US 92 CORRIDOR MASTER MANAGEMENT PLAN

Existing Conditions Report

March 2015

Prepared for:

Centennial FDOT 1915 ★ 2015

Prepared by Ghyabi & Associates, Inc.

Table of Contents

Tables

Figures

Appendix

1 INTRODUCTION

United States Highway (US) 92/State Road (SR 600)/International Speedway Boulevard (ISB) (collectively referred to as US 92/SR 600/ ISB throughout the study) is a major east-west arterial road linking Interstate (I)-95 to major tourist attractions. This study focuses on the easternmost 9.3 miles of the corridor, which is predominately located within the City of Daytona Beach in Volusia County, FL, and contains a number of universities, health care facilities, business and residential districts, and air and rail transportation. Because of its importance to the transportation network in Volusia County, a comprehensive Corridor Master Management Plan (CMMP) will be developed to guide safety, enhancement transit, and coordinate congestion management for proposed economic development investments along the US 92 corridor. The intent is to build upon and coordinate with past and ongoing transportation related initiatives in the area, by FDOT and others.

Although this CMMP is an FDOT project, coordination with area agencies and stakeholders is vital to its success. A Project Visioning Team (PVT) has been assembled to provide feedback throughout the study process and to identify any outstanding issues concerning the study area. Members include representatives from the FDOT, the City of Daytona Beach, Volusia County, Volusia County's Public Transit System (Votran), River to Sea Transportation Planning Organization (R2CTPO), Daytona Beach Chamber of Commerce, and other stakeholders in the study area.

The study will proceed through a phased series of tasks, as shown below, and culminate in a Master Plan summarizing existing conditions and other projects/activities, updating broad transportation needs, developing conceptual alternative solutions, and conclude with the management and implementation plan.

The northbound approach to US 92/SR 600/ISB from I-95.

- **Existing Conditions Summary Report**
- Corridor Visioning Summary
- Corridor Assessment Report
- Corridor Master Management Plan

This Existing Conditions Summary Report displays a collection background data relevant to the CMMP. This report contains an evaluation of environmental constraints, pedestrian and bicycle accessibility, historical crash data, and demographic information. Existing and future conditions were based on proposed projects and were analyzed for transportation improvements, transit improvements, land use, and zoning. The findings compiled in this report can be used to identify issues and opportunities throughout the corridor to provide desired continuity and eliminate conflicts.

1.1 PROJECT OVERVIEW AND STUDY AREA

As depicted in Figure 1, the study area includes the geographic area generally bounded on the west by LPGA Boulevard; on the east by SR A1A/Atlantic Avenue; on the north by SR 430/Mason Avenue; and on the south by SR 400/Beville Road. As mentioned earlier, the length of the corridor is roughly 9.3 miles, and it varies from rural land to a densely populated urban environment.

In order to provide consistency with previous studies, the study area has been split into four segments. Segment 1 extends from I-4 in the southwest to I-95. Segment 2 concentrates on the area bounded by I-95 and SR 483/Clyde Morris Boulevard and will consider ongoing improvements, such as the Department's US-92 Pedestrian Safety Project. Segment 3 extends from SR 483/Clyde Morris Boulevard to US 1/Ridgewood Avenue and concentrates on the campus areas of Halifax Medical Center, Embry Riddle Aeronautical University (ERAU), Mainland High School, Daytona State College and Bethune-Cookman University. Segment 4 will cover the US 92 corridor from US 1/Ridgewood Avenue, across the Halifax River, to SR A1A/Atlantic Avenue. These segments are also depicted in Figure 1

The Daytona Beach Boardwalk.

The "World's Most Famous Beach".

Figure 1: Project Study Area

2 BACKGROUND DATA ANALYSIS

Background data was obtained to document the transportation, land use and environmental information that could be pertinent to the development of the CMMP. The information contained in the reports, studies, data and other documents listed below may be useful in later phases of the CMMP.

2.1 ADA TRANSITION PLAN

The Americans with Disabilities Act (ADA) of 1990 is a civil rights statute which prohibits discrimination against persons with disabilities. The purpose of the Volusia County ADA Transition Plan is to provide the county with a framework for bringing pedestrian facilities into compliance with this legislation.

2.2 AERIAL PHOTOGRAPHY

Recent aerial photography (2014) was obtained from ESRI Geographic Information System (GIS) for the study area.

2.3 EXISTING PROJECTS/COMPANION TRANSPORTATION PLANS OR STUDIES

2.3.1 2035 Long Range Transportation Plan – R2CTPO

As a requirement for receiving state and federal funds, the Long-Range Transportation Plan (LRTP) is the guiding document that identifies the "cost-feasible" transportation projects that may be pursued by the TPO through the Year 2035. The LRTP, adopted on September 28, 2010 and most recently amended on February 26, 2014, includes a broad range of multi-modal transportation projects to achieve a well-balanced transportation system. The TPO is currently in the process of developing the 2040 LRTP.

2.3.2 2012-2021 Transit Development Plan Major Update – Votran

The Transit Development Plan (TDP) is a required 10-year plan that serves as the vision for a public transit service provider; it is updated every five years. The TDP must be consistent with the Florida Transportation Plan, approved local government comprehensive plans, and the TPO Long-Range Transportation Plan and is the source for determining the projects and priorities for the public transportation component of the Transportation Improvement Plan (TIP). The TDP includes a 10-year implementation plan with agency strategies and policies, maps indicating areas to be served along with the types and levels of service, monitoring programs to track performance, and a 10-year financial plan.

2.3.3 Transit Corridor Feasibility Analysis Study – FDOT and Volusia County MPO[i]

This study, completed in March 2009, assesses the feasibility of potential future transit corridors within Volusia County. The corridors studied included north-south cross-county corridors, east-west cross-county corridors, and corridors considered to be local circulators within various communities.

[i] Volusia MPO became the Volusia TPO which has since changed its name to River to Sea TPO

2.3.4 City of Daytona Beach Area-Wide Traffic Study

This January 2008 study examines existing traffic conditions (Year 2006), projected travel demands (Year 2025), and identifies capacity deficiencies for the functionally classified roadway network within the City of Daytona Beach.

2.3.5 International Speedway Boulevard Corridor Transportation Plan – FDOT

This October 2011 transportation study, conducted by FDOT at the request of the ISB Coalition, was initiated to create a transportation vision for the ISB corridor and to develop strategies to support the area's ability to be more economically competitive in the region. While the study was not completed, it contains extensive background traffic and land use data for the ISB corridor.

2.3.6 Transit Alternative Funding Options Study, Technical Memo, Task 1 (November 23, 2010) and Final Report (May 31, 2011) – Votran and R2CTPO

This study analyzes alternative revenue strategies for near to medium term implementation of the recommendations contained in the Transit Development Plan, along with other potential service improvements.

2.3.7 Transit Development Design Guidelines – Votran

The report, adopted February 26, 2008, is a comprehensive set of development design standards adopted by the R2CTPO and Votran to provide for the integration of transit service into developing and redeveloping areas. Included are design standards for roadway design, bus stops, shelters, boarding and lighting areas, and other transit infrastructure.

2.3.8 East Side Transit Study Final Report – Votran and Volusia County MPO[i]

The June 2009 report summarizes the analysis conducted for a Comprehensive Operations Analysis (COA) of the eastern and southeastern portions of the Votran service area. It also includes recommendations for service improvements over a ten-year period.

2.3.9 Integrated Sustainability Implementation Plan – Votran and Volusia County MPO[i]

This report, dated August 3, 2010, outlines Votran's sustainability initiatives and improvements, and details a plan for meeting emission reduction targets established in Executive Order 2007-126 and the goals of the Green Volusia Program.

2.3.10 Volusia County Transportation Disadvantaged Service Plan Final Report – Votran

The Transportation Disadvantaged program was established to improve coordination among transportation disadvantaged services sponsored by social and human service agencies. The Transportation Disadvantaged Service Plan (TDSP) provides the service plan for arranging transportation for the transportation disadvantaged. The TDSP is required by the Florida Commission for the Transportation Disadvantaged (FCTD) for each Community Transportation Coordinator (CTC). It also serves as the Locally Coordinated Human Services Transportation Plan (LCHSTP) for Volusia County. In Volusia County, the designated CTC is Votran.

2.3.11 Bicycle and Pedestrian Safety Review Study Implementation Report - Palm Terrace Elementary School (March 2007) – Volusia County MPO[i]

Completed in 2007, this study provides the City of Daytona Beach with guidelines for improving bicycle and pedestrian safety for students attending Palm Terrace Elementary School. The primary goal of this report was to provide recommendations for safe, connected and well-maintained pedestrian and bicycle facilities to encourage students to walk or ride their bicycles to school. Recommended priority projects include sidewalk improvements to Bill France Boulevard and Dunn Avenue.

2.3.12 Investigation of Potential Local Area Transportation Alternatives for an Aging Population (Elder Transportation Study) – Volusia County MPO[i]

This November 2006 study examined the socioeconomic and demographic characteristics of an aging population and their potential impacts on public transportation. The report included recommended resources and strategies to meet the mobility needs of an aging population.

2.3.13 Examination of Night Service Alternatives for Volusia County dba VOTRAN

This study investigated the feasibility of Votran providing later evening transit service.

2.3.14 The Volusia County MPO[i] Bicycle/Pedestrian Plan

The bicycle/pedestrian plan of the R2CTPO, adopted January 25, 2005, includes existing and planned bicycle/pedestrian facilities.

2.3.15 Draft Bicycle Route Map East – Volusia MPO[i]

This document is a map illustrating bicycle routes in East Volusia County. It is dated February 7, 2012.

2.3.16 Bicycle/Pedestrian Feasibility Study, Clyde Morris Boulevard Trail – Volusia County MPO[i]

The August 2008 study evaluates the feasibility of constructing a continuous bicycle/pedestrian facility on the west side of Clyde Morris Boulevard between SR 400/Beville Road and US 92/SR 600/ISB.

2.3.17 US 92/International Speedway Boulevard Pedestrian Connectivity and Safety Assessment – FDOT District 5

This study began in spring 2014 and is scheduled to be concluded in spring 2015. The study will identify challenges and potential opportunities to improve pedestrian and bicyclist accessibility along the ISB Corridor and surrounding roadway networks. A connectivity plan to improve pedestrian facilities is also being developed.

2.3.18 US 92 Roundabout Analysis – City of Daytona Beach

This August 2014 study evaluates three intersections along US 92/SR 600/ISB: US 1/Ridgewood Avenue, SR 441/South Peninsula Drive, and SR A1A/Atlantic Avenue. The study examines the current and future operational conditions of these intersections under both signalized traffic control and as conversion to roundabouts.

2.3.19 Transportation Enhancement Review: Fremont Avenue – FDOT District 5

This 2008 study reviews the City's proposal of 5-foot sidewalk construction along the north side of Fremont Avenue, from Niles Street to Ridgewood Avenue, in order to enhance pedestrian access to residential land uses.

2.3.20 Transportation Enhancement Review: North Street – FDOT District 5

This 2008 review explores bicycle and pedestrian improvements on North Street, from Heineman Street to White Street. It was determined that additional public funding was needed for construction of a 5-foot sidewalk along the south side of North Street.

2.3.21 Orange Avenue Reconstruction – City of Daytona Beach

Orange Avenue is undergoing reconstruction, from SR 5A/Nova Road to Beach Street. This streetscape project began in June 2014 and is anticipated to have a duration of two years. When completed, this 1.5 mile stretch of road will have a redesigned roadway base and surface as well as upgraded signalization and streetlights. Sidewalks will also be widened to six (6) feet and utilities will be relocated underground.

2.3.22 ISB Streetscape – City of Daytona Beach

This beautification project is planned to span from SR 5A/Nova Road to Lincoln Street and from Martin Luther King Jr Boulevard to US 1/ Ridgewood Avenue. The streetscape project will include the addition of sidewalks and decorative lighting. The block from Lincoln Street to Martin Luther King Boulevard has already been improved.

2.3.23 US 92 Pedestrian Safety Improvements Design/Build – FDOT District 5

This project, which is expected to be complete in winter of 2015, will make a number of improvements to the ISB corridor. A new pedestrian bridge will be built 750 feet west of Bill France Boulevard, with associated lighting, landscaping and fencing. Furthermore, the Williamson Boulevard intersection will receive new mast arms and the existing sidewalk along ISB will be replaced with 12-foot sidewalk. The drainage ditches will be replaced with an underground closed drainage system.

2.3.24 Orange Avenue High Rise Bridge Replacement – FDOT District 5

Volusia County, in conjunction with the Department, conducted a PD&E Study to evaluate the existing Tom Staed Veterans Memorial Bridge along Orange Avenue over the Halifax River. The existing bridge is more than 50 years old and has deteriorated. The Volusia County Council selected the high-level fixed bridge replacement option from the PD&E Study on January 6, 2011 and design for this project began in early 2013. Construction is anticipated in late 2015 and will take two years.

2.3.25 City of Daytona Beach, Wayfinding Signage Design

On behalf of the City of Daytona Beach, the Lassiter Transportation Group developed a 2013 study to create an inventory of city landmarks, existing signage and regulatory requirements, and determine a plan to guide vehicular and pedestrian traffic to venues of interest within the city, through the use of distinct wayfinding signage. Major thoroughfares serving as gateways in this study include I-95, I-4, ISB, Beach Street, Main Street, Orange Avenue, Halifax Avenue, Peninsula Avenue, Mason Avenue and Ocean Avenue.

2.3.26 City of Daytona Beach, Volusia County, FDOT – ISB Corridor Study

The purpose of this study is to develop a plan that includes a series of strategies that support the area's abilities to be more economically competitive in the region. The plan provides the community with information regarding desirable land use and transportation alternatives as well as cost sharing opportunities that will likely include public private partnerships.

2.3.27 FDOT, I-4 Six-Laning Design/Build

This project consists of widening I-4 to 6 lanes from east of SR 44 to just west of I-95 and reconfiguring the I-4 and US 92 interchange. The projects estimated completion time is Winter 2015.

2.3.28 FDOT, I-95 Six-Laning and I-95/I-4 System Interchange Replacement Design/Build

This project widens I-95 from four lanes to six lanes from north of SR 44 to north of US 92. The project will also include the reconstruction of the interchange with I-4, I-95 and US 92. The estimated completion time is Summer 2018.

2.3.29 Volusia Connector Study (Cross County Connector Study)

This study will consider connections between east Volusia County and the SunRail service, which began operation in May 2014. The study is examining possible alignments as well as types of transportation options that may provide greater connectivity. Specifically, the study limits include SR 46 in Seminole County and US 1 in Volusia County. This study was initiated by FDOT at the request of the R2CTPO and should be completed by February 2016.

2.3.30 City of Daytona Beach, US 92 Streetscape Project

This streetscape project will improve US 92/SR 600/ISB from US 1/Ridgewood Avenue to SR A1A/ Atlantic Avenue except for the bridge over the Halifax River. Improvements consist of decorative lights, enhanced landscaping, and improved crosswalks. The roundabout feasibility study (Section 2.3.18) was developed as a result this beautification project.

2.3.31 LPGA Boulevard Extension PD&E Study

This study is in regard to the construction of a new section of LPGA Boulevard which would begin at the intersection of US 92/SR 600/ ISB and continue south to CR 415/Tomoka Farms road near the entrance of the Tomoka Farms Landfill. The 3.2 mile roadway also includes a proposed bridge to cross I-4.

2.3.32 FEC Amtrak Station

This document is a 2010 update which proposes a preferred location for the Daytona Beach Amtrak Station on Magnolia Avenue in downtown Daytona Beach. It also depicts a potential station concept.

2.3.33 Various Presentation Materials

- Votran TDP – Transit Improvements for International Speedway Boulevard: Presentation to ISB Coalition Planning Committee (October 15, 2012)
- SunRail presentations to the R2CTPO

2.4 EXISTING AND FUTURE LAND USE

An evaluation of future land use and development potential within the study area, including a reasonable projected design year build out scenario, will be conducted to identify future traffic volumes and deficiencies at key intersections. The following documents have been collected and will be further analyzed for use in the Baseline Future Conditions Assessment during the study's Corridor Visioning Summary phase.

2.4.1 Daytona Beach 2009 Comprehensive Plan

This document includes the adopted 2009 Comprehensive Plan for the City of Daytona Beach, including the Transportation Element and Future Land Use Element Goals, Objectives and Policies and Future Land Use Map (FLUM).

The FLUM is the "blue-print" for public and private development throughout the City of Daytona Beach. It is the basis for zoning and development regulations.

2.4.2 Daytona Beach Zoning Map

This is a map depicting the zoning districts within the City of Daytona Beach. Zoning designations and boundaries are also included within the Daytona Beach GIS system.

2.4.3 Daytona Beach Land Development Code Update

This is an ongoing comprehensive update of the City of Daytona Beach's Land Development Code. It is intended to further implement the City's Comprehensive Plan and Vision Plan with an update of land development regulations including areas such as Zoning Districts, Use Regulations, and Development Standards.

2.4.4 Daytona Beach Vision Plan – 2008 and Beyond

This document represents a community wide planning effort which resulted in a Daytona Beach Vision Plan. It includes a vision statement and implementation strategies within the areas of Quality of Life, Education, Government, Economic Development, Infrastructure and Environment.

2.4.5 Midtown Redevelopment Area Plan

The Midtown Redevelopment Area is a designated Community Redevelopment Area (CRA) located north and south of the ISB corridor between SR 5A/Nova Road and the Florida East Coast (FEC) Railroad. The Midtown Redevelopment Area Plan is the Community Redevelopment Plan, as established through Florida Statutes, for this area.

2.4.6 Volusia County Comprehensive Plan – Adopted 11/13/08

The adopted Comprehensive Plan for Volusia County includes the Transportation Element and Future Land Use Element Goals, Objectives and Policies and Future Land Use Map.

2.4.7 Daytona Beach Shores Comprehensive Plan 2020 – City of Daytona Beach Shores

This comprehensive plan was last updated in 2011 and establishes policies to guide future land use and development. This plan includes a Future Land Use Element and a Transportation Element. The policies of the Transportation Element support the city's goal of establishing a safe and efficient multi-modal transportation system.

2.4.8 Volusia Smart Growth Implementation Committee, Final Report

This August 2005 report provided recommendations for the implementation of "smart growth" principles within Volusia County.

2.4.9 2010 Downtown Ballough Road Redevelopment Area Plan

This 2010 document combines the Downtown Redevelopment Area Plan and the Ballough Road Redevelopment Area Plan to create one cohesive plan which highlights riverfront property, encourages mixed use, mixed income, and pedestrian oriented development. The purpose of the plan is to provide the framework for elimination of blight within the area and promote economic development to respond public needs by providing strategic priorities, recommendations, policy considerations, and redevelopment goals, objectives, and plan administration.

2.4.10 Daytona Beach E-Zone Master Plan & Form Based Guidelines

The E-Zone Master Plan sets up the framework for developing a half mile stretch of Main Street, from the Halifax River to the Atlantic Ocean, into a walkable retail and entertainment district. The Daytona E-Zone is intended as a mixed use development offering 150,000 square feet of quality residential, retail, dining, cultural and entertainment venues with a linking pedestrian alley. The plan provides guidelines and technical data, as well as architectural and design elements, for implementing the plan.

2.4.11 Main Street Redevelopment Plan – City of Daytona Beach

The goal of this plan, last amended in 2012, is to redevelop blighted areas in order to promote public safety, health and welfare. This plan provides a framework for eliminating the spread of blight through the Main Street Redevelopment Area. This includes incentive for private investment in the area, greater use of public amenities, establishment of future land uses, and the creation of a walkable beach-themed corridor with high quality commercial establishments. This plan also includes the addition of parking spaces and other transportation developments that are consistent with the E-Zone Master Plan.

2.4.12 South Atlantic Redevelopment Plan – City of Daytona Beach

This plan was most recently amended in December 2013. Amendments included authorization of funding for enhanced law enforcement programs in order to create a safe environment and attract private investment for the South Atlantic Redevelopment Area, which is from US 92/SR 600/ISB to Silver Beach Avenue. It establishes desirable future uses for the small lots in this area, such as quality apartments, offices, neighborhood service centers, clothing centers etc. Policies established in this plan also include mobility enhancements such as development of a pedestrian network, improved image of parking facilities, encouragement of public transit, and reduction of traffic impacts on residential areas.

2.4.13 Retail Market Analysis – City of Daytona Beach

This 2011 study examines the market conditions of the Greater Daytona Beach area, with a focus on the Daytona Beach Street District. This study found that the region is not meeting the commercial needs of its local and visitor community and not utilizing its internationally-recognized brand.

2.4.14 River Front Master Plan

The goal of this study is to spur economic vitality in the Beach Street commercial area through the development of a conceptual master plan and implementation plan. Enactment of the master plan requires a variety of funding sources and a 15-year implementation process. The plan divides the area into five districts: Nature, Art, Esplanade, City Docks and Halifax Harbor. The intention is that the addition of facilities that complement the use of each district will attract additional visitors to the area and therefore encourage private investment.

2.5 CAMPUS MASTER PLANS

2.5.1 Embry Riddle Aeronautical University Master Plan Concept

This document consists of a map depicting the proposed developments on the ERAU campus.

2.5.2 Daytona State College Master Plan

This document provides direction for the future expansion of the Daytona State College Campus. It focuses on the most efficient use of existing property and infrastructure to plan facilities that will support student growth projections. It includes existing conditions on the campus, phasing options refined by charrettes, and recommendations and guidelines.

2.5.3 Bethune-Cookman University Master Plan 2008

This document analyzes the state and design of the campus infrastructure and environment, and assesses the current and future development needs. The master plan includes conceptual plans for new development, interior renovations for current infrastructure, and expansion of current infrastructure. It also includes a streetscape project for Mary McLeod Bethune Boulevard in order to create a center point for the campus rather than a separator.

2.5.4 Father Lopez High School

A major high school in Segment 1 of the study area, Father Lopez High School, has plans to expand at their current locations. The expansion includes adding baseball and softball fields, additional parking and eventually one or two more buildings. There are no immediate plans for constructing the second phase of the campus.

2.6 PLANNED PRIVATE DEVELOPMENT

2.6.1 DBIA Corporate Center

Volusia County has proposed a 608,000 square foot mixed high tech office and industrial park. As proposed, the County will construct the necessary infrastructure improvements, such as drainage, internal access and utilities, and retain ownership of the property and lease lots for private development. The proposed site will access to SR 400/Beville Road and Bellevue Avenue via roadway easements and the construction of a new road. There will be a 3-lane local roadway, with sidewalks and parallel parking, which will extend through the center of the entire property connecting to the two existing

roadways. The internal project road is planned to align with the existing median cut on SR 400/Beville Road at its intersection with Pelican Bay Drive.

2.6.2 Embry Riddle Research Park

ERAU has proposed a 3,378,890 square foot research park on 77.56 acres located on the east side of SR483/Clyde Morris Boulevard, north of SR 400/Beville Road and south of Bellevue Avenue. Developers will create a primary access drive of SR 483/Clyde Morris Boulevard which will be enhanced by a pedestrian network that connects to the future improvements of SR 483/Clyde Morris Boulevard. The research center will be for industrial use and development of aeronautical and aerospace research. The first phase, a 60,000 square foot aerodynamic lab, is scheduled to be completed in 2016.

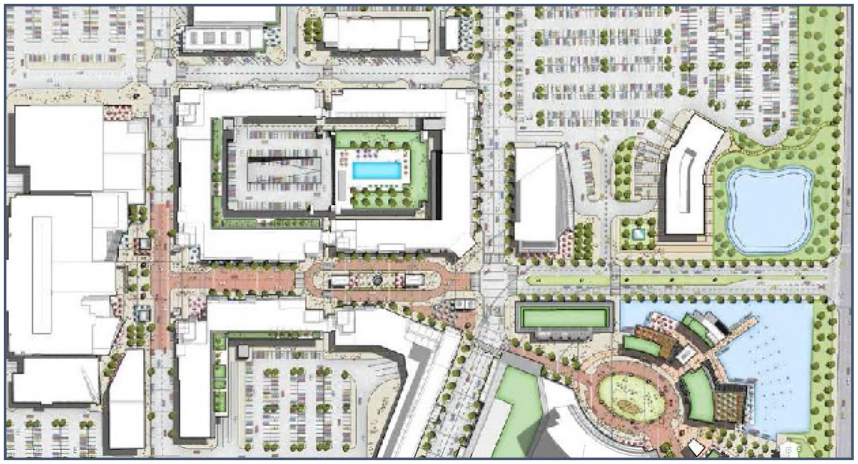
2.6.3 Daytona Rising

This $400 million redevelopment project for Daytona International Speedway is currently underway and is expected to be completed by January 2016. Improvements include five expanded and redesigned entrances which raise the stadium height by 146 feet; inclusion of escalators and elevators to take spectators to one of the three concourse levels, including social areas; 101,000 new seats; 60 luxury suites for corporate guests; and expanded restrooms and concessions stands.

Rendering of Daytona Rising

2.6.4 One Daytona

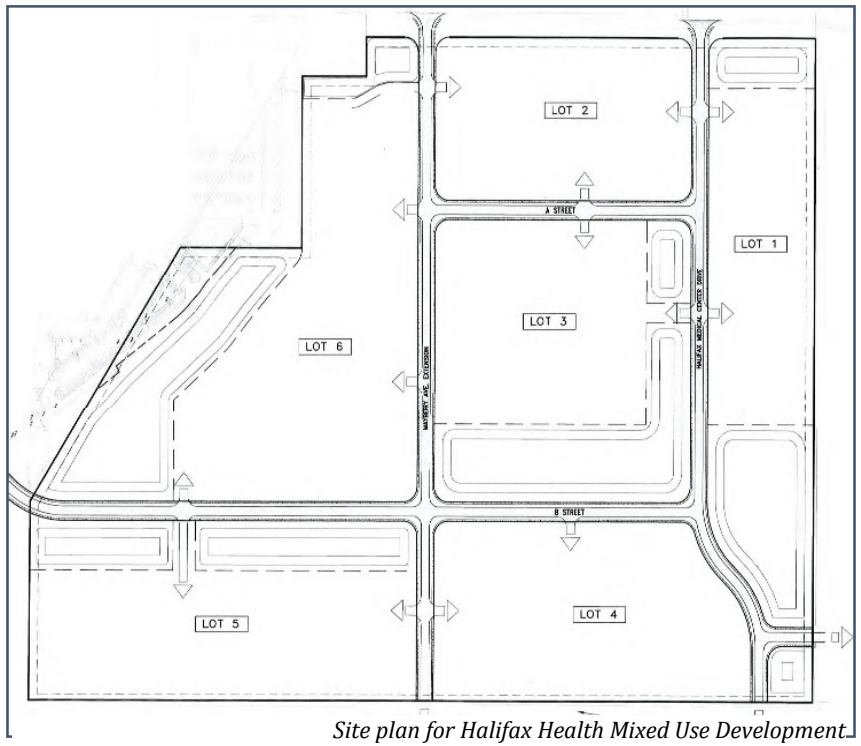
One Daytona is a joint venture between Jacoby Development and International Speedway Corporation. It will be a 1.1 million square foot mixed use development with retail, dining, residential lofts, and a hotel. This development will incorporate three different components. A 125,000 square foot Victory Circle will be a park like activity center for sports fans and home to a 70,000 square foot Bass Pro Shop, alongside US 92/SR 600/ISB. The development will be a 350,000 square foot promenade with shopping, dining, and will lead to the Cobb Theatre. A 92,000 Village Market will be a grocery store for visitors and residents of One Daytona. A pedestrian bridge will connect the development to Daytona International Speedway. This development is estimated to open early 2016.



Site Plan for One Daytona

2.6.5 Halifax Health Mixed Use

Halifax Medical Center has proposed construction of a 77.5 acre mixed use development at 303 SR 483/Clyde Morris Boulevard, directly across from Halifax Hospital, west of US 92/SR 600/ISB and south of Dunn Avenue. The development is split into six lots of various sizes. The developer will also construct two new roads as well as extend Mayberry Avenue and Halifax Medical Center Drive from SR 483/Clyde Morris Boulevard to Volusia Mall.



Site plan for Halifax Health Mixed Use Development

2.6.6 Volusia Mall

Volusia Mall recently underwent a $4.68 million renovation, financed by owner CBL & Associates Properties Inc. The renovation includes redesigning the mall entrances and exterior, installing new floors, remodeling the Center Court, food court, and restrooms, and adding a new children's play area.

Rendering of Center Court in Volusia Mall

2.6.7 Tarragona Shoppes

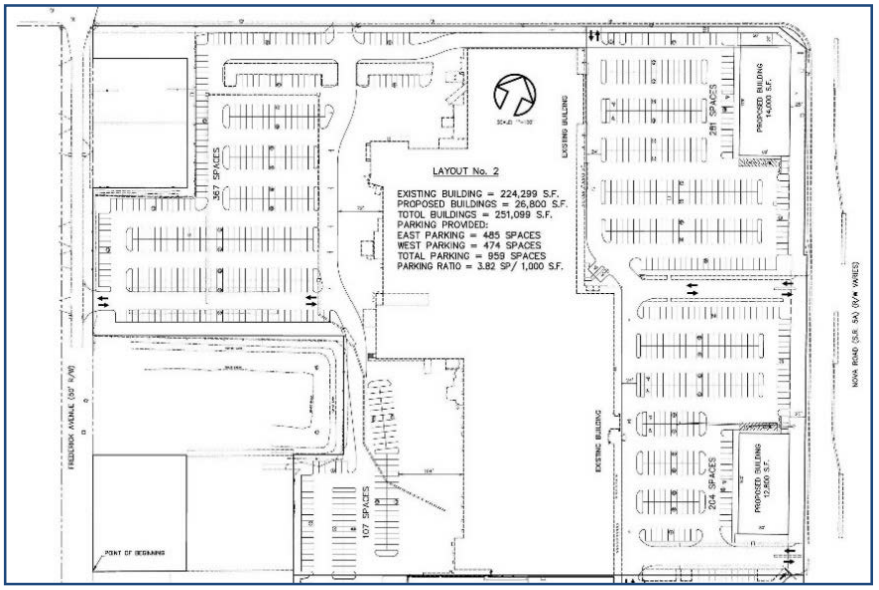
Speedway Investors, LLC have proposed a 21,036 square foot retail and office development located on US 92/SR 600/ISB. Developers will construct a left turn lane to provide access to the retail complex, which will have two marked driveways. Since the development is surrounded by a surface parking lot and is setback from the street, the developer has included a private sidewalk connecting the public sidewalk to the complex entrance. The rear side of the development, facing Cordova Avenue, includes a retention pond.

Rendering of Tarragona Shoppes

2.6.8 Midtown Plaza/Daytona Mall

This is an existing 224,299 square foot multi-tenant retail complex located at the intersection of SR 5A/Nova Road and Dr. Mary McLeod Bethune Boulevard. Results Real Estate Partners, LLC is proposing to redevelop the center. The existing suite square footage into the center retail area will change as internal renovations occur and the external façade of the center will be updated. Developers have proposed two additional buildings, sized 12,800 square feet and 14,000 square feet. The two proposed buildings have a close setback to SR 5A/Nova Road.

Rendering of Midtown Plaza exterior



Site Plan of Midtown Plaza

2.6.9 Hard Rock Hotel & Café

Bayshore Capital, Inc. has proposed developing a Hard Rock Hotel & Café valued at $100 million on an 11-acre lot along the west side of SR A1A/Atlantic Avenue, ¾ of a mile south of the Main Street Pier. The 375,000 square foot development will have 250 hotel rooms, 107 condo units, and 28,000 square feet of additional space. Hard Rock developers will also be making street side improvements, such as new sidewalks, surrounding the hotel. The development is proposed to be completed in late 2016.

Rendering of Hard Rock Hotel & Café

2.6.10 Daytona Beach Convention Hotel & Condos

Protogroup, Inc. has proposed a $150 million hotel-condo-retail complex with a 27-story, 502-room four star hotel on the east side of SR A1A/Atlantic Avenue south of Oakridge Boulevard and a 29-story tower with 105 condominium units and parking structure located north of Oakridge Boulevard. Developers are also proposing two way drives around the periphery of the buildings with two points of ingress/egress on SR A1A/Atlantic Avenue at the north and south boundaries of the project. The south access drive will serve primarily as truck access and the north access drive will primarily serve as access for users of the condominium. Primary access to the hotel will be from Oakridge Boulevard which will continue to allow access to the beach and include a traffic circle at the entrance to the hotel lobby. The developers have proposed a paver sidewalk alongside SR A1A/Atlantic Avenue.

A typical Daytona Beach residence

2.6.11 Daytona Gateway Marina

Blue Water, LLC has proposed a 5.43-acre mixed use development, comprising of a 300-unit hotel, 57,800 square foot retail space, 16 condominiums, and a marina with slips at the northeast end of the Broadway Bridge, between Halifax Avenue and the Halifax River.

2.6.12 Bethune–Cookman University New Dormitory Expansion

Plans include the construction of two new dorms and plans to renovate Meigs Hall. Construction is expected to begin in the fall of 2014 and be completed by 2016. The cost to build the dorms is estimated at $72 million.

2.6.13 Residential Development near the Ladies Professional Golf Association Headquarters

Kiltson & Partners, teaming up with the Morgan Stanley investment firm, paid Consolidated-Tomoka $6.3 million to buy 261 acres in the southern portion of the Ladies Professional Golf Association (LPGA) development. Most of the proposed homes would be built just west of the Tomoka River along the Legends golf course. Others would be on a site off LPGA Boulevard, near the LPGA headquarters. It's estimated that the 237 developable acres in the parcel could be divided into about 450 to 500 lots bordering the golf course and 100 to 200 others away from the course.

