Fort Lauderdale Beach Mobility

Multimodal Assessment and Technical Appendix

May 2018

Prepared for

CITY OF FORT LAUDERDALE

Prepared by

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CITY OF FORT LAUDERDALE

This documentation provides an overview of the multimodal assessment performed as part of the Fort Lauderdale Beach Mobility study. The assessment serves as an inventory and map series to document the existing conditions in the study area and the area that includes the barrier island, as shown in Map 1. Characteristics of the adjacent areas just beyond the study area have been included to provide a better picture of mobility in the area.

The following sections are included in this report:

- Section 1.1: Traffic Safety Hotspots
- Section 1.2 and 1.3: Traffic Congestion
    - Existing and Future Daily Level of Service (LOS)
    - AM/PM Peak-Hour Directional LOS
    - AM/PM Major Intersection Estimated Volume/Capacity Ratio
- Section 1.4: Bicycle and Pedestrian Network Gaps/Mobility Barriers
- Section 1.5: Transit Routes with Ridership and Focus Areas
- Section 1.6: Development Density/Intensity, Activity Centers, and Planned Infill and Redevelopment
- Section 1.7: Las Olas Boulevard Corridor and SR-A1A Streetscape Improvements
- Section 1.8: Phase Two Critical Data Needs

Map 1: Study Area

1.1 Traffic Safety Hotspots

To understand the issues at the street level, it is important to document locations at which crashes are occurring for both motorized and non-motorized modes of transportation. As show in Map 1.1-1, the greatest concentration of crashes within the study area occurs at the intersections of Las Olas Boulevard at A1A and Sunrise Boulevard at A1A. The concentration is slightly higher on the southbound (Seabreeze Boulevard) portion of the one-way pairs. Figure 1.1-1 and 1.1-2 show the locations of the crashes on the roadway. The key findings in the primary focus area are the following:

- A majority of crashes occur on arterials.
- Most bike/pedestrian crashes occur away from intersections.
- The peak time for pedestrian crashes was 2:00–3:00 PM. Bicycle crashes were more evenly distributed.

Figure 1.1-1

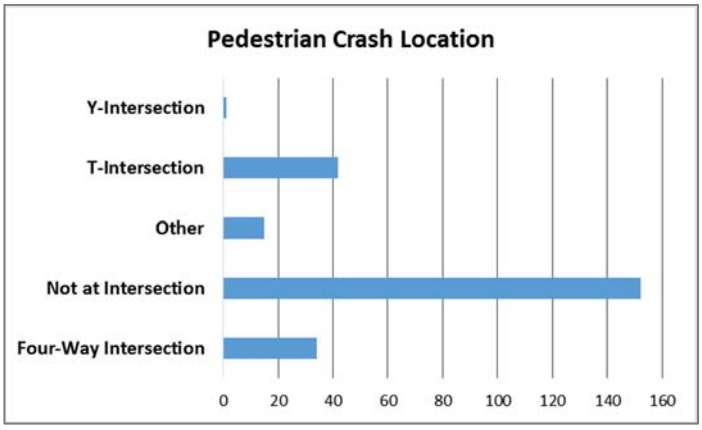
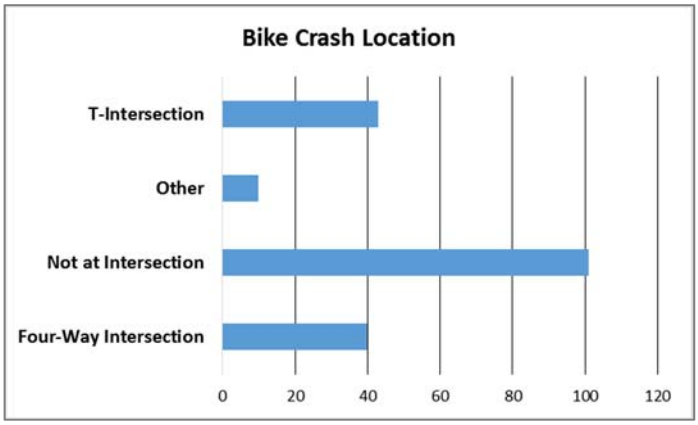
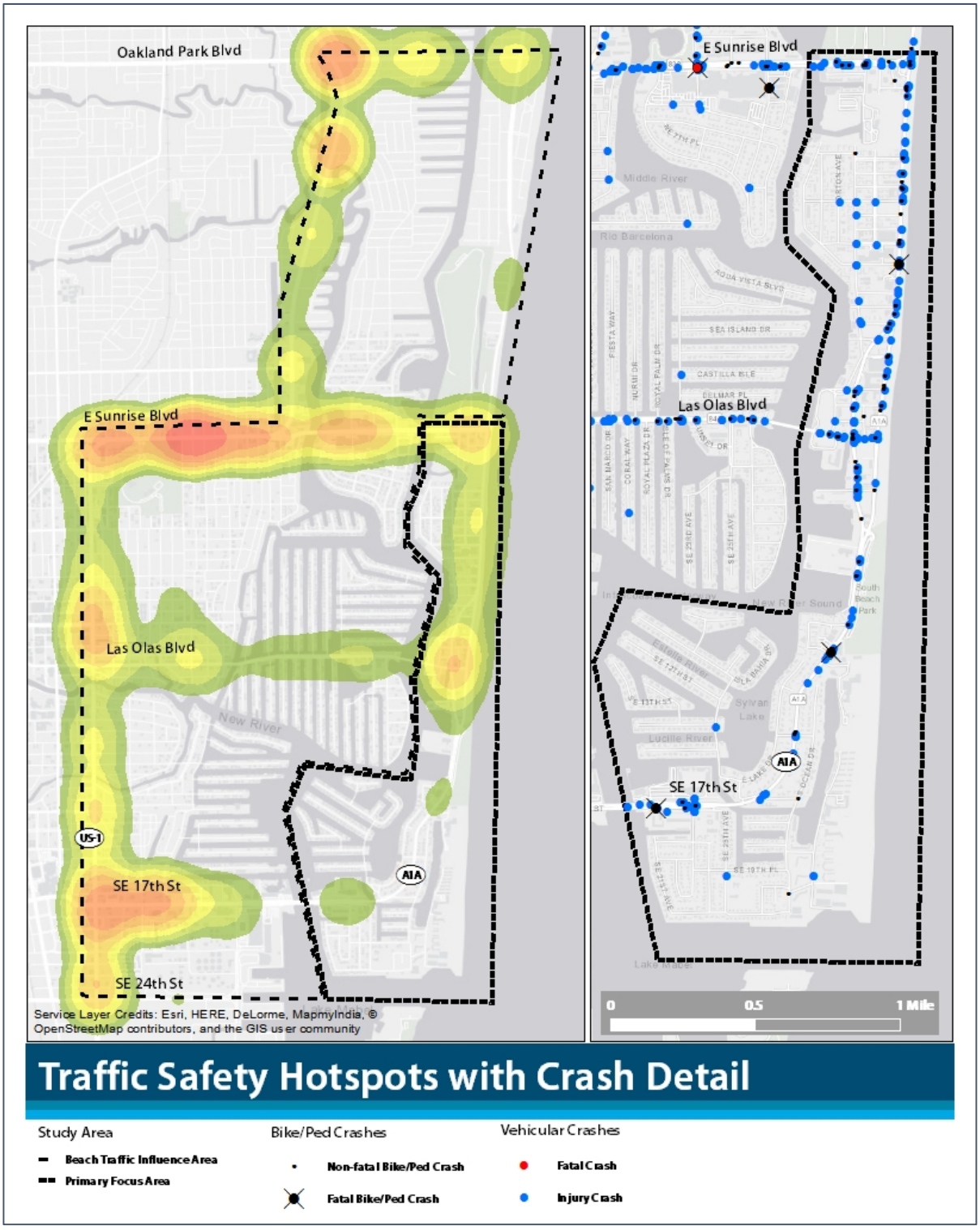


Figure 1.1-2



Map 1.1-1



Source: FDOT Crash Data Management System, 2012–2016

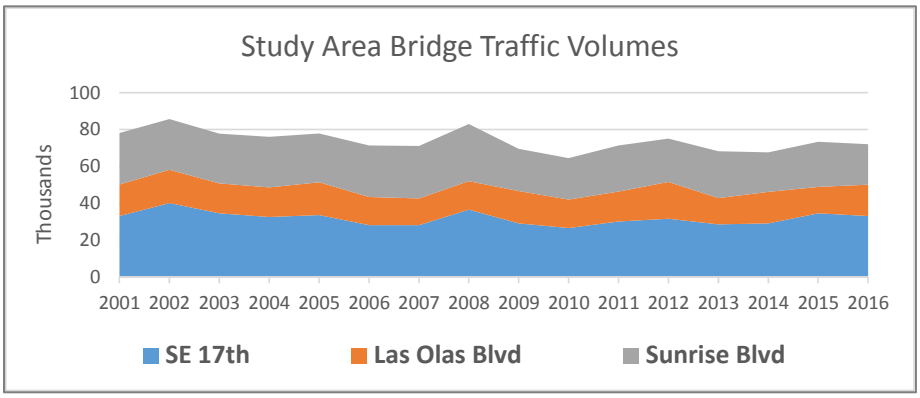
1.2 Traffic Congestion

Figures 1.2-1 and 1.2-2 display the overall traffic volumes on the major corridors in the study area. Congestion is shown in Map 1.2-1 by displaying the ratio of peak traffic volume compared to the capacity of the roadways in the study area for 2013 (the most recent available analysis from the Broward MPO), as well as forecasted conditions in 2035.

