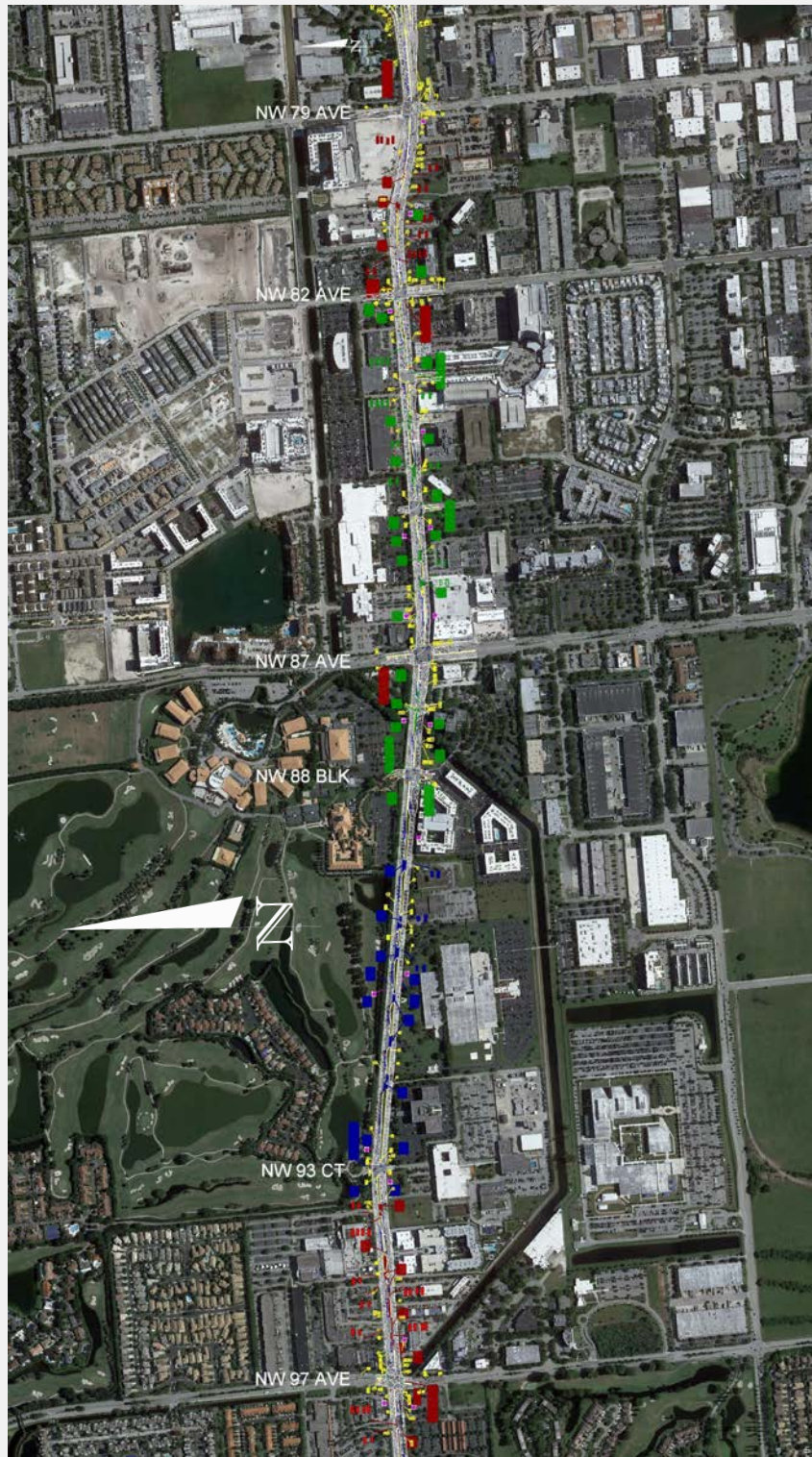


ACCESS MANAGEMENT STUDY



DORAL BOULEVARD **NW 41st STREET / NW 36TH STREET** From NW 97th Avenue to NW 79th Avenue



City Project Manager: Rita Carbonell

ACCESS MANAGEMENT STUDY



NW 41 STREET/NW 36 STREET/DORAL BOULEVARD FROM NW 97 AVENUE TO SR 826/PALMETTO EXPRESSWAY

City Project Manager: Rita Carbonell

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ENGINEER'S CERTIFICATION

I, Revocatus Kanilwa, PE, PTOE, with Florida PE No. 68543, certify that I currently hold an active Professional Engineer's License in the State of Florida and I am competent through education or experience to provide engineering services in the civil and traffic engineering disciplines contained in this report. I further certify that this report was prepared by me or under my responsible charge as defined in Chapter 61G15-18.001 F.A.C. and that all statements, conclusions, and recommendations made herein are true and correct to the best of my knowledge and ability.

Project Description:

Access management Study

Doral Boulevard

From NW 97 Avenue to SR 826/Palmetto Expressway



Revocatus Kanilwa, P.E.

Florida Registration P.E. No. 68543

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1 Executive Summary

C. H. Perez & Associates Consulting Engineers, Inc. (P&A), as a sub-consultant to Wantman Group Inc., was retained by the City of Doral, Public Works Department to perform an Access Management Study along NW 41st Street/NW 36th Street Ext/Doral Boulevard from NW 97th Avenue to SR 826/Palmetto Expressway in Miami-Dade County. The purpose of this access management study was to evaluate the existing access along the arterial to identify alternatives that could improve traffic operations and safety along the arterial within the project limits.

Doral Boulevard is a six-lane divided arterial functionally classified as an "Urban Principle Arterial-Other" with a posted speed limit of 40 MPH. The arterial provides east/west access in the City of Doral between two major highways, the Homestead Extension of the Florida Turnpike (HEFT) to the west and the Palmetto Expressway (SR 826) to the east. The segment has 17 full median openings, three (3) directional median openings, and eight (8) signalized intersections.

Within the study limits, the arterial is bordered with various land uses such as shopping plazas, a supermarket, apartment buildings, restaurants, office buildings, hotels, gas stations, a TV station, and a golf course, to name a few. There are sidewalks on both sides of the arterial, but there are no dedicated bicycle facilities. Standard crosswalks across the arterial are only provided at signalized intersections. Within the study limits, the study segment has 11 bus stops in the eastbound direction and seven (7) in the westbound direction. Only three bus stops have bus shelters.

Vehicular traffic data collection included Turning Movement Counts (TMCs) and 72-hour machine counts. The TMCs were collected at all signalized intersections, the median openings and driveways. The machine counts were conducted to the east of NW 9th Avenue and also to the east of NW 87th Avenue. Since the vehicular data was collected in November, 2020, the data was adjusted to account for seasonal variations and the COVID-19 impacts. The baseline year (2021) traffic data was projected to the Design Year (2031) using an annual growth factor developed using the FDOT Trend Analysis method. The number of pedestrians crossing the arterial midblock between the NW 97th Avenue and NW 93rd Court signals, and between the NW 82nd Avenue and NW 79th Avenue signals were collected in November 2021.

A crash analysis for the study segment was performed based on five years of crash data downloaded from the FDOT's Signal Four Analytics database. The data was downloaded and reviewed for five years, starting from January 1, 2014, through December 31, 2018. The main focus of the crash analysis was on angle and left-turn crashes happening at the existing median openings and signals. Overall, there were 992 crashes reported with an annual distribution of 162, 211, 198, 204, and 217 for Years 2014, 2015, 2016, 2017, and 2018, respectively. Among the 992 crashes, 111 crashes were angle crashes, and 69 crashes were left-turn crashes.

- The angle crashes occurred at different times of the day with no peak period. Six (6) crashes occurred within the AM peak period, and 27 crashes occurred during the PM peak period. There were 11 and 13 left-turn crashes during the AM and PM peak periods, respectively.
- Other crashes along the arterial included rear-end (366 crashes), sideswipe (351 crashes), right-turn (52 crashes), 13 fixed object crashes, 11 backed-into crashes, seven (7) non-fixed object collision crashes, three (3) pedestrian crashes,

four (4) bicycle crashes, and five (5) non-collision crashes.

- The single pedestrian crash occurred at the signalized intersection of Doral Boulevard and NW 97th Avenue, while four (4) of the five (5) bicycle crashes occurred at driveways along the arterial.
- There was one (1) fatality that was reported within the study limits in the five-year period. The fatality involved a motorcyclist and occurred at 11.23 AM on March 8, 2016. The crash happened when a vehicle making a right turn from the McDonald's restaurant driveway (located on the north side of the arterial between Median Openings #s 3 and 4) collided with a motorcyclist traveling westbound.
- There were 130 crashes (13.2%) that resulted in injuries. These included 18 angle crashes and eight (8) left-turn crashes.

Further reviews of the left-turn and angle crashes were conducted for two more years from January 1, 2019 to December 31, 2020. In this period there were 33 left-turn and 60 angle crashes reported. Please notice that the traffic pattern in Year 2020 was impacted by the COVID-19 pandemic due to business and school closures. As a result, this may have had an effect on the number of left-turn and angle crash incidences recorded.

The existing spacing between adjacent median openings along the arterial was found not to be in compliance with the minimum spacing requirements specified by the FDOT. In some cases, the available spacing is only a fraction of the required minimum spacing (1,320 feet for full median openings or 660 feet for directional median openings). In addition to the No-Build Alternative, three Build Alternatives for improving the access management along the arterial were evaluated. The three alternatives were:

Alternative 1: This is the No-Build alternative that does not make any changes to the existing median openings as than those recommended by the different developments along the arterial.

Alternative 2: This alternative considered the median opening closure and/or modifications recommended in the **Doral Boulevard Street Beautification Master Plan** prepared for the City in the 2000s.

Alternative 3: This alternative considered closing or modifying existing median openings that historically have experienced a high frequency of angle crashes or demonstrated operational difficulties in the field for turning vehicles and/or have low levels of vehicular demand that can easily be accommodated at alternate locations without significantly increasing the travel time or delay for the affected movement(s).

Alternative 4: The alternative recommended closing or modifying several existing median openings so that the access management spacing between consecutive median openings do not deviate by more than 10% from the FDOT median opening spacing criteria for Access Class 5.

The improvements under each alternative were categorized into HIGH, MEDIUM and LOW priority improvements as listed below:

1.1.1 Alternative 2

High Priority Improvements

- Close completely the following full median openings: MO # 1, MO #2, MO #3, M #4, MO #18, and MO #20.
- Modify the following full median openings to directional median openings: MO # 6 and MO #19.

- Adjust the signal timings at the NW 97th Avenue and NW 82nd Avenue signals.

Medium Priority Improvements

- Close completely the following full median openings: MO #13, MO #15, and MO #16.
- Modify the following full median openings to directional opening: MO 14 and MO #17.
- Adjust the signal timings at the NW 8800 Block, NW 8400 Block, NW 8300 Block, and NW 82nd Avenue signals.

Low Priority Improvements

- Close completely the following full median openings: MO #8, MO #9, MO # 10, and MO #12.
- Modify the following full median openings to directional openings: MO # 7 and MO #11.

1.1.2 Alternative 3

High Priority Improvements

- Close completely the following full median openings: MO # 1, MO #2, MO #3, M #4, MO #18, and MO #20.
- Modify the following full median openings to directional median openings: MO # 6 and MO #19.
- Adjust the signal timings at the NW 97th Avenue and NW 82nd Avenue signals.

Medium Priority Improvements

- Close completely the following full median openings: MO #13, MO #15, and MO #16.
- Modify the following full median openings to directional opening: MO 14 and MO #17.
- Adjust the signal timings at the NW 8800 Block, NW 8400 Block, NW 8300 Block, and NW 82nd Avenue signals.

Low Priority Improvements

- Close completely the following full median openings: MO #8, MO #9, MO # 10, and MO #12.
- Modify the following full median openings to directional openings: MO # 7 and MO #11.

1.1.3 Alternative 4

High Priority Improvements

- Close completely the following full median openings: MO # 1, MO #2, MO #3, MO #4, MO #18, and MO #20.
- Modify the following full median openings to directional median openings: MO # 6 and MO #19.
- Adjust the signal timings at the NW 97th Avenue and NW 82nd Avenue signals.
- Consolidate the two eastbound bus stops near the NW 97th Avenue signal into one bus stop with a re-designed shelter located on the eastbound departure side of the intersection.
- Relocate the bus stop from the near side of the westbound approach to the NW 87th Avenue signal to the far side of the intersection, and if feasible, provide a bus shelter for the new location.

Medium Priority Improvements

- Close completely the following full median openings: MO #13, MO #14, MO #15, MO #16, and MO #17.
- Adjust the signal timings at the NW 8800 Block, NW 87th Avenue, NW 8400 Block, NW 8300 Block, and NW 82nd Avenue signals.
- Relocate the existing eastbound bus stop from near the Doral Concourse Entrance to the far side of the NW 8300 Block signal and if feasible, provide a bus shelter for the new location.

Low Priority Improvements

- Close completely the following full median openings: MO #8, MO #9, and MO # 10.
- Modify the following full median openings to directional openings: MO # 7 and MO #12.

- Relocate the eastbound bus stop on the approach to the NW 8400 Block signal to the far side of the intersection and relocate the westbound bus stop closer the intersection. If feasible, provide bus shelters at the new locations.

Although all three alternatives were determined to be economically viable based on the safety benefit to cost analysis conducted, after examining each of the build alternatives in terms of safety improvements and potential impacts to the operations of the adjacent signals, it is recommended that Alternative #3 be considered as the Preferred Alternative. This alternative avoids diverting traffic to the congested signals at the NW 97th Avenue, NW 87th Avenue and NW 79th Avenue signals while achieving the same crash reduction benefits as the other two alternatives.

Pedestrian improvements were also evaluated, including the feasibility of providing midblock crosswalks between the NW 97th Avenue and NW 93rd Court signals, and between the NW 82nd Avenue and NW 79th Avenue signals. The midblock crosswalk evaluation showed that the conditions in these areas did not satisfy the minimum installation criteria established by the Florida Department of Transportation (FDOT) as provided in the Traffic Engineering Manual (TEM). The following pedestrian improvement recommendations, also listed in the order of priority, are given:

High Priority Improvements

- Upgrade existing standard crosswalk markings to special emphasis crosswalk markings and install audible pedestrian signal pushbuttons at the NW 97th Avenue, NW 87th Avenue, NW 82nd Avenue, and NW 79th Avenue signals.
- Install a special emphasis marking crosswalk with countdown pedestrian signal heads and audible pedestrian pushbuttons on the east leg at the NW 82nd Avenue signal.

Medium Priority Improvements

- Install a special emphasis crosswalk with countdown pedestrian signal heads, and audible pedestrian pushbuttons on the west side at the NW 8800 Block signal. Upgrade the existing pushbuttons for the east leg crosswalk to audible pushbuttons.
- Install special emphasis crosswalks with pedestrian signal heads, and audible pedestrian pushbuttons on the east and west legs at the NW 8400 Block signal.
- Provide special emphasis crosswalk markings and audible pedestrian signal pushbuttons on the east leg at the NW 8300 Block signal.

Low Priority Improvements

- Upgrade the crosswalk markings at the NW 93rd Court to special emphasis crosswalk markings and install audible pedestrian signal pushbuttons.

The study area includes at least two Miami Dade Transit routes with a total of 18 in-lane bus stops. Only three (3) bus stops have bus shelters. An inventory of the existing bus stops showed some of them to be very closely spaced and several were located away from nearby signalized crosswalks. The following transit improvements, listed in the order of priority, are provided:

High Priority Improvements

- Consolidate the two existing eastbound bus stops on each side of the NW 97th Avenue signal into one bus stop with a re-designed shelter located on the eastbound departure side of the intersection.

Medium Priority Improvements

- Relocate the bus stop from the westbound approach to the NW 8800 Block signal to the downstream side of the intersection and provide a bus shelter for the new location.
- Relocate the eastbound bus stop on the departure side of NW 8800 Block closer to the intersection and provide a bus shelter for the new location.
- Relocate the bus stop on the eastbound approach to the NW 8400 Block signal to the far side of the intersection and provide a bus shelter at the new location. Relocate the westbound far side bus stop closer to the signal and provide a bus shelter.
- Relocate the existing eastbound bus stop at the Doral Concourse Entrance to the far side of the NW 8300 Block signal and provide a bus shelter for the new location.
- Relocate the bus stop on the westbound departure side at the NW 82 Avenue signal closer to the intersection and provide a bus shelter at the new location. Relocate the eastbound bus stop near the Burger King restaurant closer to the NW 82 Avenue signal and provide a bus shelter at the new location.

Low Priority Improvements

- Relocate the existing bus stops on the approaches to the NW 93rd Court signal to the far side of the intersection and provide bus shelters at the new locations.
- Upgrade the existing bus stops at the Atlanta Federal Reserve Bank by providing bus shelters.

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2 Introduction

C. H. Perez & Associates Consulting Engineers, Inc. (P&A), as a sub-consultant to Wantman Group Inc., was retained by the City of Doral, Public Works Department to perform an Access Management Study along Doral Boulevard from NW 97th Avenue to SR 826/Palmetto Expressway in Miami-Dade County.

The purpose of this access management study was to evaluate the existing access along the arterial to identify alternatives that could improve traffic operations and safety along the arterial within the project limits.

The study report was prepared following the procedures outlined in the Florida Department of Transportation's (FDOT) Manual on Uniform Traffic Studies (MUTS), the Highway Capacity Manual – 2000 Update (2000 HCM), the 2009 Manual on Uniform Traffic Control Devices (MUTCD), the Highway Safety Improvement Program Guidelines (HSIPG) and the FDOT Access Manual Guidebook, 2019 Edition. The report discusses:

- Existing Conditions
- Traffic Data Collection
- Crash Analysis
- Field Observations
- Proposed Improvements
- Diversion of Vehicular Traffic
- Operational Analysis
- Evaluation of Cost to Benefit Ratio Analysis
- Recommendations and Conclusions

Figure 2-1 shows the location of the study area.

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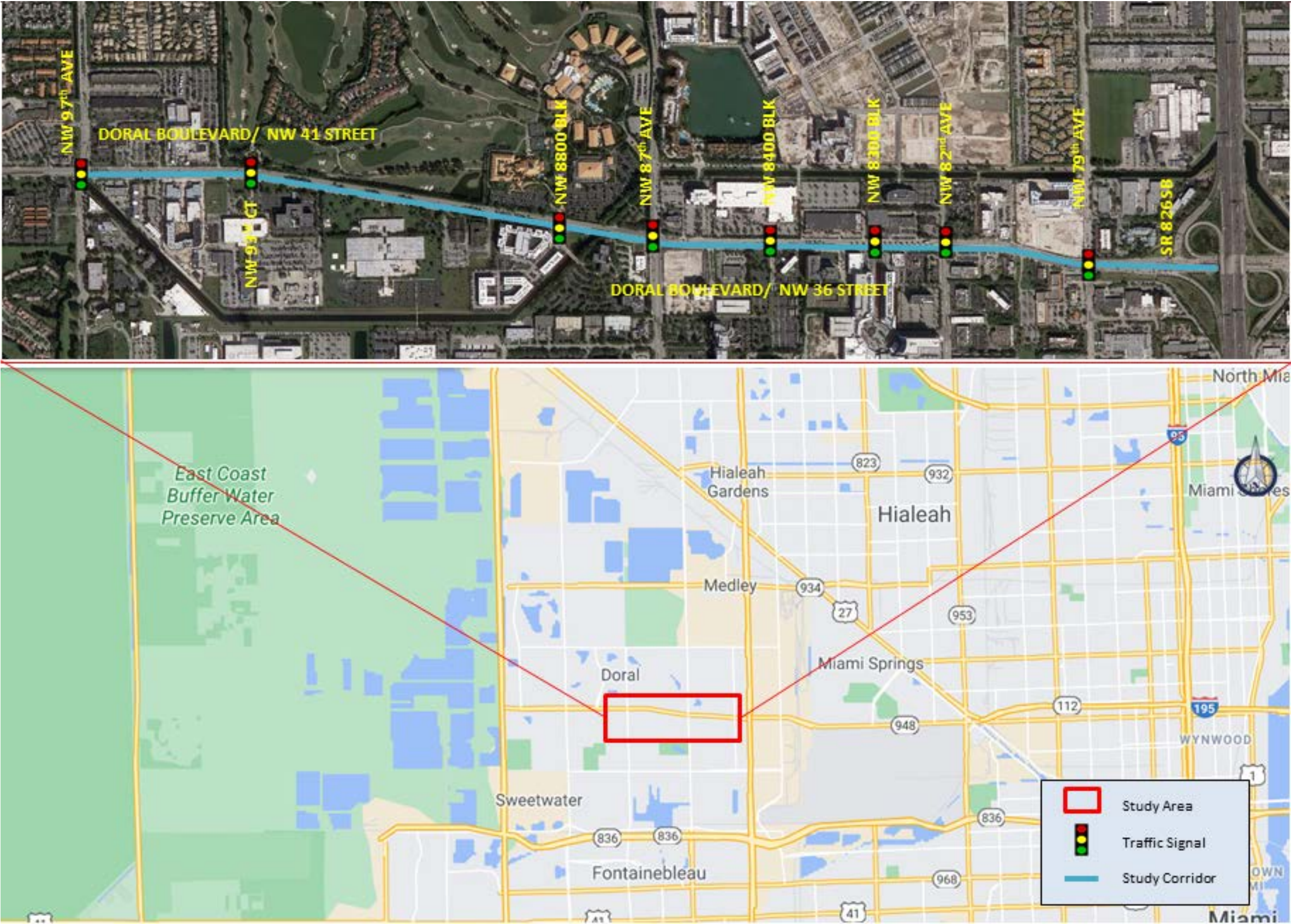


Figure 2-1: Study Area Location Map

3 Existing Conditions

3.1 Roadway Characteristics

Doral Boulevard is a six-lane divided arterial functionally classified as an "Urban Principle Arterial-Other" with a posted speed limit of 40 MPH. The arterial provides east/west access in the City of Doral between two major highways, the Homestead Extension of the Florida Turnpike (HEFT) to the west and the Palmetto Expressway (SR 826) to the east. The arterial is under the jurisdiction of Miami-Dade County. The study segment is about 1.85 miles long and consists of the following signalized intersections listed from west to east:

1. NW 97th Avenue
2. NW 93rd Court
3. NW 8800 Block
4. NW 87th Avenue
5. NW 8400 Block
6. NW 8300 Block
7. NW 82nd Avenue
8. NW 79th Avenue
9. SR 826/Palmetto Expressway SB Off-ramp

These signalized locations use ECONOLITE traffic signal controllers, which are interconnected by fiber optic cable. Please see the signal timing reports in **Appendix A**.

3.2 Existing Access Condition

The regulation of access along a highway is necessary to promote the safe and efficient movement of people and goods. The FDOT developed Rule 14-97 that specifies the minimum spacing requirements for median openings, signals, and driveways, as shown in **Table 3-1** on the next page. The segment has 17 full median openings, three (3) directional median openings, and the nine (9) signalized intersections listed above. Starting from west to east, the median openings are described as follows:

3.2.1 Median Opening #1 (MO#1):

This is the first median opening west of the NW 97th Avenue signal. It is a full median opening allowing all movements to and from the Publix Supermarket Plaza to the north and an office building to the south.

3.2.2 Median Opening #2 (MO#2):

This is the first median opening east of the NW 97th Avenue signal. It is a full median opening allowing access to and from the Doral Center Plaza to the north that includes several restaurants, pediatric office, a dentistry, medical office, barber shop, etc. To the south the median opening provides access to the Doral 9690 Plaza that includes a bank, an animal hospital, a nail salon, a restaurant, an animal store and an Einstein Bros. Bagel.

3.2.3 Median Opening #3 (MO#3):

This is a westbound directional median opening located several feet west of the McDonald's restaurant driveway. It provides access to a local bank and allows U-turn movements for vehicles coming from the McDonald restaurant.

3.2.4 Median Opening #4 (MO#4):

This is a full median opening located at the westernmost driveway serving the Univision TV station. It serves the southbound left-turn movement from the TV station and accommodates eastbound left-turn/U-turn movements. The median opening was reconstructed by installing a raised channelized island in 2019 as part of the mixed-use 'Sanctuary at Doral' development.

3.2.5 Median Opening #5 (MO#5):

This is a westbound directional median opening providing access to the 'Sanctuary at Doral' development.

3.2.6 Median Opening #6 (MO#6):

This is the first median opening west of the NW 93rd Court signal providing full access to the Univision TV station.

3.2.7 Median Opening #7 (MO#7):

This is the first median opening located east of the NW 93rd Court signal. It provides full access to and from the West Coast University located on the south side of the arterial. The median opening does not provide for eastbound U-turns, and it does not provide access to any property on the north side.

3.2.8 Median Opening #8 (MO#8):

This is a full median opening that accommodates movements to and from the Atlanta Federal Reserve Bank building located on the south side of the arterial. The median opening does not provide for eastbound U-turns, and it does not provide access to any property on the north side.

3.2.9 Median Opening #9 (MO#9):

There is no driveway on either the north or south side of the arterial at this location. An auxiliary left-turn lane is provided to accommodate westbound U-turning vehicles.

3.2.10 Median Opening #10 (MO#10):

This is another full median opening that accommodates movements to and from the Atlanta Federal Reserve Bank building. The median opening does not provide for eastbound U-turns, and it does not provide access to any property on the north side.

3.2.11 Median Opening #11 (MO#11):

This is a full median opening that provides access to/from the AT&T office building located on the south side of the arterial. The median opening does not provide for eastbound U-turns, and it does not provide access to any property on the north side.

3.2.12 Median Opening #12 (MO#12):

This is another full median opening providing access for the AT&T office building. The median opening does not provide for eastbound U-turns, and it does not provide access to any property on the north side.

3.2.13 Median Opening #13 (MO#13):

This is a bi-directional median opening installed in 2017 along with the NW 8800 Block signal as part of the Doral Gateway development project. It provides access to the Doral Corporate Center office plaza for westbound vehicles. Currently the eastbound left-turn lane can only accommodate U-turn movements since the driveway to the Trump Doral property on the north side is blocked off with flexible delineators.

3.2.14 Median Opening #14 (MO#14):

This is the first median opening east of the NW 87th Avenue signal. It is a full median opening that currently accommodates westbound U-turns only due to the ongoing construction of the Doral Square development on the south side. There is no driveway on the north side and the median opening does not provide for eastbound U-turns.

3.2.15 Median Opening #15 (MO#15):

This median opening provides full access for the Doral Court Plaza located on the south side of the arterial next to the Doral Square development. There is no driveway on the north side and the median opening does not provide for eastbound U-turns.

3.2.16 Median Opening #16 (MO#16):

This is the first median opening east of the NW 8400 Block signal. It provides full access for the Holiday Inn hotel on the south side of the arterial and a mixed use business/office building located on the north side. There is no westbound left-turn lane.

3.2.17 Median Opening #17 (MO#17):

This is the first full median opening located west of the NW 8300 Block signal. It provides access to the same building with MO#16 on the north side and the 'Doral Concourse' office building on the south side of the arterial. The median opening has a painted channelizing island for the eastbound left-turn movement.

3.2.18 Median Opening #18 (MO#18):

This is the first median opening east of the NW 82nd Avenue signal providing full access to 'The Courtyards Garden Offices' and the 'Polytechnic University' located on the north and south sides of the arterial, respectively. Please note that there is no raised median or traffic separator between this median opening and Median Opening #19; therefore, westbound vehicles sometimes turn anywhere in-between to access the businesses on the south side of the arterial. U-turns in both directions are not restricted.

3.2.19 Median Opening #19 (MO#19):

This is a full median opening that provides access for the 'AC Hotels Marriott' on the north side and the 'Burger King' restaurant on the south side of the arterial. U-turns are not restricted.

3.2.20 Median Opening #20 (MO#20):

This is the first median opening west of the NW 79th Avenue signal. It provides full access for 'Bank United' on the south side of the arterial. The new development of 'Doral Atrium', which is still under construction, is located on the north side. U-turns are not restricted.

Table 3-2 shows the current spacing between the median openings along the arterial. As this table shows, the spacing among four (4) of the signalized intersections and all the median openings (full or directional) do not comply with the FDOT criteria for Access Class 5 (Restrictive). There are 18 and 33 driveways on the north and south sides, respectively. Currently, there are no dedicated right-turn lanes along the arterial into these driveways (except at the Sanctuary at Doral mixed-use development). When completed, there will be an eastbound exclusive right-turn lane to the Doral Square development and a westbound exclusive right-turn lane to the Doral Atrium development. The spacing between many of these driveways does not comply with the FDOT minimum spacing requirement criteria.

Table 3-1: FDOT Median Opening Spacing Criteria

Access Class	Median Type	Connection Spacing (feet)		Median Opening Spacing (feet)		Signal Spacing (feet)
		>45 mph	≤45 mph	Directional	Full	
2	Restrictive with Service Roads	1320	660	1320	2640	2640
3	Restrictive	660	440	1320	2640	2640
4	Non-Restrictive	660	440			2640
5	Restrictive	440	245	660	2640 >45 mph 1320 ≤ 45 mph	
6	Non-Restrictive	440	245			1320
7	Both Median Types	125		330	660	1320

Notes:

1. "Restrictive" physically prevent vehicle crossing.
2. "Non-Restrictive" allow turns across at any point.
3. Speeds shown in this table are posted speeds.

