EXISTING CONDITIONS REPORT

SR 507 Babcock Street Corridor Planning Study

From CR 516 (Palm Bay Road) to US 192 (New Haven Avenue)
FM 439858-1

Brevard County, Florida

Prepared For:
Florida Department of Transportation, District Five
719 South Woodland Boulevard
DeLand, FL 32720

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1. INTRODUCTION

The Florida Department of Transportation (FDOT) District Five is conducting a Corridor Planning Study along Babcock Street (SR 507) between Palm Bay Road (CR 516) and US 192 (New Haven Avenue) in Brevard County. The purpose of the Corridor Planning Study is to identify existing and future multimodal corridor needs and develop, evaluate, and recommend potential alternatives to address these needs. As part of the Corridor Planning Study, existing conditions along the corridor were evaluated and summarized in this Existing Conditions report. This Report includes:

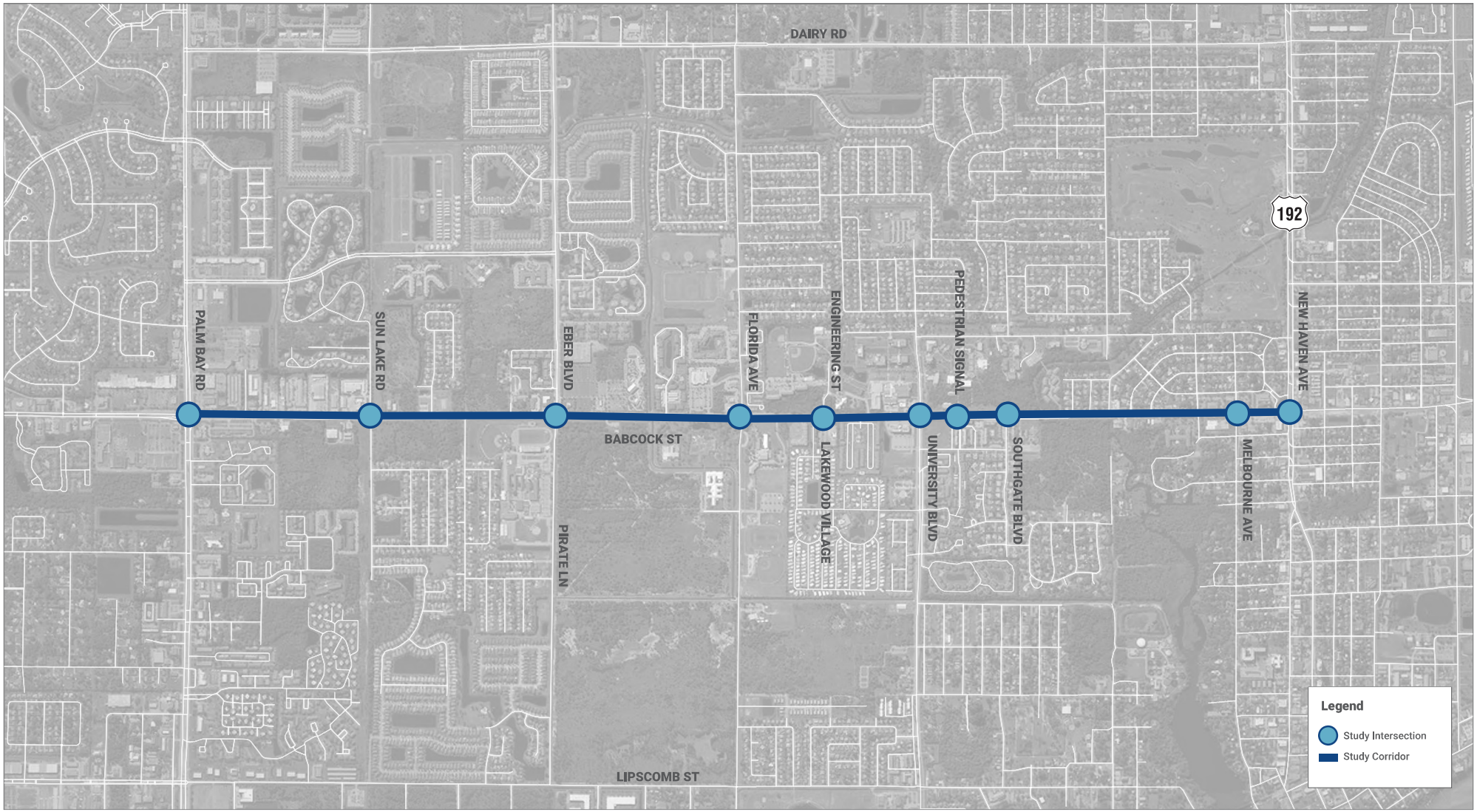
- Review of previous studies on and around the Babcock Street study corridor;
- Project Visioning Team outreach;
- Review of existing land use and roadway characteristics;
- Existing-year (2018) traffic data and operational evaluations; and
- 2012-2016 historical safety assessment.

Project Location

The Babcock Street study corridor is displayed in **Figure 1**. Babcock Street from Palm Bay Road to US 192 is classified as an urban principal arterial, oriented south to north in Brevard County. The three-mile corridor is mostly developed with a mix of uses.

- The southern part of the corridor from Palm Bay Road to Pirate Lane/Eber Boulevard has mostly commercial and light industrial uses with some residential as well as Palm Bay High School.
- The middle of the corridor from Pirate Lane/Eber Boulevard to University Boulevard is largely made up of Florida Institute of Technology (FIT) facilities and housing with some commercial and residential uses.
- The northern part of the corridor from University Boulevard to US 192 is made up of residential and commercial uses with some FIT facilities.

Due to the presence of FIT along the corridor, student activity is prevalent and is expected to impact the needs and influence eventual multimodal recommendations from this study.



Babcock Street Corridor Planning Study

FIGURE 1 | **Study Corridor**

2. PUBLIC OUTREACH ACTIVITIES

A Corridor Planning Study represents an ideal opportunity to engage local and regional groups in the identification of issues, establishment of planning goals, and project visioning leading to the identification of potential improvement alternatives. Three key groups will be engaged during the study to solicit guidance and input: Project Visioning Team, local stakeholders, and general public.