Key findings are the following:

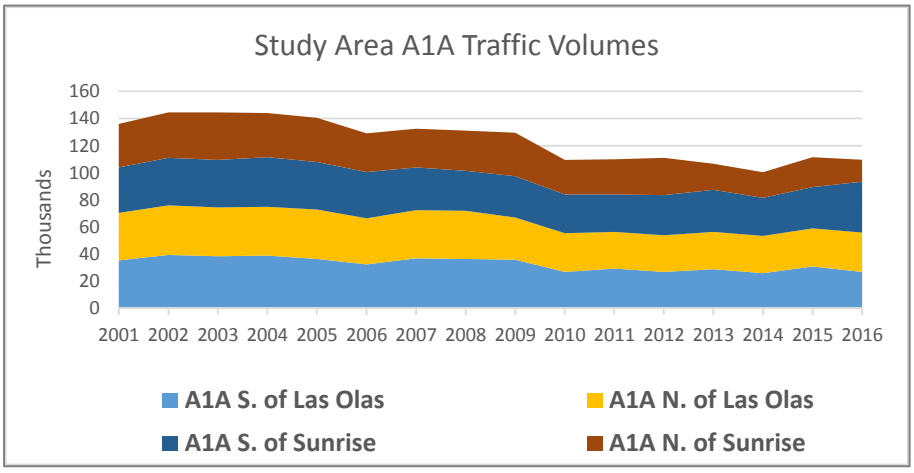
- Overall traffic is decreasing. Peak congestion is projected to increase slightly in the vicinity of A1A and Las Olas Boulevard.
- Congestion is likely affect travel times to and from the barrier island by automobile and transit operating in mixed traffic.

Figure 1.2-1



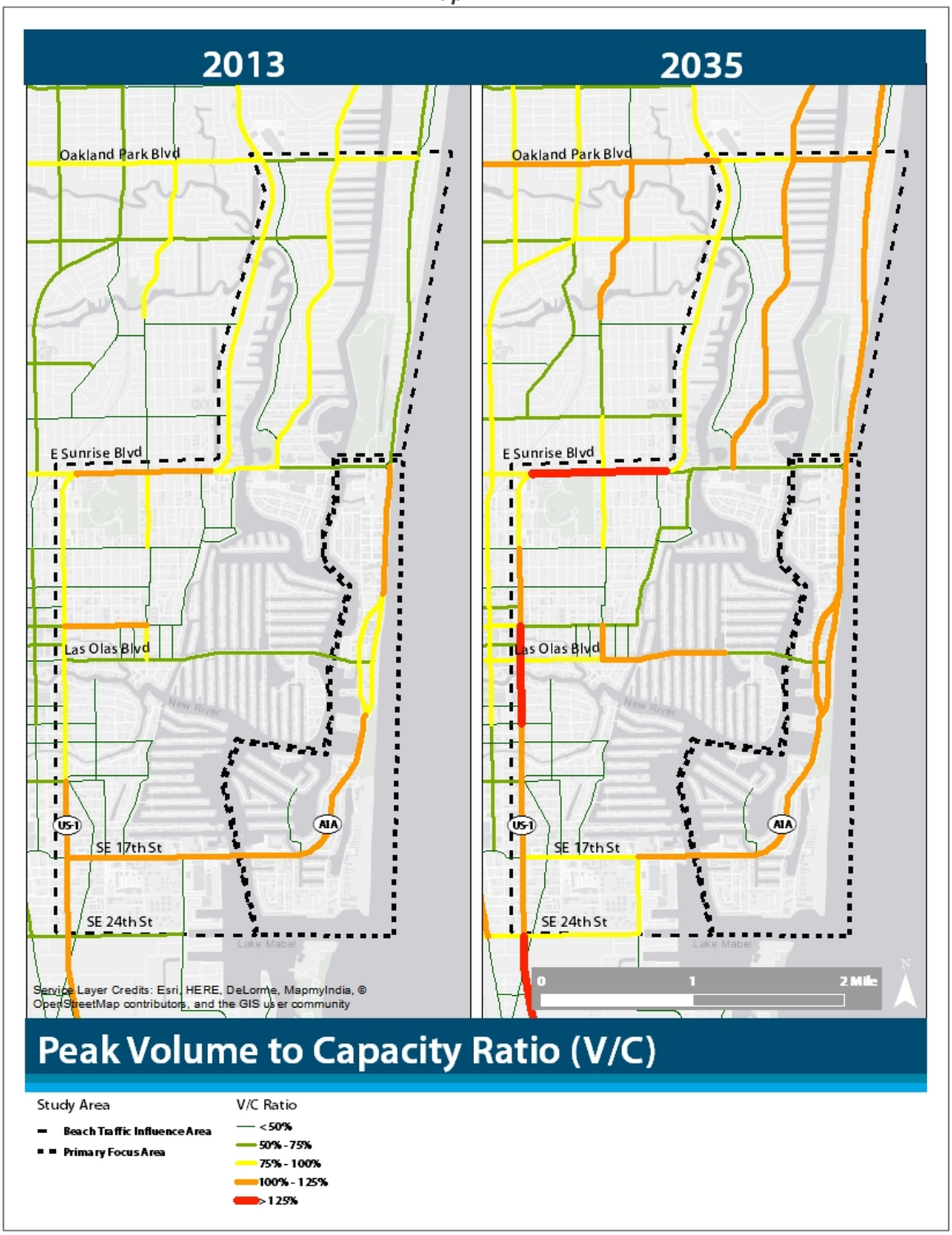
Source: http://flto.dot.state.fl.us/website/FloridaTrafficOnline/viewer.html

Figure 1.2-2



Source: http://flto.dot.state.fl.us/website/FloridaTrafficOnline/viewer.html

Map 1.2-1



Source: Broward Metropolitan Planning Organization

1.3 24-Hour Directional Traffic Volumes

To understand the directional and hourly flow of traffic on major roadways during an average weekday, directional traffic volumes were taken from Florida Traffic Online based on data gathered in April 2016 and are displayed in Figures 1.3-1 through 1.3-14.

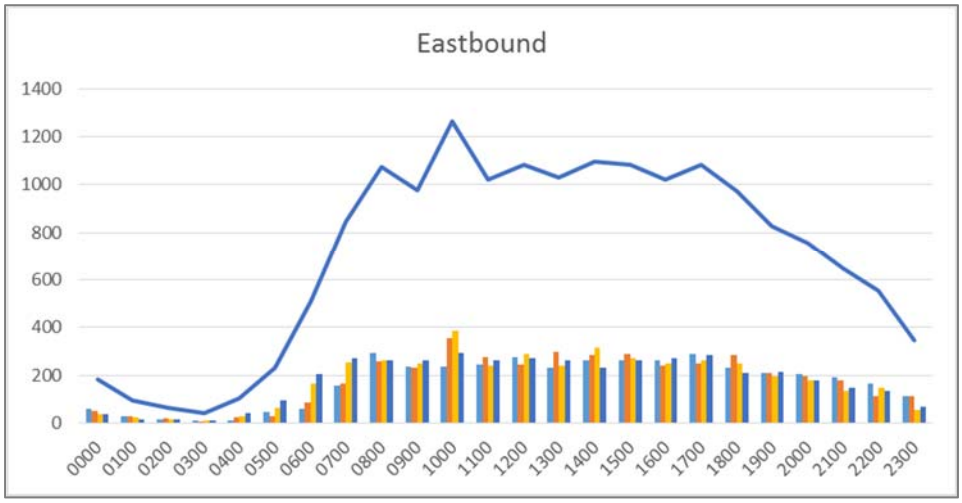
Key findings include the following:

- Generally, the 24-hour directional traffic volumes do not show that the normal AM and PM peak conditions are more common to suburban roadways; instead, they show traffic building throughout the day, with relatively high traffic volumes extending into the evening hours.
- Generally, traffic towards the Beach (Las Olas Boulevard at A1A) is heaviest during midday from all directions but remains steady throughout the day. Traffic moving away from the beach peaks primarily in the early evening but remains slightly higher on Las Olas Boulevard later into the evening.