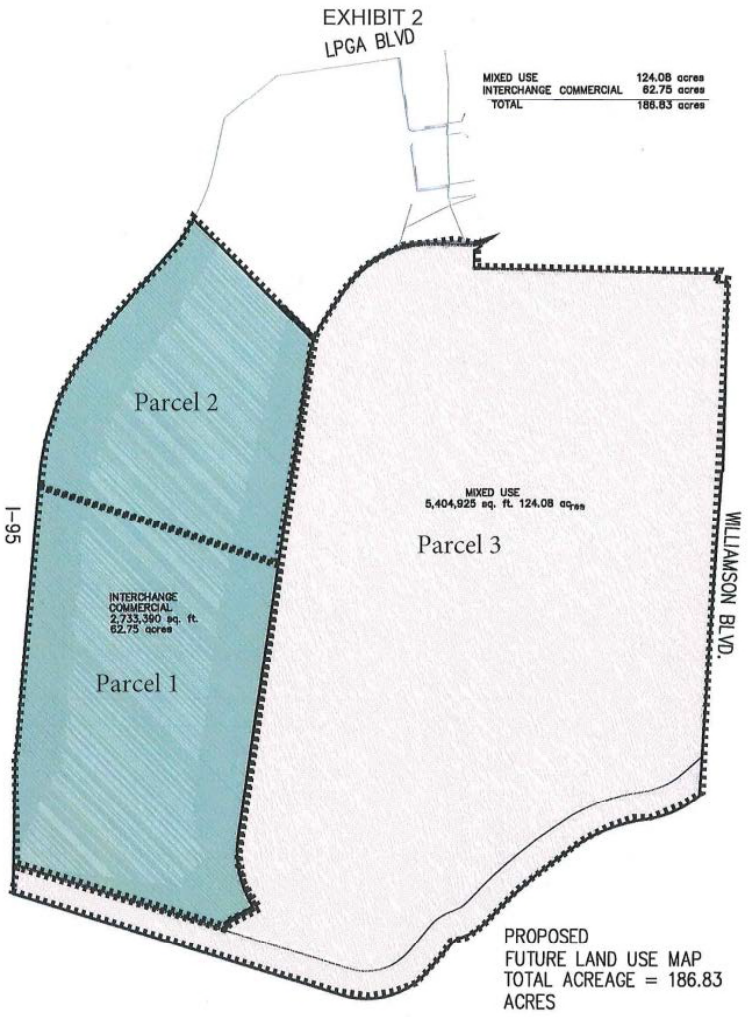
2.6.14 Minto Senior Residential Community

Minto Communities, LLC. has begun the planning and design of a new development on 1,586-acres of land generally located west of I-95 and north of LPGA Boulevard. Minto is purchasing the land from Consolidated-Tomoka Land Company and the new community is slated to be age restricted, targeting adults 55 and over. Called Daytona West, the community will have 3,400 single-family residential units and up to 215,000 square-feet of commercial uses. Construction is expected to begin in mid-2015 with the first new home sales offered by mid-2016. This project is slightly north of the CMMP study area, along LPGA Boulevard.

2.6.15 Tomoka Town Center

Daytona Beach-based Consolidated-Tomoka Land Company is developing the Tomoka Town Center on a 187-acre tract, bounded by I-95, Cornerstone Boulevard and Williamson Boulevard, just south of LPGA Boulevard. Located north of the CMMP study area and south of LPGA Boulevard, the property is divided into three parcels. North Carolina-based Tanger Factory Outlet Centers, Inc. is planning to build a 380,000-square-foot outlet mall on the 39.02-acre Parcel One. The $100 million outlet mall is anticipated to bring 800 jobs to the area. Parcel Two is under contract with Walmart Stores, Inc. which has plans for a Sam's Wholesale Club on the 23.75-acre site. Parcel Three is approximately 124.08-acres and will feature a mix of uses with a maximum floor area ratio of 0.7 and no more than 400 residential units.

A rendering of Tomoka Town Center's Tanger Factory Outlet mall.



Tomoka Town Center Parcel Map

2.6.16 Trader Joes Distribution Center

Monrovia, CA-based Trader Joe's grocery store chain is constructing an 800,000-sqaure-foot regional distribution center on the east side of I-95 just north of Dunn Avenue and west of Williamson Boulevard. When completed in 2015, the 76-acre development is expected to employ 450 workers as well as another 100 delivery drivers.

2.6.17 Daytona International Auto Mall Expansion

The Daytona International Auto Mall facility, located at I-95 and LPGA Boulevard, is expanding to include two new dealership facilities for BMW and Nissan. When complete in 2015, the existing BMW dealership will be converted into a Mini Cooper dealership and the existing Nissan facility will be converted into a Ram Truck Center and new Maserati dealership. This $25 million, 30-acre expansion is located just north of the CMMP study area and add 100 jobs to the area.

2.7 HIGHWAY AND TRANSIT SYSTEMS DATA

2.7.1 FDOT Florida Traffic Online

This web database provides statistical traffic information for Florida's State Highway System such as historical traffic volume counts, location of count sites, and traffic data reports.

2.7.2 Volusia County 2013 Average Annual Daily Traffic & Historical Counts

The web database includes historical traffic counts and other roadway data (number of lanes, posted speed limits, LOS, etc.) for facilities including US 92/SR 600/ISB, SR 483/Clyde Morris Boulevard, and SR 5A/Nova Road. Historical traffic count statistics from 1998 to 2013 indicate traffic volumes are decreasing along US 92/SR 600/ISB throughout the study area.

2.7.3 Volusia County Traffic Signal System Upgrade Report

This August 2010 report identifies major upgrades to the County-maintained traffic signal control systems. Projects within the study area include a closed loop signal system on SR 483/Clyde Morris Boulevard.

2.7.4 National Transit Database

The National Transit Database (NTD) is the primary source of information and statistics on transit systems in the United States. Performance, operating, and financial information are collected through an Internet-based reporting system using uniform categories. Detailed statistics and Agency Profiles, with data such as Annual Passenger Miles, Annual Vehicle Revenue Miles, Annual Unlinked Trips, Vehicles Available for Maximum Service, etc. are provided through the online database.

2.7.5 Transportation Improvement Program FY 2014/15 – FY 2018/19 – River to Sea TPO

The Transportation Improvement Program (TIP) is a priority list of federal and state funded transportation projects required by Florida Statutes and federal law for the Fiscal Year 2014/15 through 2018/19 time period. The priority list contains required capital and non-capital surface transportation projects, regionally significant projects and projects that implement paratransit plans. Other local or privately funded projects are also included for informational purposes. Projects within the CMMP's study area are identified below:

<u>Roadway Capacity Projects</u>

- I-95/I-4 Ultimate Systems Interchange – I-95 Widening
- SR 483 (Clyde Morris Boulevard) Widening ROW Acquisition
- I-4 Widening – SR 44 to East of I-95
- ISB Widening – I-4 to Tomoka Farms Road

<u>Major Bridge Projects</u>

- Memorial Bridge (Orange Avenue Bridge) Replacement

<u>Traffic Operations, ITS & Safety Projects</u>

- SR 430 (Mason Avenue)/SR 5A (Nova Road) Westbound Left Turn Lane
- ISB/Williamson Boulevard Intersection Improvement
- Dunn Avenue Paved Shoulders

- ISB Daytona Beach SIS Connector Signal Improvements (Tomoka Farms Road to Beach Street)
- ISB Traffic Signal Mast Arm Upgrades (Midway Avenue to Adams Street)
- SR 430 (Mason Avenue) Railroad Crossing Safety Improvements
- Daytona Beach Wayfinding Program

Maintenance Projects

- Nova Road Canal Maintenance
- SR 400 (Beville Road) Resurfacing (SR 483/Clyde Morris Boulevard to US 1/Ridgewood Avenue)
- SR 430 (Seabreeze Boulevard) Resurfacing
- SR 441 (Peninsula Drive) Resurfacing (ISB to Silver Beach)
- SR 5A (Nova Road) Resurfacing (SR 400/Beville Road to ISB)
- ISB Resurfacing (SR 5A/Nova Road to US 1/Ridgewood Avenue)
- Orange Avenue Resurfacing (SR 5A/Nova Road to Beach Street)

Transit Projects

- Votran Transit Service Enhancement (Routes 3 and 4 – improve bus service to 30 minute frequency)

Bicycle, Pedestrian & Enhancement Projects

- I-95 Landscaping (SR 44 to 1.6 miles north of ISB)
- ISB Phase II Streetscape (SR 5A/Nova Road to Lincoln Street)
- US 1 (Ridgewood Avenue) Landscaping (SR 430/Mason Avenue to Magnolia Avenue)
- ISB Pedestrian Improvements (Williamson Boulevard to Midway Avenue)
- Halifax River Greenway Trail – Palmetto Avenue (Beville Road to Wilder Boulevard)
- Halifax River Greenway Trail – Riverfront (Beach Street to Riverfront Park)

Aviation

- Bellevue Avenue Realignment
- DBIA Taxiway Rehabilitation
- Daytona Beach International Airport Transportation Loop Road
- Daytona Beach International Airport – Entrance Realignment

2.7.6 Various Votran Website Documents

The Votran website (www.votran.org) features several documents detailing the routes, schedules and services of Volusia County's public transportation system. The following Votran bus routes serve at least a portion of the Pedestrian Connectivity and Safety Assessment study area, operating primarily on 60-minute headways (with 30-minute peak hour headways on selected routes) from Monday through Saturday with some limited evening and Sunday service:

- Route 1A – A1A North
- Route 3 – North Ridgewood
- Route 4 – South Ridgewood
- Route 5 – Center St
- Route 6 – North Nova
- Route 7 – South Nova
- Route 8 – Halifax

- Route 10 – Medical Center
- Route 11 – Mason Avenue
- Route 12 – Clyde Morris
- Route 15 – Orange Ave
- Route 17 – South Atlantic
- Route 18 – International Speedway
- Route 19 – Granada
- Route 60 – East-West Connector

A summary of the service operating characteristics of these routes from the TDP is provided in Table 1 and a map of the service routes is shown in Figure 9.

A bus stop along SR A1A/Atlantic Avenue, just south of US 92/SR 600/ISB.

Table 1: Summary of Transit Service Operating Characteristics

Route Number	Route Description	Days of Operation	Service Span	Headways
1	SR A1A North	Monday-Saturday	5:40 am – 7:10 pm	60 Minutes
		Sunday	7:05 am – 6:00 pm	60 Minutes
3	North Ridgewood Ave to Hawaiian Tropic	Monday-Saturday	6:22 am – 6:58 pm	60 Minutes
		Sunday	7:03 am – 6:28 pm	60 Minutes
4	South Ridgewood Ave to Swallow Tail & Village Trail	Monday-Saturday	6:22 am- 6:58 pm	30 Minutes
		Sunday	6:42 am – 6:00 pm	60 Minutes
5	US 1 to Nova Rd & Flomich St	Monday – Friday	6:37 am – 6:25 pm	60 Minutes
6	North Nova: Dunn Ave & White St to Thompson Creek & Granada Ave	Monday–Friday	6:05 am – 7:33 pm	60 Minutes
		Saturday	6:23 am – 7:33 pm	60 Minutes
7	South Nova Rd to Dunlawton Blvd	Monday-Friday	6:02 am – 7:19 pm	60 Minutes
		Saturday	6:05 am – 7:18 pm	60 Minutes
8	Halifax Ave to Bellair Plaza	Monday-Friday	6:32 am – 7:21 pm	60 Minutes
		Saturday	7:32 am – 6:21 pm	60 Minutes
10	Mary McLeod Bethune Blvd/Dr. Martin Luther King Blvd to Volusia Mall	Monday-Friday	6:35 am – 11:50 pm	30 Minutes
		Saturday	6:39 am – 11:50 pm	30 Minutes
		Sunday	7:00 am – 5:50 pm	60 Minutes
10S	Nova Rd to Tomoka Farms Rd to Gene Daniels Rd	Sunday	7:00 am – 6:00 pm	60 Minutes
11	Mason Ave to Bellevue Ave/Tomoka Farms Rd	Monday-Friday	6:17 am – 6:53 pm	60 Minutes
		Saturday	6:17 am – 6:50 pm	60 Minutes
12	Clyde Morris Blvd to Pavilion Mall	Monday-Friday	6:32 am – 7:34 pm	60 Minutes
		Saturday	6:32 am – 7:34 pm	60 Minutes

Table 1: Summary of Transit Service Operating Characteristics (continued)

Route Number	Route Description	Days of Operation	Service Span	Headways
15	Orange Ave & US 1 to South & Keech St	Monday-Saturday	5:31 am – 6:46 pm	30 Minutes
		Sunday	6:07 am – 6:46 pm	60 Minutes
17A	Intermodal Transit Facility to Marine Science Center	Monday-Saturday	6:07 am – 6:24 pm	60 Minutes
17B	Intermodal Transit Facility to Dunlawton Blvd	Monday-Saturday	6:32 am – 6:32 pm	60 Minutes
		Sunday	7:00 am – 6:22 pm	60 Minutes
18	International Speedway Blvd to Walmart-Ormond Beach	Monday-Friday	6:45 am – 6:50 pm	60 Minutes
		Saturday	7:02 am – 6:53 pm	60 Minutes
19	Bellair Plaza/SR A1A to International Speedway Blvd/Nova Rd	Monday-Friday	6:07 am – 6:50 pm	60 Minutes
		Saturday	6:07 am – 6:50 pm	60 Minutes
60	East/West Connector	Monday-Friday	5:20 am – 7:48 pm	60 Minutes
		Saturday	7:01 am – 7:48 pm	60 Minutes

Source: 2*012-2021 Transit Development Plan Major Update*, Votran (August 2014)

2.7.7 Strategic Intermodal System Highway Connectors Assessment – Daytona Beach International Airport Connector

This 2008 report is an assessment of the DBIA Connector as an Emerging Strategic Intermodal System (SIS) facility, connecting DBIA to I-95. The facility comprises portions of US 92/SR 600/ISB and Midway Avenue and includes existing and future operating conditions and recommended improvements.

2.7.8 Strategic Intermodal System Highway Connectors Assessment – Daytona Beach Greyhound Bus Terminal Connector

This is a 2008 assessment of the Daytona Beach Greyhound Bus Terminal Connector. The Greyhound bus terminal is an Emerging SIS facility and the Greyhound Bus Terminal Connector includes US 92/SR 600/ISB. Existing and future operating conditions and recommended improvements are provided.

2.7.9 ITSS Intermodal Transit Station Study

This study, completed in 2014, analyzes five potential locations for an Intermodal Transit Station (ITS). Integral to the study is an understanding of the system characteristics, needs and public vision. The study determines that an Intermodal Transit Station can provide increased connectivity and reduced congestion and recommends an Alternatives Analysis to determine the location of the ITS. It also recommends an exploration of public-private partnerships.

2.7.10 Central Florida Regional Freight Mobility Study – FDOT District 5 and Volusia TPO

This study, completed in 2013, develops a regional freight and goods movement plan. An assessment of the freight conditions and needs of the area led to short-term and long-term recommendations in order to support the increasing demand for freight and goods movement in the Central Florida area. Within the study area, I-95, I-4, and ISB, between I-95 and downtown Daytona Beach, are identified as Strategic Intermodal System (SIS) facilities. Other major freight corridors and facilities within the study area include the Daytona Beach International Airport, the Florida East Coast Railway, and US 92/SR 600/ISB, west of I-95.

2.7.11 Volusia County Freight and Goods Movement

This 2009 report develops a preliminary Truck Route Plan. This was borne of the need to develop a safe and efficient means for trucks to share the road with personal vehicles. Through literature review, analysis of data, and input from freight industry representatives, this report provides a Truck Route Map. The study identifies US 92/SR 600/ISB and all state roads as truck routes. This study also prioritizes projects for operational freight improvement.

2.8 EXISTING RIGHT-OF-WAY AND PROPERTY OWNERSHIP

2.8.1 Existing Right-of-Way

Right-of-way maps, in PDF file format, were obtained from the FDOT for US 92/SR 600/ISB, SR 483/South Clyde Morris Boulevard and SR 5A/South Nova Road.

2.8.2 Property Ownership

Parcel data with property ownership information was obtained from the City of Daytona Beach GIS system for the study area.

2.9 OTHER MISCELLANEOUS REPORTS AND STUDIES

2.9.1 Daytona Beach International Airport Master Plan Update

The June 2003 DBIA Master Plan Update outlines opportunities for improving both the airfield and other facilities to meet the aviation and transportation needs of the region. The report evaluates the Airport's existing facilities, conditions and activity; provides projections of future activity over a 20-year planning period; and recommends methods of accommodating the projected activity.

2.9.2 Conceptual Plan for Daytona Beach International Airport Circulator

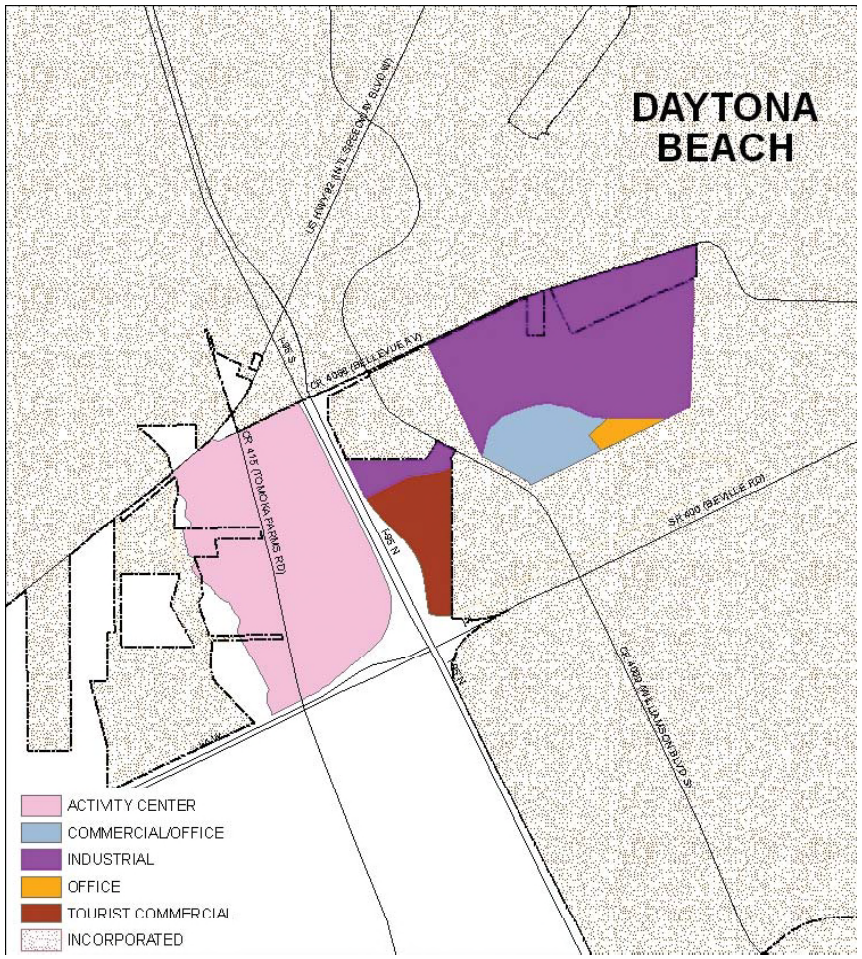
This document, dated November 2011, provides conceptual layouts of an interior transportation system for the DBIA to connect each of the internal activity centers. It also identifies the locations of intermodal transportation centers that connect the airport with the region and local nodes along US 92/SR 600/ISB. A map depicting airport circulator conceptual alternative alignments to be considered for future analysis is depicted in Appendix C.

2.10 COMPREHENSIVE PLAN GOALS, OBJECTIVES & POLICIES

Appendix A contains goals, objectives and policies from the Future Land Use Element and the Transportation Element from the City of Daytona Beach Comprehensive Plan that are relevant to the development of the CMMP.

The portion from the Future Land Use Element contains the Neighborhood Development Policies for the different neighborhoods within the study area. In addition, there is a section on the development of the Halifax Activity Center area, intended to achieve an integrated and well-planned mixture of urban land uses.

The portions from the Transportation Element contains policies and objectives to improve traffic circulation within the city, as well as promoting a regional commuter rail system and promoting the growth of the Daytona Beach International Airport. The last portion contains policies which promote a coordinated multimodal transportation system.



The Halifax Activity Center is located, primarily in Volusia County, along I-95, between US 92/SR 600/ISB and I-4.

3 STAKEHOLDER & STUDY COORDINATION

Interviews with key stakeholders in the study area were conducted to solicit input regarding the potential needs of the stakeholders and how they might be addressed through the study objectives. Included in the stakeholder interviews were representatives of the following agencies and entities:

- Bethune-Cookman University
- City of Daytona Beach
- Consolidated Tomoka Land Company
- Daytona Beach International Airport
- Daytona Hotel and Lodging Association
- Daytona International Speedway
- Daytona State College, Daytona Beach Campus
- DBS Rehabilitation Center for the Blind and Visually Impaired
- Embry-Riddle Aeronautical University
- Halifax Health Medical Center
- International Speedway Corporation
- Ocean Center
- River to Sea TPO
- University of Central Florida, Daytona Beach Campus
- Volusia County
- Volusia County School District
- Volusia Mall
- Votran

The interviews followed a standard questionnaire, which is included in Appendix C. Input obtained through the stakeholder interview process typically consisted of specific issues pertaining to the stakeholder's interests as well as generalized comments regarding area transportation/land use issues, alternative transit modes, obstacles in achieving the future vision of the ISB corridor, and other related issues pertaining to the US 92 CMMP. Meeting minutes are included in Appendix C with representative comments and observations summarized below:

- *Traffic is an issue, including bottle-necking at several locations: ISB & White Street, ISB & Nova Road, ISB & Heineman Street.*
- *Most of the travelers in the ISB corridor use personal vehicles. However, Votran bus service is important to employees of Volusia Mall and the airport, and to students. A majority of visually impaired residents also use mass transit.*
- *Improvements need to be made near beachside; too many decrepit buildings.*
- *The corridor needs a transit system, such as a shuttle or trolley that can take visitors, workers, and residents to the different places in the corridor, such as the Volusia Mall, college campuses, beachside, etc. Students do not have sufficient access to other locations in the corridor, which is a problem for students who are employed at such locations.*
- *Votran bus system is not attractive to students, because it does not stop in locations that the students want to go.*
- *A trolley also needs to run along the beach.*
- *A major deficiency of the corridor is that it is unsafe for students and other pedestrians to cross streets.*
- *Bus stops should have better amenities and be more visible and aesthetically pleasing*
- *Ease of access needs to be improved for the corridor.*
- *Consensus needs to be achieved in order to identify a collective vision for the corridor.*
- *An interconnected bicycle system is needed to allow students and other bicyclists to access campus and other activity centers*

- *Traffic signalization is an issue; the traffic signals need to be re-synchronized.*
- *A "sense of arrival" is needed for the ISB corridor, as well as a consistent and thematic appearance leading to the beachside. This would include lighting, landscaping, cleaning, and wayfinding signage.*
- *Sidewalk gaps throughout the corridor, particularly near Palm Terrace Elementary school, need to be addressed in order to provide a safe, connected, sidewalk network*
- *Too much development is being approved which, if not coordinated correctly, could hinder the corridor. Investments are not being synchronized with land use.*
- *Bicyclists already use Clyde Morris Boulevard, which has the potential to be a good corridor for multi-modal improvements*
- *A rail stop or other transit improvement to provide increased connectivity to and from the airport would increase the accessibility of the corridor.*
- *Additional entertainment facilities should be added near Midtown for students and visitors.*
- *The ISB corridor should be a more "pedestrian friendly" environment, with mixed-use development throughout the corridor, and more public green spaces.*
- *Transit alternatives to be considered are a rail with stops along the ISB corridor, and park-and-ride facilities on the west side of town.*
- *ISB and other major roads in the corridor are two wide and lack landscaped medians, providing unsafe and aesthetically displeasing conditions.*
- *Utilities should be buried, and investment should be made in landscaping on the ISB corridor.*
- *There is no Votran service on holidays, which prevents employees from reaching their workplace during that time.*
- *Small, tangible improvements will help enhance the "sense of place" of the corridor.*
- *Alternative routes to the beach should be identified to those traveling along the corridor, particularly Mason Avenue, Orange Avenue, and Dunn Avenue. These routes would be identified via wayfinding signage.*
- *The northbound acceleration lane at ISB and Clyde Morris is too short.*
- *Lack of available parking space is an issue for Halifax Health, and Bethune Cookman University.*
- *"Precedent images" of places that successfully implemented improvements would be useful in convincing lawmakers/citizens that certain strategies can work.*
- *Bicyclist traffic on sidewalks would cause conflicts during major speedway events*
- *The pedestrian sidewalk project should be extended from Midway Avenue to Clyde Morris Boulevard, and an additional pedestrian overpass would be useful near the intersection of West Road and ISB.*
- *ROW is constrained east of Clyde Morris Boulevard.*
- *SunRail or All Aboard Florida should be extended into Daytona Beach*
- *Additional crosswalks should be provided on places such as Nova Road*
- *An effort should be made to preserve cultural icons on the beachside.*
- *The entire corridor should become overall multi-modal, safe, and an attractive place to live, play, and work.*

Through this interview process, valuable information was garnered specific to each agency or entity, and also general trends and observations regarding the overall growth and mobility issues in the Daytona Beach area. Minutes of each interview were recorded and made available to study participants and interested parties.

4 STUDY AREA PHYSICAL CHARACTERISTICS

4.1 CLIMATE

Climate considerations are important when planning for a walkable, pedestrian friendly corridor. The climate in Volusia County is subtropical; the average temperature is 71°F and the average rainfall is 53 inches per year. The coldest months are December, January and February, when temperatures average around 60°F; the warmest are June, July and August which average around 80°F. More than half of the yearly rainfall occurs during the humid summer months of June to September.

4.2 GEOGRAPHY

The topography in Volusia County and Daytona area is generally of two types: Karst topography and leveled terraces. Karst topography is the name applied to the undulating, pitted land surface that occurs where sinkholes are numerous and drainage is primarily downward. This type of topography is common in the areas in Volusia County where land surface is highest – west of the ISB Study Area.

The remaining areas are characterized as leveled terraces. Surface drainage is more typical of these leveled terraces. Terrace formation during the Pleistocene era played an important part in shaping the land surface in Volusia County. Terrace formation accounts for the flatness of much of Volusia County.

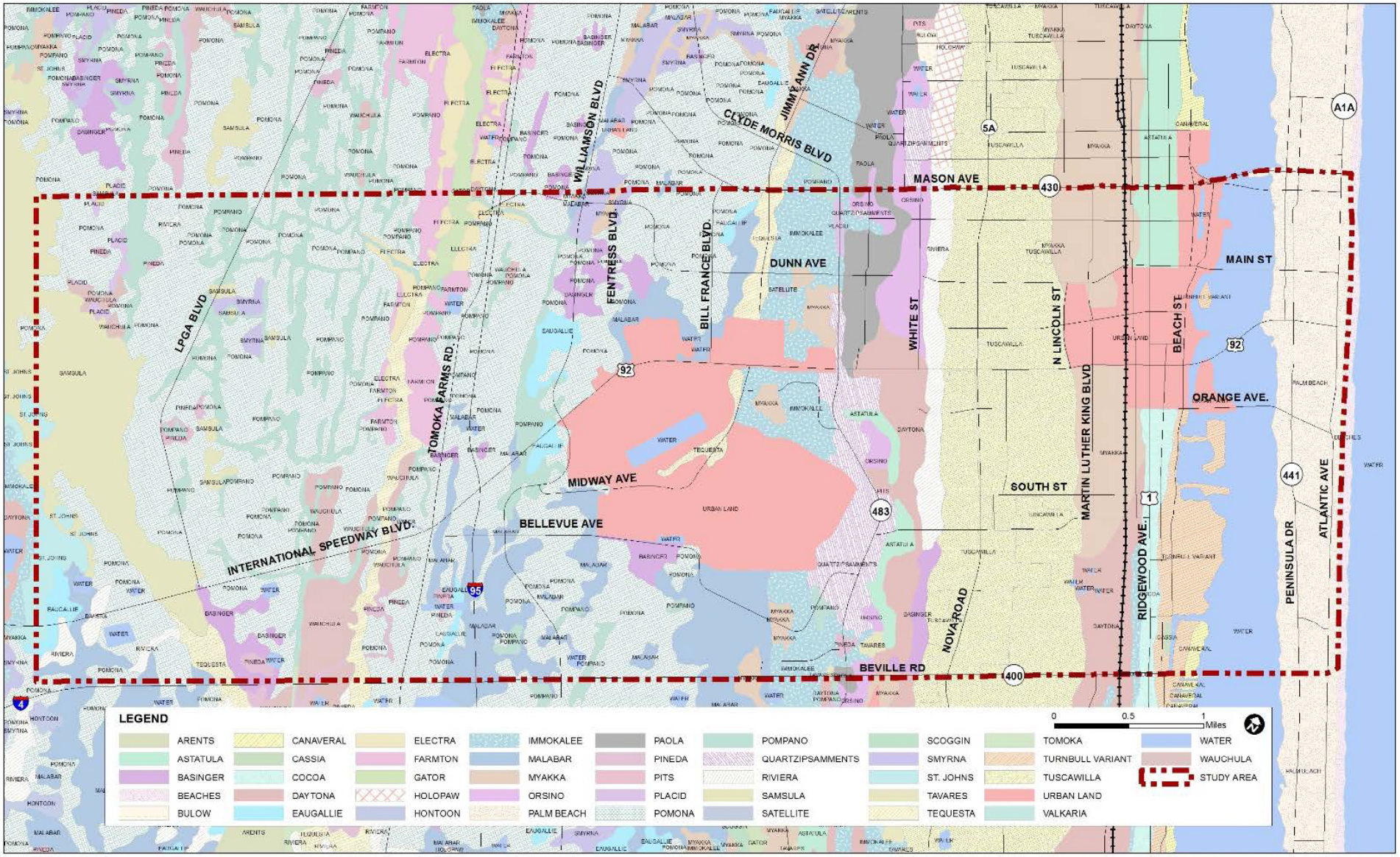
The corridor is relatively flat and contains very few, if any, serious topographical challenges to creating a more walkable pedestrian friendly plan.

Figure 2 depicts the soils that are present within the study area as classified by the U.S. Department of Agriculture-National Resources Conservation Service (USDA-NRCS). Urban Land, Daytona, Tuscawilla, Myakka, Astatula, and Palm Beach soil types are the most dominant soil types within the study area. Figure 3 depicts the wetlands, drainage canals and the 100-year and 500-year Federal Emergency Management Agency (FEMA) flood-zone maps. A major drainage canal runs parallel to US 92/SR 600/ISB in Segment 2. A significant amount of property within the study area, west of SR 483/ Clyde Morris Boulevard and east of US 1 (minus Halifax River) falls within the 100-Year Floodplain. Figure 4 illustrates the brownfields within the study area. The majority of the area west of SR 483/Clyde Morris Boulevard is considered a brownfield.

4.3 LANDSCAPE

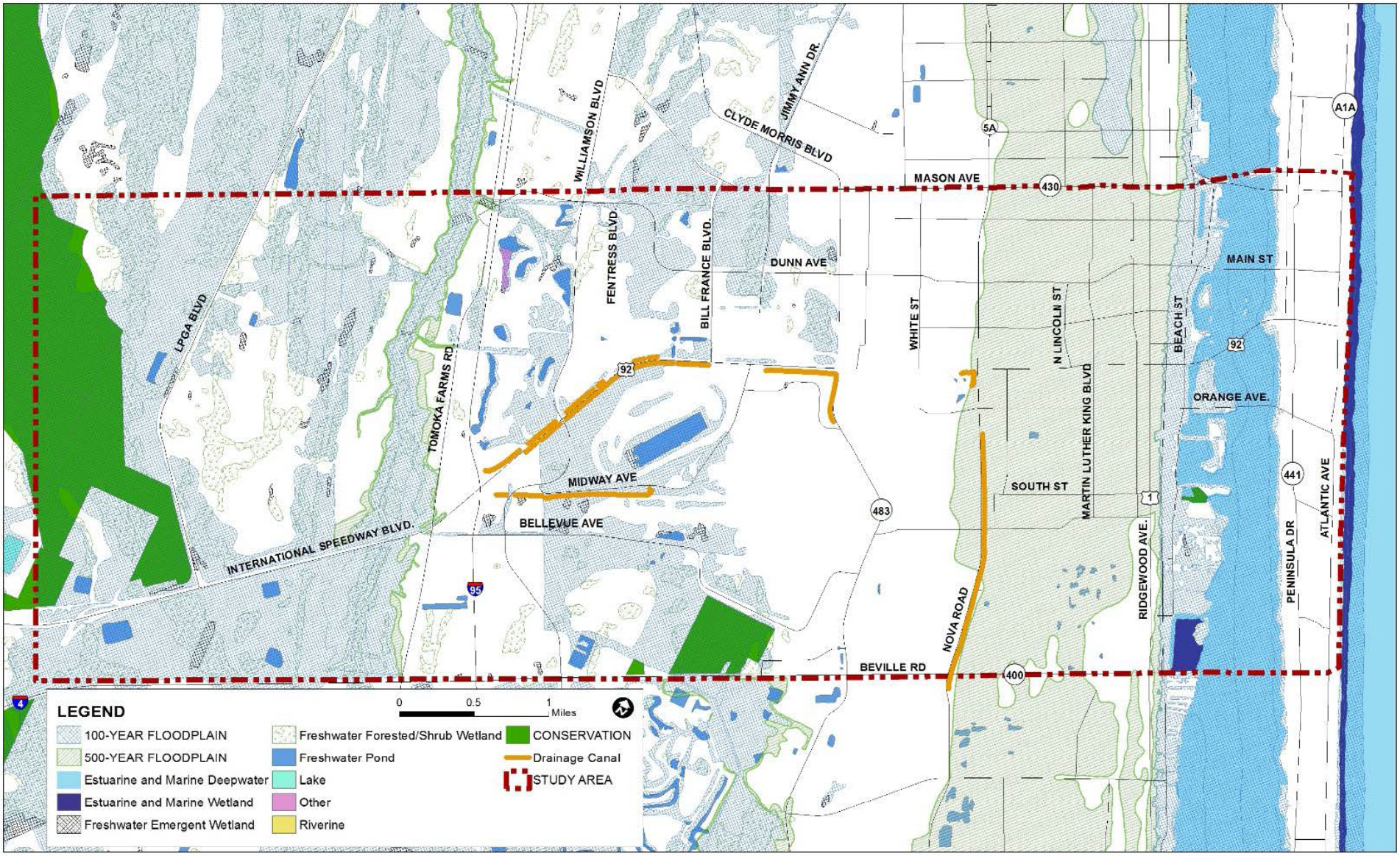
Prior to development along the corridor, the dominant landscape included mostly pine flatwoods and oak hammocks interspersed with cypress swamps. The corridor is located within the *Eastern Florida Flatwoods* Ecoregion according to the U.S. Environmental Protection Agency (EPA). This region is conducive to growing deciduous and coniferous canopy trees and some fruit trees. Tropical fruit trees would not thrive due to yearly frost and sub-freezing weather that occurs.