Project Visioning Team

A Project Visioning Team (PVT) comprised of regional agency and municipal representatives was established to help guide the planning process. The PVT is acting as the initial sounding board for the Study Team (FDOT and consultant staff) as it shares findings and develops alternative strategies for the corridor. The PVT is scheduled to meet at key milestones throughout the study process. The PVT is comprised of members from the following partner organizations:

- Florida Department of Transportation, District 5
- Brevard County Traffic Operations
- Brevard County Public Schools
- City of Melbourne
- City of Palm Bay
- Space Coast Transportation Planning Organization
- Space Coast Area Transit
- Florida Institute of Technology
- Melbourne Central Catholic High School

A kick-off meeting and field trip was held with the PVT group on September 26, 2018 to tour the corridor, discuss the corridor planning study process and stakeholder outreach activities, and review initial traffic operations and safety findings. The PVT kick-off meeting notes are provided in **Appendix A**, and **Figure 2** displays pictures of the PVT group during the field review.

Figure 2: PVT Field Review Pictures

Three additional PVT meetings will be held to discuss the corridor's purpose and need, the development of alternatives, and the selection of the preferred alternative, as described below:

- ***Meeting 1:*** Following the completion of Task 1, this meeting will be held during the purpose and needs definition phase to discuss and confirm with the PVT members the draft guiding principles, purpose and need, and performance measures to be used for evaluating alternative solutions. The format of the meeting will include a brief presentation to review the study to-date, including existing conditions and future needs as well as key corridor issues and opportunities. The Study Team will also facilitate an exercise to begin brainstorming potential future scenarios and methodologies and performance measures for testing these scenarios.
- ***Meeting 2:*** The PVT will meet to review the initial alternatives and evaluation of the alternatives based on the performance measures discussed in PVT meeting 1. To facilitate the discussion, a summary of the alternatives comparison and supporting detail with respect to the engineering and environmental evaluations, project costs, policy considerations, and other supporting detail will be provided to the PVT members in advance.
- ***Meeting 3:*** After the second Public Workshop, the PVT will meet to review the feedback received from the public on the corridor alternatives. The PVT members will provide comments regarding any refinements to the alternatives and will discuss potential next steps for the implementation of the recommended alternatives.

3. RELEVANT STUDIES AND PLANNED PROJECTS

During the existing conditions data collection and the PVT Kick-Off Meeting, the Study Team obtained information regarding relevant studies, planned projects, and recently approved developments along the Babcock Street corridor. In addition to this corridor planning study, a SR 507 (Babcock St) ITS Expansion Project – from NASA Boulevard to Eber Road – is included in the Space Coast Transportation Planning Organization (SCTPO) FY 2018 Transportation Improvement Program (TIP). The following major projects are also planned in the corridor's vicinity as included in SCTPO's 2040 Long Range Transportation Plan (LRTP) or the TIP:

- Widening of Babcock Street – Malabar Road to Palm Bay Road (TIP Priority #4)
- Widening of Babcock Street – St. John's Heritage Parkway to Malabar Road (TIP Priority #13)
- ITS expansion project on US 192 – Dairy Road to US 1 (TIP Priority #18)
- Widening of US 192 – Wickham Road to Dairy Road (LRTP 2031-2035)

Figure 3 displays the locations of the previous studies and future improvement projects along the corridor. The studies' recommendations sections, the TIP, and LRTP references to the future improvement projects are referenced in **Appendix B**.

Relevant Studies

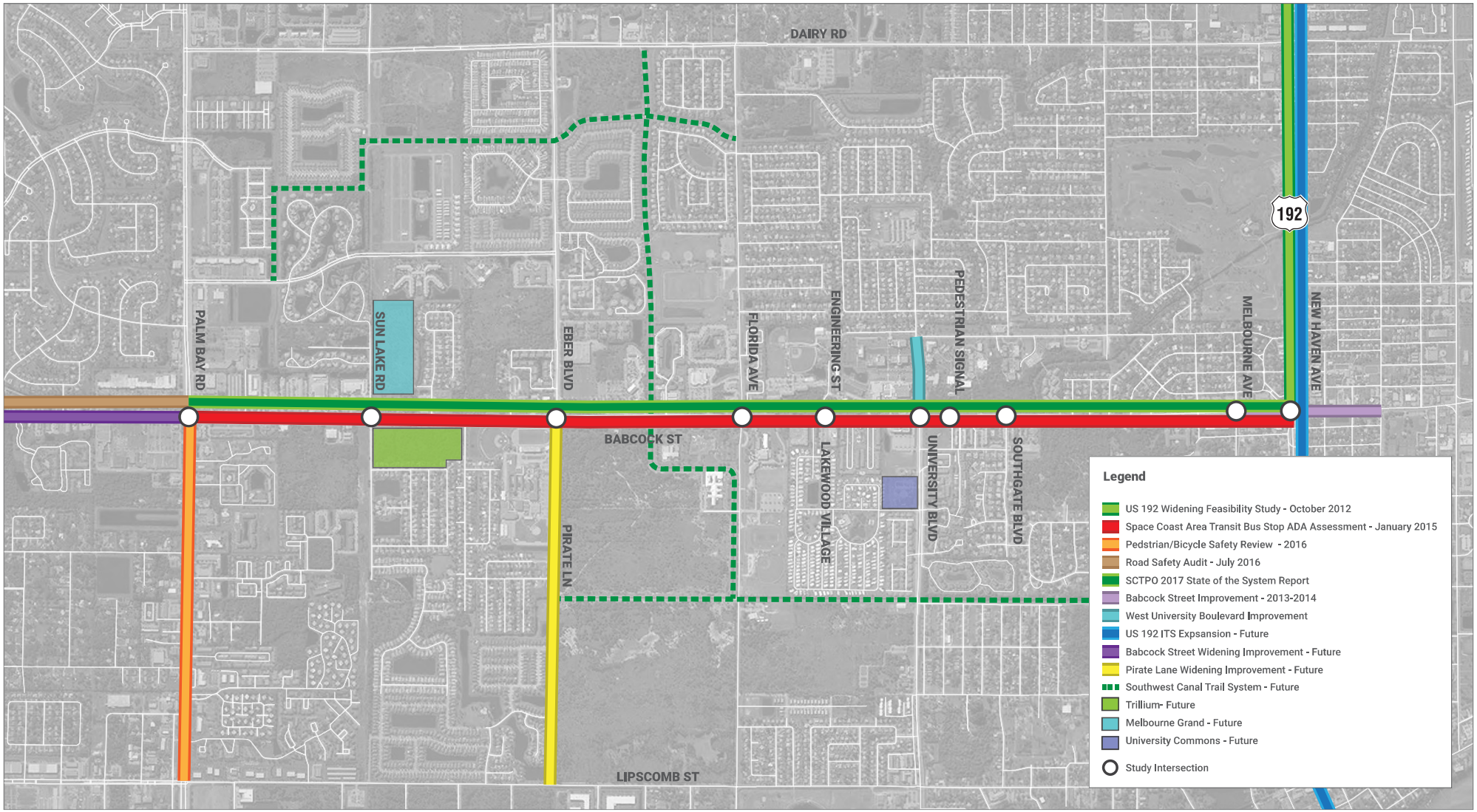
US 192 Widening Feasibility Study – October 2012