Traffic volumes for three count stations along the roadways crossing the intra-coastal waterway and four count stations along SR A1A are described and shown in the following figures.

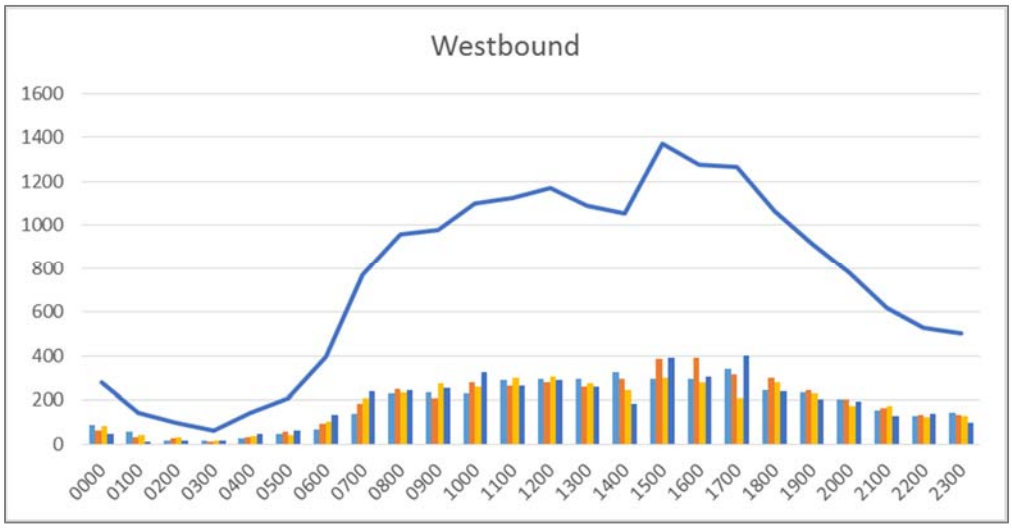
Figures 1.3-1 and 1.3-2 show a consistent level of traffic on Southeast 17th Street throughout the day. Lunch-hour traffic eastbound peaks above a consistent traffic flow all day. Westbound traffic peaks in the early evenings as vehicles move off of the barrier island.

Figure 1.3-1: SE 17th Street Eastbound at ICWW Bridge



Source: http://flto.dot.state.fl.us/website/FloridaTrafficOnline/viewer.html

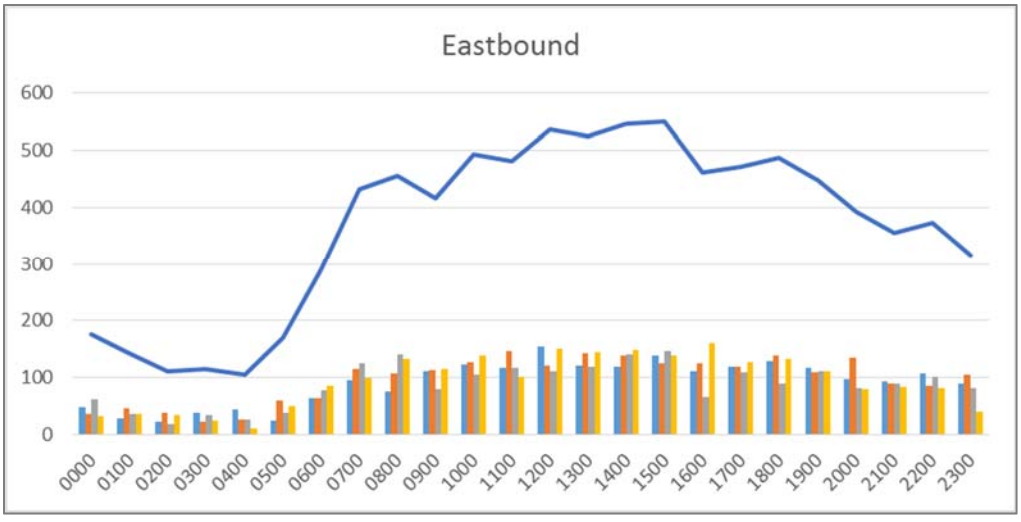
Figure 1.3-2: SE 17th Street Westbound East at ICWW Bridge



Source: http://flto.dot.state.fl.us/website/FloridaTrafficOnline/viewer.html

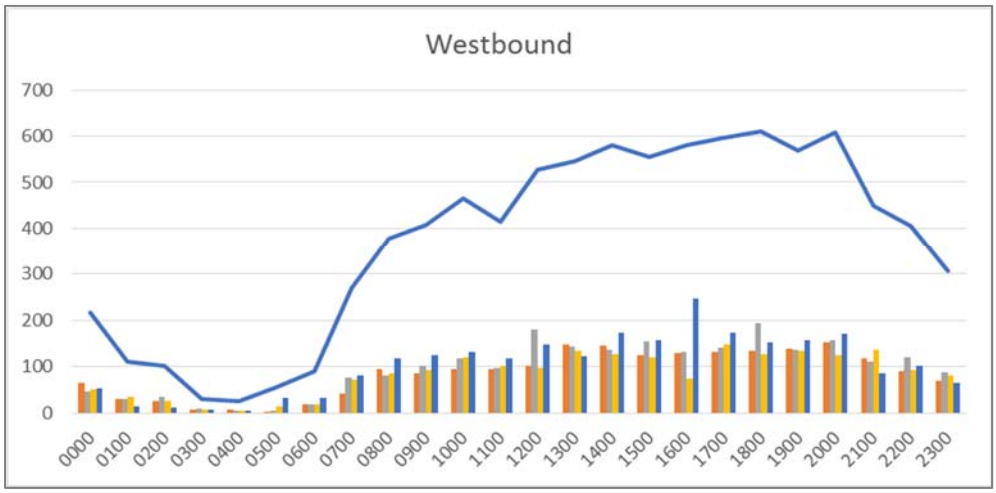
As shown in Figures 1.3-3 and 1.3-4, Las Olas Boulevard has more traffic in the afternoon and evening, typical of a dining and entertainment district.

Figure 1.3-3: Las Olas Boulevard Eastbound West of Intracoastal



Source: http://flto.dot.state.fl.us/website/FloridaTrafficOnline/viewer.html

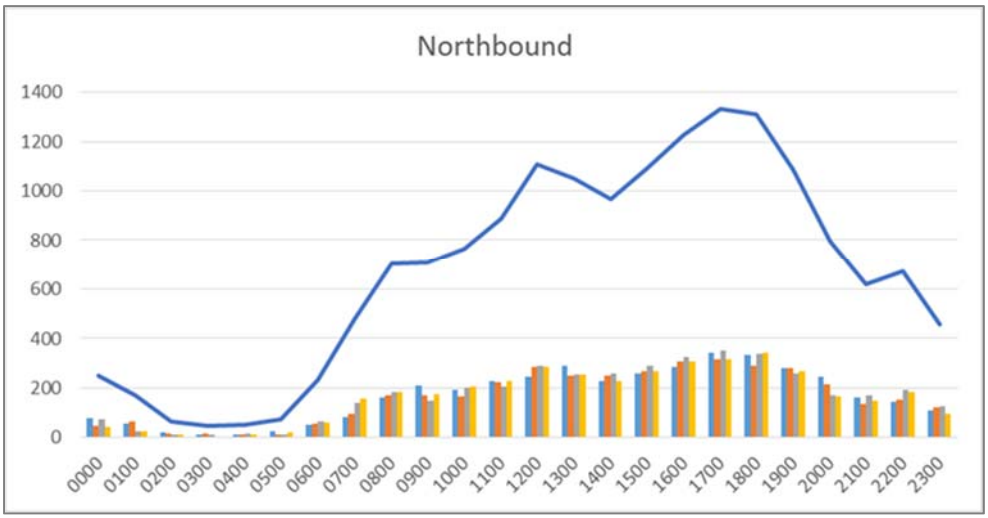
Figure 1.3-4: Las Olas Boulevard Westbound West of Intracoastal



