SR 7 MULTIMODAL IMPROVEMENTS CORRIDOR STUDY

CHAPTER 3:
DATA AND ANALYSIS

FINAL

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SR 7 MULTIMODAL IMPROVEMENTS CORRIDOR STUDY

CHAPTER 3-A: BASELINE CONDITIONS

SECTION 3.1: BASELINE CONDITIONS INTRODUCTION

This chapter documents the baseline conditions for the SR 7 corridor, focusing primarily on existing traffic conditions, multimodal infrastructure, transit services, safety, and land use/demographic patterns. This evaluation is based on data collected in Task 3 (Data Review/Data Collection). This chapter is supported by the data and studies reviewed and summarized within Technical Appendix A.1: Data Review Summary and Data Needs Memo. The data documented herein will be used to support the identification of multimodal improvements along SR 7 that address congestion management and safety and lead to better transit service.

This chapter is comprised of the following sections:

- **Multimodal Transportation Analysis**, which evaluates the existing traffic operations, multimodal infrastructure, and transit services/ridership conditions along the SR 7 corridor.
- **Safety Analysis,** which examines historical crash data to identify potential trends within the corridor. An analysis of transit and safety data is also undertaken to identify 'Hot Spot' locations that may merit additional evaluation to understand the relationship between transit access, pedestrian, and bicycle safety/mobility.
- **Land Use and Socioeconomic Analysis**, which consists of an analytical review of the existing land use conditions, demographics, and socioeconomic patterns within the SR 7 corridor that could support or be supported by enhanced transit, bicycle, and pedestrian mobility investments.

SECTION 3.2: MULTIMODAL TRANSPORTATION ANALYSIS

This section summarizes the results of the multimodal transportation analysis, which evaluates the traffic conditions, bicycle and pedestrian infrastructure, and transit services/ridership within the corridor.

EXISTING TRAFFIC CONDITIONS

SR 7 is a major north–south roadway in Broward County. The study area for this effort is a 21-mile segment of the SR 7 corridor through Broward County, extending from Sample Road south to the Broward/Miami-Dade County line and includes a 1-mile east-west buffer centered on SR 7.

SR 7 is designated as a state principal arterial road. Within the study area, SR 7 is a six-lane road from Sample Road to Stirling Road, four-lane road from south of Stirling Road to SW 26th Street (north of Hallandale Beach Boulevard), and a six-lane road from Hallandale Beach Boulevard to the county line.

FDOT is currently reconstructing the existing four-lane section of SR 7 south of Stirling Road to SW 26th Street (north of Hallandale Beach Blvd). Once completed in 2018/19, this section of SR 7 will feature six traffic lanes, landscaped safety medians, dry retention areas for stormwater runoff, new lighting and sidewalks, bicycle lanes, and bus bays. For the purposes of this report, the focus of the analysis and recommendations will be the areas that are not scheduled for reconstruction in the near future. It is assumed that improvements are already planned for the areas under construction and, therefore, are not needed in these areas.

Average Annual Daily Traffic

Map 3-1 illustrates the Average Annual Daily Traffic (AADT) for the SR 7 corridor and major intersecting side streets using the most current system-wide counts (2014) from the FDOT Statistics Office.

Along the existing six lane section of SR 7 from Sheridan Street to Sample Road, average AADT volumes range from 40,000 to 60,000 AADT. Current AADTs in the four lane section, from Hallandale Beach Boulevard to Sheridan Street range from 30,000 to 40,000 AADT. These volumes are projected to increase once the widening project is completed.

Roadway Level of Service

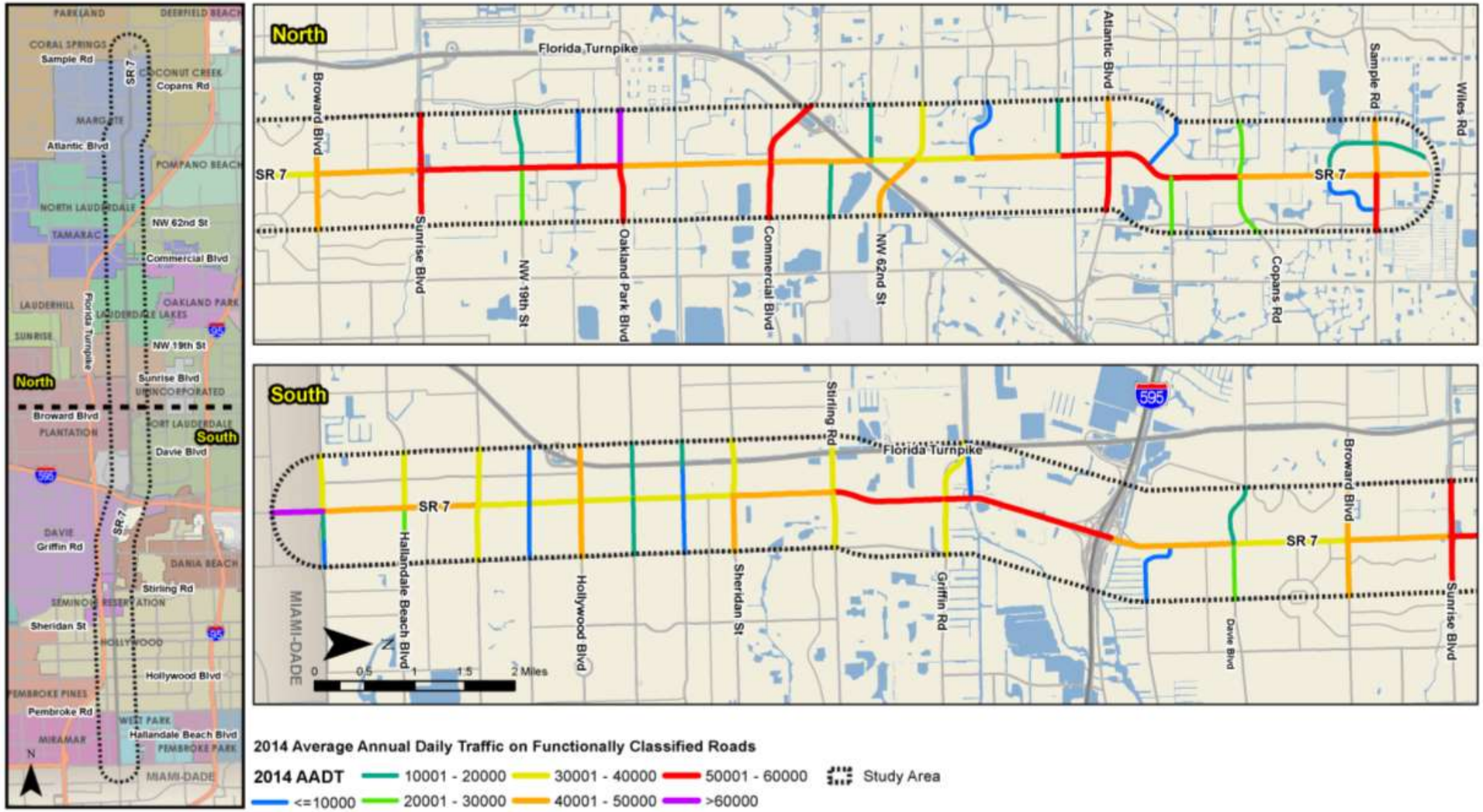
The 2014 traffic volumes shown in Map 3-1 were used to estimate the generalized level of service (LOS) for roadways within the SR 7 corridor. The generalized LOS is based on FDOT's 2012 generalized service volume table for state signalized arterials in urbanized areas.

As shown in Map 3-2, based on daily volumes and service capacities, road segments within the study area operating at level of Service 'F' include:

- SR 7 south of Miami-Dade County line
- SR 7 from Miramar Parkway to Washington Street
- SR 7 from Sheridan Street to SW 60th Street
- SR 7 from W Atlantic Boulevard to NW 15th Street
- SW 41st Street from SR 7 to SW 56th Avenue
- Miramar Parkway from SW 64th Avenue to SR 7
- Johnson Street from SR 7 to N 56th Avenue
- Sheridan Street from NW 64th Avenue to SR 7
- NW 19th Street from NW 46th Avenue to SR 7
- W Oakland Park Boulevard from NW 46th Avenue to SR 7

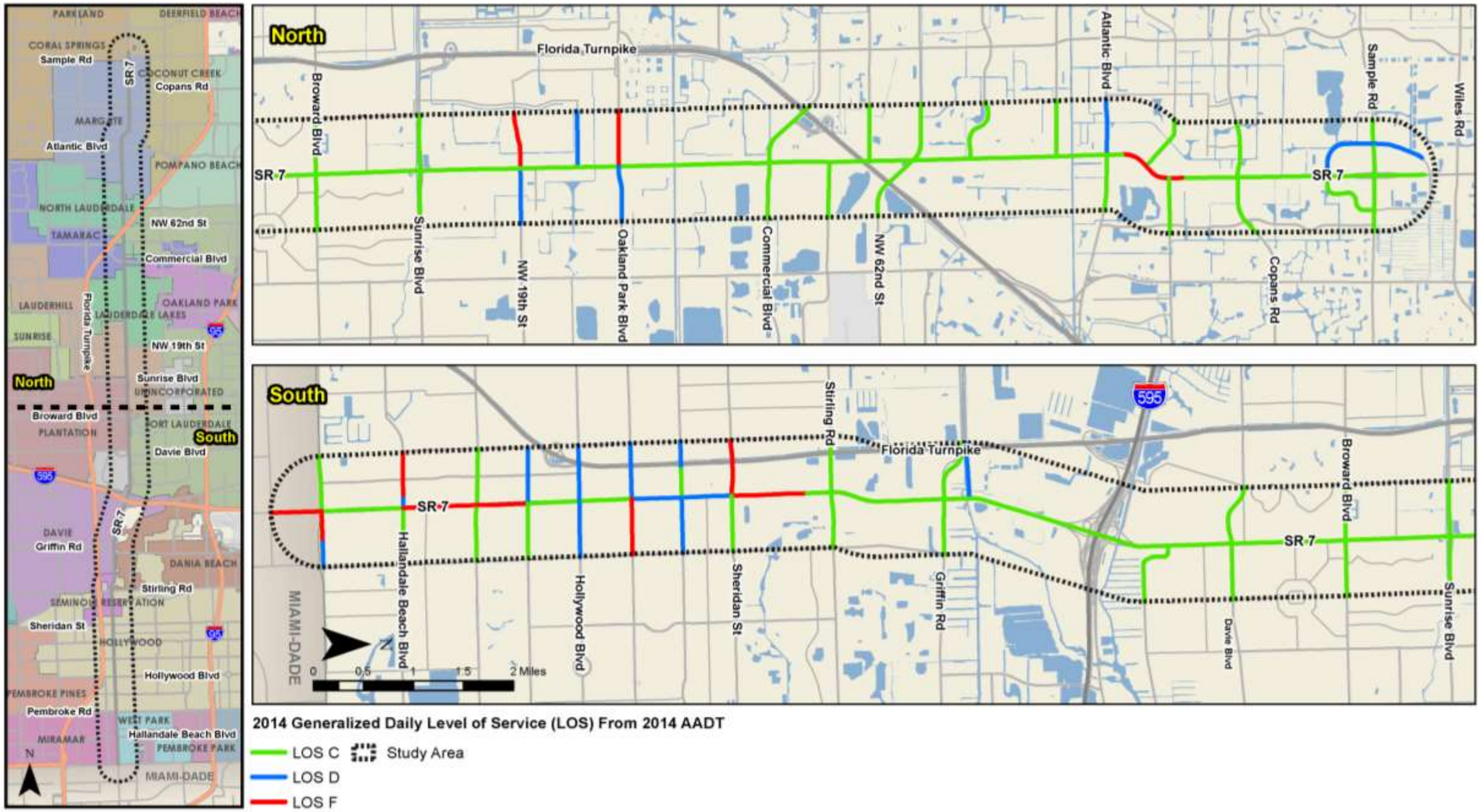
Many of the intersecting arterial streets also have high daily traffic volumes, and tend to have higher volumes west of SR 7 than to the east. This is likely related to traffic making 'Z' and 'S' movements between SR 7 and the Florida Turnpike. While many segments of SR 7 currently show LOS' or better based on daily volumes and capacities, peak hour conditions and operating characteristics of individual signalized intersections may be worse than expected, especially where the intersecting arterials provide access to the nearby Florida Turnpike.

Map 3-1: Average Annual Daily Traffic



Data Source: 2014 Florida Traffic Information DVD (Telemetered Traffic Monitoring Sites (TTMS), Portable Traffic Monitoring Sites (PTMS)), FDOT Transportation Statistics Office, 2015

Map 3-2: 2014 Generalized Daily Level of Service



Data Source: 2014 Florida Traffic Information DVD (Telemetered Traffic Monitoring Sites (TTMS), Portable Traffic Monitoring Sites (PTMS)), FDOT Transportation Statistics Office, 2015

PEDESTRIAN AND BICYCLE NETWORK

This section documents the existing pedestrian and bicycle network. As previously noted, SR 7 south of Stirling Road to SW 26th Street (north of Hallandale Beach Blvd) is currently under construction to widen this section to six traffic lanes. Other pedestrian and bicycle improvements will also be made concurrently. Therefore, the existing sidewalk and bicycle maps reflect the ongoing reconstruction of this section of SR 7.

Existing Sidewalk Network

As illustrated in Map 3-3, nearly all east-west major intersecting side streets have at least a sidewalk on one side of the road. There are complete sidewalks on both sides of SR 7 between Sample Road and Riverland Road (located just north of I-595), except for a partial sidewalk located between NW 31st Street to north of Sample Road. There are incomplete or missing sidewalks along SR 7 in the vicinity of I-595, from Riverland Road to Orange Drive (just north of Griffin Road). In addition to this limited access facility generating high traffic volumes, land uses within this area are not major pedestrian generators, but it is important for pedestrians to be able to traverse the area to get to other destinations.

Today, the southern portion of the corridor has a less complete sidewalk network directly along SR 7 with intermittent sidewalks present between Stirling Road and Hallandale Beach Boulevard. However, the SR 7 road widening project will provide new sidewalks along both sides of this newly six-laned section of SR 7.

In conjunction with the SR 7 road widening project, FDOT and the City of Hollywood have committed to install a new community linear park along the east side of the newly six-laned roadway between Hollywood Blvd and Johnson St. The linear park will be ½-mile and incorporated into the design of the roadway storm water retention ponds. In lieu of the standard 6-feet-wide roadside sidewalk, a minimum 8-foot curvilinear park sidewalk will be provided offset from the road edge. The design for the new linear park includes two plazas—one at the northeast corner of SR 7 and Hollywood Boulevard and the other at the southeast corner of SR 7 and Johnson Street. Bisecting the linear park will be a new traffic light and crosswalk at SR 7 and Fillmore Street to enhance pedestrian safety at this intersection.

In addition to sidewalks, there are two multipurpose trails within the study area. The two-mile C-13 Canal Greenway Trail offers a paved, flat, and open route from the outskirts of Oakland Park through Lauderdale Lakes. From NW 31st Avenue to SR 7, it parallels the northern bank of the canal. At SR 7 the trail crosses the canal and follows its southern bank to the Florida Turnpike.

There is currently no on-demand pedestrian/bicyclist crossing where the C-13 Canal Greenway Trail intersects with SR 7.

The C-14 Canal/Cypress Creek Greenway comprises over 23 miles of trail connecting the Everglades to the beach. This trail crosses SR 7 just south of Atlantic Boulevard and, as with the C-13 Canal Greenway Trail, there is no on-demand pedestrian/bicyclist crossing at this crossing.

Map 3-3 also illustrates community activity centers, such as libraries, hospitals, city halls, schools, and parks. As shown, there are complete sidewalks immediately adjacent to each activity center, although depending on the pedestrian's origin and route taken, they may encounter segments of missing or incomplete sidewalks during their trip.

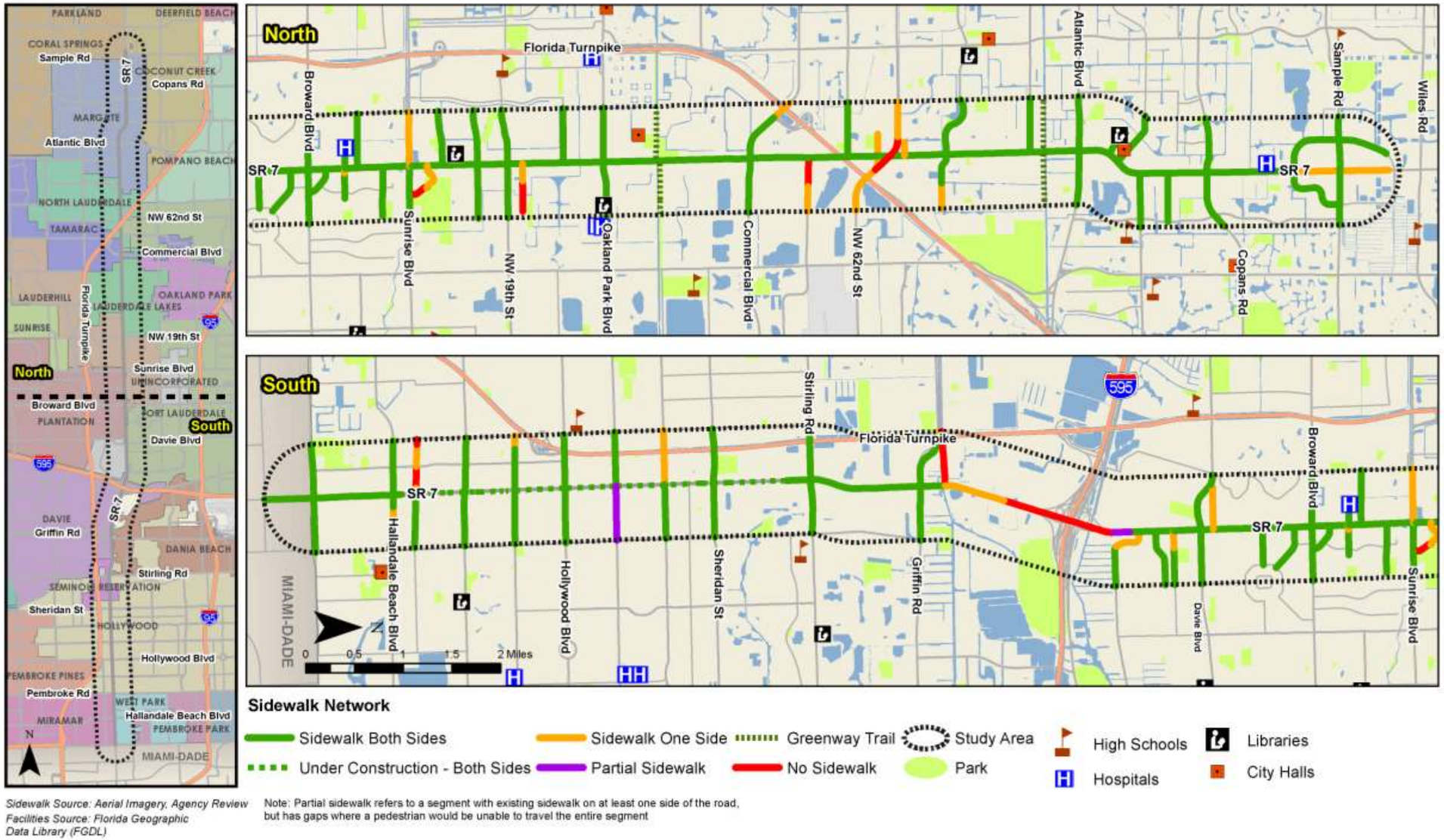
Existing Bicycle Network

A review of the existing bicycle facilities within the corridor was also undertaken. For purposes of this review, bicycle facilities include marked bicycle lanes, unmarked bicycle lanes, paved shoulders, and shared use (wide/paved) facilities along the road.

The bicycle network within the study area is less complete than the sidewalk network. As illustrated in Map 3-4, there is a continuous bicycle facility along SR 7 from Southgate Boulevard (south of Atlantic Boulevard) to the Middle River (north of Oakland Park Boulevard), from Broward Boulevard to just south of Stirling Road, and from Hallandale Beach Road to the Broward/Miami-Dade county line. While there are currently no designated or partial bicycle lanes along SR 7 from south of Stirling Road to SW 26th Street , FDOT has committed to install bicycle lanes along both sides of the new six-lane roadway as part of the SR 7 reconstruction.

There are few bicycle facilities on the major intersecting side streets, providing limited access to SR 7 from the east or west. The existing network also limits access to the community activity centers via a separate bicycle lane.

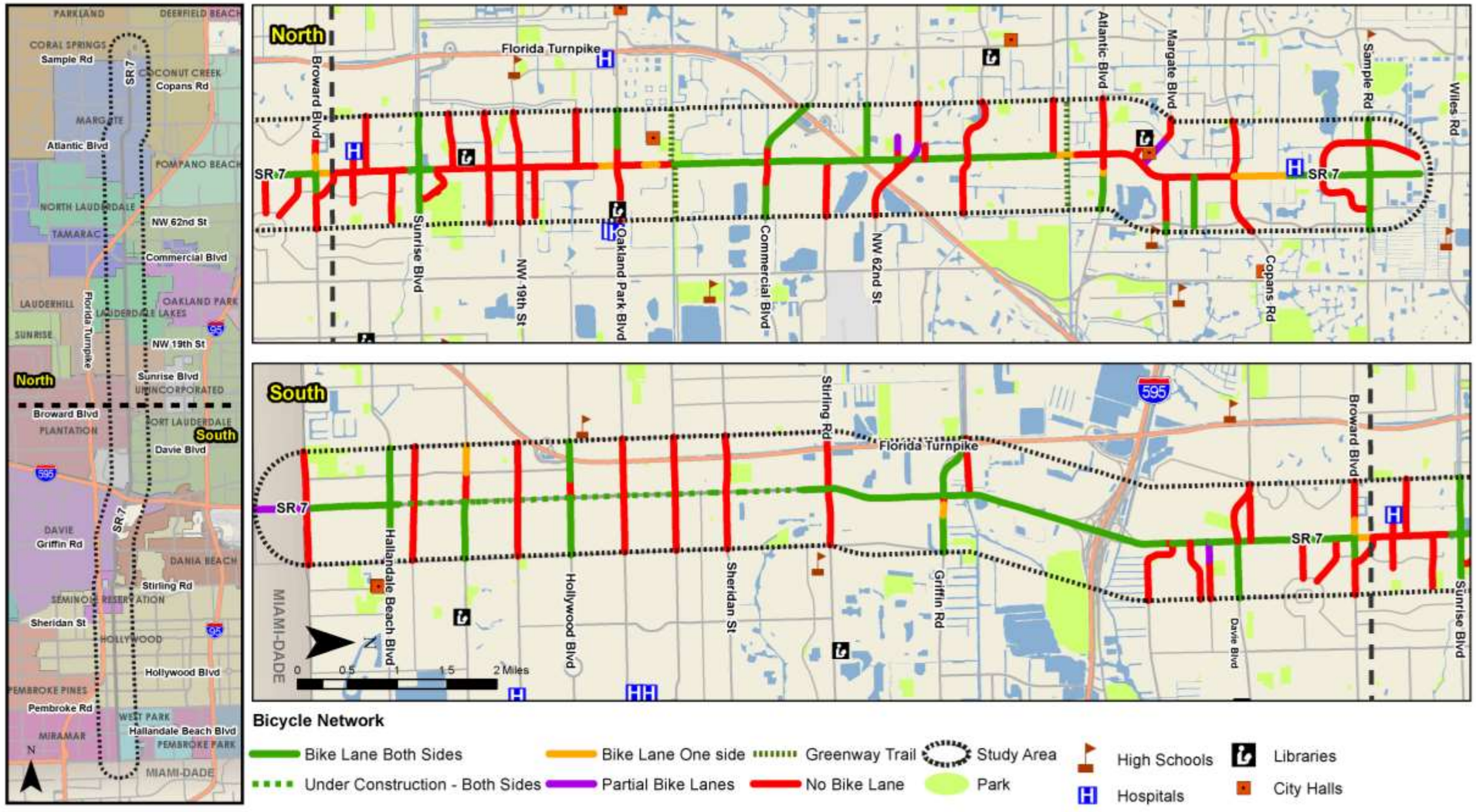
Map 3-3: Existing Sidewalk Network



Sidewalk Source: Aerial Imagery, Agency Review
Facilities Source: Florida Geographic Data Library (FGDL)

Note: Partial sidewalk refers to a segment with existing sidewalk on at least one side of the road, but has gaps where a pedestrian would be unable to travel the entire segment

Map 3-4: Existing Bicycle Network



Bicycle Source: Aerial Imagery, Agency Review
Facilities Source: Florida Geographic Data Library (FGDL)

Note; Partial bike lanes refers to a segment with existing bike lanes on at least one side of the road, but has gaps where a bicyclist would be unable to travel the entire segment

TRANSIT NETWORK

This section evaluates the existing fixed-route and community bus transit network, service levels, and ridership within the SR 7 corridor.

Fixed-Route Service

BCT is the main transit service provider in Broward County. BCT provides fixed-route bus service and Breeze commuter service. Breeze routes offer limited stops at major intersections only during weekday morning and afternoon peak travel hours.

Map 3-5 shows the existing alignments for BCT fixed routes within the corridor. There are three primary north-south transit routes that serve SR 7 within the study area: Route 18, Route 19 and Breeze Route 441. Route 18 runs along SR 7 from Lauderhill Mall to the Golden Glades Park and Ride/Tri-Rail Station in north Miami-Dade County. Route 19 serves the northern portion of SR 7, running from the Broward/Palm Beach county line and providing connection to Palm Tran to the Lauderhill Mall. Breeze Route 441 runs along the entirety of the SR 7 corridor, beginning at Turtle Creek Drive/US 441 and also terminating at the Golden Glades Park and Ride. Collectively these three routes have the highest ridership in BCT system with over 20,000 daily passenger trips. Along the corridor, the highest number of daily boardings and alightings occur at the Golden Glades transit center, Lauderhill Mall transit center, SR 7 and Oakland Park Boulevard, the main transit transfer points within the study area. Other locations with notable ridership levels include Commercial Boulevard, Broward Boulevard, Hollywood Boulevard, and Hallandale Beach Boulevard.

A number of BCT routes within the corridor provide east-west local transit service. There are also several routes that exclusively serve the Florida Turnpike or I-595 and, although shown on this map, do not serve stops within the SR 7 corridor. Though several primarily east-west bus routes do serve SR 7 in some capacity, it is for a limited distance around Lauderhill Mall and along SR 7 between Griffin Road and Stirling Road (Route 15); therefore, there is no significant overlap in transit service from these routes providing additional frequency in bus service for passengers traveling north-south along SR 7.

Map 3-6 displays stop-level fixed-route ridership throughout the corridor. The highest ridership areas include SR 7 and Oakland Park Boulevard (where Route 19 and Breeze Route 441 intersect Route 72—a high frequency route) and Lauderhill Transfer Facility, a transfer point between Routes 18, 19, 36, 40, and 81. Other locations with notable ridership levels include Commercial Boulevard, Broward Boulevard, Hollywood Boulevard, and Hallandale Beach Boulevard.

Table 3-1 summarizes the AM peak, mid-day, and PM peak period route frequencies for those routes shown on Map 3-5. Most routes, including those that primarily serve SR 7 (Routes 18, 19, and Breeze Route 441) provide frequent service (16-30 minutes) throughout the day.

Table 3-1: BCT Route Frequencies

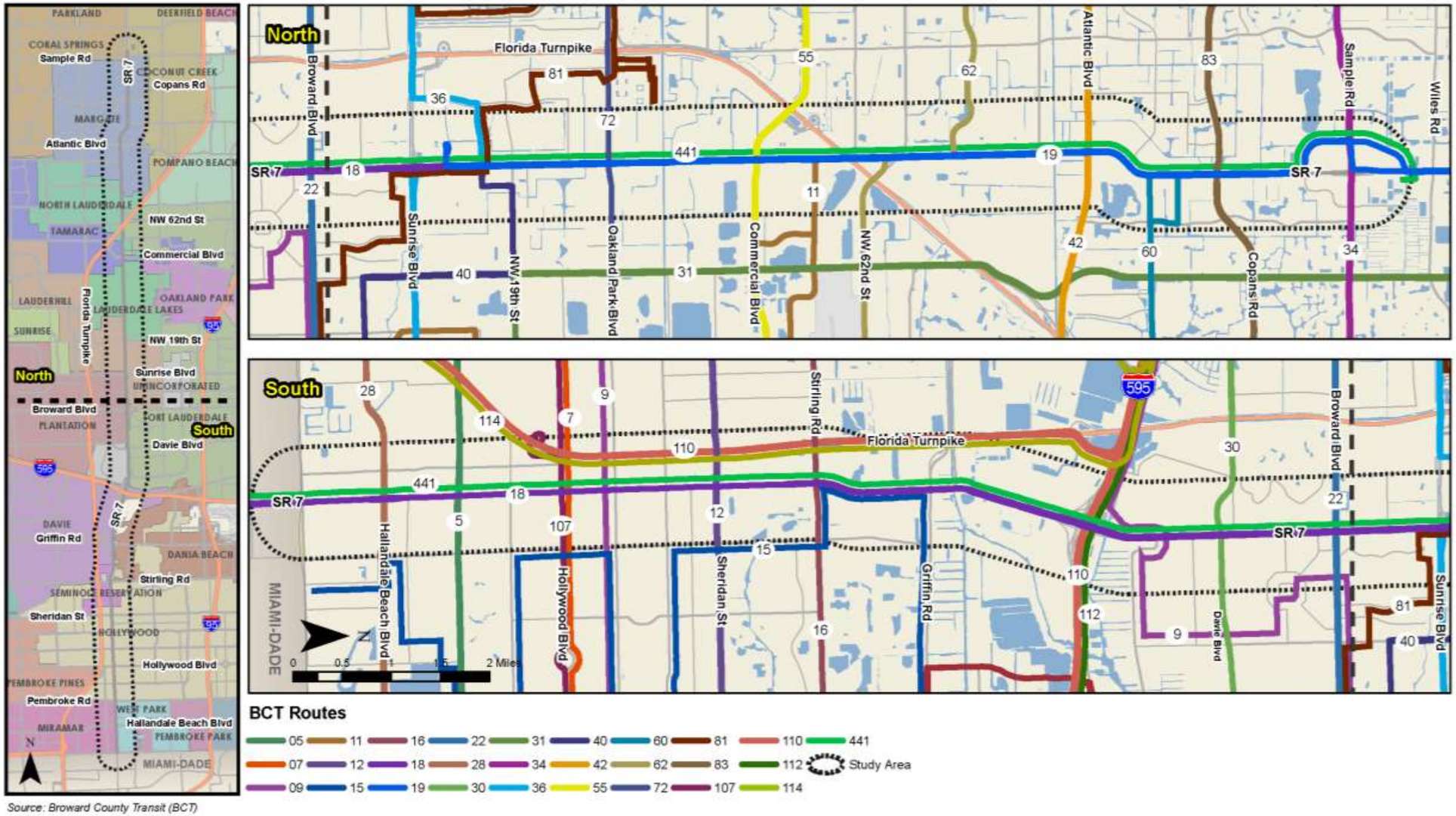
Route	AM Peak	Mid-day	PM Peak
5			
7			
9			
11			
12			
15			
16			
18			
19			
22			
28			
30			
31			
34			
36			
40			
42			
55			
60			
62			
72			
81			
83			
107			
110			
112			
114			
Breeze 441			

15 minutes
16 - 30 min
31 - 59 Min
60 + Minut
N/A

Community Bus Service

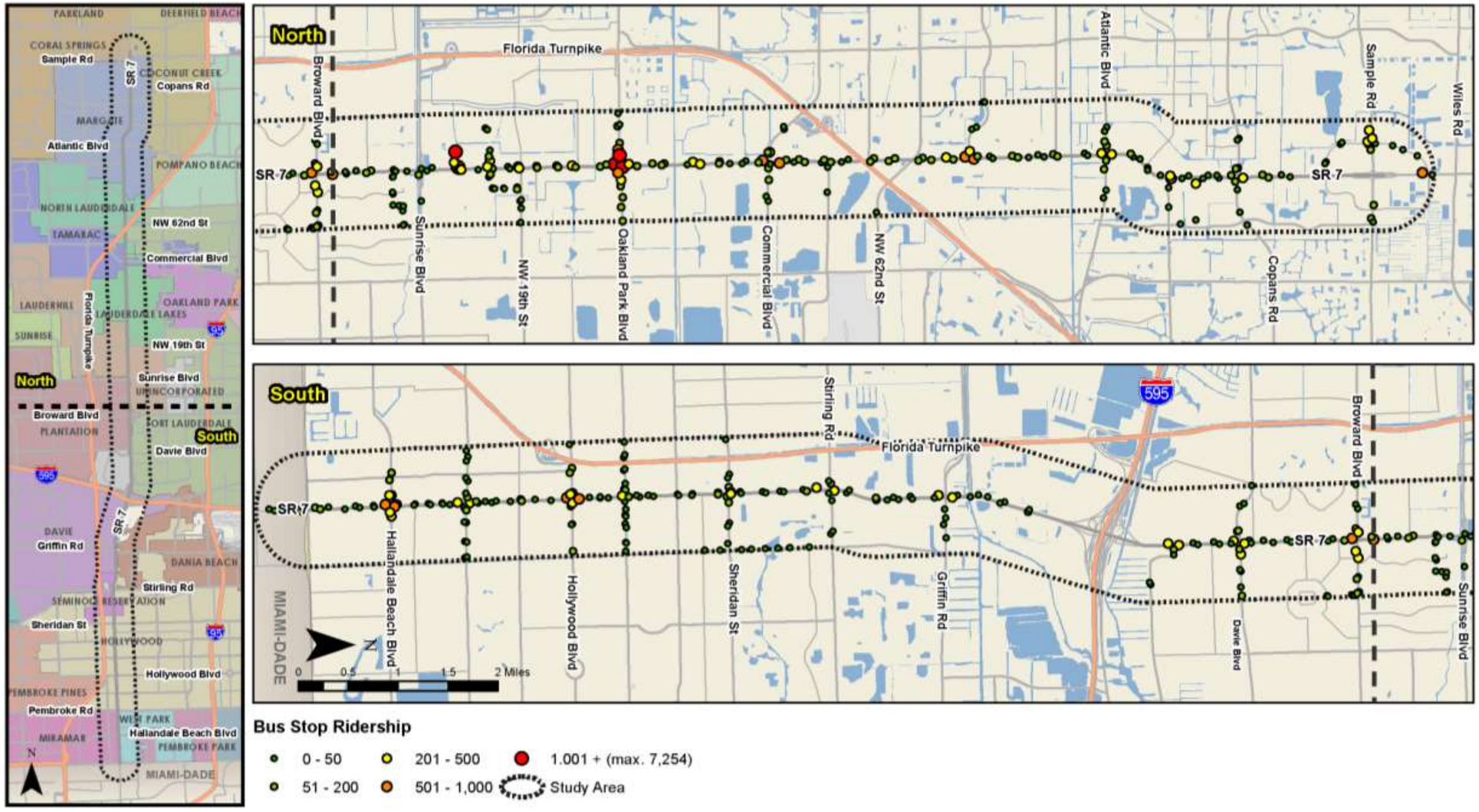
BCT's community bus service is designed to increase the number of destinations within city limits that can be accessed through public transit. Map 3-7 illustrates the community bus routes found within the corridor. All community bus routes connect to BCT fixed routes. As shown, BCT fixed-route service is more frequently supplemented by community bus routes in the northern portion of the corridor and providing additional transit options to travel along SR 7 above those provided by BCT fixed-route service.

Map 3-5: BCT Fixed Routes

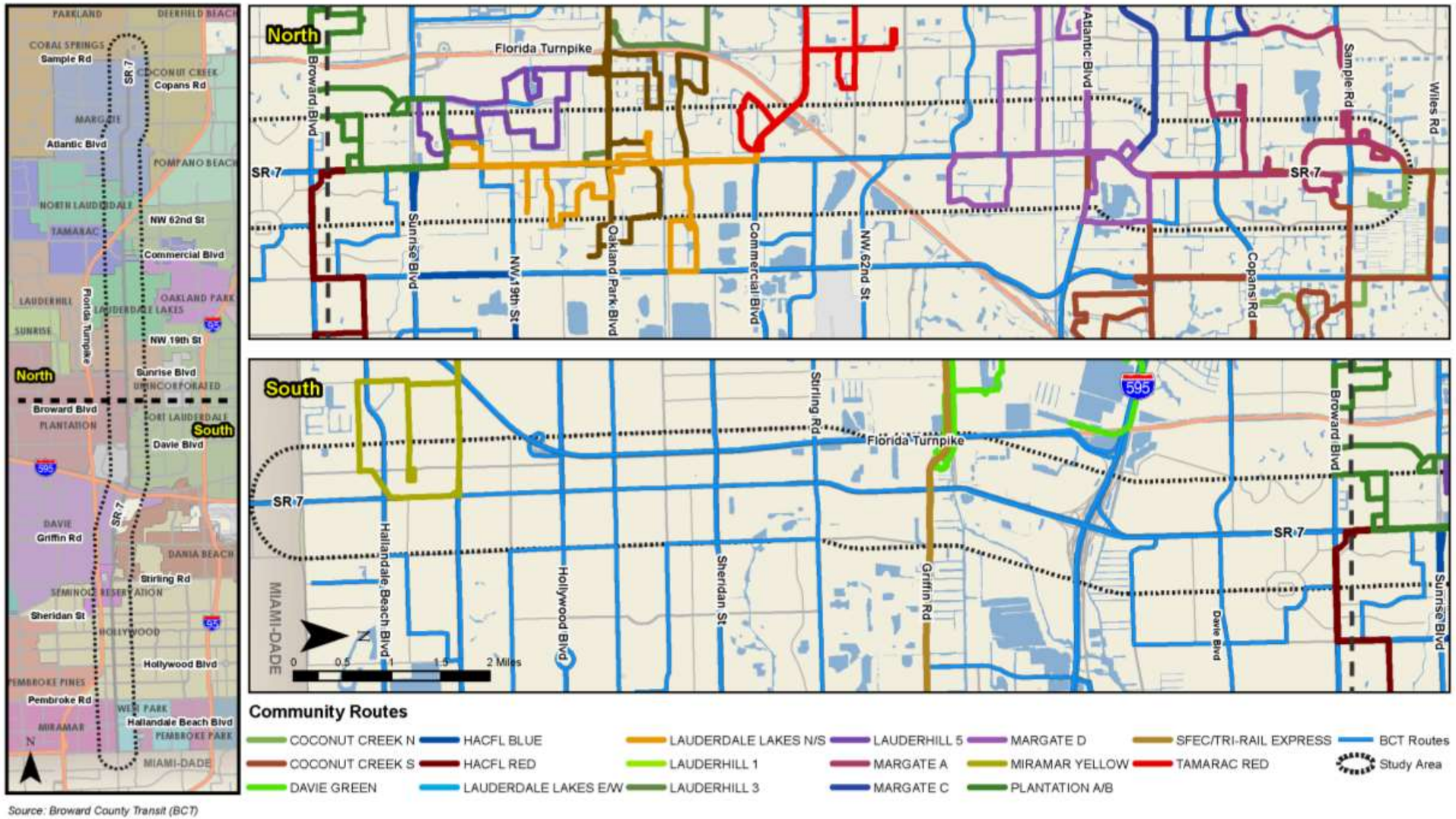


Source: Broward County Transit (BCT)

Map 3-6: BCT Stop-Level Ridership



Map 3-7: Community Bus Routes



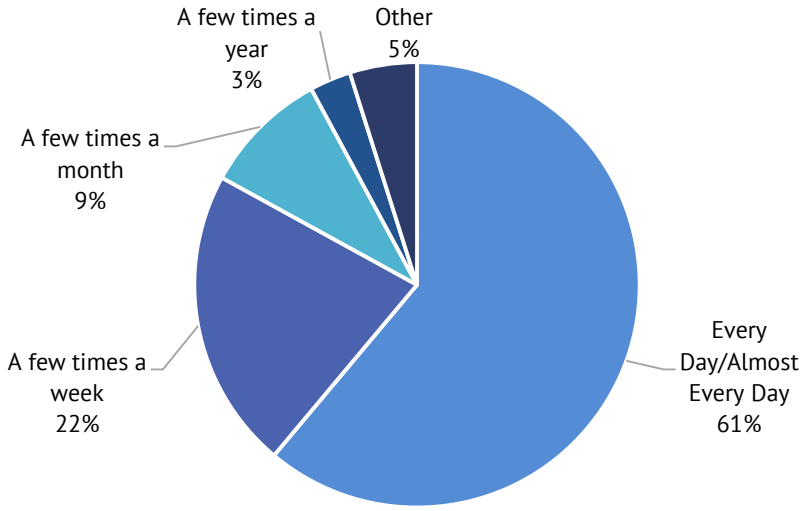
Source: Broward County Transit (BCT)

TRANSIT INTERCEPT SURVEYS

Between August 17 and August 26, 2015, pairs of surveyors stood at previously identified SR 7 Hot Spots within the study area. (Note: The methodology for identifying Hot Spots is described in the Safety Hot Spots Analysis section later in this document). Surveyors approached patrons waiting for the bus, disembarking from the bus, walking through the corridor, or biking through the corridor and requested that they take a voluntary survey. Most respondents were waiting for the bus when they completed the survey. A total of 1,143 surveys were collected. Not every survey was completed in its entirety due to respondents needing to board waiting buses.

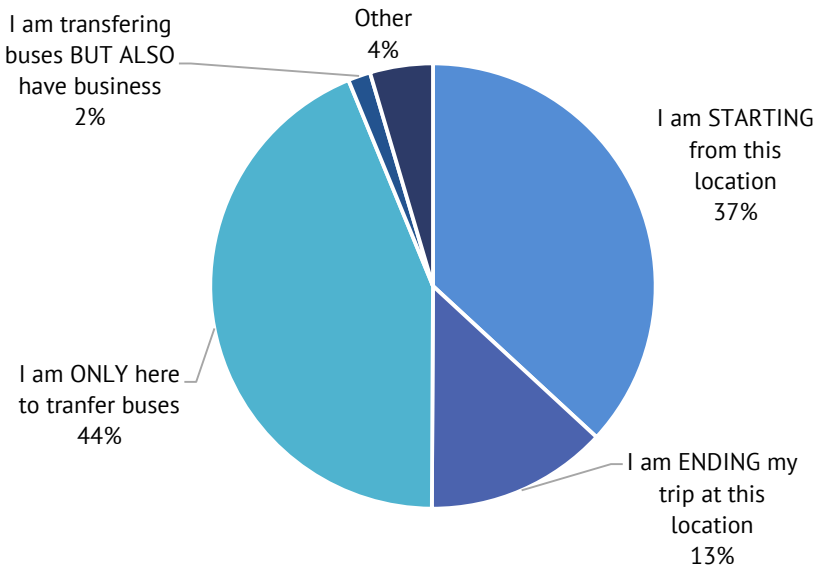
For a full analysis of the data collected during the surveying process, see Technical Appendix A.2. As shown in Figure 3-1 the majority of respondents navigate SR 7 on a daily basis. Of the respondents who were bus passengers, 44 percent were there to transfer buses (see Figure 3-2). It should be noted that people waiting for the bus were more likely to take the survey than those who were alighting; this tendency makes it more likely for a respondent to be starting their trip or transferring rather than ending their trip when they took the survey.

Figure 3-1: How often are you here (in the vicinity of the study intersection)?



Source: Survey of SR 7 Users, August 2015

Figure 3-2: Please describe your bus trip today



Source: Survey of SR 7 Users, August 2015

SECTION 3.3: SAFETY ANALYSIS

This section provides a review of the crash data, Hot Spot analysis, sidewalk and bicycle facilities gap analysis, and observations of pedestrian and bicycle movements in the corridor.

CRASH ANALYSIS

To understand the crash history in the corridor, both general crash trends as well as trends in severe injury and fatal crashes were analyzed. Special attention was paid to crashes involving pedestrians and bicyclists.

Crash Trend Analysis

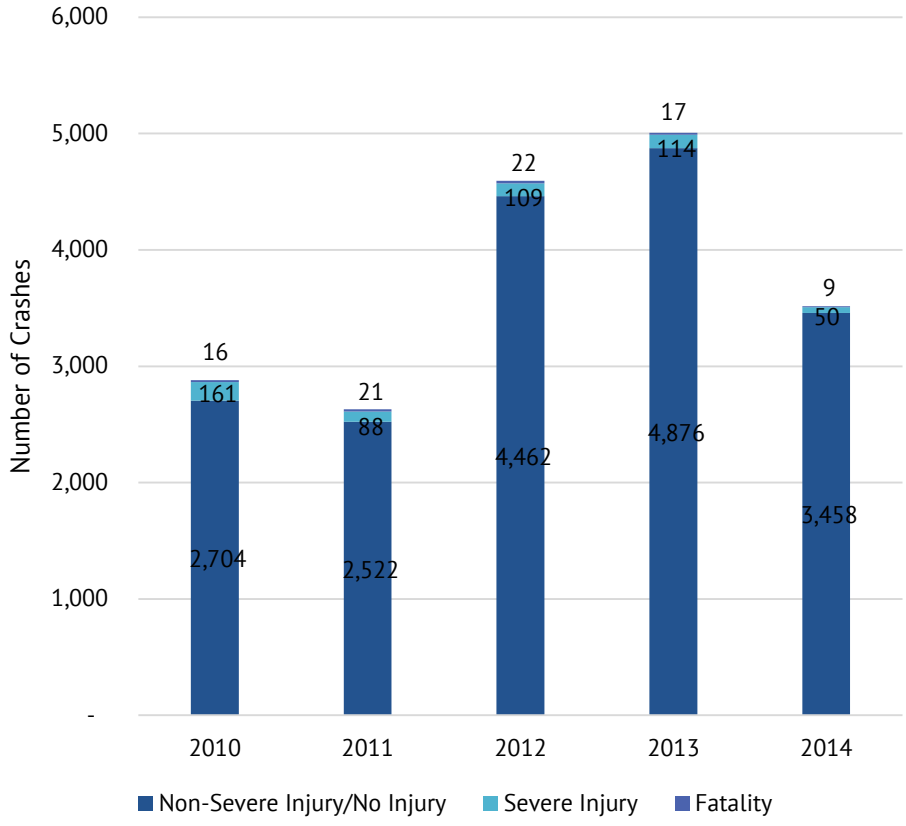
An analysis of crashes within the SR 7 corridor that occurred over the past five years (2010—2014) was completed using data extracted from FDOT's Crash Analysis Reporting System (CARS). In some instances, the crash data for the corridor study area were compared to countywide crash data to identify any similarities or differences in trends. Countywide crash data were extracted from Signal 4 Analytics, a web-based system developed by the GeoPlan Center at the University of Florida. During this five-year period, there were nearly 18,640 crashes within the corridor study area. Figure 3-3 shows the annual distribution of total crashes within the corridor, grouping the data by fatal, severe injury, and non-severe injury/no injury crashes.

Over the past five years, total crashes within the corridor have been trending up, peaking in 2013 at just over 5,000 crashes. Within this five-year period, the total number of crashes increased the most between 2011 and 2012 (by 43%), then decreased by nearly 30 percent between 2013 and 2014.

During this same five-year period, there were approximately 275,185 crashes countywide (see Figure 3-4); crashes within the SR 7 corridor accounted for 6.8 percent of the countywide total. Countywide, the number of crashes has been consistently trending up each year with the most notable increase occurring (35%) occurring between 2011 and 2012.

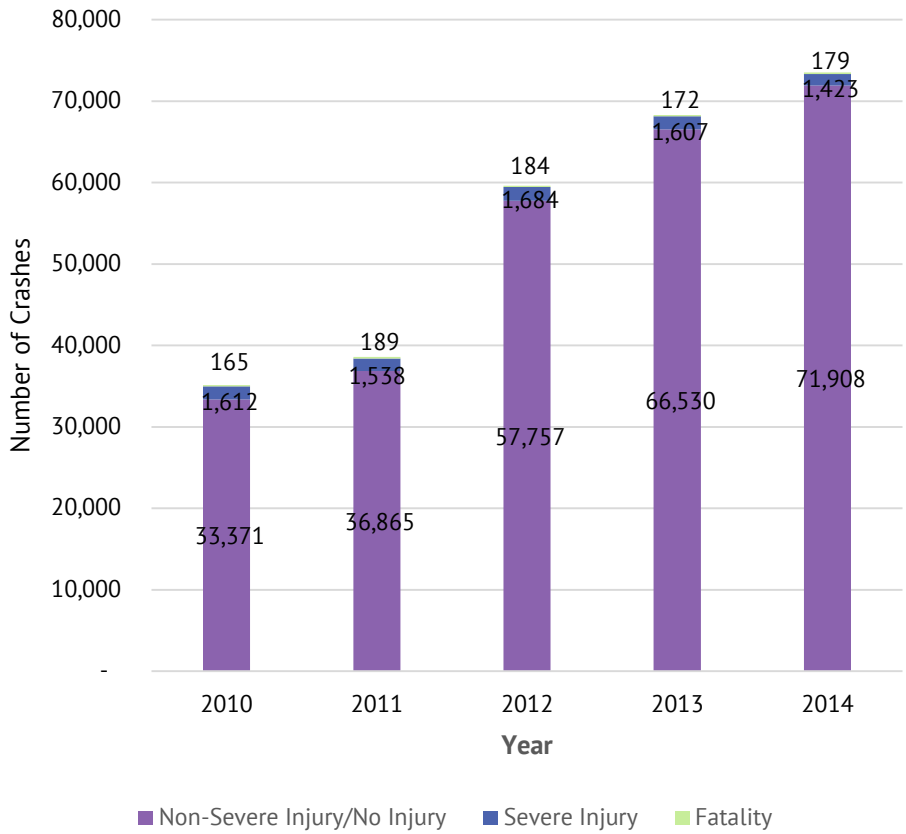
During this five-year period, the percentage of fatal and severe injury crashes for the SR 7 corridor, 0.5 percent and 2.8 percent, respectively, closely mirrors that observed countywide, 0.3 percent and 2.9 percent, respectively. This indicates the SR 7 corridor does not experience an abnormally high or low number of fatal or severe injury crashes compared to the county as a whole.