SCTPO completed a feasibility study for a four to six lane widening along US 192 from west of I-95 to Babcock Street. Below is a summary of the recommendations from the study:

- Ellis Road
    - Widen to four lanes.
    - Extend to I-95 and construct interchange with I-95.
    - Change the current strategic intermodal system (SIS) designation from US 192 to Ellis Road.
- Prioritize intersection improvements at US 192 and Hollywood Boulevard and US 192 and Wickham Road.
- Study traffic patterns after Ellis Road improvements to evaluate any additional needs.

Space Coast Area Transit Bus Stop ADA Assessment – January 2015

Space Coast Area Transit completed an inventory of bus stops and facilities. Fourteen bus stop locations along the study corridor were listed as needing improvements to meet ADA standards.



Babcock Street Corridor Planning Study

FIGURE 3 | **Relevant Studies and Projects**

Pedestrian / Bicycle Safety Review – February 2016

The SCTPO completed a pedestrian / bicycle safety review for Palm Bay Road from Babcock Street to Lipscomb Street. This review was focused on addressing pedestrian and bicycle safety issues along the Palm Bay Road corridor. The recommendations are summarized as maintenance, near term, and long-term recommendations.

Road Safety Audit – July 2016

The SCTPO completed a Road Safety Audit (RSA) for Babcock Street from Malabar Road to Palm Bay Road, focused on addressing vehicular, pedestrian, and bicycle safety issues. In addition to addressing these issues, the 6 lane widening design plans were reviewed to explore additional recommendations to be incorporated in the design update for Babcock Street. The recommendations are summarized as transit, maintenance, near term, and long-term recommendations.

SCTPO 2017 State of the System Report

Table 1 displays the intersections and roadway segments within the study corridor that rank in various performance measures from SCTPO's 2017 State of the System Report:

Table 1: State of the System Rankings

Location	Type	Rank
Babcock Street at Palm Bay Road	Intersection	1st for busiest intersections along SOS roadways 1st for intersection crash frequency 1st for intersection crash severity
Babcock Street at University Boulevard	Intersection	15th for intersection crash frequency
Babcock Street at US 192	Intersection	12th for busiest intersection along SOS roadways 20th for intersection crash frequency
Babcock Street from Palm Bay Road to US 192	Corridor	21st for level of congestion 8th for evacuation routes (% length w/o CCTV's) 16th for annual pedestrian crashes 4th for annual bicycle crashes 3rd for annual vehicular crashes 7th for annual vehicular crash severity

Recently Completed Projects

Babcock Street Improvements from Melbourne Avenue to Fee Avenue – 2013-2014

Construction for these improvements started in September of 2013 and was completed by the end of 2014. Improvements were made at the following locations:

- Intersection of Babcock Street and Melbourne Avenue
- Intersection of US 192 and Babcock Street
- Median along Babcock Street at Lincoln Avenue
- Intersection of Babcock Street at Fee Avenue

West University Boulevard Improvements

The following improvements were made to University Boulevard, west of Babcock Street, at Florida Institute of Technology's main entrance in 2018:

- Roadway resurfacing and restriping
- Added a buffered bike lane in the eastbound and westbound directions

Planned Projects

US 192 ITS Expansion from Dairy Road to US 1

Intelligent Transportation System (ITS) along US 192 will be expanded between Dairy Road and US 1. This project is priority number 18 in the TIP.

Babcock Street Widening

Babcock Street (SR 507) is planned to be widened from four to six lanes from Malabar Road to Palm Bay Road. The phases that have been funded and included in the FDOT 5-Year Work Program are preliminary engineering, right of way, railroad & utilities, and environmental.

Pirate Lane Widening

Pirate Lane is planned to be widened from two to four lanes from Babcock Street to Lipscomb Street. The widening project is included in Space Coast's 2040 LRTP Cost Feasible Plan.

Southwest Canal Trail System

A pedway for bicyclists and pedestrians would be built to connect residential neighborhoods to Southwest Park. The trail would use the Southwest Melbourne Canal system right of way to make the following connections:

- Babcock Street to Dairy Road
- Florida Avenue to Eber Boulevard
- W.H. Jackson to Pirate Lane

Approved Developments

Trillium

A proposed mixed-use development on the northeast corner of Babcock Street and Sun Lake Road intersection. The site plan was approved in 2017 and includes retail, a restaurant, and 255 apartment units.

Melbourne Grand

A proposed apartment complex west of Babcock Street along Sun Lake Road on the south side of Cinnamon Cove. The site plan was approved and includes 166 apartment units.

University Commons

A proposed student housing on University Boulevard, east of Babcock Street. A total of 80 units and 247 bedrooms would be built.