Source: http://flto.dot.state.fl.us/website/FloridaTrafficOnline/viewer.html

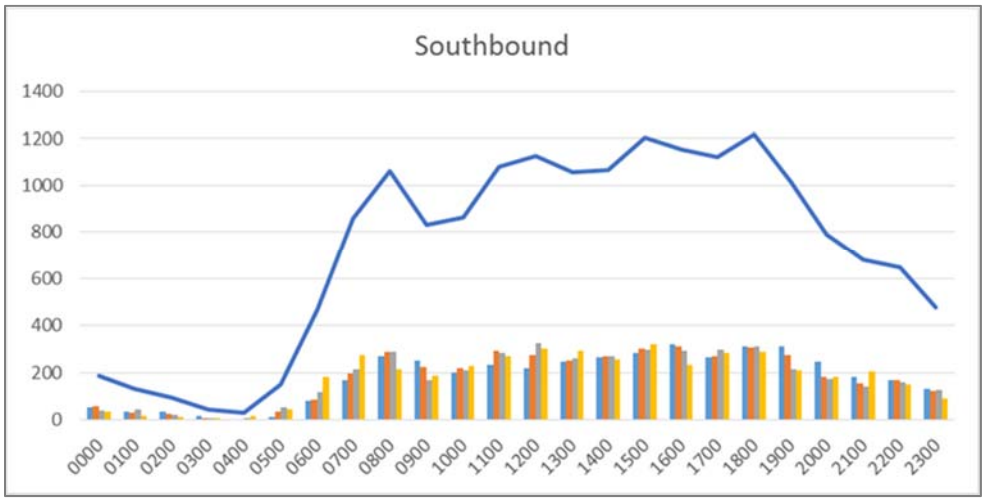
Figures 1.3-5 and 1.3-6 display traffic volumes south of Sunrise Boulevard on A1A. The northbound traffic peaks more in the evening, and the southbound movement is more evenly spread throughout the day.

Figure 1.3-5: A1A Northbound South of Sunrise Boulevard



Source: http://flto.dot.state.fl.us/website/FloridaTrafficOnline/viewer.html

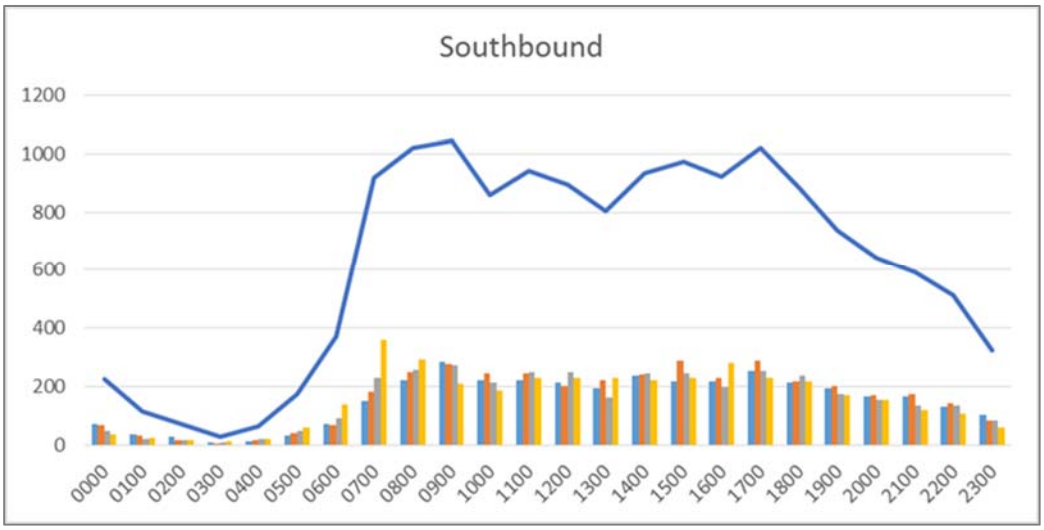
Figure 1.3-6: A1A Southbound South of Sunrise Boulevard



Source: http://flto.dot.state.fl.us/website/FloridaTrafficOnline/viewer.html

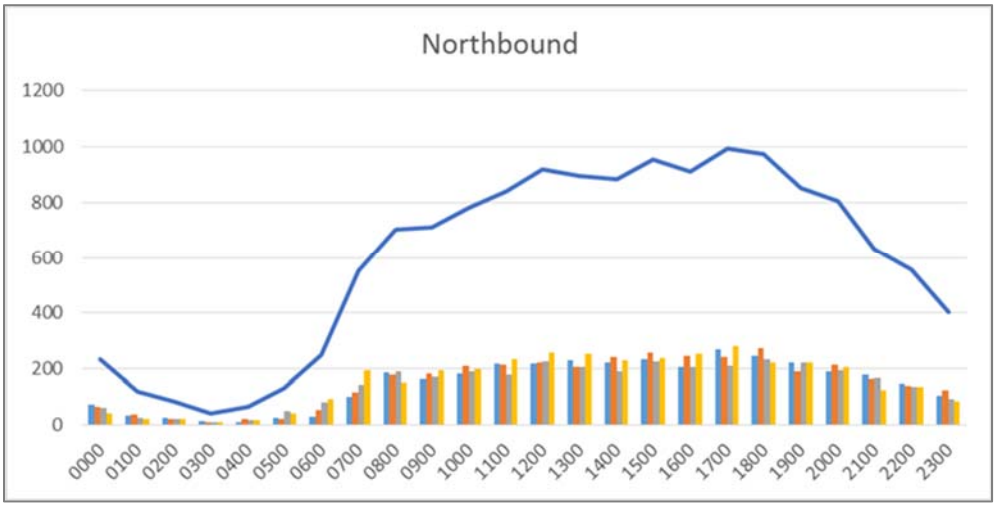
As shown in Figures 1.3-7 and 1.3-8, southbound A1A traffic is more typical of rush hour, with peaks in the morning and afternoon and a drop in traffic during the day, although minor. Northbound traffic is more consistent with other corridors in the study area.

Figure 1.3-7: A1A Southbound South of Las Olas Boulevard



Source: http://flto.dot.state.fl.us/website/FloridaTrafficOnline/viewer.html

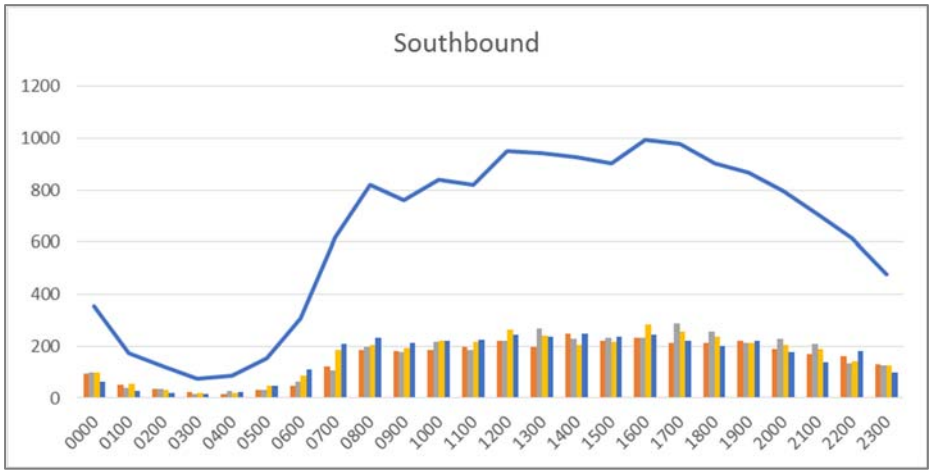
Figure 1.3-8: A1A Northbound South of las Olas Boulevard



Source: http://flto.dot.state.fl.us/website/FloridaTrafficOnline/viewer.html

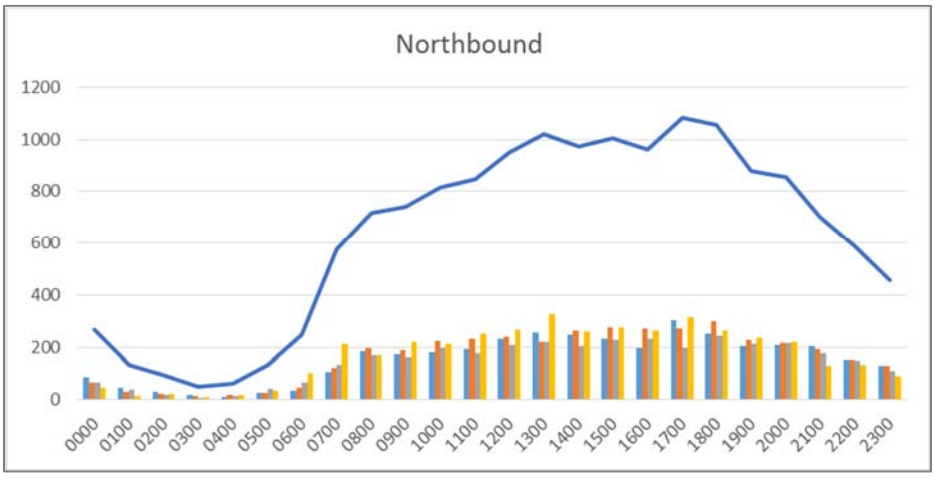
As shown in Figure 1.3-9 and 1.3-10, this section of A1A has a consistent traffic volume throughout the day, with a slight peak 5:00–7:00 PM in both directions.