Figure 3-3: Annual Distribution of Total Crashes (SR 7 corridor)



Source: 2010-2014 crash data extracted from CARS

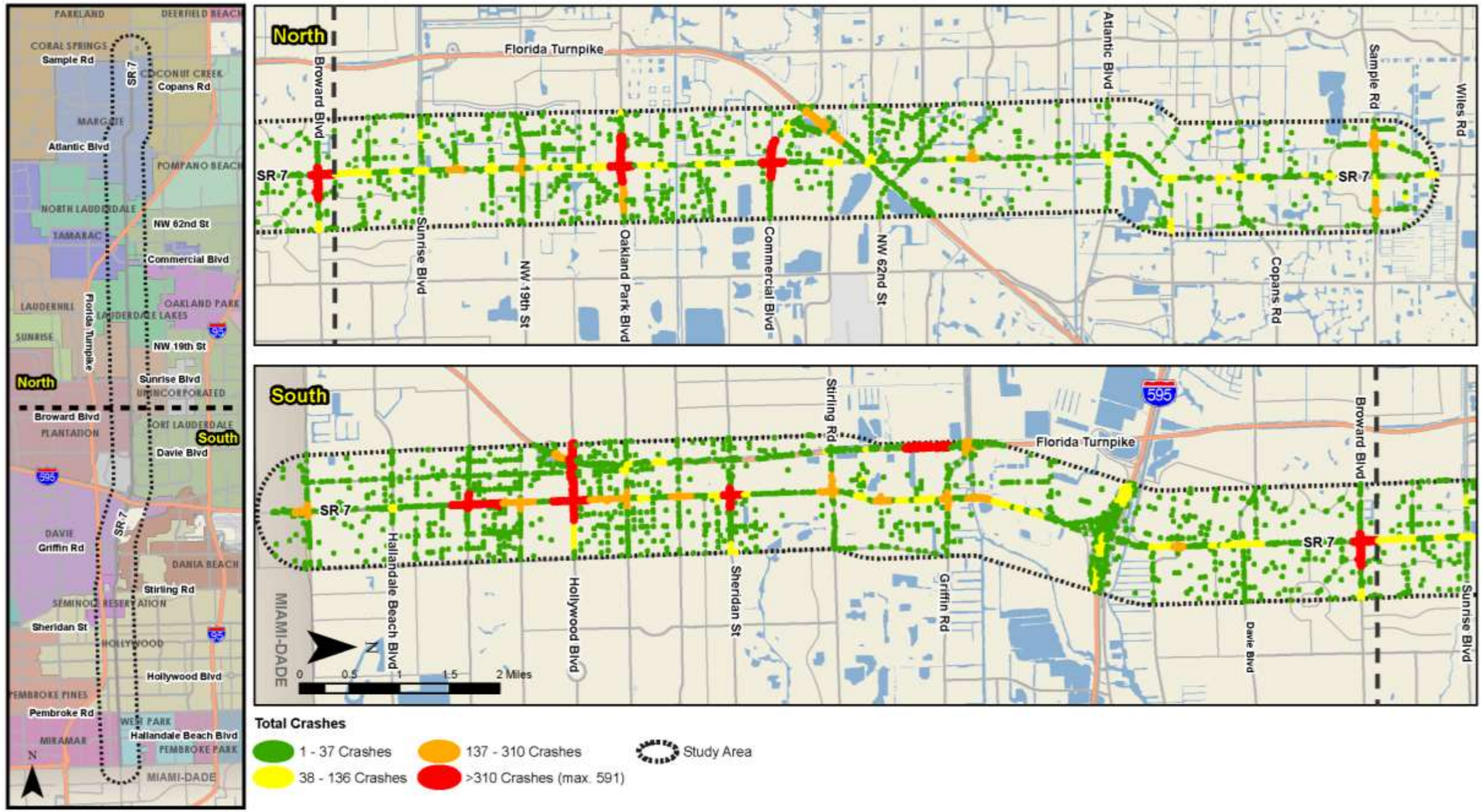
Figure 3-4: Annual Distribution of Total Crashes (countywide)



Source: 2010-2014 crash data extracted from Signal Four Analytics

Map 3-8 shows the location and frequency of total crashes within the corridor. The concentrations of crashes shown in this map were created by grouping clusters of crashes within 50 feet of each other. While crash locations are dispersed throughout the corridor, there are several locations that stand out as having a higher frequency of crashes. These include Oakland Park Boulevard, Commercial Boulevard, Pembroke Road, Hollywood Boulevard, and Broward Boulevard. Table 3-2 provides a list of the top 10 highest frequency crash intersections within the corridor.

Map 3-8: Total Crashes, 2010-2014



Source: 2010-2014 Crash Analysis Reporting System (CARS)

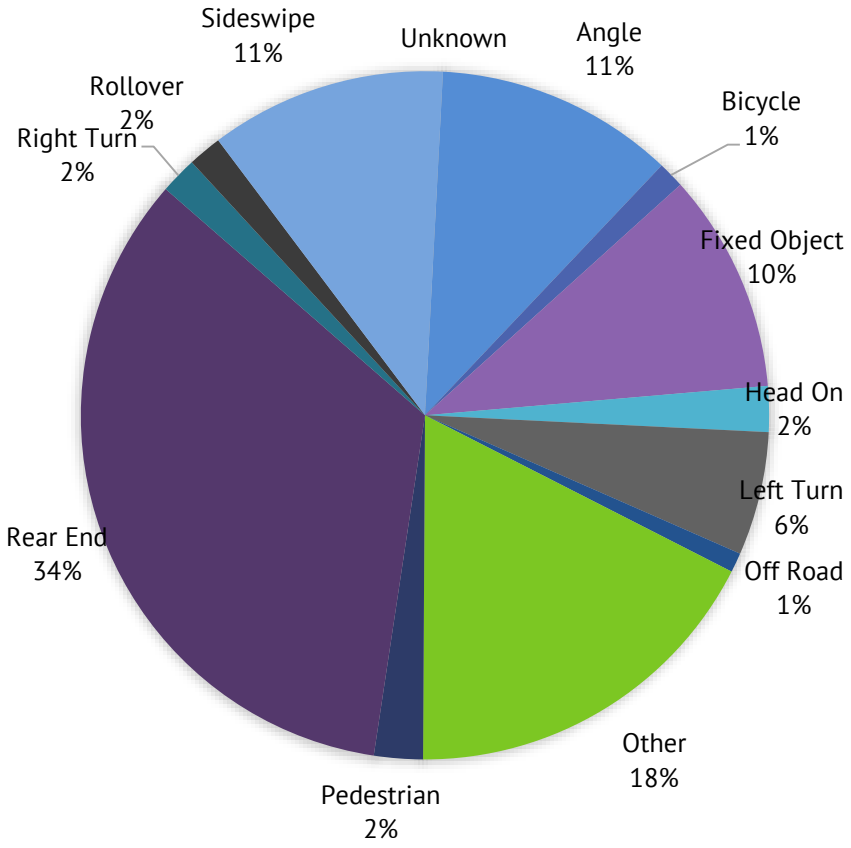
Table 3-2: Top Ten Highest Frequency Crash Intersections, 2010—2014

Rank	Location	Number of Crashes
1	W Oakland Park Boulevard @ SR 7	591
2	W Commercial Boulevard @ SR 7	562
3	Pembroke Road @ SR 7	520
4	Hollywood Boulevard @ SR 7	515
5	W Broward Boulevard @ SR 7	499
6	Hollywood Boulevard @ S 62nd Avenue	411
7	Sheridan Street @ SR 7	390
8	Turnpike south of Griffin Road	357
9	SW 45th Street @ SR 7	310
10	W Sample Rd @ Turtle Creek Drive	302

Source: 2010-2014 crash data extracted from CARS

Figure 3-5 summarizes the distribution of crash type for all crashes within the corridor. Of the known crash types, rear-end crashes are the most frequent type of crash at 34 percent of the total, followed by sideswipe and angle crashes (11%), and crashes into a fixed-object (10%), and left-turn crashes (6%). A large percentage of crashes are noted in the database as 'Other.' Most of these are listed as 'Other' due to a lack of information to be able to code them under one of the other categories.

Figure 3-5: Total Crashes by Crash Type (SR 7 corridor)



Source: 2010-2014 crash data extracted from CARS

The distribution of crash types for the SR 7 corridor closely aligns with the distribution of crash types observed countywide. As shown in Table 3-3, the most frequent known crash type countywide is also rear-end crashes (also representing approximately 34% of all crashes), followed by fixed-object (12%), sideswipe (9%), and left-turn crashes (also representing 6% of all crashes)

Table 3-3: Distribution of Crash Types (SR 7 corridor vs. countywide)

Crash Type	% of Crashes (SR 7 corridor)	% of Crashes (countywide)
Angle	11.2%	4.9%
Bicycle	**1.2%**	**1.6%**
Fixed Object	10.3%	12.3%
Head On	**2.1%**	**2.0%**
Left Turn	**5.8%**	**6.1%**
Off Road	**0.9%**	**1.0%**
Other	17.6%	25.4%
Pedestrian	**1.7%**	**1.4%**
Rear End	**34.1%**	**33.4%**
Right Turn	**1.7%**	**1.4%**
Rollover	**1.6%**	**1.1%**
Sideswipe	11.1%	8.9%
Total	**100%**	**100%**

Source: 2010-2014 crash data extracted from CARS for the SR 7 and Signal 4 Analytics for Broward County.

Notes:

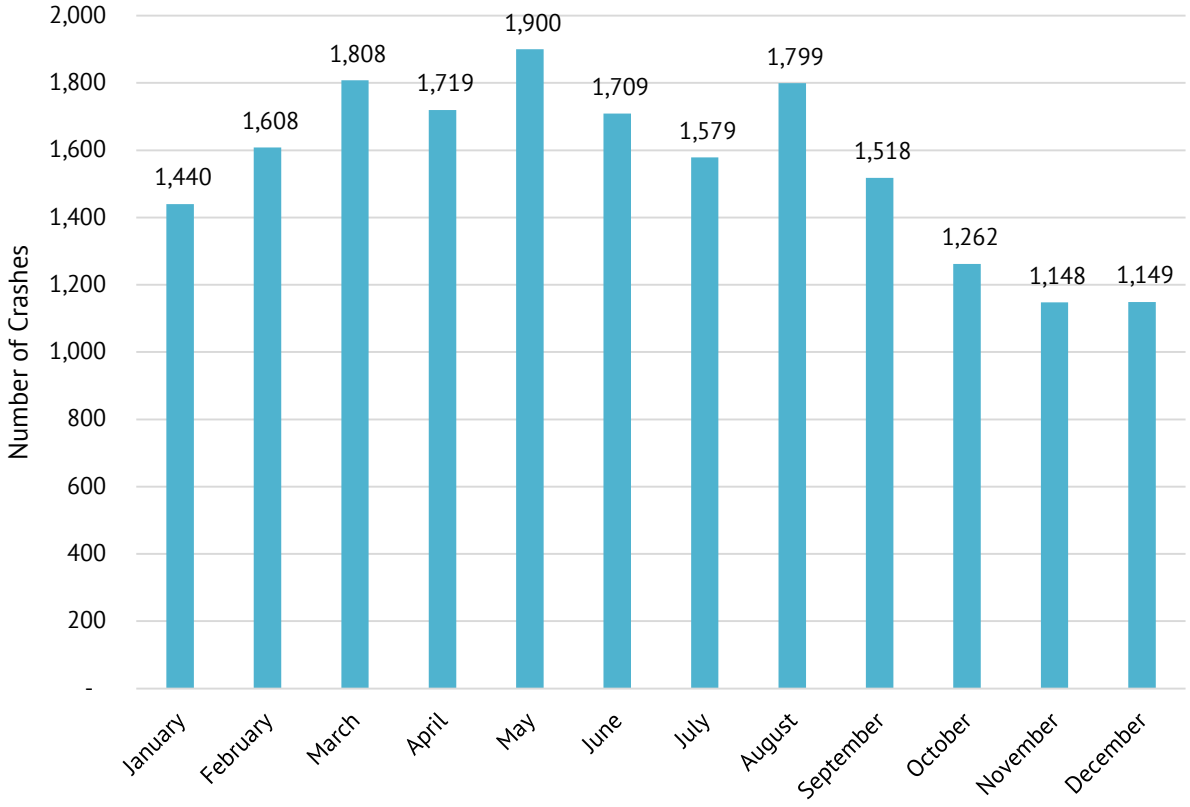
1. *Totals may not equal 100% due to rounding.*
2. *Bold text denotes percentage of crash type for SR 7 corridor is within 1 percent of the countywide percentage.*

Additional factors such as month of occurrence, time of day, lighting condition, and intersection relationship were also analyzed to identify potential trends in crashes along the corridor. As shown in Figure 3-6 through Figure 3-11 for the SR 7 corridor:

- The month of May averaged the highest number of crashes.
- A crash was most likely to occur on a Friday and least likely to occur on a Sunday.
- Half of the crashes occurred within a six-hour period between 12:00 PM and 6:00 PM.
- Two-thirds of the crashes occurred during daylight hours.
- Just over three-quarters of the crashes occurred under dry pavement conditions.
- Nearly one-quarter of the crashes occurred at an intersection or within the influence area of an intersection.

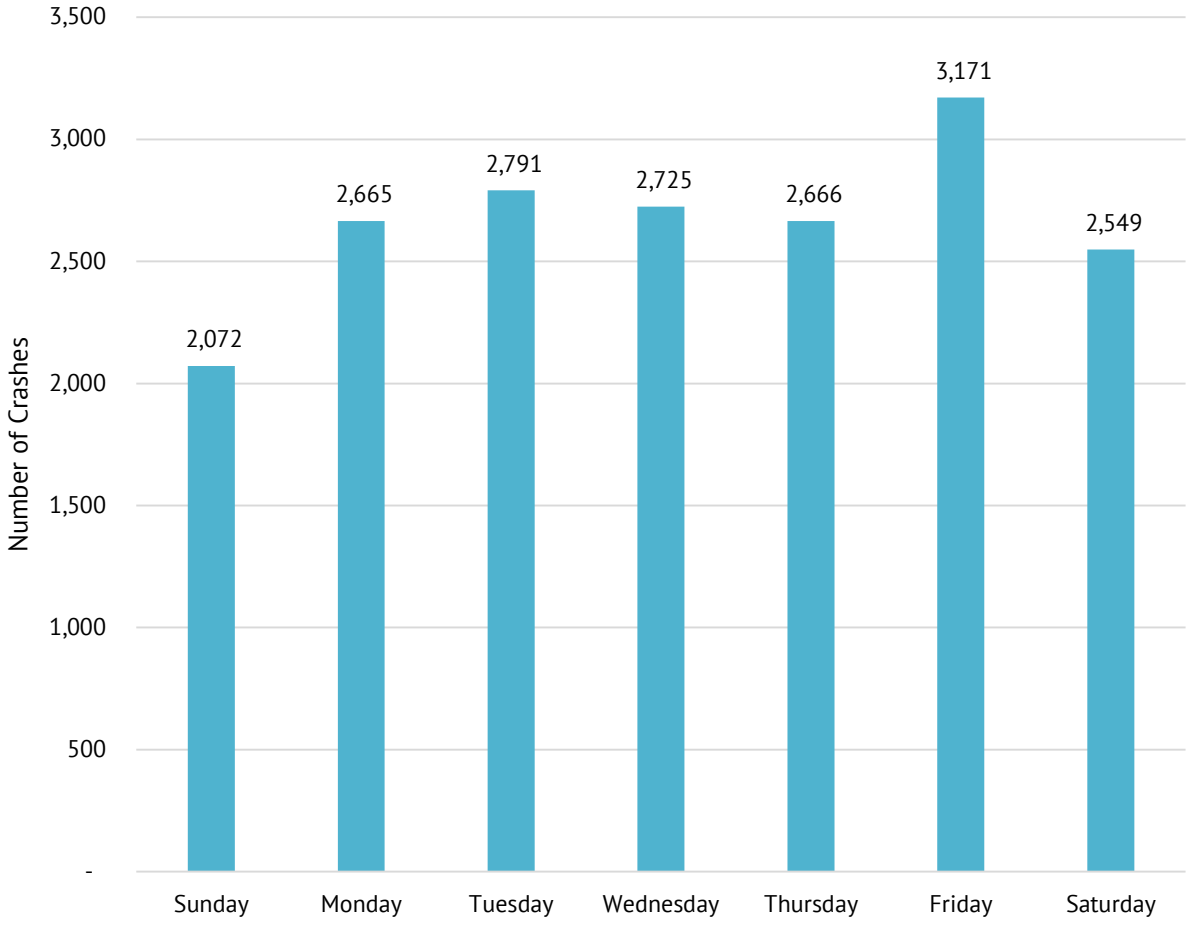
In examining the five-year countywide crash data for these factors, it was observed that the countywide data closely mirrored the trends for these factors observed for the SR 7 corridor with one exception; the distribution of total crashes by month is less varied countywide than it is for the SR 7 corridor, with December averaging the most number of crashes countywide.

Figure 3-6: Total Crashes by Month, 2010-2014 (SR 7 corridor)



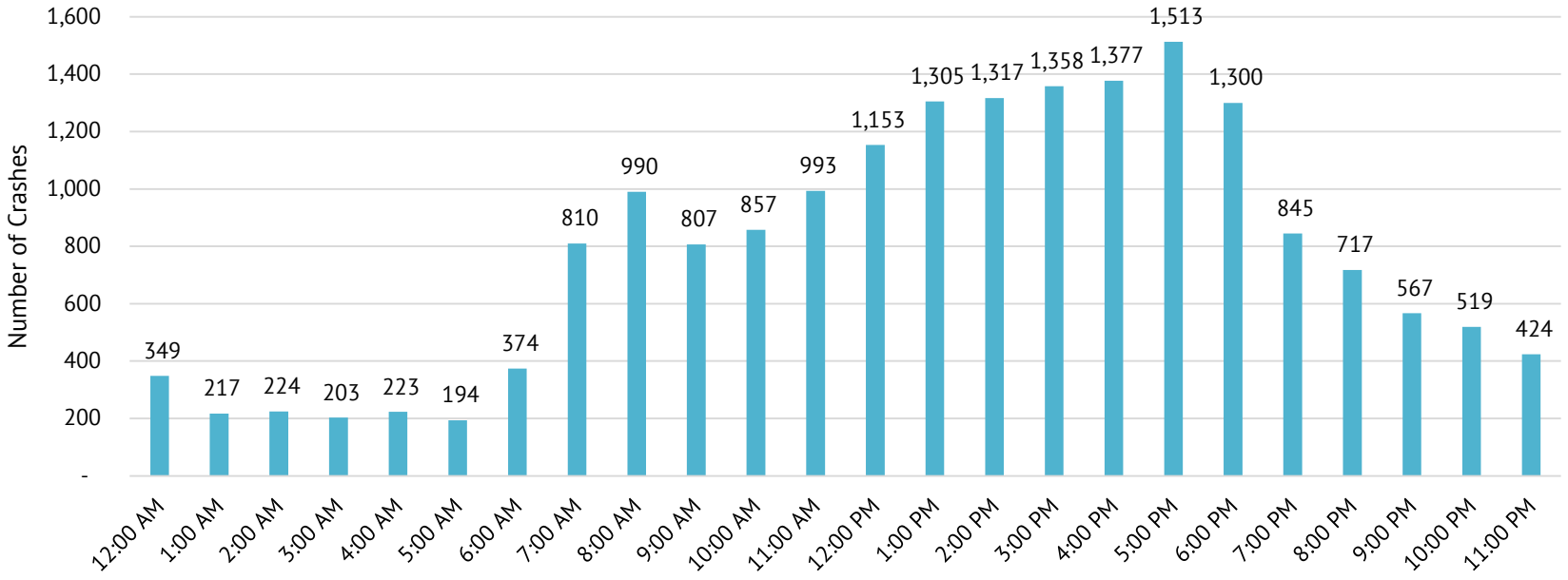
Source: 2010-2014 crash data extracted from CARS

Figure 3-7: Total Crashes by Day of Week, 2010-2014 (SR 7 corridor)



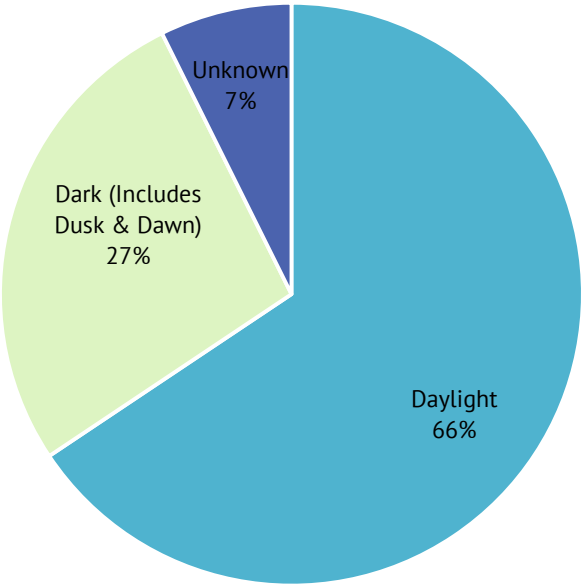
Source: 2010-2014 crash data extracted from CARS

Figure 3-8: Total Crashes by Time of Day, 2010-2014 (SR 7 corridor)



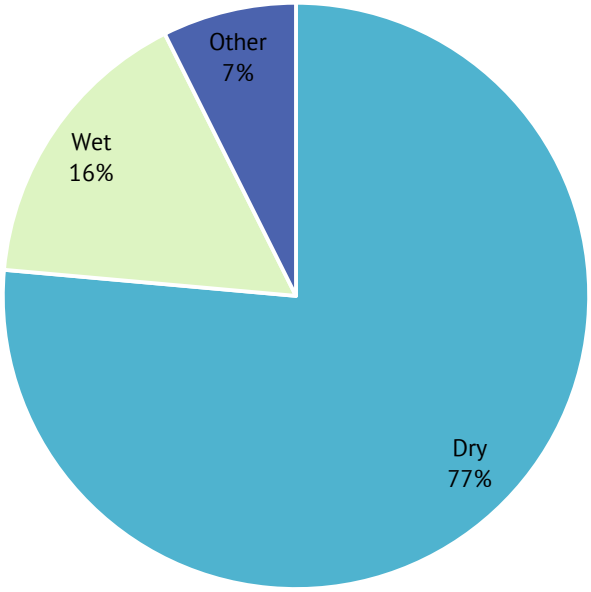
Source: 2010-2014 crash data extracted from CARS

Figure 3-9: Total Crashes by Lighting Condition, 2010-2014 (SR 7 corridor)



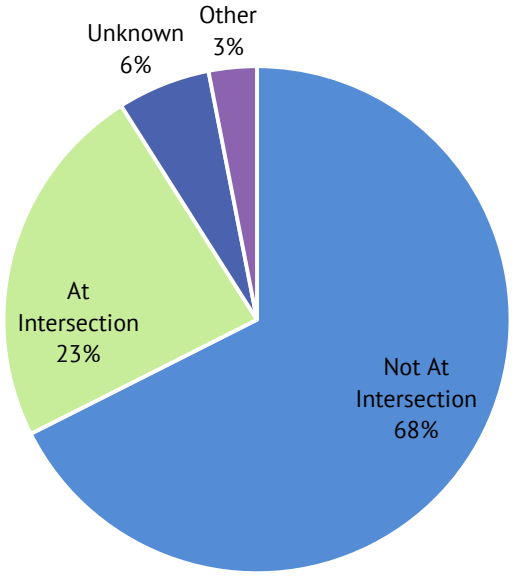
Source: 2010-2014 crash data extracted from CARS

Figure 3-10: Total Crashes by Pavement Condition, 2010-2014 (SR 7 corridor)



Source: 2010-2014 crash data extracted from CARS

Figure 3-11: Total Crashes by Intersection Relationship, 2010-2014 (SR 7 corridor)



Source: 2010-2014 crash data extracted from CARS

Severe Injury and Fatal Crashes

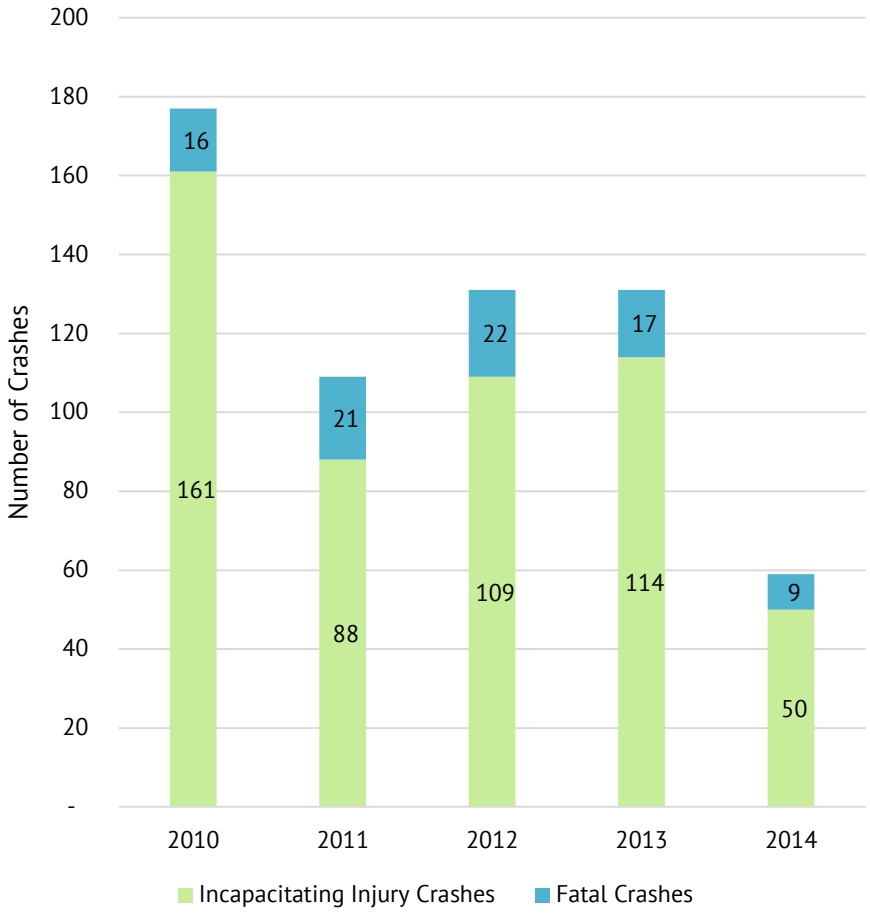
While it is important to reduce the overall number of crashes within the corridor, it is also important to understand where the most severe injury crashes (including both incapacitating injury and fatalities) are occurring and what is causing them. Understanding the cause and location of severe injury crashes will help to identify and prioritize safety concerns within the corridor.

Figure 3-12 3-12 shows the annual distribution of severe injury crashes within the corridor. Between 2010 and 2014 there were 607 severe injury crashes, accounting for 3.3 percent of all crashes within the corridor during this same period. While the overall number of severe injury crashes has decreased over the five-year period, it has not been a steady decline. The highest number of severe injury crashes (177) occurred in 2010 while there were one-third that number (59) in 2014; however, the three years between saw a fairly consistent annual number of severe injury crashes. This indicates that there is no steady pattern of annual decline in severe injury crashes during this five-year period.

Map 3-9 illustrates the frequency of severe injury crashes within the corridor. The crash groups shown in this map were created by grouping crashes that occurred within 150 feet of each other. A longer distance was used to group these crashes as there fewer were severe injury crashes to group than total crashes. As illustrated on this map, the highest concentration of severe injury crashes is

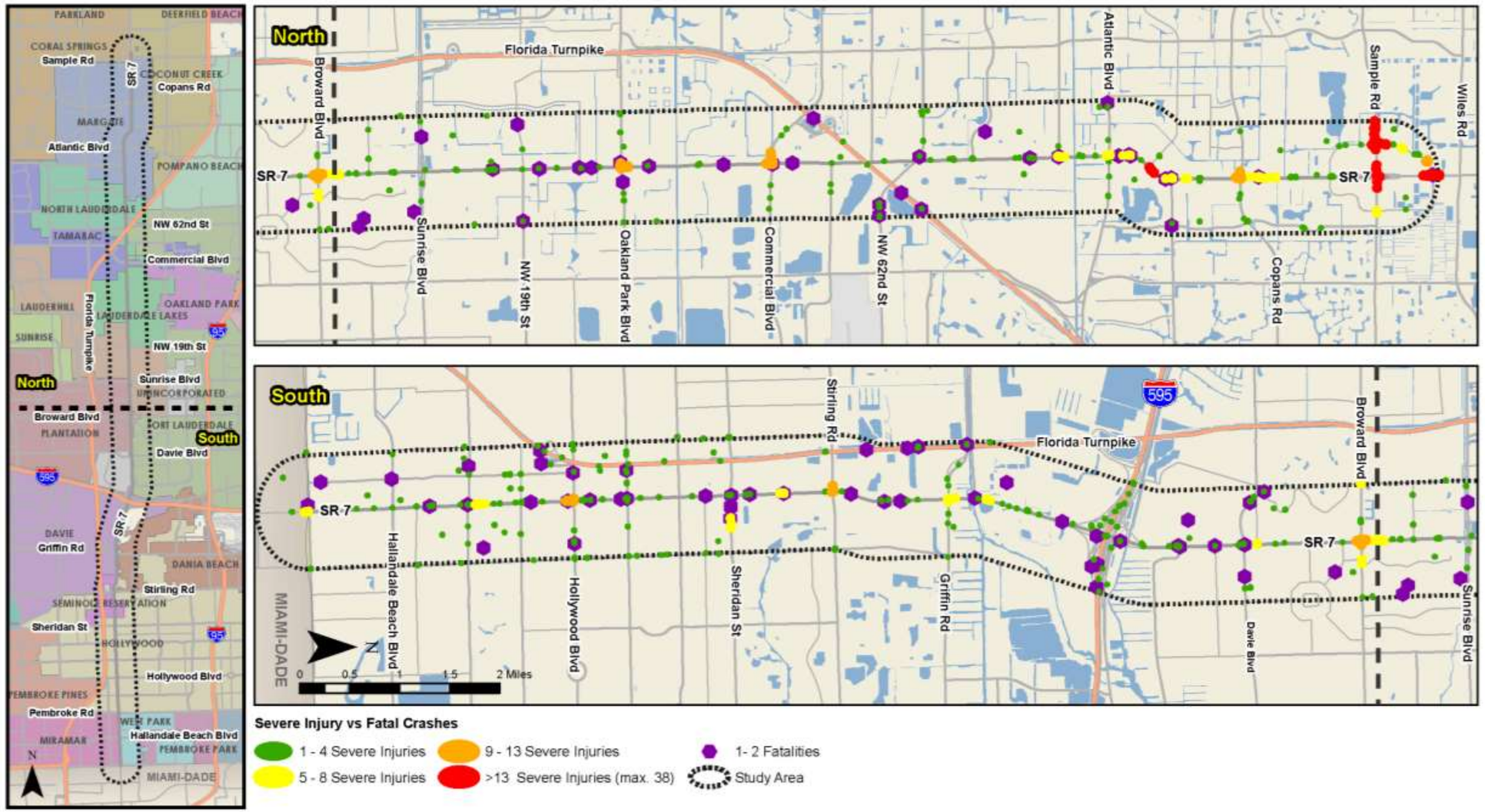
around the intersection of SR 7 and Sample Road, including at the intersection itself, to the west of the intersection along Sample Road between NW 62nd Street and Turtle Run Boulevard, and to the north of the intersection (at SR and Cullum Road),. Many intersections between SR 7 and major intersecting side streets have seen a moderate number of severe injury crashes (9-13 total as illustrated on Map 3-9), including at Copans Road, Commercial Boulevard, Oakland Park Boulevard, Broward Boulevard, Stirling Road, and Hollywood Boulevard.

Figure 3-12: Annual Distribution of Severe Injury Crashes (SR 7 corridor)



Source: 2010-2014 crash data extracted from CARS

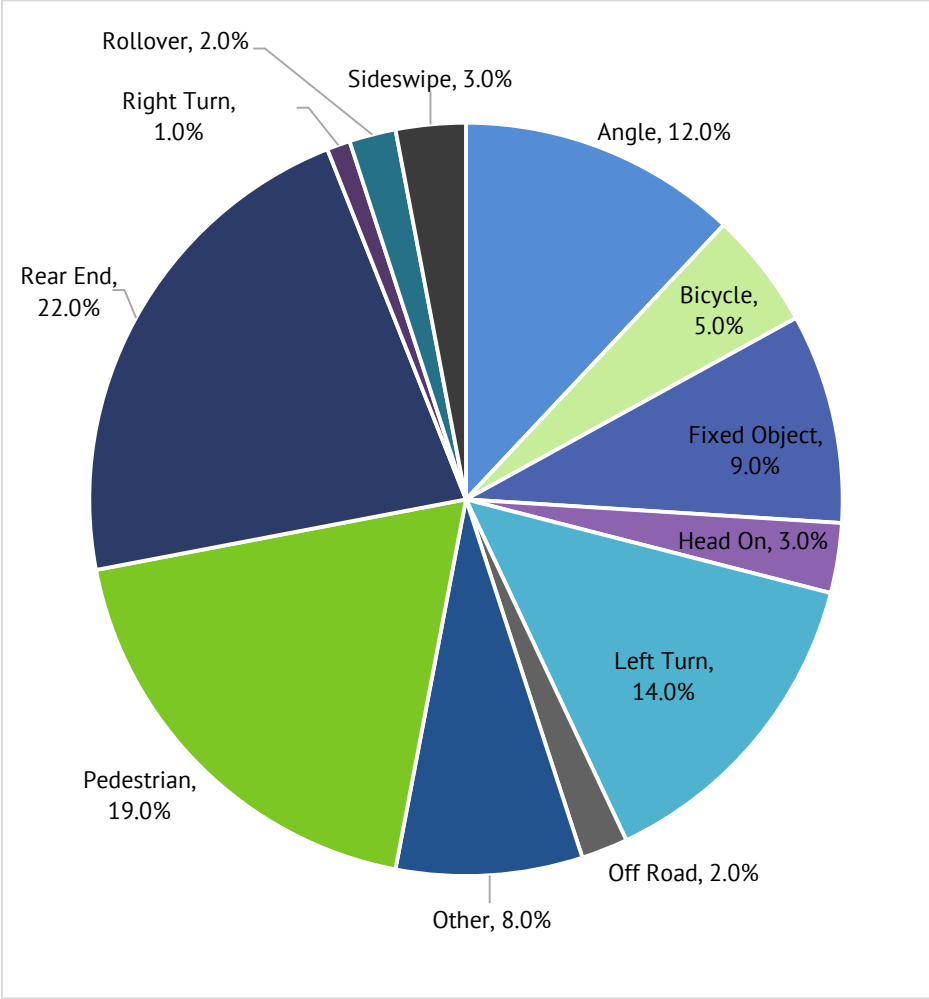
Map 3-9: Severe Injury Crashes, 2010-2014



Source: 2010-2014 Crash Analysis Reporting System (CARS)

The crash dataset was also examined to better understand what type of crashes are causing the most severe injuries and fatalities. As shown in Figure 3-13 the most frequent crash types are pedestrian and bicycle crashes combined at nearly one-quarter of all severe injury crashes. Of the remaining crash types that do not involve a pedestrian or bicyclist, the most frequent crash type is rear-end crashes at 22 percent of all severe injury crashes, followed by left-turn (14%) and angle crashes (12%). When comparing the distribution of crash types for severe injury crashes to total crashes, rear-end crashes are 45 percent less frequent with severe injury crashes compared to all crashes, while left-turn crashes are 133% more frequent for severe injury crashes compared to all crashes. The distribution of angle, fixed-object, and other crash types are fairly consistent between severe injury crashes and total crashes.

Figure 3-13: Severe Injury Crashes by Crash Type (SR 7 corridor)

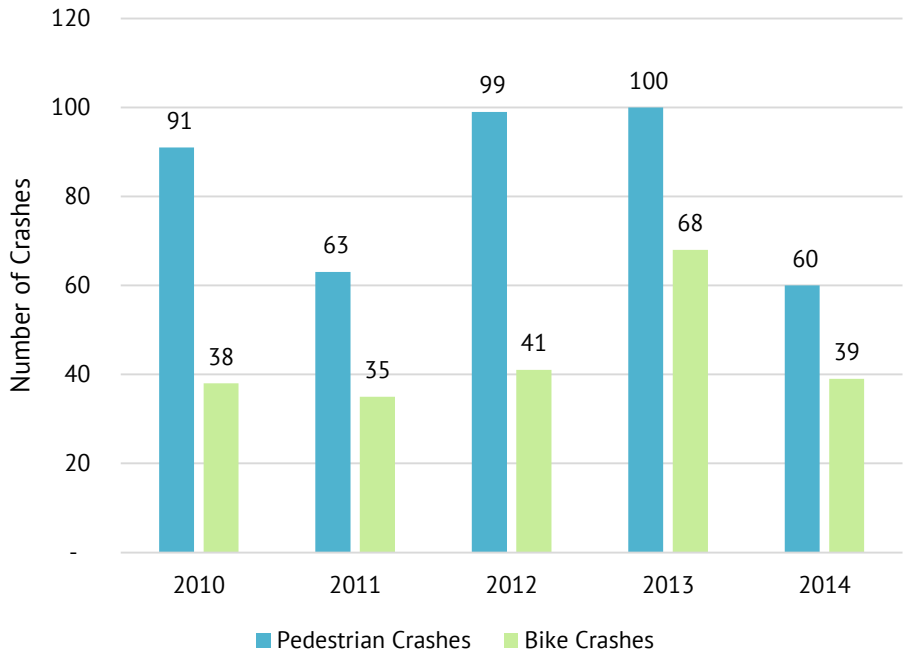


Source: 2010-2014 crash data extracted from CARS

Bicycle and Pedestrian Crashes

Between 2010 and 2014 there were 634 crashes involving a bicyclist or pedestrian, with the majority (65%) pedestrian-related. As shown in Figure 3-14, with few exceptions, the annual number of bicycle and pedestrian crashes has remained fairly consistent during the five-year period.

Figure 3-14: Annual Distribution of Bicycle and Pedestrian Crashes, 2010-2014 (SR 7 corridor)



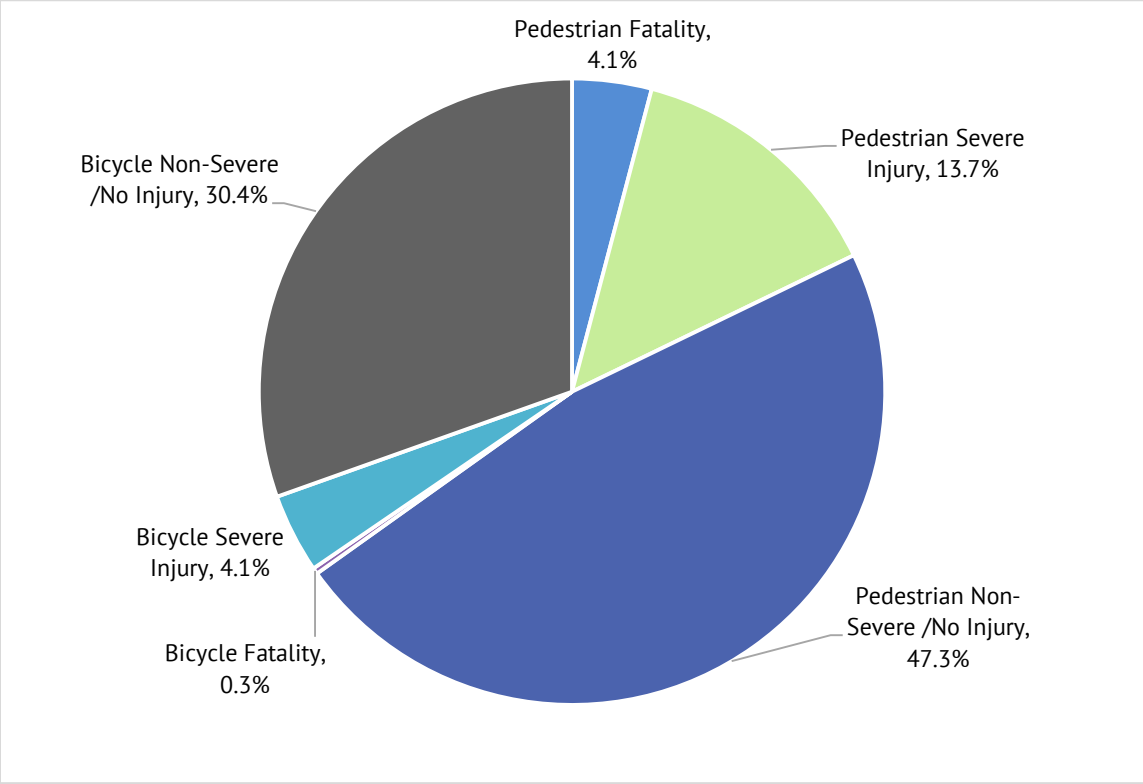
Source: 2010-2014 crash data extracted from CARS

Figure 3-15 illustrates the distribution of bicycle and pedestrian crashes by severity based on all crashes that occurred between 2010 and 2014. As shown, the majority of bicycle and pedestrian crashes (78%) are non-severe or no injury crashes. However, of the 634 bicycle and pedestrian crashes, 141 are classified as severe injury. This equates to 22 percent of all bicycle and pedestrian crashes being classified as severe injury crashes, compared with only 3.3 percent of all crashes. SR 7 and its major intersecting side streets are arterial roads with higher speed limits of generally 40 to 45 miles per hour. Speed plays a major role in the chances of a pedestrian surviving a crash. As shown in

Figure 3-16 3-16, for every 10 miles an hour a car is traveling, the likelihood of a struck pedestrian dying increases exponentially.

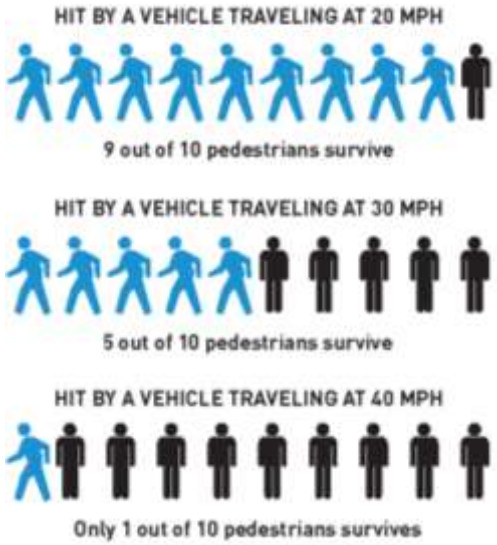
Map 3-10 illustrates the location and frequency of the severe injury and fatal crashes involving a bicyclist or pedestrian. Similar to the severe injury map, the crash groups shown in this map were created by grouping crashes that occurred within 150 feet of each other. As illustrated on this map, locations with the highest concentrations of severe injury crashes (4-6 crashes) are at SR 7 and Commercial Boulevard, Oakland Park Boulevard, Griffin Road, and Hollywood Boulevard. Off of SR 7, there is also a higher concentration of crashes west of SR 7 at Sample Road and Turtle Creek Drive.

Figure 3-15: Distribution of Bicycle and Pedestrian Crashes by Severity, 2010-2014 (SR 7 corridor)



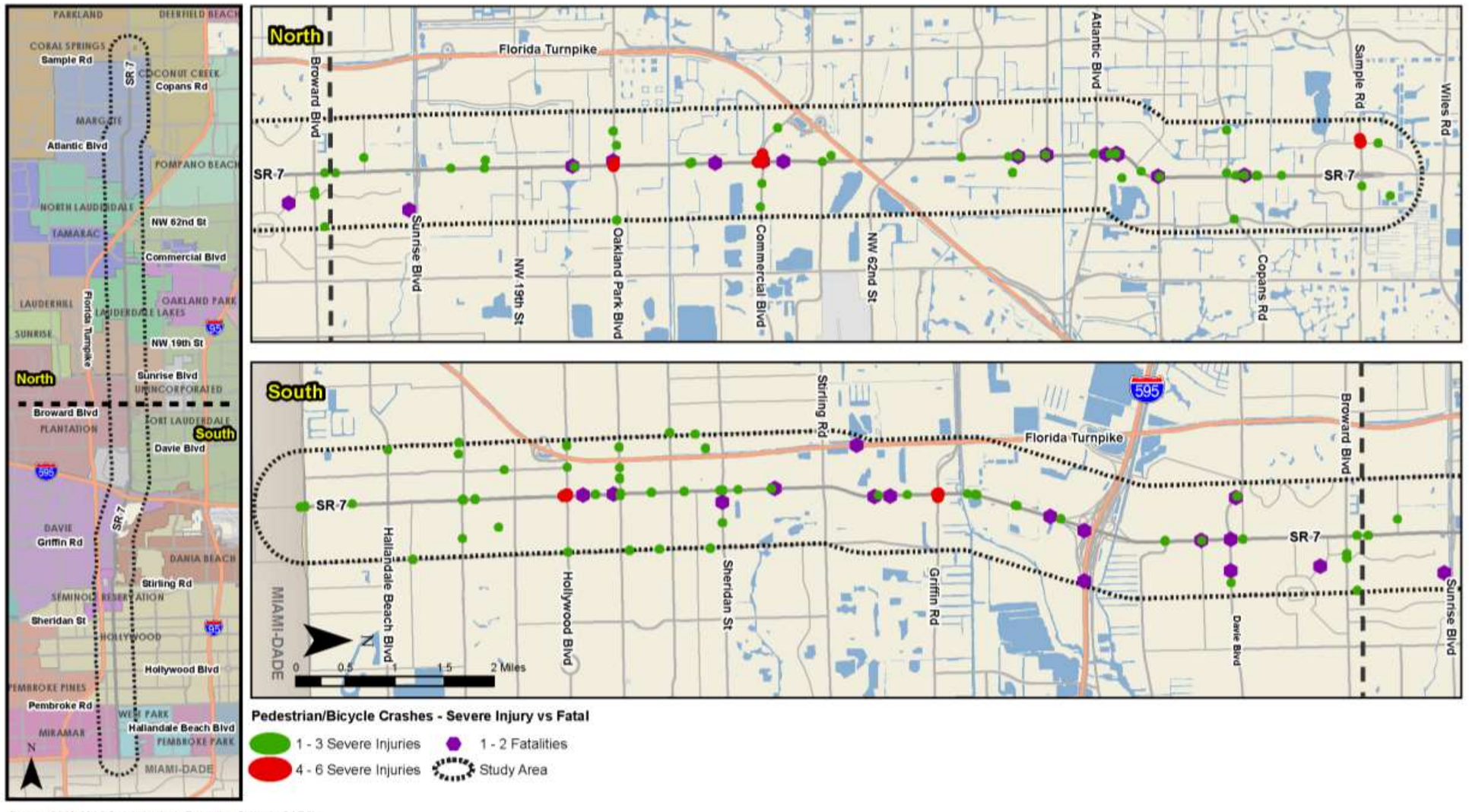
Source: 2010-2014 crash data extracted from CARS

Figure 3-16: Pedestrian Fatality Rate Compared to Vehicle Speed



Sources: Killing Speed and Saving Lives, UK Dept. of Transportation, 1987, London, England. Move Seattle, Seattle Department of Transportation, Spring 2015.