Connection Spacing Near Interchange Ramps:

Connections and median openings located within 1,320 feet of interchange ramps require the following spacing (measured from the ramp furthest from the interchange):

- 440 feet ≤ 45 mph
- 660 feet > 45 mph
- 1,320 feet on Access Class 2 Facilities > 45 mph

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Table 3-2: Existing Median Opening Spacing vs FDOT Criteria

Median Location	Median Opening Type	Signal Control	# of Storage Bay	Storage Length/Lane (ft)	Access Class	Existing Condition								Meets Requirements					
						Required FDOT Minimum Spacing (ft)			Existing Median Opening Spacing (ft)										
		Signal	Full Opening	Directional		Signal	Full Opening	Directional (EB)	Directional (WB)	Signal	Full Opening	Directional (EB)	Directional WB						
Median Openng #1	Full	No	EBLT	205									n/a						
NW 97 Avenue	Full	Yes	2 EBLT	200					1550	315	n/a	n/a	Yes	No	n/a	n/a			
Median Opening #2			2 WBLT	140						410									
Median Opening #3			1 EBLT	50						370									
Median Opening #4			1 WBLT	135						135									
Median Opening #5	Directional (WB)	No	1 WBLT	70						475	160	No	n/a	No					
Median Opening #6	Full		1 EBLT	70					315										
Median Opening #7	Directional (WB)		1 WBLT	120					635										
Median Opening #8	Full		1 EBLT	140					300										
NW 93 Court	Full	Yes	1 EBLT	195					2895	315	n/a	n/a	Yes	No	n/a				
Median Opening #9			1 WBLT	70						325									
Median Opening #10			1 WBLT	85						330									
Median Opening #11			1 WBLT	80						225									
Median Opening #12	Full	No	1 WBLT	130						420	No	n/a	No						
Median Opening #13			1 WBLT	135					660										
Median Opening #14			1 WBLT	145															
Median Opening #15			1 EBLT	130															
NW 8800 Block	Bi-Directional	No	1 EBLT	115					850	490	490	365	No	No	No	No			
NW 87 Avenue	Full	Yes	2 EBLT	130	5	1320	1320	660	1080	395	395	n/a	n/a	No	No	n/a	n/a		
Median Opening #16			1 WBLT	115															535
Median Opening #17			1 WBLT	115															205
Median Opening #18			1 EBLT	120															340
Median Opening #19		No	1 EBLT	50									270						
Median Opening #20			1 EBLT	105									370						
Median Opening #21			1 WBLT	200									330						
Median Opening #22			1 EBLT	155									605						
Median Opening #23		1 WBLT	200										n/a	n/a	n/a			No	No
Median Opening #24		1 EBLT	100										310						
Median Opening #25		1 WBLT	230										350						
Median Opening #26		1 EBLT	230										205						
Median Opening #27		No	1 WBLT	85										520	No				
Median Opening #28			1 EBLT	85															
Median Opening #29			1 WBLT	85															
Median Opening #30			1 EBLT	385															
NW 79 Avenue		Yes	2 WBLT	425															
SR 826 SB Off-ramp		Yes	None	n/a					905				No						

3.3 Existing Land Uses

Within the study limits, the arterial is bordered by various land uses such as shopping plazas, supermarkets, restaurants, office buildings, banks, medical offices, beauty salons, hotels, gas stations, a TV station, and a golf course, to name a few. There are several new land development projects along the corridor which are currently at different stages of construction, as described below:

1. Sanctuary at Doral: This is a mixed residential/commercial development project that at the time of writing this report its construction was complete and it was partially occupied. The project is located on the south side of NW 41st



Street to the east of the NW 97th Avenue signal. This project introduced one new westbound directional median opening, identified as MO #5 in this report, and modified one existing full median opening (MO#4) by installing a raised channelizing island at the median opening. The development installed three new driveways none of which allows outbound left-turn or through movements. There is an exclusive eastbound right-turn lane at the main driveway.

2. Doral Square: This is a mixed office/commercial land use development project located at the southeast quadrant of NW 36th Street/Doral Boulevard and NW 87th Avenue. This project, when completed, will introduce one limited access driveway along NW 36th Street/Doral Boulevard that will only allow right-in/right-out movements. Eastbound entrance into the project will be from an exclusive right-turn lane. At the time of writing this report, this project is still under construction and is expected to be completed by the end of this year (2021).



3. Doral Atrium: This project redevelops an existing commercial land-use area for mixed residential/commercial land use. The project is located on the northwest quadrant of NW 36th Street/Doral Boulevard and NW 79th Avenue.



The project will be served with one full access driveway with two in-bound lanes and one out-bound right-turn-only lane. A bi-directional median opening will be provided at the location of the driveway. A westbound exclusive right-turn lane will be installed at the driveway. At the time of writing this report, this project is still under construction and is expected to be completed at the end of this year (2021).

completed at the end of this year (2021).

3.4 Existing Pedestrian/Bicycle Facilities

Within the study segment, sidewalks are located on both sides of the arterial. There are no dedicated bicycle facilities along the arterial. Standard crosswalk markings with countdown pedestrian signal heads and pushbuttons are provided on all legs of the following signalized intersections:

1. Doral Boulevard and NW 97th Avenue
2. Doral Boulevard and NW 87th Avenue
3. Doral Boulevard and NW 82nd Avenue (except the east leg where there is no crosswalk)
4. Doral Boulevard and NW 79th Avenue (except the east leg where there is no crosswalk)



The NW 8800 Block and NW 8300 Block signals have standard crosswalks with countdown pedestrian signal heads and pushbuttons on the east legs only. The side street legs at these signals have standard crosswalks without pedestrian signal heads. Standard crosswalk markings are provided on all four legs at the NW 93rd Court signal but, there are no pedestrian signal heads. The NW 8400 Block signal has standard crosswalks only on the north and south legs of the intersection. The SR 826/Palmetto SB Off-ramp signal has signalized crosswalk across the off-ramp and across the westbound approach lanes.



3.5 Existing Transit Facilities

The following Miami - Dade Transit Authority (MDT) bus routes traverse through a portion of the study segment: Route # 35, Route # 95, and Route # 132. The segment has 11 in-lane bus stops in the eastbound direction and seven (7) in the

westbound direction. Some of the bus stops are in very close proximity and others are located far from nearby signalized crosswalks. Only three bus stops along the study segment have bus shelters. Besides the MDT Routes, a City of Doral Trolley service traverses the study segment via Route 2 in the eastbound direction from NW 97th Avenue to NW 82nd Avenue. Additionally, Route 1 covers a segment of the arterial between NW 97th Avenue and NW 87th Avenue in the eastbound direction.

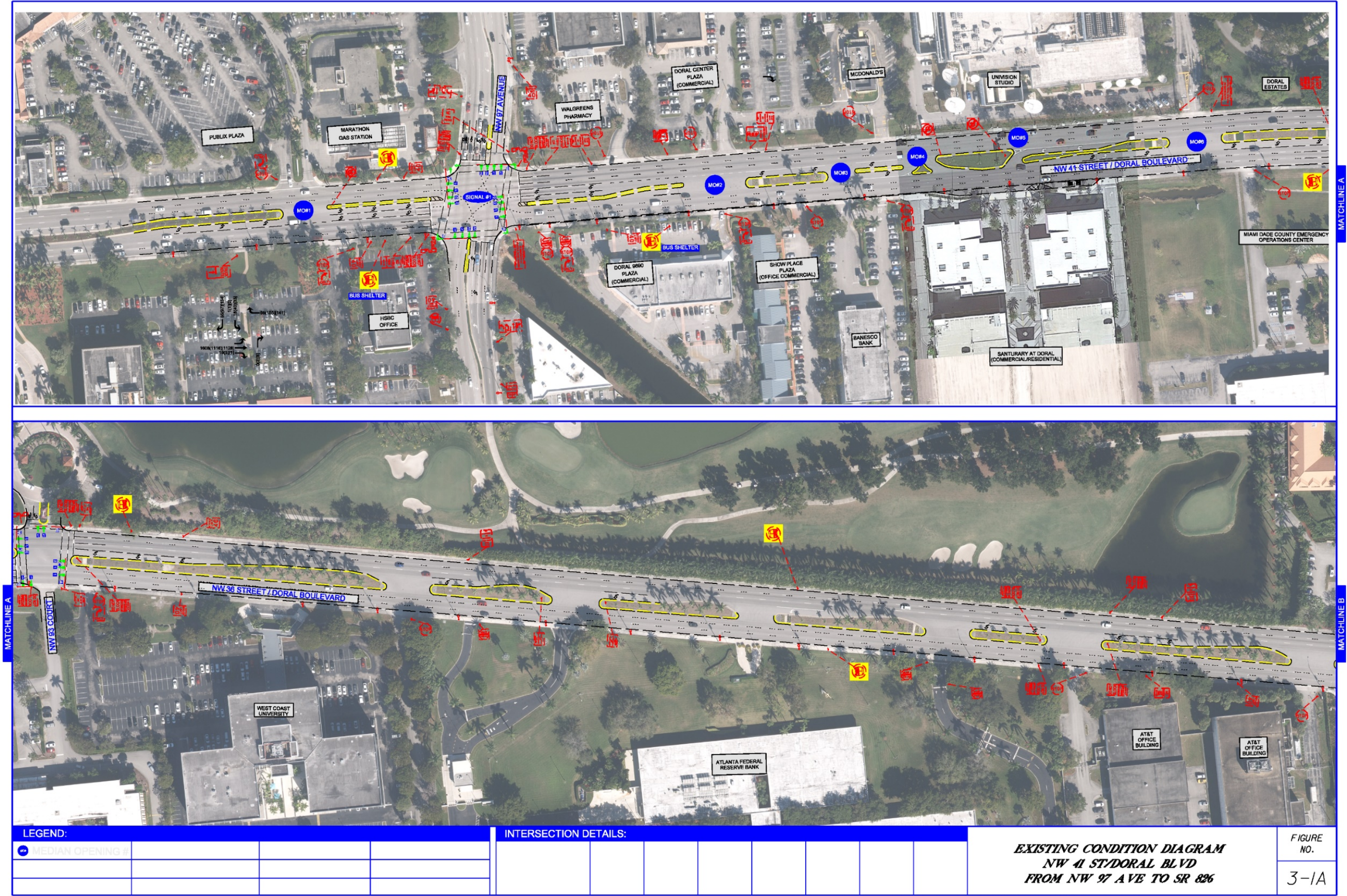


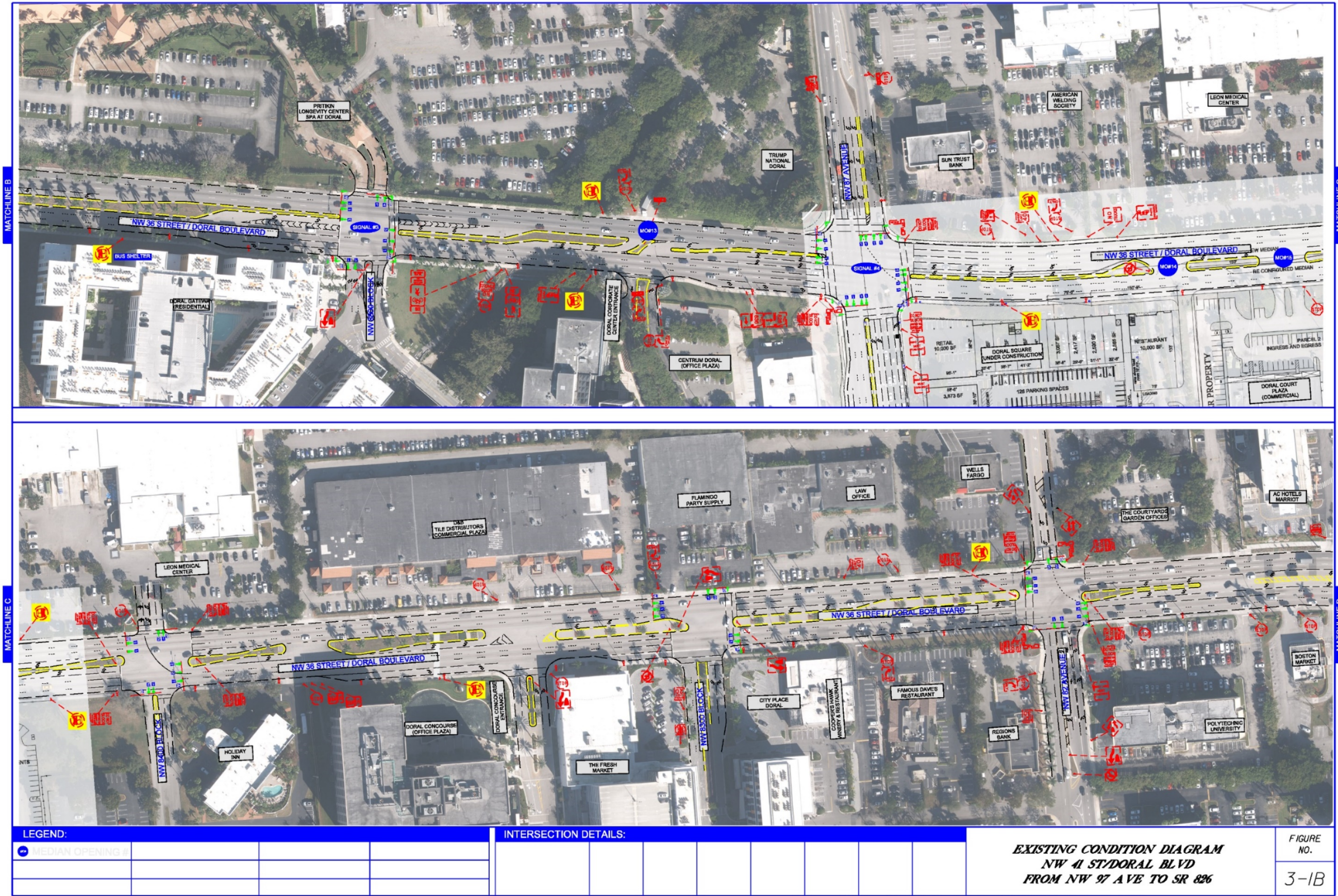
3.6 Existing Lighting

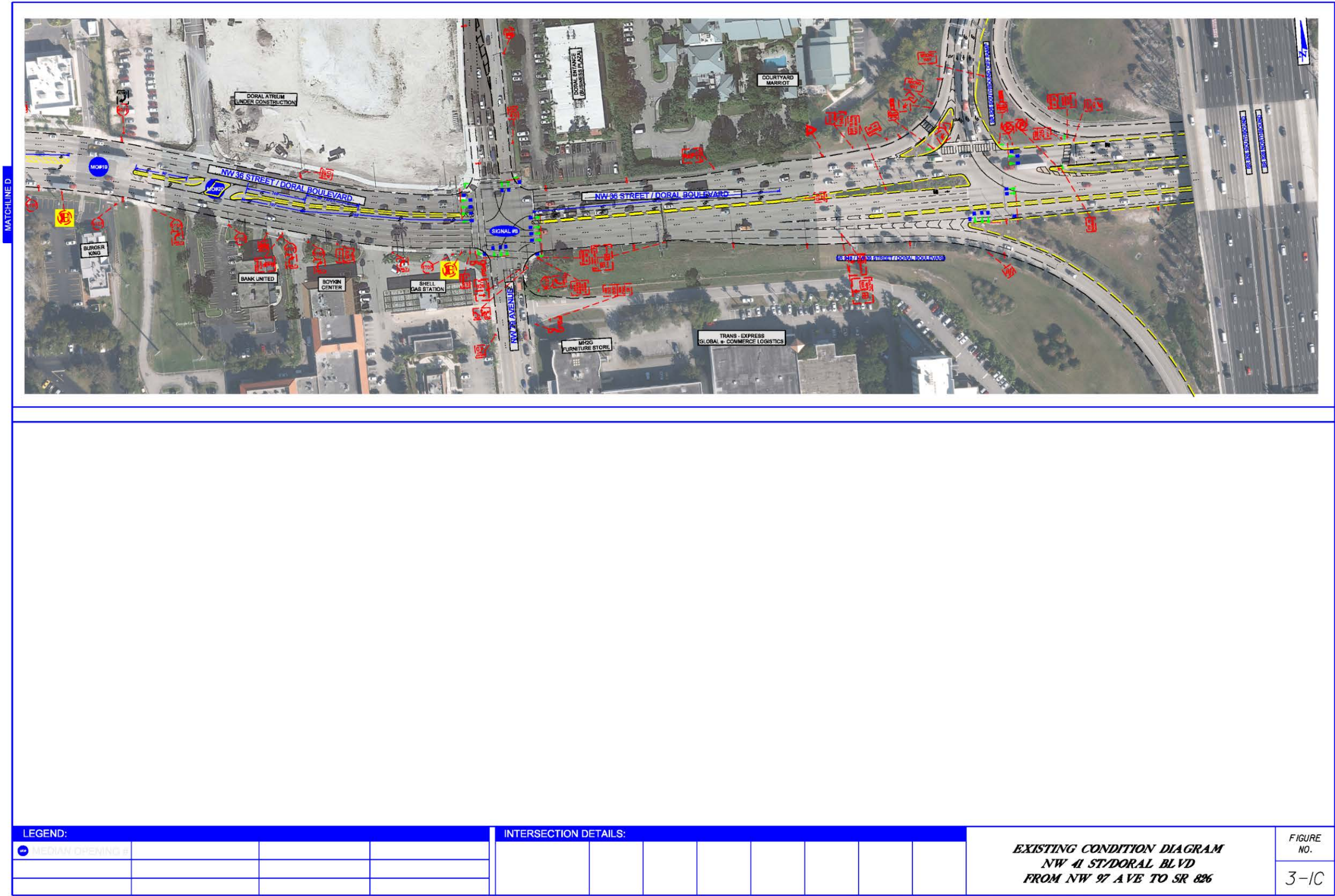
Street lighting is provided on the south side along the entire length of the study segment. A drive through the segment during nighttime in December 2020 revealed that all existing lighting fixtures were in good working.

Figure 3-1 shows all the existing traffic control devices, turn lane storage length, existing median opening spacing, land uses, and other existing features along the study segment.

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4 Traffic Data

4.1 Existing Traffic Data

The traffic data was collected starting on November 17, 2020 and included:

- Turning Movement Counts (TMCs) at all signalized intersections and median openings. This data covered two hours during the AM peak period, and two hours during the PM peak period.
- Bi-directional 72-hour machine counts taken at the following locations:
 - Between NW 97th Avenue and NW 87th Avenue
 - Between NW 87th Avenue and NW 77th Avenue

All the data collected in November 2020 was first adjusted for seasonal fluctuations using an adjustment factor of 1.02 obtained from the FDOT database. Given the drop in the levels of vehicular traffic caused by the COVID-19 pandemic, another adjustment was made using a factor of 1.04 obtained from a report prepared by another consultant for the City to account for the unusual traffic conditions. This factor was obtained by comparing 72-hour machine counts collected in 2020 against Annual Average Daily Traffic (AADT) from FDOT's portable count stations located within the study limits. **Table 4-1** and **Table 4-2** show the raw 2020 TMCs and the TMCs adjusted for seasonal variations and COVID-19, respectively. The raw TMCs and machine counts are included in **Appendix B** and **Appendix C**, respectively, while **Appendix D** includes the FDOT seasonal adjustment factors. Pedestrian volume counts are provided and discussed in Section 7 of the report.

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Table 4-1: Raw Peak Hour Traffic Volumes

Intersection	Peak Period	2020 Raw Peak Hour Traffic Volumes													
		Approach Movements													
		NBL	NBT	NBR	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR
NW 41 St @ Publix Dwy (MO#1)	AM	-	-	0	18	1	65	-	88	1608	16	-	-	872	98
	PM	-	-	8	33	0	134	-	100	1128	1	-	-	1732	141
NW 41 St @ NW 97 Ave	AM	106	382	191	372	476	51	-	65	1316	246	-	182	813	137
	PM	246	583	168	278	786	122	-	89	887	134	-	163	1537	170
NW 97 Ave @ Doral Ctr Plaza Dwy(MO #2)	AM	3	0	16	11	0	11	6	19	1833	19	11	13	1094	9
	PM	4	0	17	14	0	32	2	9	1353	3	8	9	1721	25
NW 41 St @ Banesco Bank Dwy(MO #3)	AM	-	-	5	-	-	-	1	-	1841	29	16	5	1126	-
	PM	-	-	50	-	-	-	2	-	1359	31	6	2	1760	-
NW 41 St @ McDonald Restaurant Dwy (MO #4)	AM	-	-	-	1	-	45	6	8	1848	-	-	-	1102	21
	PM	-	-	-	1	-	37	25	4	1385	-	-	-	1708	47
NW 41 St @ Sanctuary at Doral Dwy (MO #5)	AM	-	-	12	-	-	-	-	-	1836	5	0	4	1126	-
	PM	-	-	19	-	-	-	-	-	1365	6	2	2	1755	-
NW 41 St @ Univision TV Station Dwy (MO #6)	AM	-	-	-	0	-	0	2	4	1827	-	0	-	1128	8
	PM	-	-	-	6	-	6	10	5	1362	-	2	-	1743	8
NW 41 St @ NW 93 Ct	AM	7	0	8	41	0	30	-	47	1763	28	-	13	1099	25
	PM	47	0	18	22	0	31	-	52	1294	9	-	8	1677	28
NW 41 St @ Federal Reserve Bank Dwy1 (MO #7)	AM	3	-	13	-	-	-	0	-	1793	19	0	39	1128	-
	PM	18	-	78	-	-	-	3	-	1324	7	1	17	1703	-
NW 41 St @ Federal Reserve Bank Dwy2 (MO #8)	AM	1	-	0	-	-	-	0	-	1805	1	0	7	1166	-
	PM	0	-	0	-	-	-	0	-	1402	1	0	5	1721	-
NW 41 St @ AT&T Dwy1 (MO #9)	AM	-	-	-	-	-	-	0	-	1805	0	0	0	1173	-
	PM	-	-	-	-	-	-	0	-	1402	0	0	0	1726	-
NW 41 St @ AT&T Dwy1 (MO #10)	AM	0	-	1	-	-	-	0	-	1805	0	0	0	1173	-
	PM	4	-	8	-	-	-	1	-	1402	0	1	0	1721	-
NW 41 St @ AT&T Dwy2 (MO #11)	AM	0	-	11	-	-	-	-	-	1790	4	1	1	1173	-
	PM	3	-	3	-	-	-	-	-	1404	2	1	3	1718	-
NW 41 St @ AT&T Dwy3 (MO #12)	AM	2	-	11	-	-	-	0	-	1799	2	1	1	1172	-
	PM	1	-	7	-	-	-	0	-	1406	2	4	4	1721	-
NW 36 St Ext @ NW 8800 Block	AM	37	0	104	2	0	1	-	11	1747	45	-	33	1136	2
	PM	42	0	30	0	0	0	-	2	1379	39	-	68	1687	0
NW 36 St Ext @ Doral Corporate Ctr Dwy (MO #13)	AM	-	-	26	-	-	-	1	0	1832	20	4	9	1191	0
	PM	-	-	60	-	-	-	2	0	1393	13	6	4	1746	0
NW 36 St Ext @ NW 87 Ave	AM	204	629	284	154	670	187	-	308	1254	313	-	435	813	116
	PM	345	762	356	156	862	226	-	226	1032	221	-	412	1185	160
NW 36 St Ext @ Doral Square Dwy (MO#14)	AM	-	-	-	-	-	-	-	-	1690	-	1	0	1359	-
	PM	-	-	-	-	-	-	-	-	1544	-	7	0	1741	-
NW 36 St Ext @ Doral Court Plaza Dwy	AM	4	-	14	-	-	-	2	-	1684	5	7	16	1354	-
	PM	7	-	23	-	-	-	2	-	1533	16	74	11	1739	-
NW 36 St Ext @ NW 8400 Block	AM	11	0	2	13	0	7	-	73	1596	16	-	18	1359	117
	PM	10	0	15	13	0	207	-	7	1606	10	-	12	1607	7
NW 36 St Ext @ Holiday Inn Dwy (MO#16)	AM	0	0	8	6	0	2	4	16	1590	0	0	0	1498	3
	PM	0	2	4	4	0	14	3	5	1627	0	1	2	1593	3
NW 36 St Ext @ Doral Concourse Dwy	AM	20	1	30	2	0	1	0	5	1580	19	5	24	1481	9
	PM	31	0	57	8	0	6	0	5	1611	20	21	16	1562	8
NW 36 St Ext @ NW 8300 Block	AM	24	2	49	0	-	3	-	0	1565	43	-	113	1493	15
	PM	57	0	75	0	-	31	-	1	1627	68	-	132	1519	24
NW 36 St Ext @ NW 82 Ave	AM	58	88	146	92	130	65	-	80	1396	139	-	259	1490	110
	PM	116	147	415	92	142	91	-	60	1587	77	-	205	1479	68
NW 36 St Ext @ Polytechnic University Dwy (MO#18)	AM	0	0	2	3	0	2	1	4	1629	1	2	20	1846	20
	PM	3	0	25	17	0	14	2	3	2086	2	6	14	1759	12
NW 36 St Ext @ Burger King Dwy (MO#19)	AM	6	1	18	12	1	16	8	15	1612	21	13	14	1830	11
	PM	4	0	17	14	0	32	2	9	2120	3	8	9	1743	21
NW 36 St Ext @ Bank United Dwy (MO#20)	AM	0	-	7	-	-	1	2	2	1613	11	8	1	1898	1
	PM	0	-	25	2	-	9	2	7	2142	7	6	2	1774	3
NW 36 St Ext @ NW 79 Ave	AM	22	108	152	421	202	76	-	73	1526	49	-	289	1783	370
	PM	68	118	341	667	221	113	-	90	2006	50	-	210	1596	256
NW 36 St Ext @ SR 826 Off-ramp	AM	-	-	-	580	-	792	-	-	1018	-	-	-	1671	-
	PM	-	-	-	344	-	343	-	-	1301	-	-	-	1679	-

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Table 4-2: Adjusted Peak Traffic Hour Volumes

2020 Seasonally Adjusted Peak Hour Traffic Volumes																
Intersection	Peak Period	Approach Movements														
		NBL	NBT	NBR	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	
NW 41 St @ Publix Dwy (MO#1)	AM	-	-	0	19	2	67	-	91	1657	17	-	-	899	101	
	PM	-	-	9	34	0	139	-	103	1162	2	-	-	1784	146	
NW 41 St @ NW 97 Ave	AM	110	394	197	384	491	53	-	67	1356	254	-	188	838	142	
	PM	254	601	174	287	810	126	-	92	914	139	-	168	1584	176	
NW 97 Ave @ Doral Ctr Plaza Dwy (MO #2)	AM	4	0	17	12	0	12	7	20	1888	20	12	14	1127	10	
	PM	5	0	18	15	0	33	3	10	1394	4	9	10	1773	26	
NW 41 St @ Banesco Bank Dwy (MO #3)	AM	-	-	6	-	-	-	2	-	1897	30	17	6	1160	-	
	PM	-	-	52	-	-	-	3	-	1400	32	7	3	1813	-	
NW 41 St @ McDonald Restaurant Dwy (MO #4)	AM	-	-	-	2	-	47	7	9	1904	-	-	-	1136	22	
	PM	-	-	-	2	-	39	26	5	1427	-	-	-	1760	49	
NW 41 St @ Sanctuary at Doral Dwy (MO #5)	AM	-	-	13	-	-	-	-	-	1892	6	0	5	1160	-	
	PM	-	-	20	-	-	-	-	-	1406	7	3	3	1808	-	
NW 41 St @ Univision TV Station Dwy (MO #6)	AM	-	-	-	0	-	0	3	5	1882	-	0	-	1162	9	
	PM	-	-	-	7	-	7	11	6	1403	-	3	-	1796	9	
NW 41 St @ NW 93 Ct	AM	8	0	9	43	0	31	-	49	1816	29	-	14	1132	26	
	PM	49	0	19	23	0	32	-	54	1333	10	-	9	1728	29	
NW 41 St @ Federal Reserve Bank Dwy1 (MO #7)	AM	4	-	14	-	-	-	0	-	1847	20	0	41	1162	-	
	PM	19	-	81	-	-	-	4	-	1364	8	2	18	1755	-	
NW 41 St @ Federal Reserve Bank Dwy2 (MO #8)	AM	2	-	0	-	-	-	0	-	1860	2	0	8	1201	-	
	PM	0	-	0	-	-	-	0	-	1445	2	0	6	1773	-	
NW 41 St @ Federal Reserve Bank Dwy2 (MO #9)	AM	-	-	-	-	-	-	0	-	1860	0	0	0	1209	-	
	PM	-	-	-	-	-	-	0	-	1445	0	0	0	1778	-	
NW 41 St @ AT&T Dwy1 (MO #10)	AM	0	-	2	-	-	-	0	-	1860	0	0	0	1209	-	
	PM	5	-	9	-	-	-	2	-	1445	0	2	0	1773	-	
NW 41 St @ AT&T Dwy2 (MO #11)	AM	0	-	12	-	-	-	-	-	1844	5	2	2	1209	-	
	PM	10	-	4	-	-	-	-	-	1447	3	2	4	1770	-	
NW 41 St @ AT&T Dwy3 (MO #12)	AM	3	-	12	-	-	-	0	-	1853	3	2	2	1208	-	
	PM	2	-	8	-	-	-	0	-	1449	3	5	5	1773	-	
NW 36 St Ext @ NW 8800 Block	AM	39	0	108	3	0	2	-	12	1800	47	-	34	1171	3	
	PM	44	0	31	0	0	0	-	3	1421	41	-	71	1738	0	
NW 36 St Ext @ Doral Corporate Ctr Dwy (MO #13)	AM	-	-	27	-	-	-	2	0	1887	21	5	10	1227	0	
	PM	-	-	62	-	-	-	3	0	1435	14	7	5	1799	0	
NW 36 St Ext @ NW 87 Ave	AM	211	648	293	159	691	193	-	318	1292	323	-	449	838	120	
	PM	356	785	367	161	888	233	-	233	1063	228	-	425	1221	165	
NW 36 St Ext @ Doral Square Dwy (MO#14)	AM	-	-	16	-	-	-	-	-	1741	-	2	0	1400	-	
	PM	-	-	58	-	-	-	-	-	1591	-	8	0	1794	-	
NW 36 St Ext @ Doral Court Plaza Dwy	AM	5	-	15	-	-	-	3	-	1735	6	8	17	1395	-	
	PM	8	-	24	-	-	-	3	-	1579	17	77	12	1792	-	
NW 36 St Ext @ NW 8400 Block	AM	12	0	3	14	0	8	-	76	1644	17	-	19	1400	121	
	PM	11	0	16	14	0	214	-	8	1655	11	-	13	1656	8	
NW 36 St Ext @ Holiday Inn Dwy (MO#16)	AM	0	0	9	7	0	3	5	17	1638	0	0	0	1543	4	
	PM	0	3	5	5	0	15	4	6	1676	0	2	3	1641	4	
NW 36 St Ext @ Doral Concourse Dwy	AM	21	2	31	3	0	2	0	6	1628	20	6	25	1526	10	
	PM	32	0	59	9	0	7	0	6	1660	21	22	17	1609	9	
NW 36 St Ext @ NW 8300 Block	AM	25	3	51	0	-	4	-	0	1612	45	-	117	1538	16	
	PM	59	0	78	0	-	32	-	2	1676	71	-	136	1565	25	
NW 36 St Ext @ NW 82 Ave	AM	60	91	151	95	134	67	-	83	1438	144	-	267	1535	114	
	PM	120	152	428	95	147	94	-	62	1635	80	-	212	1524	71	
NW 36 St Ext @ Polytechnic University Dwy (MO#18)	AM	0	0	3	4	0	3	2	5	1678	2	3	21	1902	21	
	PM	4	0	26	18	0	15	3	4	2149	3	7	15	1812	13	
NW 36 St Ext @ Burger King Dwy (MO#19)	AM	7	2	19	13	2	17	9	16	1661	22	14	15	1885	12	
	PM	5	0	18	15	0	33	3	10	2184	4	9	10	1796	22	
NW 36 St Ext @ Bank United Dwy (MO#20)	AM	0	-	8	-	-	2	3	3	1662	12	9	2	1955	2	
	PM	0	-	26	3	-	10	3	8	2207	8	7	3	1828	4	
NW 36 St Ext @ NW 79 Ave	AM	23	112	157	434	209	79	-	76	1572	51	-	298	1837	382	
	PM	71	122	352	688	228	117	-	93	2067	52	-	217	1644	264	
NW 36 St Ext @ SR 826 Off-ramp	AM	-	-	-	598	-	816	-	-	1049	-	-	-	1722	-	
	PM	-	-	-	355	-	354	-	-	1341	-	-	-	1730	-	

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4.2 Baseline (2021) Peak Hour Volumes

Since the traffic data for the study were collected towards the end of 2020, the adjusted data from 2020 were projected to the current year 2021 using an annual growth rate of 0.5%. This rate was obtained using the FDOT Trend Analysis method for FDOT portable count stations located close to the study area (see **Appendix E**). **Table 4-3** shows a summary of the trend analysis.