4. EXISTING CONDITIONS

The purpose of the existing conditions analysis is to gain an understanding of how the corridor performs today to inform possible future improvement efforts. Topics addressed include land use, environmental characteristics, demographic information, bicycle and pedestrian trips, transit, roadway characteristics, traffic operations, and multimodal safety.

Land Use and Environmental Conditions

The following provides an overview of existing land use, future land use and zoning, and environmental aspects in the corridor vicinity.

Existing Land Use

Figure 4 illustrates existing land use along the study corridor at the individual parcel level. The corridor is characterized by a diverse array of land uses throughout the study area. The southern end of the corridor is predominantly retail and industrial uses south of Florida Avenue – along with a notably large undeveloped parcel in the northeast corner of Babcock Street and Pirate Lane. The middle section is dominated by institutional and multi-family uses associated with Florida Technical Institute, from Florida Avenue to Southgate Boulevard. North of Southgate Boulevard, the land uses transition from single-family residential to a mix of retail, multi-family, and institutional uses on approach to US 192.

Future Land Use

The corridor's proposed future land uses based on the City of Melbourne and the City of Palm Bay data are shown in **Figure 5.** Future land use changes include office and mixed-use for several parcels north of Sun Lake Road and office land uses north of the Florida Institute of Technology. Specifically, the parcel northeast of Sun Lake Road between Eber Boulevard and Florida Avenue changes from agricultural land to mixed-use. Current commercial, multi-family residential, and institutional land uses between Southgate Boulevard and US 192 show as office land uses for the future.

Context Classification

FDOT's context classification system describes the general characteristics of the land use, development patterns, and roadway connectivity along a roadway, providing cues as to the types of uses and user groups that will likely utilize the roadway. The context classification of a roadway informs FDOT's planning, PD&E, design, construction, and maintenance approaches to ensure that state roadways are supportive of safe and comfortable travel for their anticipated users.

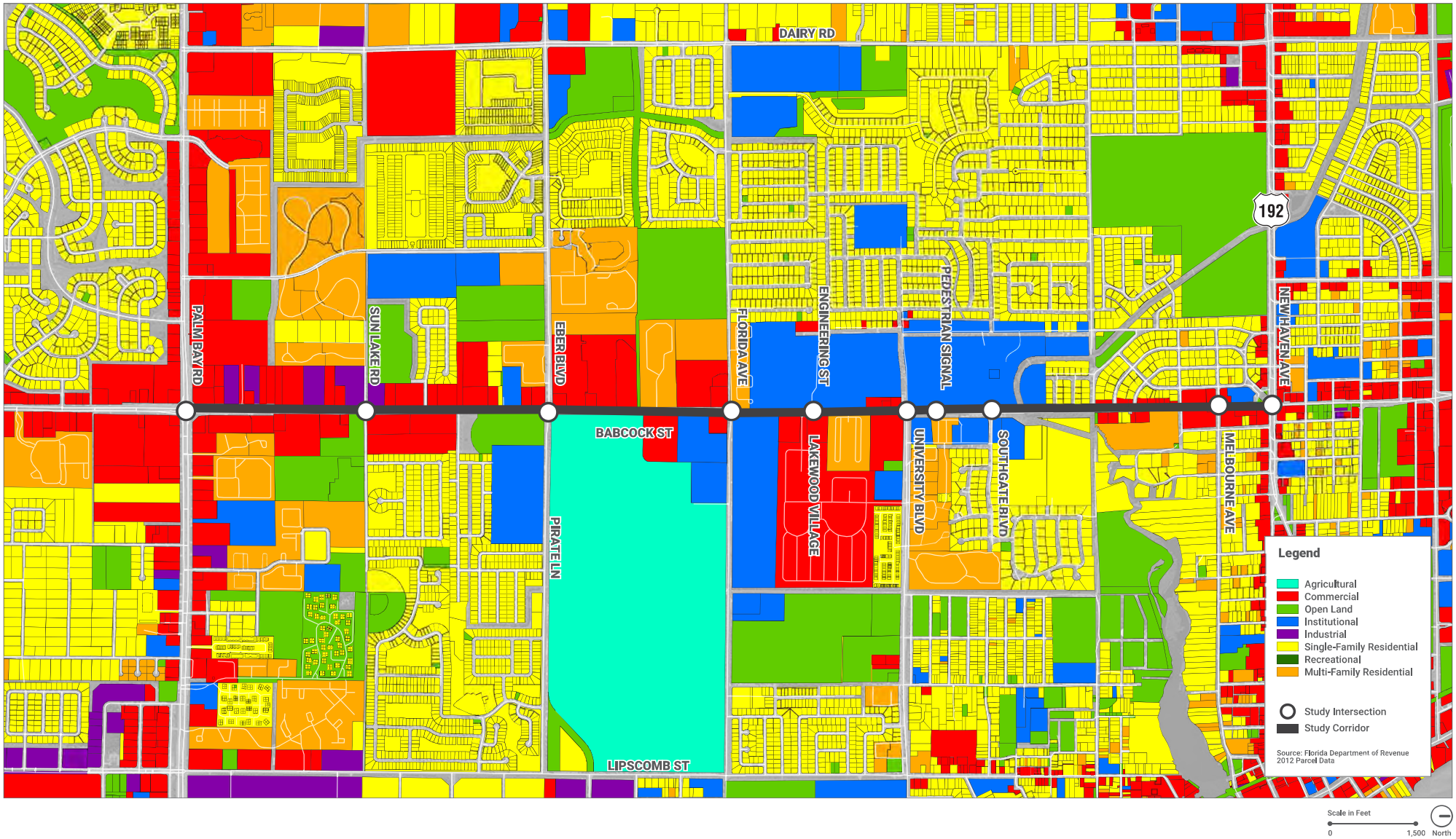


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FIGURE 4 | **Existing Land Use**