Map 3-10: Bicycle and Pedestrian Severe Injury Crashes, 2010-2014

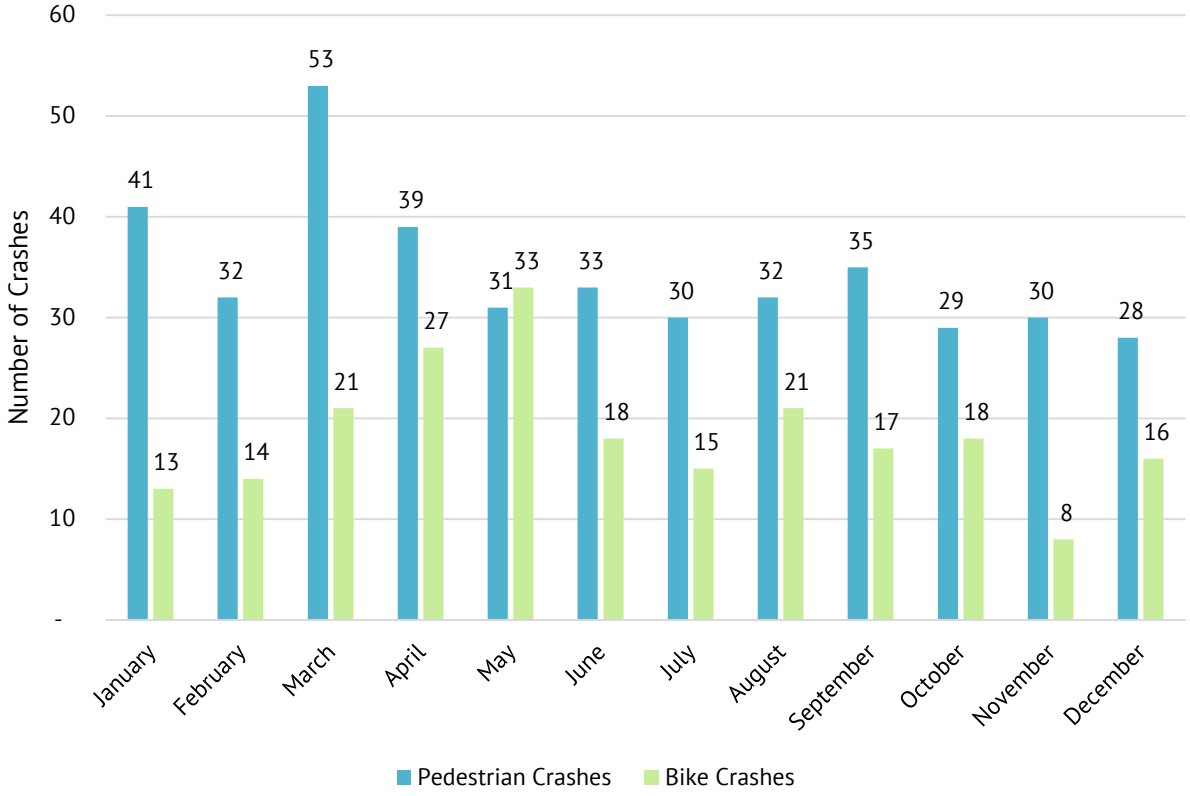


Source: 2010-2014 Crash Analysis Reporting System (CARS)

The same additional factors analyzed for total crashes were also analyzed for bicycle and pedestrian crashes to identify similarities or differences in trends along the corridor. As shown in Figure 3-17 through Figure 3-22, for the SR 7 corridor:

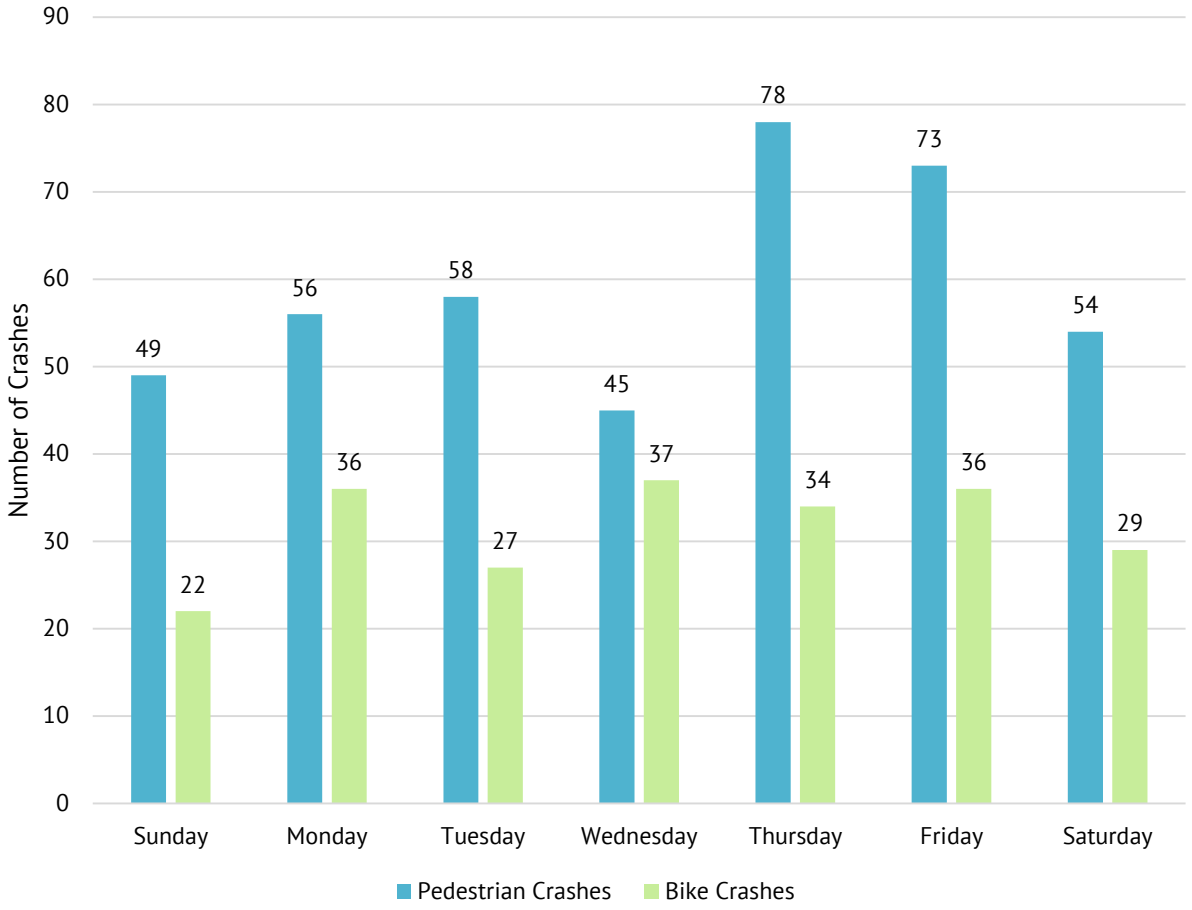
- March averaged the most number of pedestrian crashes, compared to May for bicycle crashes (consistent with total crashes).
- A pedestrian crash was most likely to occur on a Thursday or Friday (consistent with total crashes). Bicycle crashes are more evenly distributed throughout the week with no clear day(s) where more bicycle crashes occurred.
- Approximately half of the bicycle and pedestrian crashes occurred within a seven-hour period between 1:00 PM and 8:00 PM (compared to a six-hour period between 12:00 PM and 6:00 PM for total crashes).
- Nearly two-thirds of the crashes occurred during daylight hours, consistent with total crashes.
- Since weather is likely a factor when deciding to make a trip by bicycle or walking, the majority (90%) of bicycle and pedestrian crashes occurred under dry pavement conditions, compared to three-quarters of all crashes.
- Just over one-third of the crashes occurred at an intersection or within the influence area of an intersection, which is more than 50 percent higher than observed for total crashes.

Figure 3-17: Bicycle and Pedestrian Crashes by Month, 2010-2014 (SR 7 corridor)



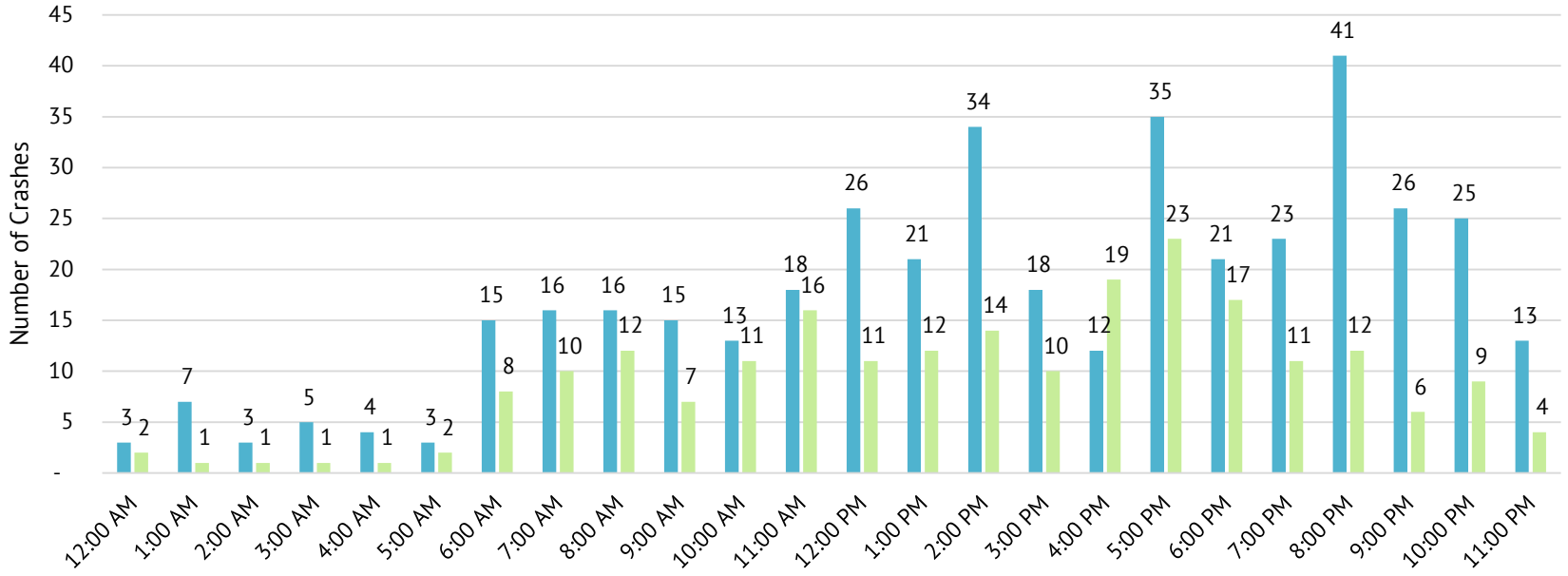
Source: 2010-2014 crash data extracted from CARS

Figure 3-18: Bicycle and Pedestrian Crashes by Day of Week, 2010-2014 (SR 7 corridor)



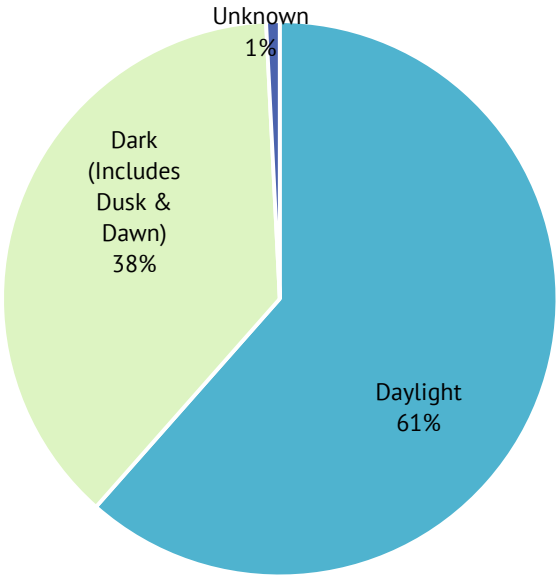
Source: 2010-2014 crash data extracted from CARS

Figure 3-19: Bicycle and Pedestrian Crashes by Time of Day, 2010-2014 (SR 7 corridor)



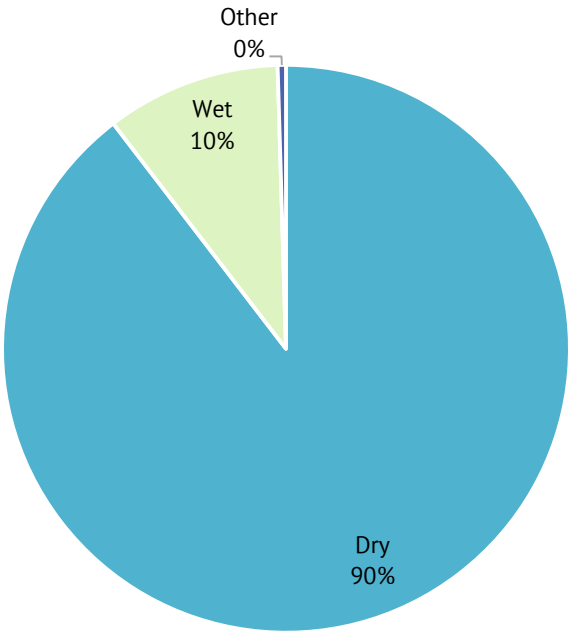
Source: 2010-2014 crash data extracted from CARS

Figure 3-20: Bicycle and Pedestrian Crashes by Lighting Condition, 2010-2014 (SR 7 corridor)



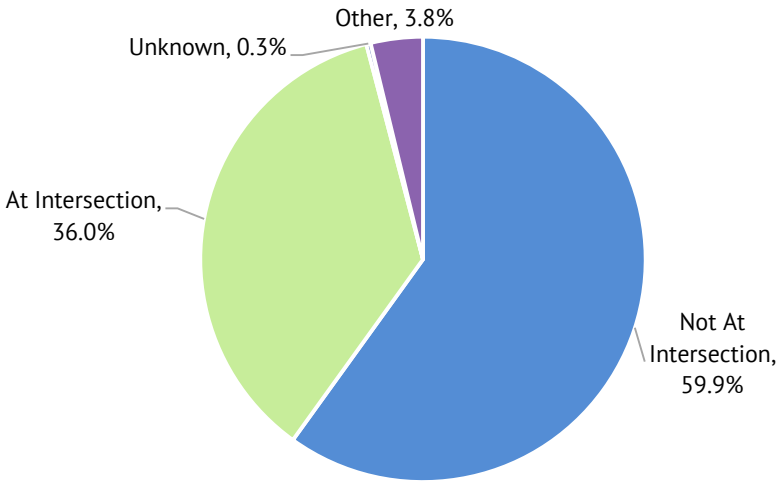
Source: 2010-2014 crash data extracted from CARS

Figure 3-21: Bicycle and Pedestrian Crashes by Pavement Condition, 2010-2014 (SR 7 corridor)



Source: 2010-2014 crash data extracted from CARS

Figure 3-22: Bicycle and Pedestrian Crashes by Intersection Relationship, 2010-2014 (SR 7 corridor)



Source: 2010-2014 crash data extracted from CARS

SAFETY 'HOT SPOT' ANALYSIS

This section examines the relationship between high transit ridership areas and pedestrian and bicycle crash areas to identify and prioritize 'Hot Spot' locations within the SR 7 corridor with potential safety issues related to pedestrian, bicycle, and transit access and mobility.

High Transit Ridership Areas

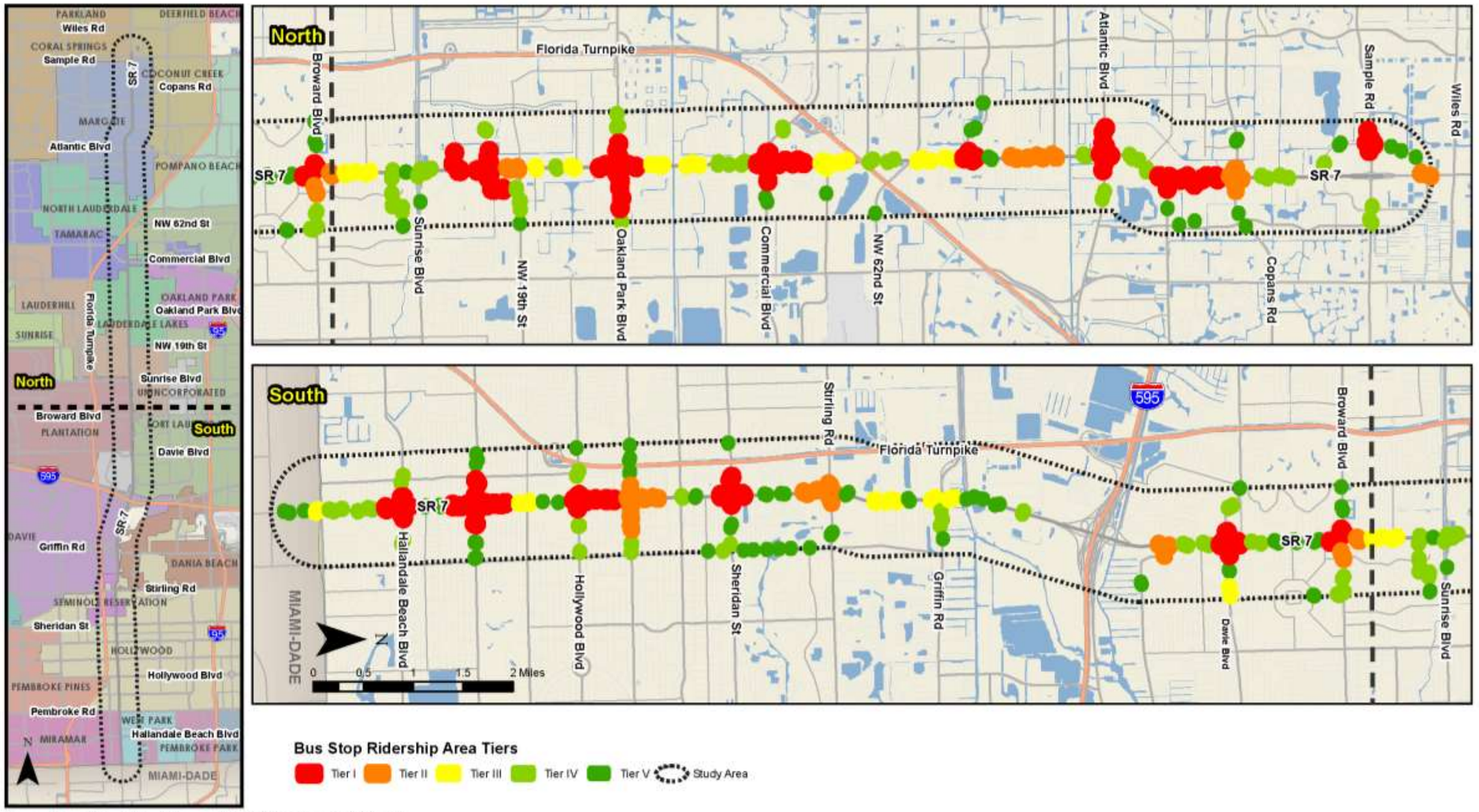
To create the bus stop ridership areas, a 300-foot buffer was placed around each individual bus stop within the corridor and contiguous bus stop buffer areas were then grouped (dissolved) to create clusters of nearby bus stops.

The average weekday ridership for each bus stop within each bus stop ridership area was calculated to establish an average daily ridership figure for each bus stop area. The bus stop ridership areas were then assigned into a tier based on the total ridership within the area using the values shown in Table 3-4. Map 3-11 illustrates a corridor-wide view of the bus stop ridership areas and their associated tier.

Table 3-4: Bus Stop Ridership Area Tiers

Bus Stop Ridership Area Tier	Tier Break Values (average daily riders)
I	>1,000
II	501-1,000
III	201-500
IV	51-200
V	0-50

Map 3-11: Bus Stop Ridership Area Tiers



Source: Broward County Transit January 2014 APC Boarding and Alighting data

Key findings from this analysis include:

- Tier I bus stop ridership areas account for 68.7 percent of the total boardings and alightings within the SR 7 corridor.
- Tier I and II bus stop ridership areas account for 81.3 percent of the total boardings and alightings within the SR 7 corridor.
- The top five bus stop ridership areas account for 45 percent of the total boardings and alighting within the SR 7 corridor and include:
  - SR 7 near the Lauderhill Mall (NW 12th Street)
  - SR 7 near Oakland Park Boulevard
  - SR 7 near Hallandale Beach Boulevard
  - SR 7 near Hollywood Boulevard
  - SR 7 near Commercial Boulevard

High Occurrence Bicycle and Pedestrian Crash Areas

Similar to the process of creating the bus stop ridership areas, each individual pedestrian and bicycle crash that occurred from 2010 to 2014 within the study area was given a buffer of 100 feet; the contiguous crash buffer areas were then grouped to create the pedestrian and bicycle crash areas. The total number of pedestrian and bicycle crashes within each crash area was calculated; then the areas were ranked and assigned to a tier based on the total number of crashes that occurred within each area. Table 3-5 shows the break-down of the crash area tiers while Map 3-12 shows the location of the pedestrian and bicycle crash areas and their respective tier rankings.

Table 3-5: Pedestrian and Bicycle Crash Area Tiers

Pedestrian and Bicycle Crash Area Tier	Tier Break Values (total crashes)
I	>14
II	10-14
III	6-9
IV	3-5
V	1-2

Key findings from this analysis include:

- Tier I and II pedestrian and bicycle crash areas account for 11.8 percent of the pedestrian and bicycle crashes within the corridor. The Tier I and II pedestrian and bicycle crash areas are:

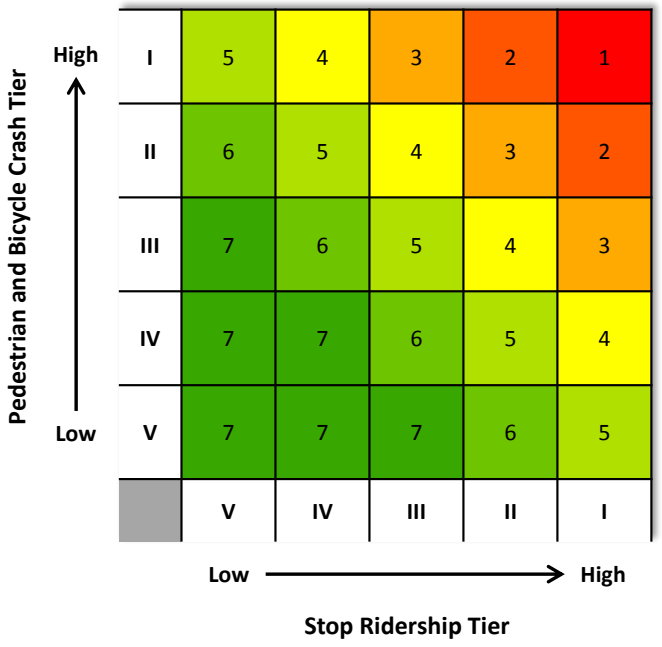
- SR 7 near Oakland Park Boulevard
- SR 7 near Commercial Boulevard
- SR 7 near Hollywood Boulevard
- SR 7 near Riverland Road
- NW 54th Avenue near NW 40th Street (SR 7 at Sample Road)

> Tier I, II, and III pedestrian and bicycle crash areas account for 29.7 percent of the pedestrian and bicycle crashes within the corridor.

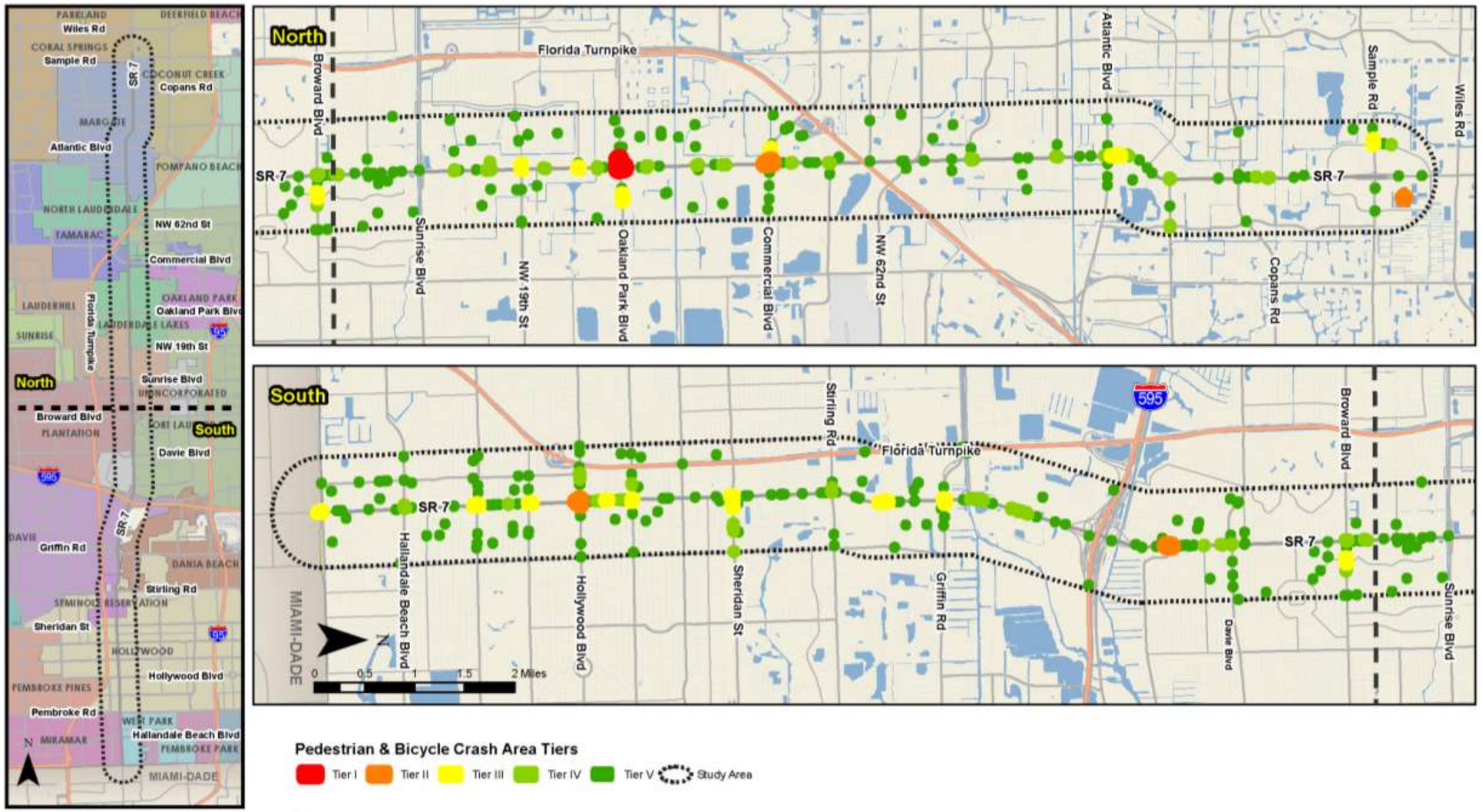
The ranked bus stop ridership areas and pedestrian and bicycle crash areas were combined to create new ridership-crash areas along the corridor. These areas were then ranked based on the assigned bus stop ridership area and pedestrian and bicycle crash area tiers. A tier ranking matrix was developed as a way to rank/prioritize the ridership-crash areas.

Figure 3-23 shows how the seven ridership-crash area tiers were developed based on the bus stop ridership area and pedestrian and bicycle crash area tiers. Areas that exhibit both higher bus stop ridership and a higher occurrence of pedestrian and bicycle crashes are placed in the highest ridership-crash area tiers. Map 3-13 provides a corridor-wide view of the ridership-crash areas with their associated tier rankings; this shows the areas within the SR 7 corridor that exhibit a relationship between higher bus stop activity and a history of pedestrian and bicycle crashes.

Figure 3-23: Ridership-Crash Area Tier Ranking Mix

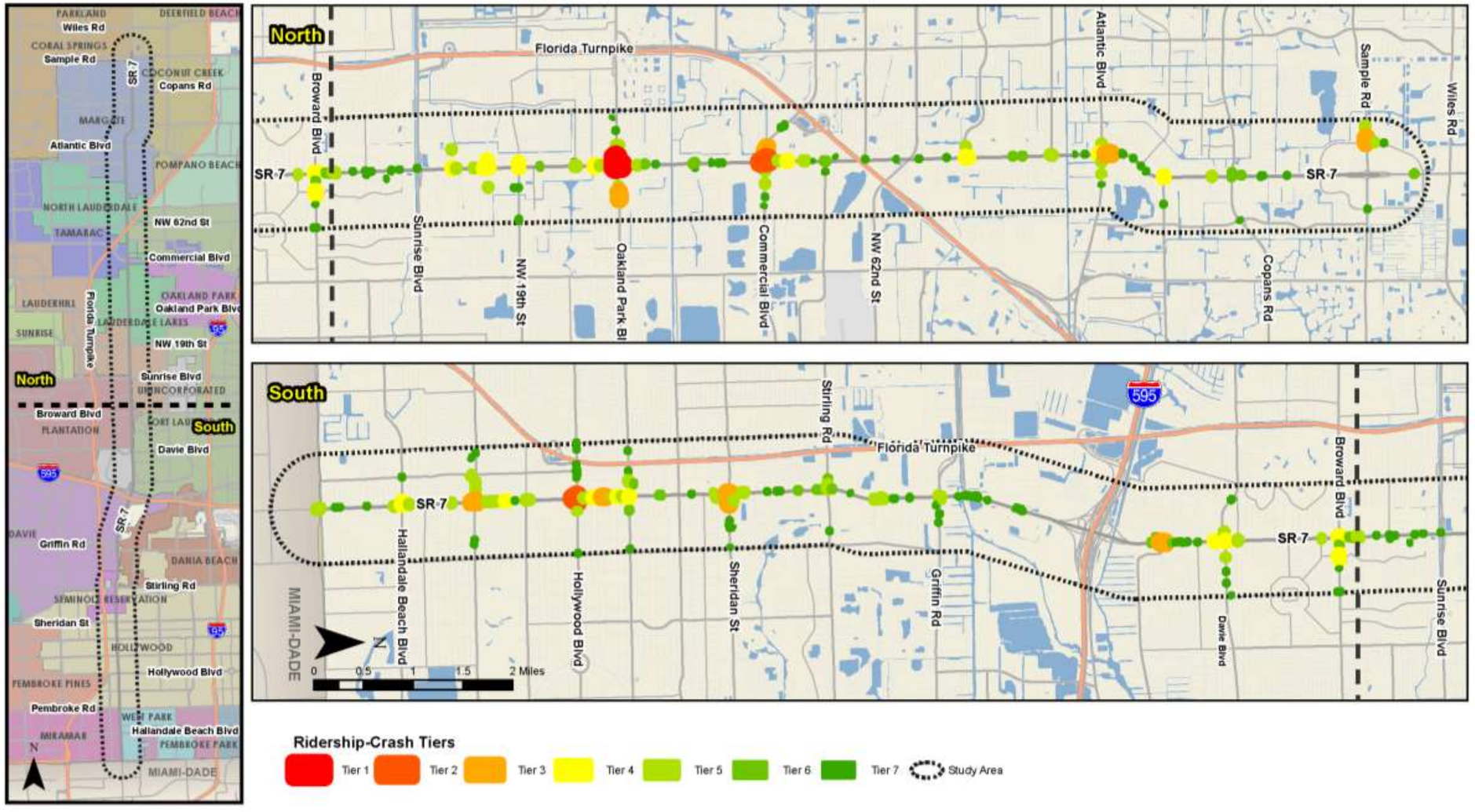


Map 3-12: Pedestrian and Bicycle Crash Area Tiers



Source: 2010-2014 Crash Analysis Reporting System (CARS) data extract pedestrian and bicycle crashes

Map 3-13: Ridership-Crash Area Prioritization Tiers



Prioritizing Intersections

Based on the ridership-crash area rankings, 20 intersection areas were identified for further review. Table 3-6 lists the 20 intersections along with the total bus stop ridership statistic (boardings/ alightings) and total number of pedestrian and bicycle crashes that occurred within approximately 1,000 feet of the intersection. Each intersection location was respectively ranked based on their volume of bus riders and pedestrian and bicycle crashes; the rankings were then summed to generate a composite ridership-crash ranking score for each intersection area that was then interpreted into an intersection priority ranking.

Table 3-6: Intersection Prioritization

Rank	Location	Total Bus Stop Ridership	Total Pedestrian & Bicycle Crashes	Composite Ranking Score
1	SR 7 @ Oakland Park Boulevard	6,160	40	3
2	SR 7 @ Commercial Boulevard	2,131	27	8
	SR 7 @ Hollywood Boulevard	2,550	22	8
	SR 7 @ Broward Boulevard	2,694	18	8
5	SR 7 @ Atlantic Boulevard	1,423	18	15
6	SR 7 @ Sheridan Street	1,268	20	16
7	Sample Road @ NW 62nd Avenue/Turtle Creek Drive	1,672	14	17
8	SR 7 @ Davie Boulevard	1,456	12	19
9	SR 7 @ NW 12th Street (Lauderhill Mall)	9,444	6	20
10	SR 7 @ Pembroke Road	1,287	12	21
11	SR 7 @ Hallandale Beach Boulevard	2,655	6	23
12	SR 7 @ Kimberly Boulevard	2,104	7	24
13	SR 7 @ Johnson Street	677	17	26
	SR 7 @ Riverland Road	749	15	26
15	SR 7 @ NW 16th Street	985	9	28
16	SR 7 @ Stirling Road	1,004	8	29
17	SR 7 @ NW 19th Street	776	9	31
18	SR 7 @ Griffin Road	587	11	32
19	SR 7 @ Washington Street	272	11	33
	SR 7 @ Copans Road	807	7	33

Based on the project scope of services, 15 intersections were to be moved forward for further review. Due to the proximity of NW 16th Street and NW 12th Street at the Lauderdale Mall, these two intersections were combined for future review. As such the top 16 intersections listed in Table 3-6 were moved forward for further review.

SIDEWALK AND BICYCLE GAP ANALYSIS

An analysis of the existing sidewalk and bicycle facilities compared to locations with high transit ridership was completed to assess the safety of bus riders accessing the bus stop.

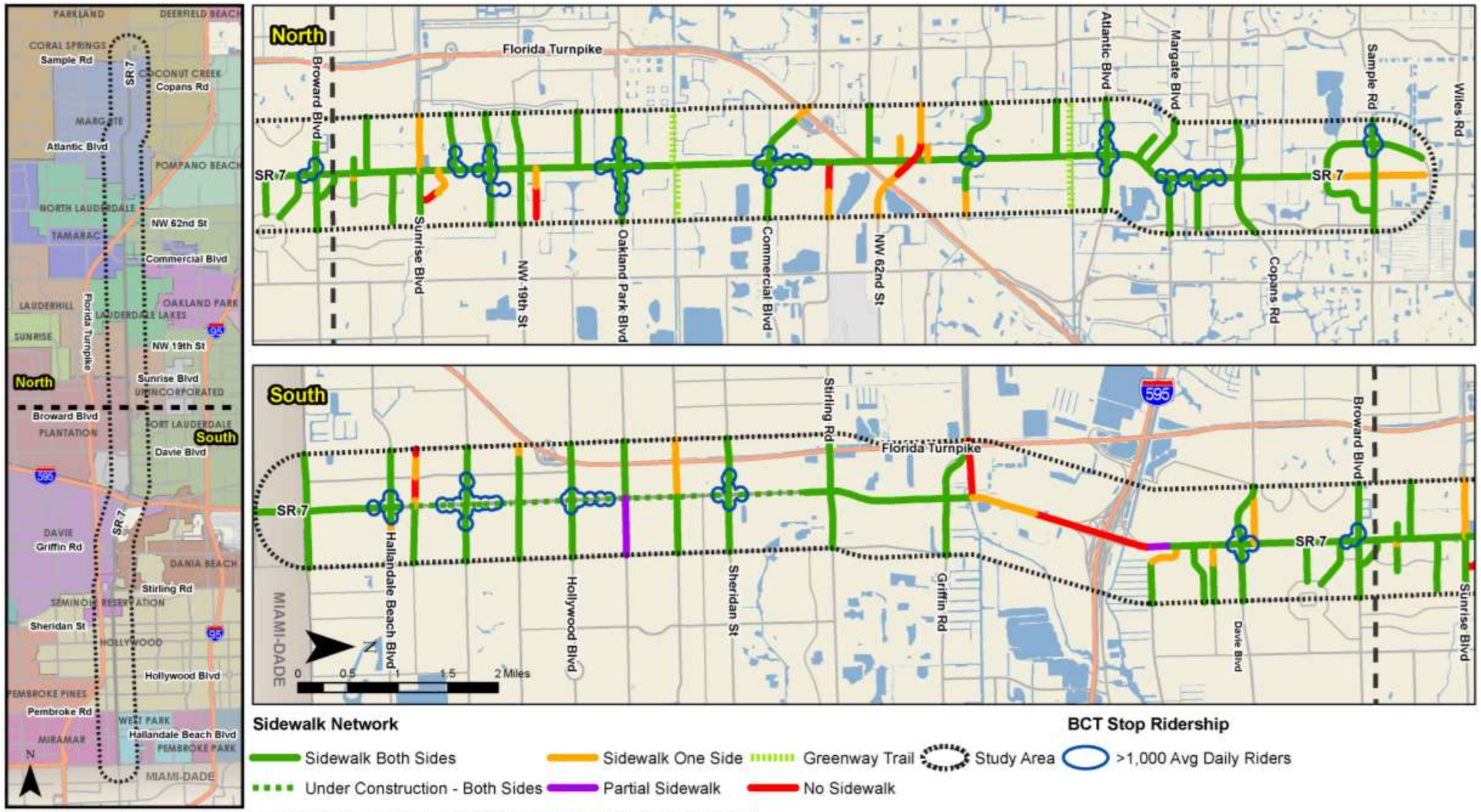
Map 3-14 illustrates the existing sidewalk network in relation to areas with high transit ridership, defined as one or more bus stops in close proximity collectively averaging 1,000 or more daily bus riders. In the northern portion of the corridor, where the existing sidewalk network along SR 7 is more complete, there are complete sidewalks in all directions adjacent to each high transit ridership area. Once the SR 7 reconstructions project is complete, there will be sidewalks in all directions adjacent to each high transit ridership area in the southern portion of the corridor.

Map 3-15 illustrates the existing bicycle network in relation to the high transit ridership areas. The existing bicycle network is less complete than the existing sidewalk network, so there are less options to access high transit ridership areas via designated bicycle lanes. None of the high ridership transit areas have complete bicycle access in all directions and some areas, such as Sheridan Street or 12th Street and 16th Street, north of Sunrise Boulevard providing access to Lauderhill Mall (a major BCT transfer point) have no adjacent bicycle facilities. Of the locations identified, high ridership transit areas at Broward Boulevard and Hallandale Beach Road offer the most complete bicycle connectivity for transit users.

BICYCLE AND PEDESTRIAN OBSERVATIONS

Between August 18 and September 17, 2015, a team of field technicians observed bicycle and pedestrian movements at the 15 Hot Spots identified. For the methodology used to define the study Hot Spots, see the Safety Hot Spot Analysis section in this report. For the full data set, see Appendix A.3.

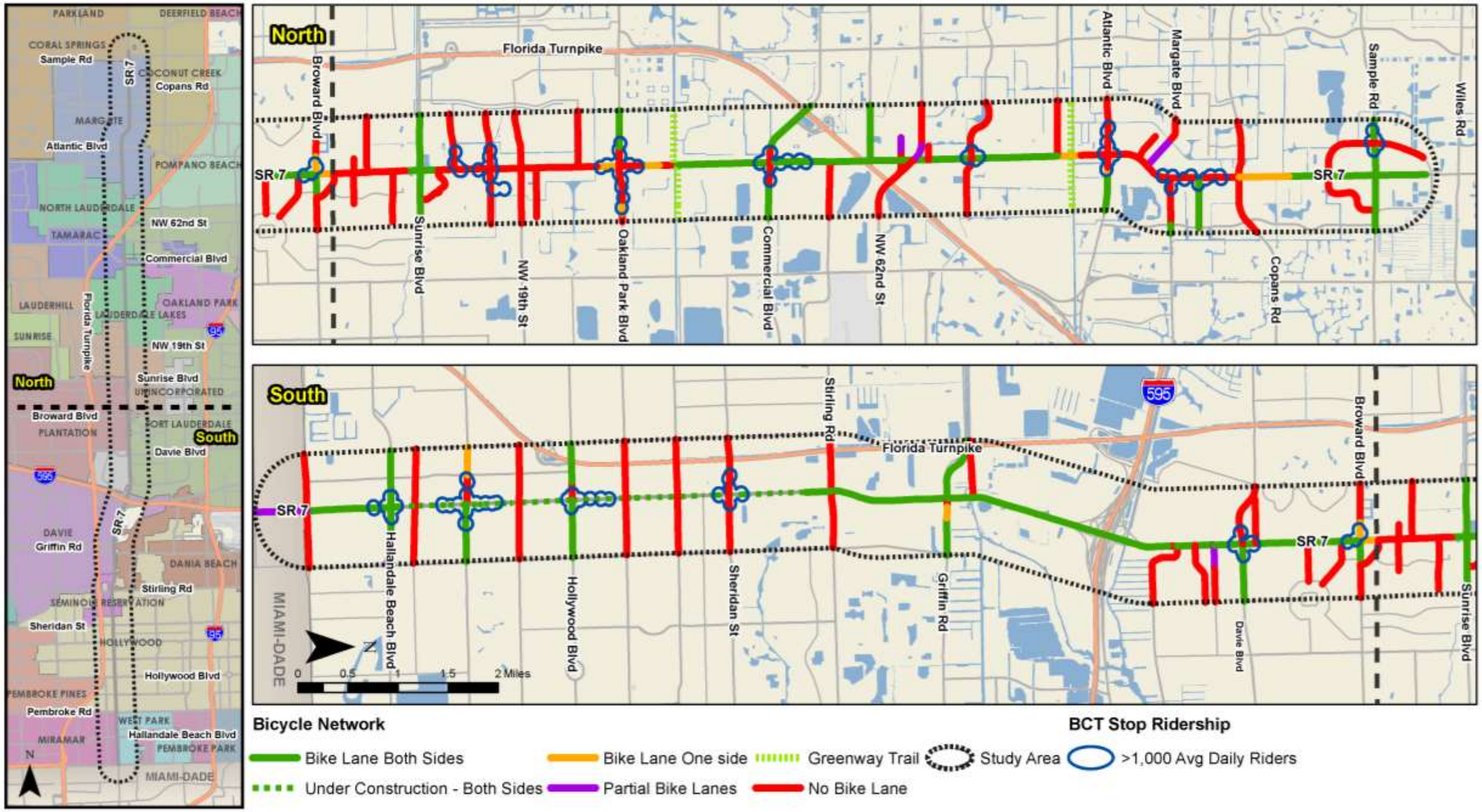
Map 3-14: Sidewalk Gap Analysis



Sidewalk Source: Aerial Imagery, Agency Review
Facilities Source: Florida Geographic Data Library (FGDL)

Note: Partial sidewalk refers to a segment with existing sidewalk on at least one side of the road, but has gaps where a pedestrian would be unable to travel the entire segment

Map 3-15: Bicycle Facility Gap Analysis



Bicycle Source: Aerial Imagery, Agency Review
Facilities Source: Florida Geographic Data Library (FGDL)

Note: Partial bike lanes refers to a segment with existing bike lanes on at least one side of the road, but has gaps where a bicyclist would be unable to travel the entire segment

SECTION 3.4: LAND USE AND SOCIOECONOMIC ANALYSIS

In this section, land use, demographic, and socioeconomic data are reviewed.

LAND USE

Building a physical environment that efficiently supports multiple modes of transportation requires the close integration of land use policy and transportation infrastructure investments. This section assesses the composition of existing land uses and identifies current transit markets by evaluating various socioeconomic indicators.

Existing Land Use

An analysis was conducted to understand the make-up and diversity of existing land uses within the corridor. The SR 7 corridor is characterized by a mix of land use, with several major traffic generators, including but not limited to Lauderhill Mall, shopping centers, hospitals, multiple Seminole Tribe casino complexes, government offices, schools, and parks.

As summarized by Table 3-7 and further illustrated in Map 3-16, the majority of the land area within the study corridor (81.5%) is comprised of residential development, primarily single family. Residential uses account for the majority of parcels within the study area (83.7%) and approximately one-quarter of the total land area, indicating a high number of smaller parcels. While the study corridor land area is primarily residential, there is diversity development found along the corridor. The two other notable land uses within the study corridor are commercial (16.6% of total land area) and industrial (6.5% of total land area). Commercial development is primarily found affronting SR 7 and surrounding major intersections, while industrial uses are more isolated, with the main industrial area along the corridor between I-595 and Griffin Road. While there are fewer commercial and industrials parcels, they generally larger in size (1.22 acres versus 0.17 acres) than their residential counterparts.