Figure 1.3-9: A1A Southbound North of Las Olas Boulevard



Source: http://flto.dot.state.fl.us/website/FloridaTrafficOnline/viewer.html

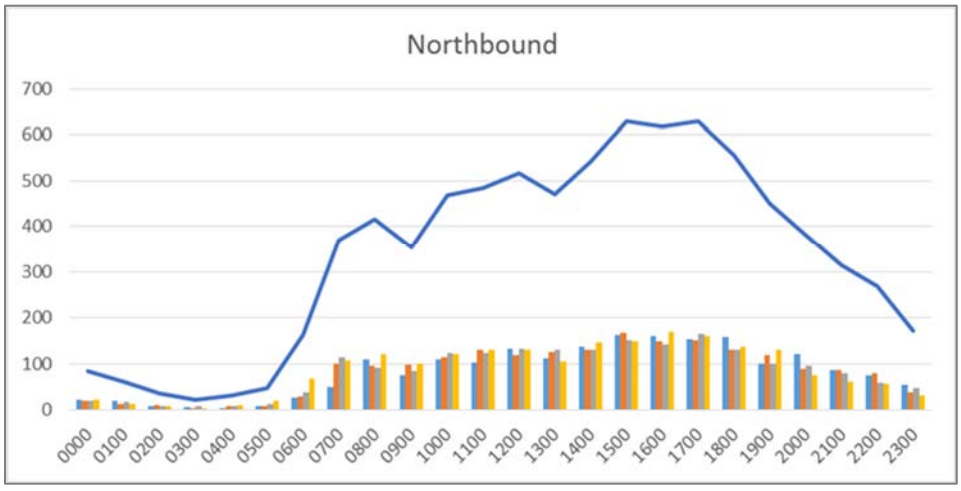
Figure 1.3-10: A1A Northbound North of Las Olas Boulevard



Source: http://flto.dot.state.fl.us/website/FloridaTrafficOnline/viewer.html

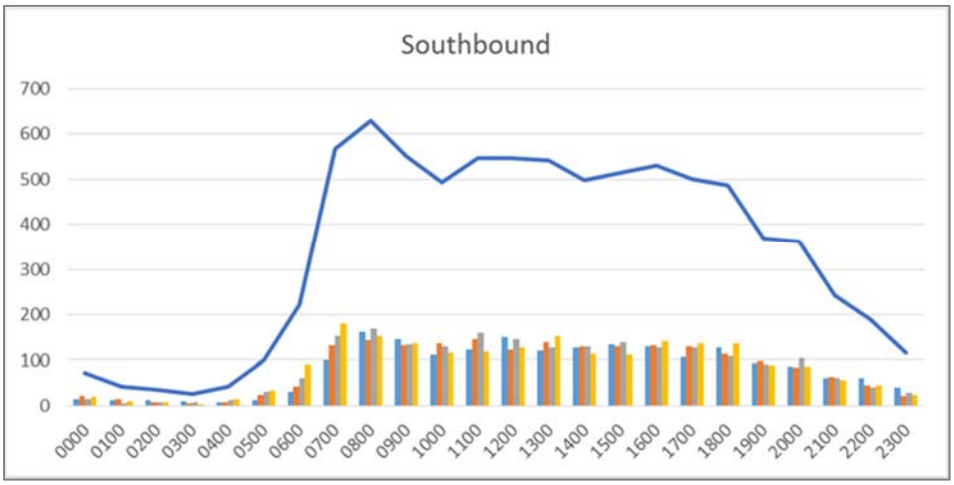
Figures 1.3-11 and 1.3-12 display traffic volumes north of Sunrise Boulevard on A1A. The movements are more typical of morning and evening rush hours with a directional flow.

Figure 1.3-11: A1A Northbound South of Sunrise Boulevard



Source: http://flto.dot.state.fl.us/website/FloridaTrafficOnline/viewer.html

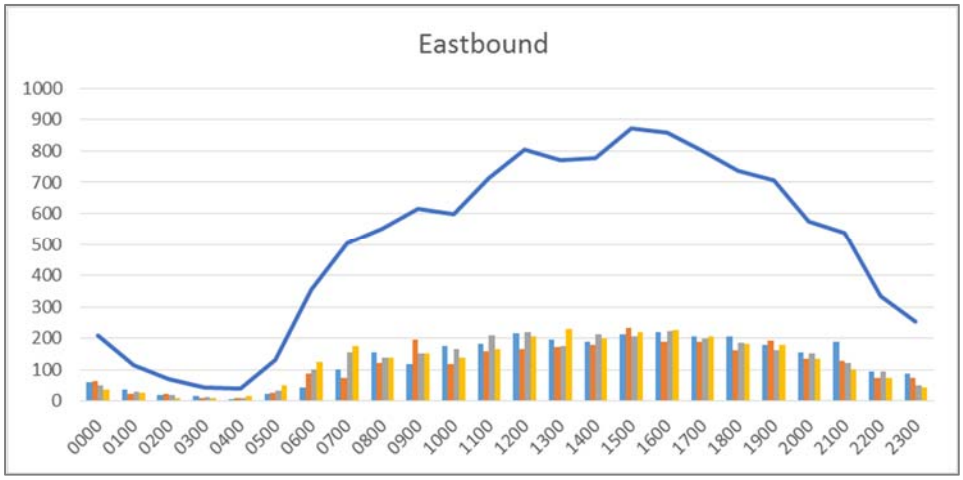
Figure 1.3-12: A1A Southbound South of Sunridse Boulevard



Source: http://flto.dot.state.fl.us/website/FloridaTrafficOnline/viewer.html

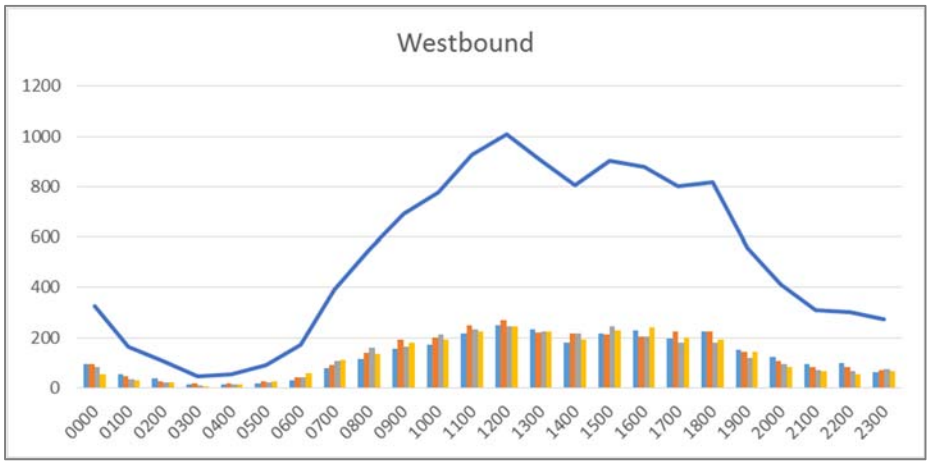
Figures 1.3-13 and 1.3-14 display traffic volumes for Sunrise Boulevard west of A1A. The movements are similarly spread out throughout the day, with slight directional peaks eastbound in the evening and westbound around noon.