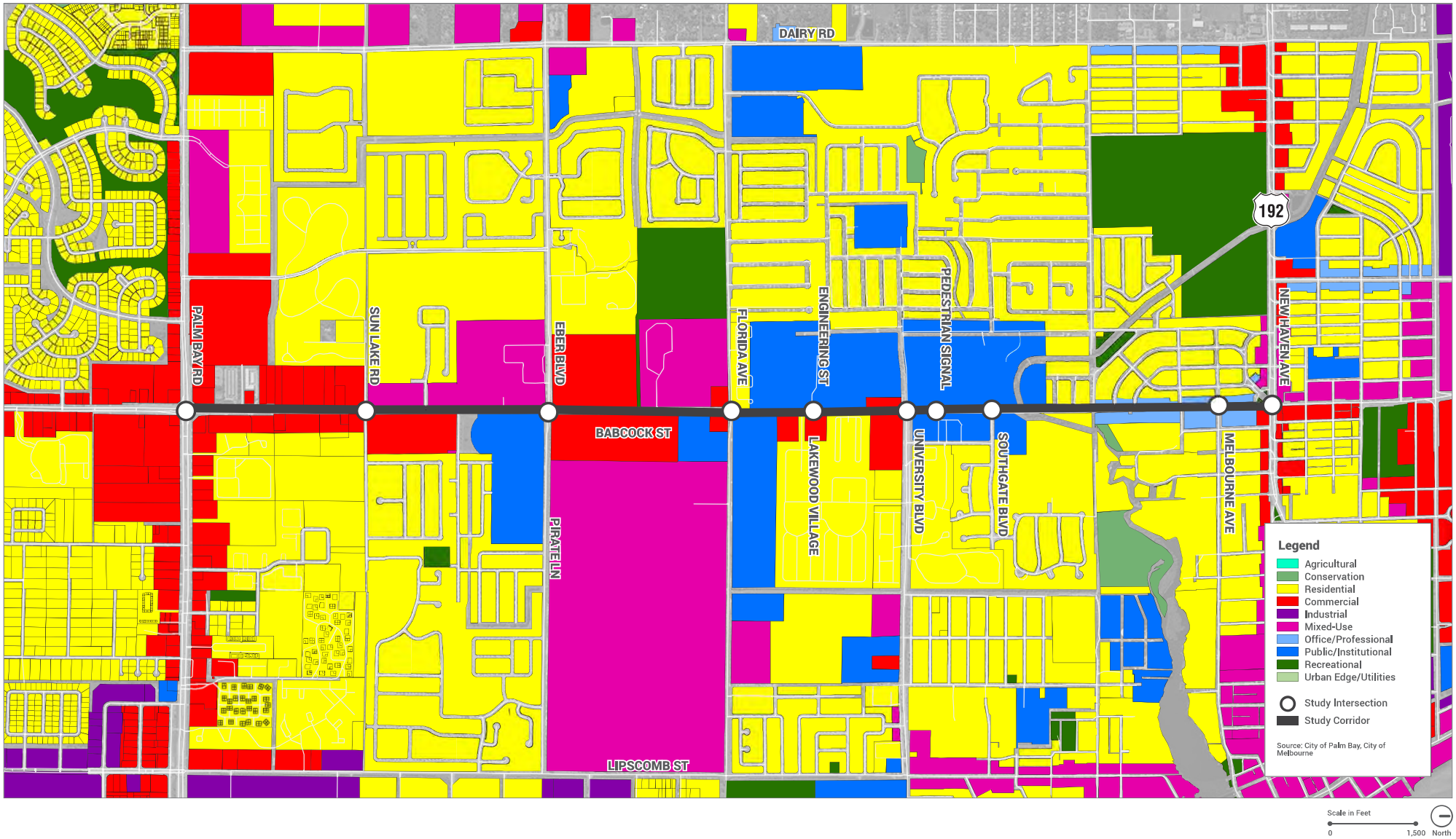

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FIGURE 5 | **Future Land Use**

The FDOT-designated context classifications for the study corridor based on existing conditions are illustrated in **Figure 6**. The corridor is predominantly suburban-commercial (C3C), with pockets of suburban-residential (C3R) and urban general (C4) north of Florida Avenue. Suburban-residential (C3R) exists from Florida Avenue to Panther Place, in front of the FIT campus, and for a short segment South of Vida Way to Edgewood Drive. Urban general (C4) exists at the main entrance to FIT, from Panther Place to University Boulevard, and for the half-mile section south of US 192. The following are descriptions of each context classification per FDOT's Context Classification Document:

- **C3R – Suburban Residential**: Mostly residential uses within large blocks and a disconnected or sparse roadway network.
- **C3C – Suburban Commercial:** Mostly non-residential uses with large building footprints and large parking lots within large blocks and a disconnected or sparse roadway network.
- **C4 – Urban General:** Mix of uses set within small blocks with a well-connected roadway network. May extend long distances. The roadway network usually connects to residential neighborhoods immediately along the corridor or behind the uses fronting the roadway.

Community Features

Figure 7 displays the community features along the study corridor, including schools, medical centers, religious centers, libraries, and museums, cultural centers, and parks. Within a mile of the corridor there are 20 educational facilities. These facilities are academies, universities and colleges, pre-K, and elementary, middle, and high schools. Florida Institute of Technology is located near University Boulevard just west of the corridor. Within a quarter-mile of the corridor there are two parks: Babcock Park and Ruffner Park. Both parks are owned by the city of Melbourne, with Babcock Park being about a half-acre large and Ruffner Park being comprised of about four acres. The Melbourne Public Library, Liberty Bell Memorial Museum, and Florida Institute of Technology's Gleason Performing Arts Center and Evans Library are within a mile of the corridor. There are 56 medical centers within a mile of the corridor, including 10 hospitals. Twenty-nine religious facilities are within a mile of the corridor.

Historic Structures

Figure 8 illustrates the locations of historic structures eligible for the National Register of Historic Places (NHRP) and locally-designated structures. Three structures are located within about a mile of Babcock Street: Florida Power and Light Company Ice Plant, 509 Palmetto Avenue, and 418 New Haven Avenue. The Ice Plant structure remains an industrial/commercial parcel, 418 East New Haven Avenue is commercial, and 509 Palmetto Avenue is a private residence.