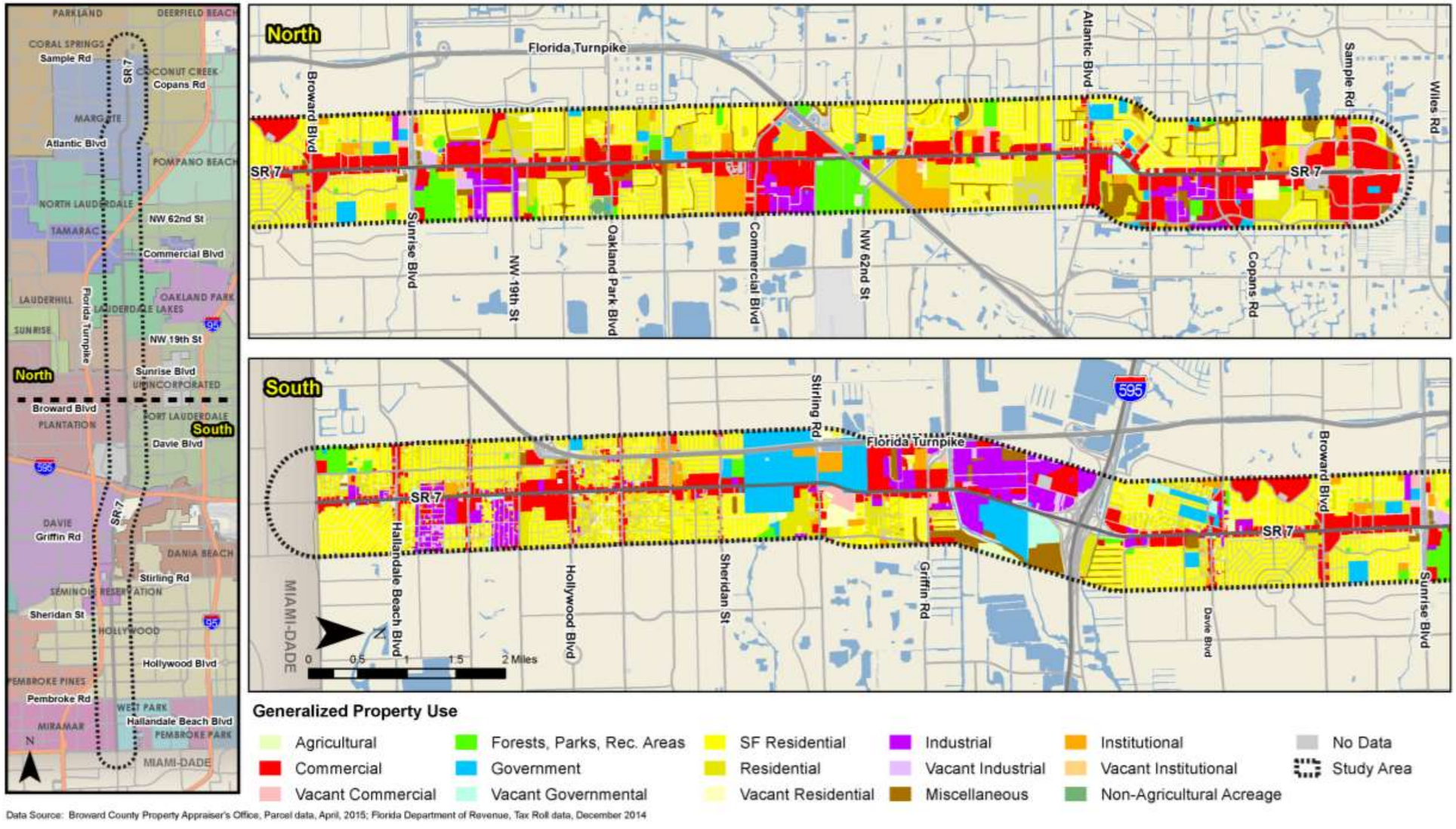
Table 3-7: Distribution of Existing Land Use (Total Parcels and Total Acres)

Property Use	Number of Parcels	% of Total Parcels	Acres	% of Total Acres
SF Residential	22,226	54.8%	3,577	24.2%
Other Residential*	11,158	27.5%	1,331	9.0%
Vacant Residential	532	1.3%	813	5.5%
Total Residential	*33,916*	*83.7%*	*5,722*	*38.6%*
Commercial	1,750	4.3%	2,327	15.7%
Vacant Commercial	157	0.4%	138	0.9%
Total Commercial	*1,907*	*4.7%*	*2,465*	*16.6%*
Government	182	0.4%	707	4.8%
Vacant Government	74	0.2%	117	0.8%
Total Government	*256*	*0.6%*	*824*	*5.6%*
Industrial	959	2.4%	912	6.2%
Vacant Industrial	74	0.2%	55	0.4%
Total Industrial	*1,033*	*2.5%*	*967*	*6.5%*
Institutional	572	1.4%	524	3.5%
Vacant Institutional	24	0.1%	12	0.1%
Total Institutional	*596*	*1.5%*	*536*	*3.6%*
Agricultural	12	0.0%	42	0.3%
Miscellaneous	190	0.5%	506	3.4%
Non-Agricultural Acreage	1	0.0%	20	0.1%
Forests, Parks, Rec. Areas	65	0.2%	404	2.7%
Right-of-Way	1,306	3.2%	1,704	11.5%
No Data	1,247	3.1%	1,619	10.9%
Total	40,529	100.0%	14,811	100.0%
Total Vacant	861	2.1%	1,136	7.7%

Source: Broward County Property Appraiser's parcel data, April 2015

**Condo acreage was estimated by using only the first unique acreage of identical units. This was done to eliminate double counting unit and common area footprints for 'stacked' parcels and multi-floor structures.*

Map 3-16: Existing Property Use



Data Source: Broward County Property Appraiser's Office, Parcel data, April, 2015; Florida Department of Revenue, Tax Roll data, December 2014

Property Values and Redevelopment Potential

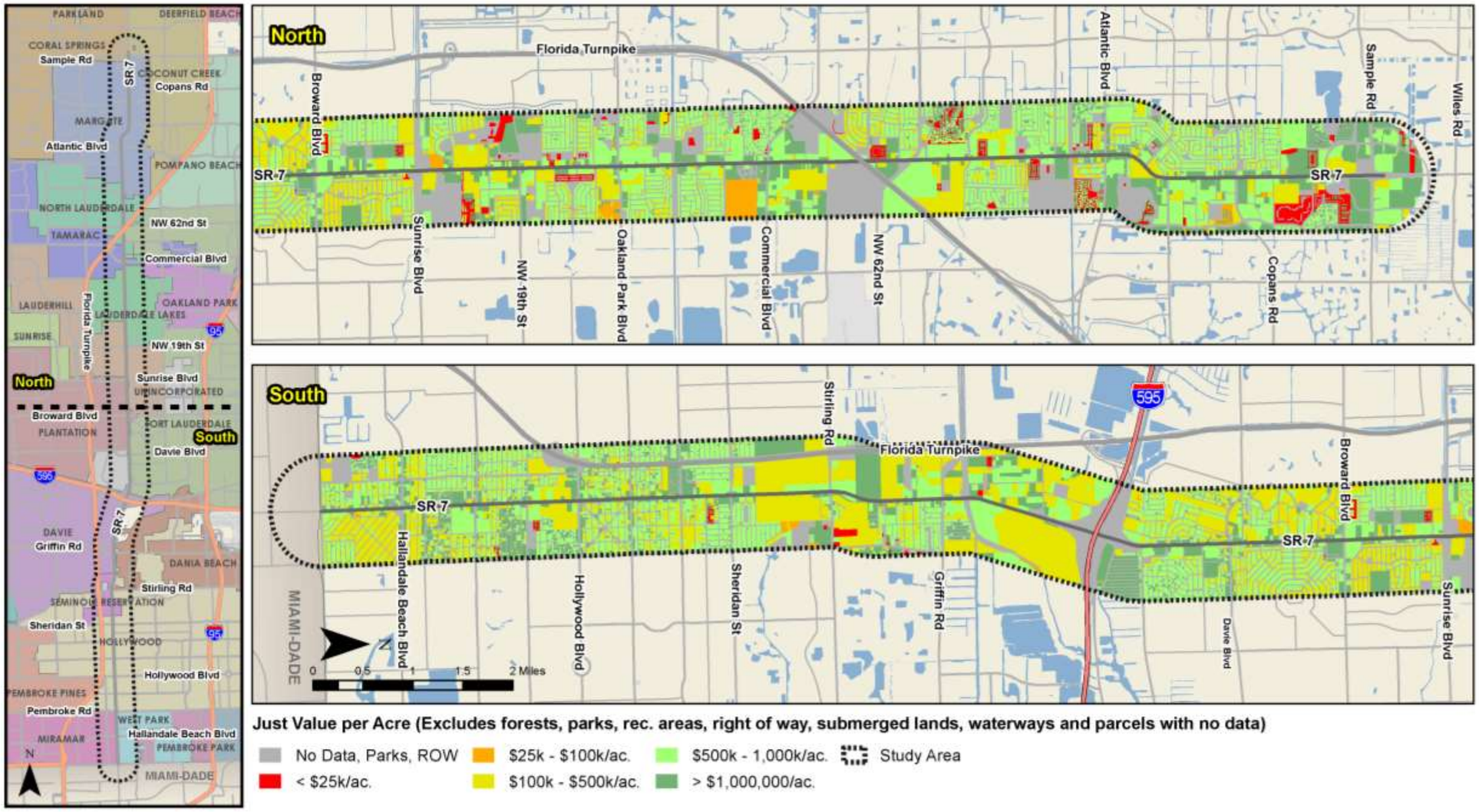
Evaluating the market value of properties can help understand the basic economic market of an area. Using parcel data from the Broward County Property Appraiser, an analysis of current property values was completed for properties within the corridor. The results of this analysis are illustrated in Map 3-17. There are some clusters of high-valued properties within the corridor, but the majority of residential area show values of $500,000 to $1 million per acre ($125,000-$250,000 for a quarter-acre property) and the commercial areas valued between $100,000 and $500,000 per acre, indicating the residential parcels are valued on average higher than commercial properties on a per-acre basis.

In addition to examining the market value per acre, an evaluation of the ratio of building-to-land value was conducted. The building-to-land value ratio is often used as an indicator of redevelopment readiness by identifying properties that may be underperforming economically. Properties with a low building-to-land value ratio (less than 1.0) means that the value of the structure is less than the value of the land and signifies that the site may be prime for rehabilitation, redevelopment, or reinvestment of some kind. However, when evaluating building-to-land value ratios, it is important to note that the ratio is less sensitive to higher land values that might be based on geographic location (e.g., waterfront properties and downtown properties) and may not provide a clear picture of the economic value of some properties. As a general rule, it is best to use land-to-building value ratios to identify general land use patterns or larger sub-areas where undervalued structures may be located, particularly when combined with other economic indicators. Map 3-18 illustrates the land-to-building value ratio for properties along the corridor.

Building age, especially for non-residential buildings, can be used as a redevelopment indicator as well. Commercial buildings typically have around a 30-year life span before they need major reinvestment or redevelopment to remain economically viable. Residential uses typically have longer life spans and do not require the same level of reinvestment to remain viable, so building age becomes less important when looking at residential properties. Map 3-19 illustrates the land-to-building value ratio for properties along the corridor for non-residential parcels older than 30 years. Areas of non-commercial property with a low building-to-land ratio and older than 30 years, indicating a higher redevelopment potential, are concentrated around several major intersections, including Commercial Boulevard and Sheridan Street, as well on the west side of the corridor between Broward Boulevard and Griffin Road.

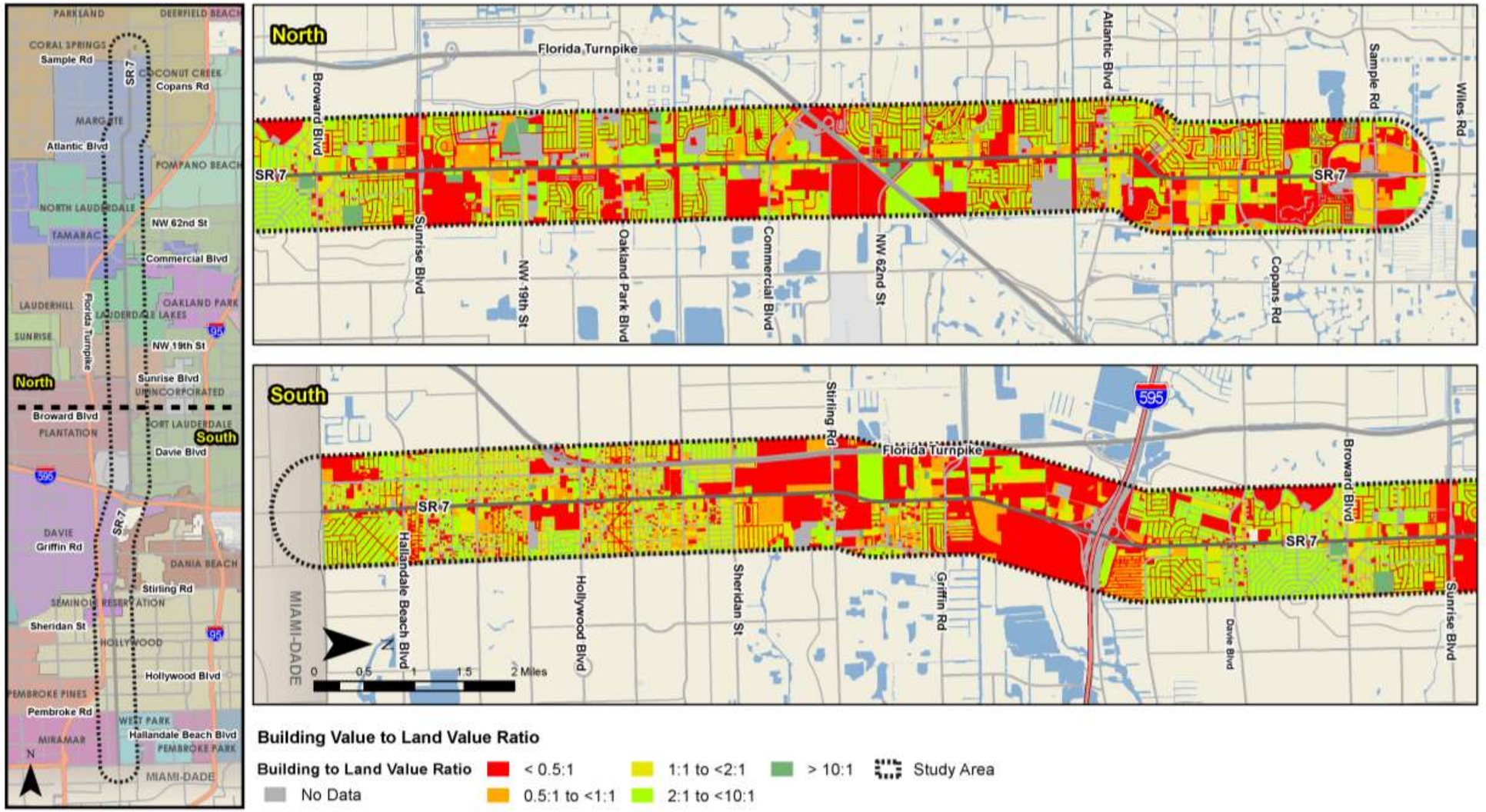
A Community Redevelopment Areas (CRA) is a dependent special district where future increases in property values are set aside to support economic development projects within that district. The purpose of a CRA is to facilitate and finance redevelopment within a targeted area. As shown on Map 3-20, there are five CRAs designated within the corridor where redevelopment is desired.

Map 3-17: Property Value per Acre



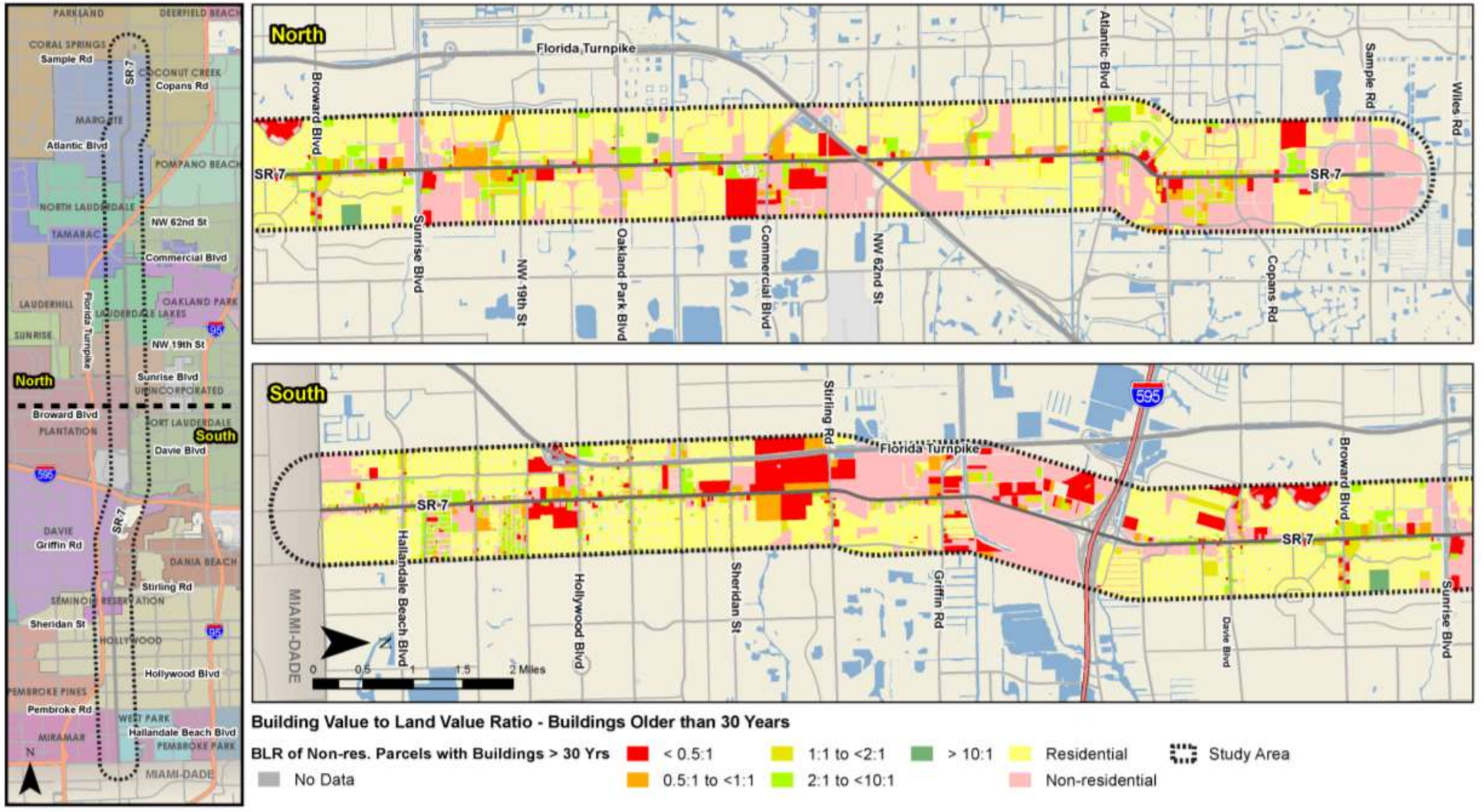
Data Source: Broward County Property Appraiser's Office, Parcel data, April, 2015; Florida Department of Revenue, Tax Roll data, December 2014

Map 3-18: Building to Land Value Ratio



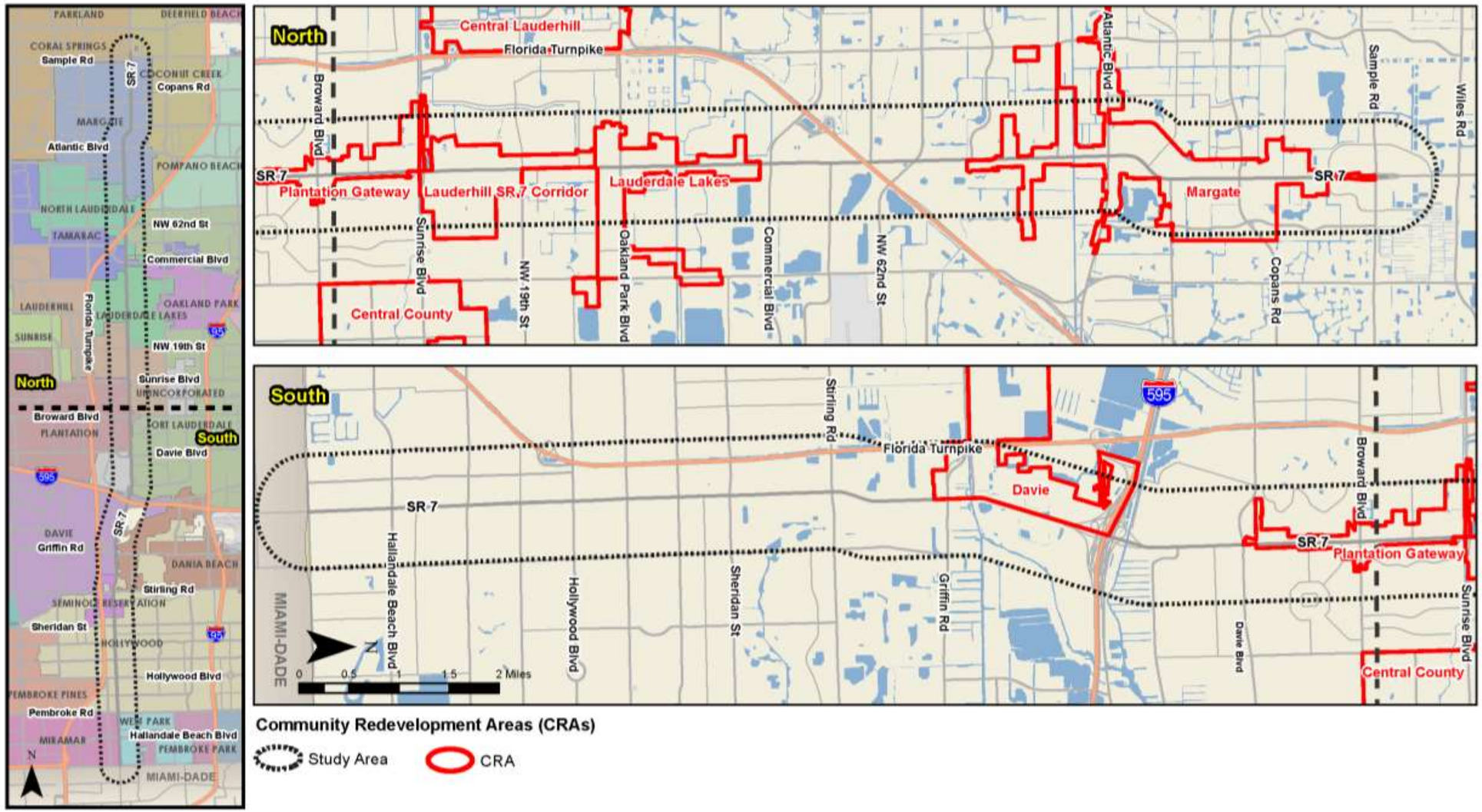
Data Source: Broward County Property Appraiser's Office, Parcel data, April, 2015; Florida Department of Revenue, Tax Roll data, December 2014

Map 3-19: Building to Land Value Ratio and Building Age



Data Source: Broward County Property Appraiser's Office, Parcel data, April, 2015; Florida Department of Revenue, Tax Roll data, December 2014

Map 3-20: Community Redevelopment Areas



DEMOGRAPHIC AND SOCIOECONOMIC INDICATORS

Population and Employment

In addition to examining the land use and property redevelopment potential, a review of various demographic indicators (population and employment densities and growth) was also conducted. Higher population and employment densities are often associated with a higher percentage of alternative mode share. However, this information is primarily being used for this study to identify areas along the corridor that are projected to experience significant growth. Existing (2010) and projected (2040) population and employment density data from the Southeast Florida Regional Planning Model (SERPM) were calculated by traffic analysis zone (TAZ) within the corridor study area. Map 3-21 and Map 3-22 illustrate the existing and projected population densities, while Map 3-23 and Map 3-24 illustrate the existing and projected employment densities.

Population within the corridor is anticipated to increase from approximately 206,000 to 242,500 people, or 18 percent, while employment is anticipated to increase from 97,650 to 103,700, or one-third the rate of population at 6 percent. Population growth is anticipated to be 38 percent higher than the countywide population growth projected to occur during this same period (13%). Employment growth within the SR 7 corridor is projected to be consistent with the countywide employment growth project to occur between 2010 and 2040 (also 6%)

In general, there is moderate population density throughout the corridor today. Population growth is anticipated to occur throughout the corridor, resulting in subtle changes in population densities throughout the corridor by 2040. Plantation General Hospital between Sunrise Boulevard and Broward Boulevard and retail around the intersection of SR 7 and Commercial Boulevard are the areas with the highest existing employment density.

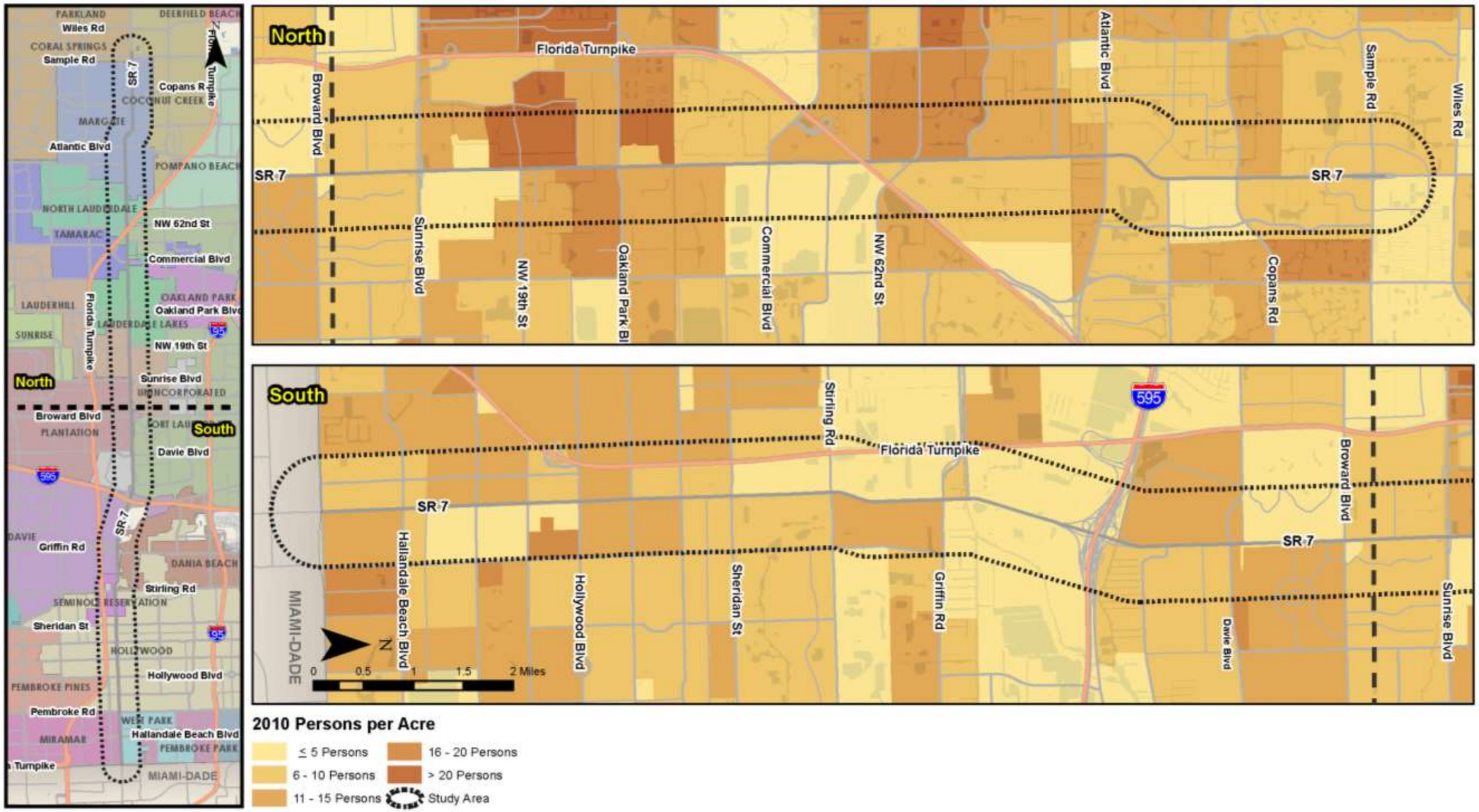
The total number of people and employees within a specific area, also referred to as urban intensity, are often used as measures of transit supportiveness. Research has indicated that there is a fundamental threshold of urban intensity around 35 (residents and jobs) per hectare (between 14 and 15 total persons per acre), where automobile dependence is significantly reduced. While this can be an indicator of an area's ability to support transit, it may not entirely reflect the transit demands within an area. For example, commuter transit is often more reliant on location, ease of access, and availability of parking than it is on supportive densities.

The transit-supportiveness levels are representative of the quality of service that could be supported by the existing urban intensity and have been grouped into the following three categories:

- *Low* (15–30 persons per acre) – supportive of basic bus service (15– to 30-minute headways)
- *Medium* (31–45 persons per acre) – supportive of enhanced-bus service, such as high-frequency (10-minute) service and bus rapid transit (BRT) service
- *High* (greater than 45 persons per acre) – supportive of enhanced transit modes including BRT and light rail.

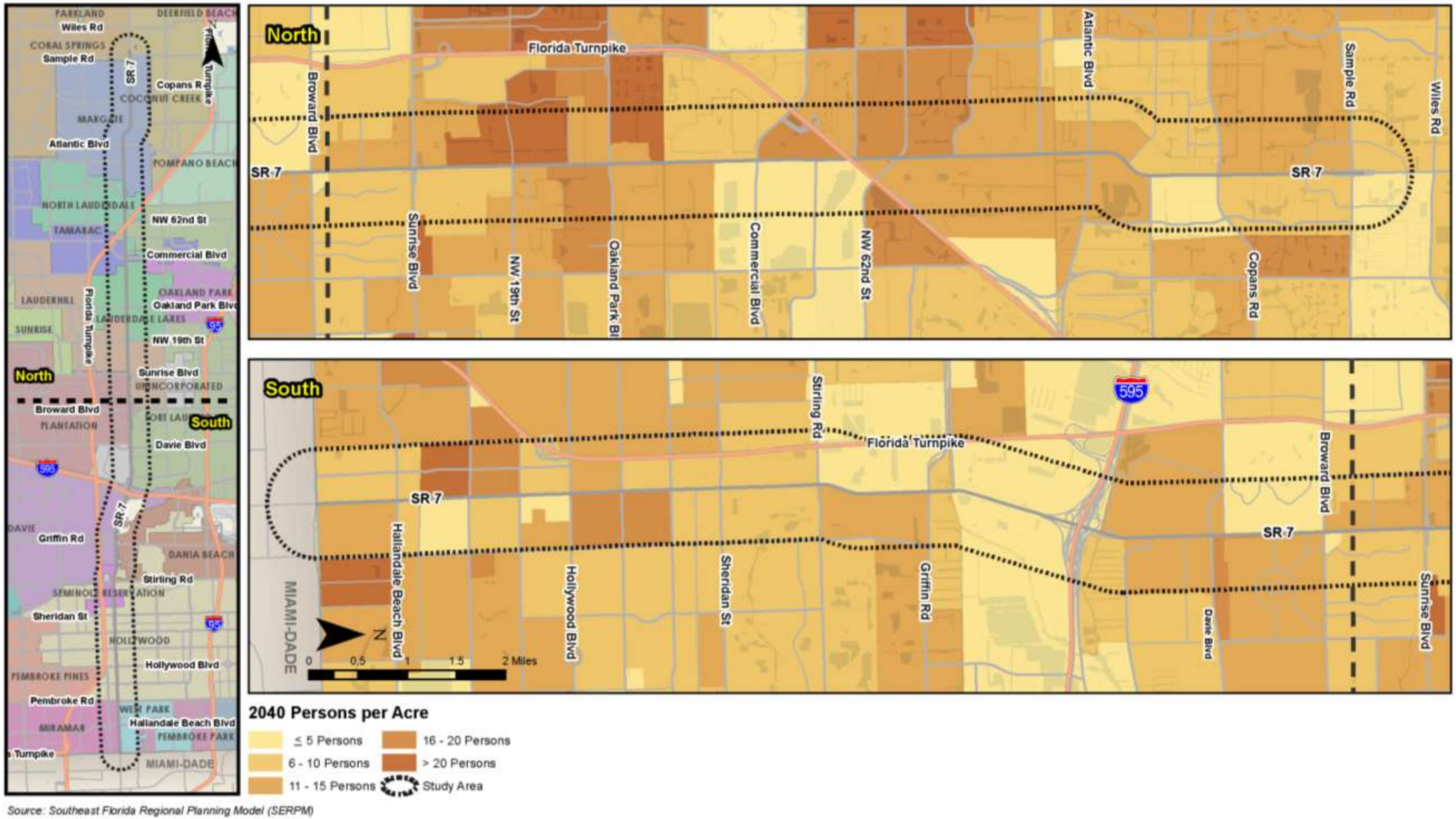
Map 3-25 shows the 2010 urban intensity of the TAZs along the corridor, while Map 3-26 illustrates the 2040 urban intensity. The urban intensity analysis shows that the most transit supportive TAZs within the corridor are in the mid-section of the corridor between Commercial Boulevard and Broward Boulevard to the east of SR 7. In general, the remaining areas of the corridor are supportive of basic bus service. Since there is anticipated to be moderate changes to both population and employment densities during this 30-year period, little change to the urban intensity is also anticipated.

Map 3-21: 2010 Population Density



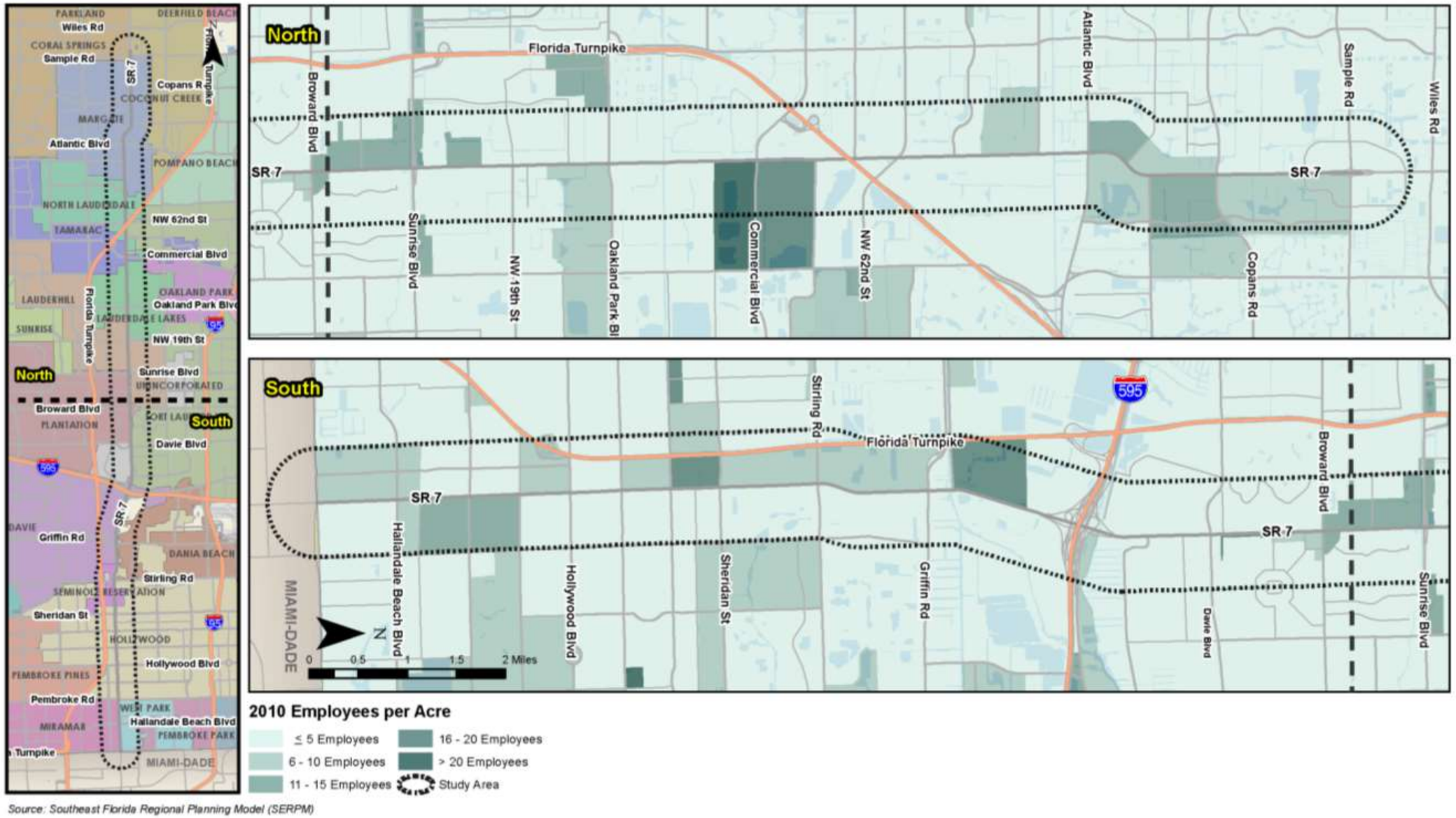
Source: Southeast Florida Regional Planning Model (SERPM)

Map 3-22: 2040 Population Density



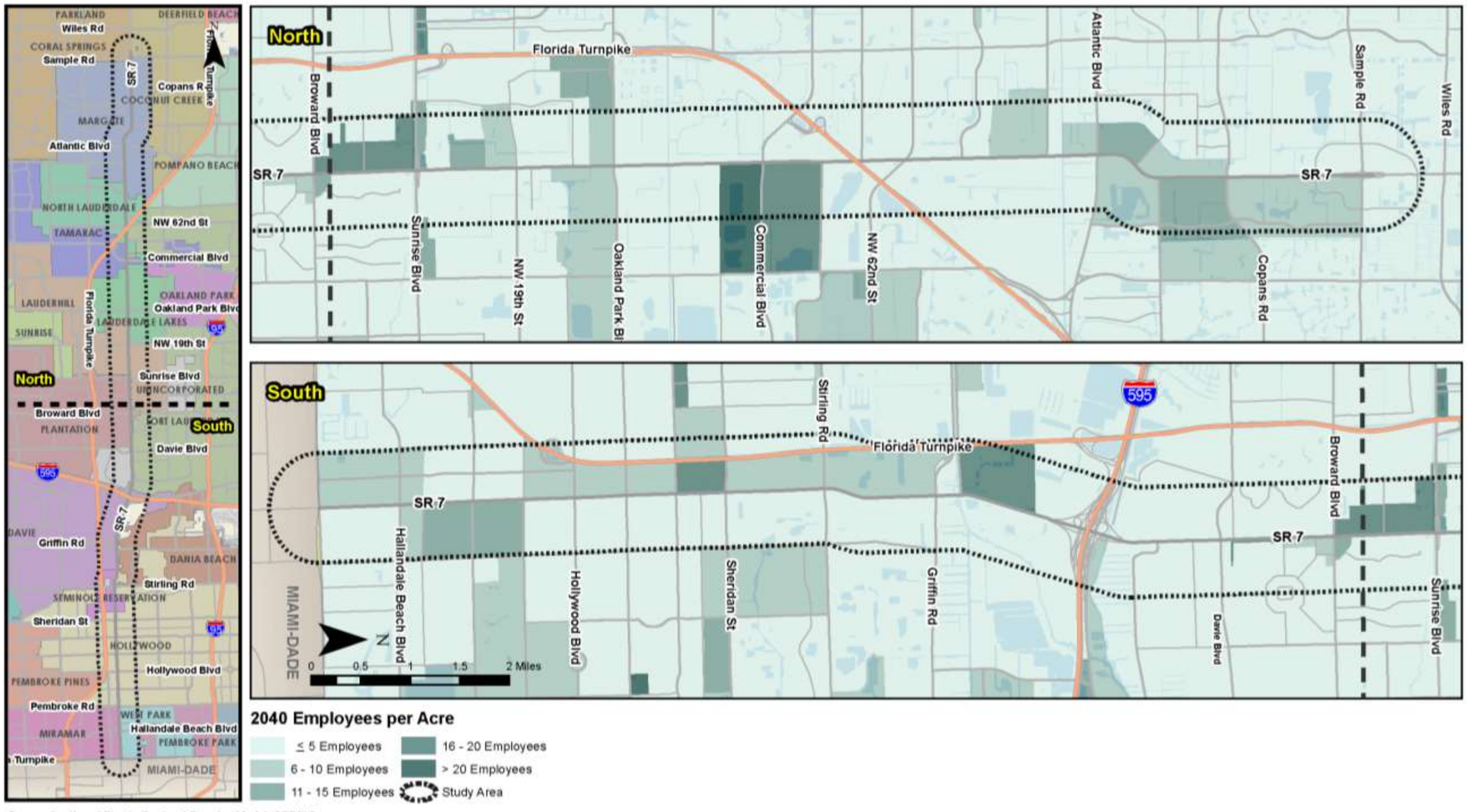
Source: Southeast Florida Regional Planning Model (SERPM)

Map 3-23: 2010 Employment Density



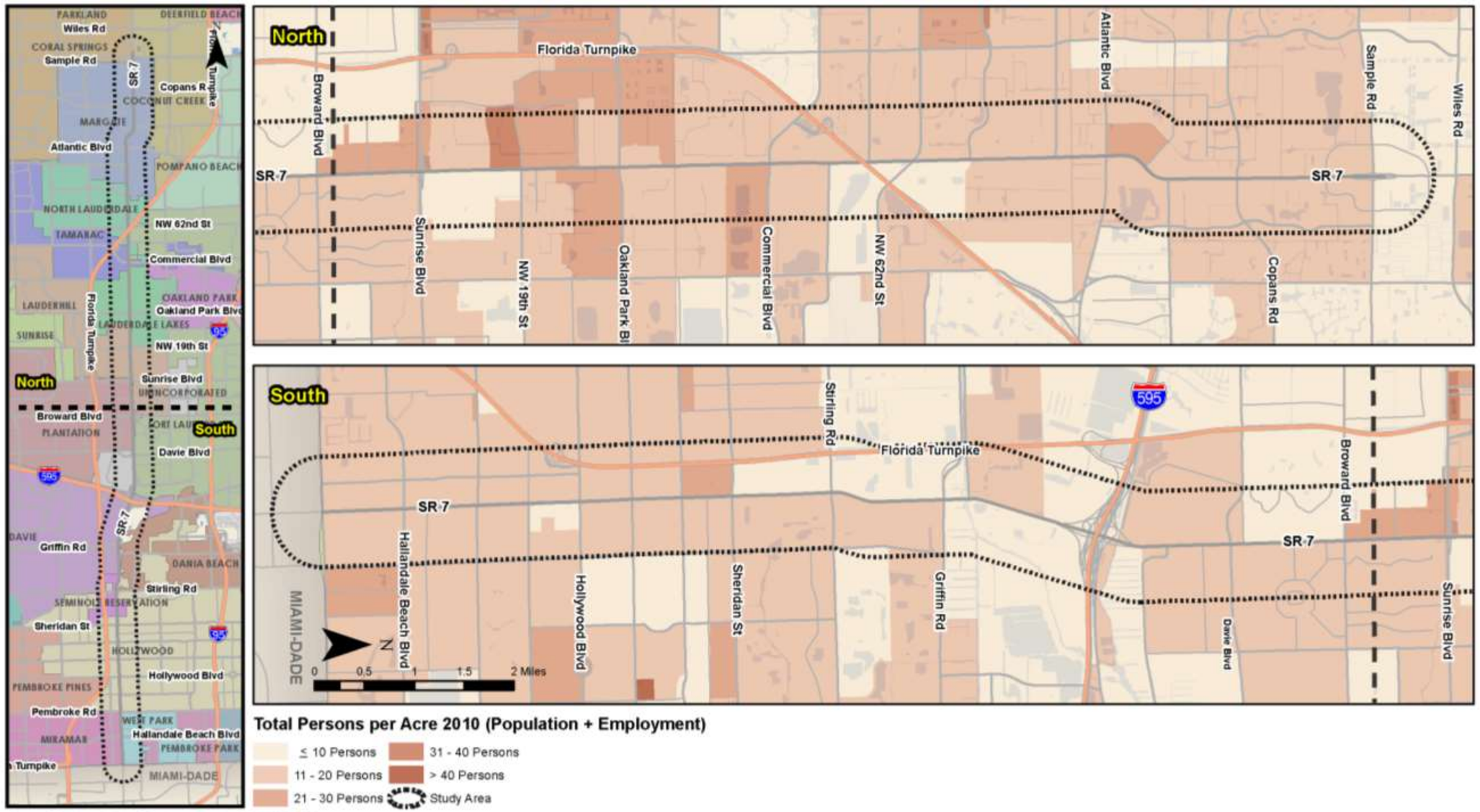
Source: Southeast Florida Regional Planning Model (SERPM)

Map 3-24: 2040 Employment Density



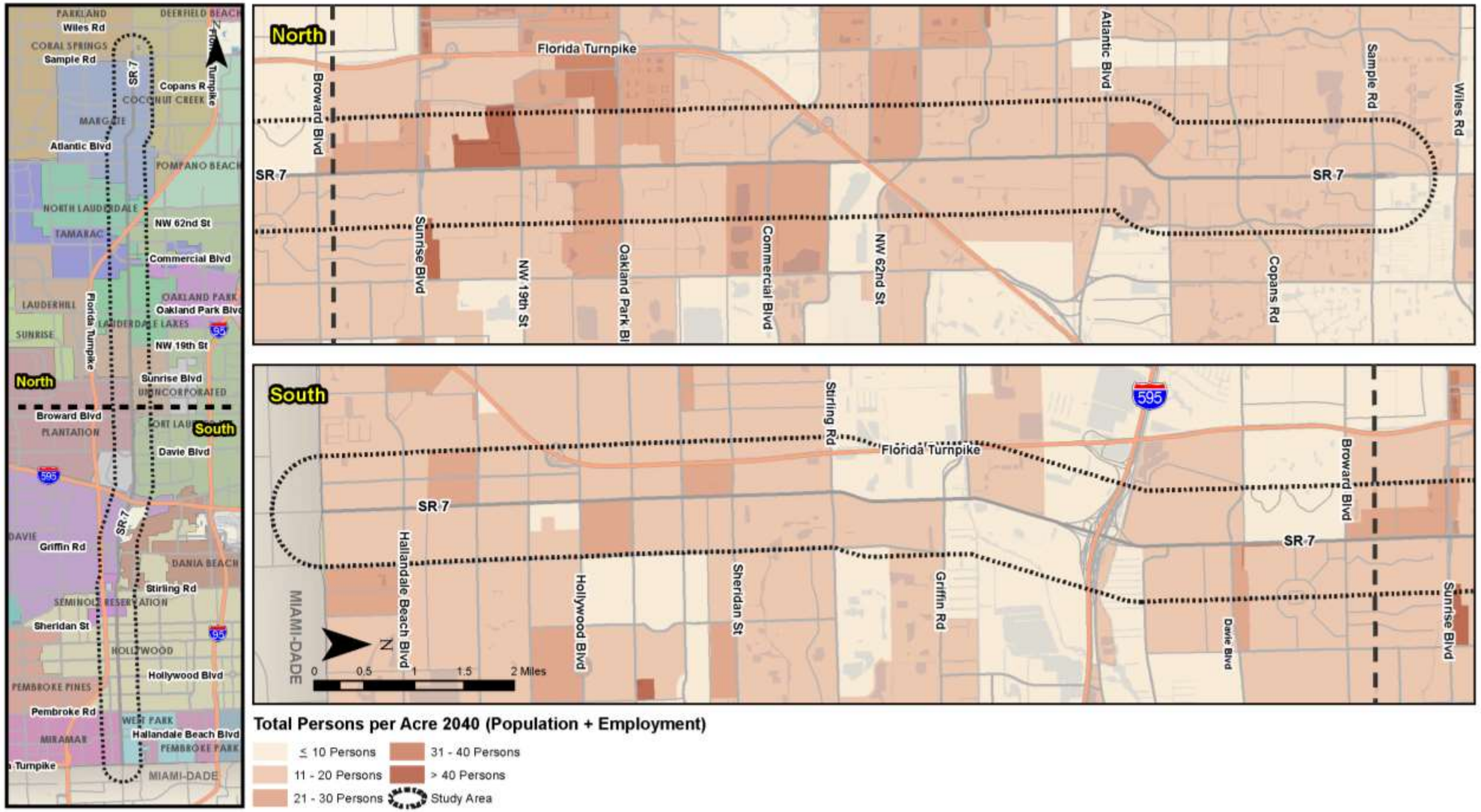
Source: Southeast Florida Regional Planning Model (SERPM)

Map 3-25: 2010 Urban Intensity



Source: Southeast Florida Regional Planning Model (SERPM)

Map 3-26: 2040 Urban Intensity



Source: Southeast Florida Regional Planning Model (SERPM)

Environmental Justice Analysis

One of the first activities performed for this study and documented in the PPP was to identify EJ areas along the corridor. The EJ areas were identified by analyzing five socio-economic variables from the U.S. Census Bureau's American Community Survey (ACS), which include:

- Percent of minority population: percentage of the population that does not identify as Caucasian
- Percent of population that does not speak English: percentage of people who identified as speaking English 'less than very well.'
- Percent of population below the poverty line: percentage of population determined by the U.S. Census Bureau based on the analysis of income accrued over a 12-month period.
- Percent of population age 65 and over: percentage of population age 65 or older.
- Percent of transit-dependent population (age 16 and over): percentage of population age 16 and over who use public transportation (excluding taxicab) to get to work.

The purpose of this EJ analysis is twofold. First, effective transportation decision-making depends upon understanding and properly addressing the unique needs of different socioeconomic groups within the study area. Therefore, EJ areas were identified to ensure the full and fair participation by all potentially affected communities in this study process. The public participation evaluation process for this study will monitor the extent to which participants from EJ areas are participating compared to the level of participation corridor-wide and adjustments to the public participation process may be made if necessary.

Second, certain health, social, and economic variables can be indicative of persons who are 'transportation disadvantaged,' meaning they have a higher propensity to use transit, walk, or bike to make their trips.[1]

Access to affordable and reliable transportation opens up opportunities for success and is essential to addressing poverty and other equal opportunity goals such as access to quality health care, education, and jobs. Obstacles to transportation accessibility can diminish social and economic opportunities by limiting a person's ability to travel. Nationally, the percentage of public transit users that are minorities exceeds the percent of minorities that comprise the national population

[1] *As defined in Section 427.011(1), Florida Statutes (F.S.), transportation disadvantaged means those persons who because of physical or mental disability, income status, or age are unable to transport themselves or to purchase transportation and are, therefore, dependent upon others to obtain access to health care, employment, education, shopping, social activities, or other life-sustaining activities, or children who are handicapped or high-risk or at-risk as defined in Section 411.202, F.S.*

profile,[2] For Broward County, approximately 75 percent of BCT's riders are minorities, compared with approximately 60 percent of the countywide population, indicating minority persons in Broward County have a higher propensity to use public transportation consistent with national trends.[3]

Language barriers can limit a person's ability to travel such as by preventing a person from obtaining a drivers' license. For some individuals, their ability to drive is greatly diminished with age and they must rely on others for their transportation needs. For lower income households, transportation costs are particularly burdensome as a greater proportion of income is used for transportation-related expenses than it is for higher-income households. Households with restricted income may not be able to afford a private vehicle and must rely on public transportation for travel. The typical BCT customer has a very low income with over 65 percent of riders earning less than $20,000 a year.[4]

From an analysis perspective, the EJ areas can identify areas of the corridor that may have higher percentages of transportation disadvantaged populations. Observations based on the EJ areas identified in Map 3-27 though Map 3-31 include:

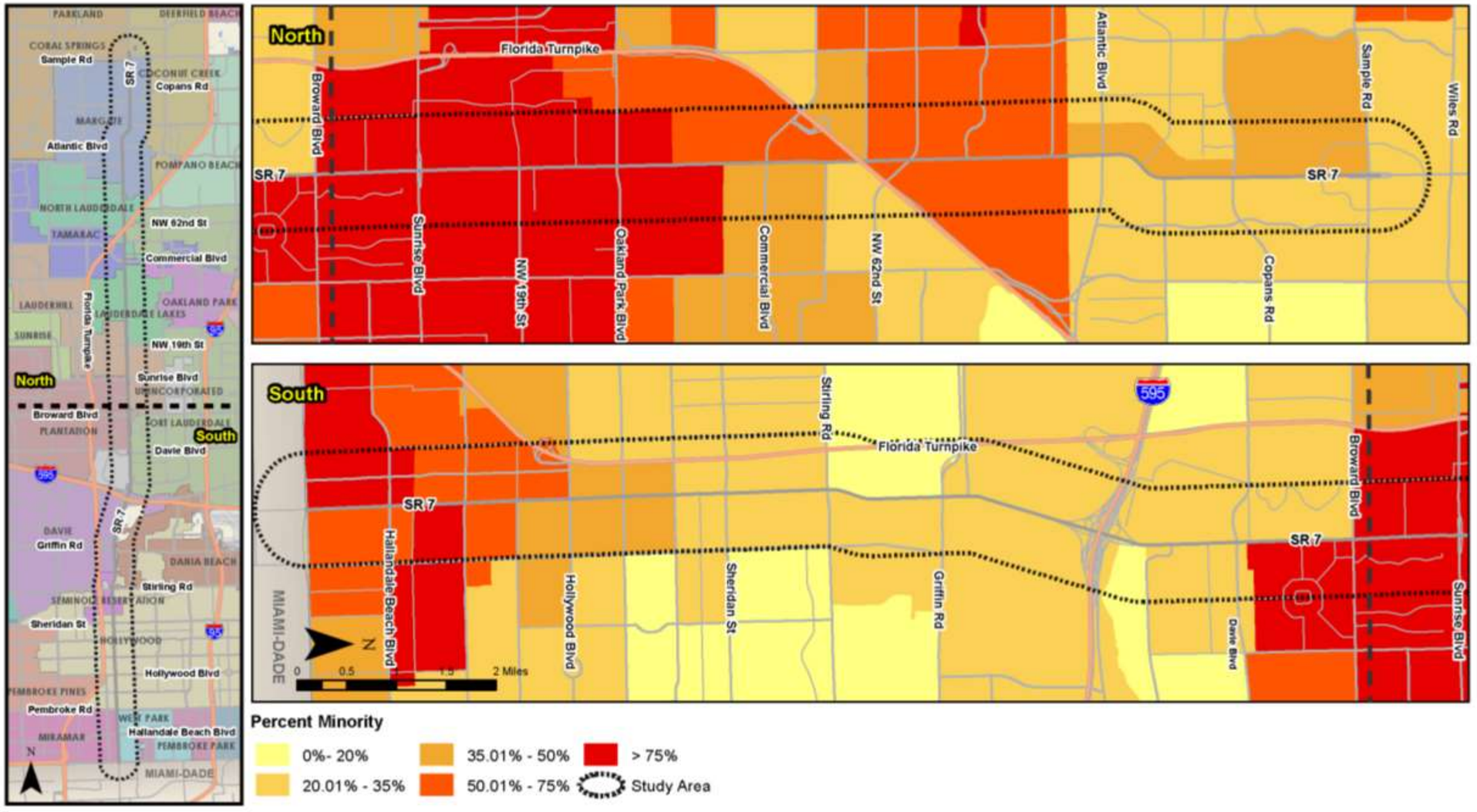
- The central portion of the corridor has a significantly higher percentage of minorities than the southern portion of the corridor (not including the extreme southern extent of the study area south of Hollywood Boulevard. As shown in Map 3-27, these areas are characterized as having a majority-minority population (where minorities comprise 50% or more of the total population). Conversely, between Davie Boulevard and Hollywood Boulevard, minorities comprise less than 50 percent of the population; however, with the exception of a small area north of I-595, minorities still comprise between 20 to 50 percent of the total population.
- Along with the diverse population found within the corridor, most block groups within the corridor have eight percent or more of the population that does not speak English 'well' or 'very well' (see Map 3-28). Interestingly, areas with the highest percentage of non-English speaking populations do not necessary correlate with areas where the highest percentage of minority populations are found.
- As illustrated in Map 3-29, most of the corridor has 12 percent or more households that fall below the poverty level, which is below the countywide average of 14 percent. The areas

[2] *A Profile of Public Transportation Passenger Demographics and Travel Characteristics Reported in On-Board Surveys, American Public Transit Association. (May 2007) and 2010 U.S. Census.*
3Broward County Transit Comprehensive Operational Analysis (COA), prepared by TMD Inc. (2010) and U.S. Census Bureau's 2014 ACS data.
4 Broward County 2010 COA.

south of the Commercial Boulevard to Broward Boulevard and around I-595 have the highest concentrations where 20 percent or more of households fall below the poverty level.

