0.15		0.15		0.15		0.74	0.74		0.74	
v/c Ratio	0.38	0.09		0.26		0.67		0.68	0.05		0.69	
Control Delay	47.6	37.3		44.5		50.1		11.4	3.6		11.6	
Queue Delay	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Total Delay	47.6	37.3		44.5		50.1		11.4	3.6		11.6	
LOS	D	D		D		D		B	A		B	
Approach Delay		45.6			48.8			11.1			11.6	
Approach LOS		D			D			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 119.6 (100%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay: 14.6		Intersection LOS: B	
Intersection Capacity Utilization 75.7%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1:

Lanes, Volumes, Timings
1:

04/19/2019

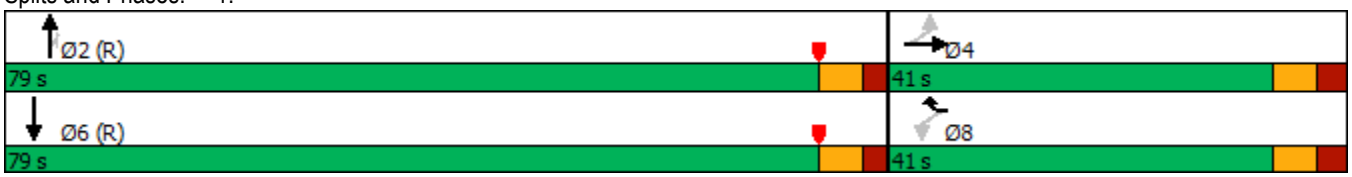


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	116	13	4	72	0	194	0	2016	45	0	1500	0
Future Volume (vph)	116	13	4	72	0	194	0	2016	45	0	1500	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		40	0		50	0		0
Storage Lanes	1		0	1		1	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.967				0.850			0.850			
Flt Protected	0.950			0.950								
Satd. Flow (prot)	1770	1801	0	1770	0	1583	0	3539	1583	0	3539	0
Flt Permitted	0.950			0.746								
Satd. Flow (perm)	1770	1801	0	1390	0	1583	0	3539	1583	0	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				31			35			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		421			541			453			353	
Travel Time (s)		9.6			12.3			10.3			8.0	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	123	14	4	77	0	206	0	2145	48	0	1596	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	123	18	0	77	0	206	0	2145	48	0	1596	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			6	
Link Offset(ft)		-3			0			0			0	
Crosswalk Width(ft)		20			20			25			45	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1		1		2	1		2	
Detector Template	Left	Thru		Left		Right		Thru	Right		Thru	
Leading Detector (ft)	20	100		20		20		100	20		100	
Trailing Detector (ft)	0	0		0		0		0	0		0	
Detector 1 Position(ft)	0	0		0		0		0	0		0	
Detector 1 Size(ft)	20	6		20		20		6	20		6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex		Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Detector 1 Queue (s)	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Detector 1 Delay (s)	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Detector 2 Position(ft)		94						94			94	
Detector 2 Size(ft)		6						6			6	
Detector 2 Type		Cl+Ex						Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0						0.0			0.0	
Turn Type	Perm	NA		Perm		Prot		NA	Perm		NA	
Protected Phases		4				8		2			6	
Permitted Phases	4			8		8			2			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4		8		8		2	2		6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0		7.0		7.0	7.0		7.0	
Minimum Split (s)	39.5	39.5		39.8		39.8		33.4	33.4		33.4	
Total Split (s)	41.0	41.0		41.0		41.0		79.0	79.0		79.0	
Total Split (%)	34.2%	34.2%		34.2%		34.2%		65.8%	65.8%		65.8%	
Maximum Green (s)	34.2	34.2		34.2		34.2		72.6	72.6		72.6	
Yellow Time (s)	4.0	4.0		4.0		4.0		4.0	4.0		4.0	
All-Red Time (s)	2.8	2.8		2.8		2.8		2.4	2.4		2.4	
Lost Time Adjust (s)	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Total Lost Time (s)	6.8	6.8		6.8		6.8		6.4	6.4		6.4	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	2.5		2.5		2.5		1.0	1.0		1.0	
Recall Mode	None	None		None		None		C-Max	C-Max		C-Max	
Walk Time (s)				4.0		4.0		7.0	7.0		7.0	
Flash Dont Walk (s)				29.0		29.0		20.0	20.0		20.0	
Pedestrian Calls (#/hr)				4		4		0	0		1	
Act Effct Green (s)	19.8	19.8		19.8		19.8		87.0	87.0		87.0	
Actuated g/C Ratio	0.16	0.16		0.16		0.16		0.72	0.72		0.72	
v/c Ratio	0.42	0.06		0.34		0.72		0.84	0.04		0.62	
Control Delay	47.2	31.5		45.5		52.9		17.2	3.4		10.9	
Queue Delay	0.0	0.0		0.0		0.0		0.0	0.0		0.0	
Total Delay	47.2	31.5		45.5		52.9		17.2	3.4		10.9	
LOS	D	C		D		D		B	A		B	
Approach Delay		45.2			50.9			16.9			10.9	
Approach LOS		D			D			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 119.6 (100%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow			
Natural Cycle: 110			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.84			
Intersection Signal Delay: 17.9		Intersection LOS: B	
Intersection Capacity Utilization 90.8%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 1:



APPENDIX F – PRELIMINARY COST ESTIMATE

PRELIMINARY CONSTRUCTION COST ESTIMATE (NOT TO BE USED FOR CONSTRUCTION)

Construction Estimate based on FDOT Area 13 and State Wide Average

ITEM NO.	PAY ITEM DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL AMOUNT
110 1 1	CLEARING & GRUBBING	AC	0.06	$ 20,958.18	$ 1,257.49
160 4	TYPE B STABILIZATION	SY	93.00	$ 10.53	$ 979.29
285 701	OPTIONAL BASE, BASE GROUP 1	SY	93.00	$ 15.50	$ 1,441.50
327 70 6	MILLING EXIST. PAVT., 1 1/2" AVG. DEPTH	SY	1,310.90	$ 3.99	$ 5,230.49
334 1 53	SUPERPAVE ASPHALTIC CONCRETE, TRAFFIC C, PG 76 22	TN	84.00	$ 143.32	$ 12,038.88
337 7 83	ASPHALT CONCRETE FRICTION COURSE, TRAFFIC C, FC-12.5, PG 76-22	TN	32.30	$ 108.67	$ 3,510.04
520 1 10	CONCRETE CURB & GUTTER, TYPE F	LF	118.00	$ 25.78	$ 3,042.04
522 1	CONCRETE SIDEWALK AND DRIVEWAYS, 4" THICK	SY	94.40	$ 44.94	$ 4,242.34
527 2	DETECTABLE WARNINGS	SY	10.50	$ 27.76	$ 291.48
570 1 2	PERFORMANCE TURF, SOD	SY	151.00	$ 4.12	$ 622.12
				ROADWAY AMOUNT =	**$ 32,655.67**
ITEM NO.	PAY ITEM DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL AMOUNT
700 1 11	SINGLE POST SIGN, F&I GROUND MOUNT, UP TO 12 SF	AS	2	$ 404.60	$ 809.20
700 1 50	SINGLE POST SIGN, RELOCATE	AS	2	$ 336.38	$ 672.76
711 11 125	THERMOPLASTIC, STANDARD, WHITE, SOLID, 24" FOR STOP LINE AND CROSS WALK	LF	228	$ 3.21	$ 731.88
711 11 170	THERMOPLASTIC, STANDARD, WHITE, ARROW	EA	4	$ 60.29	$ 241.16
711 11 224	THERMOPLASTIC, STANDARD, YELLOW, SOLID, 18" FOR DIAGONAL OR CHEVRON	LF	20	$ 2.91	$ 58.20
711 14 123	THERMOPLASTIC, PREFORMED, WHITE, SOLID, 12" FOR CROSSWALK	LF	473	$ 10.36	$ 4,900.28
711 14 123	THERMOPLASTIC, PREFORMED, GREEN, SOLID, 12" FOR CROSSWALK	LF	332	$ 10.36	$ 3,439.52
711 14 170	THERMOPLASTIC, PREFORMED, WHITE, ARROW	EA	5	$ 159.38	$ 796.90
711 16 101	THERMOPLASTIC, STANDARD-OTHER SURFACES, WHITE, SOLID, 6"	GM	0.025	$ 3,535.45	$ 88.39
711 16 201	THERMOPLASTIC, STANDARD-OTHER SURFACES, YELLOW, SOLID, 6"	GM	0.050	$ 3,473.34	$ 173.67
				SIGNING AMOUNT =	**$ 11,911.95**