As mentioned earlier, there are several land development projects along and near the arterial that were in different stages of construction at the time of the data collection. For this study, it is assumed that all of these developments will be fully developed and occupied by the end of 2021; therefore, traffic expected to be generated from these developments (see **Table 4-4**) was added to the 2021 forecast traffic to get the 2021 baseline traffic which is shown in **Table 4-5** and in **Appendix F**.

Table 4-3: Trend Analysis Summary

Growth Rate Trend Analysis Calculations					
Description	Station				
	8196	7022	8359	7051	
Trend Growth Rate (1)(%)	-0.11	-1.12	0.5	0.54	
Adjusted Trend Growth Rate(%)	0.5	0.5	0.5	0.54	
Average Growth Rate(%)					0.5

Table 4-4: Projected Trips for Approved Developments

Doral Public Charter School Project Trips															
Intersection	Expected Opening Yr	Peak Period	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	
NW 97 Ave @ NW 41 St	2021	AM	-	-	-	81	-	-	-	32	-	-	29	72	
		PM	-	-	-	44	-	-	-	18	-	-	21	51	
NW 87 Ave @ NW 41 St		AM	101	72	14	-	81	-	-	-	113	16	-	-	
		PM	72	51	10	-	44	-	-	-	62	9	-	-	
Sanctuary at Doral Project Trips															
NW 97 Ave @ NW 41 St	2021	AM	-	-	6	3	-	-	-	20	-	6	40	6	
		PM	-	-	12	6	-	-	-	44	-	13	33	5	
NW 93 Ct @ NW 41 St		AM	-	-	-	-	-	-	-	57	54	-	-	27	-
		PM	-	-	-	-	-	-	-	47	45	-	-	60	-
NW 87 Ave @ NW 41 St		AM	7	-	-	-	-	6	11	30	13	-	15	-	
		PM	15	-	-	-	-	12	9	25	11	-	33	-	
Shelton Charter Academy Project Trips															
NW 97 Ave @ NW 41 St	2022	AM	11	42	25	-	63	-	-	-	16	37	-	-	
		PM	-	-	-	-	-	-	-	-	-	-	-	-	
Doral Square Project Trips															
NW 41 St @ NW 87 Ave	2021	AM	4	7	-	2	1	-	-	1	1	-	-	72	
		PM	16	25	-	21	10	-	-	14	6	-	-	51	
NW 41 St @ NW 82 Ave		AM	1	-	-	-	-	-	-	-	15	1	-	6	-
		PM	4	-	-	-	-	-	-	55	3	-	68	-	
Atrium Doral Project Trips															
NW 41 St @ NW 79 Ave	2021	AM	16	-	-	24	-	-	-	-	-	-	40	15	
		PM	40	-	-	33	-	-	-	-	-	-	99	38	
NW 41 St @ Driveway		AM	-	-	-	-	-	-	113	15	-	-	-	-	56
		PM	-	-	-	-	-	153	37	-	-	-	-	139	

Table 4-5: Baseline Year (2021) Peak Hour Traffic Volumes

2021 Baseline Peak Hour Traffic Volumes															
Intersection	Peak Period	Approach Movements													
		NBL	NBT	NBR	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR
NW 41 St @ Publix Dwy (MO#1)	AM	-	-	0	20	2	70	-	95	1723	18	-	-	935	105
	PM	-	-	9	35	0	145	-	107	1208	2	-	-	1855	152
NW 41 St @ NW 97 Ave	AM	125	452	236	483	574	55	-	70	1462	280	-	239	941	226
	PM	264	625	193	348	842	131	-	96	1013	145	-	188	1701	239
NW 97 Ave @ Doral Ctr Plaza Dwy(MO #2)	AM	4	0	18	12	0	12	7	21	1964	21	12	15	1172	10
	PM	5	0	19	16	0	34	3	10	1450	4	9	10	1844	27
NW 41 St @ Banesco Bank Dwy(MO #3)	AM	-	-	6	-	-	-	2	-	1973	31	18	6	1206	-
	PM	-	-	54	-	-	-	3	-	1456	33	7	3	1886	-
NW 41 St @ McDonald Restaurant Dwy (MO #4)	AM	-	-	-	2	-	49	7	9	1980	-	-	-	1181	23
	PM	-	-	-	2	-	41	27	5	1484	-	-	-	1830	51
NW 41 St @ Sanctuary at Doral Dwy (MO #5)	AM	-	-	14	-	-	-	-	-	1968	6	0	8	1206	-
	PM	-	-	21	-	-	-	-	-	1462	7	3	18	1880	-
NW 41 St @ Univision TV Station Dwy (MO #6)	AM	-	-	-	0	-	0	3	5	1957	-	0	-	1208	9
	PM	-	-	-	7	-	7	11	6	1459	-	3	-	1868	9
NW 41 St @ NW 93 Ct	AM	8	0	9	45	0	32	-	108	1943	30	-	15	1204	27
	PM	51	0	20	24	0	33	-	103	1431	10	-	9	1857	30
NW 41 St @ Federal Reserve Bank Dwy1 (MO #7)	AM	4	-	15	-	-	-	0	-	1921	21	0	43	1208	-
	PM	20	-	84	-	-	-	4	-	1419	8	2	19	1825	-
NW 41 St @ Federal Reserve Bank Dwy2 (MO #8)	AM	2	-	0	-	-	-	0	-	1934	2	0	8	1249	-
	PM	0	-	0	-	-	-	0	-	1503	2	0	6	1844	-
NW 41 St @ Federal Reserve Bank Dwy2 (MO #9)	AM	-	-	-	-	-	-	0	-	1934	0	0	0	1257	-
	PM	-	-	-	-	-	-	0	-	1503	0	0	0	1849	-
NW 41 St @ AT&T Dwy1 (MO #10)	AM	0	-	2	-	-	-	0	-	1934	0	0	0	1257	-
	PM	5	-	9	-	-	-	2	-	1503	0	2	0	1844	-
NW 41 St @ AT&T Dwy2 (MO #11)	AM	0	-	12	-	-	-	-	-	1918	5	2	2	1257	-
	PM	10	-	4	-	-	-	-	-	1505	3	2	4	1841	-
NW 41 St @ AT&T Dwy3 (MO #12)	AM	3	-	12	-	-	-	0	-	1927	3	2	2	1256	-
	PM	2	-	8	-	-	-	0	-	1507	3	5	5	1844	-
NW 36 St Ext @ NW 8800 Block	AM	41	0	112	3	0	2	-	12	1872	49	-	35	1218	3
	PM	46	0	32	0	0	0	-	3	1478	43	-	74	1808	0
NW 36 St Ext @ Doral Corporate Ctr Dwy (MO #13)	AM	-	-	28	-	-	-	2	0	1962	22	5	10	1276	0
	PM	-	-	64	-	-	-	3	0	1492	15	7	5	1871	0
NW 36 St Ext @ NW 87 Ave	AM	331	753	319	167	801	207	-	342	1375	350	-	483	887	197
	PM	473	892	392	188	924	242	-	251	1145	254	-	451	1303	223
NW 36 St Ext @ Doral Square Dwy (MO#14)	AM	-	-	16	-	-	-	-	-	1811	3	1	7	1456	-
	PM	-	-	58	-	-	-	-	-	1655	35	7	72	1866	-
NW 36 St Ext @ Doral Court Plaza Dwy	AM	5	-	16	-	-	-	3	-	1804	6	8	18	1451	-
	PM	8	-	25	-	-	-	3	-	1642	18	80	12	1864	-
NW 36 St Ext @ NW 8400 Block	AM	12	0	3	15	0	8	-	79	1710	18	-	20	1456	126
	PM	11	0	17	15	0	223	-	8	1721	11	-	14	1722	8
NW 36 St Ext @ Holiday Inn Dwy (MO#16)	AM	0	0	9	7	0	3	5	18	1704	0	0	0	1605	4
	PM	0	3	5	5	0	16	4	6	1743	0	2	3	1707	4
NW 36 St Ext @ Doral Concourse Dwy	AM	22	2	32	3	0	2	0	6	1693	21	6	26	1587	10
	PM	33	0	61	9	0	7	0	6	1726	22	23	18	1673	9
NW 36 St Ext @ NW 8300 Block	AM	26	3	53	0	-	4	-	0	1676	47	-	122	1600	17
	PM	61	0	81	0	-	33	-	2	1743	74	-	141	1628	26
NW 36 St Ext @ NW 82 Ave	AM	63	95	157	99	139	70	-	86	1511	151	-	278	1602	119
	PM	129	158	445	99	153	98	-	64	1755	86	-	220	1653	74
NW 36 St Ext @ Polytechnic University Dwy (MO#18)	AM	0	0	3	4	0	3	2	5	1745	2	3	22	1978	22
	PM	4	0	27	19	0	16	3	4	2235	3	7	16	1884	14
NW 36 St Ext @ Burger King Dwy (MO#19)	AM	7	2	20	14	2	18	9	17	1727	23	15	16	1960	12
	PM	5	0	19	16	0	34	3	10	2271	4	9	10	1868	23
NW 36 St Ext @ Bank United Dwy (MO#20)	AM	0	-	8	-	-	115	3	18	1728	12	9	2	2033	58
	PM	0	-	27	-	-	163	3	45	2295	8	7	3	1901	143
NW 36 St Ext @ NW 79 Ave	AM	40	116	163	475	217	82	-	79	1635	53	-	310	1950	412
	PM	114	127	366	749	237	122	-	97	2150	54	-	226	1809	313
NW 36 St Ext @ SR 826 Off-ramp	AM	-	-	-	622	-	849	-	-	1091	-	-	-	1791	-
	PM	-	-	-	369	-	368	-	-	1395	-	-	-	1799	-

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4.3 Future (2031) No-Build Volumes

The 2021 baseline traffic data were forecast to the Design Year (2031) using an annual growth factor of 0.5% to get the future No-Build peak hour traffic volumes. **Table 4-6** shows the forecasted no-build peak hour traffic volumes, which are also included in **Appendix G**.

Table 4-6: 2031 No-Build Peak Hour Volumes

Intersection	Peak Period	2031 No-Build Projected Peak Hour Traffic Volumes													
		Approach Movements													
		NBL	NBT	NBR	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR
NW 41 St @ Publix Dwy (MO#1)	AM	-	-	0	21	2	74	-	100	1811	19	-	-	983	110
	PM	-	-	10	37	0	152	-	112	1270	2	-	-	1950	160
NW 41 St @ NW 97 Ave	AM	131	475	248	508	603	58	-	74	1537	294	-	251	989	238
	PM	278	657	203	366	885	138	-	101	1065	152	-	198	1788	251
NW 97 Ave @ Doral Ctr Plaza Dwy (MO #2)	AM	4	0	19	13	0	13	7	22	2064	22	13	16	1232	11
	PM	5	0	20	17	0	36	3	11	1524	4	9	11	1938	28
NW 41 St @ Banesco Bank Dwy (MO #3)	AM	-	-	6	-	-	-	2	-	2074	33	19	6	1268	-
	PM	-	-	57	-	-	-	3	-	1530	35	7	3	1982	-
NW 41 St @ McDonald Restaurant Dwy (MO #4)	AM	-	-	-	2	-	52	7	9	2081	-	-	-	1241	24
	PM	-	-	-	2	-	43	28	5	1560	-	-	-	1924	54
NW 41 St @ Sanctuary at Doral Dwy (MO #5)	AM	-	-	15	-	-	-	-	-	2069	6	0	8	1268	-
	PM	-	-	22	-	-	-	-	-	1537	7	3	19	1976	-
NW 41 St @ Univision TV Station Dwy (MO #6)	AM	-	-	-	0	-	0	3	5	2057	-	0	-	1270	9
	PM	-	-	-	7	-	7	12	6	1534	-	3	-	1964	9
NW 41 St @ NW 93 Ct	AM	8	0	10	47	0	34	-	114	2042	32	-	16	1266	28
	PM	54	0	21	25	0	35	-	108	1504	11	-	9	1952	32
NW 41 St @ Federal Reserve Bank Dwy1 (MO #7)	AM	4	-	16	-	-	-	0	-	2019	22	0	45	1270	-
	PM	21	-	88	-	-	-	4	-	1492	8	2	20	1918	-
NW 41 St @ Federal Reserve Bank Dwy2 (MO #8)	AM	2	-	0	-	-	-	0	-	2033	2	0	8	1313	-
	PM	0	-	0	-	-	-	0	-	1580	2	0	6	1938	-
NW 41 St @ Federal Reserve Bank Dwy2 (MO #9)	AM	-	-	-	-	-	-	2	-	2033	0	2	0	1321	-
	PM	-	-	-	-	-	-	0	-	1580	0	0	0	1944	-
NW 41 St @ AT&T Dwy1 (MO #10)	AM	0	-	2	-	-	-	0	-	2033	0	0	0	1321	-
	PM	5	-	10	-	-	-	2	-	1580	0	2	0	1938	-
NW 41 St @ AT&T Dwy2 (MO #11)	AM	0	-	13	-	-	-	-	-	2016	5	2	2	1321	-
	PM	10	-	4	-	-	-	-	-	1582	3	2	4	1935	-
NW 41 St @ AT&T Dwy3 (MO #12)	AM	3	-	13	-	-	-	0	-	2026	3	2	2	1320	-
	PM	2	-	8	-	-	-	0	-	1584	3	5	5	1938	-
NW 36 St Ext @ NW 8800 Block	AM	43	0	118	3	0	2	-	13	1968	52	-	37	1280	3
	PM	48	0	34	0	0	0	-	3	1554	45	-	78	1900	0
NW 36 St Ext @ Doral Corporate Ctr Dwy (MO #13)	AM	-	-	29	-	-	-	2	0	2062	23	5	11	1341	0
	PM	-	-	67	-	-	-	3	0	1568	16	7	5	1967	0
NW 36 St Ext @ NW 87 Ave	AM	348	792	335	176	842	218	-	359	1445	368	-	508	932	207
	PM	497	938	412	198	971	254	-	264	1204	267	-	474	1370	234
NW 36 St Ext @ Doral Square Dwy (MO#14)	AM	-	-	17	-	-	-	-	-	1904	3	2	7	1530	-
	PM	-	-	61	-	-	-	-	-	1740	37	8	76	1961	-
NW 36 St Ext @ Doral Court Plaza Dwy	AM	5	-	17	-	-	-	3	-	1896	6	8	19	1525	-
	PM	8	-	26	-	-	-	3	-	1726	19	84	13	1959	-
NW 36 St Ext @ NW 8400 Block	AM	13	0	3	16	0	8	-	83	1797	19	-	21	1530	132
	PM	12	0	18	16	0	234	-	8	1809	12	-	15	1810	8
NW 36 St Ext @ Holiday Inn Dwy (MO#16)	AM	0	0	9	7	0	3	5	19	1791	0	0	0	1687	4
	PM	0	3	5	5	0	17	4	6	1832	0	2	3	1794	4
NW 36 St Ext @ Doral Concourse Dwy	AM	23	2	34	3	0	2	0	6	1780	22	6	27	1668	11
	PM	35	0	64	9	0	7	0	6	1814	23	24	19	1759	9
NW 36 St Ext @ NW 8300 Block	AM	27	3	56	0	-	4	-	0	1762	49	-	128	1682	18
	PM	64	0	85	0	-	35	-	2	1832	78	-	148	1711	27
NW 36 St Ext @ NW 82 Ave	AM	66	100	165	104	146	74	-	90	1588	159	-	292	1684	125
	PM	136	166	468	104	161	103	-	67	1845	90	-	231	1738	78
NW 36 St Ext @ Polytechnic University Dwy (MO#18)	AM	0	0	3	4	0	3	2	5	1834	2	3	23	2079	23
	PM	4	0	28	20	0	17	3	4	2349	3	7	17	1980	15
NW 36 St Ext @ Burger King Dwy (MO#19)	AM	7	2	21	15	2	19	9	18	1815	24	16	17	2060	13
	PM	5	0	20	17	0	36	3	11	2387	4	9	11	1964	24
NW 36 St Ext @ Bank United Dwy (MO#20)	AM	0	-	8	-	-	121	3	19	1816	13	9	2	2137	61
	PM	0	-	28	-	-	171	3	47	2412	8	7	3	1998	150
NW 36 St Ext @ NW 79 Ave	AM	42	122	171	499	228	86	-	83	1719	56	-	326	2050	433
	PM	120	133	385	787	249	128	-	102	2260	57	-	238	1902	329
NW 36 St Ext @ SR 826 Off-ramp	AM	-	-	-	654	-	892	-	-	1147	-	-	-	1883	-
	PM	-	-	-	388	-	387	-	-	1466	-	-	-	1891	-

4.4 Traffic Diversion

Any median opening closure/modification will necessitate the re-routing of certain vehicular traffic movements. As will be discussed later in the report, this study identifies three build alternatives for closing/modifying median openings along the arterial. **Appendix H** shows the anticipated vehicular traffic diversions for each of the proposed build alternatives. As a cautionary note, please note that, although the peak hour traffic data at the median openings were adjusted to account for seasonal variability and the COVID-19 pandemic impacts, the actual volumes when business and schools re-open for in-person attendance may end up being higher than projected.

4.5 Design Year Peak Hour Traffic

To get the Design Year (2031) peak hour traffic used in the future conditions operational analysis, the diverted traffic volumes for each build alternative were added to the 2031 No-Build peak hour traffic volumes. **Tables 4-7** through **4-9** show the resulting peak hour traffic volumes under each improvement alternative.

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Table 4-7: Alternative 2 Design Year (2031) Peak Hour Volumes

2031 Alternative 2 Projected Peak Hour Traffic Volumes															
Intersection	Peak Period	Approach Movements													
		NBL	NBT	NBR	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR
NW 41 St @ Publix Dwy (MO#1)	AM	-	-	0	-	2	74	-	-	1932	19	-	-	983	110
	PM	-	-	10	-	0	152	-	-	1419	2	-	-	1950	160
NW 41 St @ NW 97 Ave	AM	131	475	248	508	603	58	100	74	1537	294	69	251	989	238
	PM	278	657	203	366	885	138	122	101	1065	152	50	198	1788	251
NW 97 Ave @ Doral Ctr Plaza Dwy(MO #2)	AM	-	-	19	-	-	26	-	-	2093	22	-	-	1288	11
	PM	-	-	20	-	-	53	-	-	1538	4	-	-	1971	28
NW 41 St @ Banesco Bank Dwy(MO #3)	AM	-	-	6	-	-	-	-	-	2080	33	-	-	1346	-
	PM	-	-	57	-	-	-	-	-	1538	35	-	-	2049	-
NW 41 St @ McDonald Restaurant Dwy (MO #4)	AM	-	-	-	-	-	52	-	-	2101	-	-	-	1294	24
	PM	-	-	-	-	-	43	-	-	1598	-	-	-	1981	54
NW 41 St @ Sanctuary at Doral Dwy (MO #5)	AM	-	-	15	-	-	-	-	-	2069	6	0	8	1319	-
	PM	-	-	22	-	-	-	-	-	1537	7	10	19	2031	-
NW 41 St @ Univision TV Station Dwy (MO #6)	AM	-	-	-	-	-	0	3	5	2057	-	0	-	1270	9
	PM	-	-	-	-	-	14	12	6	1534	-	3	-	1964	9
NW 41 St @ NW 93 Ct	AM	8	0	9	47	0	34	-	114	2042	32	-	16	1266	28
	PM	54	0	21	25	0	35	-	108	1504	11	-	9	1952	32
NW 41 St @ Federal Reserve Bank Dwy1 (MO #7)	AM	-	-	20	-	-	-	0	-	2019	22	0	45	1270	-
	PM	-	-	109	-	-	-	4	-	1492	8	2	20	1918	-
NW 41 St @ Federal Reserve Bank Dwy2 (MO #8)	AM	-	-	-	-	-	-	0	-	2037	2	0	8	1313	-
	PM	-	-	-	-	-	-	0	-	1601	2	2	6	1938	-
NW 41 St @ Federal Reserve Bank Dwy2 (MO #9)	AM	-	-	-	-	-	-	0	-	2039	0	0	0	1321	-
	PM	-	-	-	-	-	-	0	-	1601	0	0	0	1944	-
NW 41 St @ AT&T Dwy1 (MO #10)	AM	-	-	7	-	-	-	0	-	2039	0	-	0	1321	-
	PM	-	-	9	-	-	-	2	-	1601	0	-	0	1940	-
NW 41 St @ AT&T Dwy2 (MO #11)	AM	-	-	13	-	-	-	-	-	2027	5	6	2	1321	-
	PM	-	-	14	-	-	-	-	-	1603	3	12	4	1935	-
NW 41 St @ AT&T Dwy3 (MO #12)	AM	-	-	16	-	-	-	0	-	2037	3	-	-	1320	-
	PM	-	-	10	-	-	-	0	-	1615	3	-	-	1938	-
NW 36 St Ext @ NW 8800 Block	AM	43	0	118	3	0	2	14	13	1968	52	16	37	1280	3
	PM	48	0	34	0	0	0	33	3	1554	45	12	78	1900	0
NW 36 St Ext @ Doral Corporate Ctr Dwy (MO #13)	AM	-	-	29	-	-	-	2	0	2062	23	-	-	1357	0
	PM	-	-	67	-	-	-	3	0	1568	16	-	-	1979	0
NW 36 St Ext @ NW 87 Ave	AM	348	792	335	176	842	218	-	359	1445	368	-	508	932	207
	PM	497	938	412	198	971	254	-	264	1204	267	-	474	1370	234
NW 36 St Ext @ Doral Square Dwy (MO#14)	AM	-	-	17	-	-	-	-	-	1904	3	29	7	1530	-
	PM	-	-	61	-	-	-	-	-	1740	37	105	76	1961	-
NW 36 St Ext @ Doral Court Plaza Dwy	AM	-	-	22	-	-	-	3	-	1896	6	-	-	1552	-
	PM	-	-	34	-	-	-	3	-	1726	19	-	-	2056	-
NW 36 St Ext @ NW 8400 Block	AM	13	0	3	16	0	8	8	83	1797	19	10	21	1530	132
	PM	12	0	18	16	0	234	8	8	1809	12	19	15	1810	8
NW 36 St Ext @ Holiday Inn Dwy (MO#16)	AM	-	-	9	-	-	10	-	-	1815	0	-	-	1690	4
	PM	-	-	8	-	-	22	-	-	1842	0	-	-	1808	4
NW 36 St Ext @ Doral Concourse Dwy	AM	-	-	59	-	-	5	0	30	1780	22	6	27	1668	11
	PM	-	-	99	-	-	16	0	19	1814	23	24	19	1759	9
NW 36 St Ext @ NW 8300 Block	AM	27	3	56	0	-	4	-	0	1787	49	-	128	1682	18
	PM	64	0	85	0	-	60	-	-	1867	78	-	148	1711	27
NW 36 St Ext @ NW 82 Ave	AM	66	100	165	104	146	74	25	90	1588	159	19	292	1684	125
	PM	136	166	468	104	161	103	35	67	1845	90	37	231	1738	78
NW 36 St Ext @ Polytechnic University Dwy (MO#18)	AM	-	-	3	-	-	7	-	-	1841	2	-	-	2094	23
	PM	-	-	32	-	-	37	-	-	2356	3	-	-	1997	15
NW 36 St Ext @ Burger King Dwy (MO#19)	AM	-	-	30	-	-	36	16	18	1815	24	27	17	2060	13
	PM	-	-	25	-	-	53	14	11	2387	4	19	11	1964	24
NW 36 St Ext @ Bank United Dwy (MO#20)	AM	-	-	8	-	-	121	-	-	1845	13	-	-	2148	61
	PM	-	-	28	-	-	171	-	-	2465	8	-	-	2008	150
NW 36 St Ext @ NW 79 Ave	AM	42	122	171	499	228	86	29	83	1719	56	-	326	2050	433
	PM	120	133	385	787	249	128	55	102	2260	57	-	238	1902	329
NW 36 St Ext @ SR 826 Off-ramp	AM	-	-	-	654	-	892	-	83	1147	-	-	-	1883	-
	PM	-	-	-	388	-	387	-	102	1466	-	-	-	1891	-

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Table 4-8: Alternative 3 Design Year (2031) Peak Hour Volumes

2031 Alternative 3 Projected Peak Hour Traffic Volumes																
Intersection	Peak Period	Approach Movements														
		NBL	NBT	NBR	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	
NW 41 St @ Publix Dwy (MO#1)	AM	-	-	0	-	-	97	-	100	1834	19	-	-	-	983	110
	PM	-	-	10	-	0	189	-	112	1307	2	-	-	-	1950	160
NW 41 St @ NW 97 Ave	AM	131	475	248	508	603	58	-	74	1537	294	13	251	989	238	
	PM	278	657	203	366	885	138	10	101	1065	152	17	198	1788	251	
NW 97 Ave @ Doral Ctr Plaza Dwy (MO #2)	AM	-	0	23	-	0	26	-	-	2106	22	40	16	1232	11	
	PM	-	0	25	-	0	53	-	-	1555	4	19	11	1938	28	
NW 41 St @ Banesco Bank Dwy (MO #3)	AM	-	-	6	-	-	-	-	-	2103	33	-	-	1293	-	
	PM	-	-	57	-	-	-	-	-	1544	35	-	-	1992	-	
NW 41 St @ McDonald Restaurant Dwy (MO #4)	AM	-	-	-	-	-	54	-	-	2130	-	-	-	1241	24	
	PM	-	-	-	-	-	45	-	-	1608	-	-	-	1924	54	
NW 41 St @ Sanctuary at Doral Dwy (MO #5)	AM	-	-	15	-	-	-	-	-	2069	6	0	8	1268	-	
	PM	-	-	22	-	-	-	-	-	1537	7	10	19	1976	-	
NW 41 St @ Univision TV Station Dwy (MO #6)	AM	-	-	-	-	-	0	-	-	2062	-	0	-	1270	9	
	PM	-	-	-	-	-	14	-	-	1552	-	3	-	1964	9	
NW 41 St @ NW 93 Ct	AM	8	0	10	47	0	34	-	122	2042	32	-	16	1266	28	
	PM	54	0	21	25	0	35	-	126	1504	11	-	9	1952	32	
NW 41 St @ Federal Reserve Bank Dwy1 (MO #7)	AM	-	-	20	-	-	-	0	-	2019	22	0	45	1270	-	
	PM	-	-	109	-	-	-	4	-	1492	8	2	20	1918	-	
NW 41 St @ Federal Reserve Bank Dwy2 (MO #8)	AM	-	-	-	-	-	-	0	-	2037	2	0	8	1313	-	
	PM	-	-	-	-	-	-	0	-	1601	2	2	6	1938	-	
NW 41 St @ Federal Reserve Bank Dwy2 (MO #9)	AM	-	-	-	-	-	-	0	-	2039	0	0	0	1321	-	
	PM	-	-	-	-	-	-	0	-	1601	0	0	0	1944	-	
NW 41 St @ AT&T Dwy1 (MO #10)	AM	-	-	7	-	-	-	0	-	2039	0	-	0	1321	-	
	PM	-	-	9	-	-	-	2	-	1601	0	-	0	1940	-	
NW 41 St @ AT&T Dwy2 (MO #11)	AM	0	-	13	-	-	-	11	-	2016	5	6	2	1321	-	
	PM	11	-	4	-	-	-	21	-	1582	3	12	4	1935	-	
NW 41 St @ AT&T Dwy3 (MO #12)	AM	3	-	13	-	-	-	0	-	2026	3	2	2	1320	-	
	PM	2	-	8	-	-	-	0	-	1584	3	5	5	1938	-	
NW 36 St Ext @ NW 8800 Block	AM	43	0	118	3	0	2	-	13	1968	52	16	37	1280	3	
	PM	48	0	34	0	0	0	10	3	1554	45	12	78	1900	0	
NW 36 St Ext @ Doral Corporate Ctr Dwy (MO #13)	AM	-	-	29	-	-	-	2	0	2062	23	-	-	1357	0	
	PM	-	-	67	-	-	-	3	0	1568	16	-	-	1979	0	
NW 36 St Ext @ NW 87 Ave	AM	348	792	335	176	842	218	-	359	1445	368	-	508	932	207	
	PM	497	938	412	198	971	254	-	264	1204	267	-	474	1370	234	
NW 36 St Ext @ Doral Square Dwy (MO#14)	AM	-	-	17	-	-	-	-	-	1904	3	29	7	1530	-	
	PM	-	-	61	-	-	-	-	-	1740	37	105	76	1961	-	
NW 36 St Ext @ Doral Court Plaza Dwy	AM	5	-	17	-	-	-	3	-	1896	6	-	-	1525	-	
	PM	8	-	26	-	-	-	3	-	1726	19	-	-	1959	-	
NW 36 St Ext @ NW 8400 Block	AM	13	0	3	16	0	8	-	83	1797	19	10	21	1530	132	
	PM	12	0	18	16	0	234	-	8	1809	12	19	15	1810	8	
NW 36 St Ext @ Holiday Inn Dwy (MO#16)	AM	-	-	9	-	-	10	-	-	1815	0	-	-	1687	4	
	PM	-	-	8	-	-	22	-	-	1842	0	-	-	1799	4	
NW 36 St Ext @ Doral Concourse Dwy	AM	-	-	59	-	-	5	24	6	1780	22	6	27	1668	11	
	PM	-	-	99	-	-	16	13	6	1814	23	24	19	1759	9	
NW 36 St Ext @ NW 8300 Block	AM	27	3	56	0	-	4	-	0	1762	49	-	128	1682	18	
	PM	64	0	85	0	-	35	-	2	1832	78	-	148	1711	27	
NW 36 St Ext @ NW 82 Ave	AM	66	100	165	104	146	74	25	90	1588	159	19	292	1684	125	
	PM	136	166	468	104	161	103	35	67	1845	90	37	231	1738	78	
NW 36 St Ext @ Polytechnic University Dwy (MO#18)	AM	-	-	3	-	-	7	-	-	1841	2	-	-	2105	23	
	PM	-	-	32	-	-	37	-	-	2356	3	-	-	2004	15	
NW 36 St Ext @ Burger King Dwy (MO#19)	AM	-	-	30	-	-	36	16	18	1815	24	27	17	2060	13	
	PM	-	-	25	-	-	53	14	11	2387	4	19	11	1964	24	
NW 36 St Ext @ Bank United Dwy (MO#20)	AM	0	-	8	-	-	121	-	-	1845	13	-	-	2148	61	
	PM	0	-	28	-	-	171	-	-	2467	8	-	-	2008	150	
NW 36 St Ext @ NW 79 Ave	AM	42	122	171	499	228	86	29	83	1719	56	-	326	2050	433	
	PM	120	133	385	787	249	128	55	102	2260	57	-	238	1902	329	
NW 36 St Ext @ SR 826 Off-ramp	AM	-	-	-	654	-	892	-	83	1147	-	-	-	1883	-	
	PM	-	-	-	388	-	387	-	102	1466	-	-	-	1891	-	