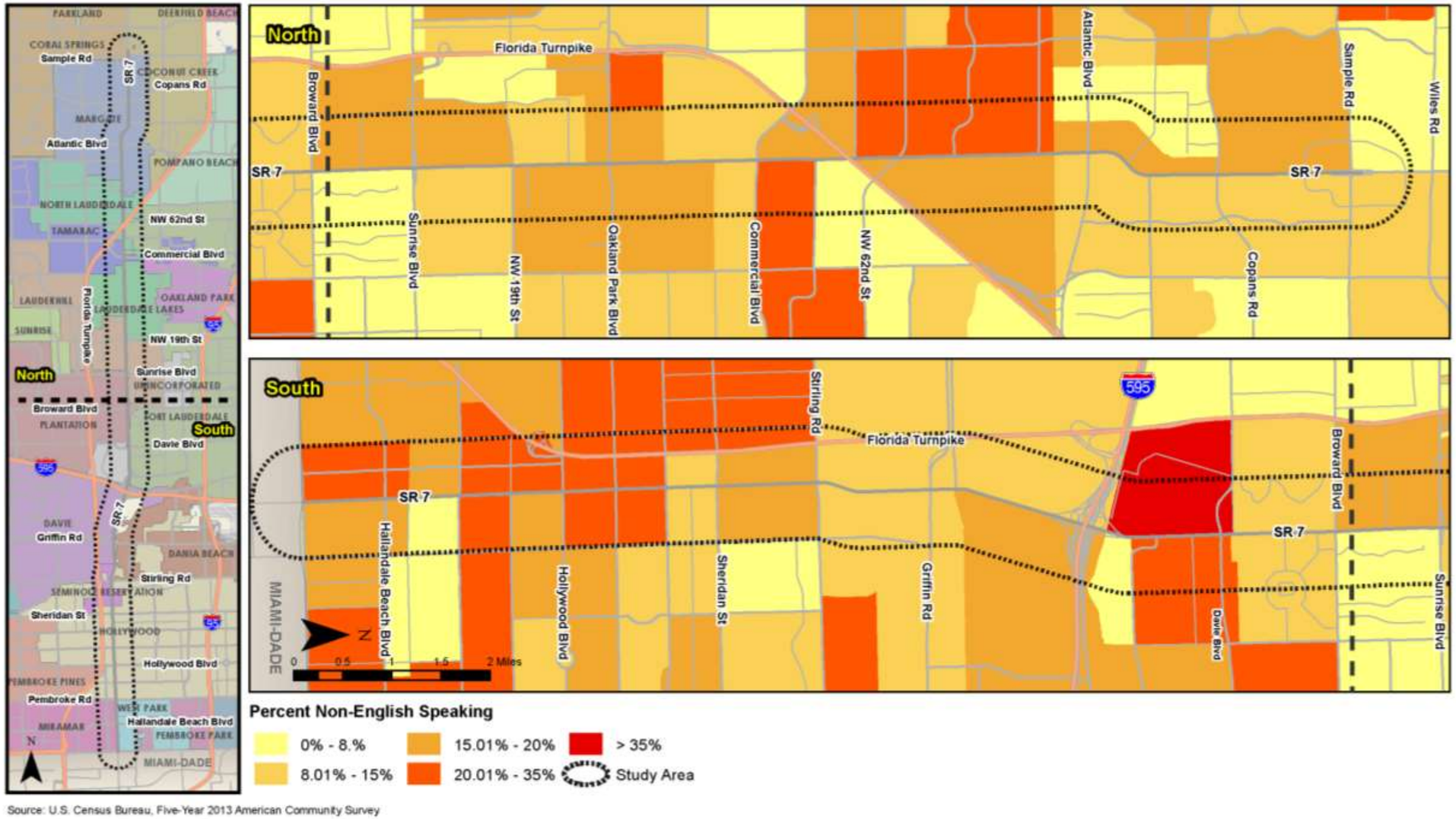
- There is not a significant presence of older persons residing within the corridor as nearly all the corridor has 20 percent or less of the population age 65 and older (see Map 3-30). This is consistent with Broward County, where only approximately 15 percent of the countywide population is age 65 or older.[5]
- As shown in Map 3-31, the highest concentrations of transit-dependent population, or person 16 years and older who uses public transportation to get to work, are located south of Commercial Boulevard to Davie Boulevard and include areas of Tamarac, Lauderdale Lakes, and Lauderhill. This area also has higher concentrations of minorities and low income households within the study area.

Map 3-27: Percent Minority Population



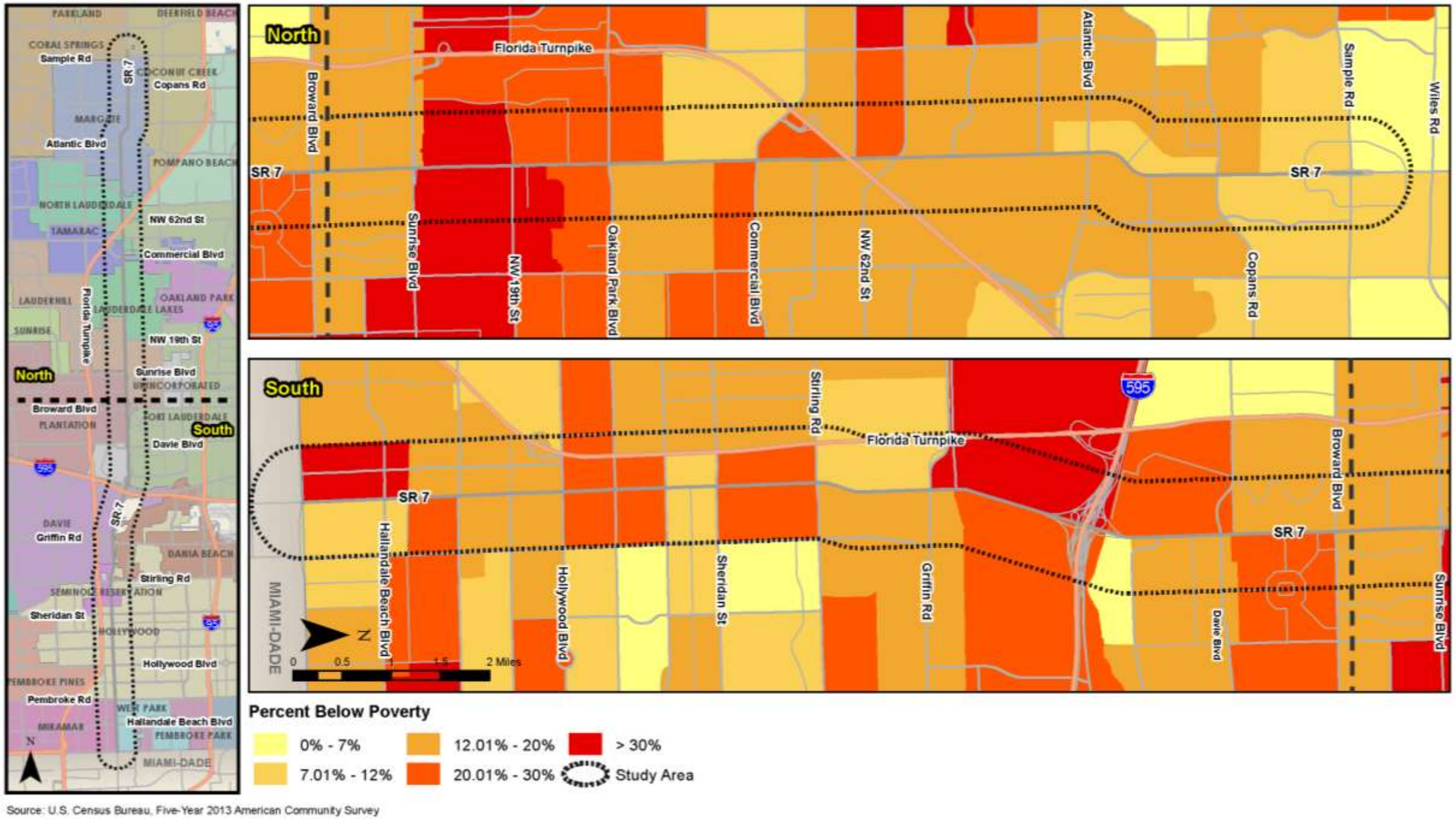
Source: U.S. Census Bureau, 2010 Summary File 1

Map 3-28: Percent Non-English Speaking Population



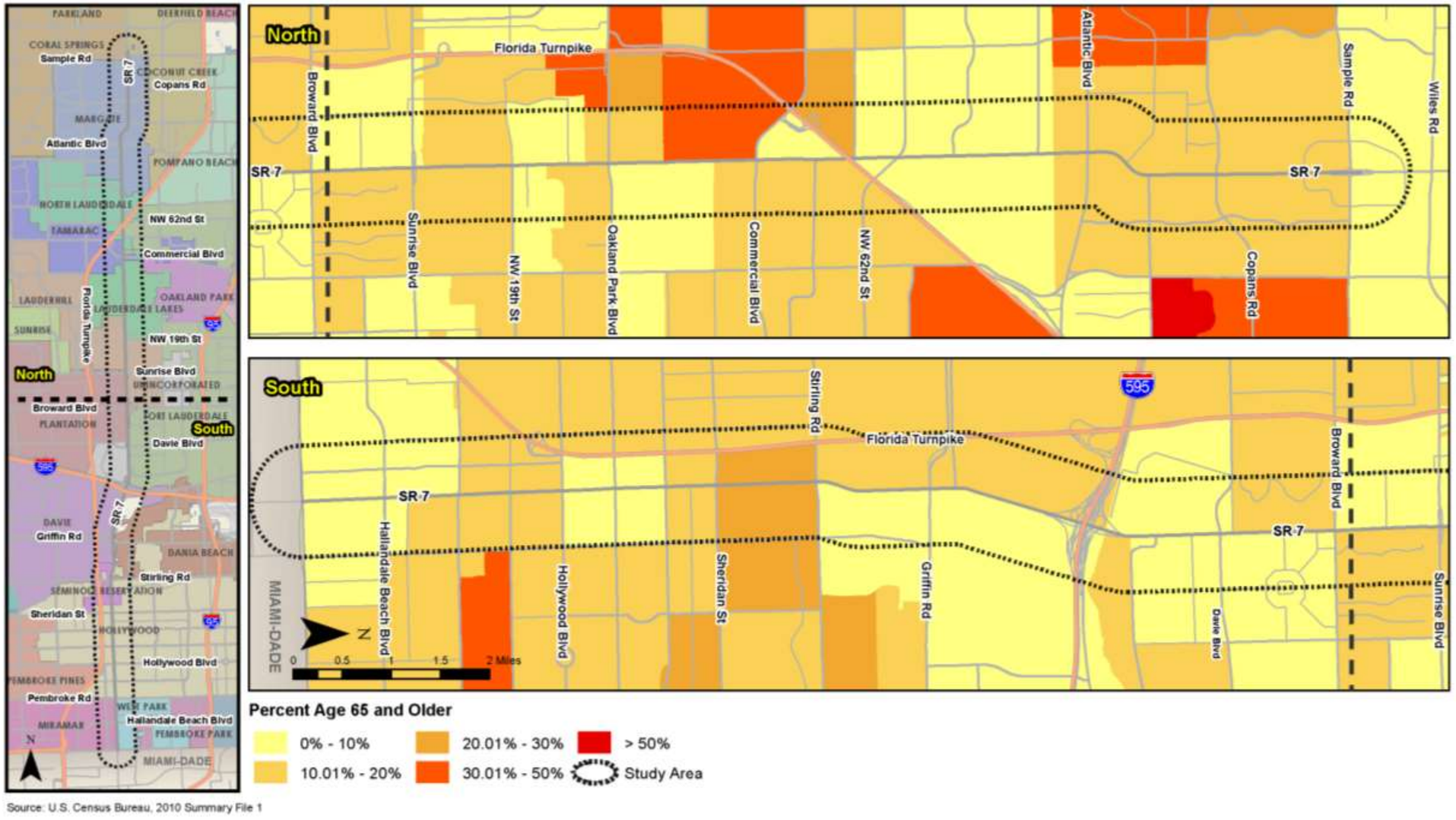
Source: U.S. Census Bureau, Five-Year 2013 American Community Survey

Map 3-29: Percent of Population below Poverty Threshold



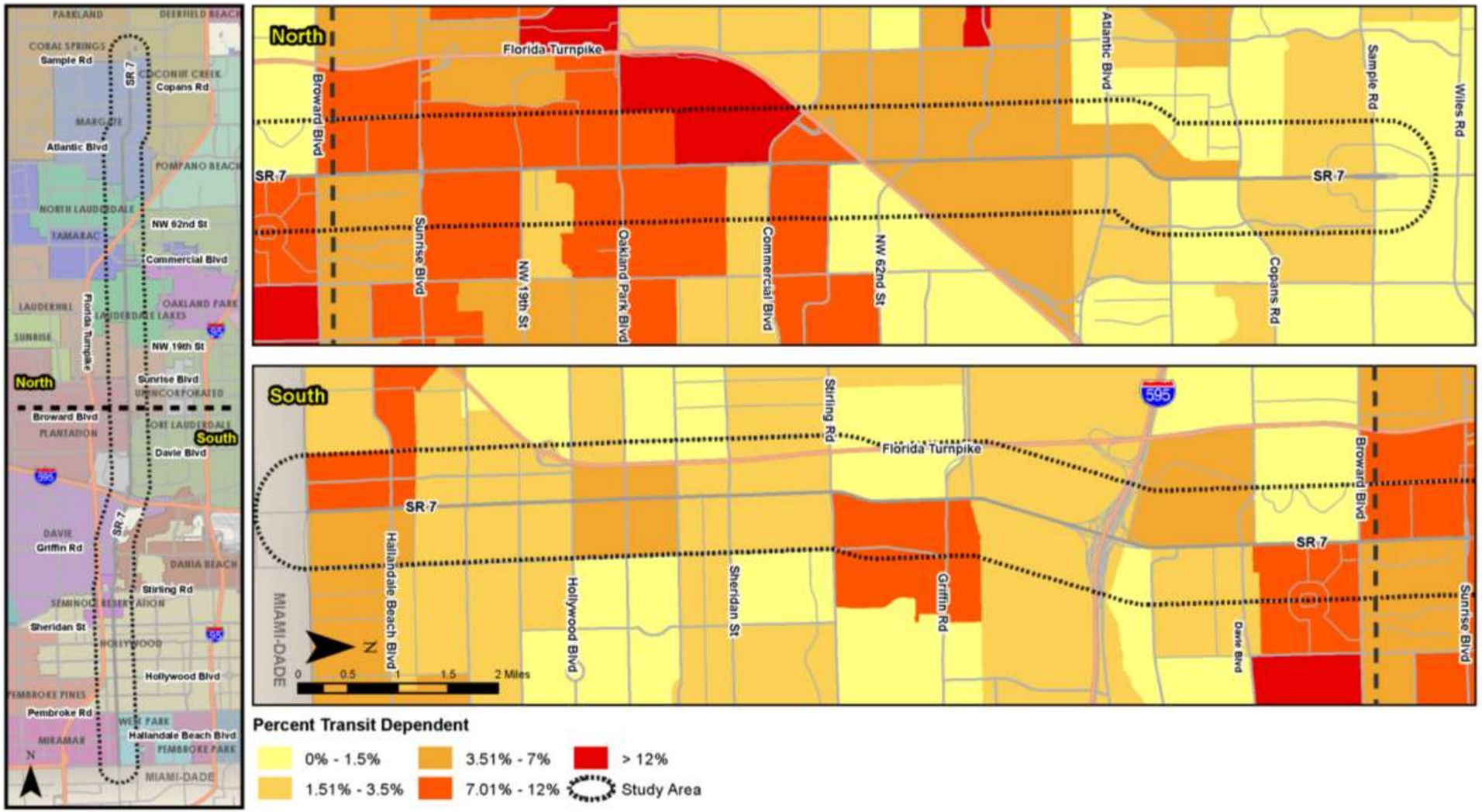
Source: U.S. Census Bureau, Five-Year 2013 American Community Survey

Map 3-30: Percent of Population Age 65+ Years



Source: U.S. Census Bureau, 2010 Summary File 1

Map 3-31: Percent Transit-Dependent Population



Source: U.S. Census Bureau, Five-Year 2013 American Community Survey

SR 7 MULTIMODAL IMPROVEMENTS CORRIDOR STUDY

CHAPTER 3-B:
LAND USE ANALYSIS

SECTION 3.5: LAND USE ANALYSIS INTRODUCTION

Land use and transportation planning are inextricably linked, as building a physical environment that can successfully support all modes of transportation requires the close integration of land use policy and transportation infrastructure investments. This chapter documents the existing and potential land use environment within the SR 7 corridor study area and identifies locations that could benefit from infill and redevelopment activities that support the multimodal vision for the corridor.

This chapter includes the following sections:

- **Urban Form Principles** – introduces proactive planning measures that local governments can use to enhance the land use environment within the SR 7 corridor to further multimodal connectivity, walkability, and enhanced transit.
- **Local Land Use Planning Efforts** – discusses past planning efforts for the SR 7 corridor and documents local land use planning efforts undertaken to implement the urban form principles previously discussed, consistent with the multimodal vision for the corridor.
- **Mobility Hub Redevelopment Potential** – examines the redevelopment potential of each Mobility Hub within the corridor study area based on both quantitative and qualitative analyses of land use characteristics.

SECTION 3.6: URBAN FORM PRINCIPLES

The choice to take transit, walk, or bike is first and foremost influenced by the presence of the necessary multimodal infrastructure and services between the origin and destination, such as safe sidewalks and bicycle facilities and convenient transit service. The choice not to drive also is strongly influenced by the surrounding built environment. Density is frequently argued to be the most important aspect of the built environment that influences travel behavior. However, the mere proximity of density to transit, sidewalks, and bicycle facilities does not guarantee that people will choose an alternative mode of travel over driving. Other factors, including the mix of surrounding land uses, connectivity between the transportation system and land use, and urban form/design also collectively influence a person's choice to take transit, walk, or bike rather than drive.

This section documents different urban form principles that can help implement transformative land use strategies to support the multimodal vision for the corridor, while at the same time preserving and enhancing the character of nearby neighborhoods. These strategies include:

- Increased density near transit
- Mix of uses and transit-supportive design
- Connectivity
- Urban form and design
- Transition to neighborhoods
- Incentivizing alternatives to automobile travel

INCREASED DENSITY NEAR TRANSIT

The positive relationship between density and transit ridership has been widely supported in the academic literature. Research shows that riders will typically walk up to ½ mile to access high-capacity transit and ¼ mile to access bus transit. However, density alone does not typically provide a transit-supportive environment. Although multiple studies have found an elastic relationship between density and transit ridership, other factors such as destination accessibility (developing in a central location) and design (street connectivity) collectively have the greatest influence on reducing the level of driving; however, density typically is inherent in these other variables that reduce auto travel and

encourage alternative travel modes variables (e.g., high-density areas typically have mixed uses and short/interconnected streets and are centrally located).[6]

As previously discussed in Chapter 3-A: Baseline Conditions, transit-supportiveness levels are representative of the quality of service that could be supported by the existing urban intensity, defined as the total number of persons (residents and employees) per acre. The transit supportiveness levels are characterized by the following categories:

- *Low* (15–30 persons per acre) – supportive of basic bus service (15–30-minute headways)
- *Medium* (31–45 persons per acre) – supportive of enhanced-bus service, such as high-frequency (10-minute) service and BRT service
- *High* (greater than 45 persons per acre) – supportive of enhanced transit modes including BRT and light rail

The urban intensity analysis completed for the SR 7 corridor reflects the existing (2010) and projected (2040) population and employment density data from the SERPM. This analysis shows that the most transit-supportive areas today are in the mid-section of the corridor between Commercial Boulevard and Broward Boulevard to the east of SR 7. In general, the remaining areas of the corridor are supportive of basic bus service. Since there are anticipated to be moderate changes to both population and employment densities between 2010 and 2040, little change to the urban intensity is anticipated by 2040.

MIX OF USES AND TRANSIT-SUPPORTIVE DESIGN

Residential uses typically are where transit trips start, whereas employment and retail uses typically are destinations. Looking at either residential or employment density in isolation may miss the entire picture on transit-supportive densities. As previously discussed related to urban intensity, land use mix will have an impact on travel behavior at various scales within a transit corridor. The presence of major employment or activity centers such as hospitals, shopping malls, or college campuses can generate significant transit ridership to these destinations.

A mix of residential, recreational, and employment uses within more concentrated areas around a transit station can foster higher rates of walking and biking or provide a more attractive transit trip destination by accommodating multiple trip purposes at a single transit stop. A mix of retail and employment uses also creates opportunities for workers to make secondary trips during the day without the need for a car.

[6] Reid Ewing and Robert Cervero, "Travel and the Built Environment," *Journal of the American Planning Association,* 76(3), 265–294, May 11, 2010.

CONNECTIVITY

Connectivity refers to the degree to which streets, roads, and pedestrian routes are joined together. The more connected the street/pedestrian network, the more access and circulation options are provided. If an area has a high degree of connectivity, it provides many travel routes and reduces the extent to which all travelers must rely on one route. This can help alleviate automobile congestion by providing more ways for drivers to reach destinations more efficiently, allow the corridors to maintain their current width or be narrowed through a road diet to accommodate other forms of transportation, and create a physical environment that is conducive to mixed-use development and increased transit ridership. Increasing the number of multimodal routes that connect with transit-oriented corridors also will allow pedestrians and bicyclists who live and work near the corridor to more efficiently access transit stations and mixed uses that support a transit oriented urban environment.

URBAN FORM AND DESIGN

In locations with dense land uses, local jurisdictions also should promote a pedestrian-friendly public realm and regulations to discourage uses and building types and designs that are incompatible with transit-oriented development. These approaches, such as public realm design, site orientation, and ground floor design, complement land use density in maximizing transit ridership and promoting walkable and bikeable environments.

Public Realm Design

The 'public realm' refers to space that is publicly-owned, accessible, and maintained and includes streets, pathways, and parks. It also can refer to privately-owned space between the right-of-way (ROW) and building frontages. Design enhancements to the public realm along major corridors provide more appropriate facilities for transit, transit-users, and mixed uses that are supportive of transit. Routes to these facilities should be safe and comfortable, which can be achieved by providing a physical buffer between high-speed traffic and pedestrians through the provision of parallel parking, a larger sidewalk, or a tree planting strip. The latter also will provide a shade canopy, which is especially important in creating comfort on corridors in Florida's sunny and hot climate.

Site Orientation

Site orientation is how buildings are located on a property parcel in relationship to the street and sidewalk (the public realm). A building's relationship to the public realm is important because it creates an enclosure along the street, which helps to create a comfortable environment for pedestrians. Site orientation is an essential element in the development of a transit-supportive area because it can increase the efficiency of travel for transit users and pedestrians. When buildings, rather than a parking lot, are located directly adjacent to the public realm, walking distances between transit

stations and destinations are shorter and the pedestrian environment is more pleasant. This situation is more inviting for all users, including those who use transit frequently or more vulnerable populations, such as older adults, persons with health impairments, and parents with small children. Additionally, it is common for parking lots located between a sidewalk and a building to provide little or no circulation infrastructure for pedestrians. This can contribute to lack of safety and comfort along the corridor.

Ground Floor Design

Regulating the design and use of the ground floor of buildings adjacent to pedestrian space and transit facilities can have a significant effect on the safety, comfort, and commercial success of the corridor. To achieve this, the interior space adjacent to the public realm should be inhabited by people for an active use, and a majority of the façade should be transparent to allow maximum interaction between public and private spaces. Additionally, active uses and interaction between interior and exterior spaces along the corridor will contribute to placemaking opportunities, thereby attracting a variety of users. This will create a healthy atmosphere for mixed uses and premium transit to thrive. If transit is integrated into a place where people naturally want to spend time, ridership can benefit.

TRANSITION TO NEIGHBORHOODS

As SR 7 redevelops over time, it is important to protect the character of adjacent neighborhoods by regulating the transition from higher densities and more intense land uses to lower-density and single-family residential development. Although a positive characteristic of mixed-use zoning is that it allows a wide variety of uses along a corridor, it is important that land directly adjacent to private residential property be protected from unnecessary smell, noise, or light pollution. Additionally, a gradual increase in residential density around and behind mixed-use/non-residential uses along the corridor will buffer the neighborhood edges. Although people enjoy living near retail uses, it is common that they want to preserve the existing natural environment that is found in many urban neighborhoods.

INCENTIVIZE ALTERNATIVES TO AUTOMOBILE TRAVEL

Travel choices often are influenced by the relative costs associated with different modes of travel. Policies and requirements that reduce the costs of automobile travel can reduce the benefit of transit-oriented development, even during the planning stages.

For example, having a traditional roadway-based concurrency program may require new development, even in areas with high levels of transit service, to widen streets and fund other roadway and intersection improvements that prioritize cars over transit and other modes. An alternative approach is to employ a multimodal-based concurrency program that implements measures to enhance mobility across all modes, including through demand management and transit, and bicycle and pedestrian

improvements. Broward County has designated 10 concurrency districts, 2 of which are traditional roadway concurrency districts and the remaining 8 of which are transit concurrency districts. The entirety of the SR 7 study area falls into various transit concurrency districts, where the level of service standard is based on transit performance.

Post-development, parking management is another example of where public policy can greatly influence the costs of driving versus taking transit or other alternative mode. Policies and practices that undercut transit-supportive planning include free parking, minimum parking requirements for new development, and land dedicated for transit station parking that may conflict with potential for residential or commercial uses in close proximity to the station.

Reducing or eliminating requirements for off-street parking where the transit service level is high, employing shared parking, particularly in mixed-use districts, or variable on-street parking pricing to maximize supply and access across periods of variable demand can encourage use of transit, walking, or biking.

SECTION 3.7: LOCAL LAND USE PLANNING EFFORTS

The SR 7 corridor passes through a number of local jurisdictions. Ensuring that the corridor redevelops in a cohesive manner, yet is compatible with the character of each community it touches, takes significant planning and coordination. This section documents the ongoing collaborative planning process to establish a redevelop plan for the SR 7 corridor and discusses the local land use policies and programs that have been developed to implement both the corridor-wide and local visions for the corridor.

SR 7 COLLABORATIVE PLANNING PROCESS

The State Road 7/US 441 Collaborative was formed in 2001 as a regional partnership to address the economic and aesthetic conditions of the SR 7 corridor in Broward County. Members of the Collaborative include 16 local jurisdictions along the corridor and Broward County, with support from the Broward MPO, FDOT District 4, and the South Florida Regional Planning Council (SFRPC).

Community Charrette Process

In 2003, the Collaborative received a $1.9 million grant from the Federal Highway Administration (FHWA) to fund a corridor strategic master plan to lay the framework to promote smart growth principles, planning studies, and implementation strategies for the future. The first task was a market assessment of the entire corridor. Building on this market assessment, each of the 16 jurisdictions had the opportunity to develop a vision for their community through a series of charrettes that engaged local citizens and businesses. Completed between 2003 and 2005, these charrettes identified

implementation issues that included the need for a new land use designation. In 2005, with the help of the Broward County Planning Council, the Transit Oriented Corridor (TOC) land use designation was adopted for the SR 7 corridor. The TOC land use designation is designed to implement and encourage the redevelopment of lands in a transit-supportive manner along premium transit corridors by providing a mix of land uses, density, and design that will encourage transit usage, walkability, and a sense of place. The community charrette process also spurred the development of several community master plans for the SR 7 corridor, which were followed by amendments to the local comprehensive plans to put the appropriate policies in place to foster redevelopment along SR 7.

Sub-Area Planning Studies

The individual community vision plans stemming from the charrette process have implemented many subsequent improvements and spurred additional planning studies to redevelopment the SR 7 corridor, including the following:

- **The Sustainable Corridor Study** – In 2002, the Regional Plan Association and the Lincoln Land Institute studied the SR 7 corridor and analyzed its redevelopment potential. Their recommendations included a greater concentration of housing near the corridor, easier walking environments, and installing full-service bus stops and shelters throughout the corridor.
- **Transit and Housing Oriented Redevelopment (THOR) Initiative** – In 2008, Broward County used information gathered during the corridor charrette process to plan and direct redevelopment along a sub-area of the SR 7 corridor that runs ¼ mile to the east and west of SR 7 between Peters Road/Davie Boulevard and I-595 and has the capacity and infrastructure to accommodate mixed-use development. THOR's goal was to protect existing residential neighborhoods while addressing livability issues such as walkability and affordable housing within this sub-area.
- **Multimodal Quality of Service (MMQOS) Assessment** – This assessment was completed for existing bicycle, pedestrian, and transit infrastructure and services on SR 7 from Sample Road in Broward County north to Glades Road in Palm Beach County. A sketch planning tool was used to evaluate the effects of proposed transportation and land use strategies on the transportation network. Local governments within Broward County used these results to establish MMQOS standards.
- **Retail and Marketing Study** – This Lauderdale Lakes study from 2007 provided strategies for business retention and recruitment efforts. In 2008, another study was completed in Lauderdale Lakes, the *Streetscape Master Plan,* which designed and beautified specific corridors within the city and identified a landscape palette and theme.

- **Expendable Income Market Comparison Study** – The City of Lauderhill's Planning and Zoning Department conducted a 1-, 3- and 5-mile radius market comparison of the University Drive/Commercial Boulevard intersection and the SR 7/Sunrise Boulevard intersection based on expendable income and not gross income. The study determined that the difference between expendable and gross incomes was not substantial. The study also served as the basis for the City's acquisition of property at the SR 7/Sunrise Boulevard intersection.

Redevelopment and Beautification Efforts

Nearly all of the local jurisdictions have been involved with the revitalization of the SR 7 corridor to some degree. An 8-mile section of SR 7 in Margate was landscaped between 2000 and 2004 and repaved in 2010. At least 13 additional miles along SR 7 have had landscaping improvements, including portions of Tamarac, Lauderdale Lakes, Fort Lauderdale, Davie, and North Miami. Dozens of bus shelters also either have already been constructed or have been committed to be in nearly every city participating in the Collaborative.

LOCAL POLICY AND CODE REVIEW

Most of the local jurisdictions along SR 7 involved with the Collaborative have implemented corridor-specific policies within the respective comprehensive plan and/or design guidelines for redevelopment along the corridor. The remainder of this section discusses the different land use planning efforts undertaken by the local jurisdictions since the Collaborative was formed.

Broward County

There is very little unincorporated land within the SR 7 corridor study area, limited to a few parcels between North Lauderdale and Fort Lauderdale bordering the Florida Turnpike and along Stirling Road west of SR 7 (surrounded by the Seminole Reservation), as well as a small area north of I-595 between Florida's Turnpike and SR 7. However, despite nearly the entire study area being incorporated, land use and transportation issues require the County's support and participation. Within Broward County, land use planning is coordinated at a countywide level by the Broward Planning Council.

Broward County Land Use Plan

The Broward Planning Council, established in 1975 through the Broward County Charter, is tasked with preparation of a countywide land use plan. The Charter established the Broward County Land Use Plan as the official land use plan and requires that all local land use plans be consistent with this countywide plan. As required by State law, local jurisdictions must prepare their own Future Land Use plans, which are submitted to the Broward Planning Council for review and consistency with the Broward County Land Use Plan. If certified by the Broward Planning Council, the local plan becomes the land use guide for that jurisdiction. Several local jurisdictions have adopted the following county-

approved land use designations that are intended to create a denser, transit-supportive environment along the corridor.

- **Transit-Oriented Corridor Land Use Designation** – As previously noted, the SR 7 collaborative planning process identified the need for new land use designation for SR 7. The Collaborative worked with the Broward County Planning Council to create the TOC land use designation, which was adopted into the Broward County Land Use Plan in 2005. As discussed further in this section, the TOC designation has been adopted into several local comprehensive plans to implement transit-supportive redevelopment along SR 7. Key characteristics of the TOC as outlined in the Broward County Land Use Plan include:
  - A proposal by a local government for a specific land area to be provided the TOC designation. This designation may be applied only to areas within approximately ¼ mile on either side of the mainline transit corridor. The area may extend beyond ¼ mile around all major intersections, activity nodes, and locations served by existing or funded community shuttle service.
  - Residential use is required as a principal component within a TOC. Maximum residential density must be specified by the local government, may vary along the corridor, and must be described in the permitted uses section of the Broward County Land Use Plan.
  - At least two non-residential uses must be permitted in the designated area as a principal use–e.g., retail, office, restaurants and personal services, hotel/motel, light industrial (including 'live work' buildings), research business, civic, and institutional.
  - Minimum and maximum floor area ratios (FAR) for non-residential uses within a TOC must be specified by the local government and described in the Permitted Uses section of the Broward County Land Use Plan. Minimum non-residential gross FARs of 2.0 are encouraged.
  - Additional or expanded stand-alone automobile-oriented uses (e.g., large surface parking lots, gas stations/auto repair/car washes, auto dealers, self/equipment storage, 'big box'/warehouses, single-family detached dwelling units, and drive-through facilities) are discouraged within a TOC.
  - Public plazas, urban open space, or green space/pocket park uses that are accessible to the public must be provided.
  - Local land use element policies must include guiding principles for municipal design guidelines to adequately address the transition to adjacent residential development and to promote connectivity to transit stations and stops.
  - Local land use element policies must include design features that promote and enhance pedestrian mobility, including connectivity to transit stops and stations.
  - Local plan policies must include requirements for internal pedestrian and transit amenities to serve the residents and employees within the TOC area.

- Local land use element policies that recognize transportation impact analyses for development projects proposed within a TOC must consider the modal shift provided through the provision of transit and the transit-oriented design.
- An interlocal agreement between the municipality and Broward County must be executed no later than six months from the effective date of the adoption of a TOC land use designation, which provides that monitoring of development activity and enforcement of permitted land use densities and intensities shall be the responsibility of the affected municipality.

- **Regional Activity Center Land Use Designation** –The Regional Activity Center (RAC) land use designation is intended to encourage development or redevelopment of areas that are of regional significance. The major purposes of this designation are to facilitate mixed-use development, encourage mass transit, and non-motorized transportation, reduce the need for automobile travel, provide incentives for quality development, and give definition to the urban form. This designation will be applied only to areas that are of regional significance. An RAC must be designated for a specific geographic area consisting of at least 160 gross contiguous acres. Key characteristics of the RAC as outlined in the Broward County Land Use Plan include:
  - A mix of land uses of regional significance, including residential uses.
  - Local land use element policies that ensure that performance and design standards are adopted within local land development regulations that provide for an interconnected street network, a safe and attractive pedestrian environment, and multi-modal transit connections.
  - Local land use element policies that provide that design standards are adopted within local land development regulations ensuring compatibility between existing and planned land uses within and adjacent to the RAC.
  - Integration of open space that is accessible to the public (i.e., greenways, public plazas, recreational areas) within the RAC to enhance pedestrian/non-motorized activities and connectivity.
  - Requirement of an interlocal agreement between the municipality and Broward County must be executed that provides that monitoring of development activity and enforcement of permitted land use densities and intensities shall be the responsibility of the affected municipality.

- **Local Activity Center Land Use Designation**—The Broward County Land Use Plan also allows for the designation of a Local Activity Center (LAC) within a local jurisdiction. The intent of this designation is to support a balanced mix of land uses characterized by compactness, pedestrian-friendly design, neighborhood scale, and framed by architecture and landscape design appropriate to local history and ecology. Smaller than its RAC counterpart, the LAC is

intended to not exceed 160 gross contiguous acres unless located within an approved CRA district. If 75% of the originally-designated LAC is developed/redeveloped, then an expansion of up to 100% may be proposed. Key characteristics of the LAC as outlined in the Broward County Land Use Plan include:

- Both residential uses and park land and/or open space and one or more other uses such as commercial, civic, institutional, or employment-based.
- Land uses and design that promote walkability and ensure convenient access to transit; 75% of the land within a LAC must be located within a ¼ mile of mass transit or multi-modal facilities of (existing or planned upon buildout).
- Consideration for community needs for affordable housing.
- Within a local government's land use element, policies that promote the rehabilitation and use of historic buildings within a proposed LAC.
- Within a local government's land use element, design guidelines that incorporate pedestrian and bicycle paths and greenways to accomplish fully-connected routes to all destinations within the LAC.
- Safe and convenient access to mass transit or multi-modal facilities.
- Incorporation of transit shelters in the local design guidelines to provide safe and comfortable service and encourage transit usage.
- Within a local government's land use element, policies that promote the development of key intersections or major transit stops to create nodes of development
- An interlocal agreement between the municipality and Broward County must be executed no later than six months from the effective date of the adoption of the LAC, which provides that monitoring of development activity and enforcement of permitted land use densities and intensities shall be the responsibility of the affected municipality.

City of North Lauderdale

North Lauderdale encompasses approximately 3.9 square miles, with 2.8 miles of frontage on SR 7/US 441. The approved land use along the SR 7 corridor is primary community commercial and residential/multifamily with densities of 10.01–16 units per acre.

City of Margate

Margate encompasses approximately 9 square miles, with 7.8 miles of frontage on SR 7. The City's corridor charrette process was completed in October 2003. Since that time, the Margate Community Redevelopment Agency (MCRA) and City staff have being working to implement its recommendations. A TOC land use was adopted for the entire SR 7 corridor area between Sample Road to the north and the city limits to the south in October 2007, and the following year the City adopted form-based land development regulations within the TOC area.

Objective 13 of the City's Future Land Use Element outlines various land use and development policies for the TOC area, specifically:

- Redevelopment and development of the TOC area must be guided with the approved City of Margate State Road 7/441 Corridor Master Plan.
- The TOC land use category must facilitate mixed use development with access to transit stations or stops along existing and planned high performance transit service corridors.
- Office, industrial, and residential uses must be the principal uses; however, residential use is requirement as a principal component to facilitate mixed-use development. The location of residential uses must be consistent with the SR 7/441 Corridor Master Plan. Stand-alone residential buildings that are not part of an overall mixed use project must be discouraged unless supporting commercial and office is within 1000 linear feet.
- A total of 15% of the residential units must be provided as affordable housing.
- Additional or expanded stand-alone automobile-oriented uses and drive-through facilities are discouraged unless designed in a manner to encourage pedestrian and transit usage or strategically located interior to the TOC, preserving the streetscape and consistent with the adopted SR 7/441 Corridor Master Plan.
- All development projects must ensure that all parcels of land have sidewalk connections leading to transit stops.
- Development within the TOC is encouraged to provide amenities to support transit stops and riders.
- Existing and proposed residential development must be designed to be integrated into the existing neighborhoods created through the implementation of the TOC.
- Compatibility and appropriate transitional design elements will be reviewed at time of site plan review to ensure that existing industrial uses will not become incompatible with new development.
- Public plazas, urban open space, or green space/pocket parks uses that are accessible to the public must be provided as an integrated component within the TOC.
- Consistent with the intent of a TOC land use category, design features must be required that promote and enhance pedestrian mobility, including connectivity to transit stops and stations. Internal pedestrian and transit amenities to promote alternative modes of transportation must be required as part of the development review process.

- Any required transportation impact analysis must consider the modal shift provided through the provision of transit and transit oriented design.

In addition to being designated as a TOC, the entire SR 7 frontage is included within the MCRA district. As outlined in MCRA's FY 15/16 Strategic Marketing Plan, a key goal is to facilitate the development of the Margate City Center, a central 'town center' consistent with the 2003 charrette process that is located within the study area at the intersection of Margate Boulevard and SR 7. The Margate City Center site is centrally located within the redevelopment area and is a 36-acre site owned by the MCRA. The MCRA's goal is to redevelop the site as a mixed-use neighborhood with recreational opportunities by leveraging public-private partnerships. Per the MCRA's Strategic Plan, the center is envisioned to be a walkable community anchored by retail, dining, and leisure activities and also will have a residential component, public open space, a waterfront promenade, a community center, and an amphitheater for outside entertainment and events. Projected groundbreaking on this project is anticipated to occur in late 2017.

City of Coral Springs

Coral Springs encompasses approximately 25 square miles, with 3.5 miles of frontage along SR 7 (although only the eastern side of the SR 7/Sample Road intersection lies within the study area). The northeast quadrant of the SR 7/Sample Road intersection has a commercial designation in the City's Future Land Use Map, and the southeast quadrant includes high-density residential (20.01–40.00 units per acre) immediately adjacent to the intersection, surrounded by general commercial.

City of Coconut Creek

Coconut Creek encompasses approximately 12 square miles, with 3.8 miles of frontage on SR 7 (although only the northwest quadrant of the SR 7/Sample Road intersection lies within the study area). The Seminole Tribe of Florida also owns land within this area and currently operates the Seminole Coconut Creek Casino there.

The corridor charrette was completed in December 2005, and the City has incorporated several redevelopment initiatives and continues to plan for future economic development and sustainable growth, including land use changes and rezoning. The City has designated the area bound by Wiles Road, on the south by Sample Road, on the east by Lyons Road, and on the west by State Road 7 as an RAC. Redevelopment of city land within the study area would be subject to the maximum allowable densities and intensities specified for the RAC in the City's Comprehensive Plan. The City's Comprehensive Plan includes policies that encourage the use of alternative modes of transportation.

City of Plantation

Plantation encompasses approximately 22.8 square miles, with 4.5 miles of frontage on SR 7 along the eastern city limits. The Plantation Gateway District, the City of Plantation's CRA, includes

both sides of SR 7 from Davie Road to Sunrise Boulevard. Early planning efforts include a master plan and design guidelines for the SR 7 corridor. The SR 7 Citizen's Master Plan borne from the SR 7/US 441 Collaborative is an integral part of the Plantation Gateway Redevelopment Plan, which was updated in January 2006 to reflect the adoption of the latest City ordinances and anticipated impacts on future development and redevelopment of the Gateway District.

In September 2004, the City adopted an LAC along SR 7 to spur redevelopment and economic activity and create residential land use capacity. The LAC designation provides higher density for future long-term residential, mixed-use residential, commercial, and office developments. Objective 1.17 of the City's Comprehensive Plan, Future Land Use Element outlines various land use and development policies for the LAC, specifically to:

- Support an internal circulation location of uses in a manner oriented around a five-minute (i.e., quarter-mile) walk and prioritize pedestrian mobility.
- Ensure that the LAC is directly assessed via pedestrian ways and accessible to existing or future alternative public transportation modes, including bicycle and transit.
- Connect multiple nodes of activity by pedestrian ways and/or transit services.
- Provide for a uniform streetscape program to include bus shelters and other transit-related improvements, bicycle facilities, pedestrian amenities, public landscape areas, and signage.
- Limit residential development to townhouse or multi-family to encourage compact development and integrated mixed-use development.

City of Tamarac

Taramac encompasses approximately 12 square miles, with only 1 mile of frontage on SR 7. The city is primarily a residential community, having developed in large planned communities, and today is essentially built out. Together, commercial and industrial uses comprise less than 15% of the city's land area. The SR 7 corridor is not part of the city's central business district, but it does intersect with Commercial Boulevard. The City's Future Land Use Map has designated land around the SR 7/Commercial Boulevard intersection as commercial.

City of Lauderdale Lakes

Lauderdale Lakes encompasses approximately 4.5 square miles, with 3.9 miles of frontage on SR 7. The entirety of the SR 7 frontage within Lauderdale Lakes falls within the City's CRA. The SR 7/US 441 Collaborative, which resulted in the development of the Lauderdale Lakes Citizen's Master Plan, was adopted by the City Commission CRA in 2005. Under the Citizen's Master Plan, all new city projects are regulated to support the Master Plan. The City was required to make several

land use and zoning changes following the adoption of the Citizen's Master Plan. In 2006, the City amended its Comprehensive Plan to include the mixed-use LAC land use designation.

The LAC, including portions of both sides of SR7 between the C-13 Canal and Oakland Park Boulevard, changed 144 acres from a commercial land use designation to an LAC, and the amendment's text stipulated a total of 3,000 dwelling units, 300 lodging rooms, 500,000 square feet of commercial, 5 acres recreation and open space, and 5 acres of community facility use within the LAC. Within the LAC is the Lauderdale Lakes Town Center, which comprises all four corners of the SR 7 & Oakland Park Boulevard intersection as well as the 32-acre Bella Vista site directly to the east. Along with mixed-use development, greenspaces and a 'main street' vibe are key components of the Lauderdale Lakes Town Center vision. This includes redesigning the existing streets and treating them as public spaces that should be attractive to and filled with pedestrian activity.

City of Lauderhill

Lauderhill encompasses approximately 8.6 square miles, with 2.9 miles of frontage on SR 7/US 441. The entirety of the SR 7 frontage within Lauderhill falls within the City's CRA. In 2004, the Lauderhill CRA facilitated the development of the State Road 7 District Plan. From there, planning efforts for the SR 7 corridor were folded into the corridor charrette process borne from the SR 7/US 441 Collaborative, resulting in a Citywide Master Plan adopted in 2006. This Master Plan emphasized the importance of the SR 7 Corridor/Lauderhill Mall area as a high-ridership transit route and key transfer center to the local transit network.

To help facilitate higher density and transit-oriented uses along the SR 7 corridor, the City designated the Lauderhill City Center as a development of regional impact (DRI) to facilitate the relocation, expansion, and enhancement of the existing transfer from the Lauderhill Mall closer to SR 7 and to create a more walkable, mixed-use district by developing the Lauderhill Mall, a downtown area, focused around the transit center and providing additional road connectivity to alleviate congestion. The new Lauderhill transit facility is currently in the design phase and is expected to be completed in late 2017/early 2018.

City of Fort Lauderdale

Fort Lauderdale encompasses approximately 35.5 square miles, with 1.9 miles of frontage on the eastern side of SR 7/US 441. In the northwestern city limits, land abutting SR 7 is stormwater retention to support Florida Turnpike/ SR 7 interchange. The majority of land in Fort Lauderdale within the SR 7 corridor is at the southwestern city limits. Parcels adjacent to SR 7 are designated as commercial uses,

with medium-density single family residential (8 units per acre) immediately to the east of these commercial uses.