The eastern portion of the corridor contains remnants of a beach dune system with species such as Sand Live Oak and Saw Palmettos and Sea Oats along the beach. The Halifax River is an estuary system with some isolated patches of Maritime Hammock habitat adjacent to the River's edge.



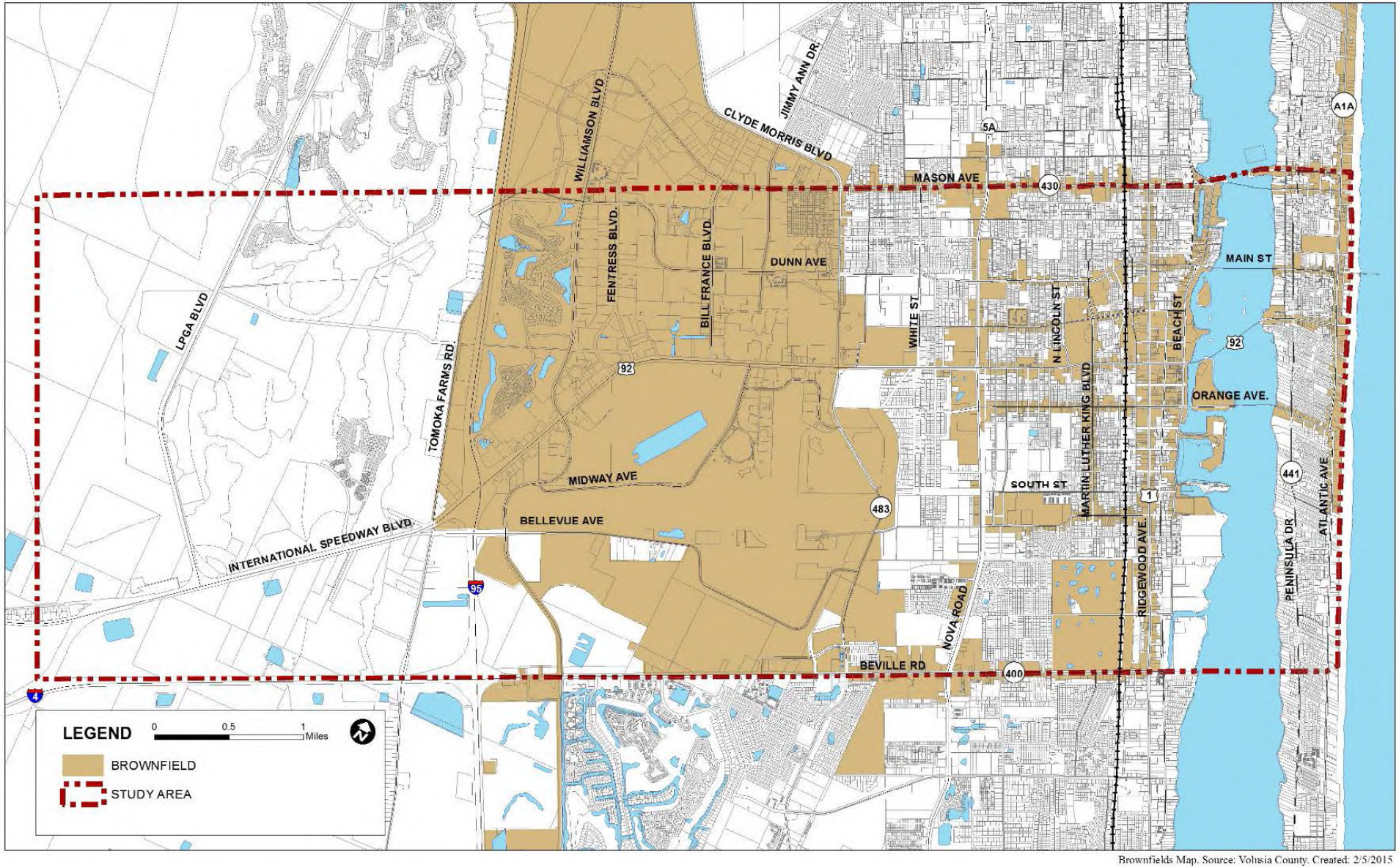
Soils Map. Source: University of Florida GeoPlan Center. Created: 2/5/2015

Figure 2: Soils Map



Wetlands and Drainage Canals Map. Source: FEMA, US FWS and Ghyabi & Associates. Created: 2/6/2015

Figure 3: Wetlands and Drainage Canals Map



Brownfields Map. Source: Volusia County. Created: 2/5/2015

Figure 4: Brownfields Map

4.4 LAND USE CONTEXT

The existing land uses within the study area are diverse with urban, suburban and rural uses and large areas of undeveloped land with a wide mixture of densities and property values.

Segment 1 contains a high school, a municipal Stadium, an automotive scrap yard, an International RV Park and Campground, new single family home residential developments, and a large amount of undeveloped land. Segment 1 has both residential and industrial lots, with large setbacks between street and property, and streets that lack pedestrian facilities. The maximum speed limit along US 92/SR 600/ISB in Segment 1 is 55 miles per hour.

Typical rural intersection found in Segment 1.

Segment 2 is characterized by regional land uses. These include Volusia County's largest regional shopping mall, retail power centers, industrial lots, and other, attractions including the Daytona International Speedway and Daytona Beach International Airport. The majority of Segment 2's land uses are built to accommodate automobile access, rather than being multi modal friendly, with large surface parking lots and setbacks between street and building entrances, unmarked driveways, and a disconnected pedestrian and bicycle network. The posted maximum speed limit along US 92/SR 600/ISB in Segment 2 is 50 miles per hour.

Typical sidewalk and shoulder conditions found in Segment 2.

Segment 3 contains a regional hospital, major medical facilities, three universities, a public high school, mid-20th century residential uses, Tuscawilla Park, and the city's first enclosed shopping center. In general, Segment 3 is characterized by two dominant land development patterns. West of White Street, lot sizes are large and the institutional land uses are regional in nature. East of White Street,

Mainland High School is located in Segment 3.

Downtown Daytona Beach in Segment 4.

the gridded street network and majority of land uses exhibit a traditional early 20th century development pattern. Along US 92/SR 600/ISB, within Segment 3, the maximum speed limits range between 45 to 35 miles an hour.

Segment 4 represents the oldest areas of the City of Daytona Beach. Anchored by the Beachside and Downtown Daytona Beach, development in Segment 4 dates back to the late 19th century. Bounded by the Florida East Coast Railway and the Atlantic Ocean, Segment 4 contains a pedestrian scale gridded street network, small lot sizes and front setbacks, and a mix of uses. In addition, the Halifax River divides Segment 4. This natural amenity includes picturesque linear green space on the west side of the Halifax River. The Beachside, or east side of Segment 3 is characterized by high rise hotels and condominiums, waterfront properties, commercial land uses with a heavy emphasis on tourism. Maximum speed limits posted along US 92/SR 600/ISB in Segment 4 range between 30 to 40 miles per hour.

5 TRAVEL DEMAND CHARACTERISTICS

5.1 ISSUES/CONSTRAINTS IDENTIFICATION

Data was collected to identify preliminary issues and constraints within the study area. This included issues and constraints based on community, transportation and environmental characteristics obtained through review of previous studies, field reviews, coordination with agencies, previous public workshops/meetings, and other publicly available data sources such as agency GIS resources and the FDOT databases. Some of the issues/constraints identified are listed below:

- On a high speed arterial, such as US 92/SR 600/ISB, the lack of a physical barrier separating designated bike lane infrastructure from the automobile travel lane can be perceived by bicyclists as dangerous and intimidating. Despite the presence of designated bike lanes along US 92/SR 600/ISB, between I-95 and SR 483/Clyde Morris Boulevard, during field review bicyclists were observed using the sidewalks.

- Within the study area, there are limited bike parking facilities throughout the US 92/SR 600/ISB corridor.

- Shade trees are not present along sidewalks, especially along US 92/SR 600/ISB, to provide a respite from extreme weather conditions.

- Pedestrians and cyclists utilizing existing facilities within the study area are forced to navigate a significant number of business access drives.

- The majority of crosswalks/driveways in the study area are unmarked. The majority of automobiles observed do not come to a complete stop before making right turns at these unmarked crosswalks/driveways, which creates a hazardous condition for pedestrians.

- At some intersections, such as US 92/SR 600/ISB at Indigo Drive, the sidewalk is not continuous up to the crosswalk resulting in an unpaved and/or grassy area that must be crossed by pedestrians to continue along the sidewalk.

- There are no pedestrian median refuges at signalized intersections along 8-lane US 92/SR 600/ISB.

- Sidewalks along US 92/SR 600/ISB are disconnected from private sector land uses. Very few private developments have sidewalks/crosswalks connecting their business to public sidewalks.

- Many bus stops within the study area lack amenities, such as benches, shelters, bus route maps, trash cans and platforms for riders. In addition, many of these stops are located in the grass in areas that lack sidewalks.

To alleviate some traffic queuing issues on US 92/SR 600/ISB, Votran is planning an ISB Circulator service route. This circulator service would loop around the Daytona Beach International Airport using US 92/SR 600/ISB, Clyde Morris Boulevard, Beville Road and Williamson Boulevard.

5.2 EXISTING CORRIDOR CONDITIONS

The following figures depict the existing conditions within the corridor. Figure 5 depicts the existing roadway network with the roadway number of lanes in the study area. US 92/SR 600/ISB varies between 4 lanes and 8 lanes from Tomoka Farms Road to SR A1A/ Atlantic Avenue. SR 5A/Nova Road is a 6-lane roadway within the study area. Major 4-lane facilities within the study area include SR 483/Clyde Morris Boulevard, Williamson Boulevard, Bill France Boulevard, Midway Avenue, Richard Petty Boulevard, White Street, US 1/Ridgewood Avenue, SR A1A/Atlantic Avenue, Mason Avenue, Dunn Avenue, Orange Avenue, and SR 400/Beville Road.

Figure 6 depicts the roadway functional classifications within the study area. Principal Arterials within the study area include US 92/SR 600/ISB, Williamson Boulevard, SR 483/Clyde Morris Boulevard, SR 5A/Nova Road, US 1/Ridgewood Avenue, and SR A1A/Atlantic Avenue.

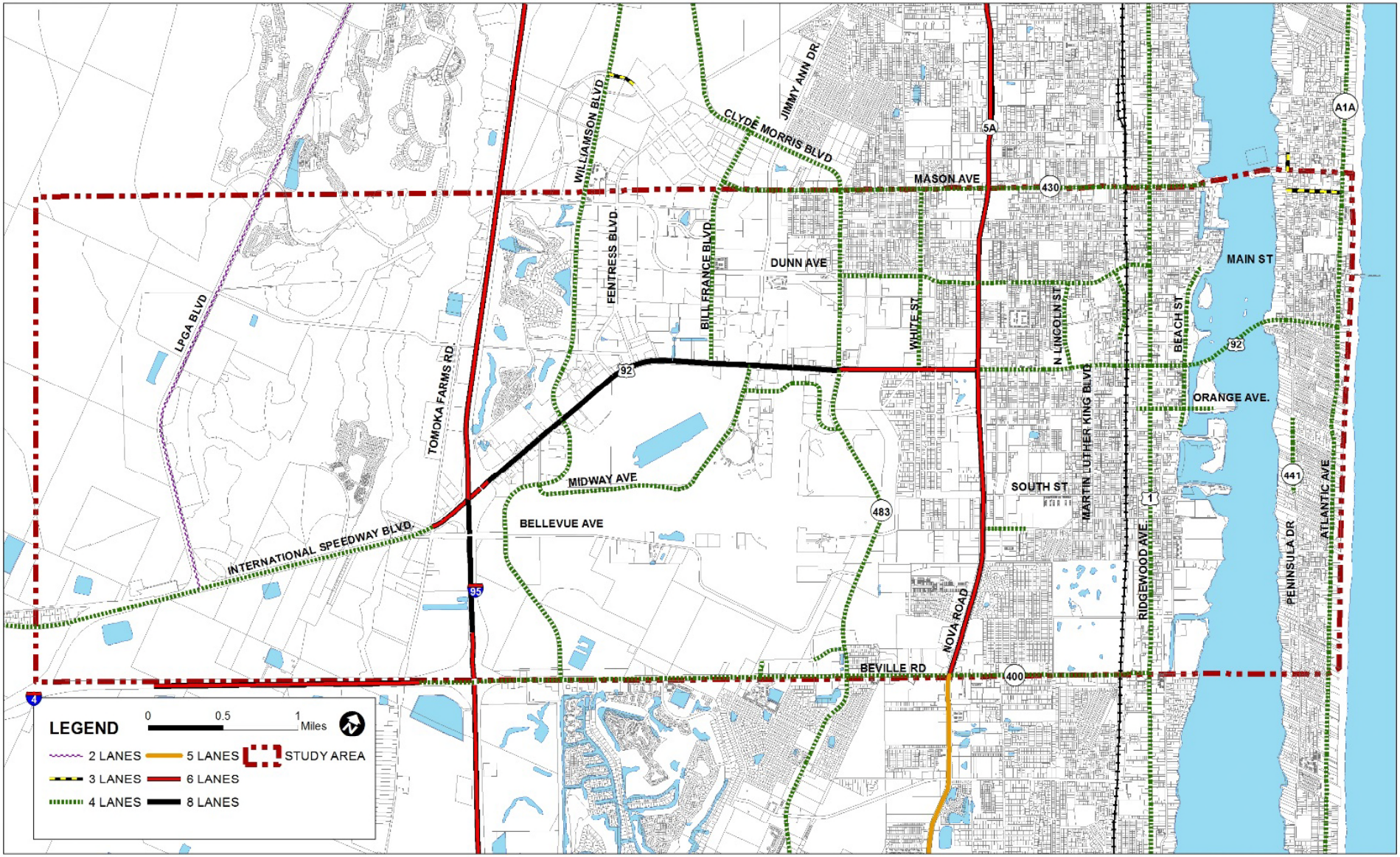
Figure 7 depicts the various posted speed limits of the roadway classification system within the study area. The majority of roadway facilities within the study area fall between 35 mph – 45 mph. US 92/SR 600/ISB has a maximum posted speed limit of 50 mph west of SR 483/Clyde Morris Boulevard, and becomes 55 mph west of I-95.

Figure 8 depicts the traffic signal locations within the study area. The majority of traffic signals are along SR 600/US 92/ISB.

Figure 9 identifies existing transit routes and bus stop locations within the study area. Fifteen Votran routes currently provide coverage within the study area. Only three bus routes (Route 4, 10 & 15) provide 30 minute headways.

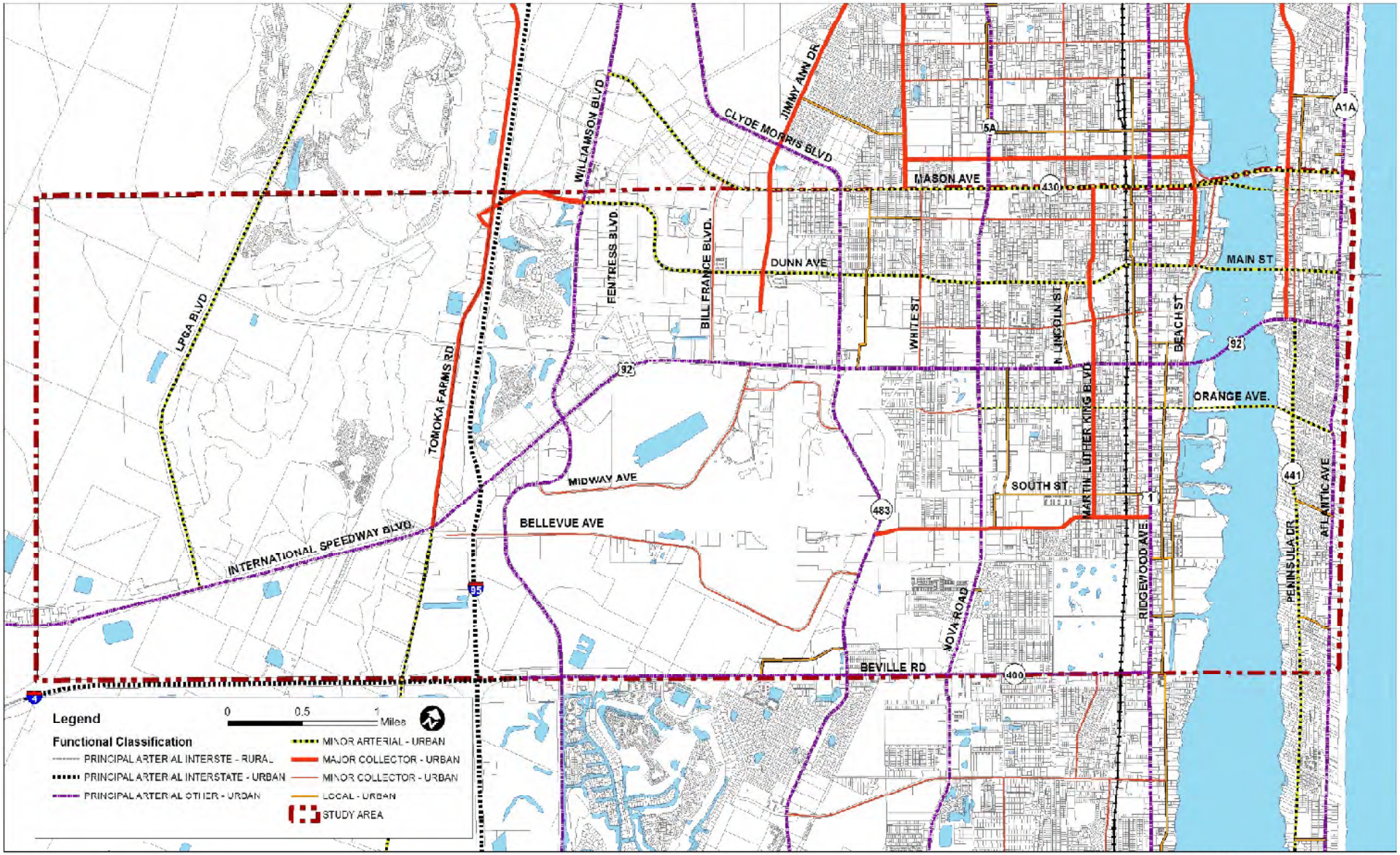
Figure 10 depicts the Functional Highway Classification System's existing pedestrian network within the study area. If a sidewalk exists on one side of the street, the roadway link was assumed to have sidewalks. While US 92/SR 600/ISB has 100% sidewalk coverage on both sides of the street east of I-95, significant gaps and a general lack of pedestrian facilities dominate the study area west of I-95. Field observation also reveals limited connectivity (via private sidewalks) between public sidewalks and adjacent land uses along US 92/SR 600/ISB throughout the study area.

Figure 11 depicts the existing bike lanes or paved shoulders and multi-use paths in the study area. Bike lane facilities are provided within the study are along Williamson Boulevard and portions of US 92/SR 600/ISB, SR 400/Beville Road, Bellevue Avenue, Dunn Avenue, and US 1/Ridgewood Avenue. A multi-use path is provided adjacent to SR 5A/Nova Road, south of US 92/SR 600/ISB. There are no bicycle facilities east of the Halifax River. Overall, significant connectivity gaps exist within the bicycle network.



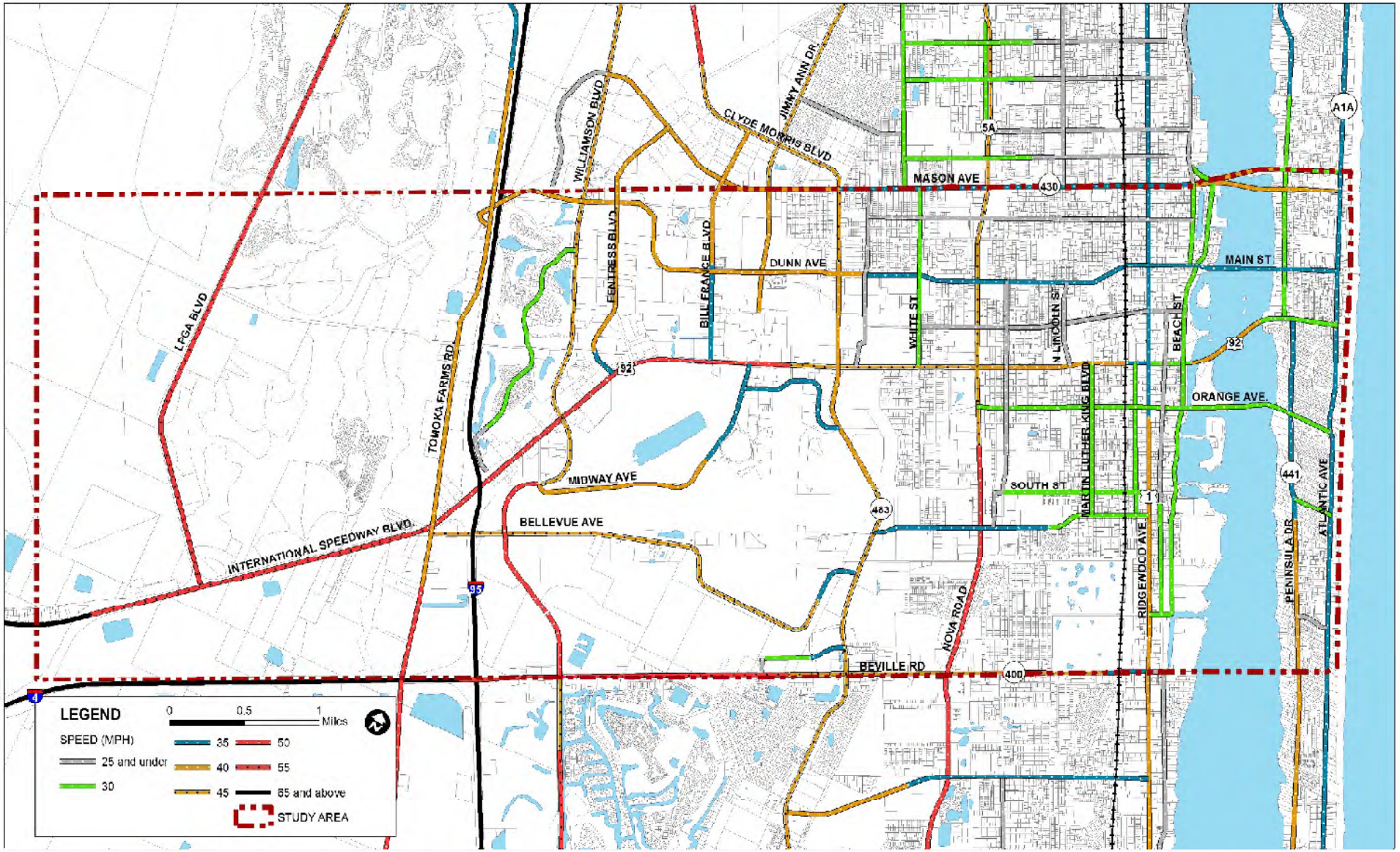
Existing Roadway Network Map. Source: FDOT and Ghyabi & Associates. Created: 2/5/2015

Figure 5: Existing Roadway Network Map



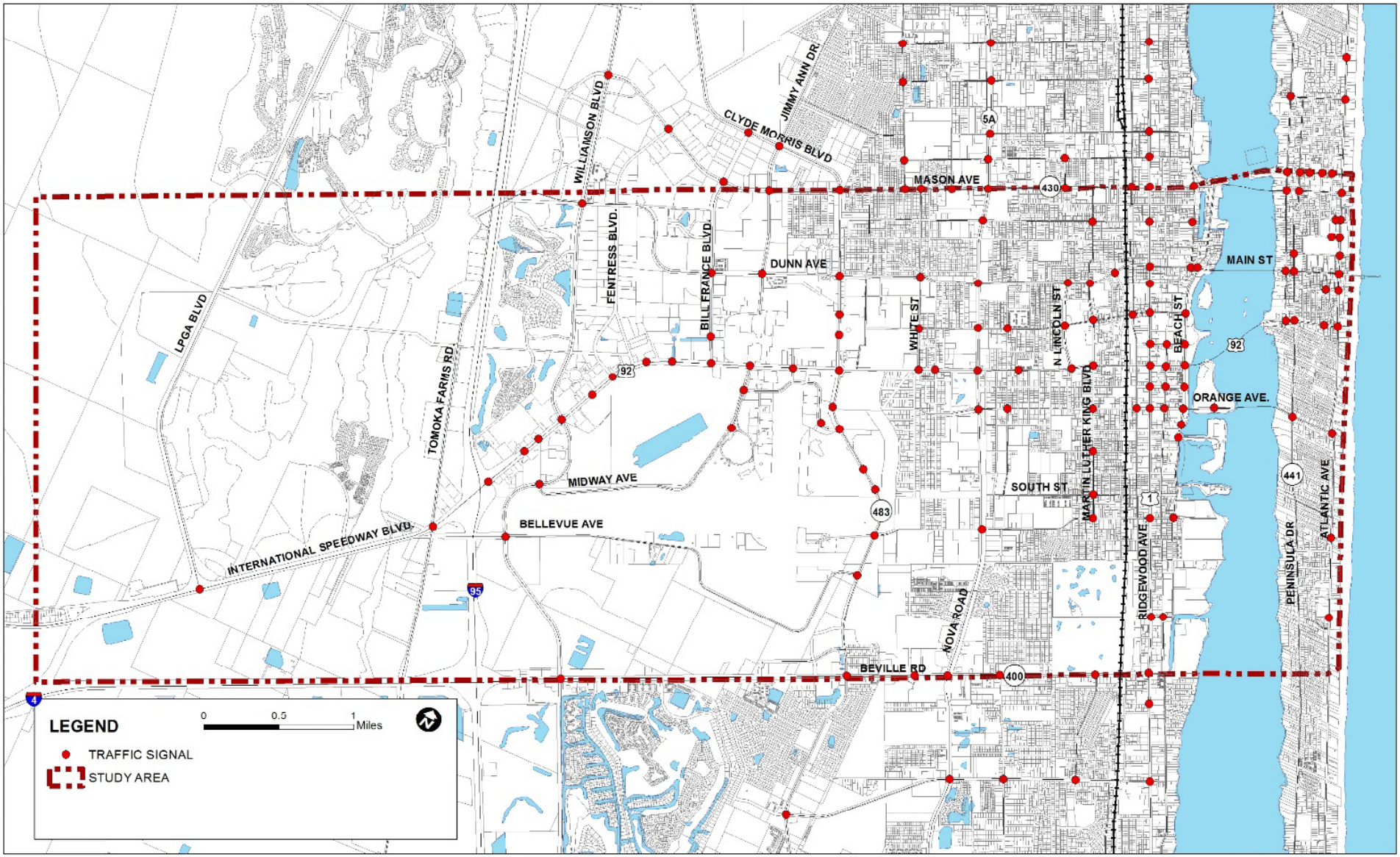
Roadway Classification Map. Source: FDOT Created: 2/5/2015

Figure 6: Roadway Classification Map



Maximum Speed Limits Map Source: FDOT and Glatfelter & Associates. Created: 4/10/2015