Figure 1.3-13: Sunrise Boulevard Eastbound West of A1A



Source: http://flto.dot.state.fl.us/website/FloridaTrafficOnline/viewer.html

Figure 1.3-14: Sunrise Boulevard Westbound East of A1A



Source: http://flto.dot.state.fl.us/website/FloridaTrafficOnline/viewer.html

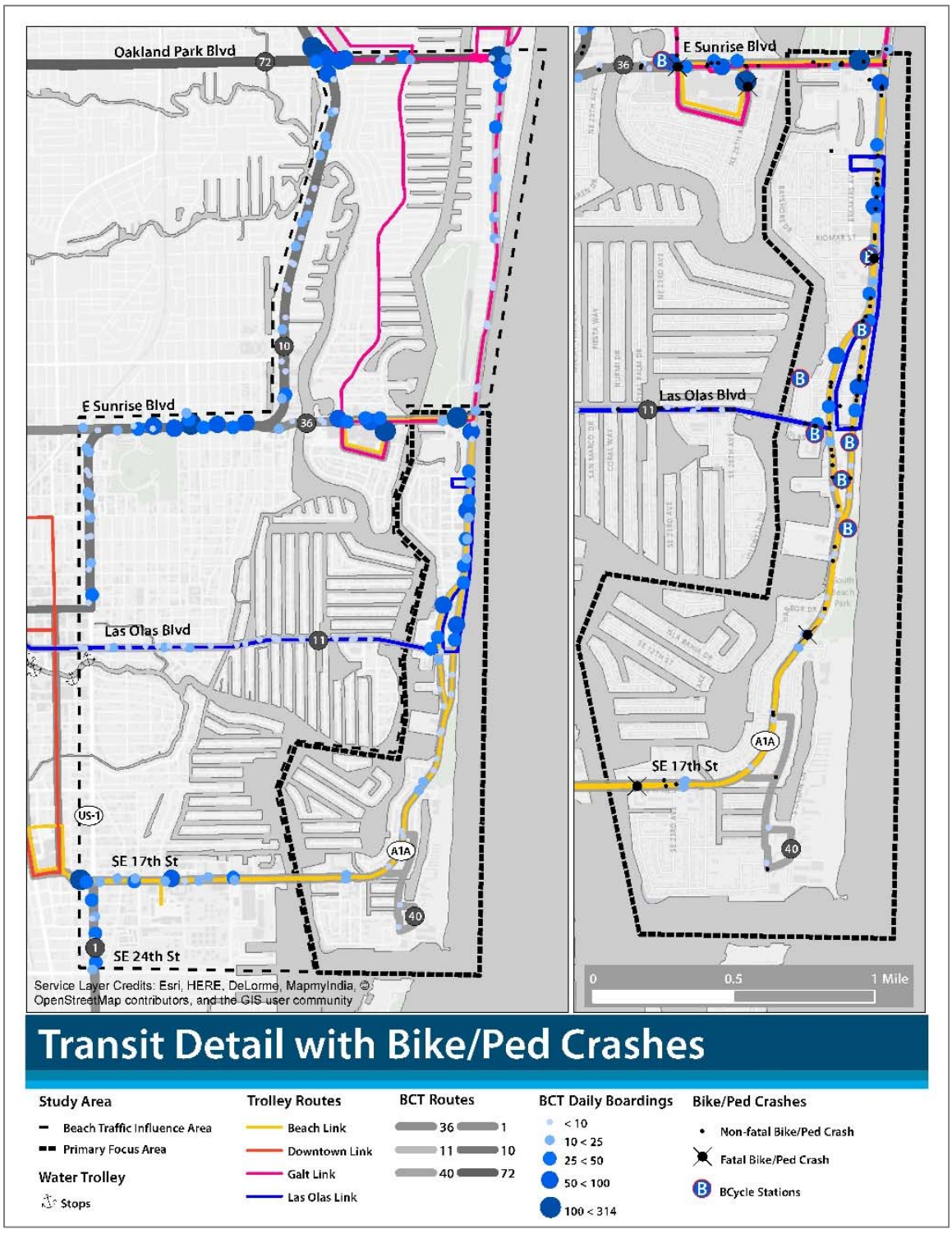
1.4 Bicycle Network Gaps and Mobility Barriers

To enhance overall mobility, it is necessary to assess non-motorized transportation mobility with an analysis of network gaps in the existing system. This section documents the existing gaps and related barriers associated with the bicycle and pedestrian network. For context, Map 1.4-1 displays bicycle and pedestrian crash data with transit and B-Cycle Stations in the study area.

Key findings include the following:

- There are many unmarked crosswalks from at-grade sidewalks off of the main arterials in the study area. Space is not clearly defined for pedestrians and often is blocked by parked vehicles.
- There are no contraflow bicycle facilities on one-way sections of A1A, which can lead to pedestrian-bicycle conflicts on sidewalks.
- Narrow and/or obstructed sidewalks on the ocean side, mixed with low light levels, create unsafe conditions.
- Transitions between bike lanes and shared lanes may be seen as barrier to utilization.
- Bike lanes and adjacent sidewalks often are blocked by taxis, Uber/Lyft, construction, delivery, and maintenance vehicles that create hazardous conditions and disrupt motorized and non-motorized traffic flow.
- Sidewalks often are obstructed by outdoor seating encroaching into public space. This also can lead to conflicts, with contraflow bicyclists using sidewalk space on the west side of A1A.
- B-Cycle Station gaps may create a barrier to utilization in the following areas:
    - Fort Lauderdale Beach Park and Convention Center
    - Between Las Olas Boulevard and Sebastian Street
    - New station at Sunrise Boulevard @ A1A

Map 1.4-1



Source: City of Fort Lauderdale, Broward County Transit, FDOT

The following bicycle and pedestrian gap descriptions are used in Figures 1.4-1 through 1.4-5. These represent an inventory of gaps in the network and not recommendations or prioritization of locations to be addressed. Gated communities were not included.

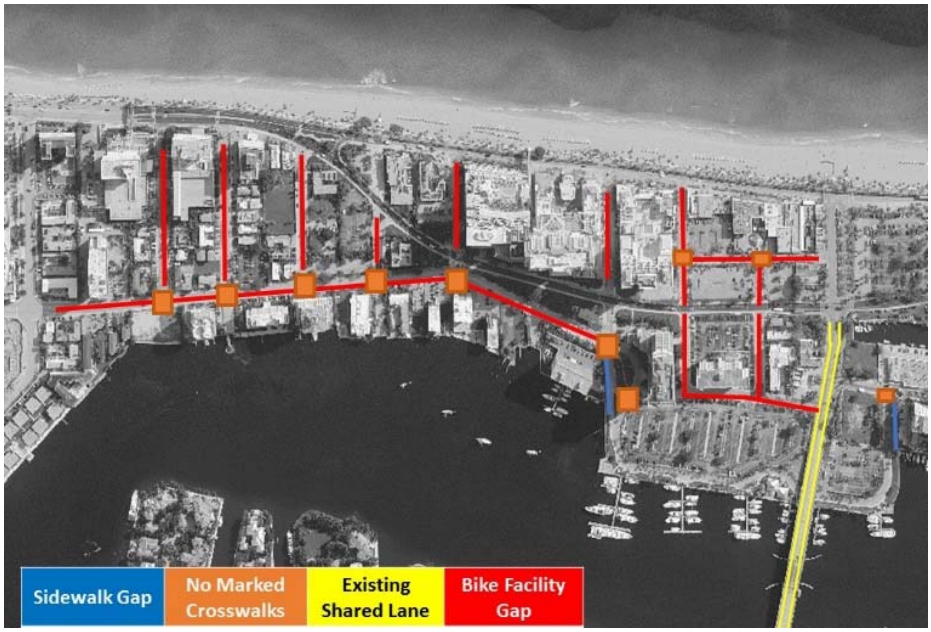
- *Sidewalk Gaps* – sections of roadway that are missing sidewalks on one or both sides of the roadway. Insufficient sidewalks are identified in later sections and are not included in the inventory.
- *No Marked Crosswalks* – intersections without any marked crossings. Some intersections that do not have crossings on each leg of the intersection are addressed in later sections.
- *Existing Shared Lanes* – roadways marked with "sharrows."
- *Bike Facility Gap* – no marked bicycle facility present. Not all bike gaps are displayed, particularly those in the residential neighborhoods. Focus was to identify likely connectors.

Study Area Sections 1 and 2

Issues: Lack of defined space for pedestrians and cyclists exists throughout much of sections 1 and 2. Although sidewalks are provided along most roadways in these areas, cars often park on the sidewalks where there is continuous dropped curb. Most intersections do not include crosswalk markings.