City of Dania Beach

The City of Dania Beach encompasses approximately 6.25 square miles with very minimal frontage along SR 7 (approximately 250 linear feet at the northeastern city limits), as land within Hollywood provides a small buffer between SR 7 and the western Dania Beach limits. Properties within western Dania Beach that fall within the eastern study area buffer consist primarily of low to medium density residential uses. While SR 7 is not within Dania Beach's jurisdiction, SR 7 is a major access route between western Dania Beach and other areas of central Broward County, particularly I-595 and the Florida Turnpike via SR 7 to the north.

City of West Park

West Park encompasses approximately 2.2 square miles, with 1.6 miles of frontage on SR 7. In 2006, the City redesignated the SR 7 corridor as a TOC land use designation. The City has also adopted into the zoning code specific building architectural styles to ensure that new development within the TOC is attractive for residents, visitors, and business customers. To ensure that new buildings are painted with appropriate, attractive, and compatible colors, the City Commission approved an ordinance on March 21, 2012, that requires all new buildings and existing buildings use paint within the West Park Transit-Oriented Corridor Color Palette.

Town of Davie

Davie encompasses approximately 35.5 square miles, with 3.5 miles of frontage on SR 7. Following the corridor charrette process, the Town adopted the State Road 7/441 Corridor Master Plan in September 2005. From that, the Town amended its comprehensive plan to implement a TOC land use designation for SR 7 between I-595 on the north and the Seminole Casino on the south. The redevelopment potential for the Town's TOC area includes 6,428 residential units, 1.7 million square feet of office space, 3.6 million square feet of industrial/flex space, 600,000 square feet of commercial space, and 750 hotel rooms. The majority of the SR 7 frontage in Davie lies within the City's CRA, although there is SR 7 frontage outside the CRA boundary.

Objective 13.1 of the Town's Future Land Use Element includes policies to guide development of the TOC consistent with the adopted Town of Davie State Road 7/441 Corridor Master Plan, specifically:

- The TOC must facilitate mixed-use development with access to transit stations or stops along existing and planned high performance transit service corridors.

- Residential use is a required component within the TOC. The location of residential uses must be incorporated into a mixed-use project or mixed-use building, with the location of residential uses consistent with those identified within the SR 7/441 Corridor Master Plan.
- Maximum residential density must not exceed 32 units per gross acre, and no more than a total of 3,428 residential dwelling units can be permitted within the SR7/441 TOC during the planning horizon of 2015.
- A total of 15% of the residential units must be provided as affordable housing.
- Additional or expanded stand-alone automobile-oriented areas are discouraged.
- The redevelopment and development within the TOC must ensure that all parcels of land have sidewalks connecting to transit stops.
- The Town must coordinate and collaborate with the CRA for the implementation of the SR7/441 Corridor Master Plan.
- Existing and proposed residential development must be designed to be integrated into the existing neighborhoods created through the implementation of the TOC.

City of Hollywood

Hollywood encompasses approximately 30.8 square miles, with 7.3 miles of frontage on SR 7. The City has designated the SR 7 Corridor as a TOC to facilitate mixed-use development with access to transit stations or stops along existing and planned high-performance transit service corridors. The area within ¼ mile on either side of the corridor, with additional distance permitted around major intersections, activity nodes, or locations served by existing or funded community shuttle service, is considered part of a TOC. There are approximately 987 acres of land designated as the SR 7 TOC within Hollywood.

Today, there are specific design guidelines within the TOC to encourage connectivity between uses and to transit facilities. Stand-alone, low-density, and low-intensity development is discouraged unless designed in a manner to encourage pedestrian and transit usage.

In recent years, the City of Hollywood has began to see positive growth within the SR 7 commercial district that is helping to improve the quality of life for its residents, empoyees, and visitors. Infrastructure Infrastructure improvements are also helping to contribute to the revitalization of the SR 7 corridor. In addition to the ongoing SR 7 reconstruction project to widen SR 7 and provide pedestrian safety features and enhanced transit amenities, the City is also its water lines and adding sewer lines along the corridor that will include additional capacity for future growth. To help facilitate further redevelopment within this area, Hollywood is in the process of updating it's current zoning code within

the SR 7 commercial district. The goal of the is to build upon the existing character and assets and rezone all properites within the TOC, remove the underlying zoning, consolidate the number of zoning districts, and widen commerciall depth.

City of Miramar

Miramar encompasses approximately 31.2 square miles, with 1.6 miles of frontage on SR 7. In 2009, the City adopted the TOC land use designation for the SR 7 corridor. Following designation of the TOC, the City rezoned 440 acres of property in Historic Miramar from various uses to the TOC district, allowing for commercial, office, residential, hotel, and park uses. Any proposed development in Miramar's TOC must be designed as an integrated, mixed-use development with shop fronts at street level, wide pedestrian-friendly and multimodal sidewalks, and rear on-site parking and wrapped parking garages.

Local Policy and Code Review Summary

Table 3-8 summarizes the findings from the review of local policies and code relative to planning efforts for the SR 7 corridor study area.

Table 3-8: Local Policy and Code Review Summary

	Special Land Use Designations	Increased Densities	Mixed-Use/Transit-Supportive Design	Connectivity	Urban Form and Design	Transition to Neighborhoods	Incentivizes*
North Lauderdale							x
Margate	TOC, CRA	x	x	x	x	x	x
Coral Springs							x
Coconut Creek	RAC	x	x	x	x		x
Plantation	LAC, CRA	x	x	x	x	x	x
Tamarac							x
Lauderdale Lakes	LAC, CRA	x	x	x	x	x	x
Lauderhill	TOC, CRA	x	x	x	x	x	x
Fort Lauderdale							x
Dania Beach							x
West Park	TOC	x	x	x	x	x	x
Davie	TOC, CRA	x	x	x	x	x	x
Hollywood	TOC	x	x	x	x	x	x
Miramar	TOC	x	x	x	x	x	x

*Refers to participation in Broward County's Transit Concurrency unless otherwise noted.

SECTION 3.8: MOBILITY HUB REDEVELOPMENT POTENTIAL

MOBILITY HUBS CONCEPT

The Broward MPO's 2035 Long Range Transportation Plan (LRTP) created and defined the 'mobility hub' concept. Mobility Hubs are a transit access point with frequent transit service, high development potential, and a critical point for trip generation or transfers within the transit system.

As shown in Map 3-32, 13 locations along the SR 7 corridor have been identified as Mobility Hubs.

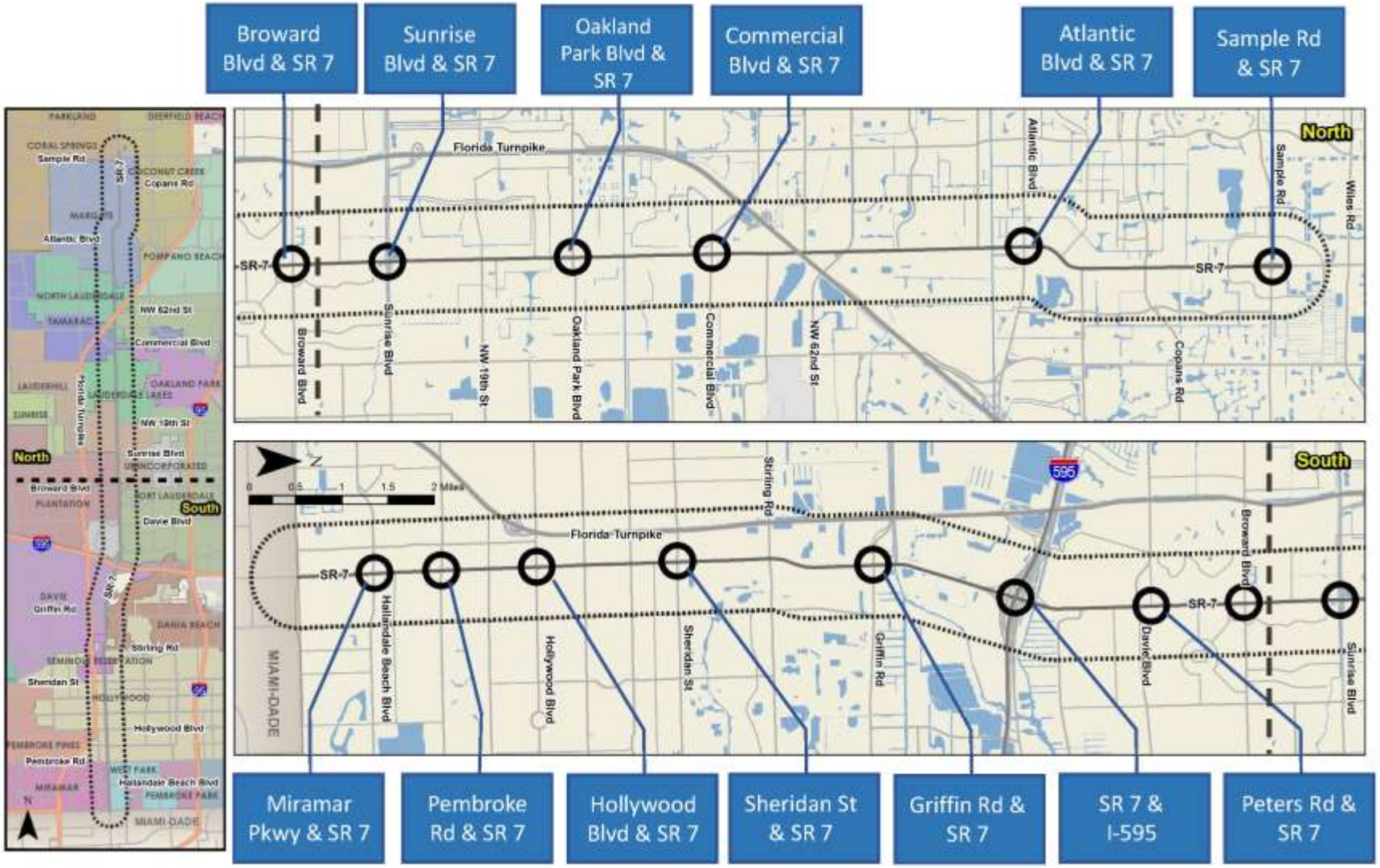
MOBILITY HUB PROFILES

A comprehensive assessment of the land use, property values and demographic/socioeconomic indicators was prepared as part of Chapter 3-A: Baseline Conditions. This chapter contains a detailed description of the multimodal supportiveness of the SR 7 corridor and serves as the basis for the data used to evaluate the redevelopment potential of each Mobility Hub presented in this section.

To assess the redevelopment potential of each Mobility Hub, a profile of existing land use characteristics for each Mobility Hub was developed. These profiles are presented following Map 3-32 and include the following information:

- Existing land use within a 0.5-mile radius around the mobility hub.
- Age of building structures on properties within a ¼-mile radius around the Mobility Hub.
- Market value of properties within a ¼-mile radius around the Mobility Hub, including:
  - Property value per acre
  - Building-to-land value ratio

Map 3-32: SR 7 Mobility Hub Locations



SR 7 & Sample Road Mobility Hub

Existing Property Use

Property Value per Acre

Year Built

Building-to-Land Value Ratios

Key Findings

At this location, SR 7 is an overpass with on/off ramps to access properties from Sample Road. Development within this Mobility Hub is primarily retail/office properties located behind ROW setbacks required to accommodate the interchange. Residential uses are located primarily behind commercial properties at the outer extents of the Mobility Hub. Within this Mobility Hub:

- 56% of parcels are designated as retail/office
- 57% of properties have a value of less than $1 million per acre
- 65% of buildings were built after 1990
- 74% of properties have a building-to-land value ratio less than 1:1

There are limited vacant properties for development, and the average value per acre and building age alone are not indicative of high redevelopment potential; however, the majority of properties have a low building-to-land ratio, indicating that, over time, redevelopment with uses of higher intensities may occur to maximize the overall value of the land.

The northeast quadrant of the Mobility Hub comprises primarily 'big box' stores with single-occupant retailers and buildings set back from the road surrounded by large surface parking lots, discouraging pedestrian access. Properties within the southeast and southwest quadrants comprise primarily smaller commercial buildings housed in shopping centers/plazas, resulting in higher average value per acre and building-to-land value ratios than those found in the northern half of the Mobility Hub.

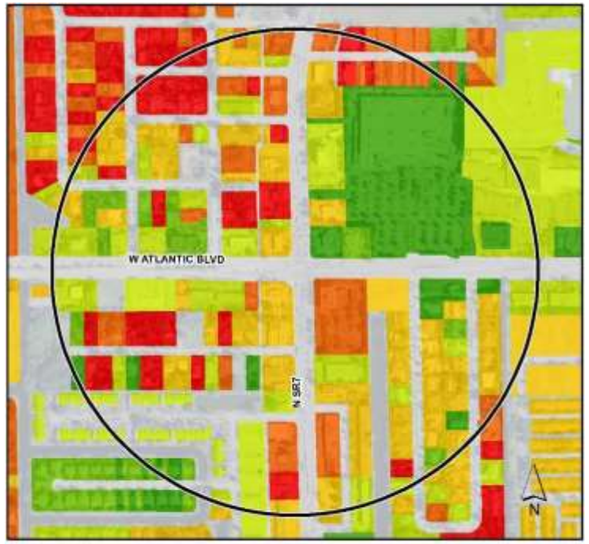
Although the age of the commercial properties at this Mobility Hub makes near-term redevelopment unlikely, there are opportunities to redevelop from single-use and lower-intensity development to mixed-use and higher intensities. The City of Margate's TOC designation for the southwest quadrant of this Mobility Hub ensures that redevelopment in this area will support a mix of uses and alternative modes while preserving the existing neighborhood. The City of Coral Springs should consider adopting local policies that would mirror the TOC on the eastern side of the Mobility Hub. Redevelopment in the northeastern quadrant will be integrated into the larger Coconut Creek RAC.

SR 7 & Atlantic Boulevard Mobility Hub

Existing Property Use

Property Value per Acre

Year Built



Building-to-Land Value Ratios

Key Findings

Development within this Mobility Hub is primarily residential property located behind small commercial properties bordering the roadway. Within this Mobility Hub:

- 38% of parcels are designated as residential
- 65% of properties have a value of less than $1 million per acre
- 51% of buildings were built before 1980
- 30% of properties have a building-to-land value ratio less than 1:1

More than half of the properties were built more than 35 years ago, which potentially could indicate a need for reinvestment; however, a majority of the properties have a relatively low value per acre, and only a limited number of vacant parcels are available, indicating a low desire for redevelopment.

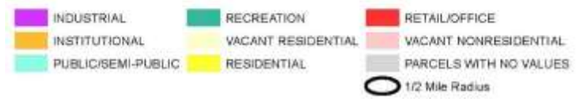
The northeast quadrant of the Mobility Hub is almost entirely covered by a Walmart Supercenter, which has been constructed relatively recently compared to development throughout the rest of the Hub area. Smaller retailers and restaurants line the intersection in the other three quadrants, with older residential parcels sitting behind them. Redevelopment within this Mobility Hub likely will focus on the commercial uses fronting SR 7, preserving the adjacent neighborhoods.

The Margate CRA intersects with the Mobility Hub and encompasses the entire northwest and northeast quadrants as well as the retail and commercial properties lining SR 7 in the southwest and southeast quadrants. The presence of the CRA in the Mobility Hub is a primary indicator for redevelopment potential, and the TOC designation applicable to land within this Mobility Hub ensures that redevelopment in this area will support a mix of uses and alternative modes.

SR 7 & Commercial Boulevard Mobility Hub

Existing Property Use

Generalized Land Use



Property Value per Acre

Value per Acre

Year Built

Year Built

Building-to-Land Value Ratios

Building-to-Land Value Ratio

Key Findings

A majority of the development within the Mobility Hub is retail/office with a mix of residential and industrial backing up to the commercial properties. Within this Mobility Hub:

- 36% of parcels are designated as retail/office
- 57% of properties have a value of less than $1 million per acre
- 62% of buildings were built before 1980
- 50% of properties have a building-to-land value ratio less than 1:1

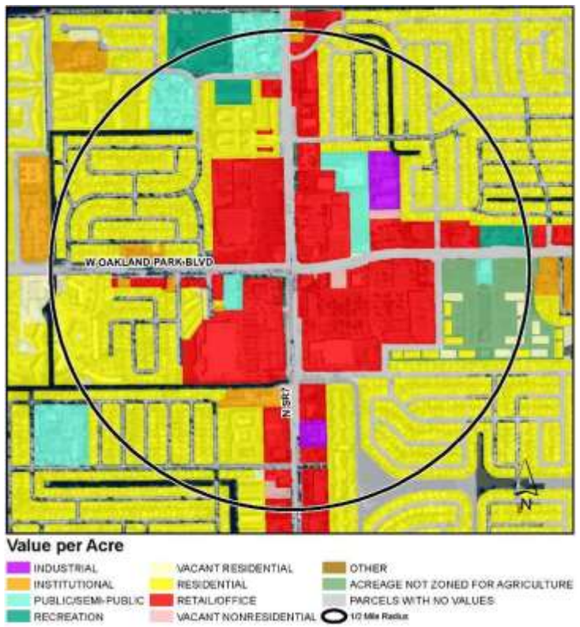
More than half of the properties within the Mobility Hub were built nearly 35 years ago and have a building-to-land value ratio below 1:1. With limited vacant parcels available and a majority of the properties having a low average value per acre, the overall potential for redevelopment is likely.

The entire half of the Hub area to the west of SR 7 was built between 1965 and 1972. The northwest quadrant contains a shopping center that is separated from the road by a large parking lot. The southwest quadrant features smaller retailers along SR 7 and a large neighborhood backing up to the commercial land, both areas having a relatively high building-to-land value ratio compared to the east half of the hub. Commercial property mixed with industrial land occupies the northeast quadrant. Here, the land value is slightly higher than the rest of the hub, ranging from $1 million to $2 million per acre, and the development of these parcels is relatively newer.

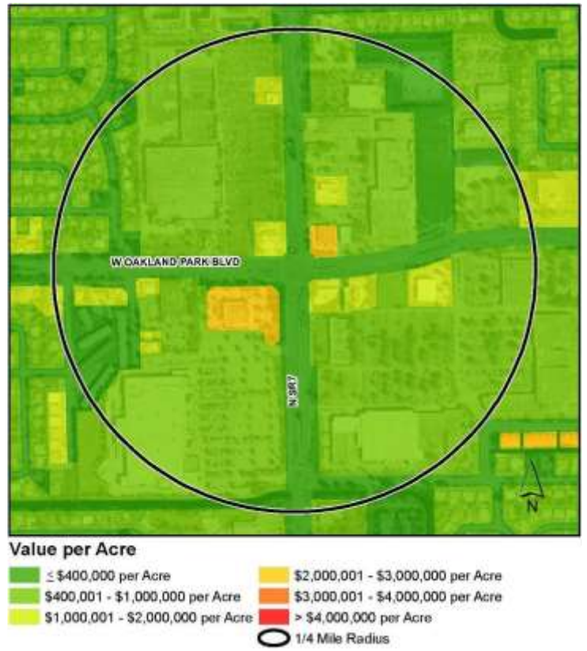
Under the City of Tamarac's Future Land Use Plan, land within this Mobility Hub is designated for general commercial. The City of Tamarac should consider adopting a TOC land use designation for the SR 7 corridor, consistent with the Broward County Land Use Plan to ensure that redevelopment in this area outside of the existing neighborhoods will support a mix of uses and alternative modes.

SR 7 & Oakland Park Boulevard Mobility Hub

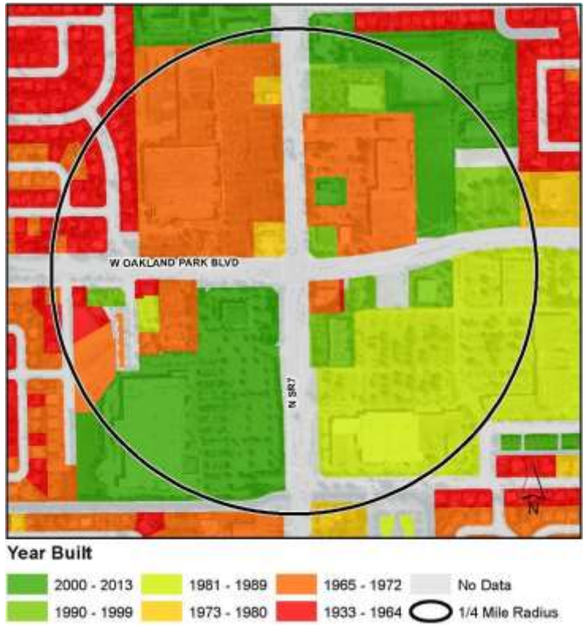
Existing Property Use



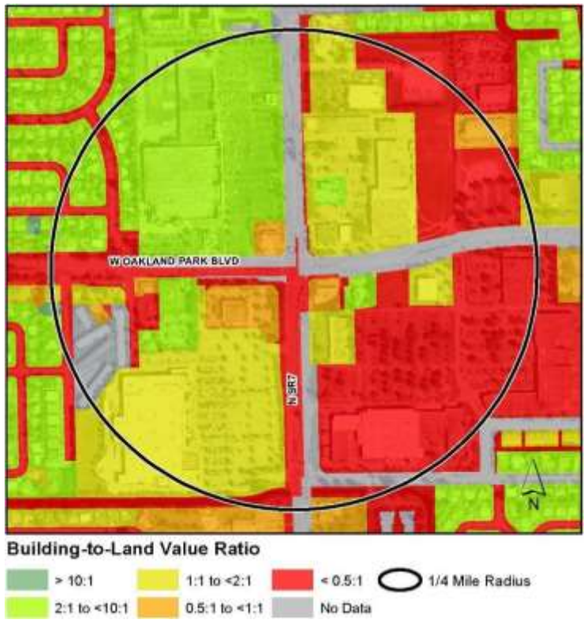
Property Value per Acre



Year Built



Building-to-Land Value Ratios



Key Findings

Development within this Mobility Hub is primarily residential, with large retail/office properties concentrated at the center of the intersection. Within this Mobility Hub:

- 44% of parcels are designated as residential
- 91% of properties have a value of less than $1 million per acre
- 63% of buildings were built before 1990
- 45% of properties have a building-to-land value ratio less than 1:1

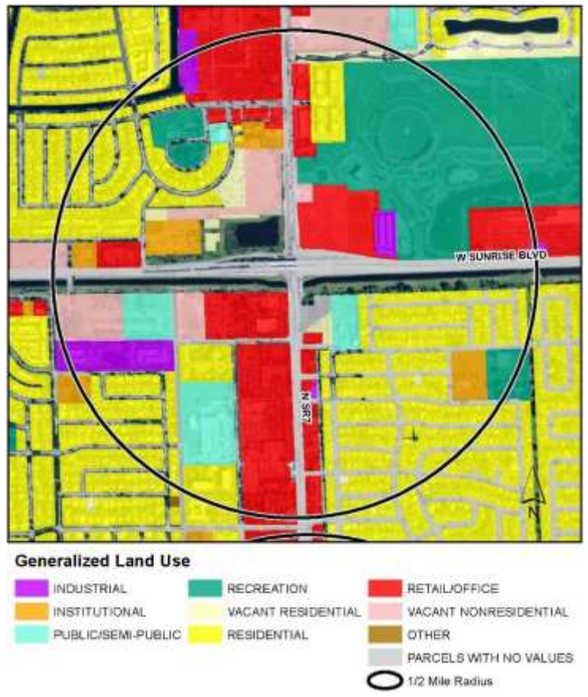
The large commercial properties circling the intersection comprises smaller retail buildings housed in shopping centers. These commercial properties are bordered by residential neighborhoods in all four quadrants.

Commercial properties in both the northwest and northeast quadrants were built more than 30 ago but have a relatively high building-to-land value ratio, which may discourage redevelopment. The southwest quadrant also is unlikely to undergo any near-term redevelopment based on the characteristics above, as the large retail space in this area has been developed in the last ten years or so and has a building-to-land value ratio of more than 1:1. The commercial property in the southeast quadrant has the most potential for near-term redevelopment because of its age (30 years) and its low building-to-land value ratio.

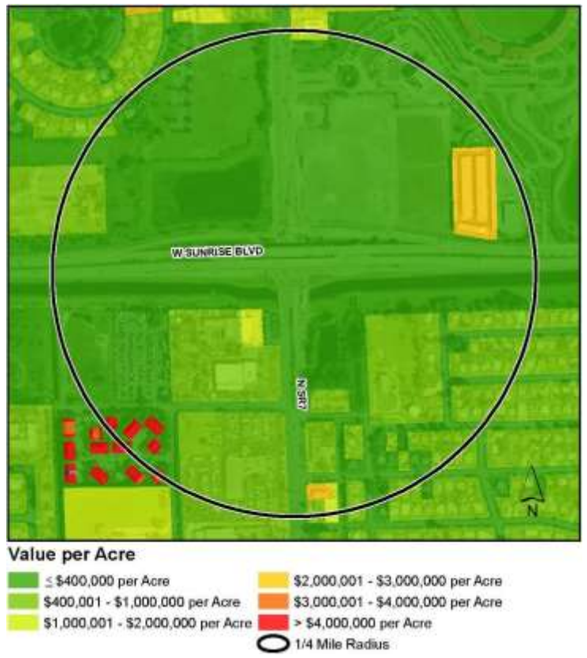
A primary indicator of high redevelopment potential, however, is the presence of the Lauderdale Lakes CRA, which encompasses nearly the entire hub area. In addition, this area is included under the City's LAC designation, which will guide redevelopment of the Mobility Hub consistent with the City's vision for the Lauderdale Lakes Town Center. Redevelopment potential is expected to be concentrated in the commercial properties most immediate to SR 7 and the intersection of SR 7 & Oakland Park Boulevard to preserve the established surrounding neighborhoods.

SR 7 & Sunrise Boulevard Mobility Hub

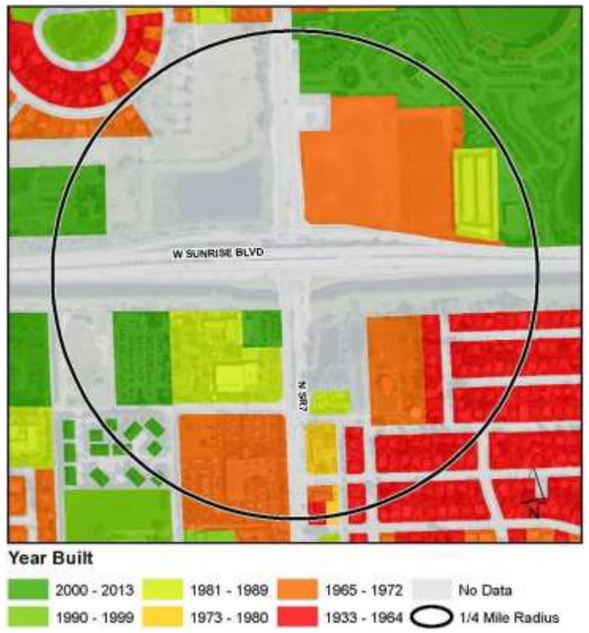
Existing Property Use



Property Value per Acre



Year Built



Building-to-Land Value Ratios

Key Findings

Development within this Mobility Hub is more diverse than most of the other Hubs along SR 7. Although a majority of the parcels are residential, it has the highest percentage of recreational land (18%) and vacant land (8%), as well as a significant percentage of retail/office space (19%). Within this Mobility Hub:

- 27% of parcels are designated as residential
- 94% of properties have a value of less than $1 million per acre
- 58% of buildings were built before 1972
- 76% of properties have a building-to-land value ratio less than 1:1

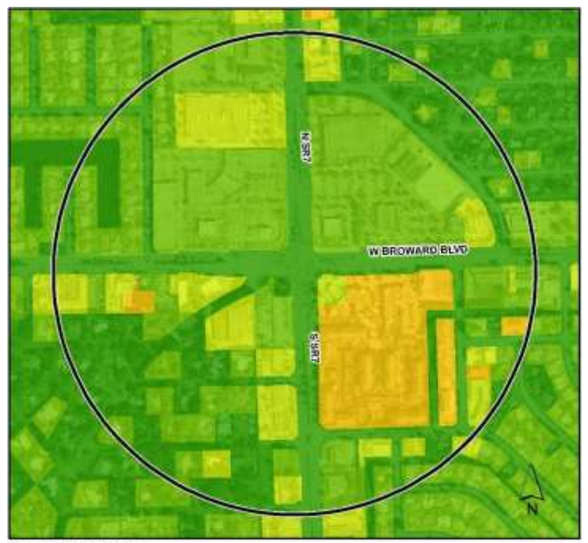
The northwest and southwest quadrants contain both vacant residential and vacant non-residential properties lining the road, but all have a low property value, less than $400,000 per acre. The southwest quadrant also holds multiple car dealerships fronting SR 7 that sit on properties with a slightly higher than average value per acre. Although the property value and the age of the buildings may raise the potential for redevelopment, the properties have a relatively high building-to-land value ratio. The southeast quadrant is made up primarily of residential lots that are more than 50 years old, but it has a high building-to-land value ratio of more than 2:1. Based on the age (40+ years) and the low building-to-land value ratio, the commercial property at the northeast corner of the intersection has the highest redevelopment potential of the Mobility Hub.

Another major indicator of high redevelopment potential is the presence of the Lauderhill CRA in the northeast quadrant, which is included under Plantation's LAC designation, and the presence of the Plantation Gateway CRA in the southwest quadrant of the hub area, also within the City's Lauderhill Mall DRI. While separated by different communities, both facilitate redevelopment of the Mobility Hub consistent with the overall vision for the walkable, mixed-use, and transit-supportive area.

SR 7 & Broward Boulevard Mobility Hub

Existing Property Use

Property Value per Acre



Year Built

Building-to-Land Value Ratios

Key Findings

At this location, SR 7 is fronted by retail/commercial properties with residential uses located directly behind the commercial properties. Within this Mobility Hub:

- 57% of parcels are designated as residential
- 67% of properties have a value of less than $1 million per acre
- 77% of buildings were built before 1972
- 25% of properties have a building-to-land value ratio less than 1:1

More than three-quarters of the buildings within the hub are more than 40 years old, but although the age of those properties indicate a likelihood for redevelopment, only one-quarter of the properties have a low building-to-land value ratio.

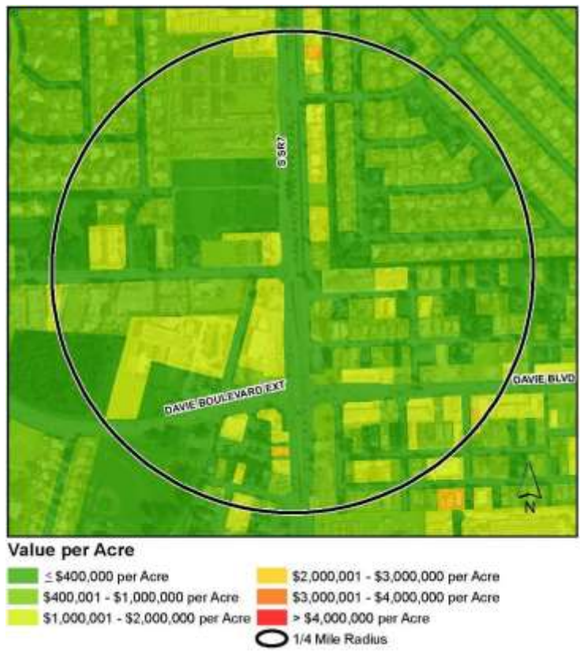
A shopping center/plaza borders the intersection in each quadrant. The commercial property located in the southeast quadrant has the highest value, at $2–$3 million per acre, yet it was developed only in the last 10 years, making the near-term redevelopment for this property unlikely. The other commercial properties within the hub are much older but still have building-to-land value ratios greater than 1:1.

A primary indicator for high redevelopment potential is the presence of the Plantation Gateway CRA, which encompasses a majority of the commercial and residential property at this Mobility Hub location. This Mobility Hub also falls within the City of Plantation's LAC, which will guide redevelopment in a manner that supports mixed-use development and alternative modes of transportation. Redevelopment within this Mobility Hub is likely limited to the commercial parcels along SR 7 and immediately adjacent to the SR 7/Broward Boulevard intersection to preserve the established surrounding neighborhoods.

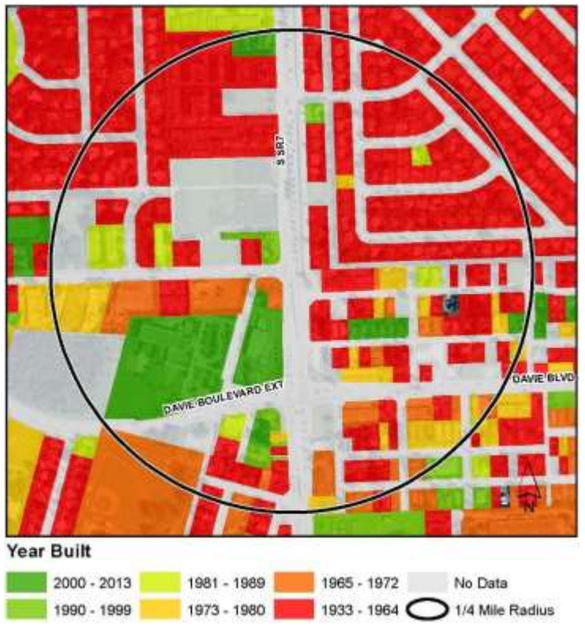
SR 7 & Peters Road Mobility Hub

Existing Property Use

Property Value per Acre



Year Built



Building-to-Land Value Ratios

Key Findings

This Mobility Hub location is made up primarily of residential properties with a mix of retail/office, industrial, public, and agricultural uses. Within this Mobility Hub:

- 50% of parcels are designated as residential
- 80% of properties have a value of less than $1 million per acre
- 71% of buildings were built before 1972
- 58% of properties have a building-to-land value ratio greater than 1:1

The northwest quadrant is the most diverse in regard to land use, with a mixture of residential, agricultural, industrial, and retail/office uses. The age and low building-to-land value ratio of the commercial properties give them a high potential for redevelopment; however, the residential properties have a high building-to-land value ratio of greater than 2:1. Another major indicator of a high redevelopment potential for non-residential properties in the northwest quadrant is the presence of the Plantation Gateway CRA. This area also falls within the City of Plantation's LAC, which will guide redevelopment in a manner that supports mixed-use development and alternative modes of transportation.

The southwest quadrant of this Mobility Hub is unincorporated land designated as commercial along SR 7, transitioning from medium-density residential housing. Land to the east of SR 7 falls within Fort Lauderdale and is designated as general commercial on the City's Future Land Use Map. Redevelopment of commercial land within this Mobility Hub outside of Plantation's jurisdiction would benefit from the application of transit-supportive land use such as a TOC to parcels within the corridor, thereby planning for redevelopment in a manner consistent with the surrounding area. Redevelopment of the established residential neighborhoods behind the commercial properties fronting SR 7 is not anticipated.

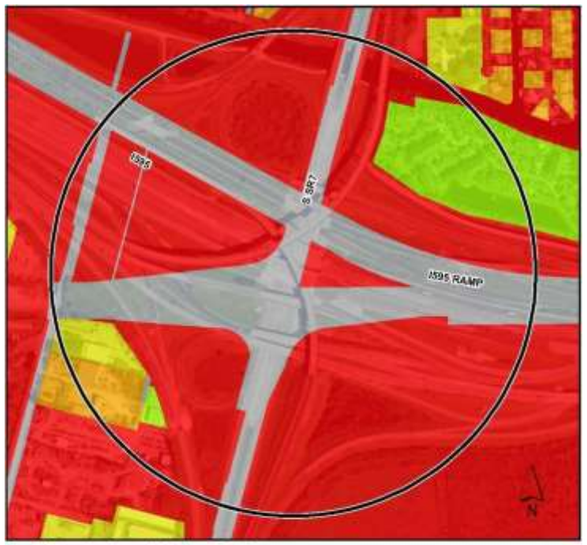
SR 7 & I-595 Mobility Hub

Existing Property Use

Property Value per Acre

Year Built

Building-to-Land Value Ratios



Key Findings

At this location, SR 7 passes under I-595 with on/off ramps to access SR 7. The majority of the Mobility Hub is designated as ROW to support the interchange, but the areas bordering the interstate include residential, industrial, and retail/office uses. Within this Mobility Hub:

- 36% of parcels are designated as ROW
- 50% of properties have a value of $1–$2 million per acre
- 83% of buildings were built after 2000
- 90% of properties have a building-to-land value ratio less than 1:1

Outside of the ROW, the northeast quadrant contains residential properties developed within the past 10 years with a value of just over $1 million per acre and a building-to-land value ratio over 2:1. The southwest quadrant has a mixture of mostly industrial and vacant non-residential uses.

These characteristics are not indicative of high redevelopment potential for this Mobility Hub; however, the presence of the Davie CRA in the southwest portion of the hub area is an indicator that redevelopment is likely and encouraged. The City of Davie's TOC designation also applies to land within this Mobility Hub, thereby planning for redevelopment in this area that will support a mix of uses and alternative modes.

SR 7 & Griffin Road Mobility Hub

Existing Property Use

Property Value per Acre

Year Built

Building-to-Land Value Ratio

Key Findings

Development at this location consists of an equal percentage of industrial, residential, and retail/office uses and has a relatively high percentage of vacant non-residential land (5%). Retail/office and industrial properties front SR 7 with residential uses behind. Within this Mobility Hub:

- 21% of parcels are designated as retail/office
- 91% of properties have a value of less than $1 million per acre
- 68% of buildings were built before 1980
- 65% of properties have a building-to-land value ratio less than 1:1

A majority of properties were built more than 30 years ago and have a low building-to-land value ratio, which may indicate redevelopment potential. The intersection also holds one large vacant commercial property in the northeast quadrant.

The northwest and southwest quadrants comprise older commercial lands with low building-to-land value ratios. To the north, smaller retailers occupy the property along the corridor, and a larger shopping plaza occupies the property to the south. The southeast quadrant is mostly older residential property behind smaller commercial buildings. The age, value per acre, and low building-to-land value ratio of these commercial properties could indicate a desire for near-term redevelopment. Another major indicator for high redevelopment potential is the presence of the Davie CRA, which covers the properties in the northwest quadrant and half of the southwest quadrant. The City of Davie's TOC designation also applies to land within this Mobility Hub, thereby planning for redevelopment in this area that will support a mix of uses and alternative modes.

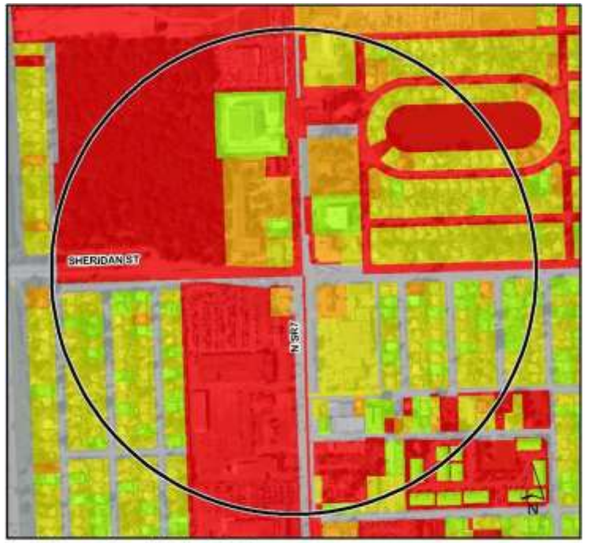
SR 7 & Sheridan Street Mobility Hub

Existing Property Use

Property Value per Acre

Year Built

Building-to-Land Value Ratios



Key Findings

Development at this location is mostly residential, with retail/office properties lining the corridor and public and recreational spaces scattered throughout. Within this Mobility Hub:

- 46% of parcels are designated as residential
- 82% of properties have a value of less than $1 million per acre
- 64% of buildings were built before 1972
- 60% of properties have a building-to-land value ratio less than 1:1

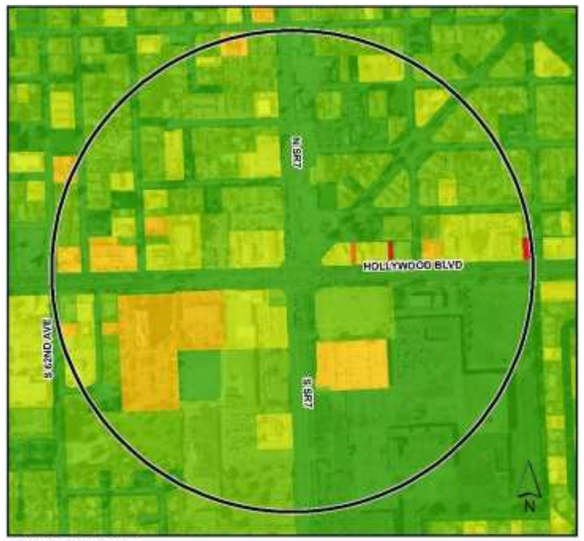
Smaller commercial properties and a small shopping plaza line road to the north of Sheridan Street, and a shopping plaza and a car lot line the road to the south. More than half of the properties are older than age 40 and have both a low building-to-land ratio and low average value per acre, indicating high potential for near-term redevelopment for properties outside of the established neighborhoods.

The City of Hollywood's TOC designation applies to land within this Mobility Hub, thereby planning for redevelopment in this area that will support a mix of uses and alternative modes.

SR 7 & Hollywood Boulevard Mobility Hub

Existing Property Use

Property Value per Acre



Year Built

Building-to-Land Value Ratio

Key Findings

At this location, a majority of the development is residential located back behind retail/office uses. Within this Mobility Hub:

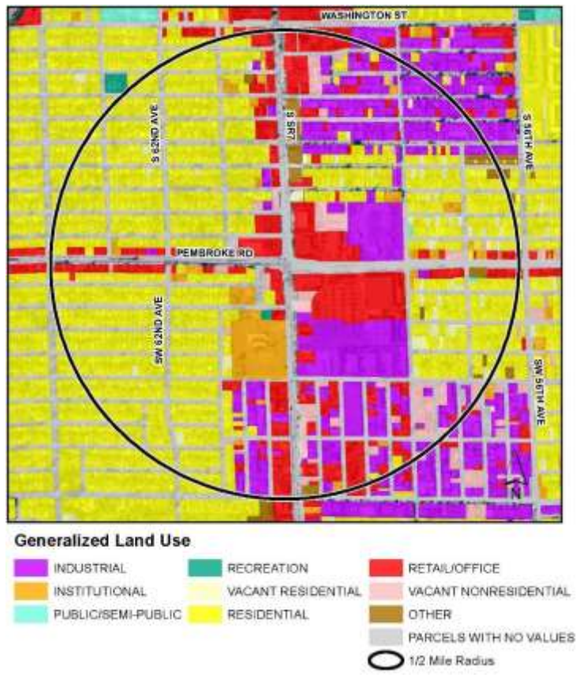
- 33% of parcels are designated as retail/office
- 43% of properties have a value between $400,000 and $1 million per acre
- 65% of buildings were built before 1972
- 60% of properties have a building-to-land value ratio less than 1:1

The average value per acre for the properties within this hub are slightly higher than the other Mobility Hubs along SR 7, with some commercial properties reaching values of more than $3 million per acre. Additionally, more than half of the properties are more than 40 years old and exhibit a low building-to-land value ratio.

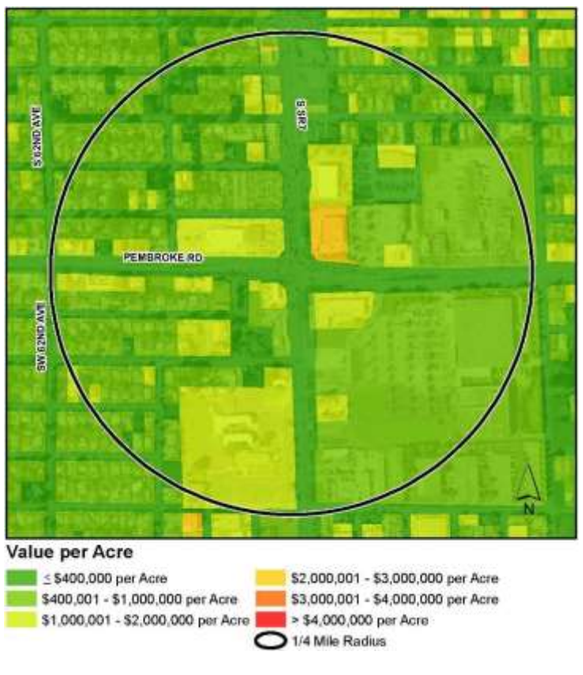
The northwest and northeast quadrants consist of smaller retail properties and restaurants with high building-to-land value ratios. Larger shopping centers, most more than 40 years old, front SR 7 in the southeast and southwest quadrants. The large property to the east has a very low building-to-land value ratio, and the properties to the west have a mixture of low and high building-to-land value ratios. The characteristics of the southern quadrants exhibit a higher redevelopment potential than the smaller properties to the north. The City of Hollywood's TOC designation applies to land within this Mobility Hub, thereby planning for redevelopment in this area that will support a mix of uses and alternative modes.

SR 7 & Pembroke Road Mobility Hub

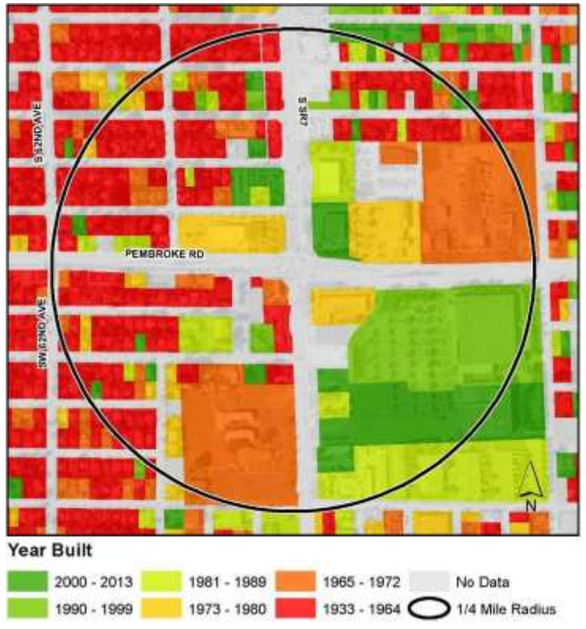
Existing Property Use



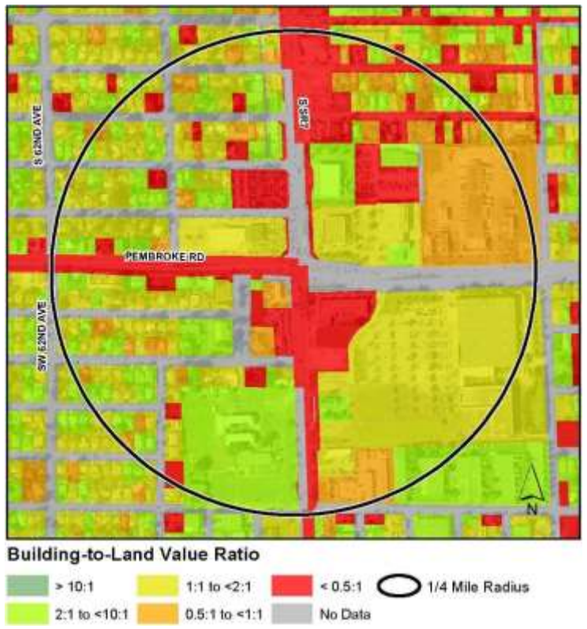
Property Value per Acre



Year Built



Building-to-Land Value Ratio



Key Findings

This location has one of the lowest retail/office compositions (17%) and one of the highest industrial compositions (1,919); however, the majority of development within the Mobility Hub is residential. Within this Mobility Hub:

- 45% of parcels are designated as residential
- 65% of properties have a value between $400,000 and $1 million per acre
- 53% of buildings were built before 1972
- 37% of properties have a building-to-land value ratio less than 1:1

More than half of the hub has a slightly higher than average value per acre and was built over 40 years ago; however, less than half of the hub has a low building-to-land value ratio.

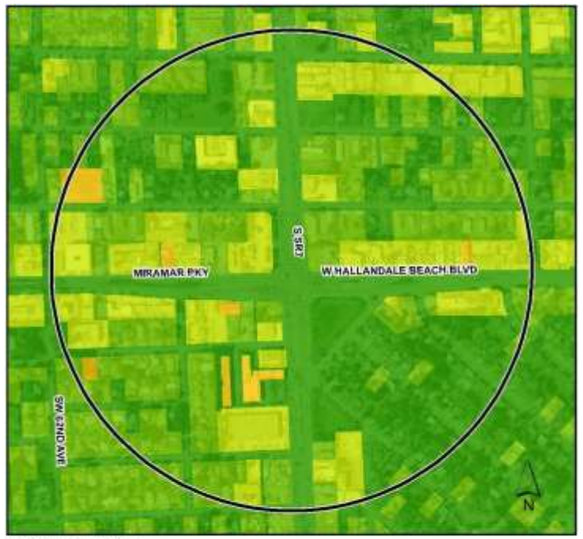
A majority of commercial properties are located at the hub intersection and along Pembroke Road. Most of the properties are smaller retail businesses, except for the large shopping centers at the northeast and southeast corners.