Figure 7: Maximum Speed Limits Map



Traffic Signals Map. Source: Ghyabi & Associates. Created: 2/5/2015

Figure 8: Traffic Signal Locations Map

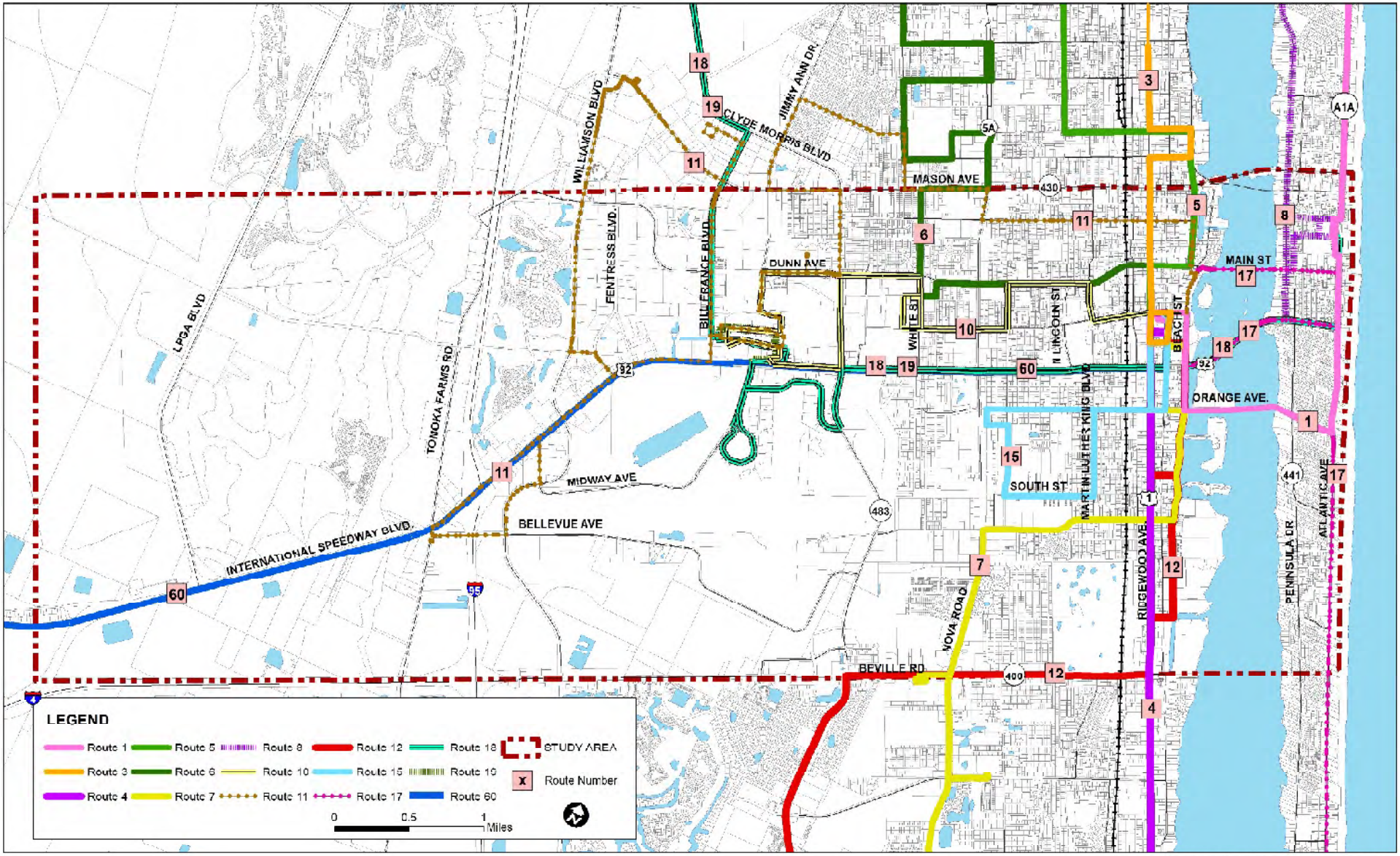
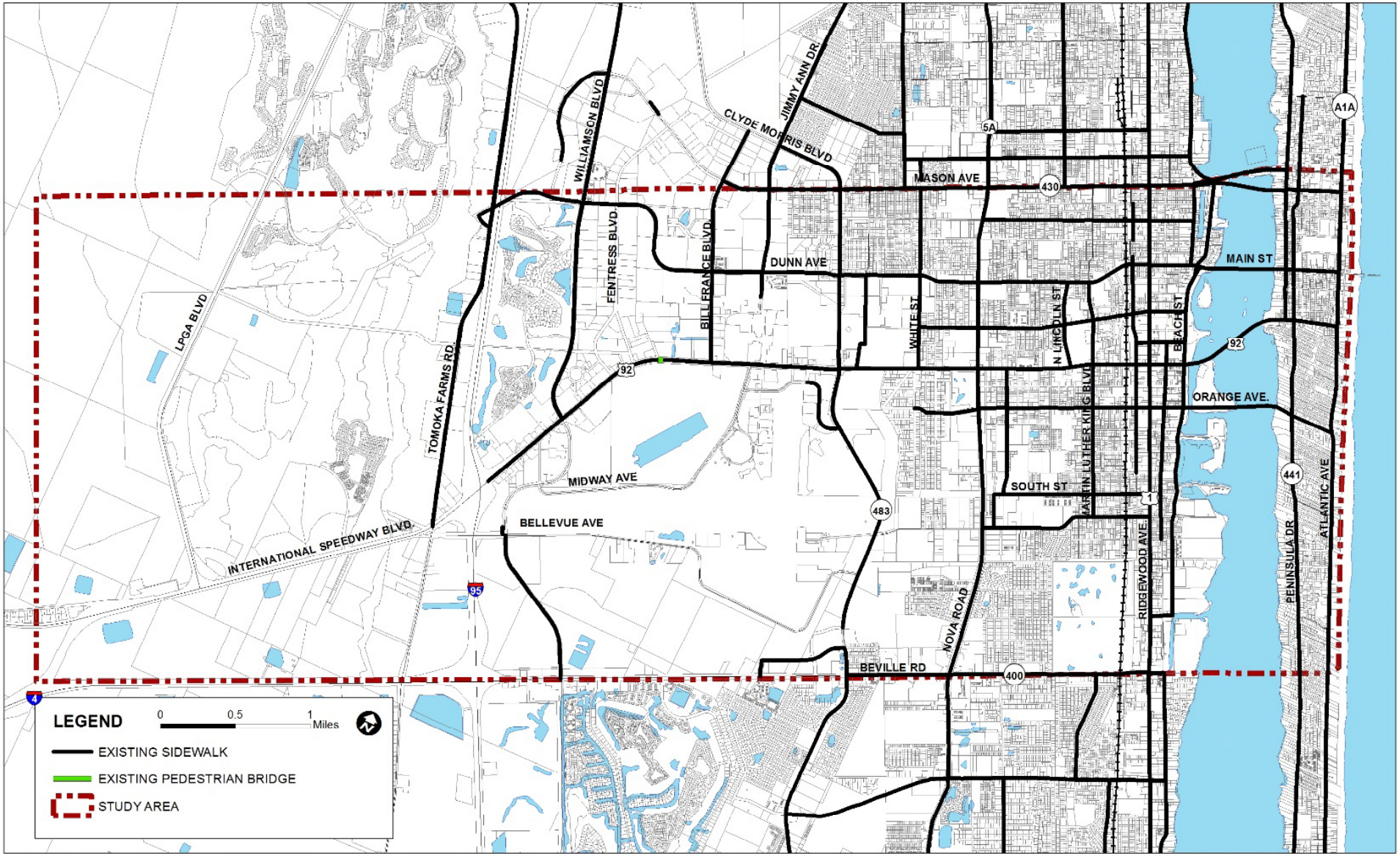
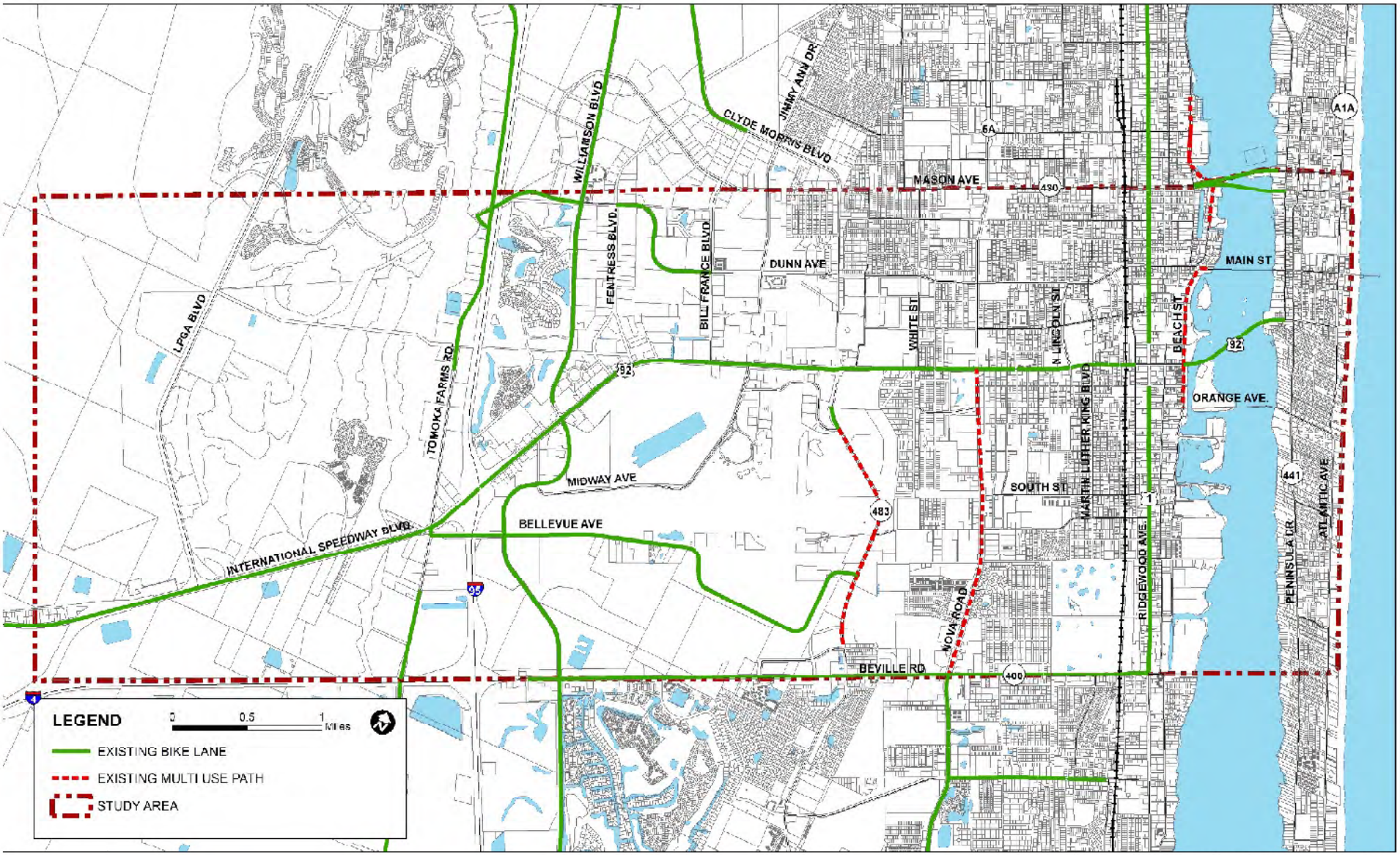


Figure 9: Existing Transit Network Map



Existing Pedestrian Network Map. Source: Ghyabi & Associates. Created: 2/6/2015

Figure 10: Existing Pedestrian Network Map



Existing Bicycle Network Map. Source: Ghyabi & Associates. Created: 4/13/2015

Figure 11: Existing Bicycle Network Map

5.3 EXISTING CORRIDOR OPERATIONS SUMMARY

The following five maps illustrate the Level of Service (LOS) for automobiles, buses, pedestrians and bicycles and the 2013 Average Annual Daily Traffic (AADT) for the study area. LOS for automobile/truck, transit, pedestrian, and bicycle modes was calculated using FDOT's 2012 Q/LOS Handbook in Appendix D.

Automobile LOS is depicted in Figure 12. The majority of the study area operates at LOS C. The only segment of US 92/SR 600/ISB operating at LOS D is located in Segment 4, between US 1/ Ridgewood Avenue and Beach Street in downtown Daytona Beach. Other facilities in the study area operating at LOS D include Orange Avenue, between SR 5A/Nova Road and US 1/Ridgewood Avenue, US 1/ Ridgewood Avenue north of Orange Avenue, SR 441/Peninsula Drive between US 92/SR 600/ISB and Silver Beach Avenue, and SR A1A/ Atlantic Avenue north of US 92/SR 600/ISB. Intersection LOS is currently under study by FDOT District 5 as part of an operational analysis of US 92/SR 600/ISB from Tomoka Farms Road to Beach Street. However, this study is not yet at draft stage.

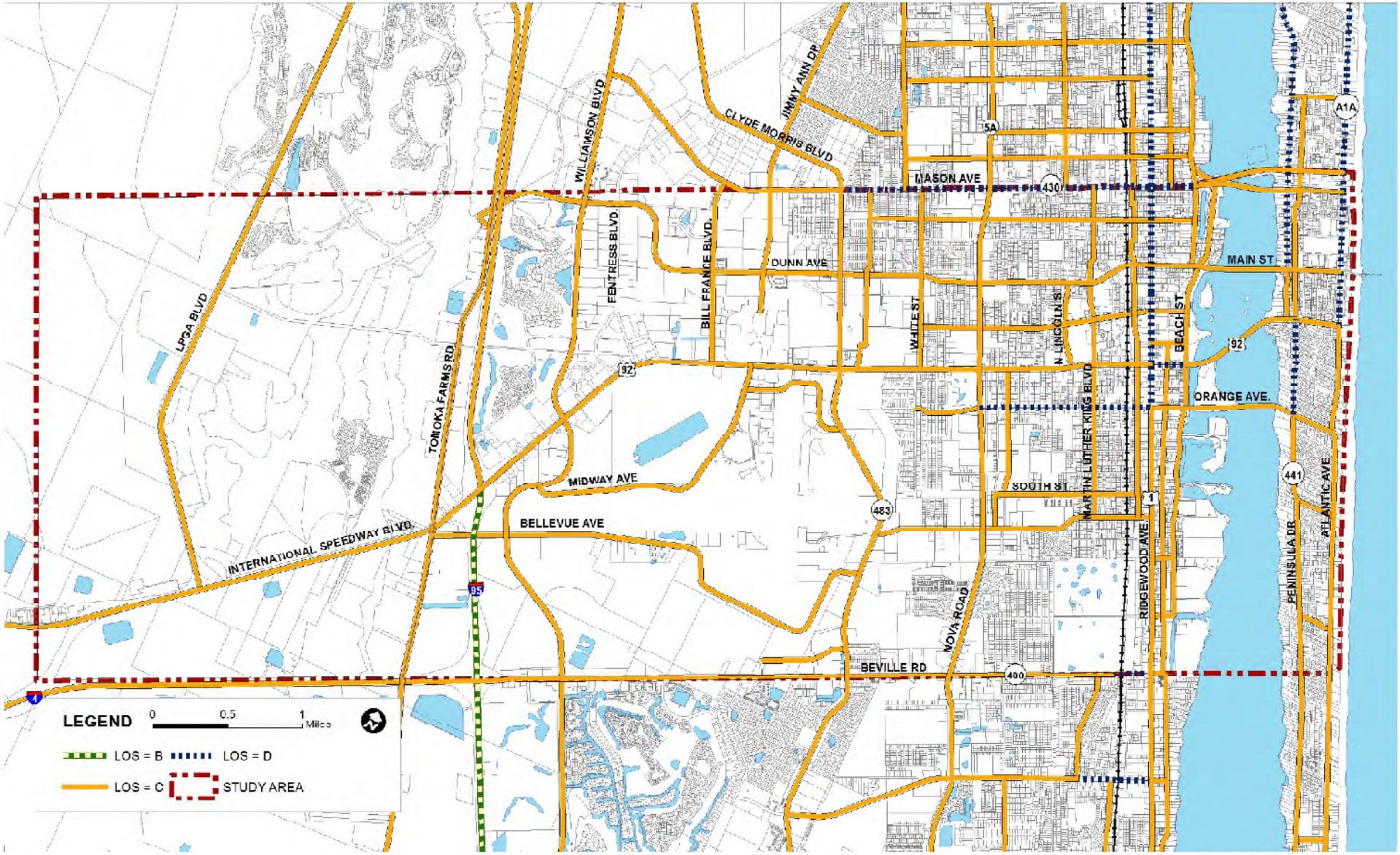
Figure 13 depicts the transit LOS in the study area. LOS B exists on Orange Avenue and on US 1/Ridgewood Avenue, near the Votran Downtown Transfer Plaza. US 92/SR 600/ISB between Beach Street and SR A1A/Atlantic Avenue is also at LOS B. The majority of the remainder of the study area is at an LOS E. The main factor in transit LOS is the frequency of buses. Sidewalk coverage also has a small effect. Therefore, the roads around the Downtown Transfer Plaza have a better level of service.

Figure 14 depicts the pedestrian LOS in the study area. The majority of the study area operates at LOS B. Midway Avenue, Richard Petty Boulevard, Bellevue Avenue operate at LOS D due to a lack of sidewalk coverage. If more than half of the road segment does not have sidewalks then LOS D is the highest that segment can achieve. US 92/SR 600/ISB has an LOS C for most of its length. Sidewalks do exist but the vehicular traffic along the road is high which lowers the pedestrian LOS.

Figure 15 depicts the bicycle LOS for the study area. Factors that affect bicycle LOS are the paved shoulder/bicycle lane coverage and the vehicular volume on the road. An LOS of B or C exists for most of the US 92/SR 600/ISB corridor within the study area. However, due to a lack of facilities, US 92/SR 600/ISB segments from Martin Luther King Boulevard to Beach Street and Peninsula Drive to SR A1A/Atlantic Avenue have an LOS D.

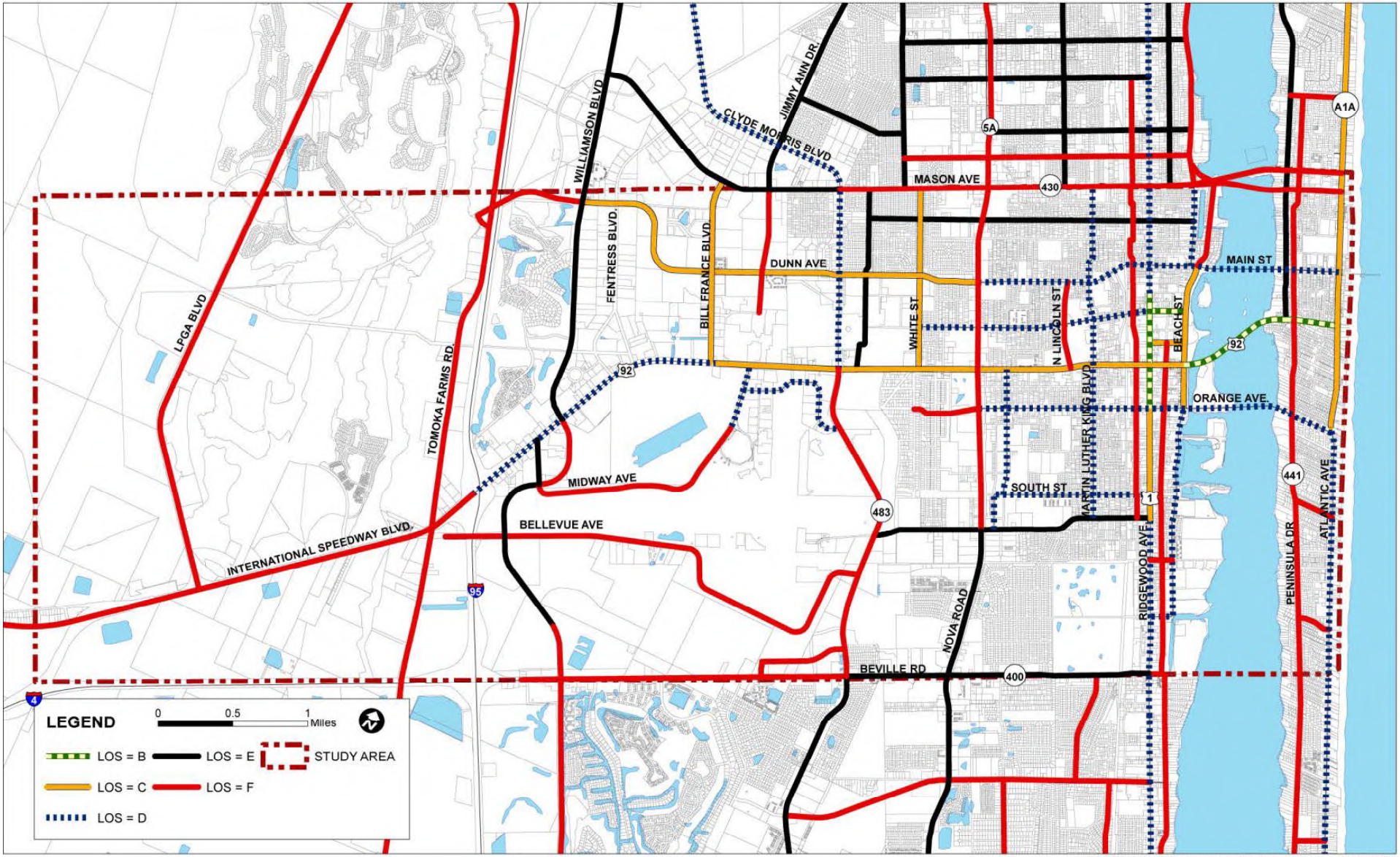
Figure 16 depicts the 2013 AADT volumes, as provided by the FDOT. The highest measured AADT volumes within the study area are on US 92/SR 600/ISB between I-95 and SR 5A/Nova Road.

A bicyclist crossing Nova Road near Midtown Plaza.



2013 Auto LOS. Source: Ghyabi & Associates. Created: 4/10/2015

Figure 12: 2013 Automobile Level of Service



Transit LOS Map. Source: Ghyabi & Associates. Created: 1/16/2015

Figure 13: 2014 Transit Level of Service

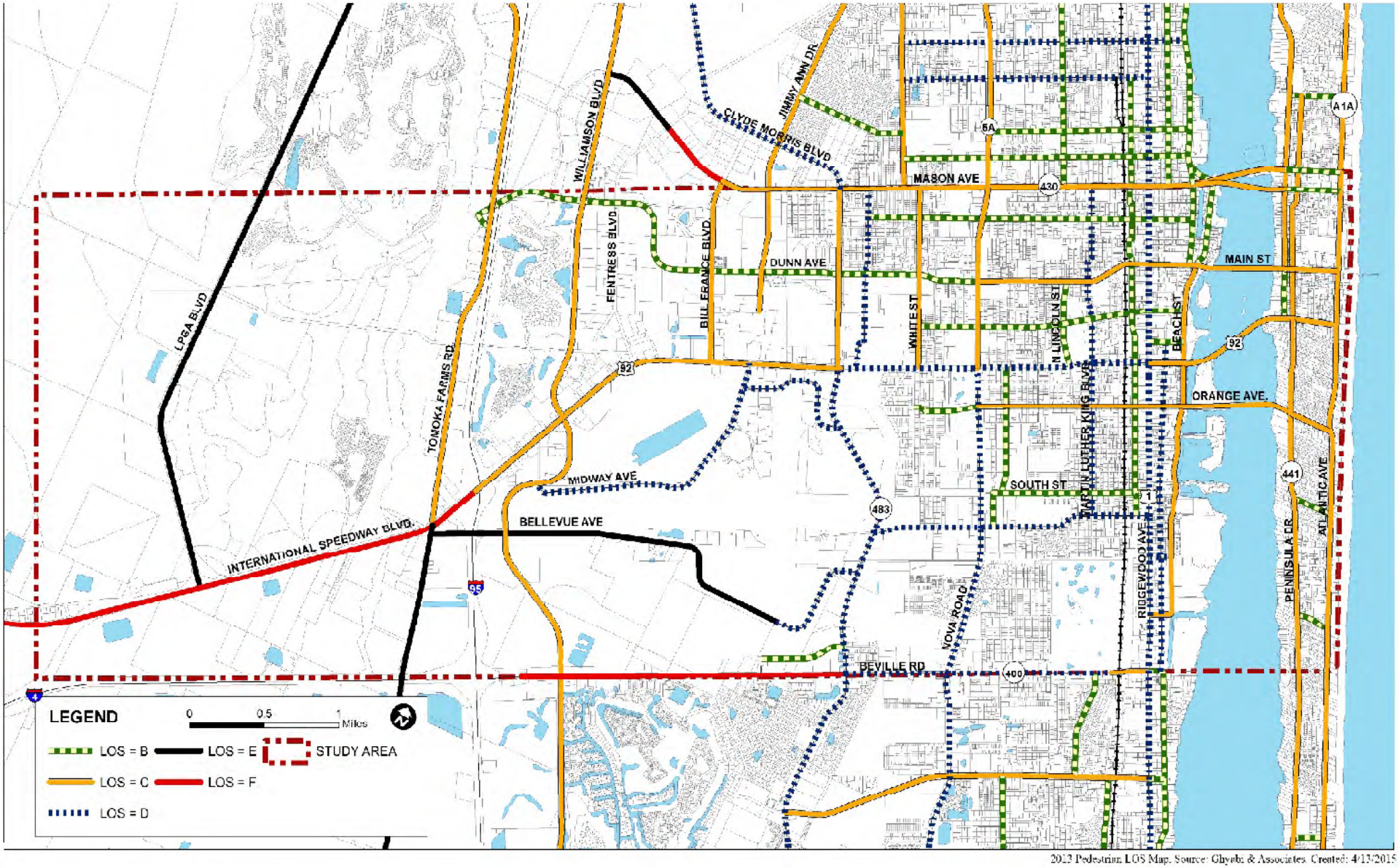
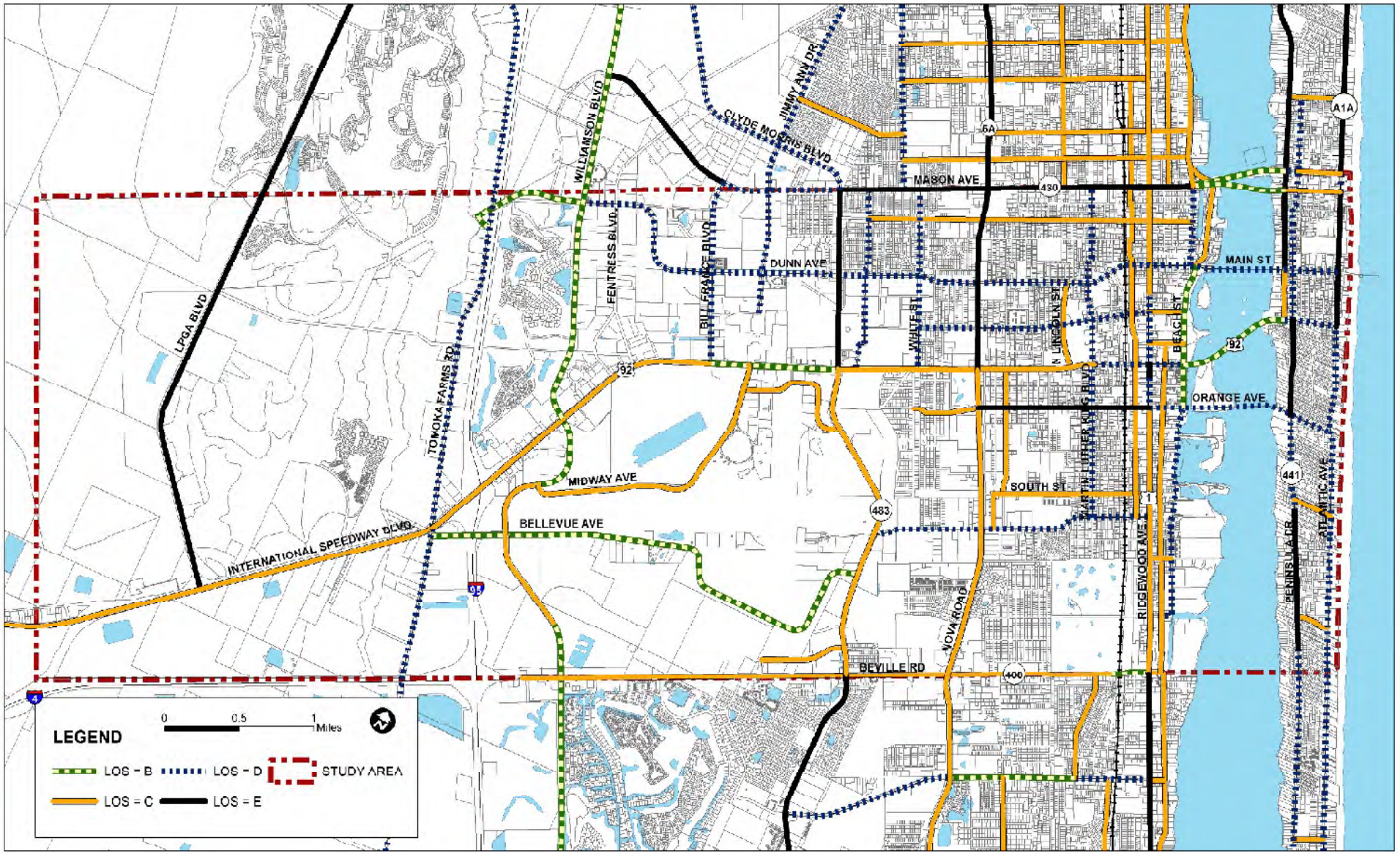


Figure 14: 2013 Pedestrian Level of Service



2013 Bicycle LOS Map. Source: Ghyabi & Associates. Created: 4/13/2015

Figure 15: 2013 Bicycle Level of Service

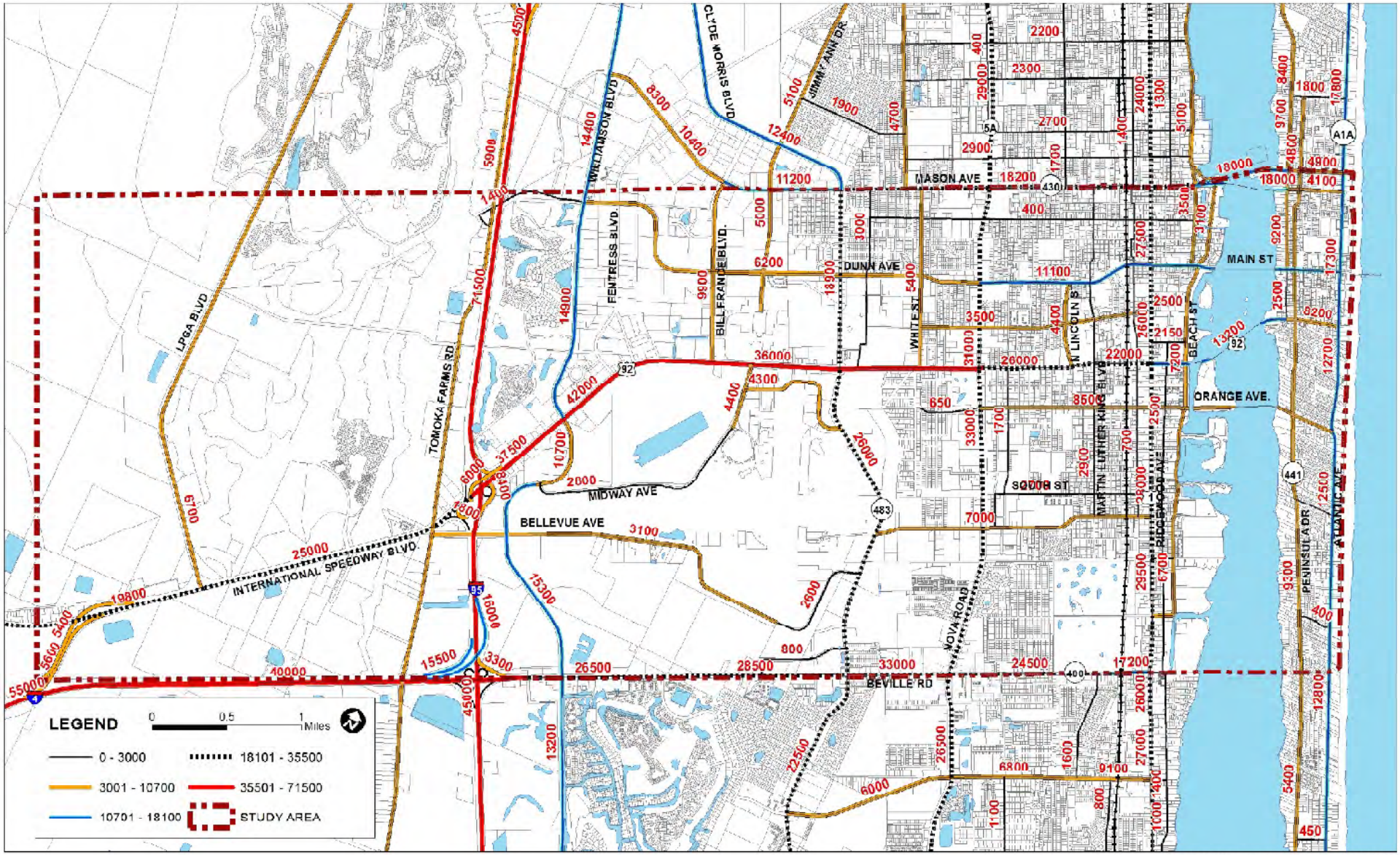


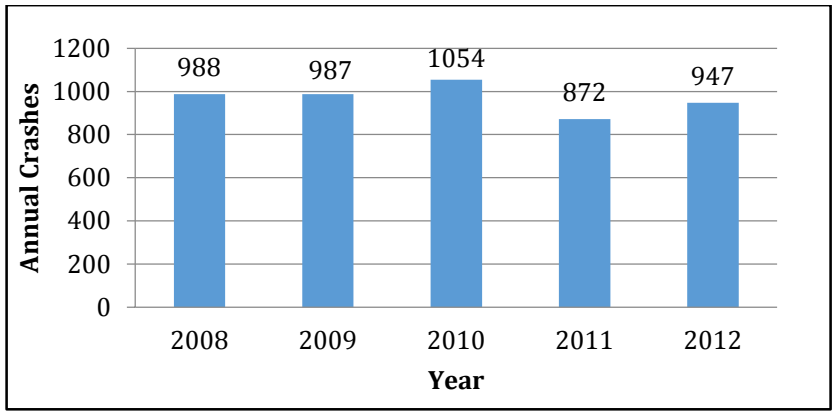
Figure 16: 2013 Annual Average Daily Traffic (AADT)

5.4 SAFETY

This section reviews the FDOT's vehicle crash data to identify patterns and summarize High Crash Locations (HCLs). A reportable crash is a collision with at least one of the following results: property damage exceeding $1,000, personal injury, and/or fatality.

Based on the most current accident data available from FDOT (2008-2012), there were a total of 4,848 reported crashes that occurred within the International Speedway Boulevard study area corridor, resulting in a total of 3,869 injuries and 50 fatalities. The total vehicle and non-vehicle property damage that occurred because of these accidents amounted to $24,913,944. The annual totals do not exhibit any particular trend between 2008 and 2012, as shown in Table 2. The number of crashes has remained relatively flat during the last 5 years.

Table 2: Five Year Crash Summary (2008-2012)



5.4.1 High Crash Locations

By definition, a High Crash Location (HCL) is a section of roadway or intersection where the number of crashes is significantly greater than the expected number of crashes for similar facilities (e.g. arterial or local road) and areas (urban, suburban or rural). In order to be classified as an HCL, an intersection or road segment must meet the following conditions:

1. At least 8 crashes over a 5-year period
2. The Actual Crash Rate must exceed the Average Crash Rate for the given roadway type and number of legs at an intersection. The average crash rate for 3-leg and 4-leg intersections within District 5 is 0.200 and 0.337 crashes per million vehicles (CMV), respectively. *The average crash rate for roadway segments is 2.551 CMV.*
3. Have a Confidence Level of 99.95 percent or higher for urban areas, 99.00 percent or higher for suburban areas and 95.00 percent or higher for rural areas, indicating that these locations are statistically confirmed as problem areas.

Based on the most current crash data available from FDOT (2008-2012) for the study area, 40 segments within the study area are high crash locations, as shown in Table 3. Figure 17 maps out the 40 high crash segments and categorizes them according to their crash rate compared to the average crash rate. The purple and red segments are the highest of the high crash segments.