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Table 4-9: Alternative 4 Design Year (2031) Peak Hour Volumes

2031 Alternative 4 Projected Peak Hour Traffic Volumes															
Intersection	Peak Period	Approach Movements													
		NBL	NBT	NBR	SBL	SBT	SBR	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR
NW 41 St @ Publix Dwy (MO#1)	AM	-	-	0	-	-	95	-	-	1911	19	-	-	983	110
	PM	-	-	19	-	-	189	-	-	1382	2	-	-	1950	160
NW 41 St @ NW 97 Ave	AM	131	475	248	508	603	58	100	74	1537	294	69	251	989	238
	PM	278	657	203	366	885	138	122	101	1065	152	50	198	1788	251
NW 97 Ave @ Doral Ctr Plaza Dwy (MO #2)	AM	4	0	19	-	-	26	-	-	2093	22	-	-	1288	11
	PM	5	0	20	-	-	53	-	-	1538	4	-	-	1971	28
NW 41 St @ Banesco Bank Dwy (MO #3)	AM	-	-	6	-	-	-	2	-	2080	33	19	6	1346	-
	PM	-	-	57	-	-	-	3	-	1538	35	7	3	2049	-
NW 41 St @ McDonald Restaurant Dwy (MO #4)	AM	-	-	-	2	-	52	7	9	2101	-	-	-	1294	24
	PM	-	-	-	2	-	43	28	5	1598	-	-	-	1981	54
NW 41 St @ Sanctuary at Doral Dwy (MO #5)	AM	-	-	15	-	-	-	-	-	2069	6	0	8	1319	-
	PM	-	-	22	-	-	-	-	-	1537	7	10	19	2031	-
NW 41 St @ Univision TV Station Dwy (MO #6)	AM	-	-	-	0	-	0	3	5	2057	-	0	-	1270	9
	PM	-	-	-	7	-	14	12	6	1534	-	3	-	1964	9
NW 41 St @ NW 93 Ct	AM	8	0	10	47	0	34	-	114	2042	32	-	16	1266	28
	PM	54	0	21	25	0	35	-	108	1504	11	-	9	1952	32
NW 41 St @ Federal Reserve Bank Dwy1 (MO #7)	AM	4	-	16	-	-	-	0	-	2019	22	0	45	1270	-
	PM	21	-	88	-	-	-	4	-	1492	8	2	20	1918	-
NW 41 St @ Federal Reserve Bank Dwy2 (MO #8)	AM	-	-	-	-	-	-	0	-	2037	2	0	8	1313	-
	PM	-	-	-	-	-	-	0	-	1601	2	2	6	1938	-
NW 41 St @ Federal Reserve Bank Dwy2 (MO #9)	AM	-	-	-	-	-	-	0	-	2039	0	0	0	1321	-
	PM	-	-	-	-	-	-	0	-	1601	0	0	0	1944	-
NW 41 St @ AT&T Dwy1 (MO #10)	AM	-	-	7	-	-	-	0	-	2039	0	-	0	1321	-
	PM	-	-	9	-	-	-	2	-	1601	0	-	0	1940	-
NW 41 St @ AT&T Dwy2 (MO #11)	AM	-	-	13	-	-	-	-	-	2027	5	6	2	1321	-
	PM	-	-	14	-	-	-	-	-	1603	3	12	4	1935	-
NW 41 St @ AT&T Dwy3 (MO #12)	AM	-	-	16	-	-	-	11	-	2026	3	2	2	1320	-
	PM	-	-	10	-	-	-	31	-	1584	3	5	5	1938	-
NW 36 St Ext @ NW 8800 Block	AM	43	0	118	3	0	2	3	13	1968	52	16	37	1280	3
	PM	48	0	34	0	0	0	2	3	1554	45	12	78	1900	0
NW 36 St Ext @ Doral Corporate Ctr Dwy (MO #13)	AM	-	-	29	-	-	-	2	0	2062	23	-	-	1357	0
	PM	-	-	67	-	-	-	3	0	1568	16	-	-	1979	0
NW 36 St Ext @ NW 87 Ave	AM	348	792	335	176	842	218	-	359	1445	368	36	508	932	207
	PM	497	938	412	198	971	254	-	264	1204	267	81	474	1370	234
NW 36 St Ext @ Doral Square Dwy (MO#14)	AM	-	-	17	-	-	-	-	-	1904	3	-	-	1566	-
	PM	-	-	61	-	-	-	-	-	1740	37	-	-	2142	-
NW 36 St Ext @ Doral Court Plaza Dwy	AM	5	-	17	-	-	-	3	-	1896	6	-	-	1552	-
	PM	8	-	26	-	-	-	3	-	1726	19	-	-	2056	-
NW 36 St Ext @ NW 8400 Block	AM	13	0	3	16	0	8	5	83	1797	19	43	21	1530	132
	PM	12	0	18	16	0	234	8	8	1809	12	62	15	1810	8
NW 36 St Ext @ Holiday Inn Dwy (MO#16)	AM	-	-	9	-	-	10	-	-	1815	0	-	-	1690	4
	PM	-	-	8	-	-	22	-	-	1842	0	-	-	1808	4
NW 36 St Ext @ Doral Concourse Dwy	AM	-	-	59	-	-	5	-	-	1810	22	-	-	1701	11
	PM	-	-	99	-	-	16	-	-	1833	23	-	-	1802	9
NW 36 St Ext @ NW 8300 Block	AM	27	3	56	0	-	4	55	0	1762	49	-	128	1682	18
	PM	64	0	85	0	-	35	54	2	1832	78	-	148	1711	27
NW 36 St Ext @ NW 82 Ave	AM	66	100	165	104	146	74	-	90	1588	159	19	292	1684	125
	PM	136	166	468	104	161	103	-	67	1845	90	37	231	1738	78
NW 36 St Ext @ Polytechnic University Dwy (MO#18)	AM	-	-	3	-	-	7	-	-	1841	2	-	-	2105	23
	PM	-	-	32	-	-	37	-	-	2356	3	-	-	2004	15
NW 36 St Ext @ Burger King Dwy (MO#19)	AM	-	-	28	-	-	34	16	18	1815	24	27	17	2060	13
	PM	-	-	25	-	-	53	14	11	2387	4	19	11	1964	24
NW 36 St Ext @ Bank United Dwy (MO#20)	AM	-	-	8	-	-	121	3	19	1816	13	-	-	2148	61
	PM	-	-	28	-	-	171	3	47	2412	8	-	-	2008	150
NW 36 St Ext @ NW 79 Ave	AM	42	122	171	499	228	86	29	83	1719	56	-	326	2050	433
	PM	120	133	385	787	249	128	55	102	2260	57	-	238	1902	329
NW 36 St Ext @ SR 826 Off-ramp	AM	-	-	-	654	-	892	-	83	1147	-	-	-	1883	-
	PM	-	-	-	388	-	387	-	102	1466	-	-	-	1891	-

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5 Crash Analysis

A crash analysis for the study segment was first performed based on five years of crash data downloaded from the FDOT's Signal Four Analytics database. The data was downloaded and reviewed for five years, starting from January 1, 2014, through December 31, 2018. The main focus of the crash analysis was on angle and left-turn crashes happening at the existing median openings and signals. In the five years, there were 992 crashes reported with an annual distribution of 162, 211, 198, 204, and 217 for Years 2014, 2015, 2016, 2017, and 2018, respectively. Among the 992 crashes, 111 crashes were angle crashes, and 69 crashes were left-turn crashes.

- The angle crashes occurred at different times of the day with no peak period. Six (6) crashes occurred within the AM peak period, and 27 crashes occurred during the PM peak period. There were 11 and 13 left-turn crashes during the AM and PM peak periods, respectively.
- Other crashes along the arterial included rear-end (366 crashes), sideswipe (351 crashes), right-turn (52 crashes), 13 fixed object crashes, 11 backed-into crashes, seven (7) non-fixed object collision crashes, three (3) pedestrian crashes, four (4) bicycle crashes, and five (5) non-collision crashes.
- Rear-end and sideswipe crashes were concentrated on the approaches to the signalized approaches at NW 97th Avenue, NW 87th Avenue, and NW 79th Street. Although, according to the crash records, the majority of the rear-end crashes were due to drivers following too closely, the lack of exclusive right-turn lanes along the arterial may have played a significant role. The sideswipe crashes were mostly attributed to drivers improperly changing lanes in heavy traffic streams.
- The single pedestrian crash occurred at the signalized intersection of Doral Boulevard and NW 97th Avenue, while four (4) of the five (5) bicycle crashes occurred within sidewalks at driveways along the arterial.
- There was one (1) fatality that was reported within the study limits in the five-year period. The fatality involved a motorcyclist and occurred at 11.23 AM on March 8, 2016. The crash happened when a vehicle making a right turn from the McDonald's restaurant driveway (located on the north side of the arterial between Median Openings #s 3 and 4) collided with a motorcyclist traveling westbound.
- There were 130 crashes (13.2%) that resulted in injuries. These included 18 angle crashes and eight (8) left-turn crashes.
- **Tables 5-1** through **5-3** present summaries of the overall crashes along the arterial. The summaries for the overall crashes are also presented as histograms in **Figure 5-1**. Annual crash summary sheets as well as the collision diagrams for all crashes between January 1, 2014 and December 31, 2018 are shown in **Appendix I**.

Further reviews of the left-turn and angle crashes were conducted for two more years from January 1, 2019 to December 31, 2020 whereby 33 left-turn and 60 angle additional crashes were reported. **Table 5-4** shows the annual breakdown and crash distribution of the left-turn and angle crashes by location. Please notice that the level of traffic demand in Year 2020 was impacted by the COVID-19 pandemic due to business and school closures. As a result, this may have had an effect on the number of left-turn and angle crash incidences recorded.

Figure 5-2 shows the collision diagrams for the angle and left-turn crashes that occurred from January 1, 2014 through December 31, 2020.

Table 5-1: Summary of Crash Types

Doral Boulevard/NW 41 Street/NW 36 Street from NW 97 Avenue to SR 826/Palmetto Expressway		Number of Crashes Year					5 Year Total Crashes	Mean Crashes Per Year	%
		2014	2015	2016	2017	2018			
CRASH TYPE	Rear End	71	79	57	78	81	366	73	36.9%
	Angle	17	25	23	25	21	111	22	11.2%
	Left Turn	13	12	16	14	14	69	14	7.0%
	Right Turn	5	13	9	11	14	52	10	5.2%
	Sideswipe	46	77	85	70	73	351	70	35.4%
	Backed Into	2	1	3	0	5	11	2	1.1%
	Pedestrian	0	1	0	1	1	3	1	0.3%
	Bicycle	1	0	1	0	2	4	1	0.4%
	Fixed Object	4	2	0	4	3	13	3	1.3%
	Curb	0	0	0	1	2	3	1	0.3%
	Concrete Traffic Barrier	0	1	0	0	0	1	0	0.1%
	Tree (Standing)	1	0	0	0	0	1	0	0.1%
	Utility Pole/Light Support	1	0	0	0	0	1	0	0.1%
	Traffic Sign Support	0	0	0	1	0	1	0	0.1%
	Traffic Signal Support	1	0	0	2	1	4	1	0.4%
	Other Post, Pole Or Support	0	1	0	0	0	1	0	0.1%
	Other Fixed Object	1	0	0	0	0	1	0	0.1%
	Other Non Fixed Object Collisions	1	0	4	0	2	7	1	0.7%
	Parked Motor Vehicle	0	0	1	0	0	1	0	0.1%
	Work Zone/Maintenance Equip.	0	0	0	0	1	1	0	0.1%
	Struck by Falling/Shifting Cargo	0	0	2	0	0	2	0	0.2%
	Other Non-Fixed Object	1	0	1	0	1	3	1	0.3%
	Non-Collisions	2	1	0	1	1	5	1	0.5%
	Overturn/Rollover	2	0	0	0	0	2	0	0.2%
	Fell/Jumped from Motor Vehicle	0	1	0	0	0	1	0	0.1%
	Ran into Water/Canal	0	0	0	0	1	1	0	0.1%
	Other Non-Collision	0	0	0	1	0	1	0	0.1%
	Total Crashes	162	211	198	204	217	992	198	100.0%

Table 5-2: Summary of Crashes by Severity, Lighting, Surface Conditions and Weather Conditions

Doral Boulevard/NW 41 Street/NW 36 Street from NW 97 Avenue to SR 826/Palmetto Expressway		Number of Crashes Year					5 Year Total Crashes	Mean Crashes Per Year	%
		2014	2015	2016	2017	2018			
SEVERITY	PDO Crashes	142	181	177	177	184	861	172	86.8%
	Fatal Crashes	0	0	1	0	0	1	0	0.1%
	Injury Crashes	20	30	20	27	33	130	26	13.1%
LIGHTING CONDITIONS	Daylight	129	185	178	167	178	837	167	84.4%
	Dusk	5	1	1	1	3	11	2	1.1%
	Dawn	2	3	0	2	2	9	2	0.9%
	Dark	26	22	19	34	34	135	27	13.6%
	Unknown	0	0	0	0	0	0	0	0.0%
SURFACE CONDITIONS	Dry	136	187	178	176	198	875	175	88.2%
	Wet	26	24	20	28	19	117	23	11.8%
	Others	0	0	0	0	0	0	0	0.0%
WEATHER CONDITIONS	Clear	135	183	178	180	192	868	174	87.5%
	Cloudy	10	18	11	10	14	63	13	6.4%
	Rain	16	10	9	13	11	59	12	5.9%
	Fog, Smog, Smoke	1	0	0	1	0	2	0	0.2%
	Sleet/Hail/Freezing Rain	0	0	0	0	0	0	0	0.0%
	Blowing Sand, Soil, Dirt	0	0	0	0	0	0	0	0.0%
	Severe Crosswinds	0	0	0	0	0	0	0	0.0%
	Other	0	0	0	0	0	0	0	0.0%

Table 5-3: Summary of Crashes by Hour, Day of the Week and Month

Doral Boulevard/NW 41 Street/NW 36 Street from NW 97 Avenue to SR 826/Palmetto Expressway		Number of Crashes Year					5 Year Total Crashes	Mean Crashes Per Year	%
		2014	2015	2016	2017	2018			
MONTH OF YEAR	January	22	16	16	18	15	87	17	8.8%
	February	10	16	13	24	13	76	15	7.7%
	March	2	9	19	15	22	67	13	6.8%
	April	0	9	17	2	23	51	10	5.1%
	May	5	19	19	2	18	63	13	6.4%
	June	10	22	17	16	20	85	17	8.6%
	July	18	14	19	22	18	91	18	9.2%
	August	11	20	18	18	15	82	16	8.3%
	September	23	14	19	14	19	89	18	9.0%
	October	18	25	13	29	15	100	20	10.1%
	November	23	21	14	24	15	97	19	9.8%
	December	20	26	14	20	24	104	21	10.5%
DAY OF WEEK	Monday	24	29	34	30	44	161	32	16.2%
	Tuesday	39	38	47	34	44	202	40	20.4%
	Wednesday	32	43	33	36	41	185	37	18.6%
	Thursday	27	47	28	36	24	162	32	16.3%
	Friday	28	39	42	44	39	192	38	19.4%
	Saturday	6	10	11	13	17	57	11	5.7%
	Sunday	6	5	3	11	8	33	7	3.3%
HOUR OF DAY	00:00-06:00	5	4	2	7	10	28	6	2.8%
	06:00-09:00	20	23	26	27	25	121	24	12.2%
	09:00-11:00	22	29	29	29	31	140	28	14.1%
	11:00-13:00	17	29	39	32	26	143	29	14.4%
	13:00-15:00	37	42	30	23	33	165	33	16.6%
	15:00-18:00	35	61	47	44	50	237	47	23.9%
	18:00-21:00	18	20	19	30	34	121	24	12.2%
	21:00-24:00	8	3	6	12	8	37	7	3.7%

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Doral Boulevard/NW 41 Street/NW 36 Street from NW 97 Avenue to SR 826/Palmetto Expressway



Figure 5-1: Histogram of Crashes

Table 5-4: Summary of Left-turn and Angle Crashes from 2014-2020

Location	Left-turn Crashes								Angle Crashes							
	2014	2015	2016	2017	2018	2019	2020	Total	2014	2015	2016	2017	2018	2019	2020	Total
Median Opening #1	1	1						2	1	2	1	1		4	1	10
NW 97 Avenue				1	1			2		1				3	4	8
Median Opening #2	1	2	1	3		1		8	6	7	3	7	6	8	3	40
Median Opening #3								0								0
Median Opening #4								0								0
Median Opening #5								0								0
Median Opening #6			1					1		2				1		3
NW 93 Court								0								0
Median Opening #7							1	1								0
Median Opening #8								0								0
Median Opening #9								0								0
Median Opening #10								0								0
Median Opening #11								0								0
Median Opening #12								0								0
NW 8800 Block								0		1	3					4
Median Opening #13	1		4	1		1		7	1	4						5
NW 87 Avenue	3	1	2		2	3		11	1		4	2	1	5		13
Median Opening #14		1			1			2								0
Median Opening #15								0						1		1
NW 8400 Block	1					1		2		1		1	1			3
Median Opening #16								0			1		1			2
Median Opening #17								0		1	1					2
NW 8300 Block	1				1	1		3						2		2
NW 82 Avenue	4	4	4	1	7	3	3	26	4	1	2	1	4	3	14	29
Median Opening #18		1	2	1		2	1	7	2		2	1	1			6
Median Opening #19	1		4		1			6		2	1					3
Median Opening #20		1		4		1	1	7			1					1
NW 79 Avenue		1			2	3	1	7	1	2	4	11	8	6	5	37
SR 826 Off-Ramp Signal								0	1	1						2

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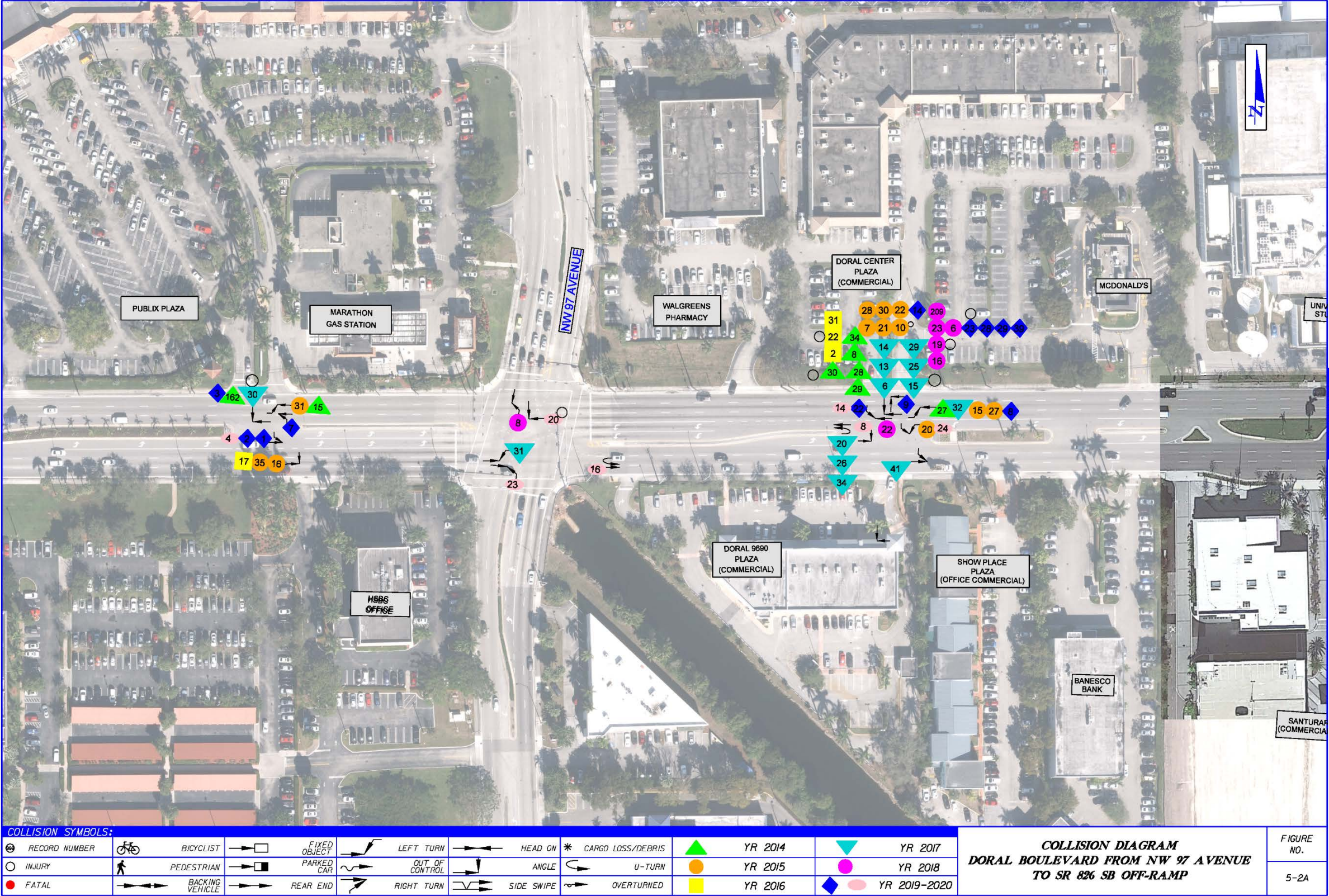
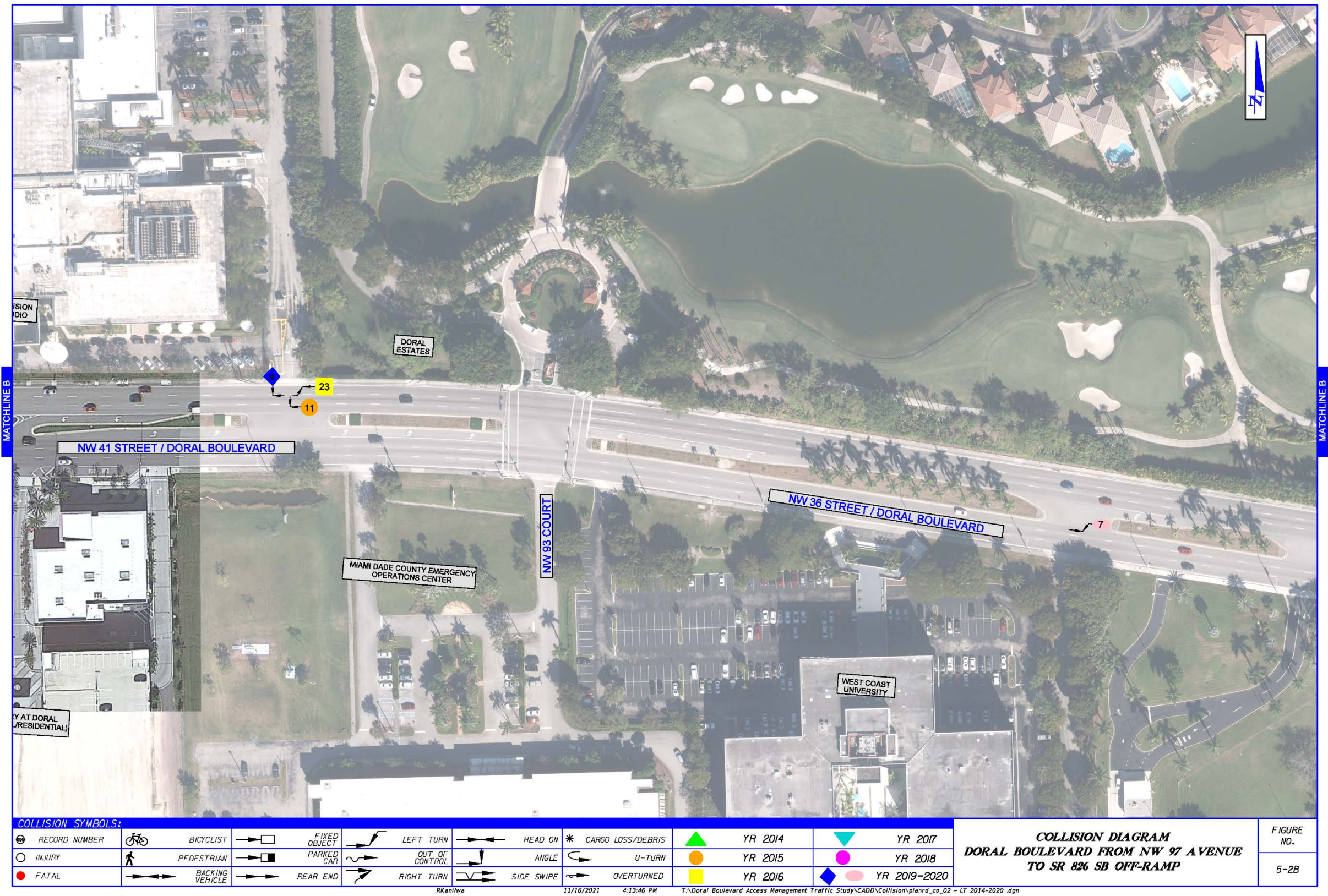
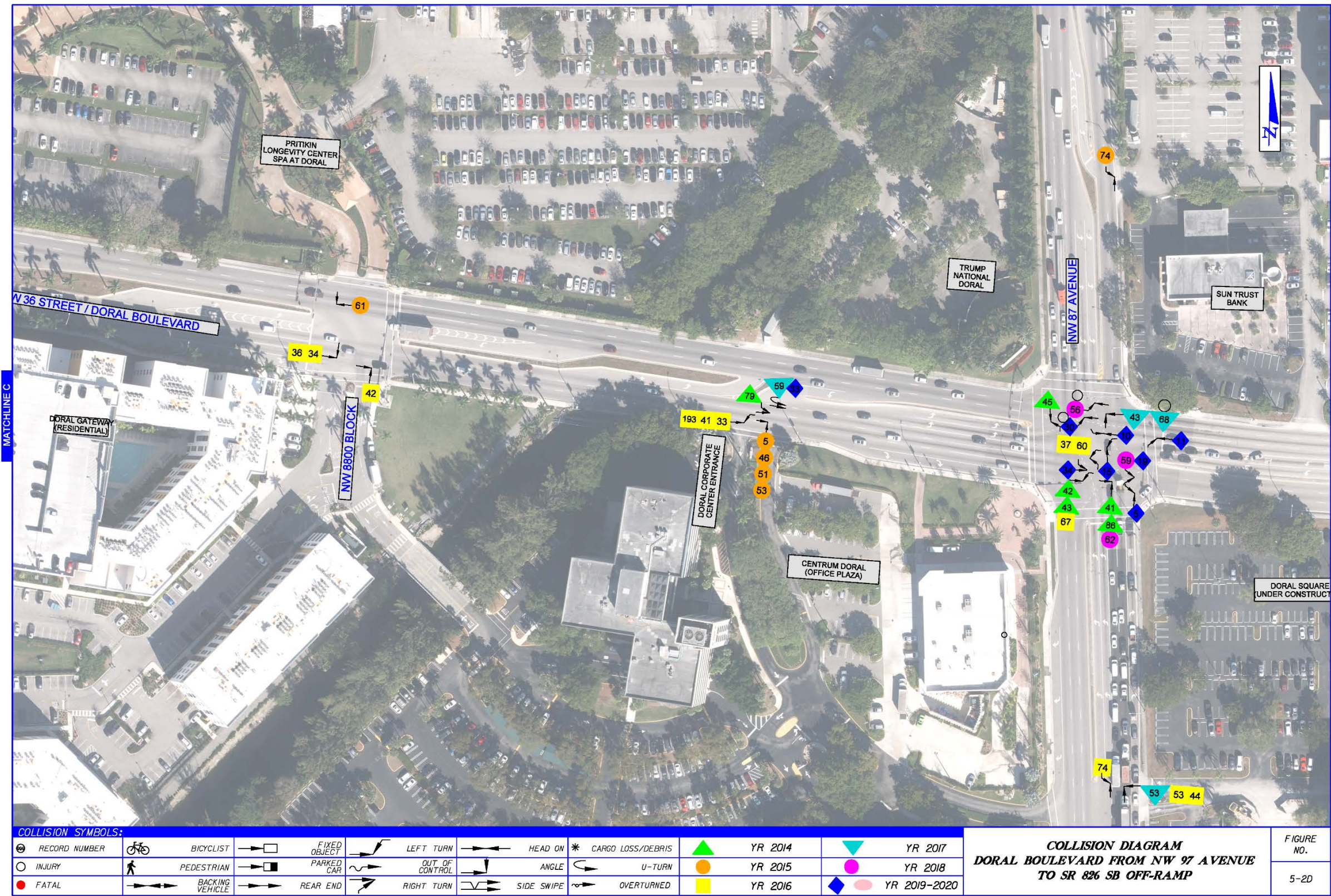
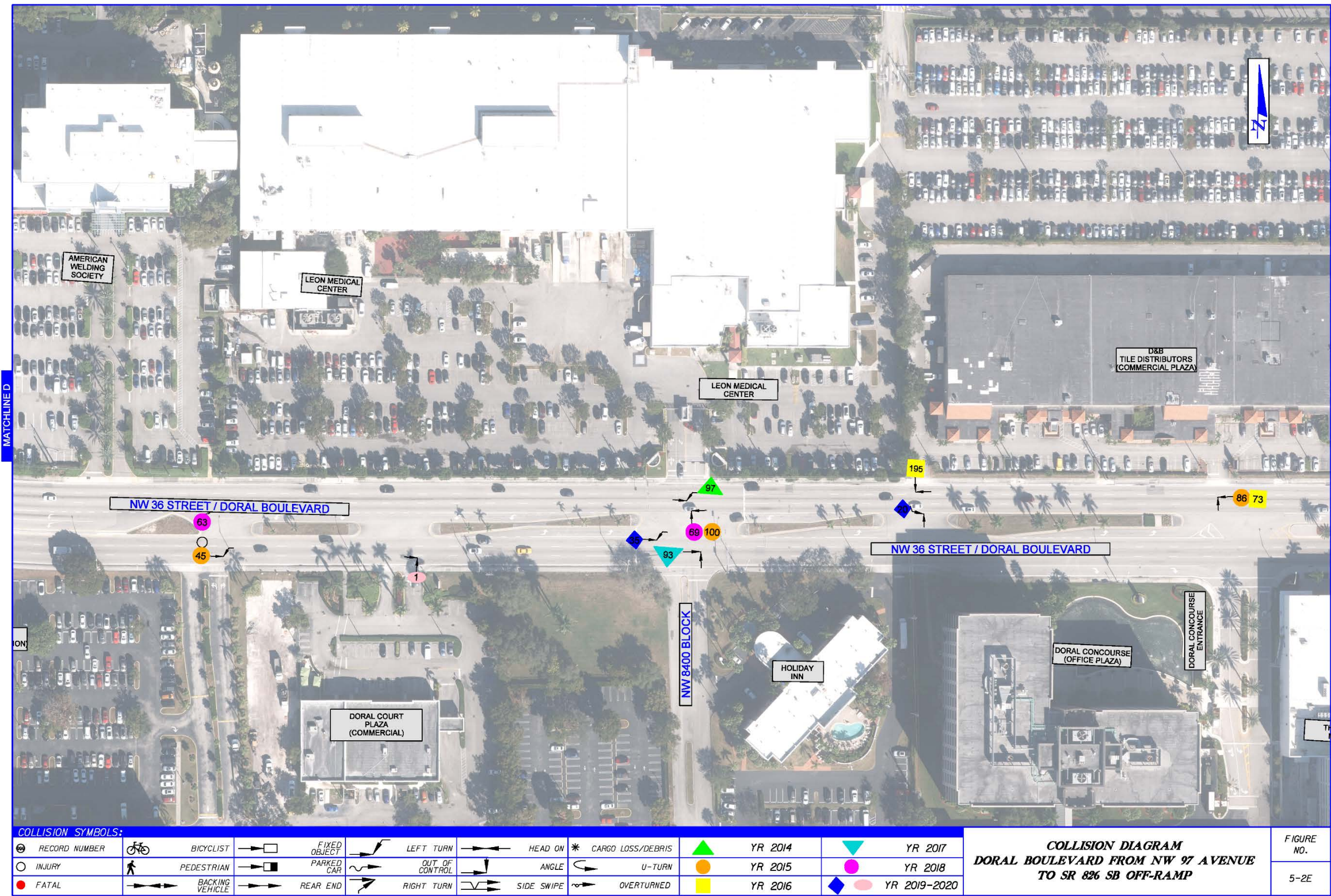