Figure 1.4-1: Section 1 – Bayshore Drive to Sunrise Boulevard

Figure 1.4-2: Section 2 – Las Olas Boulevard to Bayshore Drive

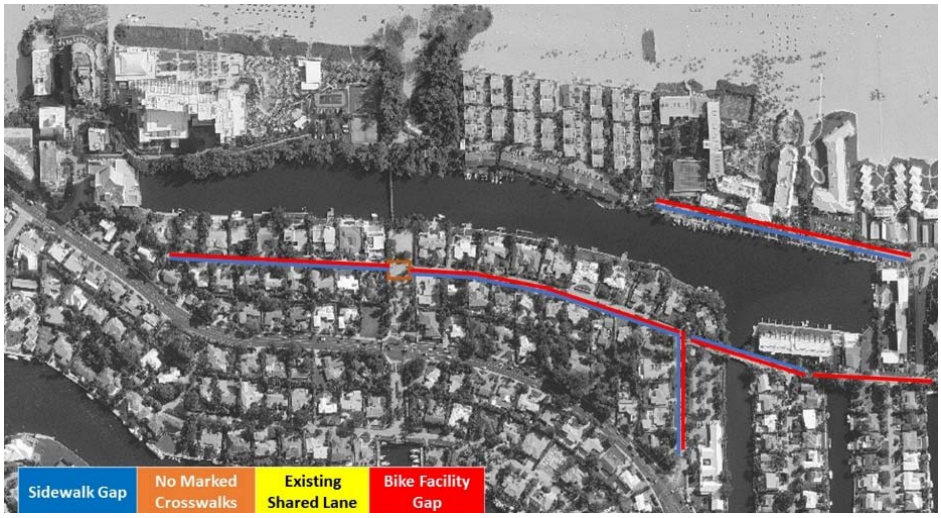


Study Area Sections 3 and 4

Issues: Some sidewalk gaps are present, particularly in residential areas. Bike facilities transition to and from shared lane markings in this section of A1A. Single-family residential streets not included in inventory.

Figure 1.4-3: Section 3 – Holiday Drive to Las Olas Boulevard

Figure 1.4-4: Section 4 – Barbara Drive to Holiday Drive



Study Area Section 5

Issues: Some sidewalk gaps are present, particularly in residential areas with limited right-of-way. Bike facilities transition to and from shared lane markings in this section of A1A and SE 17th Street. Roundabouts in section 5 have no marked crosswalks where sidewalks are present.

Figure 1.4-1: Section 5 – Intracoastal Waterway to Mayan Drive

1.5 Transit Routing and Ridership Focus Areas

This section documents the existing transit routes, ridership, and areas of focus in the study area. A critical component of this mobility study is understanding what transit is available and how it is being used by the existing community. Table 1.5-1 shows the transit service detail in the study area that is displayed in Map 1.5-1. Fares vary by service. BCT routes are $2.00 one-way and $5.00 for an all-day pass, the Beach and Las Olas Sun Trolleys are $1.00 for a single ride and $3.00 all-day, and the other Sun Trolleys are free to ride.

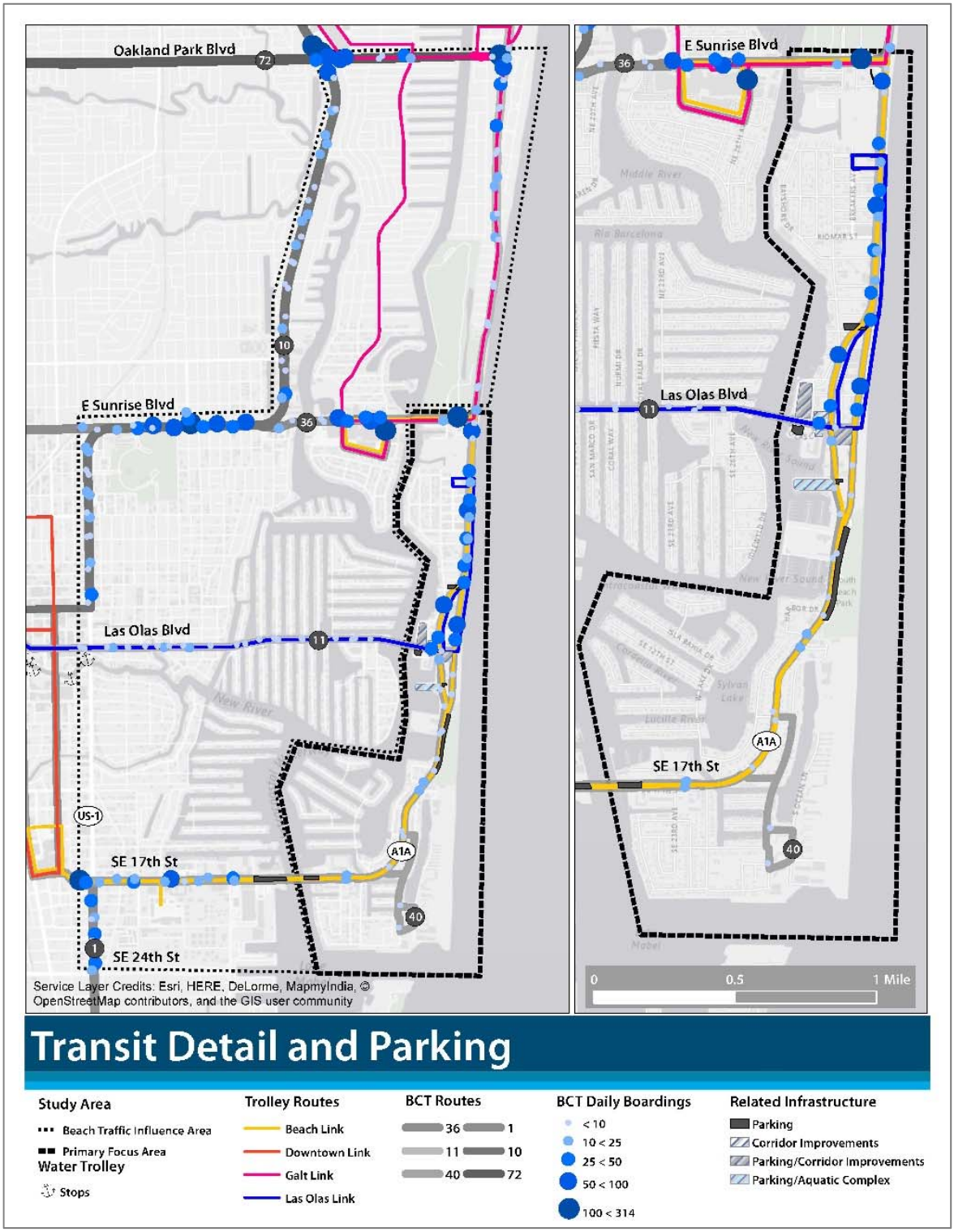
Table 1.5-1: Transit Routes and Frequencies

Route/ Trolley	Peak Weekday Frequency	Saturday Peak Frequency	Sunday Peak Frequency
BCT 11	20/30	-	-
BCT 40	20	30	30
BCT 36	20	20	30
Beach	7-day continuous loop (9:30am–6:30pm)		
Las Olas	Fri/Sat/Sun/Mon continuous loop (9:30am–6:30pm)		
Downtown	15–20	-	-
Galt	Temporarily Suspended until May 2019		
Neighborhood	(8:15am–2:30pm)	-	-
Airport	-	60	60

Key findings include the following:

- Transit trips from the airport require transfer to reach the barrier island. No luggage larger than a backpack is permitted.
- Primary BCT boarding activity occurs north of Las Olas Boulevard on A1A and on Sunrise Boulevard.
- Ridership and bicycle/pedestrian crash activity are similarly clustered. This often is due to both visitors and workers accessing these locations by foot, bicycle, and/or transit.
- Trolley schedules are inconsistent and do not operate into the evening hours, which can create confusion.
- BCT has clearly-defined stops. Sun Trolley uses a flag-down service with no physical stops, which may cause confusion for potential users.

Map 1.5-1



Source: City of Fort Lauderdale, Broward County Transit

1.6 Development Density/Intensity, Activity Centers, and Planned Development

This section documents the development currently underway, approved, and under review within the study area. Based on data tracked by the City of Fort Lauderdale and the Broward County Planning Council as part of the Central Beach Regional Activity Center (RAC), the total quantities of net new development (new construction less demolished buildings) are shown in Table 1.6-1.