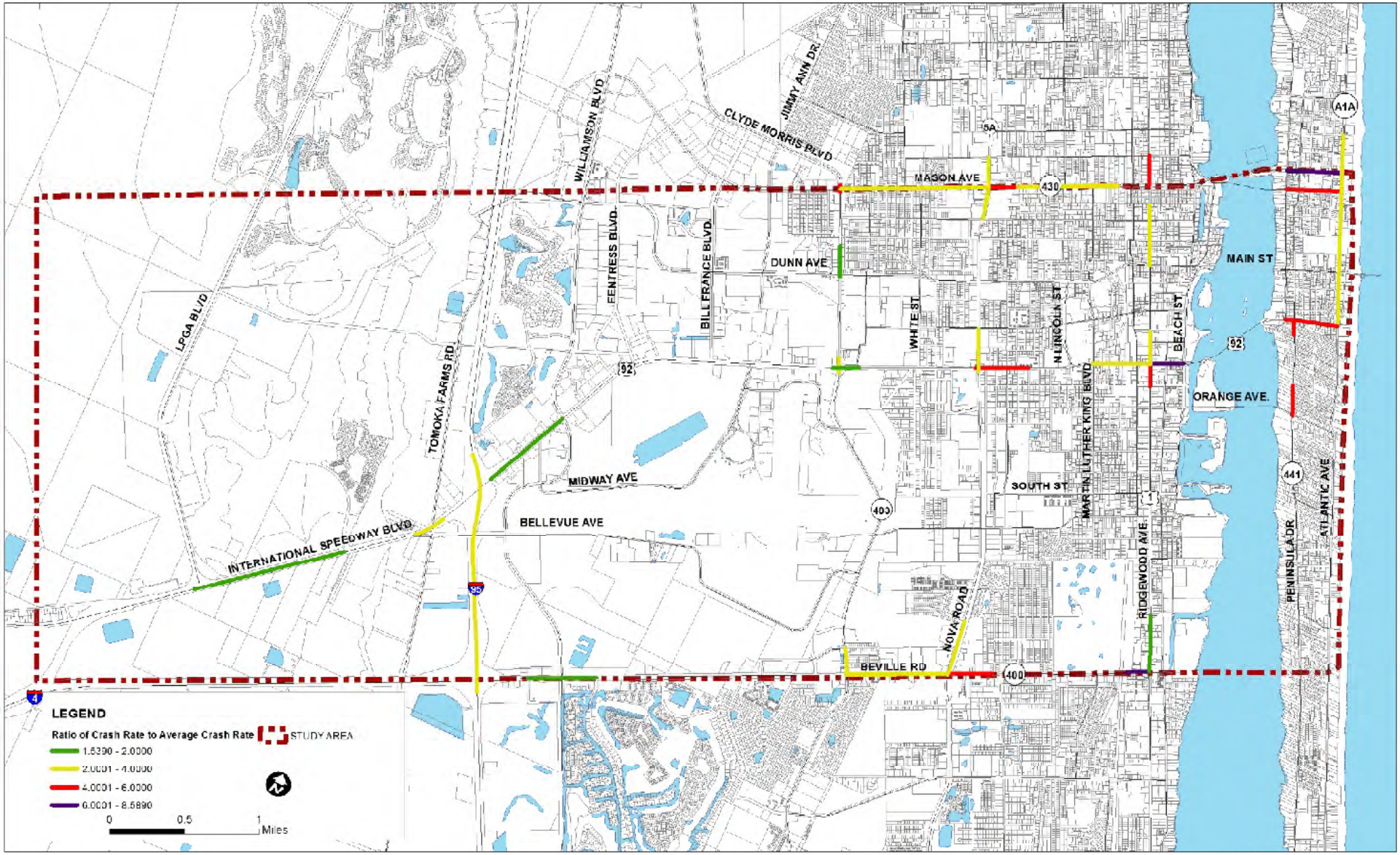
There are 74 high crash intersections within the study area. The SR 400/Restarrick Avenue intersection, at #25, is the highest ranked high crash intersection in the study area. The next highest is the SR 5 (US 1)/Congress Avenue intersection at #84. The high crash intersections are listed in Table 4.

Table 3: High Crash Segments

Roadway	Begin M.P.	End M.P.	Segment (From – To)	Total Crashes	Crash Rate	Avg Crash Rate	Confidence Level
SR 400	0.000	0.500	W/O Andros Isles Blvd to W/O Pelican Bay Dr	44	1.976	1.196	99.95
SR 400	2.061	2.461	W/O SR 483 to W/O SR 5A	84	3.726	1.730	99.99
SR 400	2.661	3.061	W/O SR 5A to W/O Edgewater Dr	146	7.024	1.730	99.99
SR 400	4.061	4.216	E/O Seagraves St to W/O US 1	60	11.616	1.730	99.99
SR 9	27.754	27.954	S/O SR 400 to N/O SR 400	20	1.111	0.473	99.99
SR 9	27.954	28.154	N/O SR 400 to S/O Bellevue Ave	18	1.000	0.473	99.95
SR 9	28.954	29.254	N/O of Bellevue Ave to N/O SR 600	35	1.043	0.473	99.99
SR 5	30.530	30.930	S/O SR 400 to S/O Wilder Blvd	65	2.887	1.730	99.99
SR 5	32.530	32.696	S/O Magnolia Ave to S/O SR 600	73	8.545	1.730	99.99
SR 5	0.000	0.200	S/O SR 600 to S/O 3rd Ave	36	3.735	1.730	99.99
SR 5	0.600	0.800	S/O Fairview Ave to S/O Madison Ave	36	3.472	1.730	99.99
SR 5	1.100	1.400	S/O SR 430 to N/O 2nd St	104	7.179	1.730	99.99
SR 600	13.812	14.212	W/O LPGA Blvd to W/O Gene Daniels Rd	42	2.382	1.196	99.99
SR 600	15.412	15.607	W/O Tomoka Farms Rd to E/O Tomoka Farms Rd	37	3.968	1.196	99.99
SR 600	16.207	16.385	E/O I-95 to W/O Thames Rd	40	2.824	1.767	99.90
SR 600	16.385	16.585	W/O Thames Rd to Williamson Blvd	68	4.272	2.226	99.99
SR 600	18.600	18.900	W/O SR 483 to E/O Highland Ave	76	3.426	2.226	99.99
SR 600	19.500	19.615	W/O SR 5A to E/O SR 5A	22	12.374	2.226	99.99
SR 600	19.615	19.915	E/O SR 5A to W/O Reva St	186	11.959	2.551	99.99
SR 600	20.315	20.766	W/O MLK Blvd to W/O US 1	148	6.812	2.551	99.99
SR 600	0.000	0.101	W/O US 1 to E/O Palmetto Ave	56	16.247	2.551	99.99
SR 600	0.101	0.230	E/O Palmetto Ave to W/O Beach St	47	10.676	1.574	99.99
SR 600	1.059	1.418	W/O Halifax Ave to E/O SRA1A	91	11.962	2.551	99.99

Table 3: High Crash Segments (continued)

Roadway	Begin M.P.	End M.P.	Segment (From – To)	Total Crashes	Crash Rate	Avg Crash Rate	Confidence Level
SR A1A	1.418	2.418	N/O of SR 600 to S/O SR 430	156	4.767	1.730	99.99
SR A1A	2.418	2.718	S/O SR 430 to N/O Riverview Blvd	60	5.870	2.551	99.99
SR 5A	6.018	6.418	S/O SR 400 to S/O Clearwater Rd	132	5.496	2.226	99.99
SR 5A	8.018	8.418	S/O SR 600 to S/O Dr. Mary McLeod Bethune Blvd.	142	5.874	2.226	99.99
SR 5A	9.218	9.619	N/O Madison Ave to N/O Brentwood Dr	111	5.747	2.226	99.99
SR 430	0.000	0.142	SR 483 to W/O Heineman St	37	7.546	2.551	99.99
SR 430	0.142	0.824	W/O Heineman St to W/O SR 5A	131	5.563	2.469	99.99
SR 430	0.824	1.035	W/O SR 5A to W/O Tomoka Rd	95	13.177	2.551	99.99
SR 430	1.035	1.883	W/O Tomoka Rd to W/O Swift St	106	3.620	1.278	99.99
SR 430	0.610	0.983	W/O Halifax Ave to SR A1A	102	28.432	3.310	99.99
SR 430	0.000	0.500	W/O Halifax Ave to SR A1A	129	17.109	3.310	99.99
SR 441	4.761	4.842	S/O Orange Ave to S/O Ribault Ave	15	10.461	2.371	99.99
SR 441	5.242	5.409	S/O Braddock Ave to S/O SR 600	30	10.148	2.165	99.99
SR 483	0.000	0.185	SR 400 to N/O Hancock Blvd	84	8.463	2.551	99.99
SR 483	1.984	2.302	S/O SR 600 to S/O Pinecrest Ave	65	4.419	1.730	99.99
SR 483	2.702	2.902	S/O Dunn Ave to S/O Health Blvd	34	4.923	2.551	99.99
SR 483	3.298	3.377	S/O SR 430 to N/O SR 430	35	12.831	2.551	99.99



Source: FDOT District 5. Created: 4/9/2015

Figure 17: Ratio of Crash Rate to Average Crash Rate

Table 4: High Crash Intersections

Roadway	Intersection	Mile Post	No. of Crashes	Crash Rate	Int. Type Average Crash Rate	Confidence Level
SR 600	SR 5 (US 1)	20.766	80	0.441	0.305	99.95
SR 600	LPGA Blvd	13.993	37	0.774	0.144	99.99
SR 600	Side Rd	15.564	40	0.837	0.378	99.99
SR 600	Tomoka Farms Rd	15.582	44	0.920	0.378	99.99
SR 600	Indigo Dr	16.377	49	0.616	0.227	99.99
SR 600	Thames Rd	16.508	43	0.540	0.201	99.99
SR 600	Williamson Blvd	16.713	71	0.888	0.476	99.99
SR 600	SR 5A	19.615	134	0.971	0.476	99.99
SR 600	Jean St	19.670	47	0.950	0.200	99.99
SR 600	Harney St	19.700	29	0.586	0.200	99.99
SR 600	Adams St	19.875	20	0.404	0.200	99.95
SR 600	Adams St	19.886	20	0.404	0.200	99.95
SR 600	Franklin St	20.055	20	0.404	0.200	99.95
SR 600	Side Rd	20.376	48	0.971	0.337	99.99
SR 600	MLK Blvd	20.392	48	0.971	0.337	99.99
SR 600	Palmetto Ave	0.110	21	0.615	0.213	99.99
SR 600	SR 441	1.114	28	1.343	0.337	99.99
SR 600	Oleander Ave	1.218	12	0.576	0.200	99.99
SR 600	Noble St	1.282	11	0.528	0.200	99.95
SR 600	Coates St	1.358	44	2.111	0.200	99.99
SR 600	Side Rd	1.359	44	2.111	0.337	99.99
SR 600	SR A1A	1.407	46	0.765	0.337	99.99

Table 4: High Crash Intersections (continued)

Roadway	Intersection	Mile Post	No. of Crashes	Crash Rate	Int. Type Average Crash Rate	Confidence Level
SR 400	Williamson Blvd	0.271	36	0.808	0.378	99.99
SR 400	SR 483	2.181	61	1.122	0.305	99.99
SR 400	Nova Village	2.757	29	0.489	0.187	99.99
SR 400	SR 5A	2.852	108	0.878	0.476	99.99
SR 400	Restarrick Ave	2.894	97	2.196	0.187	99.99
SR 400	SR 5 (US 1)	4.216	53	0.916	0.305	99.99
SR 483	Beville Rd	0.018	64	1.193	0.337	99.99
SR 483	Aviation Center Pkwy	0.983	22	0.410	0.213	99.90
SR 483	Side Rd	2.153	61	1.137	0.187	99.99
SR 483	Side Rd	2.158	61	1.137	0.187	99.99
SR 483	Wye to SR 600	2.203	62	1.796	0.305	99.99
SR 483	SR 430	3.377	33	0.956	0.200	99.99
SR 5A	Cypress St	8.770	60	1.024	0.476	99.99
SR 5A	SR 430	9.411	91	0.977	0.476	99.99
SR 5 (US 1)	Bellevue Ave	31.682	45	0.844	0.305	99.99
SR 5 (US 1)	Congress Ave	1.170	92	1.775	0.305	99.99
SR 5 (US 1)	SR 430	1.192	85	0.984	0.305	99.99
SR 441	Silver Beach Ave	4.771	15	0.847	0.271	99.99
SR 441	Mobile Ave	4.812	11	0.621	0.199	99.99
SR 441	Vermont Ave	5.363	28	1.528	0.136	99.99

Table 4: High Crash Intersections (continued)

Roadway	Intersection	Mile Post	No. of Crashes	Crash Rate	Int. Type Average Crash Rate	Confidence Level
SR A1A	Auditorium Blvd	1.884	21	0.651	0.305	99.99
SR A1A	Earl St	2.003	14	0.434	0.187	99.95
SR A1A	Overpass	2.122	39	1.209	0.187	99.99
SR A1A	SR 430	2.433	36	0.595	0.337	99.95
SR 430	Fairmount Rd	0.253	15	0.434	0.180	99.99
SR 430	Berkshire Rd	0.290	20	0.579	0.180	99.99
SR 430	Berkshire Rd	0.310	18	0.521	0.180	99.99
SR 430	Lewis Dr	0.337	19	0.550	0.180	99.99
SR 430	Essex Rd	0.384	31	0.898	0.180	99.99
SR 430	Derbyshire Rd	0.424	32	0.927	0.272	99.99
SR 430	White St	0.540	40	1.158	0.272	99.99
SR 430	Maplewood Dr	0.717	18	0.521	0.180	99.99
SR 430	Vine St	0.748	20	0.578	0.180	99.99
SR 430	Tomoka Rd	1.190	21	0.608	0.313	99.90
SR 430	Palm Dr	1.647	32	0.927	0.414	99.99
SR 430	Washington St	1.689	36	1.043	0.414	99.99
SR 430	Mason Park Dr	1.733	31	0.898	0.414	9999

Table 4: High Crash Intersections (continued)

Roadway	Intersection	Mile Post	No. of Crashes	Crash Rate	Int. Type Average Crash Rate	Confidence Level
SR 430 (EB)	Halifax Ave	0.620	28	1.049	0.282	99.99
SR 430 (EB)	Peninsula Dr	0.703	12	1.134	0.282	99.99
SR 430 (EB)	Wild Olive Ave	0.853	11	1.261	0.282	99.99
SR 430 (EB)	Grandview Ave	0.921	29	3.324	0.282	99.99
SR 430 (WB)	Grandview Ave	0.067	25	2.556	0.282	99.99
SR 430 (WB)	Wild Olive Ave	0.134	20	2.045	0.282	99.99
SR 430 (WB)	Oleander Ave	0.217	14	1.431	0.282	99.99
SR 430 (WB)	Peninsula Dr	0.285	14	1.044	0.282	99.99
SR 430 (WB)	Halifax Ave	0.367	29	1.057	0.282	99.99
SR 430 (WB)	Towers Dr	0.406	29	1.057	0.190	99.99
SR 9 (I-95)	SB Exit to SR 400	28.160	18	0.200	0.080	99.99
SR 9 (I-95)	Mile Marker 28.545	28.545	18	0.200	0.080	99.99
SR 9 (I-95)	Mile Marker 28.546	28.546	18	0.200	0.080	99.99
SR 9 (I-95)	NB Exit to SR 600	28.983	21	0.233	0.080	99.99
SR 9 (I-95)	SB Exit to SR 600	28.990	21	0.233	0.080	99.99

Table 5 summarizes the types of crashes and Table 6 lists the most commonly reported factor contributing to crashes. The most common type of crash in the study area was rear-end collisions, comprising 30.0 percent of the crashes recorded. The next highest crash type was angled collisions, accounting for 13.4 percent. Pedestrian and bicycle crashes contribute to 3.5 percent and 2.3 percent of crashes, respectively. Of the total injuries and fatalities that occurred in the study area, pedestrians accounted for 4.1 percent and 22 percent, respectively. Regarding injuries and fatalities of bicyclists, these accounted for 2.6% and less than 1 percent, respectively.

Careless driving was the most commonly reported factor contributing to crashes, as shown in Table 6. Failure to yield right of way was also a significant contributing factor.

Table 5: Crash Types (2008-2012)

Harmful Event	No. of Crashes	% of Crashes	Harmful Event	No. of Crashes	% of Crashes
Rear-End	1,455	30.0%	Hit Bridge/Pier/Abutment/Rail	6	0.1%
Head-On	141	2.9%	Hit Tree/Shrubbery	62	1.3%
Angle	652	13.4%	Collision w/Traffic Gate	6	0.1%
Left-Turn	268	5.5%	Collision w/Crash Attenuators	13	0.3%
Right-Turn	68	1.4%	Collision w/Fixed Object Above Road	18	0.4%
Sideswipe	237	4.9%	Hit Other Fixed Object	94	1.9%
Backed Into	57	1.2%	Collision w/ Moveable Object on Road	12	0.2%
Collision w/Parked Car	169	3.5%	Ran in Ditch/Culvert	30	0.6%
Collision w/MV on Roadway	284	5.9%	Ran off Road into Water	6	0.1%
Collision w/Pedestrian	169	3.5%	Overturned	77	1.6%
Collision w/Bicycle	108	2.2%	Occupant Fell from Vehicle	27	0.6%
Collision w/Bicycle (Bike Lane)	2	0.04%	Jackknifed	1	0.02%
Collision With Animal	5	0.1%	Downhill Runaway	1	0.02%
Hit Sign/Sign Post	63	1.3%	Cargo Loss or Shift	5	0.1%
Hit Utility Pole/Light Pole	110	2.3%	Separation of Units	2	0.04%
Hit Guardrail	87	1.8%	Median Crossover	13	0.3%
Hit Fence	55	1.1%	Unknown/Not Coded	55	1.1%
Hit Concrete Barrier Wall	29	0.6%	All Other	461	9.5%

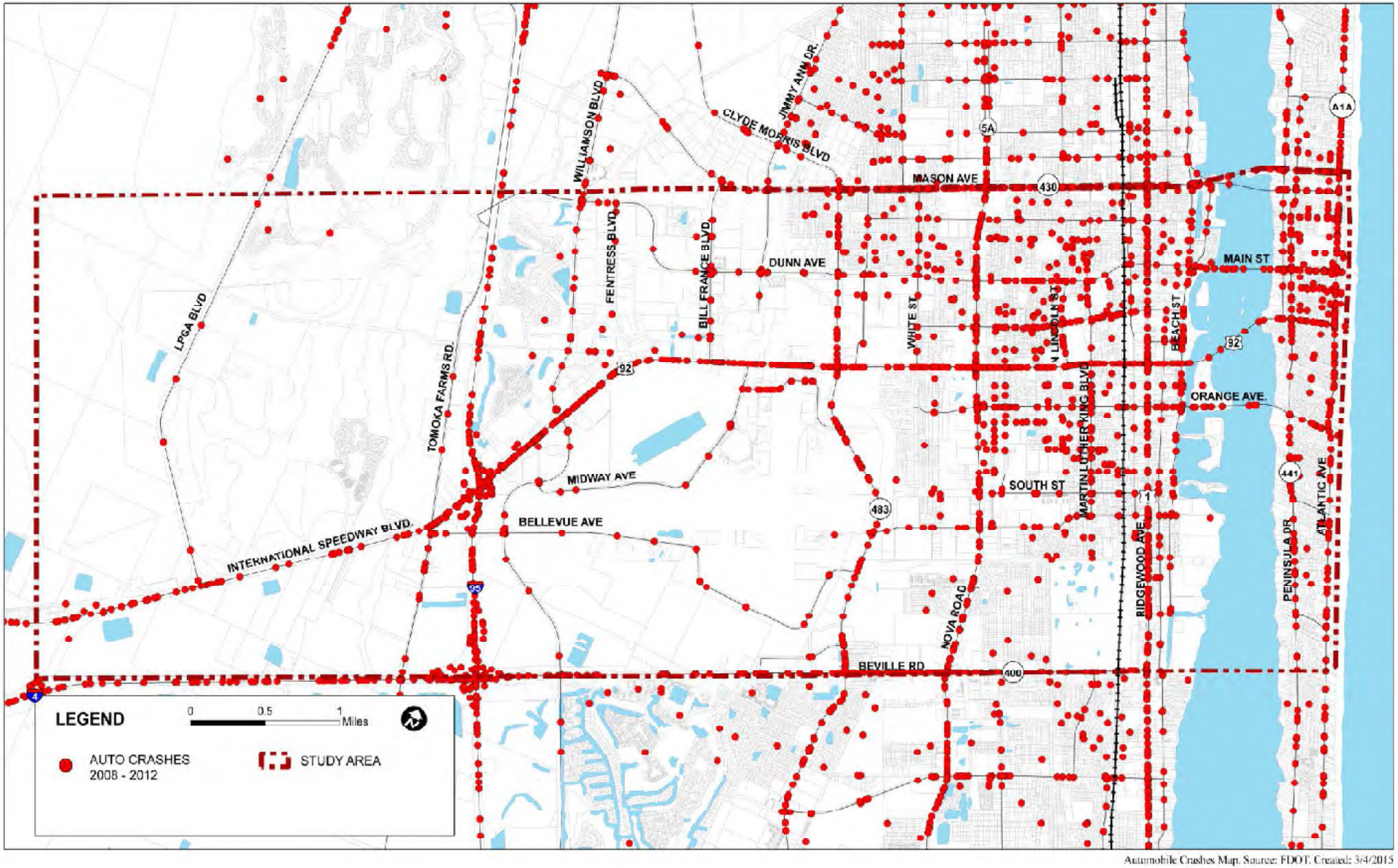
Table 6: Contributing Factors to Crashes (2008-2012)

Contributing Cause	Driver/ Pedestrian	% Driver/ Pedestrian
No Improper Driving/Action	517	10.7%
Careless Driving	2,035	42.0%
Failed to Yield Right of Way	549	11.3%
Improper Backing	97	2.0%
Improper Lane Change	108	2.2%
Improper Turn	153	3.2%
Alcohol - Under Influence	33	0.7%
Alcohol & Drugs – Under Influence	4	0.1%
Followed Too Closely	110	2.3%
Disregarded Traffic Signal	181	3.7%
Exceeded Safe Speed Limit	77	1.6%
Disregarded Stop Sign	83	1.7%
Failed to Maintain Equipment/Vehicle	7	0.1%
Improper Passing	37	0.8%
Drove Left of Center	5	0.1%
Exceed Stated Speed Limit	10	0.2%
Obstructing Traffic	1	0.02%
Improper Load	7	0.1%
Disregarded Other Traffic Control	10	0.2%
Driving Wrong Side/Way	27	0.6%
Fleeing Police	41	0.8%
Driver Distraction	11	0.2%
Unknown/Not Coded	22	0.5%
All Other	723	14.9%

5.4.2 Vehicle Crashes

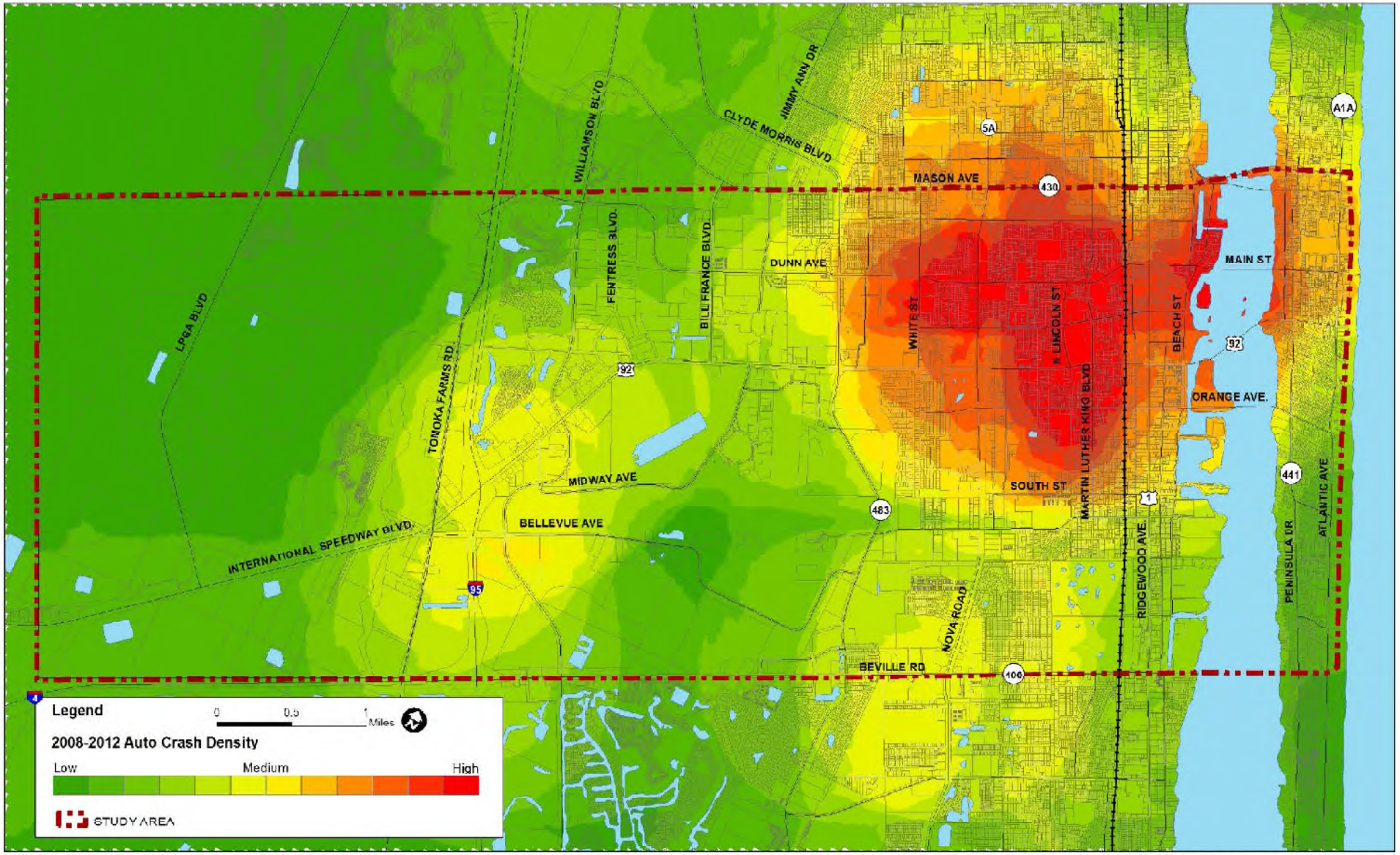
Figure 18 depicts the locations of vehicles crashes within the study area for the 2008 – 2012 time period. The majority of vehicle crashes within the study area occur along US 92/SR 600/ISB, SR 5A/Nova Road, US 1/ Ridgewood Avenue and SR A1A/Atlantic Avenue. The highest concentration of crashes occur at US 92/SR 600/ISB intersections with US 1/Ridgewood Avenue, SR 5A/Nova Road, SR 483/Clyde Morris Boulevard, and Williamson Boulevard. Additional high crash locations within the study area occur along SR 5A/Nova Road at Dunn Avenue and Orange Avenue, along SR 483/Clyde Morris Boulevard at Halifax Health and Embry-Riddle Aeronautical University, and Dr. Mary McLeod Bethune Boulevard near Bethune-Cookman University. Figure 19 depicts this data in a point density format, with red correlating to a higher crash rate and green correlating to a lower crash rate.

Rear-end crashes are the most common and occur throughout the study area with no over representation in any specific area. Left-turn and Angled crashes occur with more frequency east of SR 5A/Nova Road and along the Beachside of Daytona Beach. This may be due to a high driveway and street density. The area east of SR 5A/Nova Road also has less access management than the area west of SR 5A/Nova Road and therefore more conflicting vehicular turning movements.



Automobile Crashes Map. Source: FDOT. Created: 3/4/2015

Figure 18: Automobile Crashes between 2008 and 2012



Automobile Crash Density Map. Source: FDOT. Created: 4/9/2015

Figure 19: Automobile Crashes Point Density Map

5.4.3 Bicycle and Pedestrian Crashes

Out of the 4,848 crashes described previously, 169 crashes involved pedestrians, as shown in Appendix B, Table 1. These crashes resulted in 160 injuries and 11 fatalities. The most common cause as reported by FDOT was No Improper Driving/Action, contributing to 50 percent of pedestrian crashes. The next most common was All Other, contributing to 17 percent of pedestrian crashes. The third most common cause was Failed to Yield Right of Way, contributing to 14 percent of pedestrian crashes.

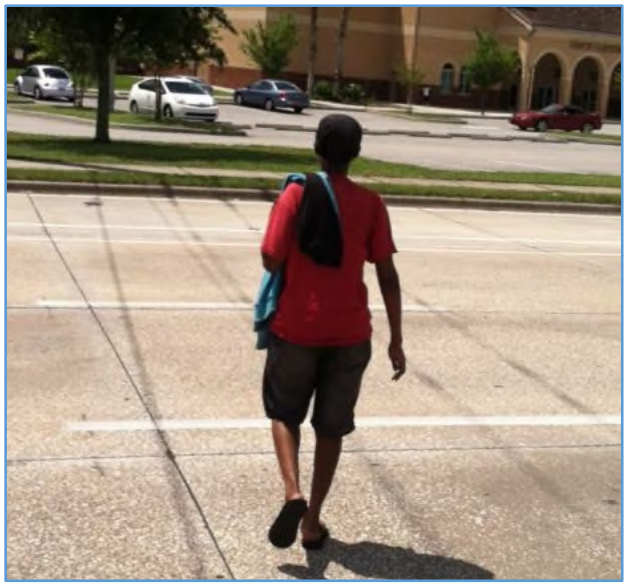
Out of the 4,848 crashes, 110 crashes involved bicycles, as shown in Appendix B, Table 2. These crashes resulted in 99 injuries and 1 fatality. The most common cause as reported by FDOT was No Improper Driving/Action, contributing to 42 percent of bicycle crashes. The next most common cause was Failed to Yield Right of Way, contributing to 25 percent of bicycle crashes. Of the 279 pedestrian and bicycle related crashes, none occurred in public bus stop zones.

Lighting conditions are also an important factor to consider when examining cause for pedestrian and bicycle related crashes. Of the 279 crashes, 105 or 37.6 percent occurred with dark lighting conditions at the time of the crash. Of those 105 crashes, 11 or 10.5 percent occurred at a location with no street light.

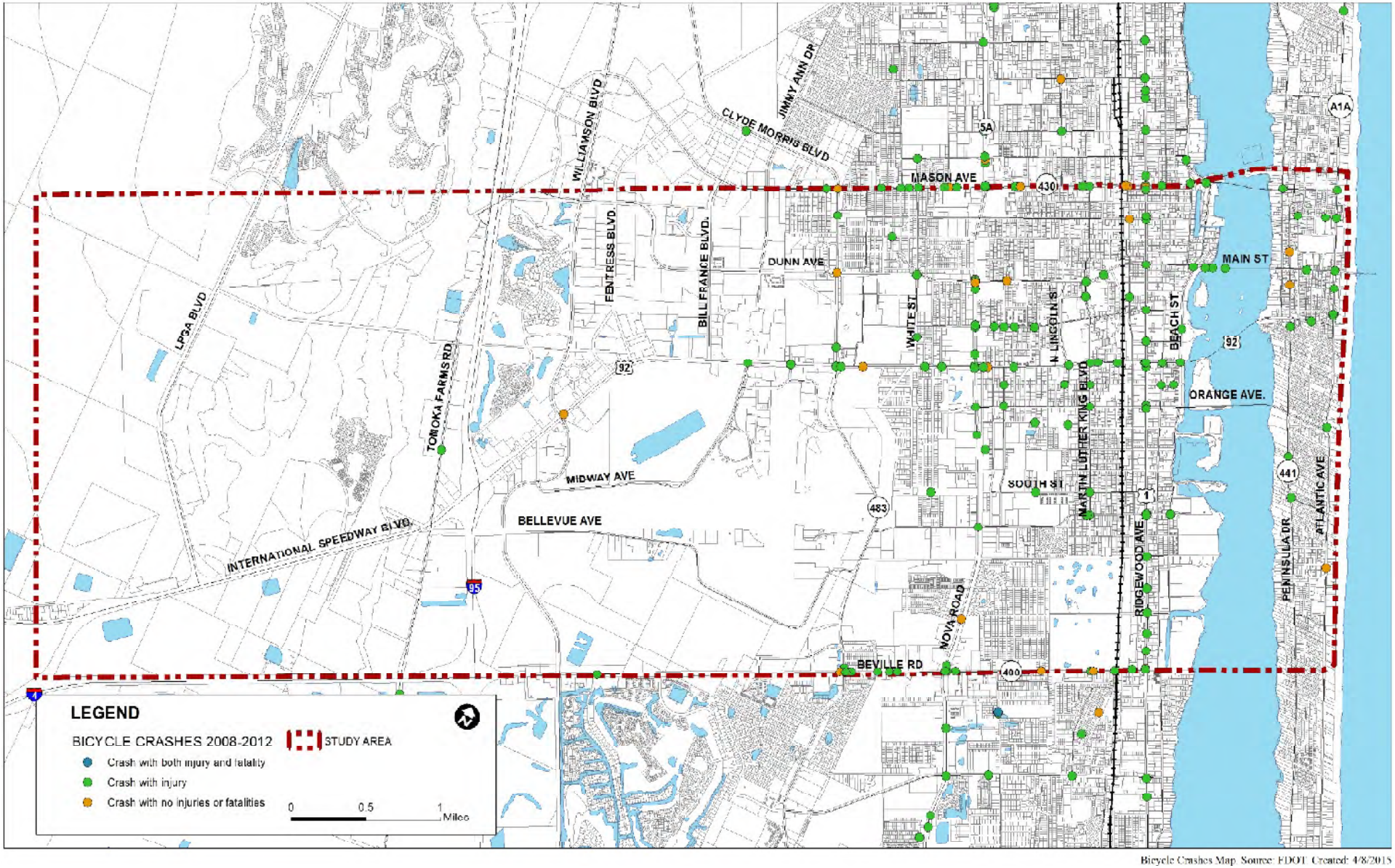
Figure 20 illustrates the location of bicycle crashes that occurred between 2008 and 2012. A vast proportion of the crashes occurred on major roads, such as US 92/SR 600/ISB and SR 5A/Nova Road. These corridors both contain bicycle lanes; however, the speed of traffic makes these lanes dangerous options for bicyclists. Moreover, the bike lanes along SR 5A end as they approach the intersection with US 92/SR 600/ISB. In this case, bicyclists have no option other than the thru lanes to cross the intersection. The intersection of US 92/SR 600/ISB and US 1/Ridgewood Avenue has the same situation. These are two of the most prominent “hot spots”, where intersection improvements could offer better connectivity for bicyclists and pedestrians.