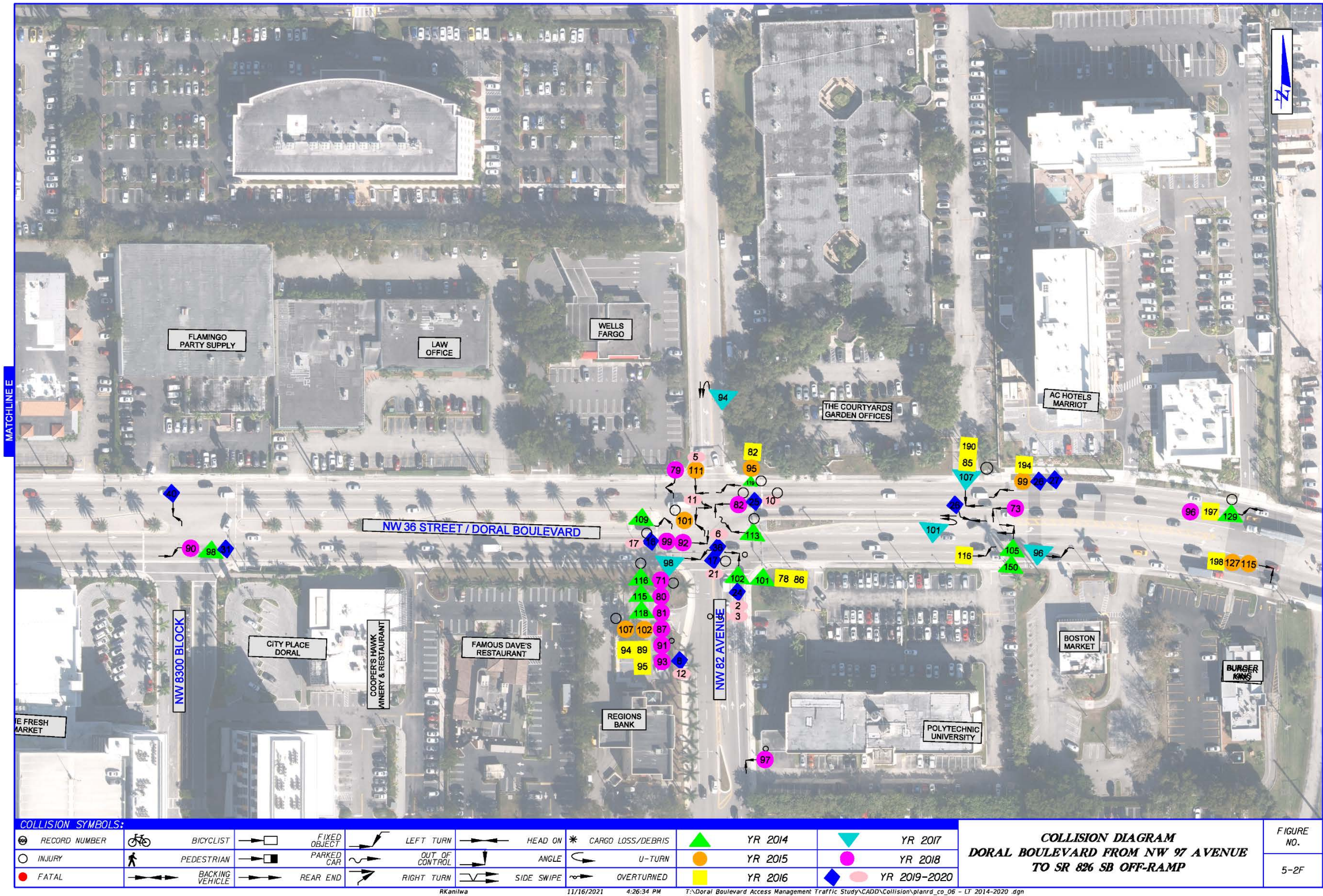
Figure 5-2: Collision Diagram for Angle and Left-turn Crashes

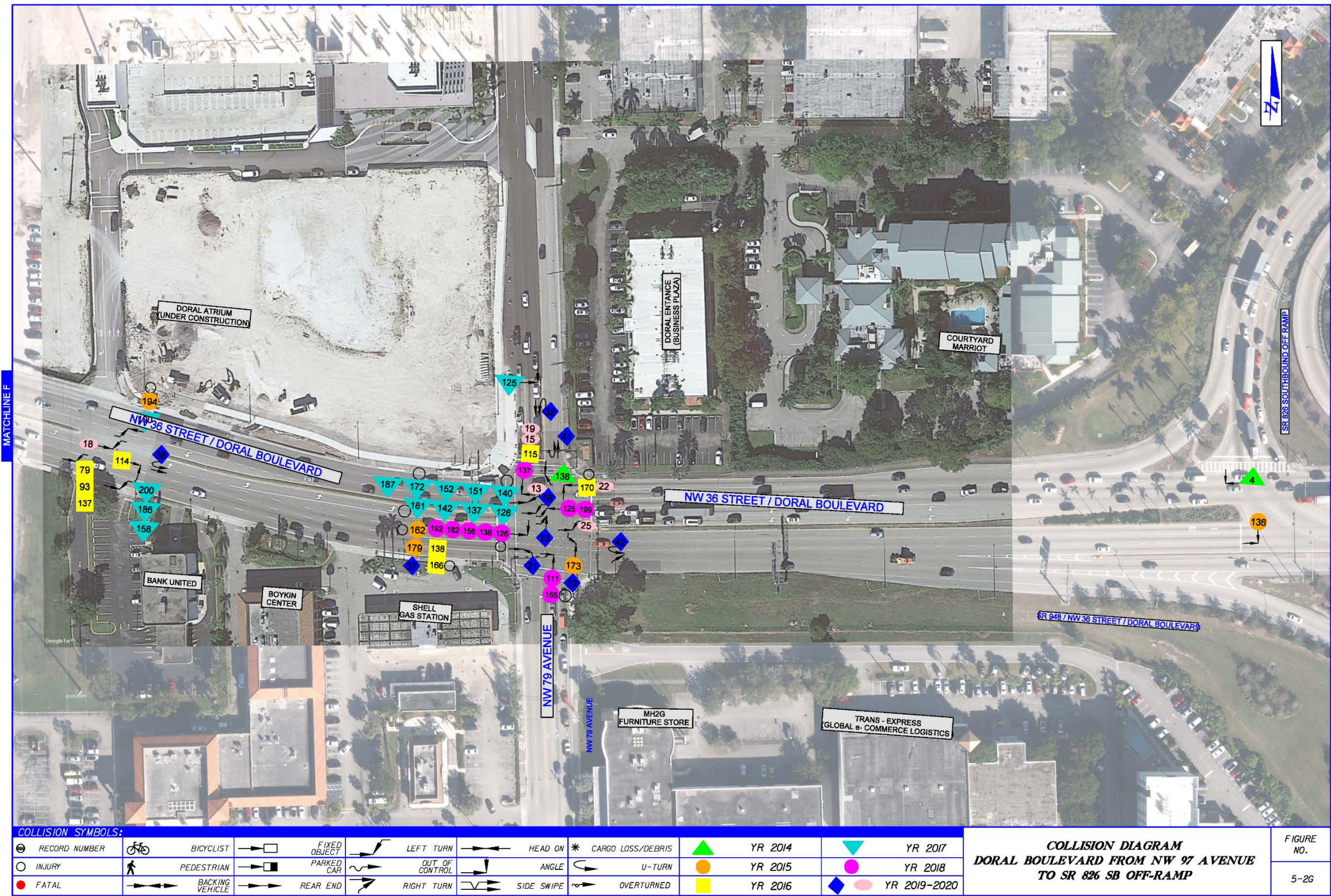












6 Field Review

Field reviews were conducted for the study area during the AM, and PM peak periods on December 2 and 8, 2020. The following are descriptions of the observations along the arterial:

6.1 AM Peak Period Observation

General:

- The observation was conducted on December 8, 2020, from 7:00 AM to 9:30 AM, and on December 8, 2020 from 7:30 AM to 8:30 AM.
 - The traffic flow along the arterial was relatively high during this period, with the eastbound flow appearing to be the peak direction. However, compared to the pre-pandemic days, the observed traffic flow level along the arterial appeared lower and few vehicles were observed turning at most of the median openings due to business/office closures.
 - The turning traffic demand at the median openings between the NW 93rd Court signal and the NW 8800 Block signal was very low.
 - Some congestions were observed at the NW 97th Avenue, NW 87th Avenue, NW 82nd Avenue, and NW 79th Avenue signals, creating long queues on at least one of the intersections' approaches.
 - The ability of vehicles to make left turns to or from the arterial against the opposing through traffic flow at the unsignalized median openings varied throughout the observation period. There were times when turning vehicles could easily execute the maneuver due to the availability of gaps created by upstream signals, but there were also periods when the turning vehicles faced difficulties due to a steady stream of vehicles. This was the case especially at median opening locations close to the signalized intersections of NW 97th Avenue, NW 87th Avenue, NW 82nd Avenue, and NW 79th Avenue where long queues formed blocking nearby median openings.
 - Left turn phase failures were observed at several signalized intersections, as will be discussed later.
- The following section discusses the individual locations with accompanying photographs taken during this peak period.

6.1.1 Median Opening # 1

- Eastbound queues from the signal at NW 97th Avenue extended beyond the median opening. Vehicles turning left from the Publix Plaza driveway were sometimes blocked by the eastbound queue and had to wait in the median area before joining the eastbound traffic flow. There was not a single vehicle observed turning left from the south driveway.
- Eastbound vehicles turning left into the plaza appeared to do so with relative ease due to the gaps created by the adjacent signal at NW 97th Avenue.



Photo 1: Vehicle making a left-turn from the Publix Plaza driveway

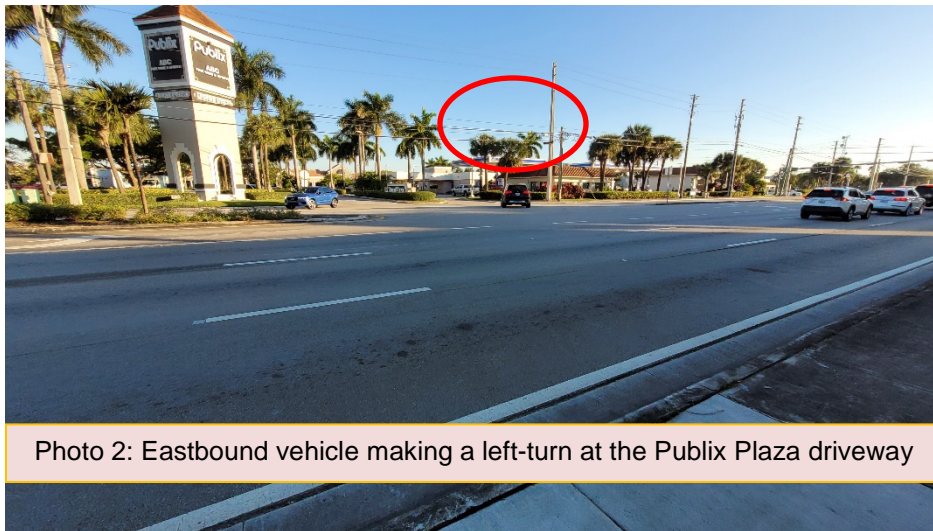


Photo 2: Eastbound vehicle making a left-turn at the Publix Plaza driveway

6.1.2 NW 97th Avenue Signal

- The eastbound, northbound and southbound approaches experienced a high volume of vehicular traffic, creating long queues.
- There were no operational issues associated with the left turning movements from Doral Boulevard. The left-turn queues on both approaches did not spill over onto the adjacent through lanes, and no phase failures were observed for the movements.



Photo 3: View of eastbound approach vehicles



Photo 4: View of northbound approach vehicles



Photo 5: View of southbound approach vehicles



Photo 6: View of westbound approach vehicles

6.1.3 Median Opening # 2

- Left-turning vehicles into and out of the businesses located to the north and south sides of the arterial appeared to be able to do so with relative ease during this period due to availability of gaps created by the signals at NW 97th Avenue and NW 93rd Court. On the few occasions when left-turning vehicles could not find a gap, the turning vehicles were seen waiting within the median opening area before completing the maneuver.

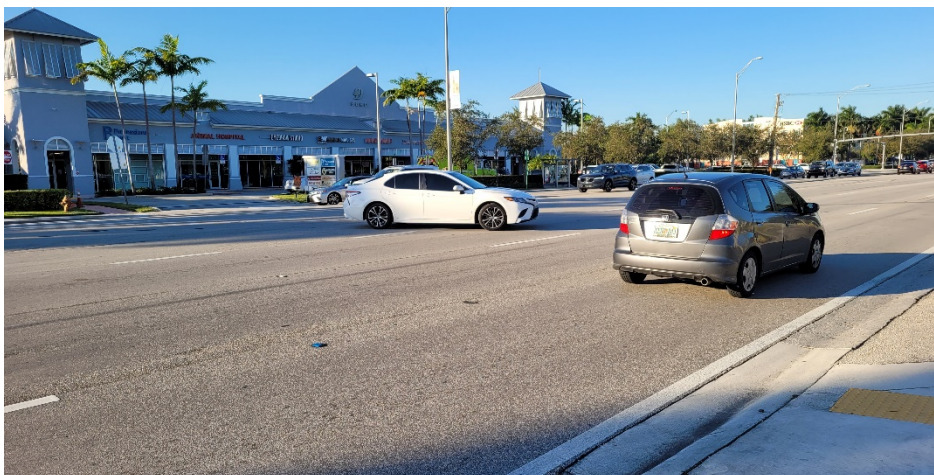


Photo 7: View of northbound left-turning vehicle at the median opening



Photo 8: View of southbound left-turning truck at the median opening

6.1.4 Median Openings # 3 Thru 6

- No operations issues were observed at the four median openings. Large gaps were available due to the adjacent signals at NW 97th Avenue and NW 93rd Court, and the left-turning demand from all directions was generally very low.



Photo 9: View of westbound left-turning vehicle at Median Opening #3



Photo 10: A vehicle exiting the McDonald restaurant making to make a westbound U-turn maneuver at Median Opening # 3

6.1.5 NW 93rd Block Signal

- No issues were observed at this signalized intersection. The left-turning vehicles were very low.



Photo 11: View of eastbound approach traffic

6.1.6 Median Openings # 7 Thru 12

- No operations issues were observed at the four median openings. Large gaps were available due to the adjacent signals at NW 93rd Avenue and NW 8800 Block, and the left-turning traffic demand from the properties was generally very low.



Photo 12: Typical View of traffic conditions at MO#s 7 through 12

6.1.7 NW 8800 Block Signal

- There were operational issues observed at this signalized location.



Photo 13: View to eastbound approach traffic at the NW 8800 Block signal



Photo 14: View of northbound vehicles at the NW 8800 Block signal



Photo 15: Westbound view to the NW 8800 Block signal

6.1.8 Median Opening # 13

- Westbound left-turning vehicles were sometimes blocked by eastbound queues from the NW 87th Avenue signal that extended beyond the median opening, but for the most part the signal at NW 8800 Block created gaps for this movement. No eastbound left-turning vehicles were observed (the entry to the Trump property is currently blocked off with flexible delineators).



Photo 16: View of westbound left-turning vehicle at Median Opening #13



Photo 17: View of eastbound approach to Median Opening #13



Photo 18: View of eastbound queue from the NW 87th Ave signal extending past Median Opening #13

6.1.9 NW 87th Avenue Signal

- All approaches to the signal experienced high traffic volumes.
- The observed left-turning traffic volumes on the eastbound and westbound approaches were high. However, there were no queue spillage from these lanes onto the adjacent through lane, and there were no phase failure observed for the movements.
- There was very little pedestrian activity observed at the intersection at this time.



Photo 19: View of eastbound traffic to NW 87th Ave signal



Photo 20: View of northbound traffic to NW 87th Ave signal



Photo 21: Westbound view to the NW 87th Ave signal

6.1.10 Median Openings # 14 And 15

- No operations issues were observed at the two median openings. Large gaps were available for vehicles turning at Median Opening #15 due to the adjacent signals at NW 87th Avenue and NW 8400 Block, plus the left-turning traffic demand was generally very low.



Photo 22: View of Median Opening # 14



Photo 23: Left-turning vehicle exiting at Median Opening #15

6.1.11 NW 8400 Block Signal

- There were operational issues observed at this signalized location.

6.1.12 Median Openings # 16 And 17

- Very few vehicles were observed turning at Median Opening #16. At Median Opening #17, left-turning vehicles from the south properties were sometimes observed experiencing problems due to heavy traffic flow along the arterial.



Photo 24: Southbound left-turning at Median Opening #16

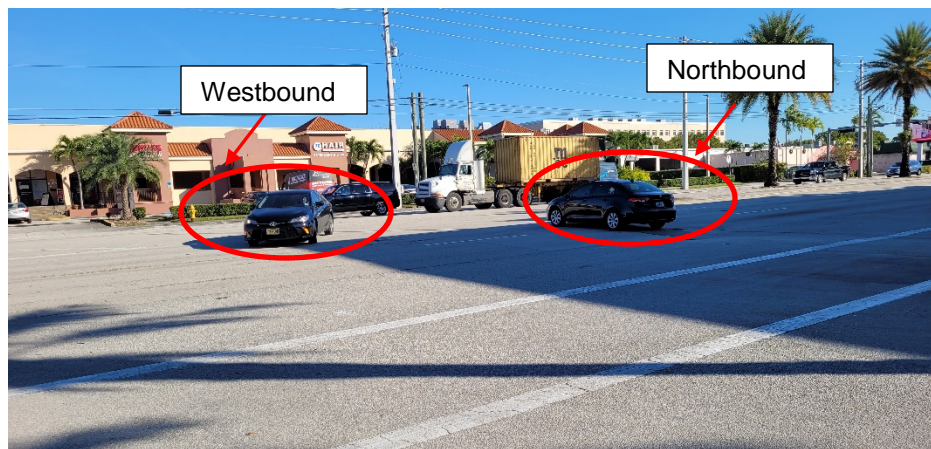


Photo 25: Westbound and northbound left-turning vehicles at Median Opening #17

6.1.13 NW 8300 Block Signal

- No major issues were observed at this signalized location. However, there were a few periods when westbound left-turning vehicles seemed to experience difficulties making the turning during the permissive portion of the phase.
- Eastbound left-turn and U-turn movements are not allowed at this intersection.
- There were no pedestrian activities observed during this period.



Photo 26: Westbound view to the NW 8300 Block signal



Photo 27: View of westbound vehicles waiting to turn left at the NW 8300 Block signal

6.1.14 NW 82nd Avenue Signal

- A heavy westbound left-turn traffic demand was observed, with queues of up to 18 vehicles forming on the left-turn lane. The left-turn queue was observed spilling onto the adjacent through lane, and it took at least two cycles for these turning vehicles to get through the intersection. Permissive left-turns across the arterial at this intersection were difficult to execute due to heavy traffic flow.
- The eastbound left-turn demand was generally low, and the movement did not experience as many difficulties as the westbound movement.
- Please notice that the westbound U-turn movement at this intersection is currently prohibited.



Photo 28: View of westbound left-turn queue at the NW 82 Ave signal



Photo 29: View of westbound left-turn queue at the NW 82 Ave signal extending beyond Median Opening #18

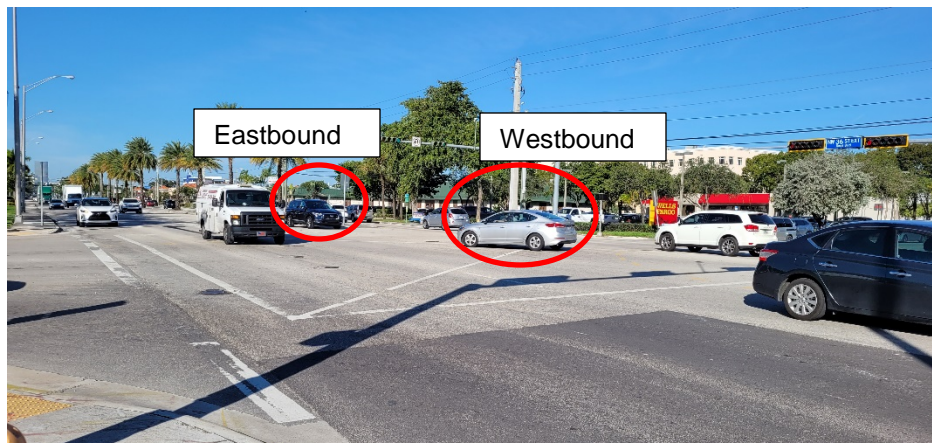


Photo 30: View of westbound and eastbound left-turning vehicles waiting for a gap at the NW 82 Ave signal

6.1.15 Median Openings # 18 Thru 20

- Median Opening #18 and Median Opening #20 are located very close to the NW 82nd Avenue signal and the NW 79th Avenue signal, respectively. Queues from these signals were observed extending beyond the median openings and thus blocking turning vehicles. No issues were observed at Median Opening #19.

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Photo 31: Westbound queue from NW 82 Ave signal blocking Median Opening # 18



Photo 32: Westbound left-turning queue attempting to cross the eastbound queue from NW 79th Ave signal

6.1.16 NW 79th Avenue Signal

- This intersection was very heavily congested. Long queues were observed in all directions.
- Although the eastbound left-turn lane had a modest demand (up to 12 queued vehicles), this movement experienced frequent phase failures. The protected phase for this movement was very short allowing only three vehicles while the permissive phase could hardly be used to the heavy westbound traffic flow.
- Two vehicles on the northbound approach exclusive right-turn lane were observed continued northbound, violating the lane designation. The northbound and southbound directions operate under split phasing.



Photo 33: View to eastbound left-turn queue at the NW 79th Ave signal



Photo 34: View of westbound queue at the NW 79th Ave signal



Photo 35: View of southbound queue at the NW 79th Ave signal



Photo 36: Northbound vehicle continuing through the intersection from the exclusive right-turn lane

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6.2 PM Peak Period Observation

General:

- The observation was conducted on December 8, 2020, from 3:00 PM to 6:00 PM, and on December 8, 2020 from 5:00 PM to 6:30 PM.
- The traffic flow in both directions along the arterial was relatively high during this period, with the westbound flow appearing to be slightly higher. However, the overall traffic flow level appeared to be lower compared to the pre-pandemic levels.
- The turning traffic demand at the median openings between the NW 93rd Court signal and the NW 8800 Block signal was very low.
- Some congestions were observed at the NW 97th Avenue, NW 87th Avenue, and NW 79th Avenue signals, creating queues on the intersections' approaches.
- The ability of eastbound vehicles to make left turns to cross or enter the mainline through traffic at the median openings located between NW 97th Avenue and NW 93rd Court experienced difficulties due to westbound queuing at the NW 97th Avenue signal. The westbound queue from the NW 97th Avenue signal extended up to Median Opening # 6.
- Generally speaking, left-turning vehicles at signalized intersections experienced difficulties making the maneuver during the permissive portion of the protected/permissive phase.

The following section discusses the individual locations with accompanying photographs taken during this peak period.

6.2.1 Median Opening #1

- Eastbound queues from the signal at NW 97th Avenue extended beyond the median opening. Vehicles turning left from the Publix Plaza driveway were sometimes blocked by the eastbound queue and had to wait in the median area before joining the eastbound traffic flow.
- Sometimes eastbound vehicles turning left into the Publix plaza experienced difficulties due to vehicles leaving the NW 97th Avenue signal.



Photo 37: Eastbound vehicle waiting to turn left at Median Opening #1



Photo 38: Southbound vehicle turning left from Median Opening #1

6.2.2 NW 97th Avenue Signal

- All approaches to the intersection experienced a high volume of vehicular traffic, creating long queues on those approaches.
- The westbound queue extended up to and beyond Median Opening #6 and sometimes reached the NW 93rd Court signal.
- There was no phase failure for the eastbound or westbound left-turning movements.



Photo 39: View of westbound approach queue to the NW 97th Ave signal



Photo 40: View of eastbound approach queue to the NW 97th Ave signal



Photo 41: View of southbound approach vehicle to the NW 97th Ave signal

6.2.3 Median Opening # 2

- For the majority of the PM period, it was practically impossible for left-turning vehicles into and out of the businesses located on the north side of the arterial due to heavy congestion on the westbound approach to the NW 97th Avenue signal. The only way these movements were achieved was when some westbound motorists stopped to allow the turning vehicle sneak across the through lanes, a practice that could easily lead to collision when other drivers on the next lane fail to stop.