Wetlands

Figure 9 displays the water features around the study corridor, including various types of wetlands. Two riverine bodies intersect the study corridor, one just north of Southgate Boulevard and another between Florida Avenue and Pirate Lane. On the study corridor and close to it are 42 separate wetland features, most of which are man-made lakes and stormwater retention areas. Crane Creek intersects Babcock Street north of Southgate Boulevard and is separated from the corridor by a bridge.

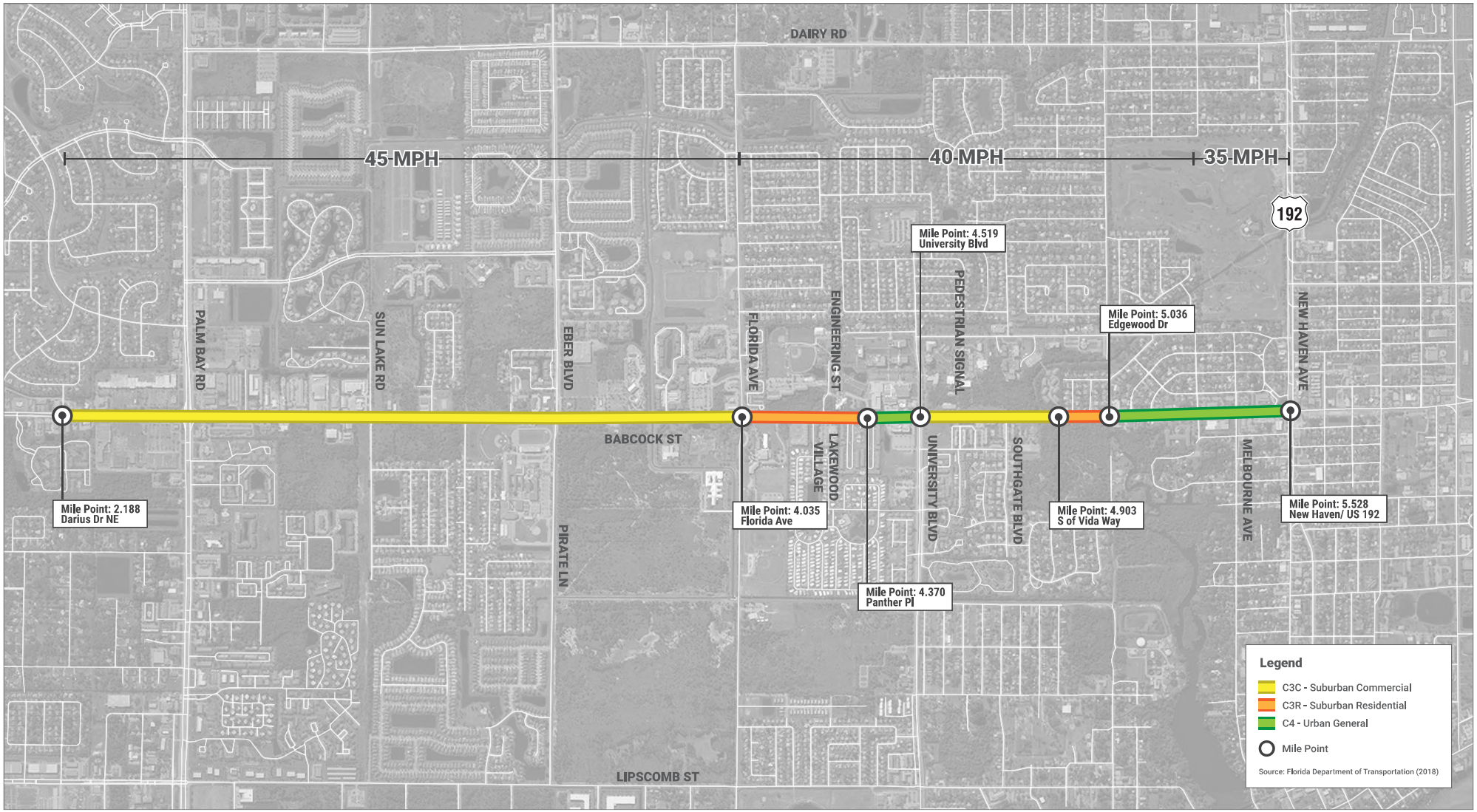

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FIGURE 6 | **Context Classification**