Currently, US 92/SR 600/ISB is used as a main thoroughfare for eastbound and westbound traffic in Daytona Beach. This reflects the need for a bicyclist to travel through the city and along major arterials. In addition, this signifies a need for improvement to the local bicycle network.

Figure 21 depicts the locations of pedestrian crashes within the study area for the 2008-2012 time period. The majority of incidents occurred along the US 92/SR 600/ISB corridor, SR 400/Beville Road, and SR A1A/Atlantic Avenue. SR 600/US 92/ISB and SR 5A/Nova Road is a high crash intersection.

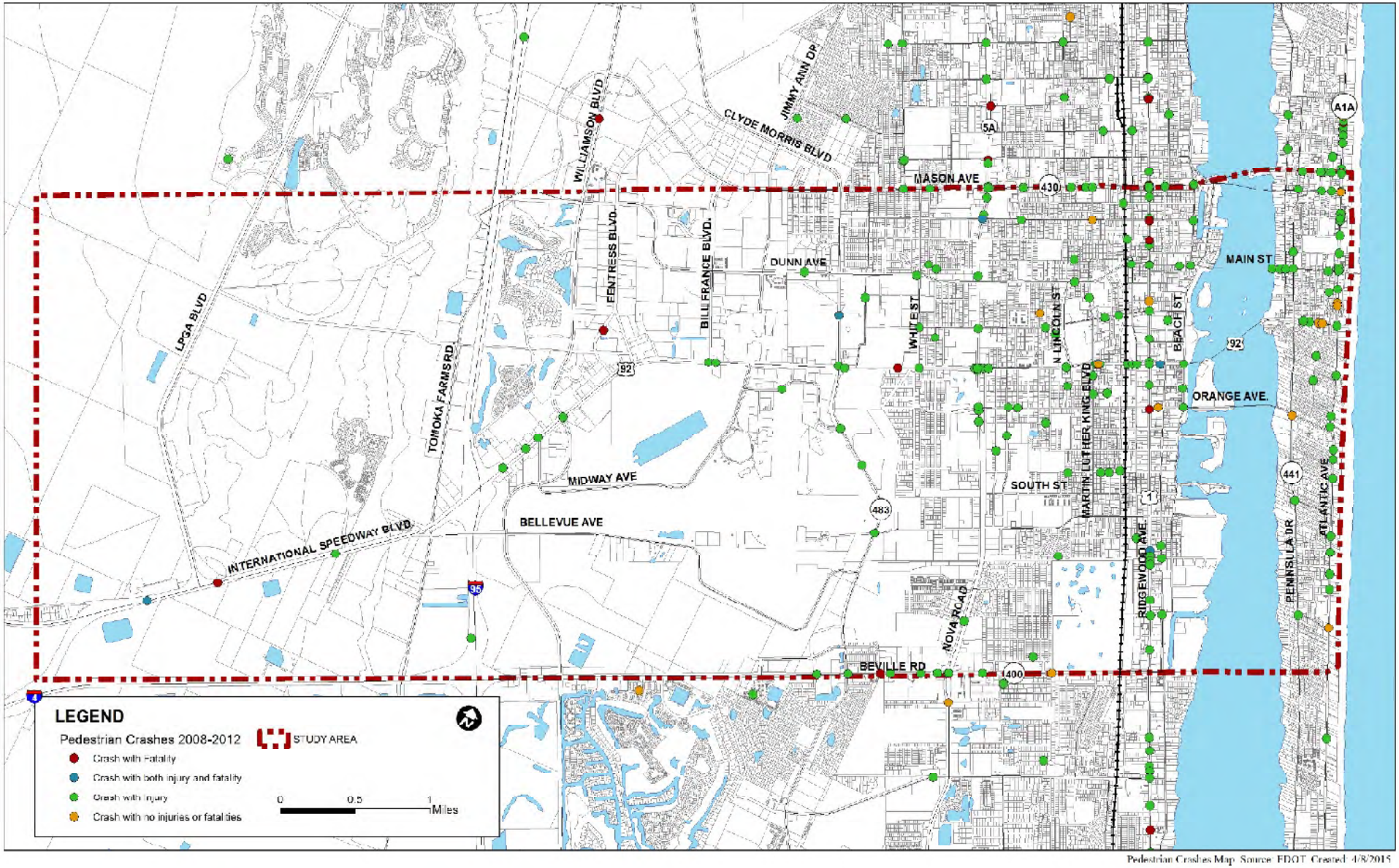


A pedestrian crossing a major road at the mid-block location.



Bicycle Crashes Map. Source: FDOT. Created: 4/8/2015

Figure 20: Bicycle Crashes between 2008 and 2012



Pedestrian Crashes Map Source: FDOT Created: 4/8/2015

Figure 21: Pedestrian Crashes between 2008 and 2012

6 LAND USE CONTEXT GIS ANALYSIS

6.1 CORRIDOR DEMOGRAPHICS MAPS

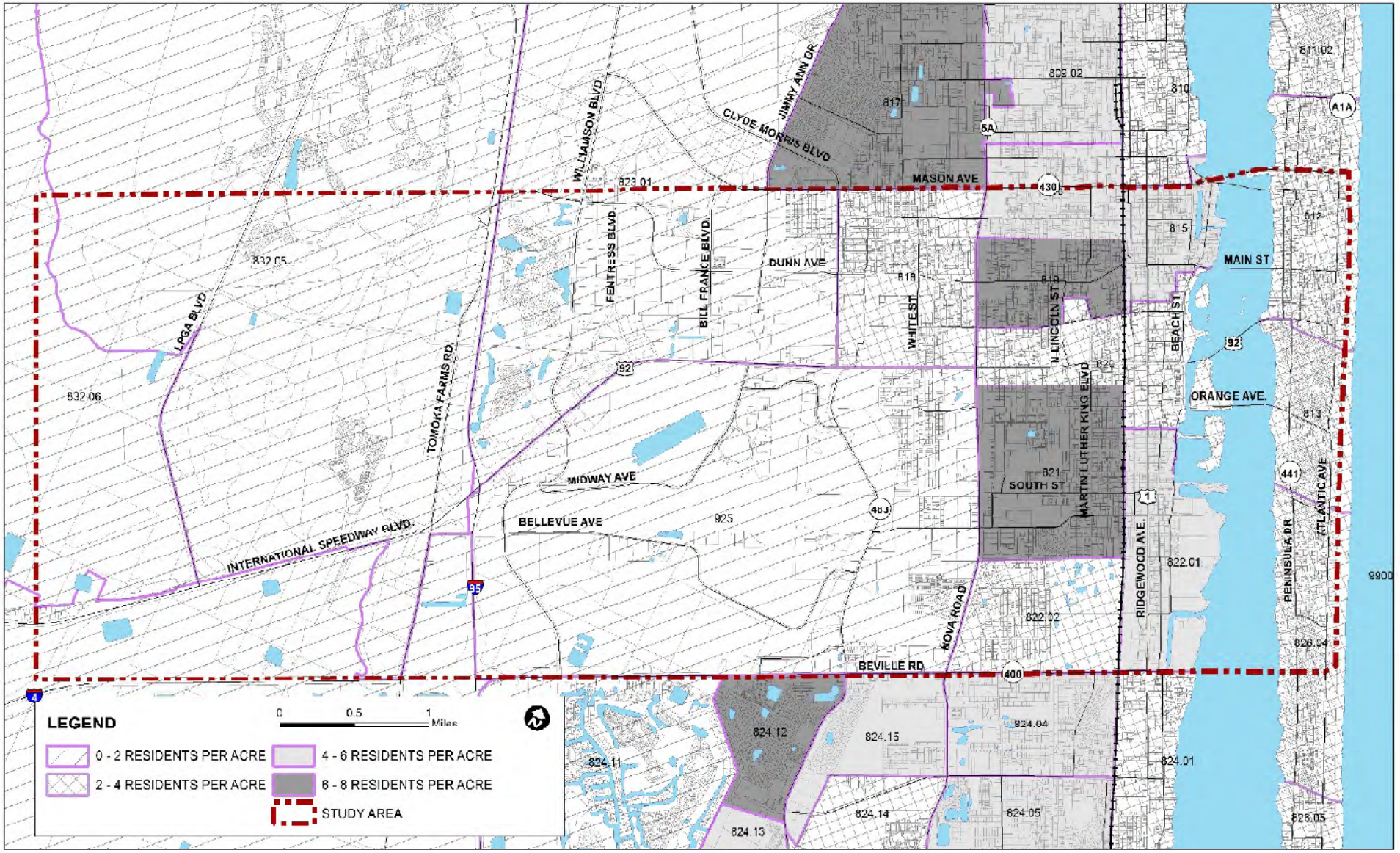
The context, demographics, land uses and size of land uses vary throughout the length of the CMMP study area. It is important to understand existing and future land use conditions in order for transportation infrastructure investment and land use policies to support one another.

Figure 22 depicts the population density within and surrounding the study area. The highest population density is found in Downtown and Midtown Daytona, while the lowest population density is found west of I-95. Much of the area east of I-95 and surrounding Daytona Motor Speedway and the Airport would be zoned commercial, thus having a population density near zero.

Figure 23 depicts the employees per acre for each census tract within and surrounding the study area. Midtown Daytona contains the highest employee density tract within the study area.

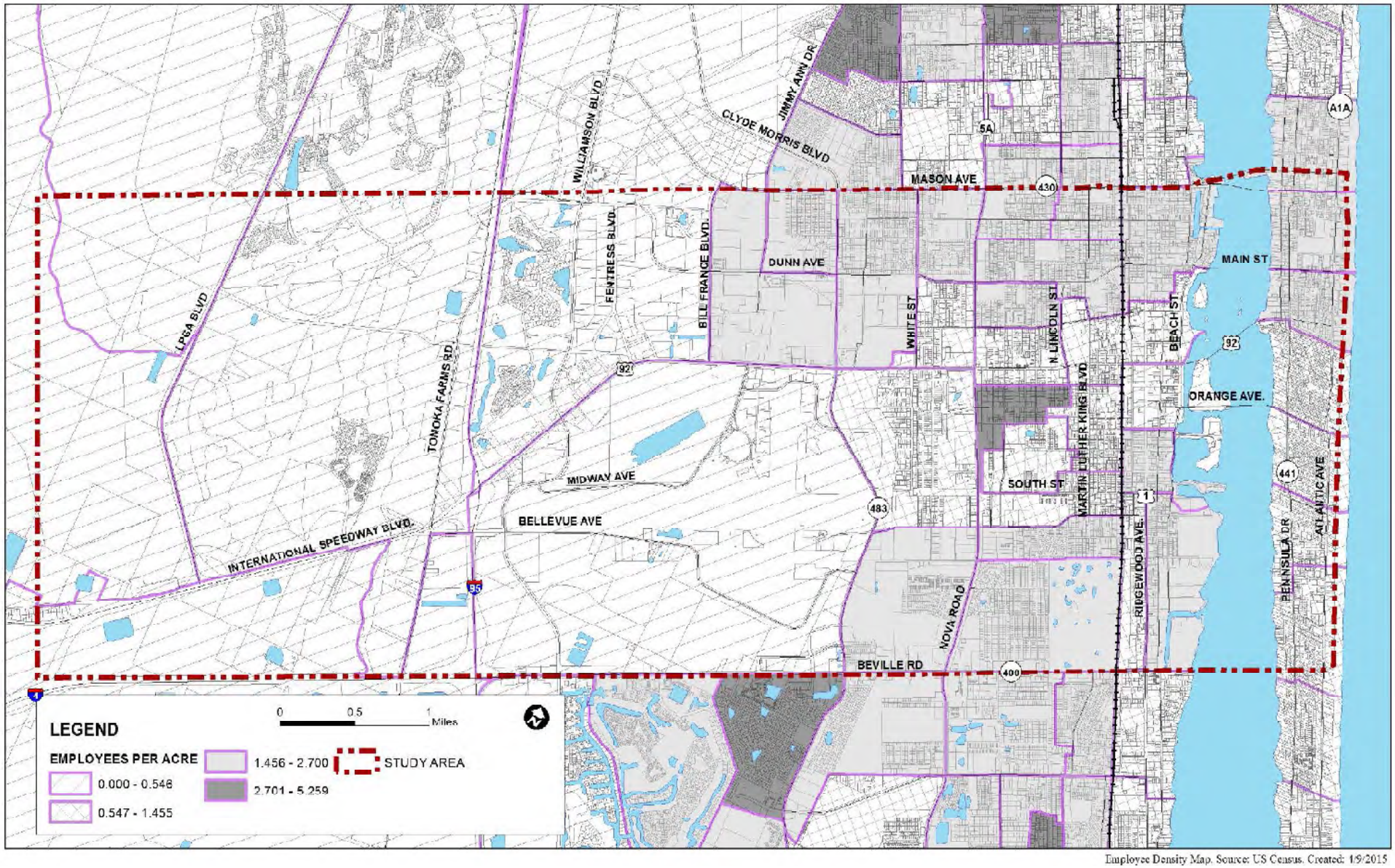
Figure 24 depicts the median incomes for households within the study area. Based on a household size of 4 occupants, households that earn less than $24,250 annually would fall below poverty level in 2015. This includes most of Downtown and Midtown Daytona, which fall in the category of less than $20,000 per household. The majority of the study region east of I-95 has a household income between $20,000 and $40,000, with the exception of Daytona Beach Golf Club. The area west of I-95 and south of US 92/SR 600/ISB has an income between $40,000 and $60,000. Between I-95 and LPGA Boulevard, the median income is between $60,000 and $80,000.

A mix of land uses is found throughout the corridor.



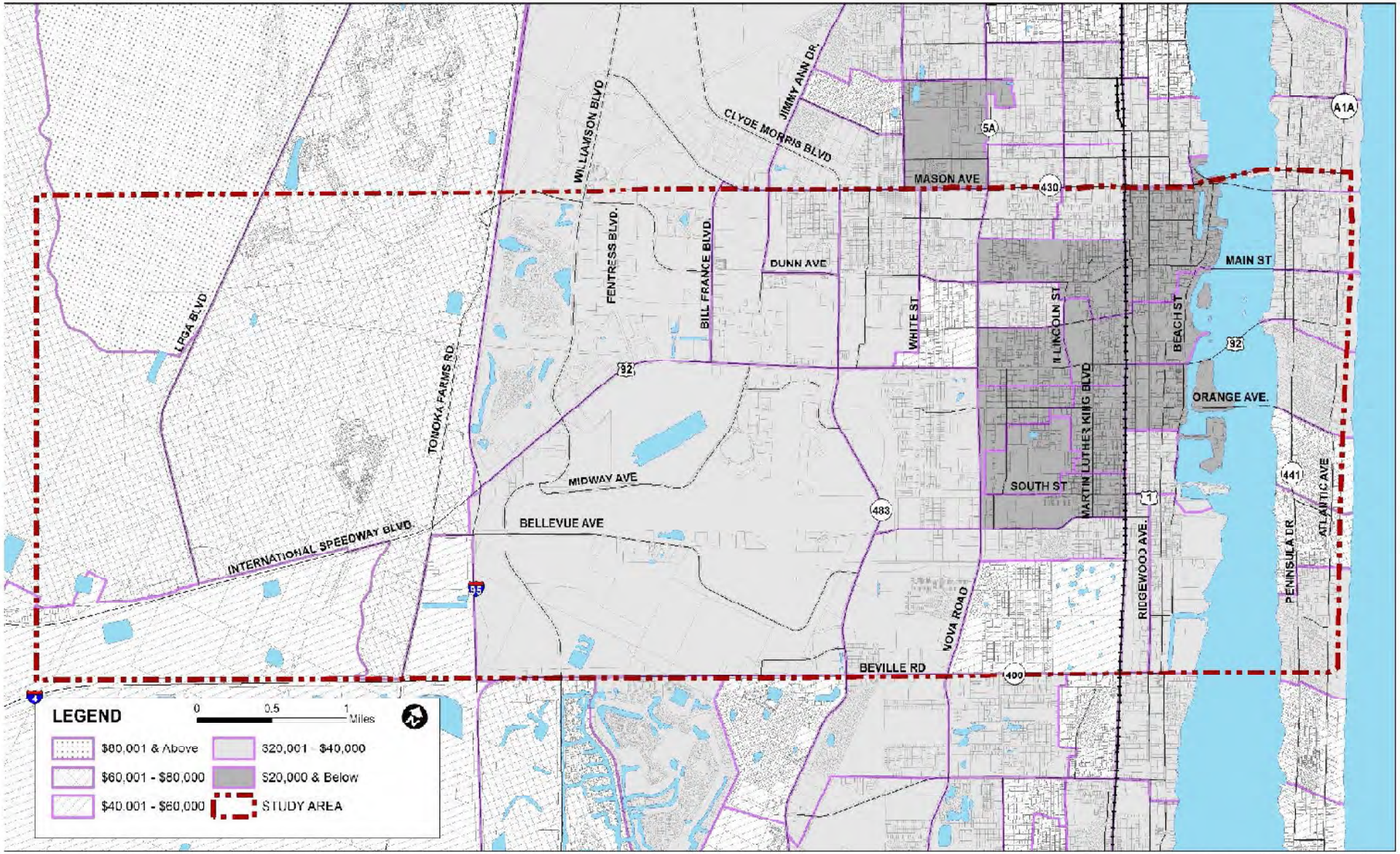
Population Density Map. Source: US Census. Created: 4/13/2015

Figure 22: Population Density Map



Employee Density Map. Source: US Census. Created: 1/9/2015

Figure 23: Employment Density Map



Median Household Income Map Source: US Census Created: 4/13/2015

Figure 24: Median Household Income Map

6.2 CORRIDOR LAND USE MAPS

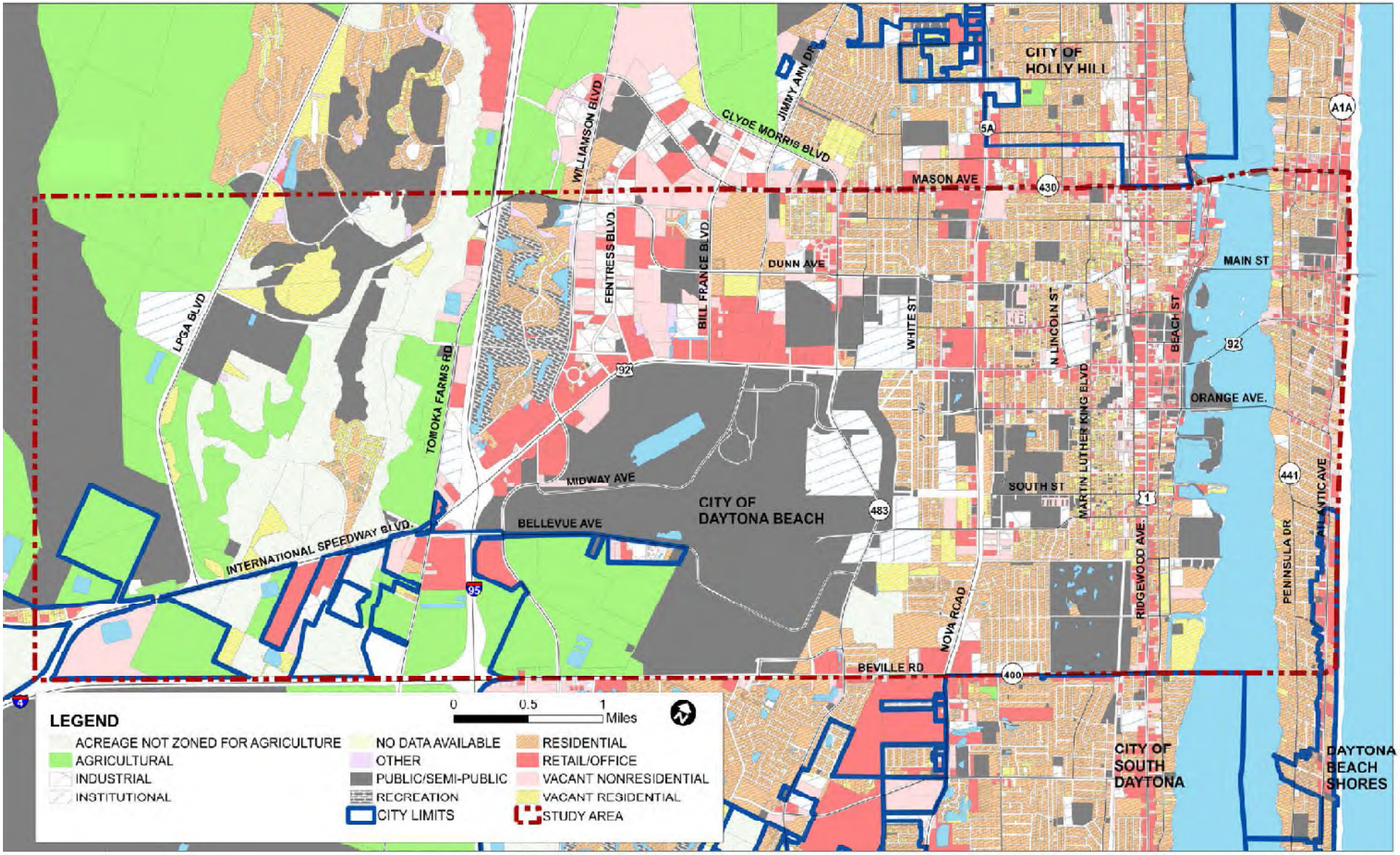
The land uses found within the study area vary throughout the length of the corridor. Segment One, west of I-95, is largely undeveloped. East of I-95, Segment Two is dominated with regional commercial, aviation, and entertainment uses. These uses are largely designed to favor automobile movement over pedestrian, bicycle, and transit modes. Segments Three and Four, east of SR 483/Clyde Morris Boulevard, contain a large mix of commercial, residential, maritime, and tourism oriented uses within a more pedestrian scale environment. Both of these segments are characterized by buildings with limited front setbacks and smaller block sizes. In future phases of the study, there are areas within the study area where land use policy and transportation infrastructure investment will need to be aligned in order to promote the creation of a context sensitive multimodal friendly urban environment.

Figure 25 illustrates the existing land use of the study area. The area west of I-95 is dominated by agriculture, while the area east of I-95 is a mix of public, residential, and retail. The dark pink north of US 92/SR 600/ISB and east of Bill France Boulevard is the Volusia Shopping Center. Going westbound, several other retailers and restaurants can be found; such as Best Buy, Carrabba's, and Target. The parcels directly north are colored in light pink, designating a vacant non-residential land use. In October of 2014, a 21-acre tract from this area was purchased by an office developer.

Similar to many metropolitan areas, the downtown region is dotted with several public and semi-public destinations. Of these, the most well-known would be City Island Park, located just south of the US 92 Bridge across the Halifax River. In addition, there are three universities and a several public schools in this region. By nature, these land uses create a strong demand for pedestrian and bike travel.

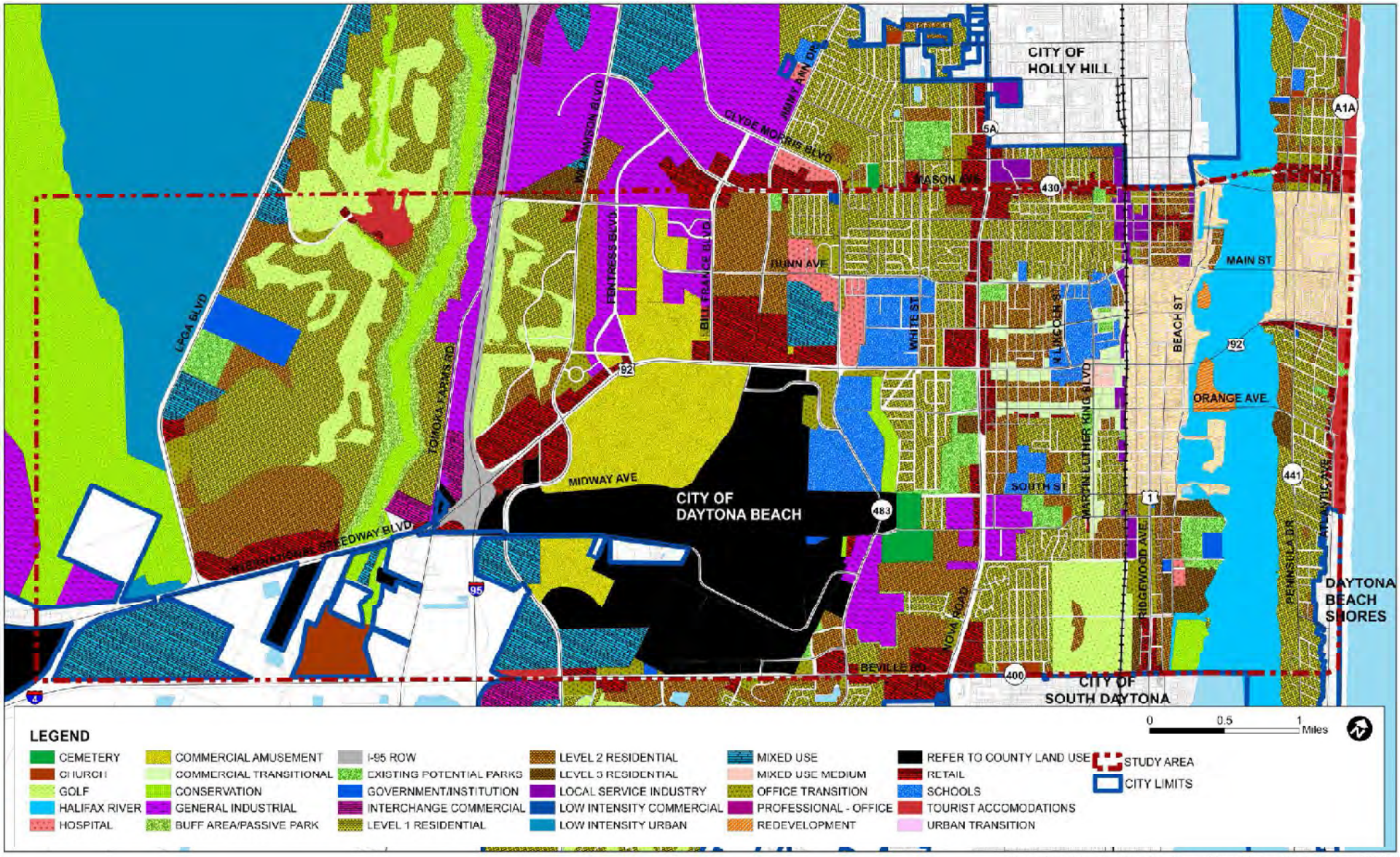
Figure 26 illustrates the future land use of the study region for year 2030. The regions of the maps that do not contain a hatch or color lie within a municipality other than Daytona Beach. These include Holly Hill, Daytona Beach Shores, South Daytona, Port Orange or Volusia County. The airport falls under the category of County land use, and is shaded black. Moving north from US 92/SR 600/ISB, the land adjacent to Bill France Boulevard and Fentress Boulevard will be primarily industrial use. General industrial can contain industrial or office space, with a FAR not more than 0.7. The acreage may also be used for service related activities catering to local markets. In this manner, the FAR may be as large as 1.0. Williamson Boulevard also has plans for industrial use; however, the tract just to the west (Indigo Lakes Golf Club) becomes an 'island' of Level 1 residential within this industrial district. Along the northern boundary of the study area, one can see that Mason Avenue will be almost completely lined with retail land use. Likewise, SR 400/Beville Road will contain a large portion of retail along its frontage. To the west of I-95 is a large area of wetlands and conservation land associated with the Tomoka River.

Figure 27 depicts the future land use for Volusia County. The three largest categories in this area are low impact urban, forestry resource, and conservation land use.



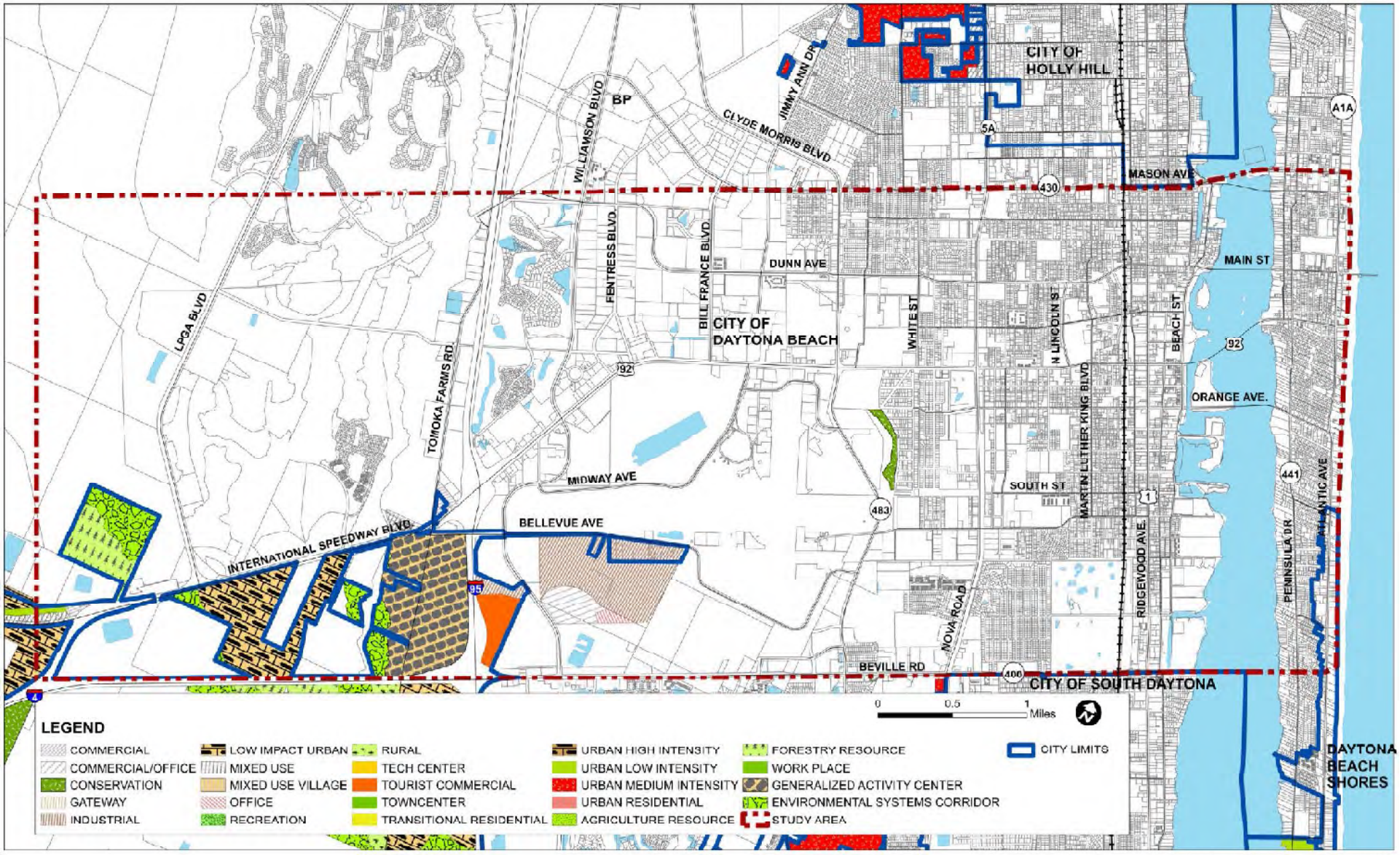
Existing Land Use Map. Source: University of Florida GeoPlan Center. Created: 4/13/2015

Figure 25: Existing Land Use Map



Generalized Future Land Use Map. Source: City of Daytona Beach. Created: 4/13/201

Figure 26: City of Daytona Beach Future Land Use Map



Volusia County Future Land Use Map. Source: Volusia County. Created: 4/13/201

Figure 27: Volusia County Future Land Use Map

Figure 28 illustrates the zoning for the City of Daytona Beach within the study area. While there is a variety of zoning types along US 92/ SR 600/ISB; a significant portion of these have been designated as Planned Master Developments (PMD). Traveling north along Fentress Boulevard, the zoning changes to M-4; which means the planned use for the area is an industrial park. North of Dunn Avenue, most of the land is zoned for M-2, which is a category of light industrial use. The land east of SR 5A/Nova Road and west of the railroad is mostly zoned residential. The categories vary from R1b (single family dwelling) to RA (residential apartments); however most of the property along major arterials is zoned for retail use. The land east of the railroad track and west of the Halifax River is zoned RDD2 and RDD3. This zoning allows for a central business mixed use and can include multifamily residential, retail, restaurant, businesses and hotels. There is a zero minimum setback in these zones and the type of signage used by a business is regulated.

Table 7 depicts the number of vacant acres within each zoning category in the study area.

Figure 29 depicts the zoning classifications for county land within the study area. This map coincides with the Volusia County future land use map, however; much of the land that is zones agricultural has been set aside for urban development.

Figure 30 shows the Runway Protections Zones and the noise contour lines around Daytona Beach International Airport. Generally, a 65 decibel Ldn (Day-Night Average Sound Level) is considered a threshold for tolerable noise exposure. Development within areas greater than the 65 Ldn contour may require noise or land use mitigation measures.

The entrance structure for Daytona Beach International Airport.