Photo 42: View of westbound vehicles blocking Median Opening #2



Photo 43: View of southbound vehicles waiting to turn left at Median Opening #2

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Photo 44: Southbound vehicles turning left between stopped westbound vehicles at Median Opening #2



Photo 45: Eastbound vehicle turning left among stopped westbound vehicles at Median Opening #2

6.2.4 Median Openings # 3 through # 6

- Eastbound left-turning/U-turning vehicles at Median Openings #s 4 and 6 experienced extreme difficulties due to the heavy westbound traffic flow and the queuing caused by the signal at NW 97th Avenue. Exiting vehicles at the Univision television station also experienced difficulties turning left for the same reason. No issues were observed for the westbound left-turning vehicles.



Photo 46: Eastbound vehicle making a U-turn among stopped westbound vehicles at Median Opening #4



Photo 47: View of eastbound vehicle making a U-turn among stopped westbound vehicles at Median Opening #4

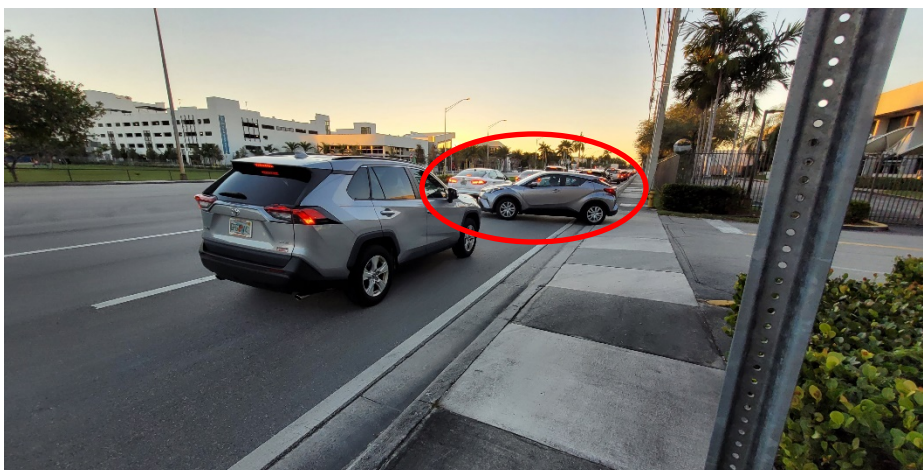


Photo 48: Left-turning vehicle exiting the TV station at Median Opening #6

6.2.5 NW 93rd Avenue Signal

- No issues were observed at this signalized intersection. The intersection did not experience any queuing issues and the left-turning vehicles were very low.

6.2.6 Median Openings # 7 through # 12

- No operations issues were observed at the four median openings. Large gaps were available due to the adjacent signals at NW 93rd Avenue and NW 8800 Block, and the fact that the left-turning demand was generally very low.



Photo 49: View of typical traffic conditions at MO #7 through MO#12

6.2.7 NW 8800 Block Signal

- There were operational issues observed at this signalized location, though sometimes eastbound queues from the NW 87th Avenue signal extended almost to this intersection.



Photo 50: View to eastbound traffic approaching NW 8800 Block signal



Photo 51: View to eastbound queue from the NW 87th Ave signal reaching the NW 8800 Block signal

6.2.8 Median Opening # 13

- There were no operational issues observed at this median opening.

6.2.9 NW 87th Avenue Signal

- All approaches to the signal experienced high traffic volumes.
- Queues were observed on the eastbound and westbound left-turn lanes; however, they did not spill into the adjacent through lanes. There was no phase failure observed for the left-turning movements.



Photo 52: View of westbound approach vehicles to the NW 87th Ave signal



Photo 53: View of southbound approach traffic to the NW 87th Ave signal

6.2.10 Median Openings # 14 and # 15

- No operational issues were observed at the two median openings. Large gaps were available due to the adjacent signals at NW 87th Avenue and NW 8400 Block, and the left-turning demand was generally very low.



Photo 54: Westbound queue from NW 87th Ave signal extending to Median Opening # 14



Photo 55: Westbound vehicle making left-turn at Median Opening # 15

6.2.11 NW 8400 Block Signal

- There were no operational issues observed at this intersection.

6.2.12 Median Openings # 16 and # 17

- No operational issues were observed at these median openings.



Photo 56: Eastbound vehicle turning left at Median Opening #17



Photo 57: Northbound vehicle waiting to turn left at Median Opening #17

6.2.13 NW 8300 Block Signal

- There were no operational issues observed at this intersection.



Photo 58: Eastbound approach queue to NW 8300 Block signal extending to Median Opening #17

6.2.14 NW 82nd Avenue Signal

- Although the westbound left-turn demand was modest (up to 10 vehicles observed in queue), this movement experienced difficulties getting through the intersection, especially during the permissive phase.
- The traffic demand on all approaches was high.



Photo 59: View of east leg traffic at the NW 82nd Ave signalized



Photo 60: View of west leg traffic of the NW 82nd Ave signalized

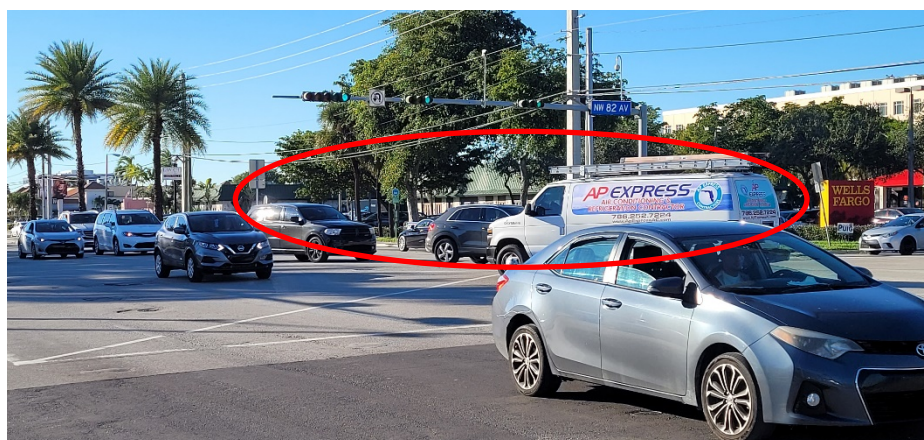


Photo 61: View of the eastbound and westbound vehicles waiting to turn left at the NW 82nd Ave signalized intersection



Photo 62: View of the northbound approach traffic

6.2.15 Median Openings #s 18 through # 20

- Median Opening #18 and Median Opening #20 are located very close to the NW 82nd Avenue signal and the NW 79th Avenue signal, respectively. Queues from these signals were observed extending beyond the median openings with the potential to block turning vehicles (there was no turning vehicle observed during the field review period). Eastbound left-turning vehicles at Median Opening # 18 were seen driving through stopped westbound vehicles.



Photo 63: Eastbound vehicle turning left through stopped westbound vehicles at Median Opening #18



Photo 64: Westbound vehicle turning left at Median Opening #18



Photo 65: View of traffic approaching Median Opening #20

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6.2.16 NW 79th Avenue Signal

- This intersection was very heavily congested. Long queues were observed in all directions.
- The eastbound left-turn lane experienced very low demand, with a maximum queue of 4 vehicles observed.



Photo 66: View of eastbound traffic approaching the NW 79th Ave signal

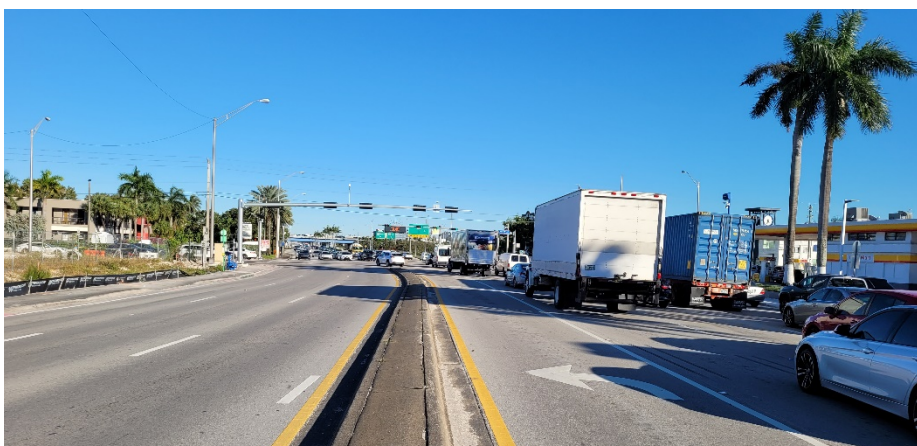


Photo 67: View of low traffic demand on the eastbound left-turn lane at the NW 79th Ave signal



Photo 68: View of traffic on the east leg of the NW 79th Ave signal

7 Proposed Conditions

7.1 Median Openings Improvements

As shown previously, the existing spacing between adjacent median openings along the arterial are not in compliance with the minimum spacing requirements specified by the FDOT. In some cases, the available spacing is only a fraction of the required minimum spacing (1,320 feet for full median openings or 660 feet for directional median openings). During the field observation, vehicles faced difficulties to make left-turn/U-turn movements at several of the full median openings located within the influence area of adjacent signalized intersections because of opposing through traffic. The four alternatives for improving the access management along the arterial are discussed below.

7.1.1 Alternative 1

This is the No-Build alternative that does not make any changes to the existing median openings as than those recommended by the different ongoing land development projects along the arterial.

7.1.2 Alternative 2

This alternative considered the median opening closure and/or modifications recommended in the **Doral Boulevard Street Beautification Master Plan** prepared for the City in the 2000s. The improvements under this alternative were categorized into HIGH, MEDIUM and LOW priorities as discussed below.

7.1.2.1 High Priority Improvements

- Close completely the following full median openings: MO # 1, MO #2, MO #3, M #4, MO #18, and MO #20.
- Modify the following full median openings to directional median openings: MO # 6 and MO #19.
- Adjust the signal timings at the NW 97th Avenue and NW 82nd Avenue signals.

7.1.2.2 Medium Priority Improvements

- Close completely the following full median openings: MO #13, MO #15, and MO #16.
- Modify the following full median openings to directional opening: MO 14 and MO #17.
- Adjust the signal timings at the NW 8800 Block, NW 8400 Block, NW 8300 Block, and NW 82nd Avenue signals.

7.1.2.3 Low Priority Improvements

- Close completely the following full median openings: MO #8, MO #9, MO # 10, and MO #12.
- Modify the following full median openings to directional openings: MO # 7 and MO #11.

7.1.3 Alternative 3

This alternative considered closing or modifying existing median openings that historically have experienced a high frequency of angle crashes or demonstrated operational difficulties in the field for turning vehicles and/or have low levels of vehicular demand that can easily be accommodated at alternate locations without significantly increasing the travel time or delay for the affected movement(s). The improvements under this alternative were categorized into HIGH, MEDIUM and LOW priorities as discussed below.

7.1.3.1 High Priority Improvements

- Close completely the following full median openings: MO # 3, MO #6, MO #18, and MO #20.
- Modify the following full median openings to directional median openings: MO #1, MO #2, MO # 4 and MO #19.
- Adjust the signal timings at the NW 97th Avenue and NW 82nd Avenue signals.
- Consolidate the two eastbound bus stops near the NW 97th Avenue signal into one bus stop with a re-designed shelter located on the eastbound departure side of the intersection.
- Relocate the bus stop from the near side of the westbound approach to the NW 87th Avenue signal to the far side of the intersection, and provide a bus shelter for the new location.

7.1.3.2 Medium Priority Improvements

- Close completely the following full median openings: MO #13, MO #15, and MO #16.
- Modify the following full median openings to directional opening: MO #14 and MO #17.
- Adjust the signal timings at the NW 8800 Block, NW 8400 Block, NW 8300 Block, and NW 82nd Avenue signals.
- Relocate the existing eastbound bus stop from near the Doral Concourse Entrance to the far side of the NW 8300 Block signal and provide a bus shelter for the new location.

7.1.3.3 Low Priority Improvements

- Close completely the following full median openings: MO #8, MO #9, and MO # 10.
- Modify the following full median openings to directional openings: MO # 7 and MO #11.
- Relocate the eastbound bus stop on the approach to the NW 8400 Block signal to the far side of the intersection and relocate the westbound bus stop closer the intersection and provide bus shelters at the new locations.

7.1.4 Alternative 4

The alternative recommended closing or modifying several existing median openings so that the access management spacing between consecutive median openings do not deviate by more than 10% from the FDOT median opening spacing criteria for Access Class 5. The improvements under this alternative were categorized into HIGH, MEDIUM and LOW priorities as discussed below.

7.1.4.1 High Priority Improvements

- Close completely the following full median openings: MO # 1, MO #2, MO #3, MO #4, MO #18, and MO #20.
- Modify the following full median openings to directional median openings: MO # 6 and MO #19.
- Adjust the signal timings at the NW 97th Avenue and NW 82nd Avenue signals.
- Consolidate the two eastbound bus stops near the NW 97th Avenue signal into one bus stop with a re-designed shelter located on the eastbound departure side of the intersection.
- Relocate the bus stop from the near side of the westbound approach to the NW 87th Avenue signal to the far side of the intersection, and provide a bus shelter for the new location.

7.1.4.2 Medium Priority Improvements

- Close completely the following full median openings: MO #13, MO #14, MO #15, MO #16, and MO #17.
- Adjust the signal timings at the NW 8800 Block, NW 87th Avenue, NW 8400 Block, NW 8300 Block, and NW 82nd Avenue signals.
- Relocate the existing eastbound bus stop from near the Doral Concourse Entrance to the far side of the NW 8300 Block signal and provide a bus shelter for the new location.

7.1.4.3 Low Priority Improvements

- Close completely the following full median openings: MO #8, MO #9, and MO # 10.
- Modify the following full median openings to directional openings: MO # 7 and MO #12.
- Relocate the eastbound bus stop on the approach to the NW 8400 Block signal to the far side of the intersection and relocate the westbound bus stop closer the intersection and provide bus shelters at the new locations.

7.2 Pedestrian Improvements

Currently, opportunities to cross the arterial within the study segments are only provided at the marked crosswalks of the signalized intersections. There are no midblock crossing opportunities provided. The FDOT's TEM includes criteria for the installation of crosswalks at uncontrolled intersection and midblock locations. The criteria considers: a) Proximity to significant pedestrian generators and attractors, b) Recommended levels of pedestrian demand, c) Minimum location characteristics. Each of these criteria are described below:

Proximity to Significant Pedestrian Generators/Attractors

- The proposed location should have a well-defined spatial pattern of pedestrian generators, attractors and the flow between them; or
- A well-defined pattern of pedestrian crossings.

Recommended Levels of Pedestrian Demand

- At least 20 pedestrians in a single hour (any four consecutive 15-minutes intervals) of an average day.
- Pedestrian volume demand data is not needed in school zones, or in areas classified by the FDOT as Context Classification C2T (Rural town), C3C (Suburban Commercial), C4 (Urban General), C5 (Urban Center), and C6 (Urban Core).

Minimum Location Characteristics

- A minimum vehicular volume of 2,000 Average Daily Traffic (ADT) pass the location.
- A minimum of 300 feet to a nearest controlled crossing location.
- The proposed crossing location should be outside of the influence area of signalized intersections (including auxiliary lanes).

7.2.1 Pedestrian Volume Demand

Pedestrian counts were conducted for two 12-hours periods on November 2 and 3, 2021, to determine the level of midblock pedestrian activities occurring midblock between the NW 97th Avenue and NW 93rd Court signals, and midblock between the NW 82nd Avenue and NW 79th Avenue signals. The counts were conducted from 7:00 AM to 7:00 PM on each day. In

the first area, there was a total of 26 and 30 pedestrians/bicyclists on Day 1 and Day 2, respectively, with a volume of seven (7) pedestrians representing the highest demand in the two days as shown in **Tables 7-1**. In the second area, there was a total of 33 and 45 pedestrians/bicyclists on Day 1 and Day 2, respectively, with the highest hourly pedestrian volume demand of 10 pedestrians/hour as shown in **Tables 7-2**. The raw data for each area are included in **Appendix J**.

Table 7-1: Highest Hourly Pedestrian Volume between NW 97 Ave and NW 93 Ct

Doral Boulevard from 300 feet East of NW 97 Avenue to Median Opening # 5											
Tuesday, 11/2/2021						Wednesday, 11/3/2021					
Start Time	15-Minute Ped Demand					Start Time	15-Minute Ped Demand				
	Pedestrians		Bicyclists		Total		Pedestrians		Bicyclists		Total
	NB	SB	NB	SB			NB	SB	NB	SB	
15:30-15:45 PM	2	1			3	1:30-1:45 PM		1			1
15:45-16:00 PM		1			1	1:45-2:00 PM					0
16:00-16:15 PM	1				1	2:00-2:15 PM					0
16:15-16:30 PM	1				1	2:15-2:30 PM	5	1			6
Highest Hourly Ped Volume Demand	4	2	0	0	6	Highest Hourly Ped Volume Demand	5	2	0	0	7

Table 7-2: Highest Hourly Pedestrian Volume between NW 82 Ave and NW 79 Ave

Doral Boulevard from 300 feet East of NW 82 Avenue to 300 feet West of NW 79 Avenue											
Tuesday, 11/02/2021						Wednesday, 11/03/2021					
Start	15-Minute Ped Demand					Start Time	15-Minute Ped Demand				
	Pedestrians		Bicyclists		Total		Pedestrians		Bicyclists		Total
Time	NB	SB	NB	SB			NB	SB	NB	SB	
16:15-16:30 PM	1	0	0	0	1	13:15-13:30 PM	1	0	1	0	2
16:30-16:45 PM	5	0	1	0	6	13:30-13:45 PM	0	0	0	0	0
16:45-17:00 PM	0	0	0	0	0	13:45-14:00 PM	0	3	0	0	3
17:00-17:15 PM	0	1	0	1	2	14:00-14:15 PM	2	3	0	0	5
Hourly Ped Volume Demand	6	1	1	1	9	Highest Hourly Ped Volume Demand	3	6	1	0	10

7.2.2 Midblock Crosswalk Evaluation

The justification for installing a midblock crosswalk was evaluated against the criteria provided above. The findings for each location are discussed below.

Midblock between NW 97th Avenue and NW 93rd Court

- The land uses on both sides of the arterial in this area are potential generators/attractors of pedestrian activities. There are eating places on the north side such a McDonald restaurant, a sushi restaurant, a Colombian restaurant, while on the south side there is the new Sanctuary multi-use (residential and business) development, an office building and several beauty salons. There is also a Miami Dade Transit bus stop on the south side. Sporadic pedestrian movements occur in the area involving pedestrians crossing from one side of the street to the other, as shown in the pedestrian count table for the area.

- The highest one hour pedestrian crossing volume demand in the area was lower than the 20 pedestrians/hour demand threshold. There is no formal context classification for the roadway and neither is the segment located in a school zone for there to be an exemption to the minimum pedestrian volume demand threshold.
- Although the vehicular demand in the area far exceeds the minimum 2,000 ADT, and any proposed midblock crosswalk between Median Opening # 2 (Doral 9690 Plaza- Doral Center Plaza) and Median Opening # 5 (Sanctuary Development) would be at least 350 feet from the nearest signalized crossing, the biggest issue would be the westbound queues that form at the NW 97th Avenue signal during the afternoon peak period. These queues fill up the entire space between the NW 97th Avenue and NW 93rd Court signals. Placing a crosswalk in this area would not comply with the TEM criteria and would be risky to pedestrians due to stopped vehicles limiting visibility to pedestrians in the crosswalk.
- A midblock crosswalk is not recommended for the area.

Midblock between NW 82nd Avenue and NW 79th Avenue

- The Boston Market and Burger King restaurants on the south side are potential attractors for pedestrians from the north side (e.g. from the AC Hotels Marriot or the Courtyards Garden Offices). Sporadic pedestrian movements occur in the area involving pedestrians crossing from one side of the street to the other, as shown in the pedestrian count table for the area.
- The highest one hour pedestrian crossing volume demand collected in the area was 10 pedestrians/hour. This demand is lower than the 20 pedestrians/hour demand threshold. There is no formal context classification for the roadway and neither is the segment located in a school zone for there to be an exemption to the minimum pedestrian volume demand threshold.
- Although the vehicular demand in the area far exceeds the minimum 2,000 ADT, and any proposed midblock crosswalk between Median Opening # 18 (Boston Market-AC Hotels Marriot) and Median Opening # 20 (Bank United-Doral Atrium) would be at least 300 feet from the nearest signalized crossing, the biggest issue would be the queues that form at the NW 82nd Avenue and NW 79th Avenue signals. During the morning peak, westbound queues at the NW 82nd Avenue signal occasionally extend past Median Opening # 18, while during the afternoon peak period, the eastbound queues forming at the NW 79th Avenue signal extend all the way to the Burger King restaurant. Placing a crosswalk in this area would not comply with the TEM criteria and would be risky to pedestrians due to stopped vehicles limiting visibility to pedestrians in the crosswalk.
- A midblock crosswalk is not recommended for the area.

7.2.3 Other Pedestrian Improvements Considerations

Although midblock crosswalk installation is not recommended in any of the two areas evaluated, the following pedestrian improvement considerations, categorized into HIGH, MEDIUM and LOW priority, are recommended at the signalized intersections. Please notice that these pedestrian improvements apply for all improvement alternatives discussed before (except for the No-Build Alternative).

7.2.3.1 High Priority Improvements

- Upgrade existing standard crosswalk markings to special emphasis crosswalk markings and install audible pedestrian signal pushbuttons at the NW 97th Avenue, NW 87th Avenue, NW 82nd Avenue, and NW 79th Avenue signals.
- Install a special emphasis marking crosswalk with countdown pedestrian signal heads and audible pedestrian pushbuttons on the east leg at the NW 82nd Avenue signal.

7.2.3.2 Medium Priority Improvements

- Install a special emphasis crosswalk with countdown pedestrian signal heads, and audible pedestrian pushbuttons on the west side at the NW 8800 Block signal. Upgrade the existing pushbuttons for the east leg crosswalk to audible pushbuttons.
- Install special emphasis crosswalks with pedestrian signal heads, and audible pedestrian pushbuttons on the east and west legs at the NW 8400 Block signal.
- Provide special emphasis crosswalk markings and audible pedestrian signal pushbuttons on the east leg at the NW 8300 Block signal.

7.2.3.3 Low Priority Improvements

- Upgrade the crosswalk markings at the NW 93rd Court to special emphasis crosswalk markings and install audible pedestrian signal pushbuttons.

7.3 Transit Improvements

An inventory of the Miami Dade Transit bus stops showed 11 stops in the eastbound direction and seven (7) stops in the westbound direction. Only three bus stops in the eastbound have shelters, while there was none in the westbound direction. Some bus stops were found to be very close to each other, while others were located far from the signalized crosswalks. The following transit improvements, listed in the order of priority, are provided.

7.3.1 High Priority Improvements

- Consolidate the two existing eastbound bus stops on each side of the NW 97th Avenue signal into one bus stop with a re-designed shelter located on the eastbound departure side of the intersection.

7.3.2 Medium Priority Improvements

- Relocate the bus stop from the westbound approach to the NW 8800 Block signal to the downstream side of the intersection and provide a bus shelter for the new location.
- Relocate the eastbound bus stop on the departure side of NW 8800 Block closer to the intersection and provide a bus shelter for the new location.

- Relocate the bus stop on the eastbound approach to the NW 8400 Block signal to the far side of the intersection and provide a bus shelter at the new location. Relocate the westbound far side bus stop closer to the signal and provide a bus shelter.
- Relocate the existing eastbound bus stop at the Doral Concourse Entrance to the far side of the NW 8300 Block signal and provide a bus shelter for the new location.
- Relocate the bus stop on the westbound departure side at the NW 82 Avenue signal closer to the intersection and provide a bus shelter at the new location. Relocate the eastbound bus stop near the Burger King restaurant closer to the NW 82 Avenue signal and provide a bus shelter at the new location.

7.3.3 Low Priority Improvements

- Relocate the existing bus stops on the approaches to the NW 93rd Court signal to the far side of the intersection and provide bus shelters at the new locations.
- Upgrade the existing bus stops at the Atlanta Federal Reserve Bank by providing bus shelters.

Tables 7-3 through **7-5** and **Figures 7-1** through **7-3** show all the improvements discussed above.

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Table 7-3: Alternative 2 Improvements

Median Location	Existing Median Opening Type	Proposed Changes	Proposed Spacing (ft)				Improvement Priority	
			Signal	Full	Directional			
					EB	WB		
Median Opening #1	Full	Close median opening	n/a	n/a	n/a	n/a	High	
NW 97 Avenue	Signal	Upgrade x-walk markings, adjust signal timings and provide audible pushbuttons	1550	935				
Median Opening #2	Full	Close median opening						
Median Opening #3	Directional (WB)	Close median opening						
Median Opening #4	Full	Close median opening						
Median Opening #5	Directional (WB)	No changes						
Median Opening #6	Full	Modify to allow EBLT traffic only						
NW 93 Court	Signal	Upgrade x-walk markings, adjust signal timings and provide audible pushbuttons		775	305	305	Low	
Median Opening #7	Full	Modify to allow WBLT traffic only	2895	n/a	635			
Median Opening #8		Close median opening			1170			
Median Opening #9		Close median opening						
Median Opening #10		Close median opening						
Median Opening #11		Modify to allow WBLT traffic only			1955			
Median Opening #12		Close median opening						
NW 8800 Block	Signal	Upgrade x-walk markings, adjust signal timings and provide audible pushbuttons		n/a	490	490	Medium	
Median Opening #13	Bi-Directional	Close median opening	850					730
NW 87 Avenue	Signal	Upgrade x-walk markings, adjust signal timings and provide audible pushbuttons			1080		n/a	
Median Opening #14	Full	Modify to allow WBLT traffic only	970			640		330
Median Opening #15	Full	Close median opening			330		330	
NW 8400 Block	Signal	Install new x-walk markings with ped signals, adjust signal timings and provide audible pushbuttons	605			655		
Median Opening #16	Full	Close median opening			1355		725	725
Median Opening #17		Modify to bi-directional median opening						
NW 8300 Block	Signal	Upgrade x-walk markings, adjust signal timings and provide audible pushbuttons						High
NW 82 Avenue	Signal	Upgrade x-walk markings, adjust signal timings, Install new x-walk with ped signals and provide audible pushbuttons	605			655	655	
Median Opening #18	Full	Close median opening						
Median Opening #19		Modify to bi-directional median opening						
Median Opening #20		Close median opening						
NW 79 Avenue	Signal	Upgrade x-walk markings, adjust signal timings, and provide audible pushbuttons						
COLOR LEGEND:								
	High Priority							
	Medium Priority							
	Low Priority							

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Table 7-4: Alternative 3 Improvements

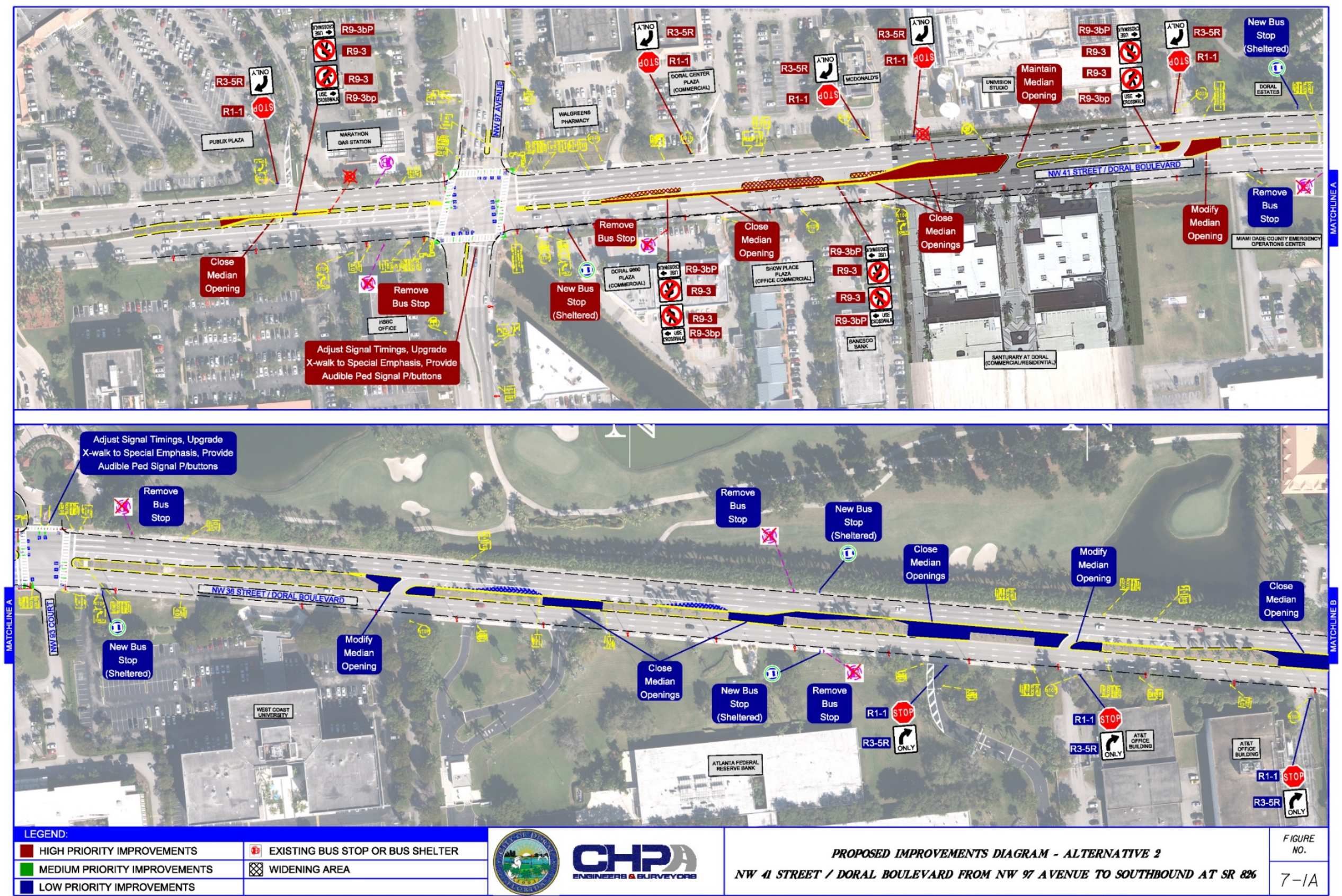
Median Location	Existing Median Opening Type	Proposed Changes	Proposed Spacing (ft)				Improvement Priority			
			Signal	Full	Directional					
					EB	WB				
Median Opening #1	Full	Modify to allow EBLT traffic only	n/a	n/a			High			
NW 97 Avenue	Signal	Adjust signal timings	1550		315	n/a				
Median Opening #2	Full	Modify to allow WBLT traffic only			410	410				
Median Opening #3	Directional (WB)	Close median opening			515	515				
Median Opening #4	Full	Modify to allow EBLT traffic only								
Median Opening #5	Directional (WB)	No changes								
Median Opening #6	Full	Close median opening			n/a	n/a		Low		
NW 93 Court	Signal	Adjust signal timings if necessary	635							
Median Opening #7	Full	Close median opening	2895	n/a	1170					
Median Opening #8		Modify to allow WBLT traffic only								
Median Opening #9		Close median opening								
Median Opening #10		Close median opening								
Median Opening #11		Modify to bi-directional median opening								
Median Opening #12		No changes			660	425	425			
NW 8800 Block	Signal	Adjust signal timings if necessary	490	490		Medium				
Median Opening #13	Bi-Directional	Close median opening			850		n/a	730		
NW 87 Avenue	Signal	No changes								
Median Opening #14	Full	Modify to allow WBLT traffic only	1080							
Median Opening #15	Full	Close median opening								
NW 8400 Block	Signal	Adjust signal timings if necessary								
Median Opening #16	Full	Close median opening	970	n/a		640			640	
Median Opening #17		Modify to bi-directional median opening								
NW 8300 Block	Signal	No changes			605		n/a	330		330
NW 82 Avenue	Signal	Adjust signal timings to increase duration for the EBLT/ WBLT protected phase	1355	n/a		725			725	
Median Opening #18	Full	Close median opening								
Median Opening #19		Modify to bi-directional median opening								
Median Opening #20		Close median opening								
NW 79 Avenue	Signal	Upgrade x-walk markings, adjust signal timings, and provide audible pushbuttons								
COLOR LEGEND:										
	High Priority									
	Medium Priority									
	Low Priority									