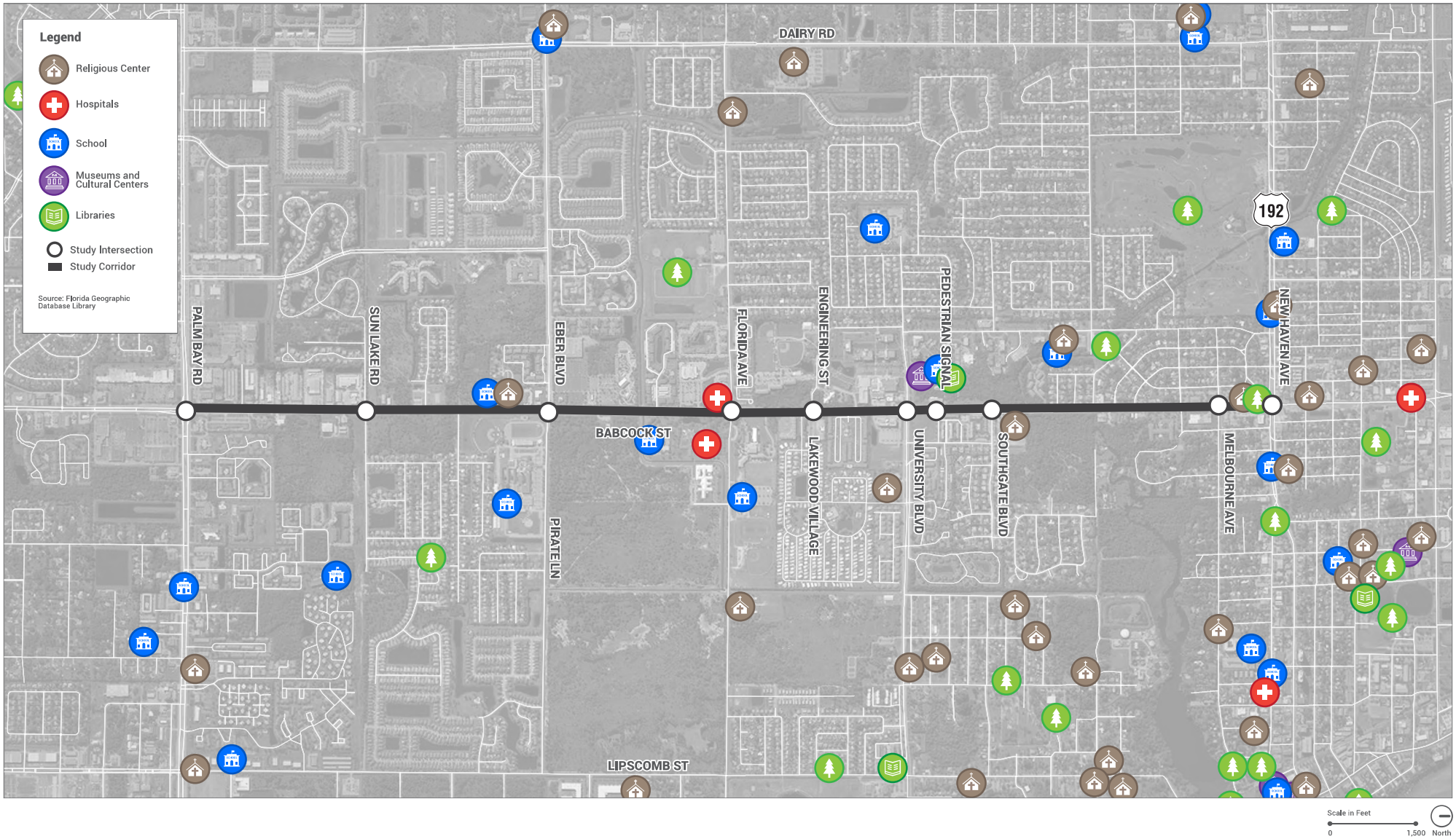

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FIGURE 7 | **Community Features**

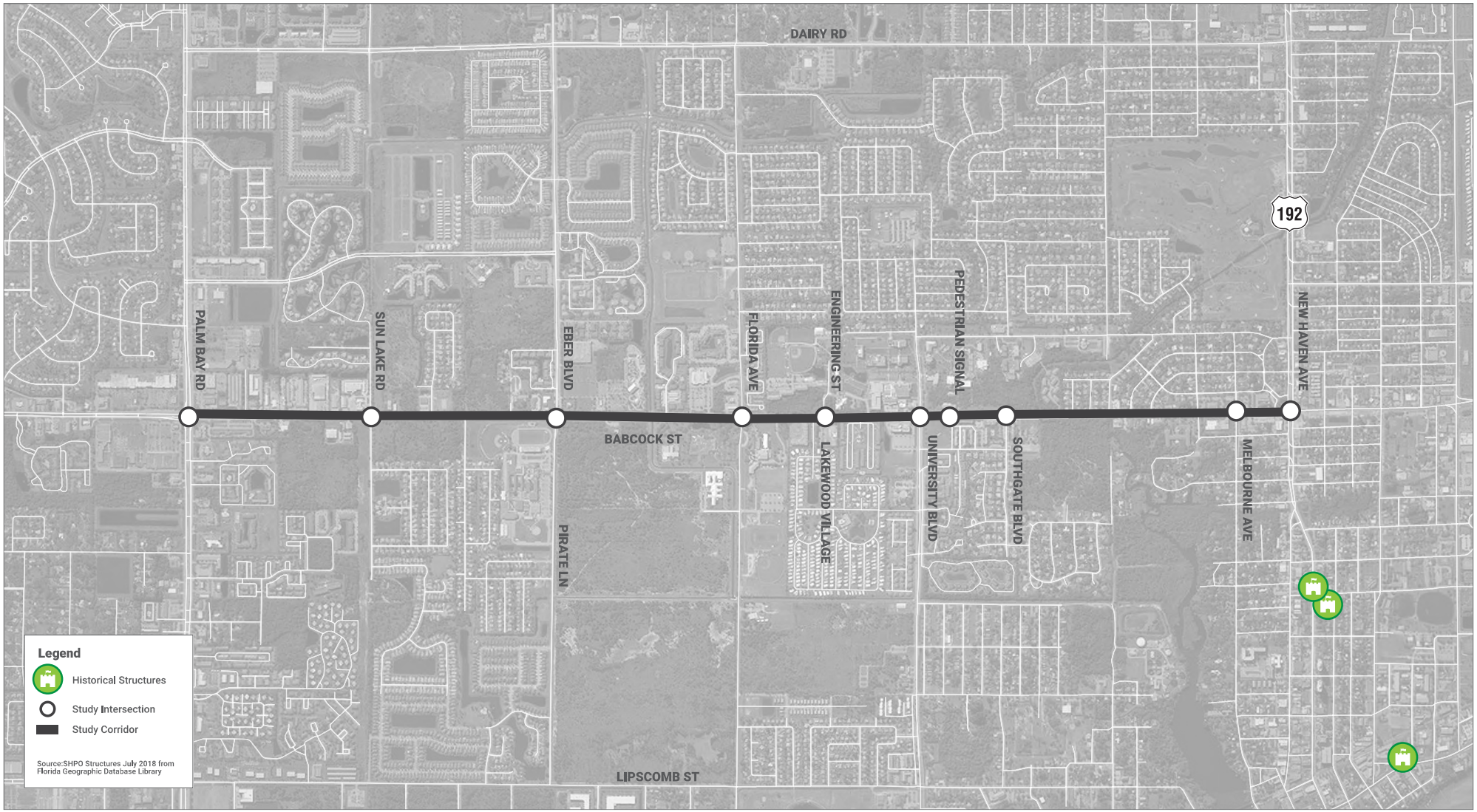

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FIGURE 8 | **Potentially Eligible Historic Structures**