Table 7: Vacant Acreage by Zoning Category

Zoning Category	AG	AP	BA	BP	BR1	BR2	BW	HM	M1	M2
Vacant Acres	0.13	0.05	26.25	5.26	7.22	34.95	2.04	29.00	28.56	15.31
Total Acres	147.27	1459.48	224.51	46.04	52.50	367.63	32.44	162.43	212.27	514.29
Vacant Percentage	0.091%	0.004%	11.690%	11.418%	13.749%	9.506%	6.294%	17.851%	13.456%	2.977%

Zoning Category	M4	OP	PAED	PCD	PMD	PR	PR-H	PW	R1a	R1a1
Vacant Acres	92.11	1.86	0.91	253.24	337.81	5.78	0.51	0.19	208.91	0.39
Total Acres	332.48	21.32	8.96	776.74	2169.47	14.78	1.69	118.07	3627.04	40.17
Vacant Percentage	27.705%	8.730%	10.103%	32.604%	15.571%	39.118%	30.267%	0.157%	5.760%	0.973%

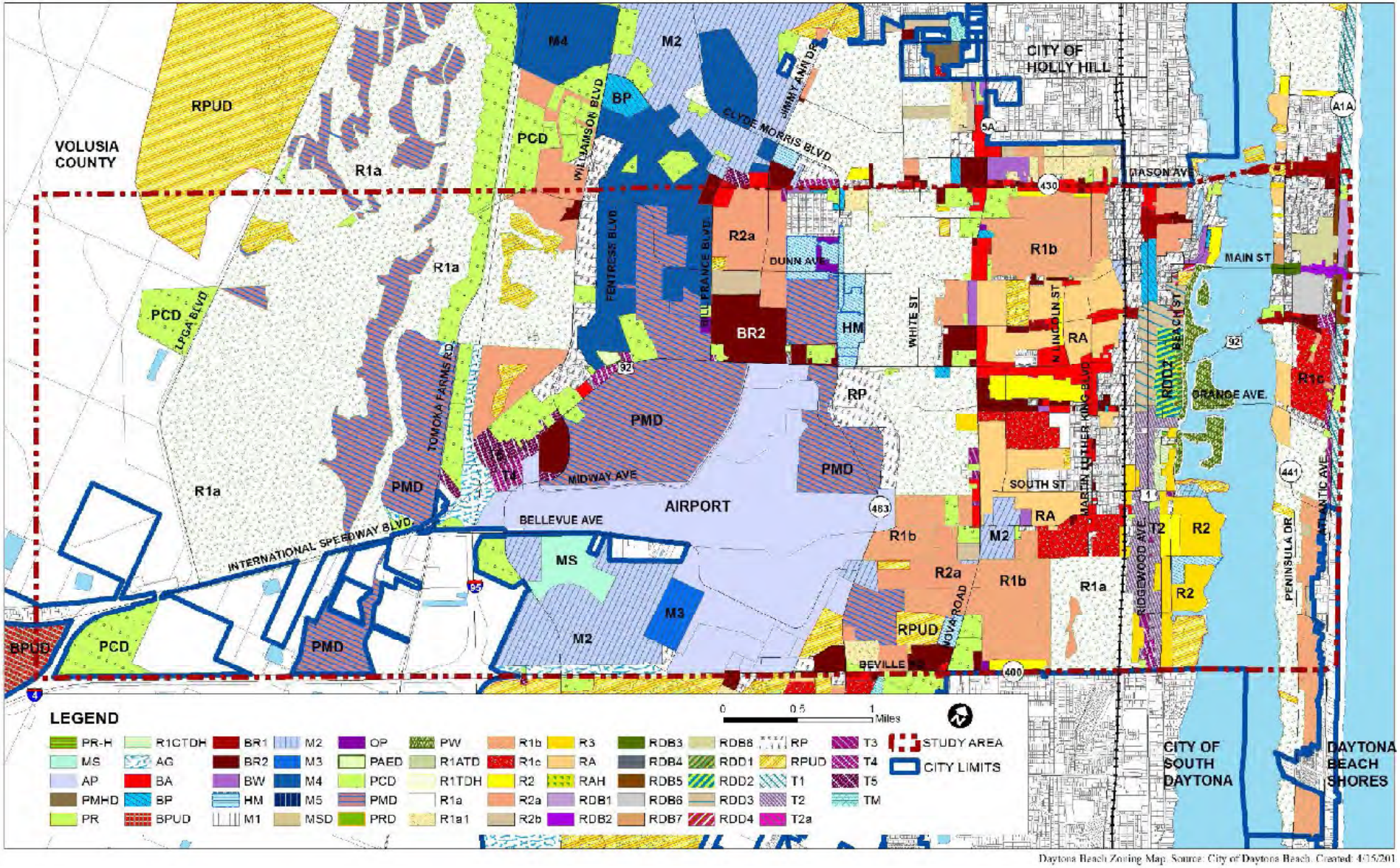
Zoning Category	R1b	R1c	R1CTDH	R2	R2a	R2b	R3	RA	RDB1	RDB2
Vacant Acres	55.77	17.52	1.36	5.38	58.67	25.67	31.08	54.90	4.38	0.87
Total Acres	770.71	226.58	17.03	131.76	555.12	56.81	217.82	472.62	27.48	12.70
Vacant Percentage	7.237%	7.733%	7.961%	4.081%	10.568%	45.192%	14.267%	11.615%	15.941%	6.874%

Zoning Category	RDB3	RDB4	RDB5	RDB6	RDB7	RDB8	RDD1	RDD2	RDD3	RDD4
Vacant Acres	1.35	1.28	0.93	1.35	0.78	2.26	0.35	2.14	6.12	0.40
Total Acres	9.13	2.67	18.75	36.73	6.49	43.92	12.90	53.34	84.20	5.74
Vacant Percentage	14.812%	47.939%	4.981%	3.677%	11.943%	5.152%	2.742%	4.019%	7.269%	6.885%

Zoning Category	RP	RPUD	RR	T1	T2	T3	T4	T5	TM	VC
Vacant Acres	72.77	77.88	37.31	14.63	19.83	0.57	4.43	6.38	0.03	9.38
Total Acres	525.94	415.78	212.10	48.36	166.90	27.26	63.48	58.83	0.26	1755.01
Vacant Percentage	13.836%	18.732%	17.593%	30.250%	11.879%	2.084%	6.974%	10.840%	13.194%	0.535%

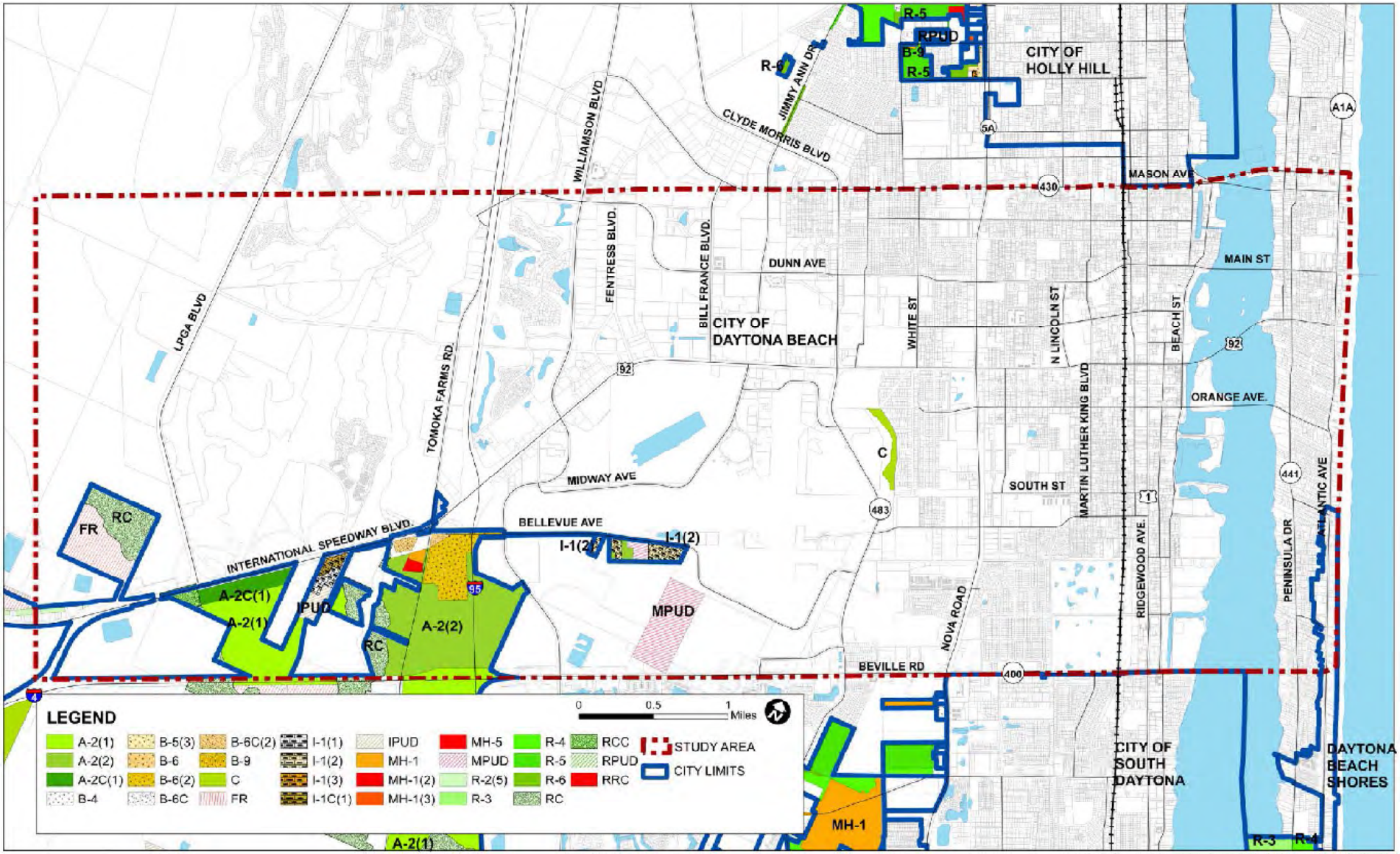
Table 8: Definition of Zoning Categories (City of Daytona Beach)

PR-H	Planned Redevelopment (Historic)
MS	Major Sports
AP	Airport
PMHD	Planned Master Development (Historic)
PR	Planned Redevelopment
R1CTDH	Single-Family Residential (Transition Overlay Historic)
AG	Agriculture
BA	Business Automotive
BP	Business/Professional
BPUD	Business Planned Unit Development
BR1	Business Retail
BR2	Shopping Center
BW	Business Warehouse
HM	Hospital/Medical
M1	Local Industry
M2	Light Industry
M3	General Industry
M4	Industrial Park
M5	Heavy Industrial
MSD	Major Sports District
OP	Office/Professional
PAED	Planned Amusement/Entertainment District
PCD	Planned Commercial Development
PMD	Planned Master Development
PRD	Planned Redevelopment
PW	Public Waterfront
R1ATD	Single-Family Residential (Transition Overlay)
R1TDH	Single-Family Residential (Transition Overlay Historic)
R1A/R1A1/R1B/R1C	Single-Family Residential
R2/R2A/R2B/R3/RA	Multifamily Residential
RAH	Multifamily Residential (Historic)
RDB1	Beachside Redevelopment Hotel/Mixed Use
RDB2	Beachside Redevelopment Specialty Retail
RDB3	Beachside Redevelopment Gateway Residential Mixed Use
RDB4	Beachside Redevelopment Boardwalk Amusement
RDB5	Beachside Redevelopment Atlantic Avenue Retail
RDB6	Beachside Redevelopment Surfside Village
RDB7	Beachside Redevelopment Riverfront Lodging
RDB8	Beachside Redevelopment Public or Private Entertainment/Parking/Mixed Use
RDD1	Downtown Redevelopment Beach Street Retail
RDD2	Downtown Redevelopment Central Business Mixed Use
RDD3	Downtown Redevelopment Commercial
RDD4	Downtown Redevelopment Business/Motor Vehicle Mixed Use
RP	Residential/Professional
RPUD	Residential Planned Unit Development
T1	Tourist Accommodations
T2	Tourist/Office/Restaurant
T2A	Tourist/Office
T3	Tourist/Office/Retail
T4	Tourist/Office/Retail/Auto Service
T5	Tourist/Highway Interchange
TM	Multifamily Residential



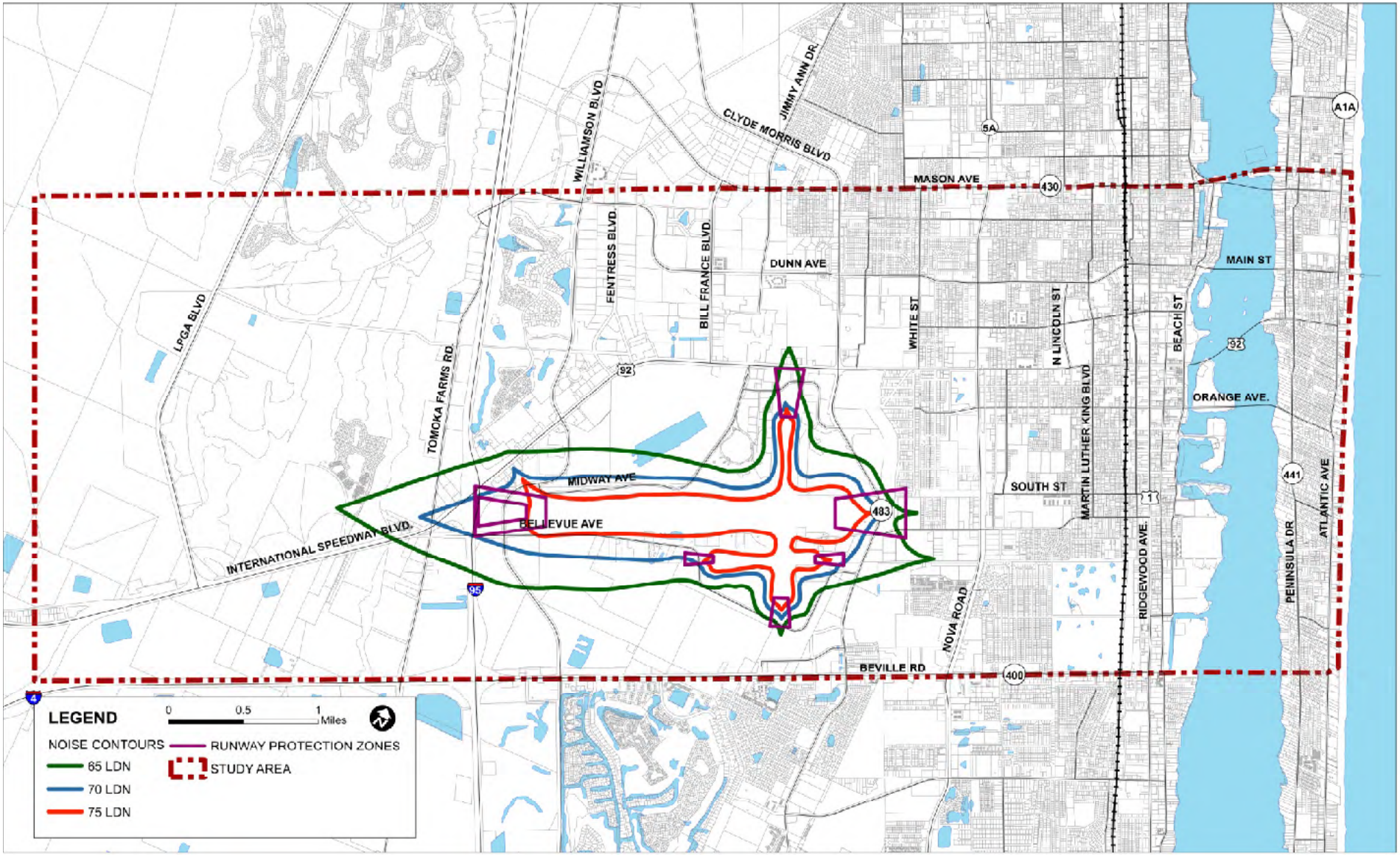
Daytona Beach Zoning Map Source: City of Daytona Beach Created: 4/15/201

Figure 28: City of Daytona Beach Zoning Map



Volusia County Zoning Map. Source: Volusia County. Created: 4/13/2015

Figure 29: Volusia County Zoning Map



Study Area Map. Source: Ghyabi & Associates. Created: 1/7/2015

Figure 30: Noise Contour Lines and Runway Protection Zones

6.3 ACTIVITY CENTER GIS MAPS

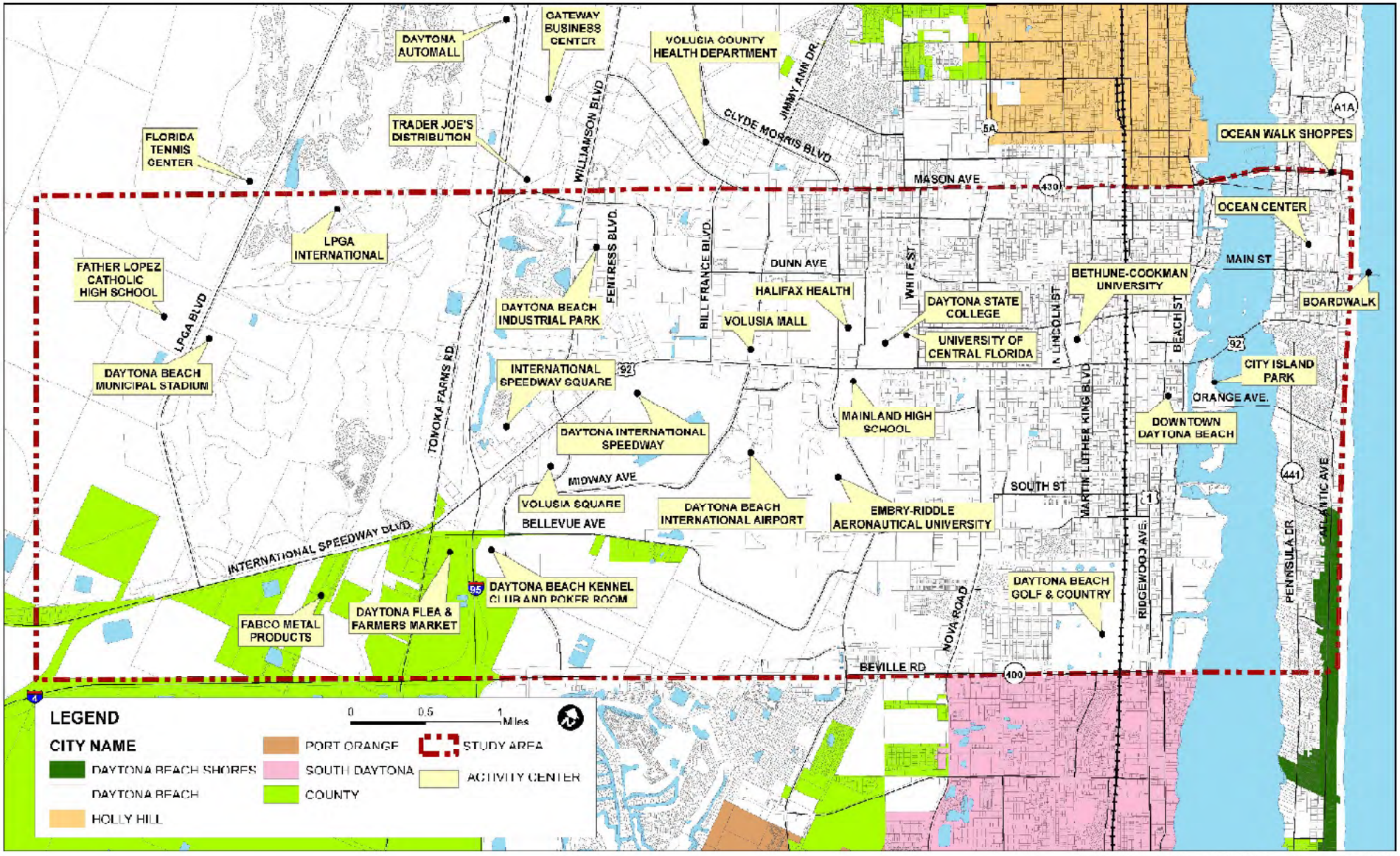
Figure 31 depicts the locations of existing and proposed activity centers. These centers include shopping districts, tourist destinations, and major employment centers. Of these activity centers, a number of them are worth noting. Trader Joe's Distribution center on Dunn Avenue will create 450 jobs as well as 100 more for delivery drivers. The site is part of the Gateway Business Center, which will continue north along this tract up to LPGA Boulevard.

Figure 32 depicts private development projects that are planned or under construction and City of Daytona Beach Community Redevelopment Areas (CRAs) within the study area. Daytona Rising, the expansion of the Daytona International Speedway, dominates much of the study area. Retail infill projects include One Daytona and Tarragona Shoppes. Major retail centers, such as the Volusia Mall, Midtown Plaza, Daytona Plaza, and Haynes and Smith LLC, will be undergoing renovation. Additional expansion on the campuses of the Daytona Beach International Airport, Embry-Riddle Aeronautical University, Daytona State College, and Halifax Health are anticipated. City of Daytona Beach CRAs are generally located east of SR 5A/Nova Road.

Figure 33 depicts the location of public and semi-public lands in and around the study area. The majority of public land is located west of the Halifax River.

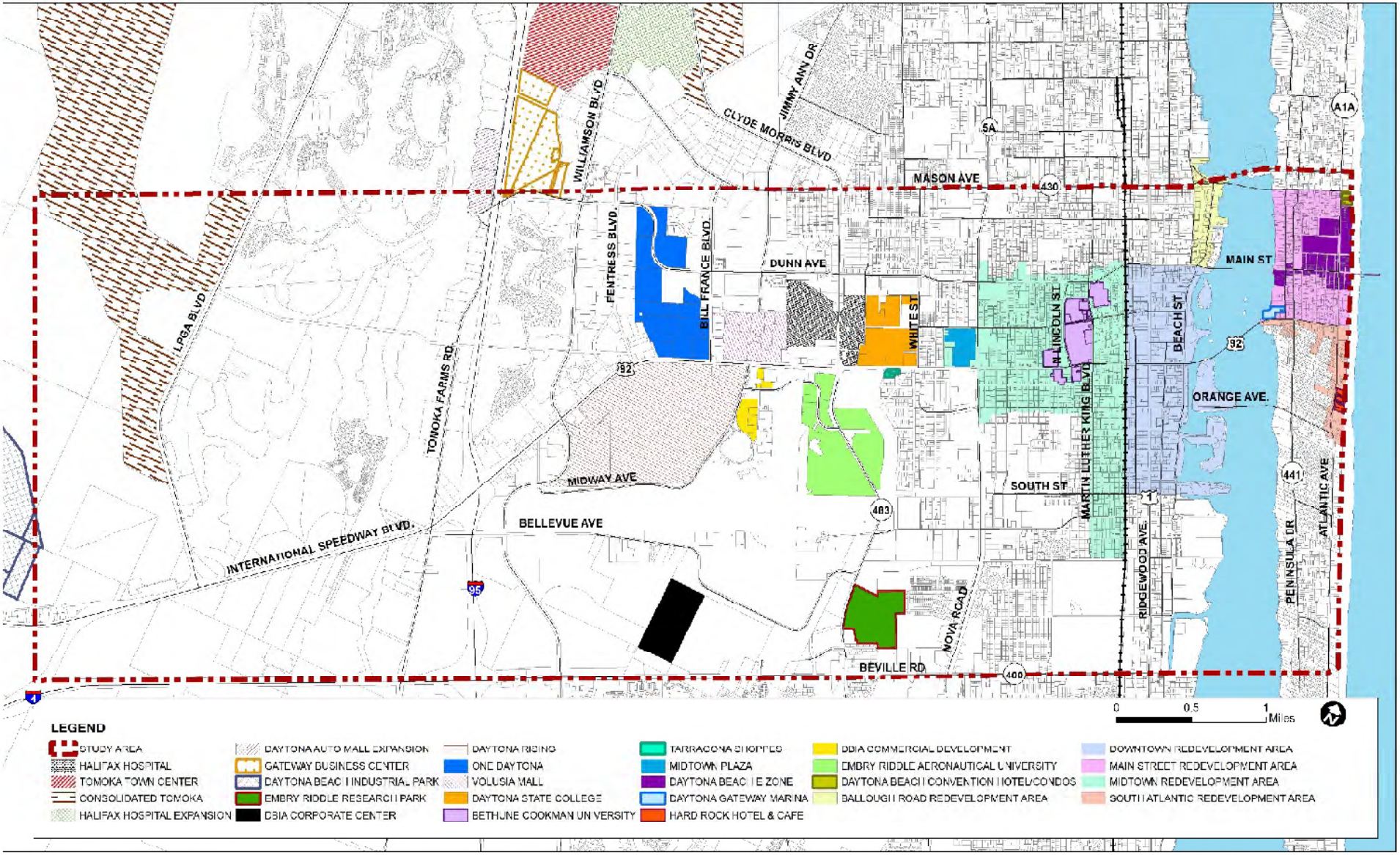
Figure 34 depicts the historic and cultural centers in the study area. The study area contains four historic districts. Bethune-Cookman University Historic District is located within Bethune-Cookman University near Dr. Mary McLeod Bethune Boulevard. The Black Heritage district is bordered by South Street and SR 600/US 92/ISB. South Atlantic and South Beach Street Historic Districts are alongside each other, east of the Halifax River. The majority of Cultural and Educational facilities are east of SR 483/Clyde Morris Boulevard between Mason Avenue and South Street. There are a limited number of parks, concentrated alongside Halifax River and the Beach.

Bethune-Cookman University.



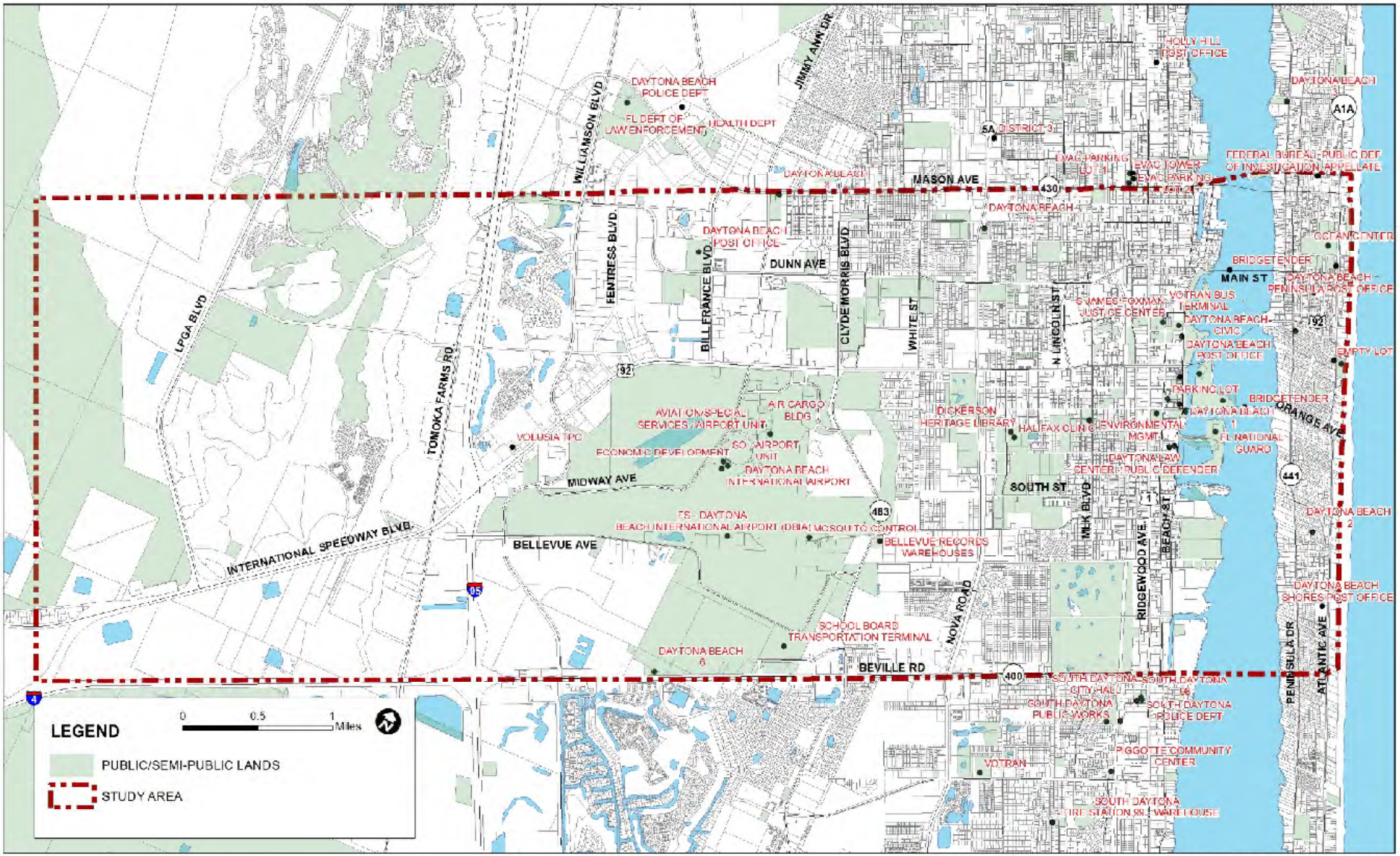
Activity Centers Map. Source: Ghyabi & Associates. Created: 4/9/2015

Figure 31: Activity Centers Map



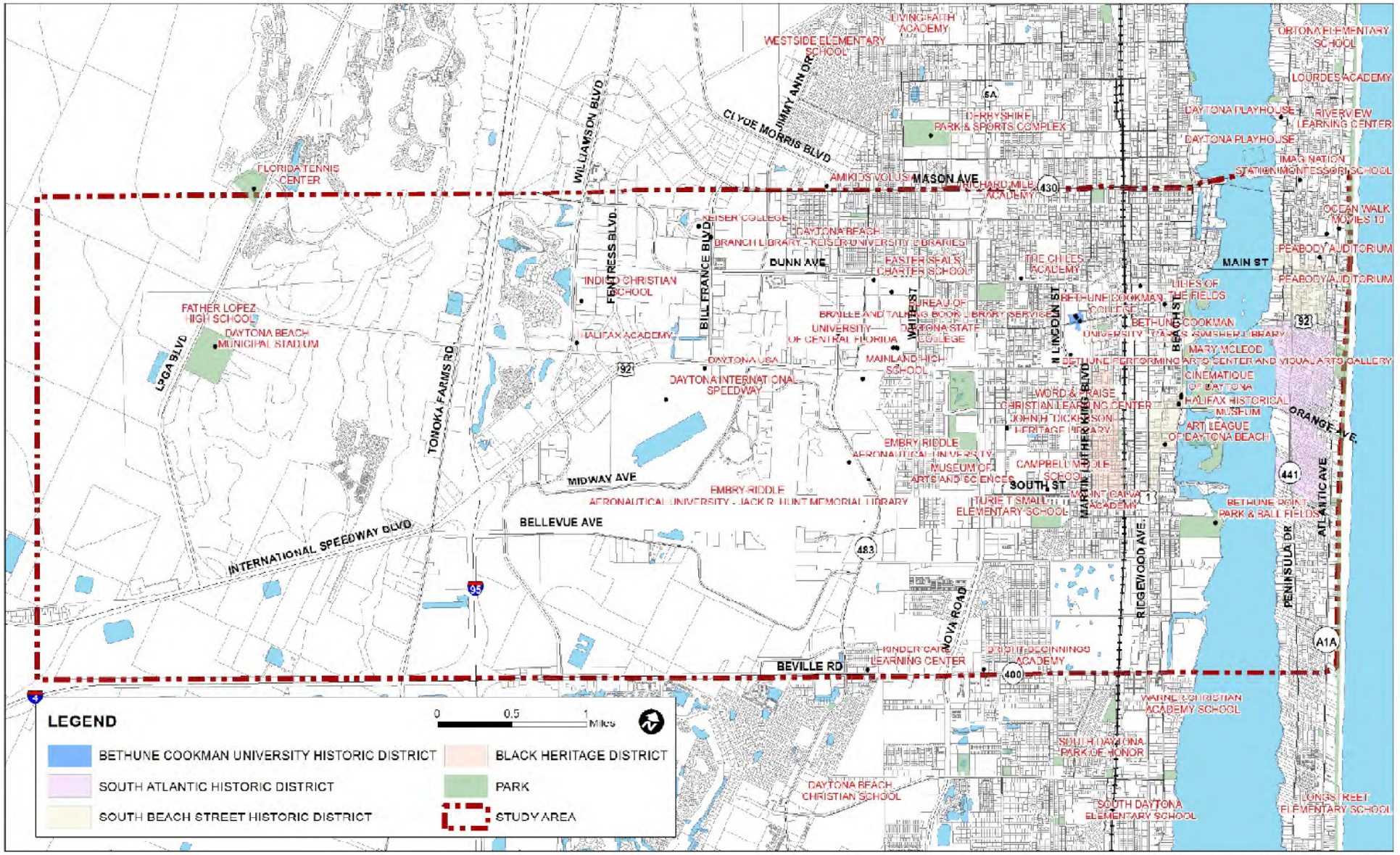
Redevelopment Potential Map. Source: Ghyabi & Associates. Created: 4/13/2015

Figure 32: Redevelopment Potential Map



Public and Semi-Public Lands Map. Source: City of Daytona Beach and Volusia County. Created: 4/10/2015

Figure 33: Public and Semi-Public Lands Map



Culture, Education & Historic Districts Map. Source: Ghyabi & Associates. Created: 4/10/2015

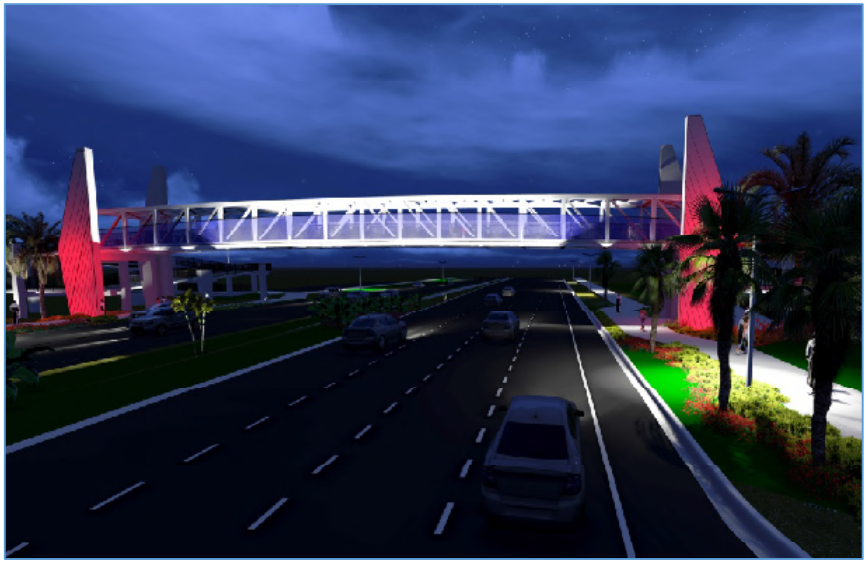
Figure 34: Culture, Education & Historic Districts Map

6.4 FUTURE TRANSPORTATION MAPS

The following five maps show the future transportation projects planned for the study area.