Although the age and value per acre for most properties favor redevelopment potential, very few properties have a low building-to-land value ratio. Two properties that meet the criteria for high redevelopment potential are the car dealership in the northwest quadrant and the small shopping center in the southeast corner of the intersection. The northern half of the Mobility Hub falls within Hollywood, the southeast quadrant falls within West Park, and the southwest quadrant falls within Miramar. All three jurisdictions have designated SR 7 as TOC in their respective comprehensive plans, providing a cohesive redevelopment vision for this Mobility Hub.

SR 7 & Miramar Parkway Mobility Hub

Existing Property Use

Property Value per Acre



Year Built

Building-to-Land Value Ratios

Key Findings

Development at this location is mostly residential, with 14% commercial space and 12% industrial space bordering the corridor. Within this Mobility Hub location:

- 14% of parcels are designated as retail/office
- 69% of properties have a value of less than $1 million per acre
- 49% of buildings were built before 1964
- 58% of properties have a building-to-land value ratio greater than 1:1

More than half of the hub area is occupied by older residential properties with very high building-to-land value ratios. The limited number of commercial properties that make up the hub in all four quadrants are mostly small retail businesses and restaurants along Miramar Parkway; however, these smaller properties have a relatively high value per acre, and many were built more than 40 years ago, which may foster redevelopment, in particular to support the higher valued surrounding neighborhoods.

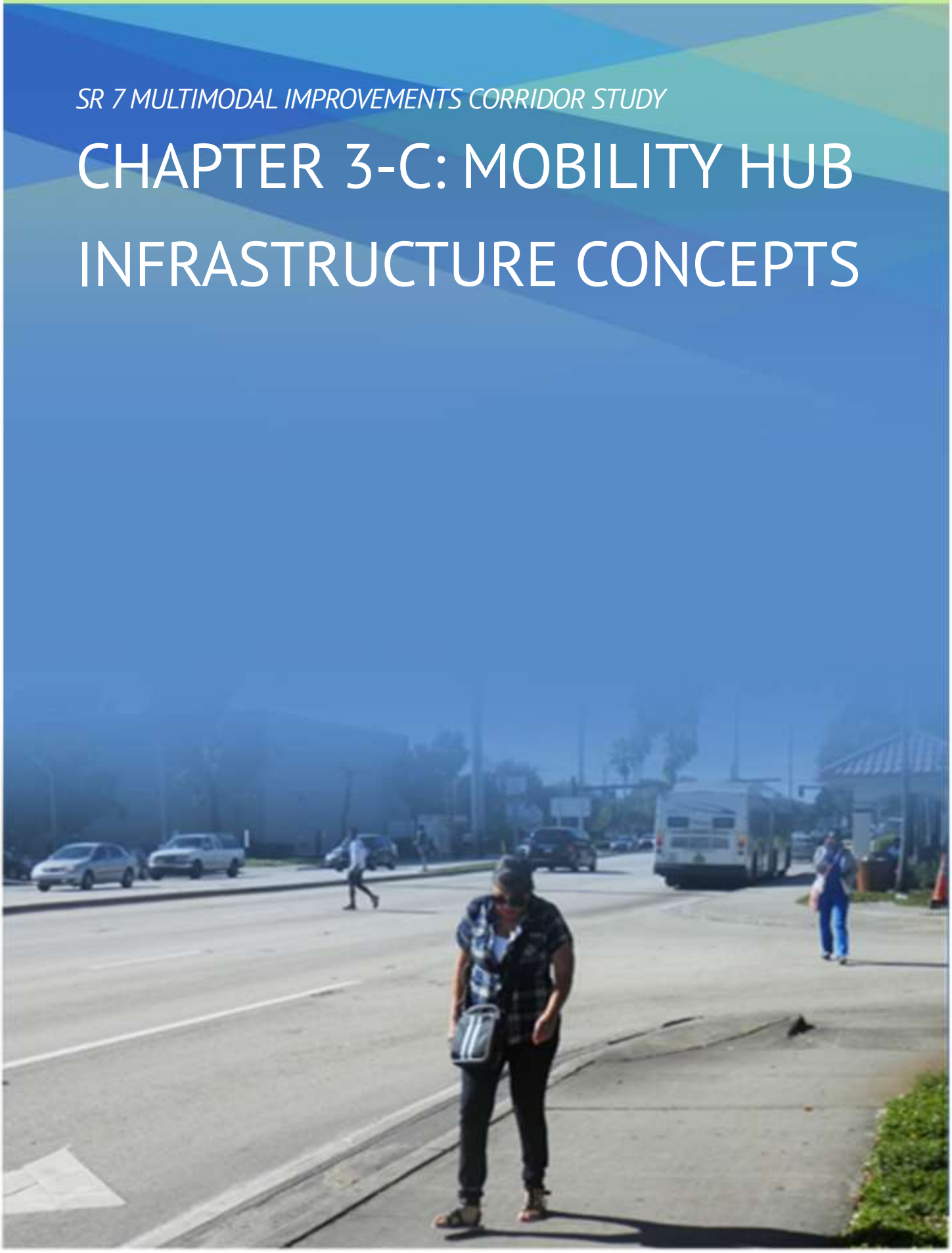
The City of Miramar's TOC designation applies to land within this Mobility Hub, thereby planning for redevelopment in this area that will support a mix of uses and alternative modes.

SECTION 3.9: NEXT STEPS

The information documented herein is used to identify and evaluate multimodal improvements at each Mobility Hub within the SR 7 corridor study are, the results of which are provided in Chapter 3-C. This includes identifying in more detail the presence of existing vacant/underutilized parcels and existing available right-of-way to determine the feasibility of any recommended improvements at each Mobility Hub. A GIS-based desktop screening is also completed for each Mobility Hub that assesses the land use (based on information presented in this chapter), historical resources, wetlands, and any contaminated sites present. The recommendations developed using the data and information presented in this chapter, along with the information presented in the baseline conditions assessment (Chapter 3-A), will be documented further in Chapter 3-C.

SR 7 MULTIMODAL IMPROVEMENTS CORRIDOR STUDY

CHAPTER 3-C: MOBILITY HUB INFRASTRUCTURE CONCEPTS



SECTION 3.10: MOBILITY HUB INFRASTRUCTURE CONCEPTS INTRODUCTION

This chapter documents the process used to develop the preliminary recommendations for improving the safety and mobility of the SR 7 corridor, specifically at the 15 major intersections within the study area. Ultimately, the opportunities and deficiencies of the existing infrastructure at each major intersection along SR 7 were used to develop preliminary recommendations that aim to improve safety for pedestrians, bicyclists, and transit users.

An existing conditions inventory was compiled and land use analysis prepared to better understand the opportunities and deficiencies around these intersections (documented in Chapter 3-A and Chapter 3-B, respectively). First, data from previously completed tasks were reviewed to assess the level of transit accessibility and overall safety of each intersection. Then existing land use designations for each intersection were identified. Next, property ownership and other right-of-way information were assembled. The existing conditions data was gathered and analyzed to develop safety improvement recommendations for each of the intersections. This data mostly included FDOT crash data, BCT ridership data, and property land use and ownership information.

A field review was conducted on December 16, 2015 to assess any opportunities or constraints as it relates to transit operations, pedestrian/bicycle safety, and overall traffic operations.

Preliminary improvement recommendations included at the end of each intersection sub-section were developed based on the existing conditions analysis, field review and observations, general input from the PAC, and engineering expertise.

Each of the following sections describes the baseline conditions, field review notes, and preliminary recommendations for the 15 major intersections identified in previous chapters from the southern part of the corridor to the north. As a review, the 15 intersections were grouped into two different study categories:

- Abbreviated study, which entails a review of any existing plans, a field visit, planning-level cost estimates, and preliminary recommendations.
- Full study, which entails a review of any existing plans, a field visit, detailed recommendations, engineering review of constructability, planning-level cost estimates, and VISSIM traffic analysis.

Table 3-9 summarizes the 15 major intersections within the study area from south to north and the study category associated with each.

Table 3-9: Summary of the SR 7 Major Intersections by Study Category

Intersection of SR 7 and:	Study Category (Abbreviated vs. Full Study)
Miramar Parkway/Hallandale Beach Boulevard	Full Study
Pembroke Road	Full Study
Hollywood Boulevard	Abbreviated Study
Johnson Street	Abbreviated Study
Sheridan Street	Abbreviated Study
Stirling Road	Abbreviated Study
Riverland Road	Abbreviated Study
Davie Boulevard	Abbreviated Study
Broward Boulevard	Full Study
Lauderhill Mall Area	Full Study
Oakland Park Boulevard	Abbreviated Study
Commercial Boulevard	Full Study
Kimberly Boulevard	Full Study
Atlantic Boulevard	Abbreviated Study
Sample Road/Turtle Creek Drive	Full Study

The next task of this study (Task 6 – Project Development) will analyze the results of the VISSIM traffic analysis and evaluate the constructability of these recommendations in terms of drainage, right-of-way impacts, and impacts to existing utilities from a detailed engineering perspective to determine if there are any fatal flaws that would make these recommendations infeasible. Planning-level cost estimates will also be developed for the recommended improvements determined to be feasible for each intersection.

The remainder of this chapter summarizes the transportation and land use analysis undertaken and the resulting preliminary recommendations developed for each intersection.

SECTION 3.11: INFRASTRUCTURE CONCEPTS

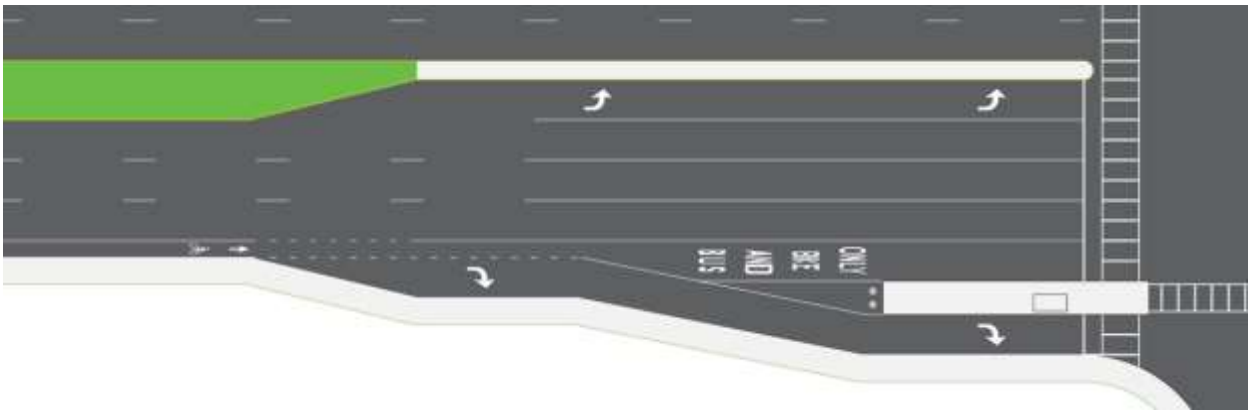
The recommendations listed for each intersection include improvements to general traffic operations and roadway geometry (such as pedestrian signage, high emphasis crosswalks, lighting, tightening curb radii, etc.), enhancements made to the mobility network (such as improved pedestrian and bicycle network facilities), and upgraded hub infrastructure (such as bus bays, pedestrian/bus islands, queue jumps, and queue bypass lanes). These recommendations were presented to the PAC, BCT, and FDOT for their input and comments. Queue jumps are special phases in an intersection's cycle that allows buses to get ahead of the through traffic, thereby improving overall speeds and reliability for transit operations. Queue bypass lanes are similar to queue jumps in that the bus is able to skip in front of through traffic but differ from queue jumps because a special phase in the signal cycle is not required.

This latter group of recommendations, which includes queue jumps and queue bypass lanes, is more likely to impact traffic and therefore a detailed VISSIM analysis is being completed to assess the impacts. These hub infrastructure improvements are context sensitive and their design will depend on a number of factors such as bus frequencies, right turning vehicles counts, available right-of-way, and other site specific considerations. Therefore, three basic designs were developed for this type of recommendation: a near-side pedestrian/bus island with a queue jump application, a far-side 'open' bus bay with a queue bypass lane, and a far-side 'closed' bus bay with a queue jump application. These are explained in more detail below.

Pedestrian/Bus Island

As depicted in Figure 3-24, a pedestrian/bus island is a technique to accommodate a near-side bus stop at an intersection while minimizing impacts to vehicles by allowing passengers to board/alight from an island between the right turn lane and the outside through lane. This design requires a queue jump application because there is no bus only lane on the other side of the intersection. The bus must merge into the adjacent through lane once crossing the intersection, and providing a queue jump makes this movement easier for bus operators. This design is only recommended where there is enough right-of-way, bus service is relatively frequent, and right-turning volumes are high. Technology that allows the signal controller and bus to communicate would be required for this design. BCT and Broward County have been in coordination regarding implementation of this technology.

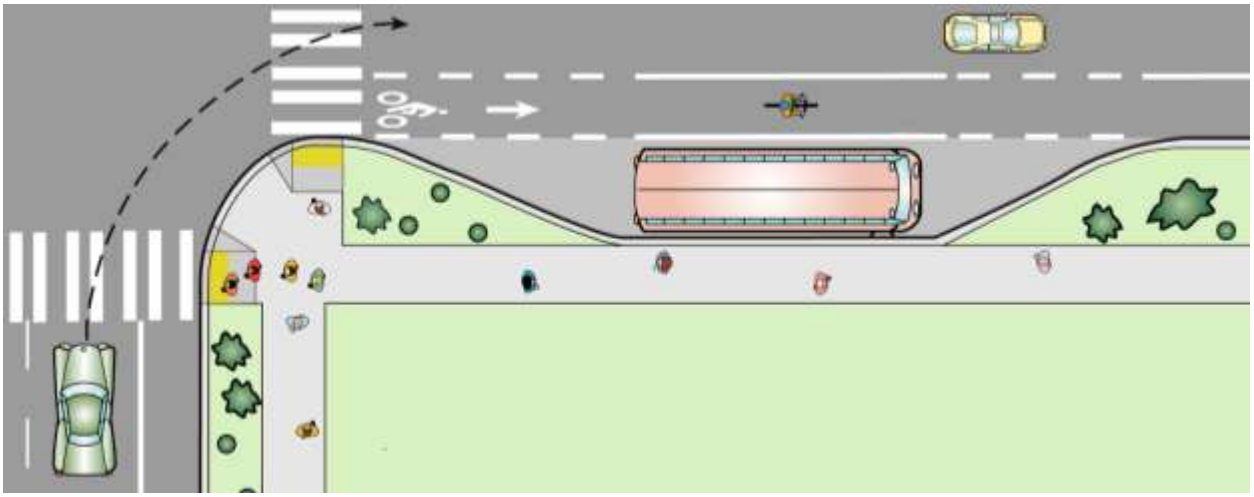
Figure 3-24: Pedestrian/Bus Island Concept



Queue Jumps

The queue jump application is being recommended for traditional far-side bus stops with bus bays. The traditional bus bay, also referred to later in this chapter as 'closed' bus bays, allows the bus to merge in front of through traffic when crossing the intersection before pulling into a bus bay out of the flow of traffic. Intersections with long right turn lanes followed by a far-side bus bay are most appropriate for this application. Figure 3-25 shows the far-side bus stop in a 'closed' bus bay. A queue jump is required to make the maneuver from the right turn lane across the intersection into the through lane (usually in the intersection) and into a far-side bus bay easier for bus operators. The 'closed' bus bay also has an advantage for pedestrians by providing a bulbout at the intersection, making the crossing distance shorter and ultimately safer. Technology that allows the signal controller and bus to communicate would be required for this design.

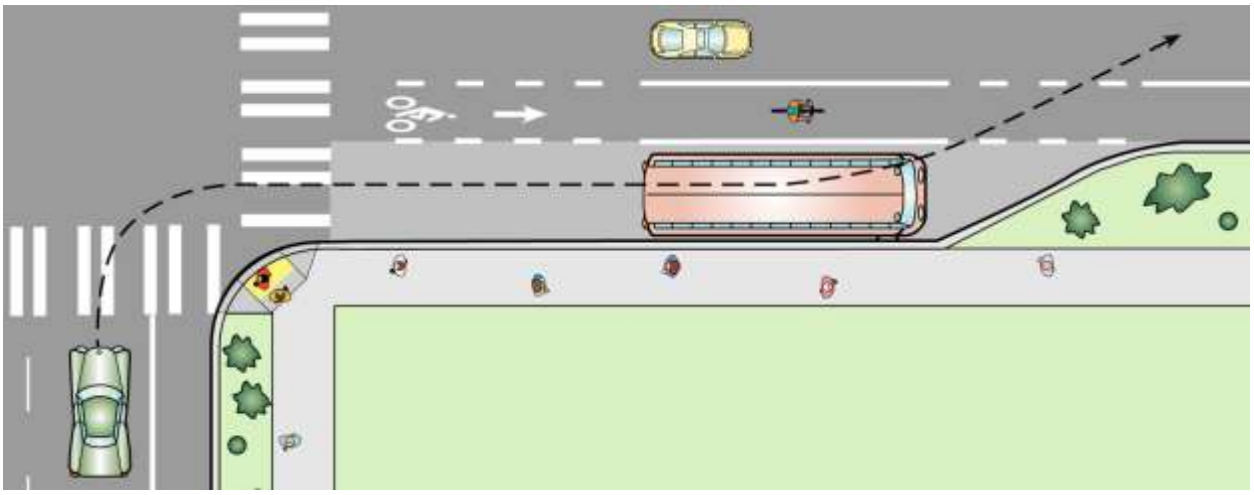
Figure 3-25: Traditional 'Closed' Bus Bay



Queue Bypass Lanes

Lastly, a queue bypass lane is recommended when there is a long right turn lane and an 'open' bus bay across the intersection, as seen in Figure 3-26. The major advantage of this design is that the technology allowing the signal controller and the bus to communicate would not be needed, therefore not impacting vehicular traffic and signal timing. With this design, the bus would simply access the right turn lane and move through the intersection directly to the open bus bay, thus not impeding the through traffic. Close attention must be given to the curb radius as to not encourage speeding. Existing 'closed' bus bays in some instances can be modified to an 'open' bus bay design to allow for a queue bypass lane application.

Figure 3-26: 'Open' Bus Bay



SECTION 3.12: PRELIMINARY RECOMMENDATIONS

MIRAMAR PARKWAY/HALLANDALE BEACH BOULEVARD

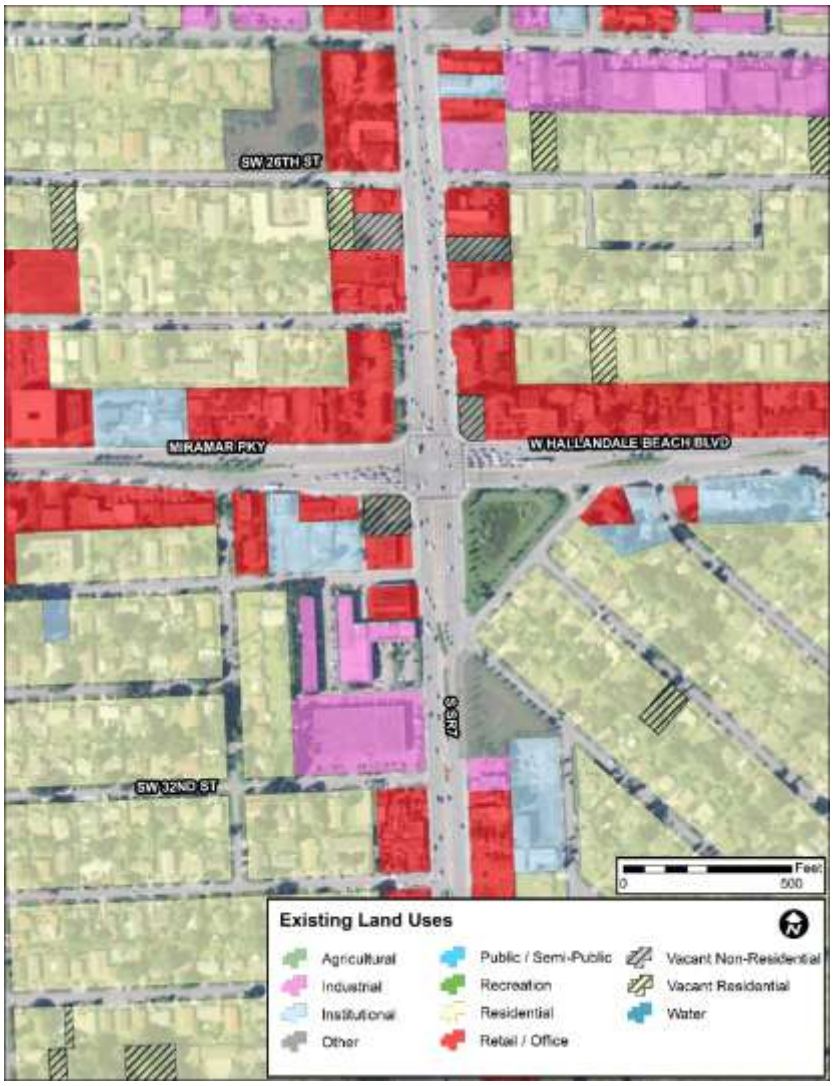
This intersection was categorized as a full study intersection based on its relative ranking of average daily BCT boardings and the number of bicycle/pedestrian-related crashes in comparison to the other major intersections within the study area.

Baseline Conditions

Existing Land Use

As shown in Figure 3-27, existing land use at the intersection is primarily retail/office, with some vacant non-residential and surrounding areas of residential with adjacent areas of industrial and institutional.

Figure 3-27: Miramar Parkway/Hallandale Beach Boulevard Existing Land Use



Transit

This intersection is served by three BCT bus routes: Route 18, Route 28, and the 441 Breeze. Route 18 provides local north-south service along SR 7, the 441 Breeze provides limited-stop north-south

service along SR 7, and Route 28 provides east-west service along Miramar Parkway/Hallandale Beach Boulevard. The peak-hour headways for Routes 18, 28, and the 441 Breeze are 20 minutes, 20-30 minutes, and 20 minutes, respectively. Currently, there are approximately 2,655 cumulative daily boardings on average for the BCT bus stops at each corner of the intersection. Of the 15intersections being analyzed along SR 7, this intersection ranks 4th for average BCT daily boardings.

Bicycle/Pedestrian

Based on the 2009-2014 crash data provided by FDOT, there were six crashes that involved bicyclists and/or pedestrians at this intersection. Of the 15 intersections being analyzed, this intersection ranks the lowest in terms of the number of bicycle/pedestrian-related crashes.

Right-of-Way

In regard to right-of-way and adjacent property owners, the following summarizes property ownership and development status of each quadrant of this intersection:

- The southeast and northwest quadrant parcels are owned by FDOT; southeast quadrant parcel is currently vacant.
- The northeast and southwest quadrant parcels are privately owned (vacant non-residential land).

Field Review

Based on the field review conducted, the following observations were made to understand the existing opportunities and constraints relative to this intersection:

- The intersection seems to have adequate crosswalk markings and pedestrian crossing timings.
- There were issues observed with the existing pedestrian push buttons.
- The far-side northbound bus stop has a shelter and a bus bay.
- The far-side westbound bus stop has a shelter and a bus bay fairly distant from intersection.
- The far-side southbound bus stop has a shelter but no bus bay.
- The far-side eastbound bus stop has a shelter but no bus bay.
- There are existing bicycle lanes in all directions, but the northbound bicycle lane ends just north of the intersection.
- Three of the intersection's corner parcels (NE, SE, and SW) have significant amounts of vacant/ underutilized right-of-way.

Figure 3-28 illustrates examples of the above observations for this intersection.

Figure 3-28: Miramar Parkway/Hallandale Beach Boulevard Field Review Photos

Preliminary Recommendations

The following recommendations were developed based on the baseline conditions and observations made during the field review.

- Upgrade existing pedestrian push buttons and associated signage.
- Relocate the existing far-side eastbound bus stop closer to the intersection, implement a queue bypass lane and provide a shelter and open bus bay.
- Create an open bus bay for the existing far-side northbound bus stop and implement a queue bypass lane. Currently, there is a 'standard' closed bus bay.
- Create an open bus bay for the existing far-side southbound bus stop and implement a queue bypass lane. Currently, there is a standard closed bus bay.

> Consider a queue jump treatment for the westbound and southbound movements.

The major focus for this intersection is to bring the bus stops closer to the intersection. Queue bypass lanes could easily be accommodated by installing open bus bays on the far-side of the intersection, as recommended for the eastbound and northbound movements. Queue jump applications are being recommended for the existing closed bus bays for the westbound and southbound movements

PEMBROKE ROAD

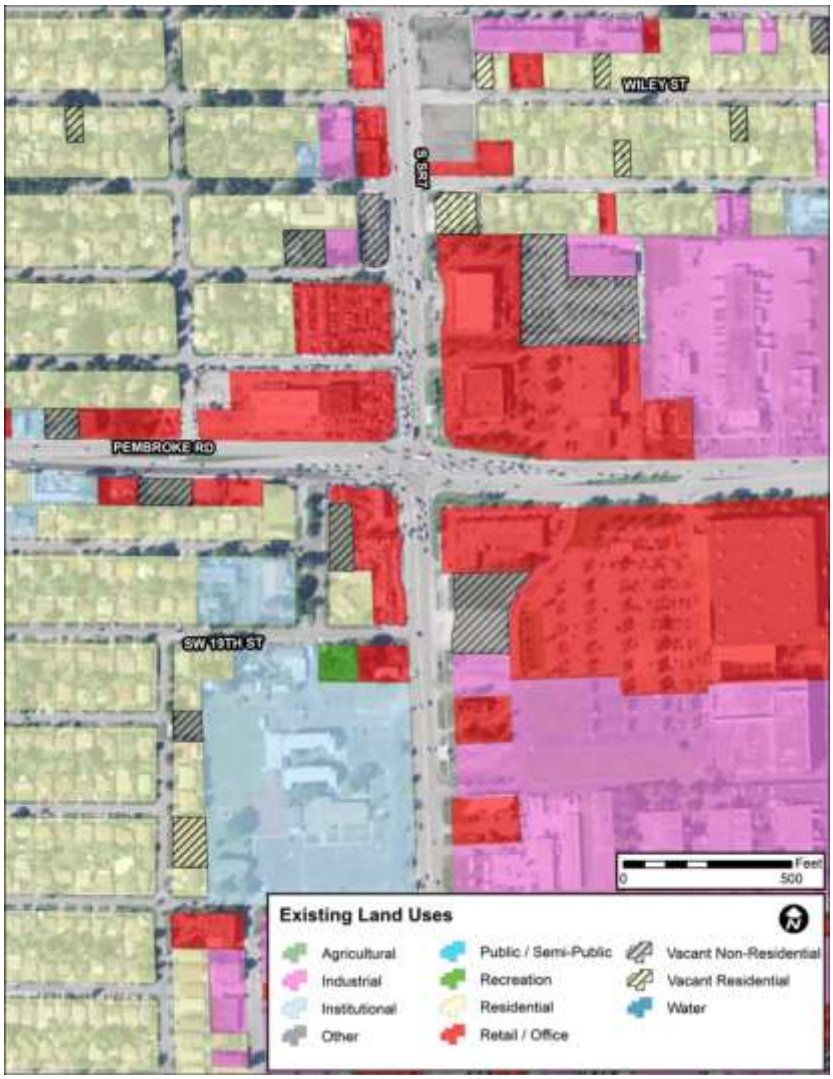
This intersection was categorized as an abbreviated study intersection based on its relative ranking of average number of daily BCT boardings as well as the number of bicycle/pedestrian-related crashes in comparison to the other intersections within the study area. This intersection was also selected as an abbreviated study due to the SR 7 reconstruction project currently underway, which will provide considerable improvements to this location.

Baseline Conditions

Existing Land Use

As shown in Figure 3-29, existing land use at the intersection is primarily retail/office, with surrounding areas of residential to the west and north, industrial to the southeast, and institutional to the southwest.

Figure 3-29: Pembroke Road Existing Land Use



Transit

This intersection is served by three BCT bus routes: Route 5, Route 18, and the 441 Breeze. Route 18 provides local north-south service along SR 7, the 441 Breeze provides limited-stop north-south service along SR 7, and Route 5 provides east-west service along Pembroke Road. The peak-hour headways for Routes 5, 18, and the 441 Breeze are 30 minutes, 20 minutes, and 20 minutes, respectively. Currently, there are approximately 1,290 cumulative average daily boardings at the BCT bus stops located at this intersection. Of the 15 intersections being analyzed, this intersection ranks 11th in terms of average daily BCT boardings.

Bicycle/Pedestrian

Based on the 2009-2014 crash data provided by FDOT, there were 12 crashes that involved bicyclists and/or pedestrians at this intersection. Of the 15 intersections being analyzed, this intersection ranks 11th in terms of the number of bicycle/pedestrian-related crashes.

Right-of-Way

In regard to right-of-way and adjacent property ownership, FDOT owns slivers of property at each corner of the intersection; more right-of way is available in the eastern quadrants. The remaining parcels are privately owned.

Field Review

Based on the field review conducted, the following observations were made to form an understanding of the existing opportunities and constraints relative to this intersection:

- There is on-going construction north of the intersection.
- The existing crosswalks use a dual-bar style marking.
- Some observed geometric issues exist, such as deficient curb ramps and pedestrian push buttons.
- There are missing sidewalk segments on the west side of SR 7 (north of Pembroke Road).
- There are missing sidewalk segments on the west side of SR 7 between existing far-side southbound bus stop and the intersection.
- The far-side northbound bus stop has a shelter and a bus bay/right turn lane.
- The far-side westbound bus stop has a shelter, does not have a bus bay, and is fairly distant from intersection.
- The far-side southbound bus stop is extremely far from the intersection. There is no shelter or bus bay.
- The far-side eastbound bus stop has a shelter but no bus bay.
- The eastbound bicycle lanes start just west of the intersection. Westbound bicycle lanes end east of the intersection. No northbound or southbound bicycle lanes currently exist.

Figure 3-30 illustrates examples of the above observations for this intersection.

Figure 3-30: Pembroke Road Field Review Photos

Preliminary Recommendations

The following recommendations were developed based on the baseline conditions and observations made during the field review:

- Upgrade existing pedestrian push buttons and associated signage.
- Upgrade all crosswalks to high-emphasis.
- Relocate curb ramp at southwest corner.
- Tighten radius at all corners; the southeast and northwest corners are top priority.
- Construct a sidewalk on the west side of SR 7 north of Pembroke Road.
- Complete sidewalk network on west side of SR 7 south of Pembroke Road.

- Create an open bus bay for the existing far-side northbound bus stop. Currently, there is a 'standard' closed bus bay/right turn lane. Implement a queue bypass lane and provide a shelter.
- Relocate the existing far-side southbound bus stop closer to the intersection and provide a shelter.

The major focus for this intersection is to improve the pedestrian infrastructure and overall safety for pedestrians and persons accessing transit. Connecting gaps in the existing sidewalk network is a top priority. Bringing the far-side southbound bus stop closer to the intersection will also make transfers more convenient and safer. To improve transit operations, a queue bypass lane could easily be accommodated if the existing far-side northbound bus stop is made into an 'open' bus bay. As is the case for all the intersections, if a bus stop does not have a shelter, then one is recommended. This applies to the south and northbound bus stops at this intersection.

HOLLYWOOD BOULEVARD

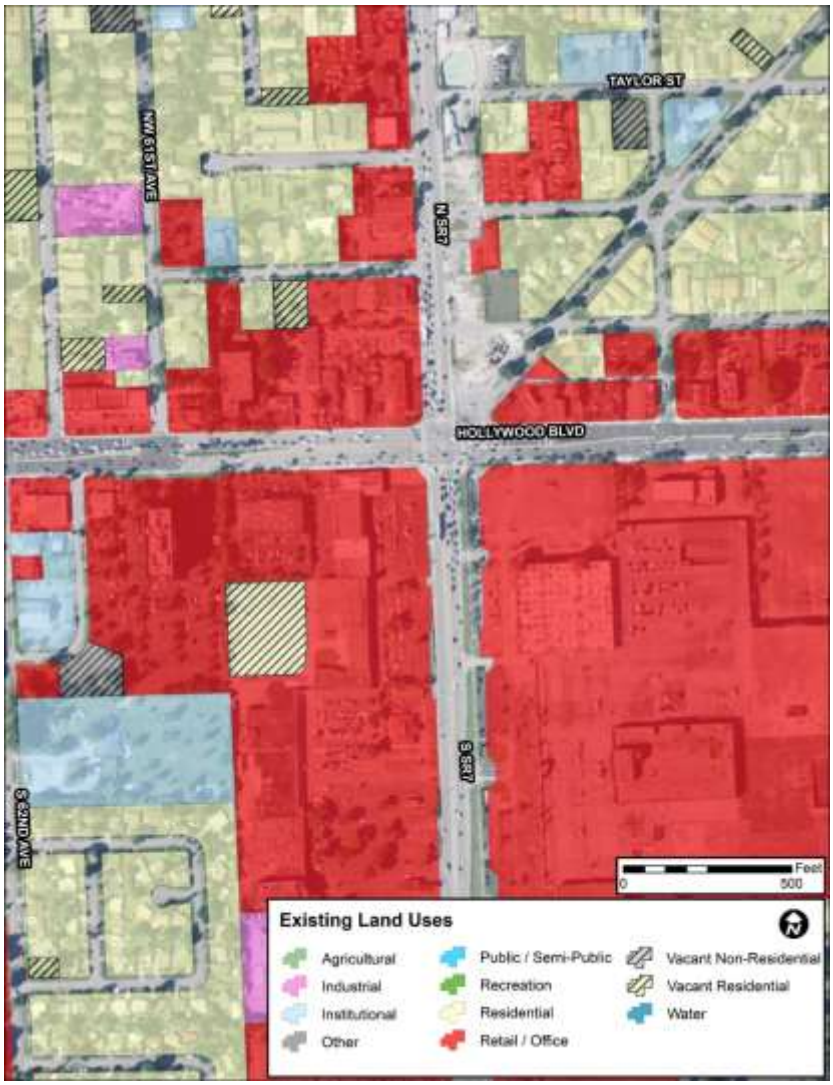
This intersection was categorized as an abbreviated study intersection based on its relative ranking of average number of daily BCT boardings and the number of bicycle/pedestrian-related crashes in comparison to the other intersections within the study area. This intersection was also selected as an abbreviated study due to the ongoing SR 7 reconstruction project currently underway, which will provide considerable improvements to this location.

Baseline Conditions

Existing Land Use

As shown in Figure 3-31, existing land use at the intersection is primarily retail/office with surrounding areas of residential to the north.

Figure 3-31: Hollywood Boulevard Existing Land Use



Transit

This intersection is served by three BCT bus routes: Route 7, Route 18, and the 441 Breeze. Route 18 provides local north-south service along SR 7, the 441 Breeze provides limited-stop north-south service along SR 7, and Route 7 provides east-west service along Hollywood Boulevard. The peak-hour headways for Routes 7, 18, and the 441 Breeze are 20-30 minutes, 20 minutes, and 20 minutes, respectively. Currently, there are approximately 2,550 cumulative average daily boardings for the BCT bus stops at this intersection. Of the 15 intersections being analyzed, this intersection ranks 5th in terms of average BCT daily boardings.

Bicycle/Pedestrian

Based on the 2009-2014 crash data provided by FDOT, there were 22 crashes that involved bicyclists and/or pedestrians at this intersection. Of the 15 intersections being analyzed, this intersection ranks 3rd in terms of the number of bicycle/pedestrian-related crashes.

Right-of-Way

In regard to right-of-way and adjacent property owners, FDOT owns property in all quadrants of the intersection except the northwest quadrant, which is privately owned.

Field Review

Based on the field review completed, the following observations were made to form an understanding of the existing opportunities and constraints relative to this intersection:

- All existing far-side bus stops are fairly distant from the intersection.
- No bus stops currently include a bus bay.
- Only the far-side eastbound and far-side westbound bus stops include a shelter.
- The eastbound bicycle lanes start east of the intersection and the westbound bicycle lanes end east of the intersection. No northbound or southbound bicycle lanes currently exist.

Figure 3-32 illustrates examples of the above observations for this intersection.

Figure 3-32: Hollywood Boulevard Field Review Photos

Preliminary Recommendations

The following recommendations were developed based on the baseline conditions and observations made during the field review. Some of these recommendations are being implemented as a part of the SR 7 reconstruction project currently underway.

- Upgrade existing pedestrian push buttons and associated signage.
- Upgrade all crosswalks to high-emphasis.
- Consider implementing a queue jump treatment for the northbound and southbound directions, considering that bus bays are programmed as a part of the road widening project.

Because this intersection is under reconstruction, the recommendations focused on including the necessary pedestrian amenities such as high emphasis crosswalks. Also, because there are far-side

bus bays already programmed as a part of this construction, implementing queue jumps would be feasible.

JOHNSON STREET

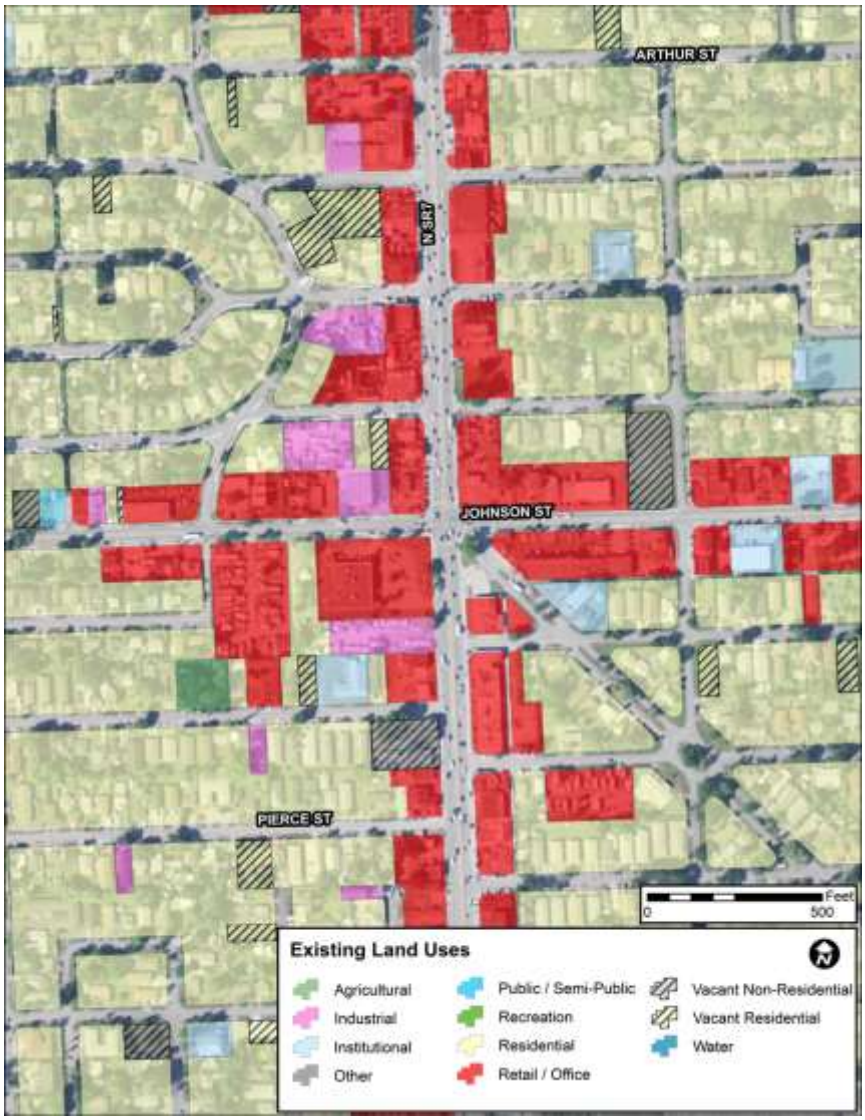
This intersection was categorized as an abbreviated study intersection based on its relative ranking of average number of daily BCT boardings and the number of bicycle/pedestrian-related crashes in comparison to the other intersections within the study area. This intersection was also selected as an abbreviated study due to the SR 7 reconstruction currently underway.

Baseline Conditions

Existing Land Use

As shown in Figure 3-33, existing land use at the intersection is primarily retail/office, with surrounding areas of residential in all directions, and some industrial to the west.

Figure 3-33: Johnson Street Existing Land Use



Transit

This intersection is served by three BCT bus routes: Route 9, Route 18, and the 441 Breeze. Route 18 provides local north-south service along SR 7, the 441 Breeze provides limited-stop north-south service along SR 7, and Route 9 provides east-west service along Johnson Street. The peak-hour headways for Routes 9, 18, and the 441 Breeze are 50 minutes, 20 minutes, and 20 minutes, respectively. Currently, there are approximately 680 cumulative average daily boardings for the BCT bus stops at this intersection. Of the 15 intersections being analyzed, this intersection has the lowest average BCT daily boardings.

Bicycle/Pedestrian

Based on the 2009-2014 crash data provided by FDOT, there were 17 crashes that involved bicyclists and/or pedestrians at this intersection. Of the 15 intersections being analyzed, this intersection ranks 7th in terms of the number of bicycle/pedestrian-related crashes.

Right-of-Way

In regard to right-of-way and adjacent property owners, FDOT owns property in the eastern quadrants of the intersection. FDOT also owns a small portion of the western quadrants, but the majority of the corner parcels are privately owned.

Field Review

Based on the field review completed, the following observations were made to form an understanding of the existing opportunities and constraints relative to this intersection:

- The far-side westbound, northbound, and eastbound stops are fairly distant from the intersection.
- No bus stops include a bus bay.
- Only the far-side southbound and far-side eastbound bus stops include a shelter.
- There are no existing bicycle lanes.

Figure 3-34 illustrates examples of the above observations for this intersection.

Figure 3-34: Johnson Street Field Review Photos

Preliminary Recommendations

The following recommendations were developed based on the baseline conditions and observations made during the field review. Some of these recommendations are being implemented as a part of the SR 7 reconstruction project currently underway.

- Upgrade existing pedestrian push buttons and associated signage.
- Upgrade all crosswalks to high-emphasis markings.
- Relocate the existing far-side northbound bus stop closer to the intersection and provide a shelter. This will require coordination with the private property owner.
- Relocate the existing far-side westbound bus stop closer to the intersection and provide a shelter. This will require coordination with the private property owner.

Because this intersection is under reconstruction, the major focus is to improve the pedestrian infrastructure and overall safety for pedestrians and transit users. By relocating the northbound

and westbound bus stops closer to the intersection, bus transfers will be more convenient and safer. As is the case for all the intersections, if a bus stop does not have a shelter, then one is recommended for the southbound and northbound bus stops at this intersection.

SHERIDAN STREET

This intersection was categorized as an abbreviated study intersection based on its relative ranking of average number of daily BCT boardings as well as the number of bicycle/pedestrian-related crashes in comparison to the other intersections within the study area. This intersection was also selected as an abbreviated study due to the SR 7 reconstruction currently underway.

Baseline Conditions

Existing Land Use

As shown in 3-35, existing land use at the intersection is primarily retail/office, with surrounding areas of residential in all directions, excluding property to the northwest of the intersection, which includes public/semi-public and recreation lands.

Figure 3-35: Sheridan Street Existing Land Use

Transit

This intersection is served by three BCT bus routes: Route 12, Route 18, and the 441 Breeze. Route 18 provides local north-south service along SR 7, the 441 Breeze provides limited-stop north-south service along SR 7, and Route 12 provides east-west service along Sheridan Street. The peak-hour headways for Routes 12, 18, and the 441 Breeze are 50 minutes, 20 minutes, and 20 minutes, respectively. Currently, there are approximately 1,270 cumulative average daily boardings for the BCT bus stops at this intersection. Of the 15 intersections being analyzed, this intersection ranks 12th in terms of average BCT daily boardings.

Bicycle/Pedestrian

Based on 2009-2014 crash data provided by FDOT, there were 20 crashes that involved bicyclists and/or pedestrians at this intersection. Of the 15 intersections being analyzed, this intersection ranks 4th in terms of the number of bicycle/pedestrian-related crashes.

Right-of-Way

In regard to right-of-way and adjacent property owners, the following summarizes the status of each quadrant of this intersection:

- The southeast quadrant parcel is owned by FDOT.
- In the northeast quadrant parcel, the City of Hollywood owns a small piece. The remainder of the corner parcel is privately owned.
- In the southwest quadrant parcel, FDOT owns a small piece. The remainder of corner parcel is privately owned.
- The northwest quadrant parcel is privately owned.

Field Review

Based on the field review completed, the following observations were made to form an understanding of the existing opportunities and constraints relative to this intersection:

- The far-side westbound and eastbound stops are fairly distant from the intersection.
- The far-side southbound stop is extremely far from the intersection.
- All bus stops have a shelter, but none include a bus bay.
- There are no existing bicycle lanes.

Figure 3-36 illustrates examples of the above observations for this intersection.

Figure 3-36: Sheridan Street Field Review Photos

Preliminary Recommendations

The following recommendations were developed based on the baseline conditions and observations made during the field review. Some of these recommendations are being implemented as a part of the SR 7 reconstruction project currently ongoing.

- Upgrade all crosswalks to high-emphasis markings.
- Verify intersection lighting.
- Provide a shelter for the existing far-side northbound bus stop.
- Relocate the existing far-side eastbound bus stop closer to the intersection and create an open bus bay. Also implement an queue bypass lane and provide a shelter, which will require coordination with the private property owner.
- Consider moving the existing far-side westbound bus stop closer to the intersection.

Because this intersection is under construction, the major focus was to improve the pedestrian infrastructure and overall safety for pedestrians and persons accessing transit. Also by relocating the eastbound bus stop closer to the intersection with an open bus bay, a queue bypass lane can be implemented, thus improving transit operations. As is the case for all the intersections, if a bus stop does not have a shelter, then one is recommended for the southbound and northbound bus stops at this intersection.

STIRLING ROAD

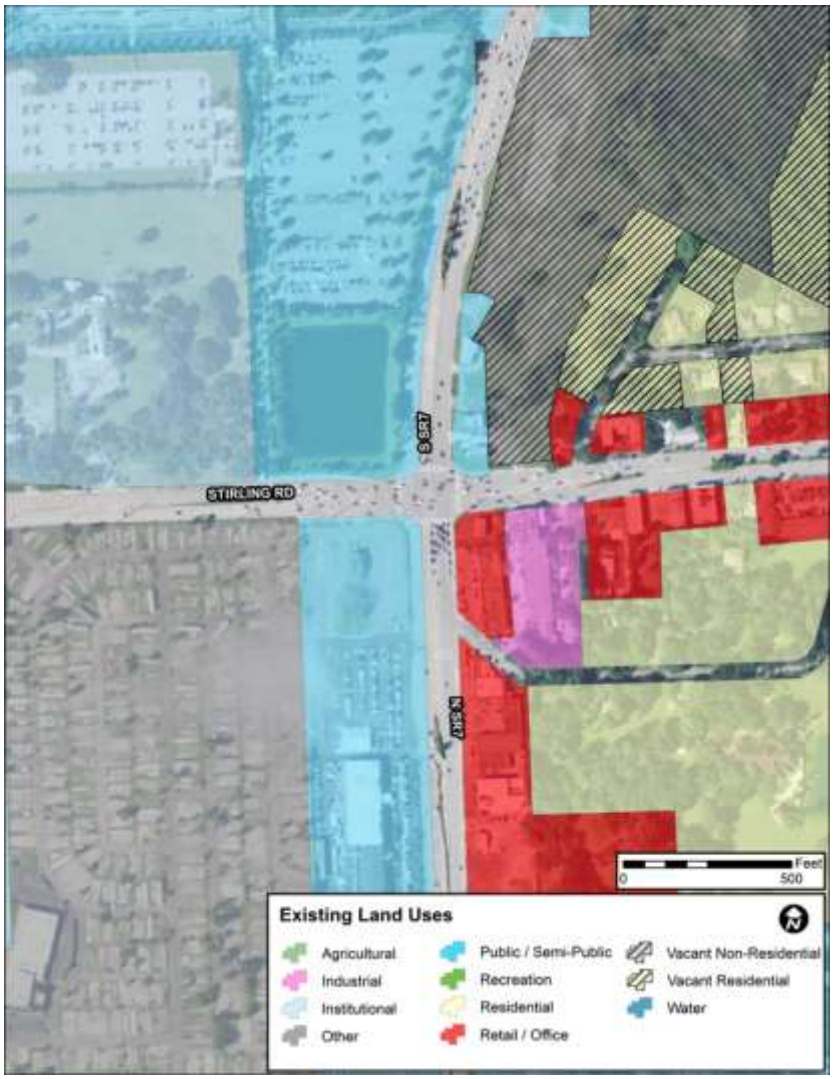
This intersection was categorized as an abbreviated study intersection based on its relative ranking of average number of daily BCT boardings and the number of bicycle/pedestrian-related crashes in comparison to the other intersections within the study area. This intersection was also selected as an abbreviated study due to the roadway widening construction currently underway.