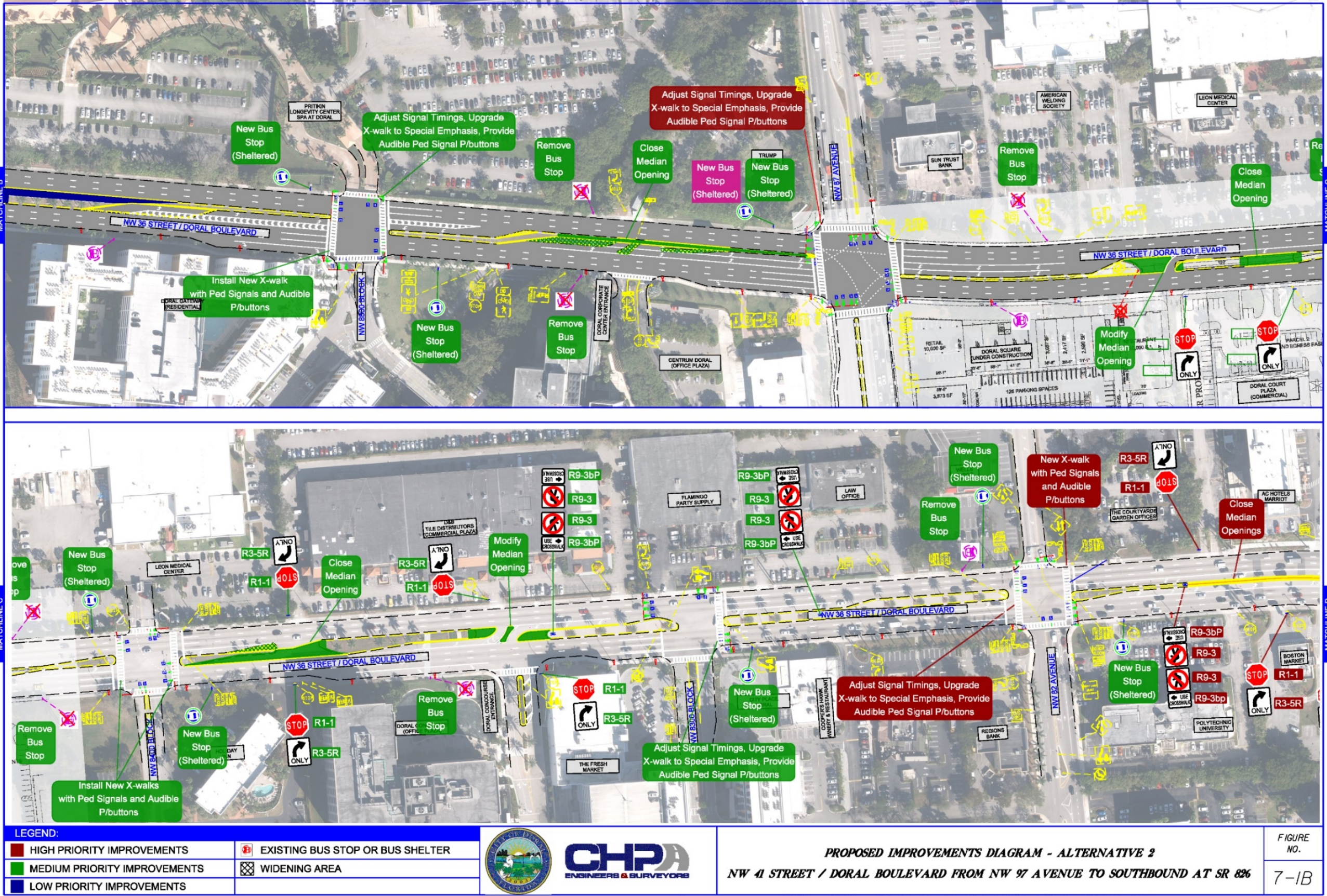
Table 7-5: Alternative 4 Improvements

Median Location	Existing Median Opening Type	Proposed Changes	Proposed Spacing (ft)				Improvement Priority
			Signal	Full	Directional		
					EB	WB	
Median Opening #1	Full	Close median opening	n/a	n/a		n/a	High
NW 97 Avenue	Signal	Upgrade x-walk markings, adjust signal timings and provide audible pushbuttons	1550	935	n/a	935	
Median Opening #2	Full	Close median opening					
Median Opening #3	Directional (WB)	Close median opening					
Median Opening #4	Full	Close median opening					
Median Opening #5	Directional (WB)	No changes					
Median Opening #6	Full	Modify to allow EBLT traffic only					
NW 93 Court	Signal	Upgrade x-walk markings, adjust signal timings and provide audible pushbuttons		775	305	305	Low
Median Opening #7	Full	Modify to allow WBLT traffic only	2895		n/a	635	
Median Opening #8		Close median opening			1600		
Median Opening #9		Close median opening					
Median Opening #10		Close median opening					
Median Opening #11		Close median opening					
Median Opening #12		Modify median opening to bi-directional					
NW 8800 Block	Signal	No changes			660	660	Medium
Median Opening #13	Bi-Directional	Close median opening	850		490	490	High
NW 87 Avenue	Signal	Upgrade x-walk markings, adjust signal timings and provide audible pushbuttons					
Median Opening #14	Full	Modify to allow WBLT traffic only	1080	n/a	n/a	730	Medium
Median Opening #15	Full	Close median opening					
NW 8400 Block	Signal	No changes	970		640	n/a	
Median Opening #16	Full	Close median opening					
Median Opening #17		Modify to bi-directional median opening					
NW 8300 Block	Signal	Upgrade x-walk markings, adjust signal timings and provide audible pushbuttons				330	
NW 82 Avenue	Signal	Upgrade x-walk markings, adjust signal timings, Install new x-walk with ped signals and provide audible pushbuttons	605	1355	655	655	
Median Opening #18	Full	Close median opening					
Median Opening #19		Modify to bi-directional median opening					
Median Opening #20		Close median opening					
NW 79 Avenue	Signal	Upgrade x-walk markings, adjust signal timings, and provide audible pushbuttons			725	725	
COLOR LEGEND:							
	High Priority						
	Medium Priority						
	Low Priority						

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Figure 7-1: Proposed Improvement Diagram-Alternative 2





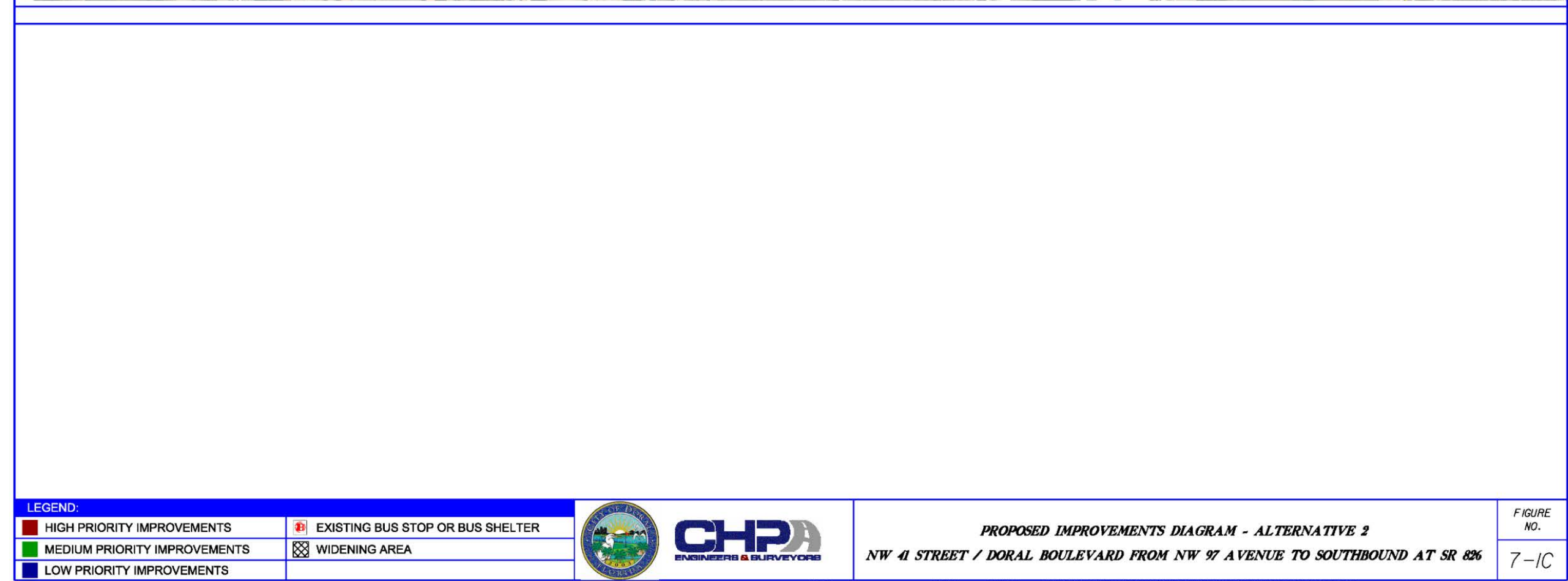
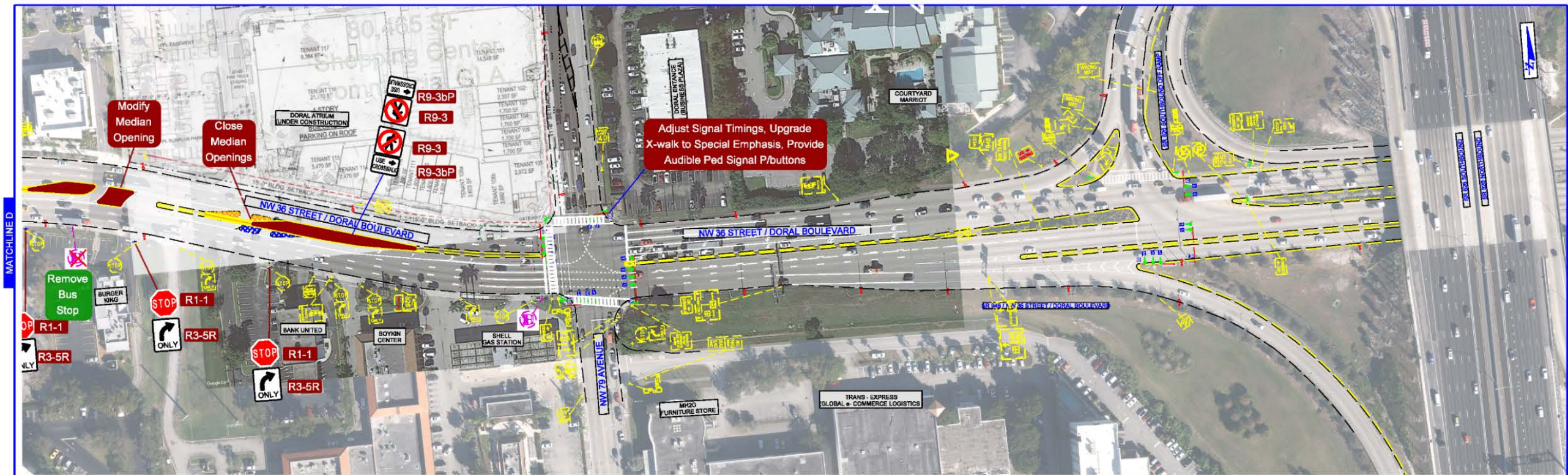
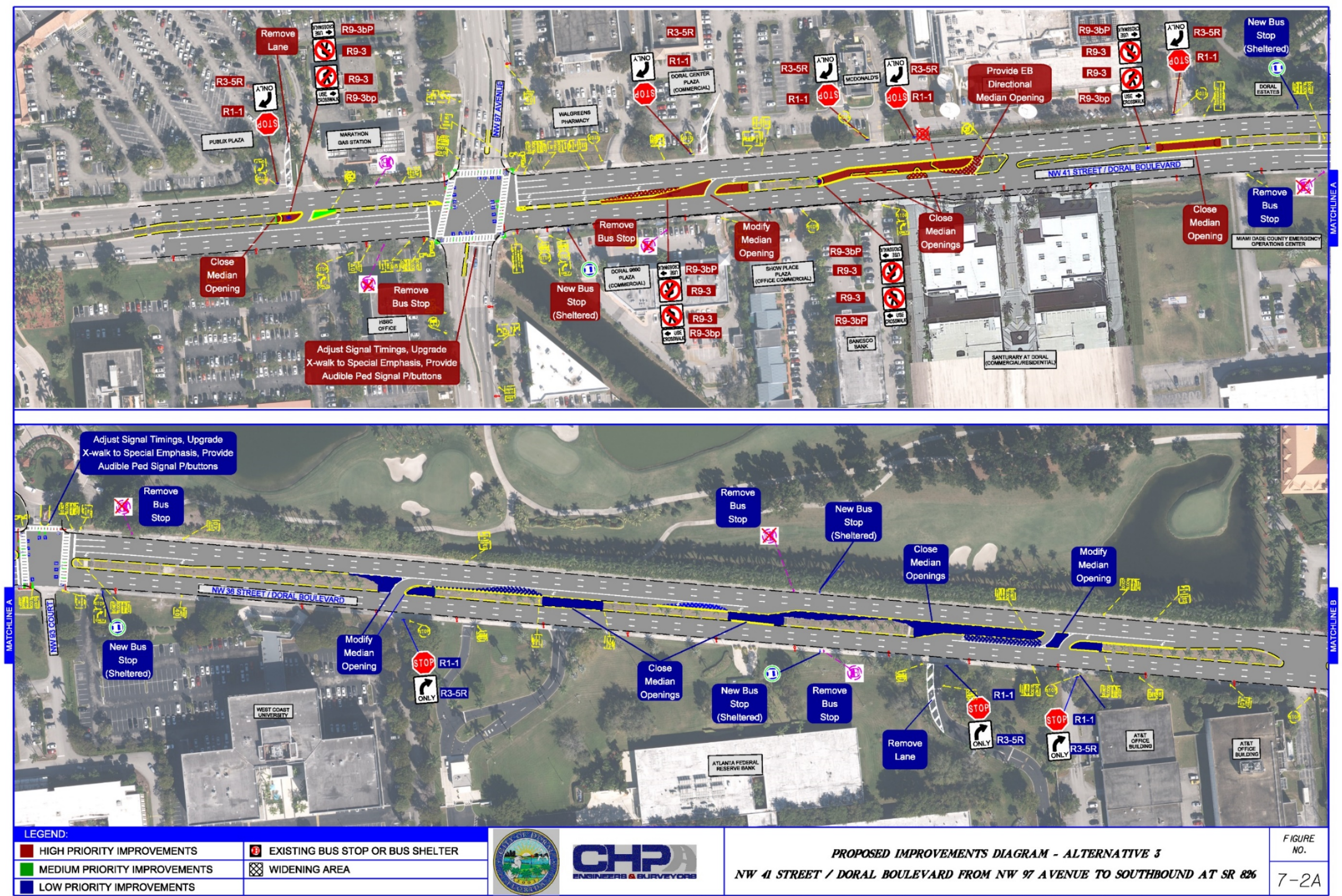


Figure 7-2: Proposed Improvement Diagram-Alternative 3





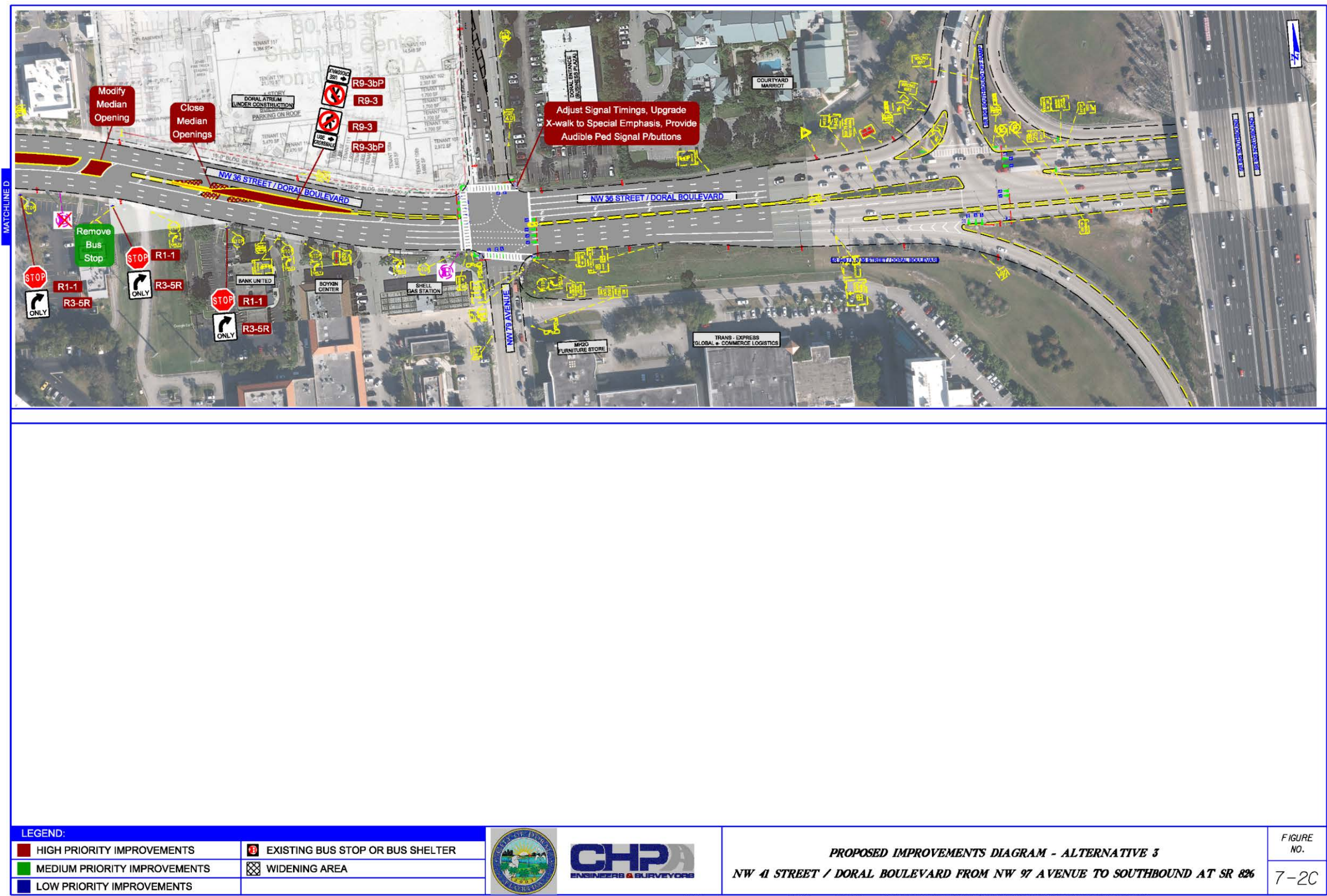
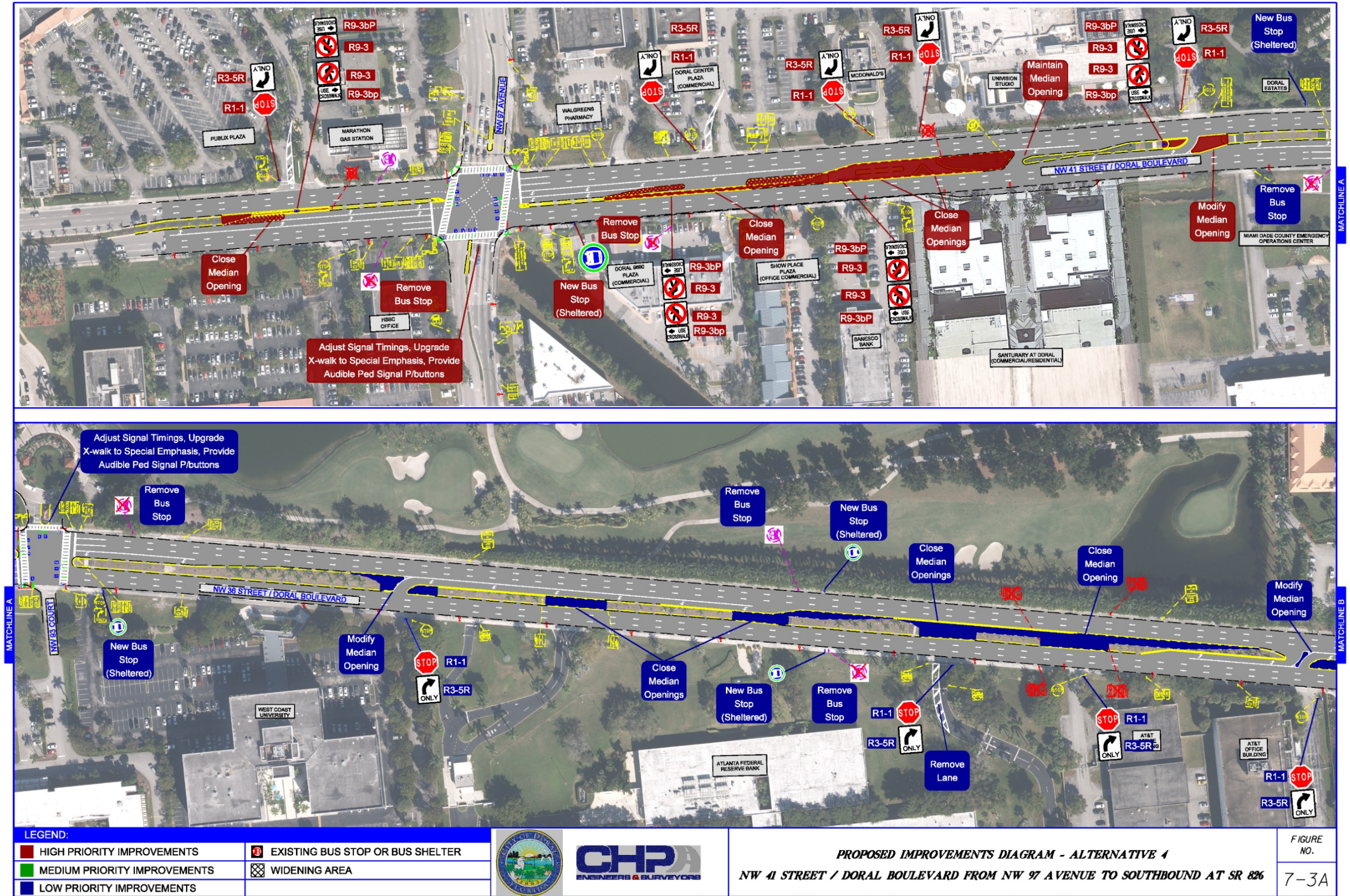
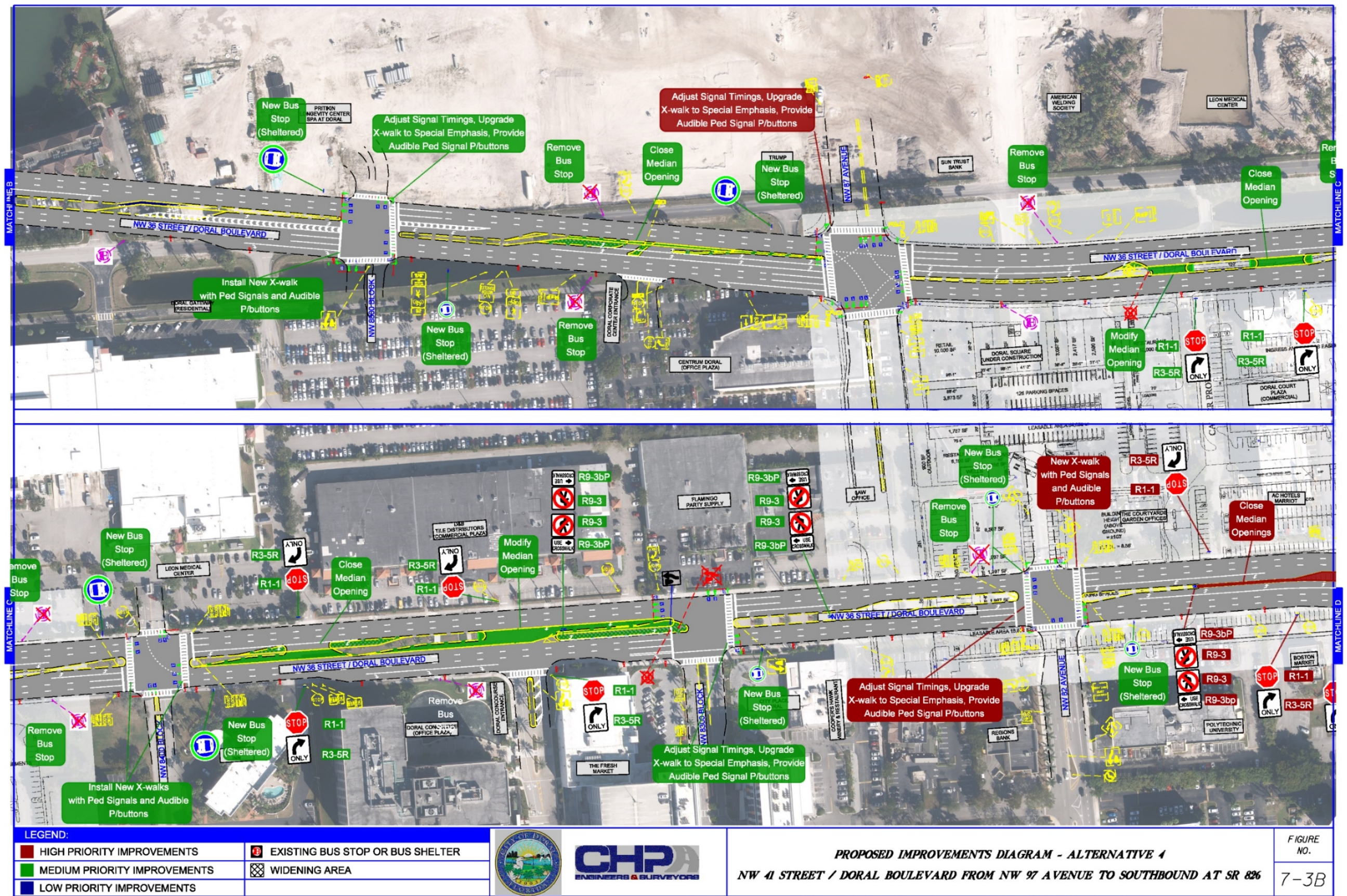
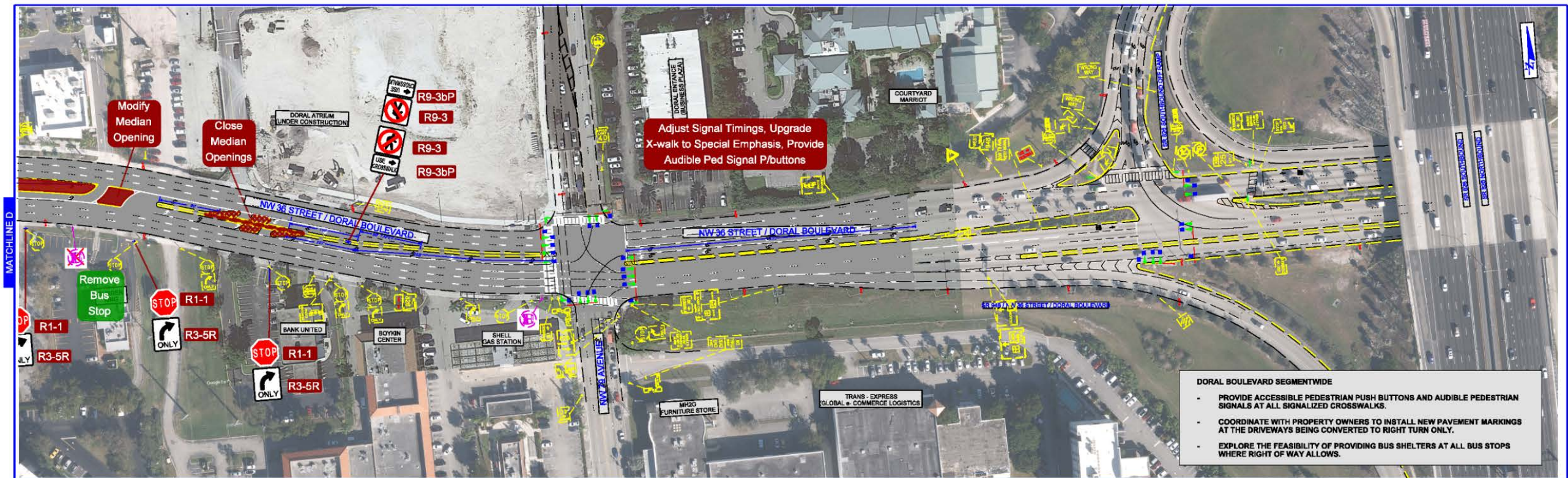


Figure 7-3: Proposed Improvement Diagram-Alternative 4







LEGEND:	
<div></div> HIGH PRIORITY IMPROVEMENTS	<div></div> EXISTING BUS STOP OR BUS SHELTER
<div></div> MEDIUM PRIORITY IMPROVEMENTS	<div></div> WIDENING AREA
<div></div> LOW PRIORITY IMPROVEMENTS	



PROPOSED IMPROVEMENTS DIAGRAM - ALTERNATIVE 4
NW 41 STREET / DORAL BOULEVARD FROM NW 97 AVENUE TO SOUTHBOUND AT SR 826

FIGURE NO.
7-30

8 Operational Analysis

AM and PM peak hour operational analyses for the No-Build and Build alternatives were conducted at the signalized intersections to evaluate the impact of the diverted traffic. No operational analysis was conducted for un-signalized median openings, but the study proposes to increase the lengths of the storage bays at those locations where the diverted traffic is in double digit first to facilitate entry into the turn lane, and second to minimize the possibility of a left-queue spilling into the adjacent through lane. The latest version of the SYNCHRO software was used for the analysis. **Table 7.4** shows comparisons of the delays and level of service (LOS) between the No-Build and the three Build alternatives.