Figure 35 depicts the transportation projects included in the River to Sea TPO's 2014-2019 Transportation Improvement Program.

Figure 36 illustrates the committed roadway improvement projects within the study area through 2035. This figure combines projects from the 2014/15—2018/19 Transportation Improvement Plan (TIP) with the River-to-Sea TPO 2035 LRTP Cost Feasible Plan.



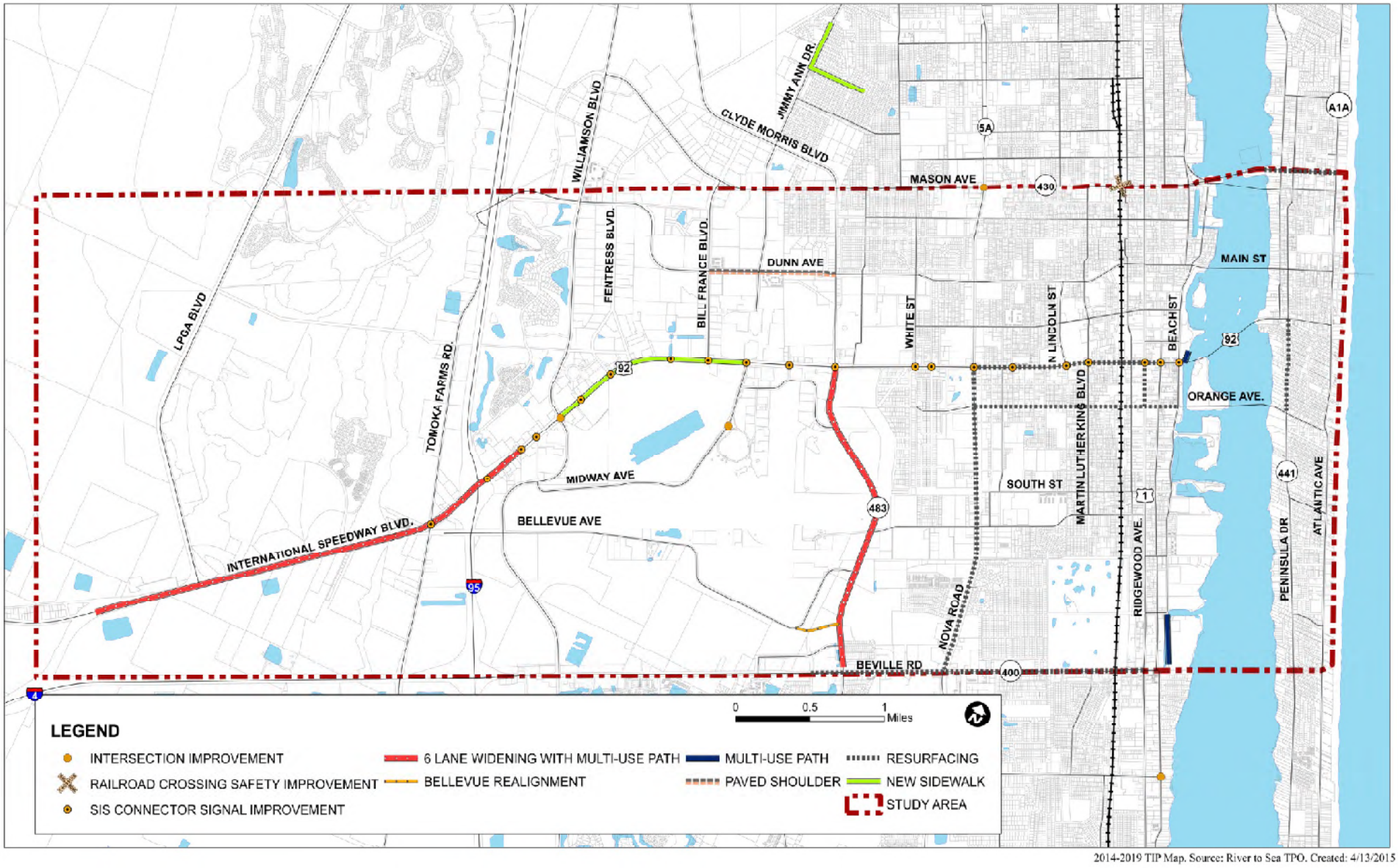
A rendering of a proposed pedestrian overpass near Bill France Boulevard.

Within the study area, projects include widening SR 483/Clyde Morris Boulevard to 6 lanes south of US 92/SR 600/ISB; the reconstruction/widening of the I-95/I-4/US 92/ISB interchange; and the widening of Dunn Avenue to 4 lanes between Fentress Boulevard and SR 483/Clyde Morris Boulevard. In addition, four 2-lane roads, between Volusia Mall and SR 483/Clyde Morris Boulevard, are planned as a part of Halifax Health's mixed use development.

Figure 37 depicts transit improvement projects as identified by the River-to-Sea TPO 2035 LRTP Cost Feasible Plan. This figure combines projects from the 2014/15—2018/19 TIP with the River-to-Sea TPO 2035 LRTP Cost Feasible Plan. The projects include a new Premium Transit Corridor on US 92/SR 600/ISB that is the subject of an Alternatives Analysis (AA) to determine the optimal transit mode for the corridor. Also included is additional transit service from the Daytona Beach International Airport along US 92/SR 600/ISB to SR A1A/Atlantic Avenue, and an additional bus route on SR A1A/Atlantic Avenue and US 1/Ridgewood Avenue.

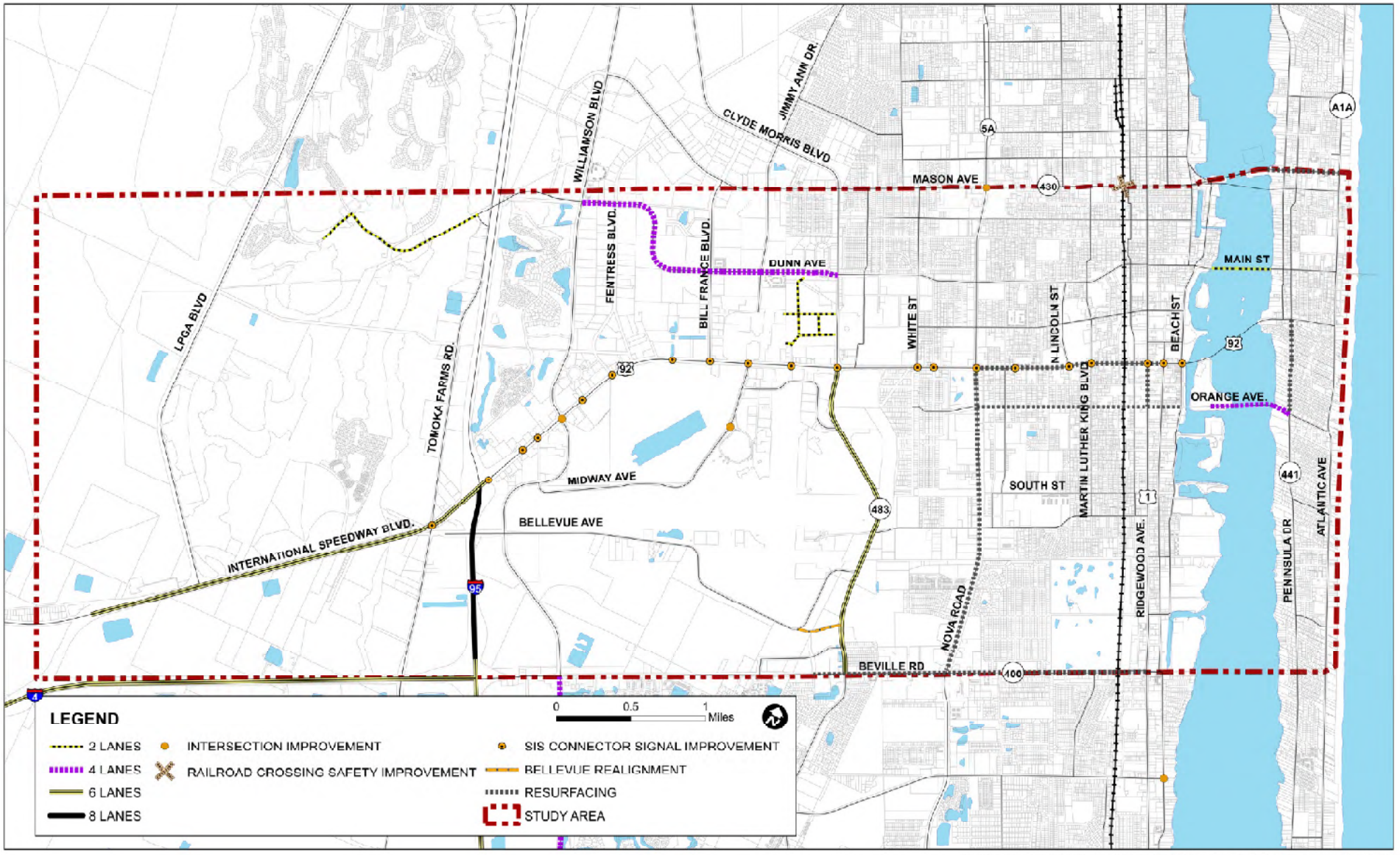
Figure 38 depicts sidewalk improvement projects that are identified in the River-to-Sea TPO 2035 LRTP. This figure combines projects from the 2014/15—2018/19 TIP with the River-to-Sea TPO 2035 LRTP Cost Feasible Plan. Projects include added sidewalks and a multi-use path on SR 483/Clyde Morris Boulevard south of US 92/SR 600/ISB, added sidewalks along Dunn Avenue, and improved sidewalks and a pedestrian overpass along US 92/SR 600/ISB between Midway Avenue and Williamson Boulevard.

Figure 39 depicts bicycle improvement projects identified in the River-to-Sea TPO 2035 LRTP. This figure combines projects from the 2014/15—2018/19 TIP with the River-to-Sea TPO 2035 LRTP Cost Feasible Plan. Projects include the construction of a multi-use path along SR 483/Clyde Morris Boulevard, south of US 92/SR 600/ISB, a bike lane along Dunn Avenue between SR 483/Clyde Morris Boulevard and Bill France Boulevard, and a bike lane along the Main Street and Orange Avenue Bridge.



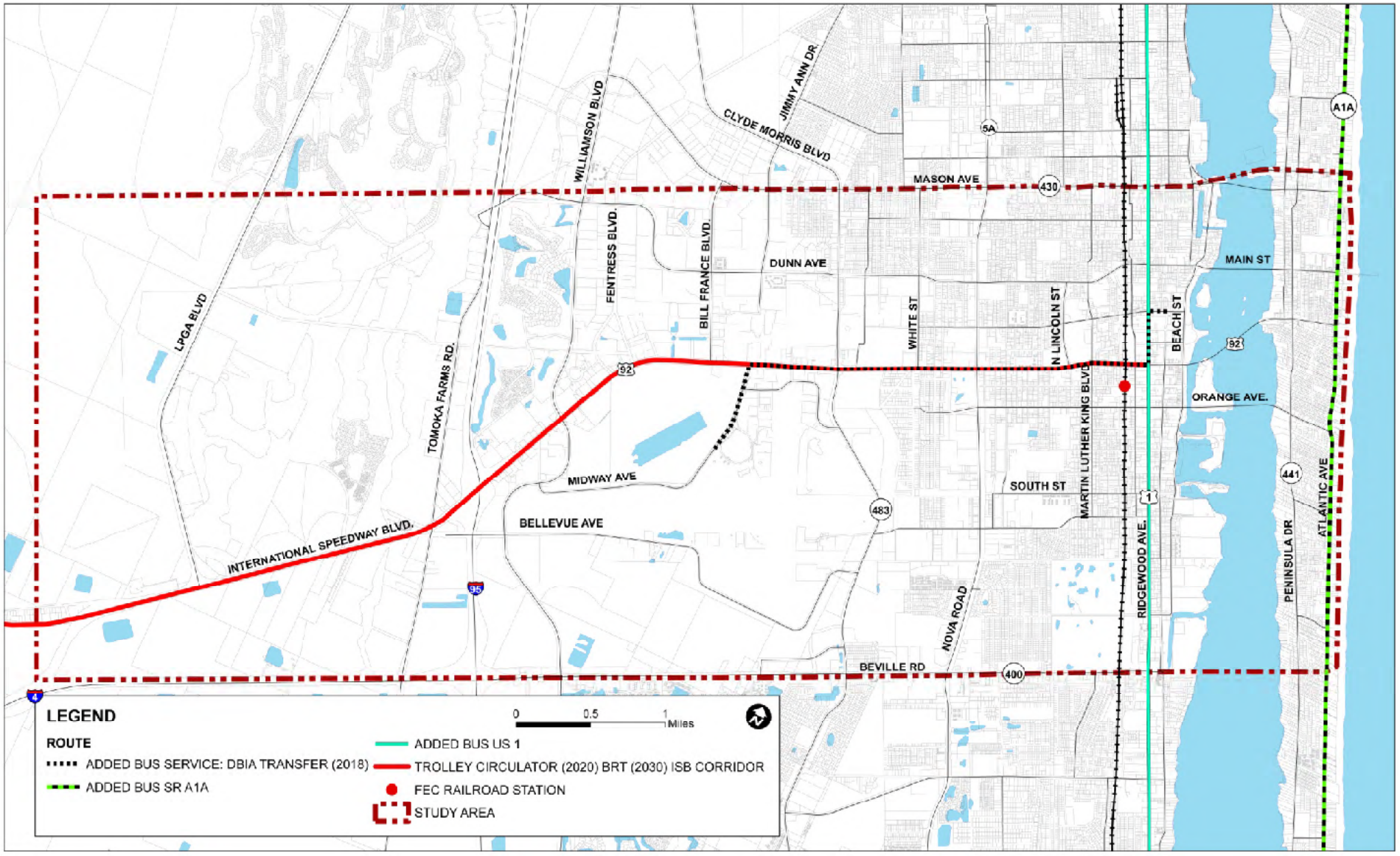
2014-2019 TIP Map. Source: River to Sea TPO. Created: 4/13/2015

Figure 35: 2014-2019 Transportation Improvement Plan (TIP) Map



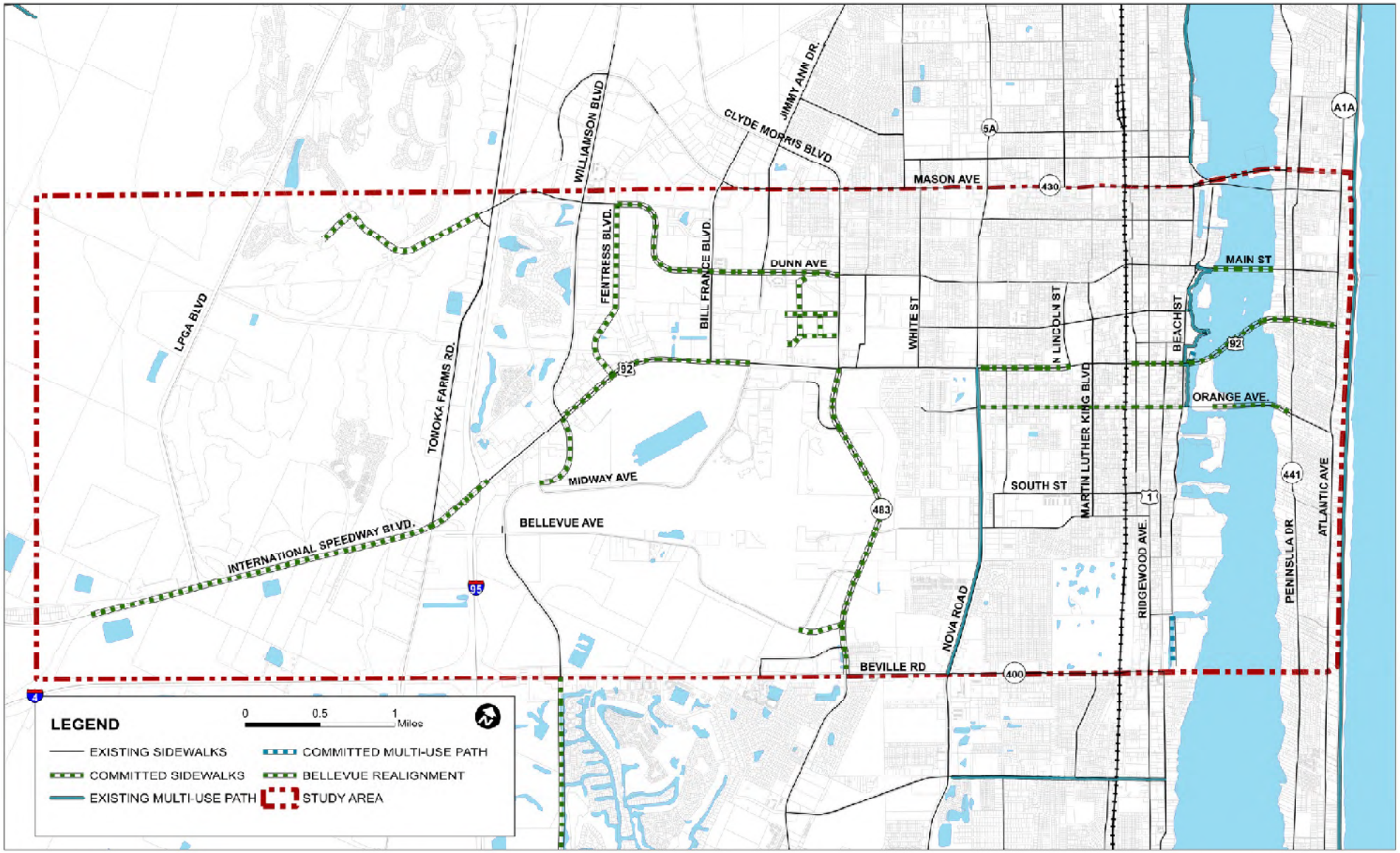
2035 Road Projects Map. Source: River to Sea TPO and Ghyabi & Associates. Created: 4/13/2015

Figure 36: 2035 Committed Road Projects Map



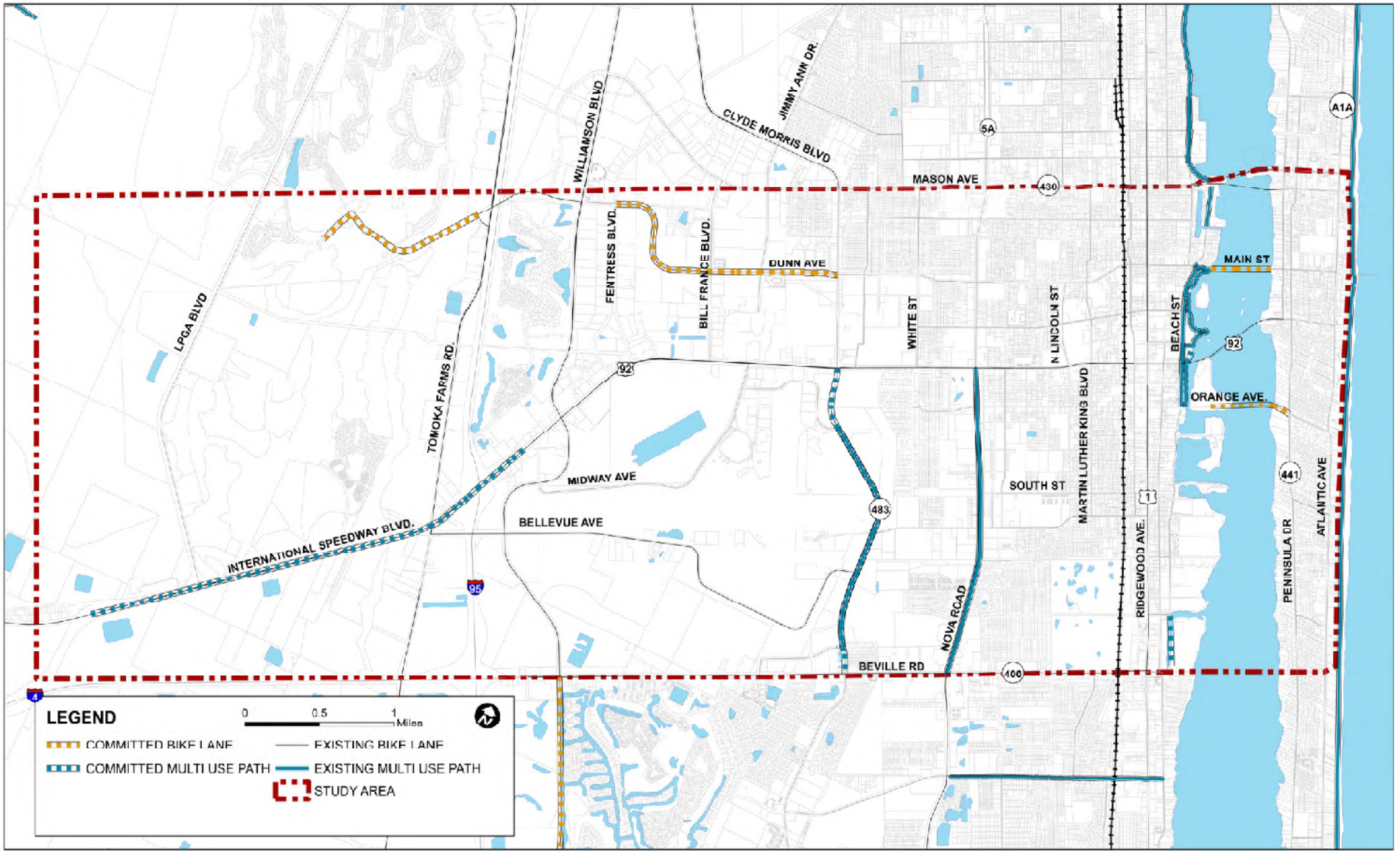
2035 Transit Projects Map. Source: River to Sea TPO and Ghyabi & Associates. Created: 2/27/2015

Figure 37: 2035 Committed Transit Projects Map



2035 Pedestrian Projects Map. Source: Volusia County. Created: 4/13/2015

Figure 38: 2035 Committed Pedestrian Projects Map



2035 Bicycle Projects Map. Source: River to Sea TPO and Ghyabi & Associates. Created: 4/13/2015

Figure 39: 2035 Committed Bicycle Projects Map

7 SUMMARY OF FINDINGS

This document has presented a brief summary of the existing conditions and data collection efforts conducted to date.

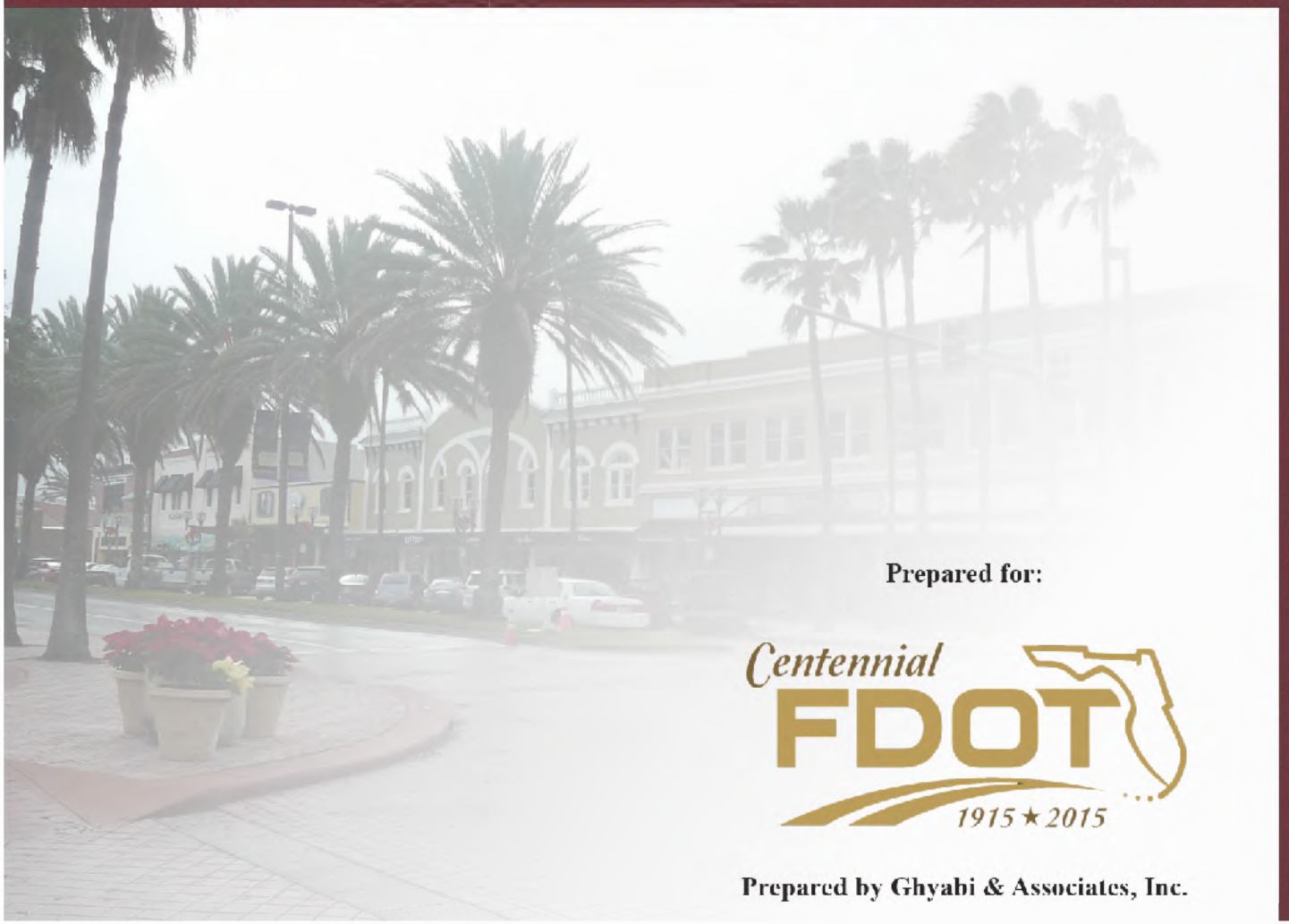
As shown in this report, there are several significant multimodal transportation conditions within the study area that are in need of improvement. Some of these major issues are listed below:

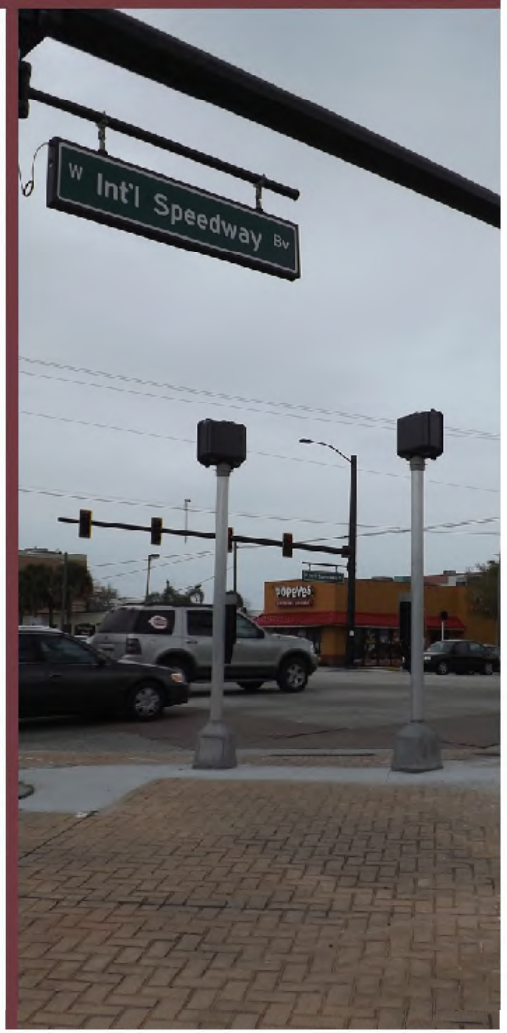
- No physical barrier between bicycle lanes and vehicular travel lanes along US 92/SR 600/ISB corridor
- Numerous unmarked crosswalks within the study area
- There are significant sidewalk and bicycle network gaps throughout the study area
- Pedestrian facilities largely lack amenities such as street trees, furniture, and lighting
- The majority of transit routes within study area operate at 60-minute headways
- Transit service is limited during weekday nights and local days
- Existing transit service is not attractive to college students because stops and routes do not align with student destination points
- Existing transit service along the US 92/SR 600/ISB corridor is inconsistent. LOS ranges from B (Segment 4) to F (Segment 1)
- Many bus stops within the study area are not ADA accessible and lack amenities, such as benches, shelters, bus route maps, trash cans and platforms for riders
- Existing land development form is not conducive to creation of context sensitive multimodal friendly environment within study area
- US 92/SR 600/ISB right-of-way is constrained east of SR 5A/Nova Road
- Maximum posted speed limits range between 40 to 55 miles per hour west of US 1/Ridgewood Avenue
- 4,848 reported crashes from 2008-2012, resulting in 3,869 injuries and 50 fatalities
- The number of crashes remained relatively flat from 2008-2012
- 40 segments are considered high crash locations
- 74 intersections are considered high crash locations
- Automobile Crash Density (2008-2012) is greatest along the US 92/SR 600/ISB corridor in Segments 3 and 4
- The most common crash type is rear-end collisions and the most common crash cause is careless driving
- Majority of 2008-2012 bicycle crashes occurred east of White Street, where building and population density significantly increases along US 92/SR 600/ISB corridor
- Majority of 2008-2012 pedestrian crashes occurred east of SR 5A/Nova Road throughout Midtown, Downtown, and the Beachside
- Runway protection zones associated with the Daytona Beach International Airport breach US 92/SR 600/ISB near Tomoka Farms Road and I-95 and between Midway Avenue and SR 483/Clyde Morris Boulevard
- Major private sector development near the intersection of LPGA Boulevard and Williamson Boulevard could dramatically impact future travel conditions throughout the study area

In addition, there are several opportunities for improvement of corridor facilities that are associated with committed infrastructure projects and proposed private sector developments. These include:

- Proposed US 92/SR 600/ISB Streetscape and beautification projects and City of Daytona Beach Wayfinding Signage designs provide the foundation for an aesthetically pleasing corridor
- The possible extension of the US 92/SR 600/ISB Pedestrian Improvement Design/Build project between Williamson Boulevard and Midway Avenue, throughout Segment 2 and into Segment 3
- Future roadway resurfacing projects offer an opportunity to incorporate spot improvements to strengthen multimodal connectivity throughout corridor
- The Florida East Coast Industries' (FECI) All Aboard Florida connection between Miami, Orlando and Jacksonville would link the CMMP study area with intercity regional connectivity
- The Daytona Beach Land Development Code update includes the opportunity for the creation of supportive land use policies and regulations within the CMMP study area
- Private infill developments, such as the construction of One Daytona and additional educational facilities at Daytona State College, Bethune-Cookman University, create an opportunity for transit friendly nodes along the US 92/SR 600/ISB corridor
- Parallel routes such as SR 430/Mason Avenue, Orange Avenue and Dunn Avenue could be considered as alternative routes to the beach
- Dense street grid network east of White Street enhances opportunities for inclusion of parallel pedestrian, bicycle and transit improvements in Midtown, Downtown and the Beachside
- US 92/SR 600/ISB AADT drops significantly east of US 1/ Ridgewood Avenue, making lane reduction a feasible concept
- West of SR 483/Clyde Morris Boulevard, the US 92/SR 600/ ISB corridor right-of-way is 200' wide, which offers room for multimodal improvements without purchase of additional right-of-way.
- East of SR 483/Clyde Morris Boulevard, the US 92/SR 600/ ISB corridor right-of-way is constrained for additional improvements.
- A significant portion of land uses located in Segment 1 are located outside of the City of Daytona Beach city limits

The next step in the CMMP is the identification of corridor needs. This will involve coordination with FDOT, City of Daytona Beach, Volusia County and stakeholders to identify, describe, and illustrate the overall goals for the study area. Goals may include improvements to enhance walkability, connectivity to transit facilities and to enable the safe use of bicycles within the corridor's study area.





Prepared for:

Centennial FDOT 1915 ★ 2015

Prepared by Ghyabi & Associates, Inc.