Baseline Conditions

Existing Land Use

As shown in Figure 3-37, existing land use at the intersection is primarily public/semi-public, with retail/office uses on the southeast corner. Surrounding areas are vacant non-residential to the northeast (land owned by the Seminole Indian Tribe), retail/office and some residential to the east, and public/semi-public to the west and northwest (Seminole Hard Rock Casino).

Figure 3-37: Stirling Road Existing Land Use



Transit

This intersection is served by three BCT bus routes: Route 16, Route 18, and the 441 Breeze. Route 18 provides local north-south service along SR 7, the 441 Breeze provides limited-stop north-south service along SR 7, and Route 16 provides east-west service along Stirling Road. The peak-hour headways for Routes 16, 18, and the 441 Breeze are 20-30 minutes, 20 minutes, and 20 minutes, respectively. Currently, there are approximately 1,000 cumulative average daily boardings for the BCT bus stops at this intersection. Of the 15 intersections being analyzed, this intersection ranks 13th for average BCT daily boardings.

Bicycle/Pedestrian

Based on the 2009-2014 crash data provided by FDOT, there were eight crashes that involved bicyclists and/or pedestrians at this intersection. Of the 15 intersections being analyzed, this intersection ranks 13th in terms of the number of bicycle/pedestrian-related crashes.

Right-of-Way

The Seminole Indian Tribe owns property in all quadrants of the intersection except for the southeast quadrant, where the property is owned by FDOT.

Field Review

Based on the field review completed, the following observations were made to form an understanding of the existing opportunities and constraints relative to this intersection:

- This intersection appears to have adequate crosswalk markings and pedestrian crossing timing.
- There are observed issues with the existing pedestrian push buttons.
- All existing bus stops are fairly distant from the intersection and do not include a shelter. Only the far-side southbound bus stop has a bus bay.
- There are only northbound and southbound bicycle lanes along SR 7.
- The existing signal heads are dated and do not have a mast arm.
- All of the corner parcels have little to no available right-of-way and are owned by the Seminole Indian Tribe, except for the southeast corner (which is owned by FDOT).

Figure 3-38 illustrates examples of the above observations for this intersection.

Figure 3-38: Stirling Road Field Review Photos

Preliminary Recommendations

The following recommendations were developed based on the baseline conditions and observations made during the field review. Some of these recommendations are being implemented as a part of the on-going road widening project.

- Upgrade all crosswalks to high-emphasis
- Consider providing a shelter for all of the existing bus stops
- Relocate the existing far-side southbound bus stop closer to the intersection, which will require coordination with the Seminole Indian Tribe.
- Relocate the existing far-side northbound bus stop closer to the intersection, which will require coordination with the Seminole Indian Tribe.

Because this intersection is under reconstruction, the major focus is to improve the pedestrian infrastructure and overall safety for pedestrians and persons accessing transit. Any of these

recommendations will need to be coordinated with the Seminole Indian Tribe prior to implementation. As is the case for all the intersections, if a bus stop does not have a shelter, then one is recommended for the southbound and northbound bus stops at this intersection.

RIVERLAND ROAD

This intersection was categorized as an abbreviated study intersection based on its relative ranking of average number of daily BCT boardings and the number of bicycle/pedestrian-related crashes in comparison to the other intersections within the study area.

Baseline Conditions

Existing Land Use

As shown in Figure 3-39, existing land use at the intersection is mixed, with retail/office uses to the northeast and southwest, vacant/non-residential to the northwest, and industrial at the southwest corner.

Figure 3-39: Riverland Road Existing Land Use

Transit

This intersection is served by three BCT bus routes: Route 9, Route 18, and the 441 Breeze. Route 18 provides local north-south service along SR 7, the 441 Breeze provides limited-stop north-south service along SR 7, and Route 9 provides east-west service along Riverland Road. The peak-hour headways for Routes 9, 18, and the 441 Breeze are 50 minutes, 20 minutes, and 20 minutes, respectively. Currently, there are approximately 750 cumulative average daily boardings for the BCT bus stops at this intersection. Of the 15 intersections being analyzed, this intersection ranks 14th for average BCT daily boardings.

Bicycle/Pedestrian

Based on the 2009-2014 crash data provided by FDOT, there were 15 crashes that involved bicyclists and/or pedestrians at this intersection. Of the 15 intersections being analyzed, this intersection ranks 8th in terms of the number of bicycle/pedestrian-related crashes.

Right-of-Way

All of the corner parcels are privately owned with small slivers of right-of-way owned by FDOT, usually to the back of sidewalk.

Field Review

Based on the field review completed, the following observations were made forming our understanding of the existing opportunities and constraints relative to this intersection:

- The intersection seems to have adequate crosswalks and timing.
- All existing bus stops have a shelter, but do not include a bus bay.
- The far-side southbound bus stop is very distant from the intersection.
- There are only northbound and southbound bicycle lanes along SR 7.
- All of the corner parcels have little to no available right-of-way and are privately owned.

Figure 3-40 illustrates examples of the above observations for this intersection.

Figure 3-40: Riverland Road Field Review Photos

Preliminary Recommendations

The following recommendations were developed based on the baseline conditions and observations made during the field review:

- Upgrade all crosswalks to high-emphasis markings.
- Verify intersection lighting and replace missing light pole from the northeast corner.
- Tighten up the curb radius at the northwest corner.

The major focus for this intersection is to improve the pedestrian infrastructure and safety by improving visibility and tightening up the curb radii to reduce the speed of right-turning vehicles.

DAVIE BOULEVARD

This intersection was categorized as a full study intersection based on the average number of daily BCT boardings, the number of bicycle/pedestrian-related crashes, and the opportunities available for improvements.

Baseline Conditions

Existing Land Use

As shown in Figure 3-41, existing land use at the intersection includes a mix of uses, with retail/office uses on the northwest corner, vacant/other uses on the northeast and southeast corner, and other uses with surrounding public/semi-public and industrial at the southwest corner.

Figure 3-41: Davie Boulevard Existing Land Use

Transit

This intersection is served by three BCT bus routes: Route 18, Route 30, and the 441 Breeze. Route 18 provides local north-south service along SR 7, the 441 Breeze provides limited-stop north-south service along SR 7, and Route 30 provides east-west service along Davie Boulevard. The peak-hour headway for each of these routes is 20 minutes. Currently, there are approximately 1,450 cumulative average daily boardings for the BCT bus stops at this intersection. Of the 15 intersections being analyzed, this intersection ranks 9th for average BCT daily boardings.

Bicycle/Pedestrian

Based on the 2009-2014 crash data provided by FDOT, there were 12 crashes that involved bicyclists and/or pedestrians at this intersection. Of the 15 intersections being analyzed, this intersection ranks 11th in terms of the number of bicycle/pedestrian-related crashes.

Right-of-Way

The following summarizes the property ownership status of each intersection quadrant:

- The southeast quadrant is privately owned and currently vacant.
- The northeast quadrant parcel is owned by the City of Fort Lauderdale and is currently vacant.
- In the southwest and northwest quadrant parcels, FDOT owns a small piece, but it is mostly privately owned.

Field Review

Based on the field review, the following observations were made forming our understanding of the existing opportunities and constraints relative to this intersection:

- some issues were observed with the pedestrian push buttons.
- The intersection seems to have adequate crosswalk markings and pedestrian crossing timings.
- All existing bus stops are too far from the intersection and do not include a bus bay.
- All bus stops have a shelter except the far-side southbound bus stop.
- There are bicycle lanes in all directions except the west leg of the intersection. The eastbound bicycle lane starts on east side of intersection, while the westbound bicycle lane ends on east side of intersection.
- There are two vacant parcels on the east side of SR 7 in the southeast and northeast quadrants.

Figure 3-42 illustrates examples of the above observations for this intersection.

Figure 3-42: Davie Boulevard Field Reivew Photos

Preliminary Recommendations

The following recommendations were developed based on the baseline conditions and observations made during the field review:

- Upgrade existing pedestrian push buttons and associated signage.
- Fixed damaged signal heads.
- Relocate the existing near-side westbound bus stop closer to the intersection and incorporate a pedestrian/bus island and shelter. This will require coordination with the current property owner (City of Fort Lauderdale).
- Relocate the existing far-side southbound bus stop closer to the intersection and create an open bus bay, implement a queue bypass lane, and provide a shelter. This will require coordination with the current property owner.

- Widen sidewalks along Davie Boulevard west of SR 7 wherever possible in lieu of bicycle lanes.

The major focus for this intersection is to bring the bus stops closer to the intersection. A queue bypass lane could easily be included by installing an open bus bay on the far-side of the intersection for southbound buses. There also appears to be adequate right-of-way to provide a near-side westbound bus stop. This relocated bus stop would best be designed as a pedestrian/bus island with a queue jump application. Because there are existing bicycle lanes on all the legs of the intersection except the west leg, it is recommended to at a minimum sidewalks be widened to accommodate bicyclists. Adding bicycle lanes to this west leg of the intersection if difficult due to the limited available right-of-way.

BROWARD BOULEVARD

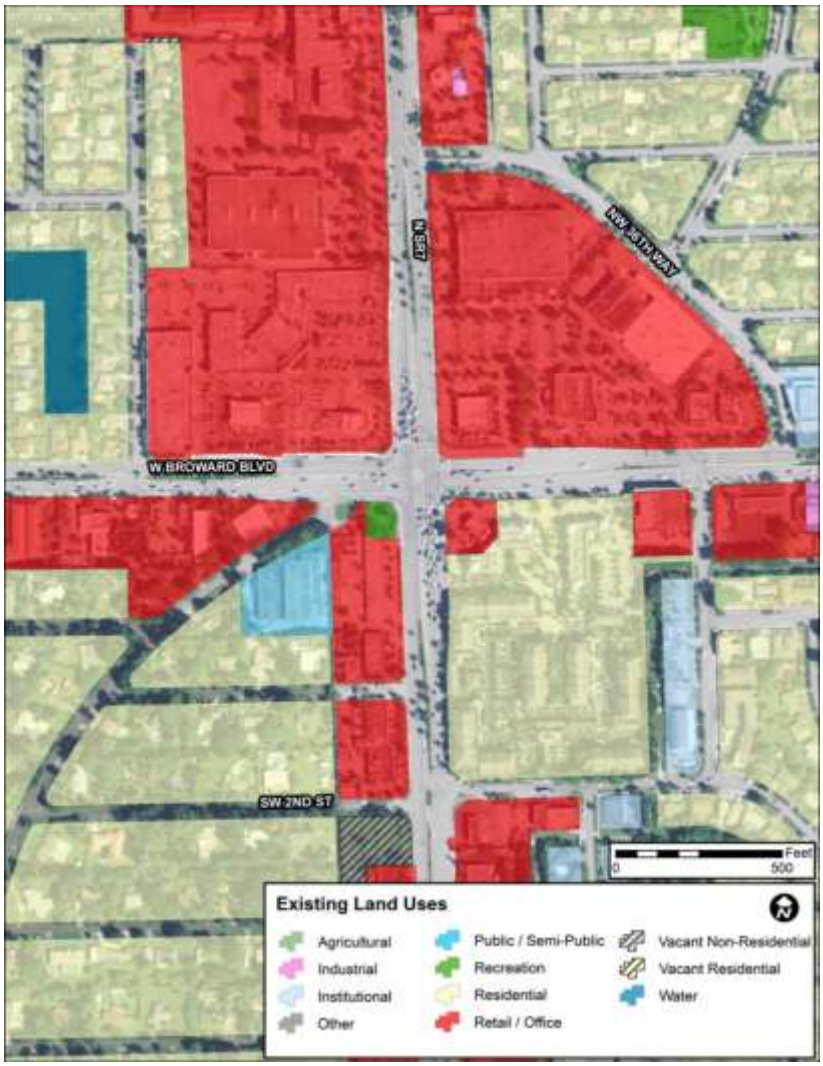
This intersection was categorized as a full study intersection based on the average number of daily BCT boardings and the number of bicycle/pedestrian-related crashes.

Baseline Conditions

Existing Land Use

As shown in Figure 3-43, the existing land use almost exclusively consists of retail/office at the intersection, with a small parcel for recreational use at the southwest corner and residential uses at the southeast corner of the intersection. Surrounding residential areas encompass the intersection especially on the south side of Broward Boulevard.

Figure 3-43: Broward Boulevard Existing Land Use



Transit

This intersection is served by three BCT bus routes: Route 18, Route 22, and the 441 Breeze. Route 18 provides local north-south service along SR 7, the 441 Breeze provides limited-stop north-south service along SR 7, and Route 22 provides east-west service along Broward Boulevard. The peak-hour headways for Routes 18, 22, and the 441 Breeze are 20 minutes, 15 minutes, and 20 minutes, respectively. Currently, there are approximately 2,700 cumulative average daily boardings for the BCT bus stops at this intersection. Of the 15 intersections being analyzed, this intersection ranks 3rd for average BCT daily boardings.

Bicycle/Pedestrian

Based on the 2009-2014 crash data provided by FDOT, there were 18 crashes that involved bicyclists and/or pedestrians at this intersection. Of the 15 intersections being analyzed, this intersection ranks 5th in terms of the number of bicycle/pedestrian-related crashes.

Right-of-Way

Most of the corner parcels are privately owned, although FDOT and the City of Plantation own some right-of-way on the southwest corner.

Field Review

Based on the field review completed, the following observations were made to form an understanding of the existing opportunities and constraints relative to this intersection:

- The existing crosswalks use dual-bar style marking.
- The far-side westbound bus stop has a shelter and a bus bay/right turn lane.
- The far-side eastbound bus stop has a shelter and a bus bay/right turn lane. This would be better positioned closer to the intersection. Moving the near-side eastbound stop closer to the intersection with a pedestrian/bus island should be considered.
- The far-side northbound bus stop has a shelter, but is extremely distant from the intersection.
- The far-side southbound bus stop has a shelter but no bus bay.
- There are existing bicycle lanes in all directions.
- There were some issues observed with the existing pedestrian push buttons.
- There is very little publicly-owned available right-of-way, although the southwest quadrant has some green space and a City of Plantation gateway sign.

Figure 3-44 illustrates examples of the above observations for this intersection.

Figure 3-44: Broward Boulevard Field Review Photos

Preliminary Recommendations

The following recommendations were developed based on the baseline conditions and observations made during the field review:

- Upgrade existing pedestrian push buttons and associated signage.
- Upgrade all crosswalks to high-emphasis.
- Relocate existing near-side eastbound bus stop to immediate intersection with a pedestrian/bus island, implement a queue jump application, and provide a shelter. This will require coordination with the City of Plantation.
- Create an open bus bay for the existing far-side westbound stop and implement a queue bypass lane.

- Consider a queue jump application for the existing far-side northbound bus stop. This will work well since the right turn lane is long and the existing far side stop is far enough from the intersection that it would not impact traffic or conflict with turning vehicles.

The major focus for this intersection is improving pedestrian-related infrastructure and bringing the bus stops closer to the intersection to make bus transfers easier and safer. Transit operations, overall speeds, and reliability can also be improved by implementing queue jumps and queue bypass lanes. A queue bypass lane can easily be implemented by installing an open bus bay on the far-side of the intersection for westbound buses. The existing near-side eastbound bus stop can be moved directly to the intersection and a pedestrian/bus island can be implemented. There seems to be adequate right-of-way on the southwest corner for this pedestrian/bus island, but there is an existing City of Plantation gateway sign that would need to be relocated. This will require coordination with the City of Plantation and FDOT. A queue jump application could work for the northbound movement considering there is a long existing right turn lane and the far-side bus stop (although without a bus bay) is far enough away from the intersection to conflict with turning vehicles.

LAUDERHILL MALL AREA

This area, which consists of two intersections (NW 16th Street and NW 12th Street), was categorized as an abbreviated study intersection based its relative ranking of average number of daily BCT boardings and the number of bicycle/pedestrian-related crashes compared to the other intersections in the study area. A new transit center at the Lauderhill Mall is also planned for construction in 2016, which is further detailed in BCT's Transit Development Plan.

Baseline Conditions

Existing Land Use

As shown in Figure 3-45, the existing land use consists almost exclusively of retail/office at the intersections. NW 16th Street has some surrounding industrial uses directly to the east, and NW 12th Street has residential and recreational areas to the east.

Figure 3-45: Lauderhill Mall Area Existing Land Use

Transit

This area features the Lauderhill Transfer Facility, which serves five BCT bus routes, plus the 441 Breeze Route for a total of six routes: Route 18, Route 19, Route 36, Route 40, Route 81, and the 441 Breeze. The peak-hour headways for Routes 18, 19, 40, and the 441 Breeze are 20 minutes, except for Route 36 (15 minutes) and Route 81 (30 minutes). Currently, there are approximately 10,430 cumulative average daily boardings for the BCT bus stops at the Lauderhill Transfer Facility plus the 441 Breeze stop on SR 7. Of the 15 intersections being analyzed, this area by far has the most BCT average daily boardings.

Bicycle/Pedestrian

Based on the 2009-2014 crash data provided by FDOT, there were 15 crashes that involved bicyclists and/or pedestrians at this intersection. Of the 15 intersections being analyzed, this area ranks 8th in terms of the number of bicycle/pedestrian-related crashes.

Right-of-Way

Most of the parcels within the Lauderhill Mall area are privately owned except for the area near the existing transfer facility and the area for the newly programmed transfer facility that faces SR 7.

Field Review

Based on the field review completed, the following observations were made to form an understanding of the existing opportunities and constraints relative to this intersection:

- Some geometric issues were observed, such as deficient curb ramps and pedestrian push buttons.
- The existing crosswalks use a dual-bar style marking.
- The existing northbound bus stop along SR 7 (just north of NW 12th Street) has a shelter but no bus bay.
- There are large amounts of underutilized surface parking lots on the west side of SR 7.

Figure 3-46 illustrates examples of the above observations for this intersection.

Figure 3-46: Lauderhill Mall Area Field Review Photos

Preliminary Recommendations

The following recommendations were developed based on the baseline conditions and observations made during the field review:

- Upgrade existing pedestrian push buttons and associated signage.
- Upgrade all crosswalks to high-emphasis markings.
- Relocate existing northbound bus stop across from the programmed BCT transit transfer center.

The major focus for this intersection is to improve pedestrian-related infrastructure and safety for pedestrians and persons accessing transit. There are existing plans to relocate the existing BCT transit center. Therefore, it is recommended to move the existing northbound stop along SR 7 (used by the 441 Breeze) across from the future transit center.

OAKLAND PARK BOULEVARD

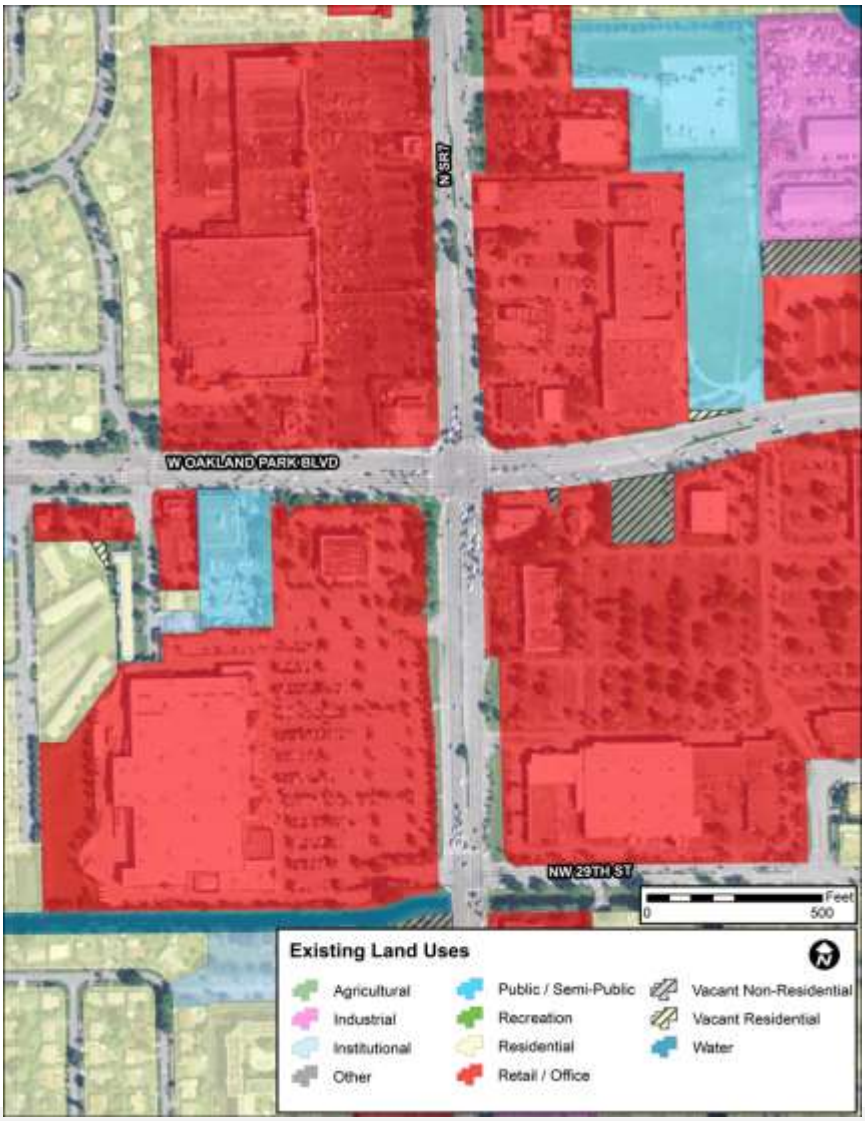
This intersection was categorized as a full study intersection based on the average number of daily BCT boardings and the number of bicycle/pedestrian-related crashes in comparison to the other intersections within the study area.

Baseline Conditions

Existing Land Use

As shown in Figure 3-47 the existing land use at the intersection consists almost exclusively of retail/office, with some surrounding public/semi-public and vacant non-residential areas.

Figure 3-47: Oakland Park Boulevard Existing Land Use



Transit

This intersection is served by three BCT bus routes: Route 19, Route 72, and the 441 Breeze. Route 19 provides local north-south service along SR 7, the 441 Breeze provides limited-stop north-south service along SR 7, and Route 72 provides east-west service along Oakland Park Boulevard. The peak-hour headways for Routes 19, 72, and the 441 Breeze are 20 minutes, 15 minutes, and 20 minutes, respectively. Currently, there are approximately 6,160 cumulative average daily boardings for the BCT bus stops at this intersection. Of the 15 intersections being analyzed, this intersection ranks 2nd in terms of average BCT daily boardings.

Bicycle/Pedestrian

Based on the 2009-2014 crash data provided by FDOT, there were 40 crashes that involved bicyclists and/or pedestrians at this intersection. Of the 15 intersections being analyzed, this intersection had the most bicycle/pedestrian-related crashes.

Right-of-Way

In regard to right-of-way and adjacent property ownership, the following is noted for each quadrant of this intersection:

- The parcel in the southeast quadrant is privately owned.
- In the northeast and northwest quadrants, some of the land is owned by the Broward County with the remainder of the respective corner parcel being privately owned.
- The parcel in the southwest quadrant is primarily owned by the City of Lauderdale Lakes.

Field Review

Based on the field review completed, the following observations were made to form an understanding of the existing opportunities and constraints relative to this intersection:

- The existing crosswalks use a dual-bar style marking.
- The far-side westbound bus stop has a shelter and no bus bay; the bus stop would be better positioned closer to the intersection.
- The far-side eastbound bus stop has a shelter and no bus bay; the bus stop would be better positioned closer to the intersection.
- The far-side northbound bus stop has a shelter and a bus bay.
- The far-side southbound bus stop has a shelter and a bus bay/right turn lane.
- The only existing bicycle lane is southbound and starts just south of the intersection.
- Some geometric issues were observed, such as deficient curb ramps and pedestrian push buttons.

- The light pole at northeast corner is missing a luminaire.
- Many people were observed crossing in the median (across turning lanes) despite the 'No Pedestrian Crossing' signage in the median.
- There is very little publicly-owned available right-of-way and there are large transmission poles on the southern side of Oakland Park Boulevard.

Figure 3-48 illustrates examples of the above observations for this intersection.

Figure 3-48: Oakland Park Boulevard Field Reivew Photos

Preliminary Recommendations

The following recommendations were developed based on the baseline conditions and observations made during the field review:

- Upgrade existing pedestrian push buttons and associated signage.
- Upgrade all crosswalks to high-emphasis markings.
- Verify intersection lighting and replace the missing luminaire in the light pole at the northeast intersection.
- Relocate the existing near-side westbound bus stop closer to the intersection with a pedestrian/bus island and shelter and implement a queue jump application. This will require coordination with Broward County.
- Create an open bus bay for the existing far-side southbound bus stop and implement a queue bypass lane.
- Create an open bus bay for the existing far-side northbound bus stop and implement a queue bypass lane.
- Relocate the existing far-side eastbound closer to the intersection and include a traditional 'closed' bus bay and shelter. Also implement a queue jump application. This will require coordination with the private property owner.
- Widen sidewalks where feasible in lieu of bicycle lanes.

This intersection experienced the most bicycle and pedestrian related crashes based on the data reviewed. Therefore, the major focus for this intersection is to improve pedestrian-related infrastructure and bring the bus stops closer to the intersection to make transfers easier and safer. Transit operations, overall speeds, and reliability can also be improved by implementing queue jumps and queue bypass lanes. Queue bypass lanes can easily be implemented for the northbound and southbound movements by modifying the existing 'closed' bus bays to 'open' bus bays. A closed bus bay is recommended for the eastbound movements, which moves the bus stop closer to the intersection. It is recommended to pair this bus bay with a queue jump application. It is also recommended to move the existing near-side westbound bus stop to the immediate intersection and implementing a pedestrian/bus island with a queue jump application.

COMMERCIAL BOULEVARD

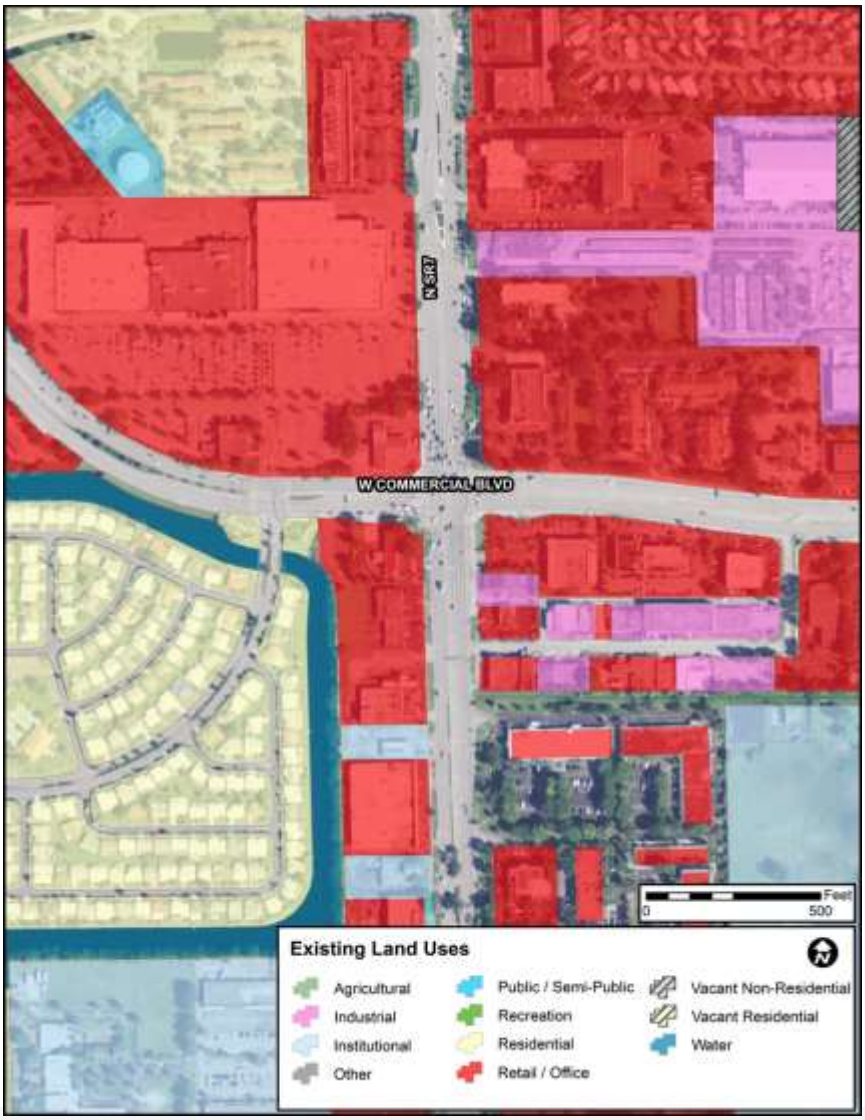
This intersection was categorized as a full study intersection based on the average number of daily BCT boardings and the number of bicycle/pedestrian-related crashes in comparison to the other intersections within the study area.

Baseline Conditions

Existing Land Use

As shown in Figure 3-49, the existing land use at the intersection almost exclusively consists of retail/office. Single family residential housing exists southwest of the intersection.

Figure 3-49: Commercial Boulevard Existing Land Use



Transit

This intersection is served by three BCT bus routes: Route 19, Route 55, and the 441 Breeze. Route 19 provides local north-south service along SR 7, the 441 Breeze provides limited-stop north-south service along SR 7, and Route 55 provides east-west service along Commercial Boulevard. The peak-hour headway for each of these routes is 20 minutes. Currently, there are approximately 2,130 cumulative average daily boardings for the BCT bus stops at this intersection. Of the 15 intersections being analyzed, this intersection ranks 6th for average BCT daily boardings.

Bicycle/Pedestrian

Based on the 2009-2014 crash data provided by FDOT, there were 27 crashes that involved bicyclists and/or pedestrians at this intersection. Of the 15 intersections being analyzed, this intersection ranks 2nd in terms of the number of bicycle/pedestrian-related crashes.

Right-of-Way

The following summarizes the property ownership status at each quadrant of this intersection:

- In the southeast quadrant, a small portion of the parcel is owned by FDOT with remainder of the corner parcel being privately owned.
- In the northeast and southwest quadrants, portions of the parcel are owned by the City of Tamarac with the remainder of the corner parcel being privately owned.
- In the northwest quadrant the parcel is privately owned.

Field Review

Based on the field review completed, the following observations were made to form an understanding of the existing opportunities and constraints relative to this intersection:

- The near-side westbound bus stop is directly adjacent to the right turn and does not have a shelter or a bus bay.
- The far-side eastbound bus stop has a shelter and a bus bay.
- The far-side northbound bus stop has a shelter and a bus bay/right turn lane but is very distant from the intersection.
- The far-side southbound bus stop has a shelter but no bus bay; the bus stop would be better positioned closer to the intersection.
- There are no existing bicycle lanes in any direction.
- The intersection seems to have adequate crosswalk markings and pedestrian crossing timing.

- Some geometric issues were observed, such as deficient curb ramps and pedestrian push buttons.
- Many people were observed crossing in the median (across turning lanes) despite the 'No Pedestrian Crossing' signage in the median.
- There is very little available right-of-way, although there are some grass areas on privately-owned property which could be used if an easement is obtained.

Figure 3-50 illustrates examples of the above observations for this intersection.

Figure 3-50: Commercial Boulevard Field Reivew Photos

PRELIMINARY RECOMMENDATIONS

The following recommendations were developed based on the baseline conditions and observations made during the field review:

- Upgrade existing pedestrian push buttons and associated signage.

- Remove obsolete utility pole from the southwest corner.
- Relocate the existing far-side northbound bus stop closer to the intersection and create an open bus bay, implement a queue bypass lane and provide a bus shelter.
- Create an open bus bay for the existing far-side eastbound bus stop and implement a queue bypass lane.
- Implement a pedestrian/bus island for the existing near-side westbound bus stop, implement a queue jump application, and provide a shelter. This will require coordination with the private property owner.

The major focus for this intersection is to improve pedestrian-related infrastructure and bring the bus stops closer to the intersection to make transfers easier and safer. Transit operations, overall speeds, and reliability can also be improved by implementing queue jumps and queue bypass lanes. By bringing the existing far-side northbound bus stop closer to the intersection, an open bus bay can be installed thereby allowing for a queue bypass lane application. Similarly, the existing far-side eastbound bus bay can be modified to an open bus bay, thereby allowing for a queue bypass lane application as well. A pedestrian/bus island and queue jump application is recommended for the existing near-side bus stop because of the available right-of-way.

KIMBERLY BOULEVARD

This intersection was categorized as an abbreviated study intersection based its relative ranking of average number of daily BCT boardings and the number of bicycle/pedestrian-related crashes in comparison to the other intersections within the study area.

Baseline Conditions

Existing Land Use

As shown in Figure 3-51, the existing land use at the intersection almost exclusively consists of retail/office, with a small parcel of institutional in the northwest corner, and additional areas west. Surrounding residential areas exist, including just northwest of the intersection and multiple parcels directly east.

Figure 3-51: Kimberly Boulevard Existing Land Use

Transit

This intersection is served by three BCT bus routes: Route 19, Route 62, and the 441 Breeze. Route 19 provides local north-south service along SR 7, the 441 Breeze provides limited-stop north-south service along SR 7, and Route 62 provides east-west service along Kimberly Boulevard. The peak-hour headways for Routes 19, 62, and the 441 Breeze are 20 minutes, 40 minutes, and 20 minutes, respectively. Currently, there are approximately 2,100 cumulative average daily boardings for the BCT bus stops at this intersection. Of the 15 intersections being analyzed, this intersection ranks 7th for average BCT daily boardings.

Bicycle/Pedestrian

Based on the 2009-2014 crash data provided by FDOT, there were 7 crashes that involved bicyclists and/or pedestrians at this intersection. Of the 15 intersections being analyzed, this intersection ranks 14th in terms of the number of bicycle/pedestrian-related crashes.

Right-of-Way

Most of the eastern side of SR 7 is owned by the City of North Lauderdale while the western corner parcels are privately owned.

Field Review

Based on the field review, the following observations were made forming our understanding of the existing opportunities and constraints relative to this intersection:

- Existing crosswalks use a dual-bar style marking.
- Some geometric issues were observed, such as deficient curb ramps and pedestrian push buttons.
- A light pole missing in the southwest corner.
- Bus stops locations are not ideal in terms of proximity to intersection, but due to driveways and available right-of-way, the existing locations are not recommended for relocation.
- All bus stops have a shelter.
- There are no bus bays for any of the existing bus stops.
- There are no existing bicycle lanes in any direction.
- There is no available publicly-owned right-of-way on the western side of SR 7. The City of North Lauderdale owns a significant portion of right-of-way on the eastern side of SR 7.

Figure 3-52 illustrates examples of the above observations for this intersection.

Figure 3-52: Kimberly Boulevard Field Review Photos

Preliminary Recommendations

The following recommendations were developed based on the baseline conditions and observations made during the field review:

- Upgrade existing pedestrian push buttons and associated signage.
- Upgrade all crosswalks to high-emphasis markings.
- Verify intersection lighting and replace the missing light pole at the southwest corner.
- Fix damaged signal heads.

The major focus for this intersection is to improve pedestrian-related infrastructure. There is also the need to replace missing light poles at the intersection to improve visibility and overall safety for pedestrians and persons waiting at bus stops.

ATLANTIC BOULEVARD

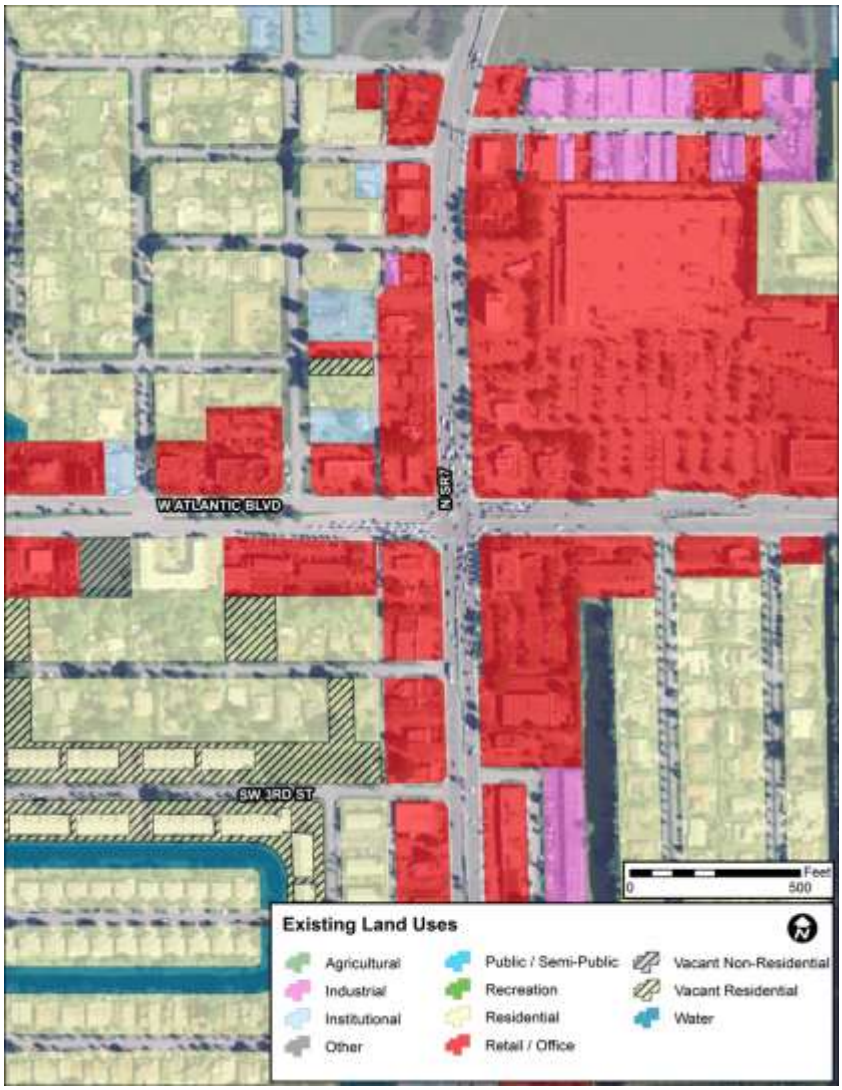
This intersection was categorized as a full study intersection based on the average number of daily BCT boardings and the number of bicycle/pedestrian-related crashes in comparison to the other intersections within the study area.

Baseline Conditions

Existing Land Use

As shown in Figure 3-53, the existing land use at the intersection almost exclusively consists of retail/office, with surrounding residential areas to the west, south and southeast.

Figure 3-53: Atlantic Boulevard Existing Land Use



Transit

This intersection is served by three BCT bus routes: Route 19, Route 42, and the 441 Breeze. Route 19 provides local north-south service along SR 7, the 441 Breeze provides limited-stop north-south service along SR 7, and Route 42 provides east-west service along Atlantic Boulevard. The peak-hour headways for Routes 19, 42, and the 441 Breeze are 20 minutes, 30 minutes, and 20 minutes, respectively. Currently, there are approximately 1,420 cumulative average daily boardings for the BCT bus stops at this intersection. Of the 15 intersections being analyzed, this intersection ranks 10th for average BCT daily boardings.

Bicycle/Pedestrian

Based on the 2009-2014 crash data provided by FDOT, there were 18 crashes that involved bicyclists and/or pedestrians at this intersection. Of the 15 intersections being analyzed, this intersection ranks 5th in terms of the number of bicycle/pedestrian-related crashes.

Right-of-*W*ay

All of the corner parcels are privately owned, although FDOT owns the right-of-way up to the back of sidewalks.

Field Review

Based on the field review, the following observations were made to form an understanding of the existing opportunities and constraints relative to this intersection:

- Most bus stops are significantly distanced from the intersection. This makes transfers more difficult for passengers by requiring longer walking distances. It was observed that passengers were dangerously jaywalking to shorted distances between bus stops when transferring buses.
- Only the far-side southbound stop has a shelter.
- There are no bus bays for any of the existing bus stops.
- There are no existing bicycle lanes in any direction.
- There is a missing light pole in the southeast corner.
- The intersection seems to have adequate crosswalk markings and pedestrian crossing timings.
- Some geometric issues were observed, such as deficient curb ramps and pedestrian push buttons.
- There is very little available publicly-owned right-of-way, although there are some grass areas on the southeast corner which could be used if an easement is obtained.

Figure 3-54 illustrates examples of the above observations for this intersection.

Figure 3-54: Atlantic Boulevard Field Reivew Photos

Preliminary Recommendations

The following recommendations were developed based on the baseline conditions and observations made during the field review:

- Install shrubs or pedestrian fencing on the west leg median
- Add 'turning vehicles yield to pedestrians' sign adjacent to the right turn lane on the west leg.
- Verify intersection lighting and add a light pole to the southeast corner.
- Reduce the radius of the northwest corner to slow down right-turning vehicle speed.
- Provide split curb ramps where feasible.

- Reconstruct the sidewalk at southwest corner to install new curb around the existing signal pole foundation.
- Provide a shelter for the existing far-side northbound bus stop.
- Relocate the existing far-side westbound bus stop closer to intersection and provide a shelter. This will require coordination with the private property owner.
- Relocate the existing far-side eastbound bus stop and create an open bus bay, implement a queue bypass lane, and provide a shelter. This will require coordination with the private property owner.
- Consider a queue jump application for the northbound movement. This will work well considering the long right turn lane and that the existing far-side bus stop is far enough from the intersection, which minimizes traffic impacts and conflicts with turning vehicles.
- Widen sidewalks wherever feasible in lieu of bicycle lanes.

The major focus for this intersection is to improve pedestrian-related infrastructure and bring the bus stops closer to the intersection to make transfers easier and safer. Transit operations, overall speeds, and reliability can also be improved by implementing queue jumps and queue bypass lanes. By bringing the existing far-side eastbound bus stop closer to the intersection with an open bus bay, a queue bypass lane can be implemented. The existing far-side westbound bus stop should also be relocated closer to the intersection with a shelter. The existing far-side northbound stop cannot be relocated closer to the intersection due to conflicts with driveways and turning vehicles. A queue jump can still be implemented for the northbound movement considering the existing bus stop is far enough away from the intersection and there is a long existing right turn lanes.

SAMPLE ROAD/TURTLE CREEK DRIVE

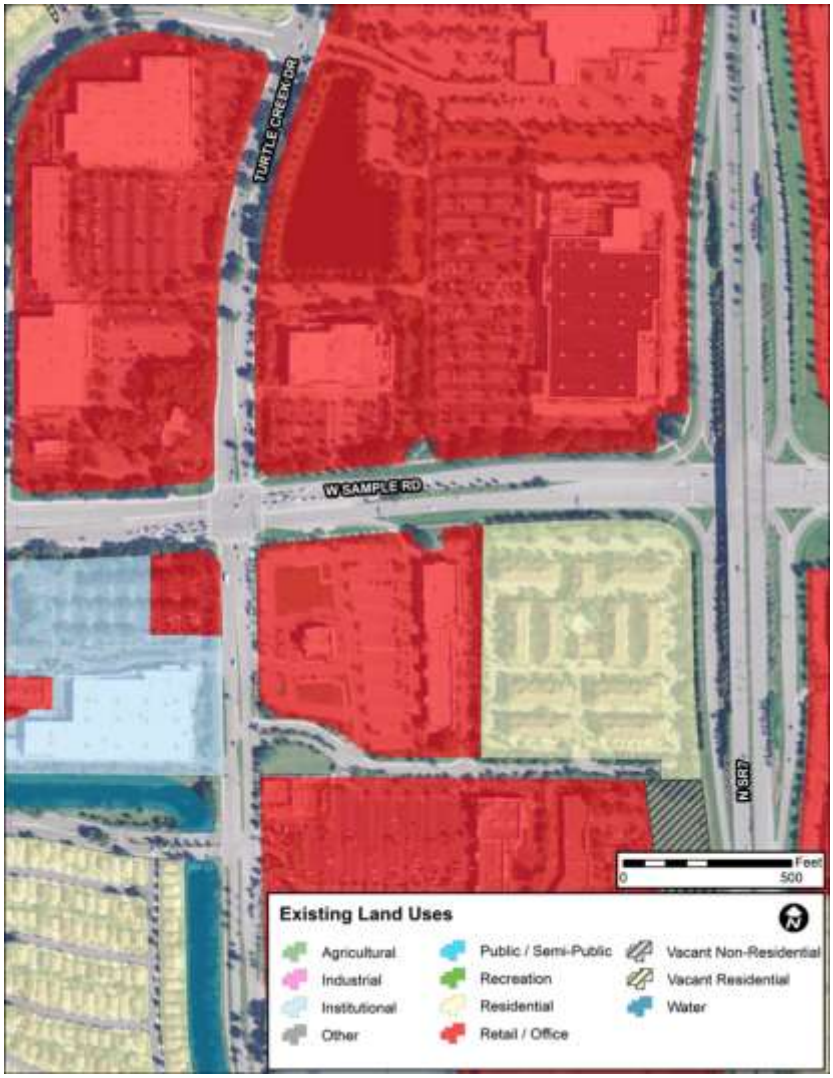
This intersection was categorized as an abbreviated study intersection based its relative ranking of average number of daily BCT boardings and the number of bicycle/pedestrian-related crashes in comparison to the other intersections within the study area. There are also ongoing planning studies being undertaken for the Sample Road/SR 7 interchange, which also contributed to categorizing this as an abbreviated study intersection.

Baseline Conditions

Existing Land Use

As shown in Figure 3-55, the existing land use at the intersection almost exclusively consists of retail/office, with a large parcel identified as industrial located on the southwest corner. Surrounding residential land uses exist to the south and east of the intersection.

Figure 3-55: Sample Road/Turtle Creek Drive Existing Land Use



Transit

This intersection is served by three BCT bus routes: Route 19, Route 34, and the 441 Breeze. Route 19 provides local north-south service along SR 7, the 441 Breeze provides limited-stop north-south service along SR 7, and Route 34 provides east-west service along Sample Road. The peak-hour

headways for Routes 19, 34, and the 441 Breeze are 20 minutes, 15 minutes, and 20 minutes, respectively. Currently, there are approximately 1,670 cumulative average daily boardings for the BCT bus stops at this intersection. Of the 15 intersections being analyzed, this intersection ranks 8th for average BCT daily boardings.

Bicycle/Pedestrian

Based on the 2009-2014 crash data provided by FDOT, there were 14 crashes that involved bicyclists and/or pedestrians at this intersection. Of the 15 intersections being analyzed, this intersection ranks 10th in terms of the number of bicycle/pedestrian-related crashes.

Right-of-Way

The following summarizes the property ownership status of each quadrant of this intersection:

- The southeast quadrant parcel is owned by FDOT
- The northeast quadrant parcel is owned by the Broward County.
- The southwest and northwest quadrant parcels are owned by the City of Coral Springs.

Field Review

Based on the field review completed, the following observations were made to form an understanding of the existing opportunities and constraints relative to this intersection:

- There is significant right-of-way/vacant land along Sample Road, which can provide an opportunity for geometric improvements at this intersection.
- The southbound bus stop has a bus-only lane for boarding/alighting.
- Turtle Creek Drive does not have any bicycle lanes, though an improvement to add sidewalks and bicycle lanes in a loop formed by Turtle Creek Drive, Cullum Road, NW 54th Avenue, and NW 62nd Avenue. Design of this improvement is programmed for FY 2018; funding for construction is not currently programmed.
- Sample Road has bicycle lanes in each direction.
- The far-side eastbound bus stop has a bus bay.
- The far-side westbound bus stop does not have a bus bay.
- All bus stops, except far-side northbound bus stop, have shelters.
- The intersection appears to have adequate crosswalk markings and pedestrian crossing timings.

Figure 3-56 illustrates examples of the above observations for this intersection.

Figure 3-56: Sample Road Field Review Photos

Preliminary Recommendations

The following recommendations were developed based on the baseline conditions and observations made during the field review:

- Upgrade all crosswalks to high-emphasis markings.
- Relocate the existing far-side northbound bus stop closer to the intersection (to the beginning of the existing right turn lane) and provide a shelter.

The main focus for this intersection is to improve the pedestrian-related infrastructure. The existing far-side northbound bus stop can also be moved closer to the intersection to the beginning of the existing right turn lane.

SECTION 3.13: CHAPTER 3 CONCLUSION

The proposed recommendations for these 15 intersections within the study area documented in this chapter were based on the existing conditions data that collected and analyzed, field review observations, professional engineering judgment, and input from the PAC. These recommendations were also presented to BCT and FDOT and adjusted as needed, based on input and comments received from these stakeholders.

The next step in this study process is to determine the constructability of the recommended improvements. The constructability reviews will include assessing the impacts to drainage, utilities, and right-of-way. A VISSIM traffic analysis will also be conducted on the full study intersections to determine the impacts to vehicular traffic. This VISSIM analysis will mainly be assessing the impacts of recommended queue jumps and queue bypass lanes by measuring the levels of delay and queuing of vehicles at the intersection. If there are fatal flaws that make any of the preliminary recommendations infeasible, then the recommendation(s) will either be modified to mitigate the impact(s) or they will be removed from the recommendations.

Once the impacts of these recommendations are assessed and finalized, planning-level cost estimates will be developed in order for the subsequent implementation plan to be assembled. A NEPA screening and preliminary determination will also be completed to determine the recommendations' impacts to historical resources, contamination sites, and existing wetlands. The results of this analysis will be documented in Chapter 4.