A discussion of the operational analysis by intersection is provided below:

8.1 NW 41st Street at NW 97th Avenue

- Currently the intersection operates with LOS E during the AM peak hour and LOS F during the PM peak hour. The analysis shows there will be a future increase in the intersection delay even without the proposed improvements. Compared among the three build alternatives, all three will operate at LOS F during both peak hours, however, Alternative #3 will result in slightly better delays compared to the other build alternatives.

8.2 NW 41st Street at NW 93rd Court

- This intersection currently operates with LOS A during both peak periods. Re-routing some traffic from nearby median openings will have no operational impact to the intersection given the small amount of traffic expected to be diverted to this intersection. All three build alternatives will result in about the same amount of delays at this intersection resulting in LOS B for both peak periods.

8.3 NW 41st Street at NW 8800 Block

- This intersection currently operates with LOS B and LOS A during the AM and PM peaks, respectively. Re-routing some traffic from the nearby median openings will have no operational impact to the intersection given the small amount of traffic expected to be diverted to this intersection. All three build alternatives will result in about the same amount of delays at this intersection resulting in LOS B for both peak periods.

8.4 NW 41st Street at NW 87th Avenue

- Currently the intersection operates with LOS F during both peak periods. The analysis showed virtually no difference in the delays and LOS between the no-build and the three build alternatives each continuing to operate with LOS F during the peak periods.

8.5 NW 41st Street at NW 8400 Block

- This intersection currently operates with LOS A during both peak periods. Re-routing some traffic from nearby median openings will have no operational impact to the intersection given the small amount of traffic expected to be diverted and the intersection will operate with LOS A and LOS B during the AM and PM peaks, respectively.

8.6 NW 41st Street at NW 8300 Block

- This intersection currently operates with LOS A during both peak periods. It is assumed that there will be no traffic diverted to this intersection except in Build Alternative #4. The diverted traffic and the changes to the signal phasing at the intersection will result in LOS B during both AM and PM peak periods.

8.7 NW 41st Street at NW 82nd Avenue

- This intersection currently operates with LOS C and LOS D during the AM and PM peaks, respectively. Delays for all three build alternatives will be slightly higher than for the no-build alternative, however, only the AM peak period LOS will degrade to LOS D.

8.8 NW 41st Street at NW 79th Avenue

- Currently the intersection operates with LOS E and LOS F during the AM and PM peaks, respectively. Delays for all three build alternatives will be higher than for the no-build alternative, but the LOS for all alternatives will remain unchanged.

Appendix K includes the SYNHCRO analysis print-out reports.

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Table 8-1: LOS Summary

Intersection	Alternative	Peak Period	Eastbound		Westbound		Northbound		Southbound		Intersection	
			Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
NW 41 St @ NW 97 Avenue	2021 No-Build	AM	53.3	D	47.9	D	155.5	F	100.0	F	78.1	E
		PM	62.8	E	157.5	F	71.0	E	83.4	F	103.9	F
	Alt 1 2031 No-Build	AM	57.6	E	50.2	E	175.0	F	109.1	F	85.2	F
		PM	67.7	E	199.0	F	72.2	E	87.8	F	121.4	F
	Alternative 2	AM	59.8	E	60.4	E	175.0	F	109.1	F	87.9	F
		PM	72.8	E	243.4	F	72.2	E	87.8	F	138.4	F
	Alternative 3	AM	57.6	E	52.7	D	175.0	F	109.1	F	85.9	F
		PM	68.7	E	203.5	F	72.2	E	87.8	F	123.4	F
	Alternative 4	AM	59.8	E	70.5	E	175.0	F	109.1	F	90.7	F
		PM	72.3	E	264.4	F	72.2	E	87.8	F	139	F
NW 41 St @ NW 93 Court	2021 No-Build	AM	6.8	A	11.4	B	0.6	A	27.1	C	8.9	A
		PM	5.6	A	10.9	B	7.4	A	18.6	B	8.7	A
	Alt 1 2031 No-Build	AM	8.8	A	12.9	B	0.6	A	27.0	C	10.7	B
		PM	5.8	A	11.7	B	8.4	A	18.6	B	9.2	A
	Alternative 2	AM	12.2	B	13.6	B	0.6	A	27.0	C	13	B
		PM	9.1	B	11.7	B	8.4	A	18.6	B	10.6	B
	Alternative 3	AM	8.8	A	13.1	B	0.6	A	27.0	C	10.7	B
		PM	6.3	A	12.2	B	8.4	A	18.6	B	9.7	A
	Alternative 4	AM	8.8	A	13.7	B	0.6	A	27.0	C	10.9	B
		PM	5.8	A	11.7	B	8.4	A	18.6	B	9.2	A
NW 41 St @ NW 8800 Block	2021 No-Build	AM	15.7	B	6.8	A	18.1	B	0.0	A	12.5	B
		PM	11.6	B	7.1	A	23.8	C	0.0	A	9.4	A
	Alt 1 2031 No-Build	AM	14.7	B	6.5	A	19.0	B	0.0	A	11.8	B
		PM	12.0	B	7.8	A	23.8	C	0.0	A	10	B
	Alternative 2	AM	15.8	B	8.8	A	19.0	B	0.0	A	13.3	B
		PM	11.9	B	10.6	B	23.8	C	0.0	A	11.5	B
	Alternative 3	AM	16.8	B	7.5	A	19.0	B	0.0	A	13.4	B
		PM	12.0	B	8.0	A	23.8	C	0.0	A	10.1	B
	Alternative 4	AM	16.8	B	8.7	A	19.0	B	0.0	A	13.8	B
		PM	12.0	B	7.9	A	23.8	C	0.0	A	10.1	B
NW 41 St @ NW 87 Avenue	2021 No-Build	AM	42.5	D	61.3	E	145.8	F	119.2	F	84.6	F
		PM	56.0	E	79.3	E	99.5	F	135.7	F	89.1	F
	Alt 1 2031 No-Build	AM	44.1	D	70.1	E	164.4	F	166.8	F	101	F
		PM	56.0	E	79.3	E	113.4	F	150.1	F	96.7	F
	Alternative 2	AM	36.5	D	61.7	E	164.4	F	166.8	F	96.4	F
		PM	56.0	D	82.3	F	113.4	F	150.1	F	97.6	F
	Alternative 3	AM	42.4	D	61.9	E	164.4	F	166.8	F	98.4	F
		PM	56.0	E	79.3	E	113.4	F	150.1	F	96.7	F
	Alternative 4	AM	43.3	D	63.5	E	164.4	F	166.8	F	98.9	F
		PM	58.9	E	81.7	F	113.4	F	150.1	F	98	F
NW 41 St @ NW 8400 Block	2021 No-Build	AM	2.8	A	7.4	A	73.1	E	47.5	D	5.5	A
		PM	7.5	A	8.0	A	39.3	E	34.2	C	9.7	A
	Alt 1 2031 No-Build	AM	3.1	A	5.4	A	74.4	E	49.4	D	4.8	A
		PM	9.6	A	9.7	A	38.9	D	38.5	D	11.7	B
	Alternative 2	AM	3.4	A	8.1	A	74.4	E	49.4	D	6.2	A
		PM	11.1	B	10.6	B	38.9	D	38.5	D	12.8	B
	Alternative 3	AM	3.2	A	7.9	A	74.4	E	49.4	D	6	A
		PM	11.1	B	9.7	A	38.9	D	38.5	D	12.4	B
	Alternative 4	AM	3.6	A	8.2	A	74.4	E	49.4	D	6.3	A
		PM	14.0	B	10.7	A	38.9	D	38.5	D	14.2	B
NW 41 St @ NW 8300 Block	2021 No-Build	AM	6.6	A	3.8	A	49.4	D	0.5	A	6.2	A
		PM	9.0	A	5.1	A	58.6	E	-	-	9	A
	Alt 1 2031 No-Build	AM	1.6	A	3.4	A	55.8	E	-	-	3.7	A
		PM	15.0	B	8.7	A	58.5	E	-	-	13.6	B
	Alternative 2	AM	7.7	A	4.5	A	48.2	D	-	-	7.1	A
		PM	16.6	B	9.9	A	58.7	E	-	-	15.1	B
	Alternative 3	AM	7.6	A	4.3	A	48.2	D	-	-	6.9	A
		PM	15.0	B	8.7	A	58.5	E	-	-	13.6	B
	Alternative 4	AM	10.9	B	9.5	A	48.1	D	-	-	11	B
		PM	18.0	B	15.9	B	58.5	E	-	-	18.4	B
NW 41 St @ NW 82 Avenue	2021 No-Build	AM	30.7	C	21.2	C	74.2	E	93.3	F	33.9	C
		PM	44.8	D	33.7	C	100.7	F	77.7	F	51.1	D
	Alt 1 2031 No-Build	AM	18.0	B	23.6	C	76.9	E	93.8	F	30.1	C
		PM	57.6	E	39.3	D	119.4	F	81.0	F	61.2	E
	Alternative 2	AM	40.1	D	24.9	C	76.4	E	93.8	F	39.5	D
		PM	58.2	E	51.7	D	119.4	F	81.0	F	66.2	E
	Alternative 3	AM	40.1	D	24.9	C	76.4	E	93.8	F	39.5	D
		PM	58.2	E	51.7	D	119.4	F	81.0	F	66.2	E
	Alternative 4	AM	39.3	D	24.6	C	76.4	E	93.8	F	39	D
		PM	57.6	E	51.1	D	119.4	F	81.0	F	65.8	E
NW 41 St @ NW 79 Avenue	2021 No-Build	AM	39.3	D	46.6	D	106.8	F	119.1	F	57.8	E
		PM	55.9	E	57.9	E	133.3	F	178.9	F	85.5	F
	Alt 1 2031 No-Build	AM	41.3	D	52.5	D	115.8	F	130.6	F	63.5	E
		PM	59.9	E	66.5	E	144.6	F	197.7	F	94.4	F
	Alternative 2	AM	49.0	D	52.5	D	115.8	F	130.6	F	65.9	E
		PM	77.7	E	66.5	E	144.6	F	197.7	F	100.6	F
	Alternative 3	AM	49.0	D	52.5	D	115.8	F	130.6	F	65.9	E
		PM	77.7	E	66.5	E	144.6	F	197.7	F	100.6	F
	Alternative 4	AM	49.0	D	52.5	D	115.8	F	130.6	F	65.9	E
		PM	77.7	E	66.5	E	144.6	F	197.7	F	100.6	F

9 Benefit Cost Ratio Analysis

9.1 Preliminary Cost Estimates

Table 9-1 shows the construction cost estimates for each improvement alternative assuming all proposed improvements are implemented at once. **Tables 9-2** through **9-4** show the estimated costs by implementation priority for each of the three improvement alternatives. The cost estimates were based on FDOT historical weighted unit prices available at the time of the study and includes costs for preliminary engineering, construction, maintenance of traffic (MOT), construction engineering inspection, and contingency amounts for unforeseen costs. **Appendix L** shows the itemization of the different pay items, units and quantities used to compute the preliminary costs.

Table 9-1: Preliminary Cost Estimates (Total)

Safety Improvements	Alternative 2	Alternative 3	Alternative 4
Roadway	\$ 2,506,603.61	\$2,520,484.03	\$2,483,643.92
S&PM	\$32,373.00	\$26,119.50	\$26,119.50
Signalization	\$29,762.16	\$16,240.21	\$16,240.21
Subtotal	\$2,568,738.77	\$2,562,843.74	\$2,526,003.63
10% General Mobilization	\$ 256,873.88	\$ 256,284.37	\$ 252,600.36
20% Maintenance of Traffic	\$ 513,747.75	\$ 512,568.75	\$ 505,200.73
Contingency	\$ 100,000.00	\$ 100,000.00	\$ 100,000.00
PE & CEI	\$ 770,621.63	\$ 768,853.12	\$ 757,801.09
Right of Way Acquisition	\$ -	\$ -	\$ -
Grand Total	\$ 4,209,982.03	\$ 4,200,549.98	\$ 4,141,605.81

Table 9-2: Alternative 2 Cost Estimates by Improvement Priority

Safety Improvements	High Priority Improvements	Medium Priority Improvement	Low Priority Improvement
Roadway	\$ 723,016.87	\$1,097,168.28	\$686,418.46
S&PM	\$12,875.50	\$12,875.50	\$6,622.00
Signalization	\$13,313.08	\$13,615.11	\$2,837.27
Subtotal	\$749,205.45	\$1,123,658.89	\$695,877.73
10% General Mobilization	\$ 74,920.54	\$ 112,365.89	\$ 69,587.77
20% Maintenance of Traffic	\$ 149,841.09	\$ 224,731.78	\$ 139,175.55
Contingency	\$ 50,000.00	\$ 50,000.00	\$ 50,000.00
PE & CEI	\$ 224,761.63	\$ 337,097.67	\$ 208,763.32
Right of Way Acquisition	\$ -	\$ -	\$ -
Grand Total	\$ 1,248,728.71	\$ 1,847,854.23	\$ 1,163,404.37

Table 9-3: Alternative 3 Cost Estimates by Improvement Priority

Safety Improvements	High Priority Improvements	Medium Priority Improvement	Low Priority Improvement
Roadway	\$ 736,897.28	\$1,097,168.28	\$686,418.46
S & PM	\$12,875.50	\$6,622.00	\$6,622.00
Signalization	\$13,313.08	\$13,615.11	\$2,837.27
Subtotal	\$763,085.86	\$1,117,405.39	\$695,877.73
10% General Mobilization	\$ 76,308.59	\$ 111,740.54	\$ 69,587.77
20% Maintenance of Traffic	\$ 152,617.17	\$ 223,481.08	\$ 139,175.55
Contingency	\$ 50,000.00	\$ 50,000.00	\$ 50,000.00
PE & CEI	\$ 228,925.76	\$ 335,221.62	\$ 208,763.32
Right of Way Acquisition	\$ -	\$ -	\$ -
Grand Total	\$ 1,270,937.38	\$ 1,837,848.63	\$ 1,163,404.37

Table 9-4: Alternative 4 Cost Estimates by Improvement Priority

Safety Improvements	High Priority Improvements	Medium Priority Improvement	Low Priority Improvement
Roadway	\$ 738,472.18	\$1,097,168.28	\$686,418.46
S & PM	\$12,875.50	\$6,622.00	\$6,622.00
Signalization	\$13,313.08	\$13,615.11	\$2,837.27
Subtotal	\$764,660.76	\$1,117,405.39	\$695,877.73
10% General Mobilization	\$ 76,466.08	\$ 111,740.54	\$ 69,587.77
20% Maintenance of Traffic	\$ 152,932.15	\$ 223,481.08	\$ 139,175.55
Contingency	\$ 50,000.00	\$ 50,000.00	\$ 50,000.00
PE & CEI	\$ 229,398.23	\$ 335,221.62	\$ 208,763.32
Right of Way Acquisition	\$ -	\$ -	\$ -
Grand Total	\$ 1,273,457.21	\$ 1,837,848.63	\$ 1,163,404.37

9.2 Crash Reduction:

Tables 9-5 shows the potential reduction in the number of angle and left-turn crashes if all improvements under each alternative are implemented at once. **Tables 9-6** through **9-8** show the potential crash reduction for each implementation priority category under each improvement alternative. The crash reductions were converted into annualized monetary benefits using FDOT's average cost per crash.

Table 9-5: Crash Reduction Summaries by Improvement Alternatives

Alternative 2					
PROPOSED IMPROVEMENT	CRF	SOURCE	TARGETTED CRASH TYPE	TARGETTED CRASHES	REDUCED CRASHES
Convert a full median opening to directional median opening (CMF ID: 5453)	23%	CMF Clearinghouse	Angle	18	4.14
			Left turn	12	2.76
Prohibit Left-turns	90%	FHWA (Pg 41)	Angle	65	58.50
			Left-turn	30	27.00
TOTAL CRASHES REDUCED IN 7-YEARS					92.40
CRASHES REDUCED PER YEAR					13.20
Alternative 3					
PROPOSED IMPROVEMENT	CRF	SOURCE	TARGETTED CRASH TYPE	TARGETTED CRASHES	REDUCED CRASHES
Convert a full median opening to directional median opening (CMF ID: 5453)	23%	CMF Clearinghouse	Angle	55	12.65
	23%		Left turn	19	4.37
Prohibit Left-turns	90%	FHWA (Pg 41)	Angle	60	54.00
			Left-turn	25	22.50
TOTAL CRASHES REDUCED IN 7-YEARS					93.52
CRASHES REDUCED PER YEAR					13.36
Alternative 4					
PROPOSED IMPROVEMENT	CRF	SOURCE	TARGETTED CRASH TYPE	TARGETTED CRASHES	REDUCED CRASHES
Convert a full median opening to directional median opening (CMF ID: 5453)	23%	CMF Clearinghouse	Angle	18	4.14
	23%		Left turn	12	2.76
Prohibit Left-turns	90%	FHWA (Pg 41)	Angle	65	58.50
			Left-turn	30	27.00
TOTAL CRASHES REDUCED IN 7-YEARS					92.40
CRASHES REDUCED PER YEAR					13.20

Table 9-6: Alternative 2 Crash Reductions by Improvement Priority

High Priority Improvements					
PROPOSED IMPROVEMENT	CRF	SOURCE	TARGETTED CRASH TYPE	TARGETTED CRASHES	REDUCED CRASHES
Convert a full median opening to directional median opening (CMF ID: 5453)	23%	CMF Clearinghouse	Angle	6	1.38
			Left turn	7	1.61
Prohibit Left-turns	90%	FHWA (Pg 41)	Angle	57	51.30
			Left-turn	24	21.60
TOTAL CRASHES REDUCED IN 7-YEARS					75.89
CRASHES REDUCED PER YEAR					10.84
Medium Priority Improvements					
PROPOSED IMPROVEMENT	CRF	SOURCE	TARGETTED CRASH TYPE	TARGETTED CRASHES	REDUCED CRASHES
Convert a full median opening to directional median opening (CMF ID: 5453)	23%	CMF Clearinghouse	Angle	2	0.46
			Left turn	2	0.46
Prohibit Left-turns	90%	FHWA (Pg 41)	Angle	8	7.20
			Left-turn	7	6.30
TOTAL CRASHES REDUCED IN 7-YEARS					14.42
CRASHES REDUCED PER YEAR					2.06
Low Priority Improvements					
PROPOSED IMPROVEMENT	CRF	SOURCE	TARGETTED CRASH TYPE	TARGETTED CRASHES	REDUCED CRASHES
Convert a full median opening to directional median opening (CMF ID: 5453)	23%	CMF Clearinghouse	Angle	0	0.00
			Left turn	1	0.23
Prohibit Left-turns	90%	FHWA (Pg 41)	Angle	0	0.00
			Left-turn	0	0.00
TOTAL CRASHES REDUCED IN 7-YEARS					0.23
CRASHES REDUCED PER YEAR					0.03

Table 9-7: Alternative 3 Crash Reductions by Improvement Priority

High Priority Improvements					
PROPOSED IMPROVEMENT	CRF	SOURCE	TARGETTED CRASH TYPE	TARGETTED CRASHES	REDUCED CRASHES
Convert a full median opening to directional median opening (CMF ID: 5453)	23%	CMF Clearinghouse	Angle	53	12.19
			Left turn	16	3.68
Prohibit Left-turns	90%	FHWA (Pg 41)	Angle	10	9.00
			Left-turn	22	19.80
TOTAL CRASHES REDUCED IN 7-YEARS					44.67
CRASHES REDUCED PER YEAR					6.38
Medium Priority Improvements					
PROPOSED IMPROVEMENT	CRF	SOURCE	TARGETTED CRASH TYPE	TARGETTED CRASHES	REDUCED CRASHES
Convert a full median opening to directional median opening (CMF ID: 5453)	23%	CMF Clearinghouse	Angle	2	0.46
			Left turn	2	0.46
Prohibit Left-turns	90%	FHWA (Pg 41)	Angle	8	7.20
			Left-turn	7	6.30
TOTAL CRASHES REDUCED IN 7-YEARS					14.42
CRASHES REDUCED PER YEAR					2.06
Low Priority Improvements					
PROPOSED IMPROVEMENT	CRF	SOURCE	TARGETTED CRASH TYPE	TARGETTED CRASHES	REDUCED CRASHES
Convert a full median opening to directional median opening (CMF ID: 5453)	23%	CMF Clearinghouse	Angle	0	0.00
			Left turn	1	0.23
Prohibit Left-turns	90%	FHWA (Pg 41)	Angle	0	0.00
			Left-turn	0	0.00
TOTAL CRASHES REDUCED IN 5-YEARS					0.23
CRASHES REDUCED PER YEAR					0.05

Table 9-8: Alternative 4 Crash Reductions by Improvement Priority

High Priority Improvements					
PROPOSED IMPROVEMENT	CRF	SOURCE	TARGETTED CRASH TYPE	TARGETTED CRASHES	REDUCED CRASHES
Convert a full median opening to directional median opening (CMF ID: 5453)	23%	CMF Clearinghouse	Angle	6	1.38
			Left turn	7	1.61
Prohibit Left-turns	90%	FHWA (Pg 41)	Angle	57	51.30
			Left-turn	24	21.60
TOTAL CRASHES REDUCED IN 7-YEARS					75.89
CRASHES REDUCED PER YEAR					10.84
Medium Priority Improvements					
PROPOSED IMPROVEMENT	CRF	SOURCE	TARGETTED CRASH TYPE	TARGETTED CRASHES	REDUCED CRASHES
Convert a full median opening to directional median opening (CMF ID: 5453)	23%	CMF Clearinghouse	Angle	0	0.00
			Left turn	0	0.00
Prohibit Left-turns	90%	FHWA (Pg 41)	Angle	10	9.00
			Left-turn	9	8.10
TOTAL CRASHES REDUCED IN 7-YEARS					17.10
CRASHES REDUCED PER YEAR					2.44
Low Priority Improvements					
PROPOSED IMPROVEMENT	CRF	SOURCE	TARGETTED CRASH TYPE	TARGETTED CRASHES	REDUCED CRASHES
Convert a full median opening to directional median opening (CMF ID: 5453)	23%	CMF Clearinghouse	Angle	0	0.00
			Left turn	1	0.23
Prohibit Left-turns	90%	FHWA (Pg 41)	Angle	0	0.00
			Left-turn	0	0.00
TOTAL CRASHES REDUCED IN 5-YEARS					0.23
CRASHES REDUCED PER YEAR					0.05

9.3 Benefit/Cost Ratio Analysis

The annualized crash reduction benefits were compared with the annualized construction cost estimates to obtain a safety benefit to cost (b/c) ratio value. **Table 9-9** shows the b/c ratio values for the three improvement alternatives evaluated by assuming all listed improvements are implemented under one project. The safety b/c ratio values show that each alternative is economically viable. **Tables 9-10** through **9-12** show the safety b/c ratio values for the three evaluated improvement alternatives by assuming that the improvements will be implemented in phases by prioritizing them in HIGH, MEDIUM and LOW priorities. The HIGH priority improvements yield the highest b/c ratio value in all three alternatives. The b/c ratio computations are included in **Appendix M**.

Table 9-9: Benefit-Cost Ratios by Improvement Alternatives

Description	Alternative 2	Alternative 3	Alternative 4
Safety Benefits	\$ 1,631,493.60	\$ 1,631,493.60	\$ 1,631,493.60
Annualized Cost of Project	\$ 322,171.54	\$ 321,125.08	\$ 316,607.05
SAFETY B/C	5.1	5.1	5.2

Table 9-10: Alternative 2 Benefit-Cost Ratios by Improvement Priorities

Description	High Priority Improvements	Medium Priority Improvements	Low Priority Improvements
Safety Benefits	\$ 1,339,978.89	\$ 254,611.88	\$ 4,061.08
Annualized Cost of Project	\$ 94,979.09	\$ 141,724.53	\$ 89,172.25
SAFETY B/C	14.1	1.8	0.0

Table 9-11: Alternative 3 Benefit-Cost Ratios by Improvement Priorities

Description	High Priority Improvements	Medium Priority Improvements	Low Priority Improvements
Safety Benefits	\$ 788,731.81	\$ 254,611.88	\$ 4,061.08
Annualized Cost of Project	\$ 97,096.83	\$ 140,855.29	\$ 89,172.25
SAFETY B/C	8.1	1.8	0.0

Table 9-12: Alternative 4 Benefit-Cost Ratios by Improvement Priorities

Description	High Priority Improvements	Medium Priority Improvements	Low Priority Improvements
Safety Benefits	\$ 1,339,978.89	\$ 301,932.26	\$ 4,061.08
Annualized Cost of Project	\$ 96,874.51	\$ 88,947.74	\$ 89,172.25
SAFETY B/C	13.8	3.4	0.0

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10 Conclusions and Recommendations

Four (4) Access Management Improvement Alternatives, including the No-Build (Alternative #1), were evaluated. Alternative #2 proposes closing 12 median openings, modifying seven (7) median openings, and leaving one median opening unchanged. Alternative #3 proposes closing 11 median openings, modifying eight (8) median openings, and leaving one median opening unchanged. Alternative #4 proposes closing 14 median openings, modifying five (5) median openings, and leaving one median opening unchanged. None of the proposed build alternatives recommends closure of any existing driveway; however, the following driveway modifications will be required as described below:

- Reduce the number of exit lanes from two to one at the Publix Supermarket plaza driveway located west of the NW 97th Avenue signal.
- Reduce the number of exit lanes from two to one at the Doral Center plaza main driveway located east of the NW 97th Avenue signal.
- Reduce the number of exit lanes from two to one at the Atlanta Federal Reserve Bank east driveway.
- Reduce the number of exit lanes from two to one at the Doral Court plaza driveway.
- Reduce the number of exit lanes from two to one at the Doral Concourse driveway located just west of NW 8300 Block.

The improvements under each alternative were categorized into HIGH, MEDIUM and LOW priorities. Each improvement alternative will yield safety benefits by reducing the angle and left-turn crashes along the arterial. The closure of some of the median openings will provide opportunities for the left-turn storage bays to signals or adjacent median openings be lengthened, thus minimizing the potential for turning vehicular queues from spilling into and blocking the adjacent through lanes or vice versa.

After examining each of the build alternatives in terms of safety improvements, potential impacts to adjacent signals, construction costs, and economic viability, it is recommended that Alternative #3 be considered as the Preferred Alternative. This alternative avoids diverting traffic to the congested signals at NW 97th Avenue, NW 87th Avenue, NW 82nd Avenue, and NW 79th Avenue.

The City should also consider the following pedestrian and transit improvements, regardless of which alternative is chosen:

- Enhancing pedestrian features by upgrading all crosswalk markings at signalized intersections to special emphasis, coordinating with Miami - Dade County to implement a Lead Pedestrian Interval (LPI) at the NW 97th Avenue, NW 87th Avenue, NW 82nd Avenue, and NW 79th Avenue signals, and install audible pedestrian signal pushbuttons.
- Install special emphasis crosswalk markings with countdown pedestrian signal heads and audible pushbuttons at the NW 8400 Block signal.
- Add special emphasis crosswalks with countdown pedestrian signals heads on the east legs at the NW 8800 Block, NW 8300 Block, and NW 82nd Avenue signals.
- Consolidate some of the existing bus stops that are in close proximity.
- Relocate some of the existing bus stops closer to the signalized crosswalks and provide bus shelters at the new locations that meet the City's signature design (see **Appendix N**). Coordination with Miami - Dade Transit will be required.
- Upgrade traffic signs and pavement markings to match the proposed condition.