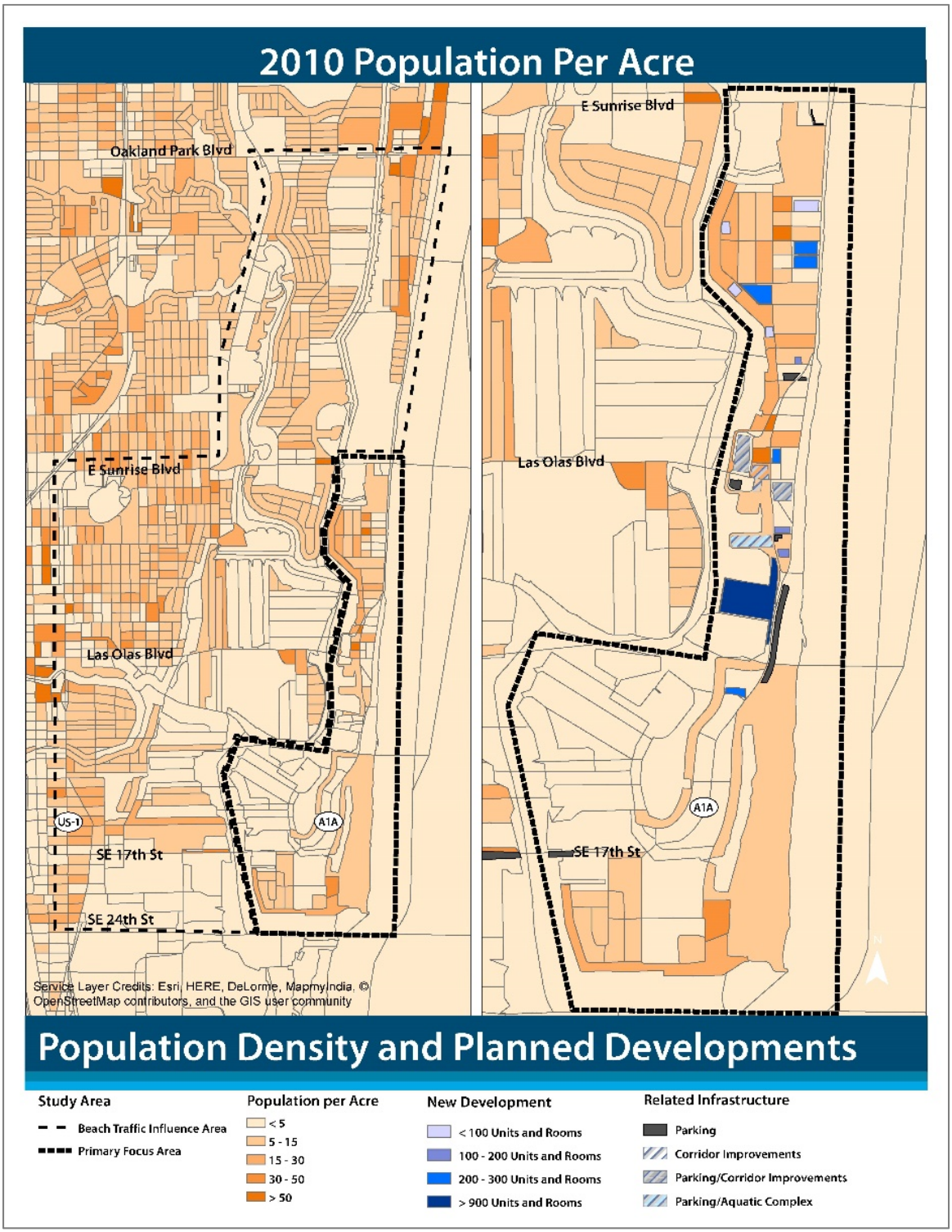
Table 1.6-1: Development Details

Land Use	Units	Built, Under Construction or Approved	Under Review	Total
Condominium	each	1,043	407	1,450
Hotel	room	2,173	205	2,378
Super Market	sq.ft.	28,342		28,342
Retail	sq.ft	212,753	2,010	214,763
Restaurant	sq.ft.	94,561	36,445	131,006

Key findings include the following:

- The Beach Regional Activity Center is located on the barrier island between Sunrise Boulevard and Harbor Drive. As of April 5, 2018, total net new built, approved, and pending development, including Bahia Mar, in the Beach Regional Activity Center is expected to generate 3,088 new peak hour trips. Of the total new trips being tracked in the Beach Regional Activity Center, approximately half (1,524) are already constructed and accounted for in recent traffic count/level-of-service data. Nonetheless, greater availability of alternative travel modes is critical to help manage traffic generated by existing, approved, and pending development.
- Planned developments are clustered in areas with higher density and existing transit services.
- The entire study area serves as a regional activity center, with many smaller points of interest within it, highlighting the need for local circulation with more regional connectivity.

Map 1.6-1



Source: City of Fort Lauderdale, U.S. Census Bereau

1.7 Pending Infrastructure Projects

Several important infrastructure projects are underway within the Central Beach area which will influence mobility within the study area. These include:

- **SR-A1A Streetscape Improvements:** The City is investing in reconstruction of the sidewalks along the northbound segment of SR-A1A from the South Beach Parking Lot to Alhambra Street. A key aspect of this project is removing/relocating palm trees planted within the sidewalk area and planting new trees in a single line closer to the curb of SR-A1A. This will make for a more organized walking environment and could also allow low-speed, recreational cyclists, to more safely share the sidewalk area with pedestrians.
- **Las Olas Streetscape Project**: Las Olas Boulevard from Seabreeze Boulevard to SR-A1A will be reconstructed as a "festival street" with wide sidewalks and traffic calming streetscape features.
- **Las Olas North Parking Garage:** Part of the space currently occupied by a surface parking north of Las Olas Boulevard along the Intracoastal Waterway is being converted into a 663 space parking garage with event space. The Las Olas North Parking Garage will be completed prior to the conversion of the Las Olas beach parking area to an Oceanfront Park (discussed below).
- **Oceanfront and Intracoastal Waterway Parks:** The area currently occupied by the 251 space beach parking area south of Las Olas Boulevard between Seabreeze Boulevard and SR-A1A is being converted into an Oceanfront Park. Among other features, this will incorporate a pick up/drop-off area which can help mitigate impacts from ride-sourcing services to the busy intersection of Las Olas Boulevard and SR-A1A. The 90 space surface parking area along the Intracoastal Waterway South of Las Olas Boulevard will also be converted into a greenspace.
- **Marina Expansion:** 237 parking spaces remaining in the surface parking along the Intracoastal Waterway to the north of the new Las Olas North parking garage is planned to be converted to an expand the marina north of Las Olas Boulevard.

Table 1.7-1 summarizes the impact of these projects on the city's public parking supply in the Las Olas Corridor. At the end of Phase I, which includes the new garage and parks spaces, there is a net gain of 70 spaces. After Phase II, which incorporates expansion of the marina, there is a net loss of 167 spaces.

Table 1.7-1: Parking Impacts of Las Olas Corridor Projects

	Pre-Project		Phase I		Phase II	
	Surface	Garage	Surface	Garage	Surface	Garage
Beach Parking/Oceanfront Park Area	251					
Intracoastal Waterway North Parking	494		237	663		
Intracoastal Waterway South Parking	90		5			
Subtotals	835		242	663	5	663
Total		835		905		668
Net Total		N/A		+70		(167)

1.8 Phase Two Data Needs

Based on the review of existing conditions, the following data are expected to be necessary to identify, evaluate, and prioritize mobility solutions for the Fort Lauderdale Beach area:

- **Ride-sharing company data**: Focus groups comments and field observations indicate that ride-sourcing (e.g., Uber, Lyft, etc.) has grown in popularity as a means to access the beach study area as well as to circulate within it. However, drivers picking up and dropping off passengers along thoroughfare roadways can create congestion issues by stopping traffic and also may lead to safety issues in terms of motor vehicle-to-vehicle crash risks (rear-end and sideswipe crashes) and vehicle-pedestrian risks for passengers crossing to/from the ride-source vehicle and/or drivers helping with luggage, etc. Data that show high activity pick-up and drop-off areas will help the study team identify pick-up/drop-off zones that can improve safety and mobility along the beach but also respond to the needs of the ride-source company drivers. In addition to reducing crash risks, this may help drivers identify passengers for more efficient pick-ups.
- **Roadway typical section and right-of-way data:** Preliminary analysis suggests that protected/low-stress bicycle facilities are needed in the beach area, and alternatives are necessary where the marked bike lane along A1A is missing between Harbor Drive and the beginning of the one-way section at the northern end of "Beach Park."
- **Parking utilization data:** Parking data will help to understand needs for wayfinding and also indicate whether spaces could be sacrificed for other mobility needs such as pick-up/drop-off areas or non-motorized facilities. Parking data also can help indicate where multimodal improvements are needed.
- **Water taxi trip data:** The Fort Lauderdale Water Taxi connects Downtown, the Convention Center, and three locations within the study area (Bahia Mar, Birch State Park, and the Galleria Mall). Water taxi ridership data may help clarify the extent to which the water taxi (or similar services) could help take automobile trips off the bridges or A1A and also indicate where multimodal improvements are needed.
- **Sun Trolley ridership and operating data:** Available data showing Sun Trolley ridership by link and also boarding/alighting data by segment or major destination can help inform recommendations to enhance this service. In addition, operating data that includes service hours, financial data, and cost per revenue hour will be needed to estimate service enhancements and costs associated with recommendations.
- **Private electric vehicle and pedicab data:** Multiple private operators provide alternative traffic circulation on the beach. Understanding their market can help provide improved services and infrastructure improvements necessary to enhance mobility.