ITEM NO.	PAY ITEM DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL AMOUNT
630 2 11	CONDUIT, FURNISH & INSTALL, OPEN TRENCH	LF	45	$ 10.97	$ 493.65
630 2 12	CONDUIT, FURNISH & INSTALL, DIRECTIONAL BORE	LF	175	$ 18.32	$ 3,206.00
632 7 2	SIGNAL CABLE- REPAIR/REPLACE/OTHER, FURNISH & INSTALL	LF	185	$ 6.09	$ 1,126.65
632 7 7	SIGNAL CABLE, REMOVE	LF	110	$ 0.75	$ 82.50
635 2 11	PULL & SPLICE BOX, F&I, 13" x 24" COVER SIZE	EA	11	$ 599.06	$ 6,589.66
639 1 122	ELECTRICAL POWER SERVICE, F&I, UNDERGROUND, METER PURCHASED BY CONTRACTOR	AS	1	$ 2,337.68	$ 2,337.68
639 1 620	ELECTRICAL POWER SERVICE, REMOVE UNDERGROUND	AS	1	$ 588.28	$ 588.28
639 2 1	ELECTRICAL SERVICE WIRE, FURNISH & INSTALL	LF	150	$ 4.82	$ 723.00
646 1 11	ALUMINUM SIGNALS POLE, PEDESTAL	EA	3	$ 1,437.77	$ 4,313.31
649 21 5	STEEL MAST ARM ASSEMBLY, FURNISH AND INSTALL, DOUBLE ARM 40'-40'	EA	1	$ 37,000.00	$ 37,000.00
649 26 3	STEEL MAST ARM ASSEMBLY, REMOVE, SHALLOW FOUNDATION- BOLT ON ATTACHMENT	EA	1	$ 2,423.96	$ 2,423.96
650 1 14	TRAFFIC SIGNAL, FURNISH & INSTALL ALUMINUM, 3 SECTION, 1 WAY	AS	4	$ 913.48	$ 3,653.92
653 1 11	PEDESTRIAN SIGNAL, FURNISH & INSTALL LED COUNTDOWN, 1 WAY	AS	5	$ 763.36	$ 3,816.80
665 1 11	PEDESTRIAN DETECTOR, FURNISH & INSTALL, STANDARD	EA	5	$ 259.51	$ 1,297.55
670 5 120	TRAFFIC CONTROLLER ASSEMBLY, F&I, 170	AS	1	$ 26,883.61	$ 26,883.61
670 5 600	TRAFFIC CONTROLLER ASSEMBLY, REMOVE CONTROLLER WITH CABINET	AS	1	$ 1,106.69	$ 1,106.69
700 3 201	SIGN PANEL, FURNISH & INSTALL OVERHEAD MOUNT, UP TO 12 SF	EA	3	$ 530.93	$ 1,592.79
700 5 50	INTERNALLY ILLUMINATED SIGN, RELOCATE	EA	2	$ 1,073.08	$ 2,146.16
				SIGNAL AMOUNT =	**$ 99,382.21**
	Existing Utility Pole Relocation				$ 25,000.00
	Existing Fire Hydrant Relocation				$ 2,500.00
	Existing Manhole Cover Adjust (2)				$ 1,140.00
				UTILITY AMOUNT =	**$ 28,640.00**
				SUBTOTAL =	**$ 172,589.83**
	MOBILIZATION			10%	**$ 17,258.98**
	MAINTENANCE OF TRAFFIC			10%	**$ 17,258.98**
	PE			35%	**$ 60,406.44**
	CEI			25%	**$ 43,147.46**
	INITIAL CONTINGENCY AMOUNT			30%	**$ 51,776.95**
				TOTAL =	**$ 362,438.65**