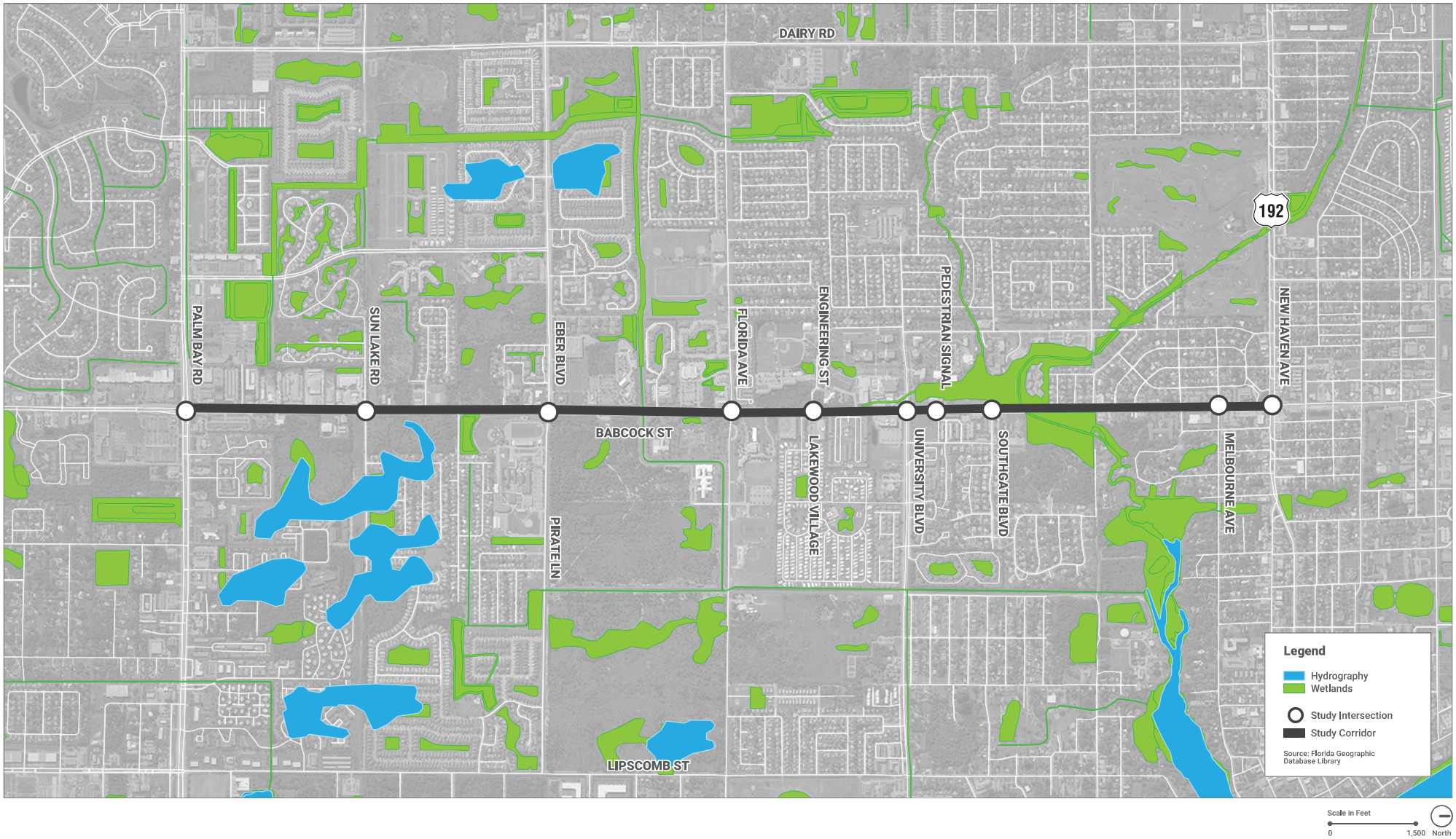

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FIGURE 9 | **Hydrography and Wetlands**

Demographic Characteristics

The following provides demographic information in the corridor vicinity.

Population Density and Age

Figure 10 illustrates population density by block group along the study corridor. With many multi-family developments along the corridor, there appears to be six or more residents per acre along much of Babcock Street. There are generally more residents per acre in the southern extent of the study corridor than to the northern area past Florida Avenue. Areas with the lowest population density are primarily commercial and industrial uses west of Babcock Street between Palm Bay Road and Sun Lake Road, agricultural land east of the corridor between Eber Boulevard and Florida Avenue, and open land west of the corridor by Melbourne Avenue. The highest concentrations of population density are in the residential areas east and west of Babcock Street between Palm Bay Road and Eber Boulevard, and at the Florida Institute of Technology.

Figure 11 and **Figure 12** illustrate the percentage of residents under 18 and over 65 years of age, respectively. The area surrounding the corridor is generally made up of less than 20 percent of residents under 18 and 20 to 40 percent of residents 65 years or older. Notably, the section from Palm Bay Road to Eber Boulevard has more than 20 percent residents under 18 and more than 40 percent residents over 65 on either side of the road. A higher percentage (more than 20 percent) of residents under 18 was also noted at the north end of the corridor along US 192.

Employment Density

Figure 13 illustrates the density of jobs along the corridor. The corridor vicinity generally has less than one job per acre, but there are some areas with one-to-three or more than three jobs per acre. The areas with the highest job concentration are on the corridor's west side at the southern and northern extents, with approximately 900 jobs and 2,000 jobs, respectively. It is notable the areas with higher employment densities correspond to those with lower population density.

Households in Poverty

Figure 14 illustrates the percentage of households in poverty. In general, census block groups along the corridor's west side have less than 15 percent of households considered to be in poverty conditions, with the exception of Eber Boulevard to Florida Avenue. Households in poverty exceeds 15 percent along the corridor's east side. The highest percentages of households in poverty exceed 30 percent between Palm Bay Road and Sun Lake Road (east side) and north of US 192.

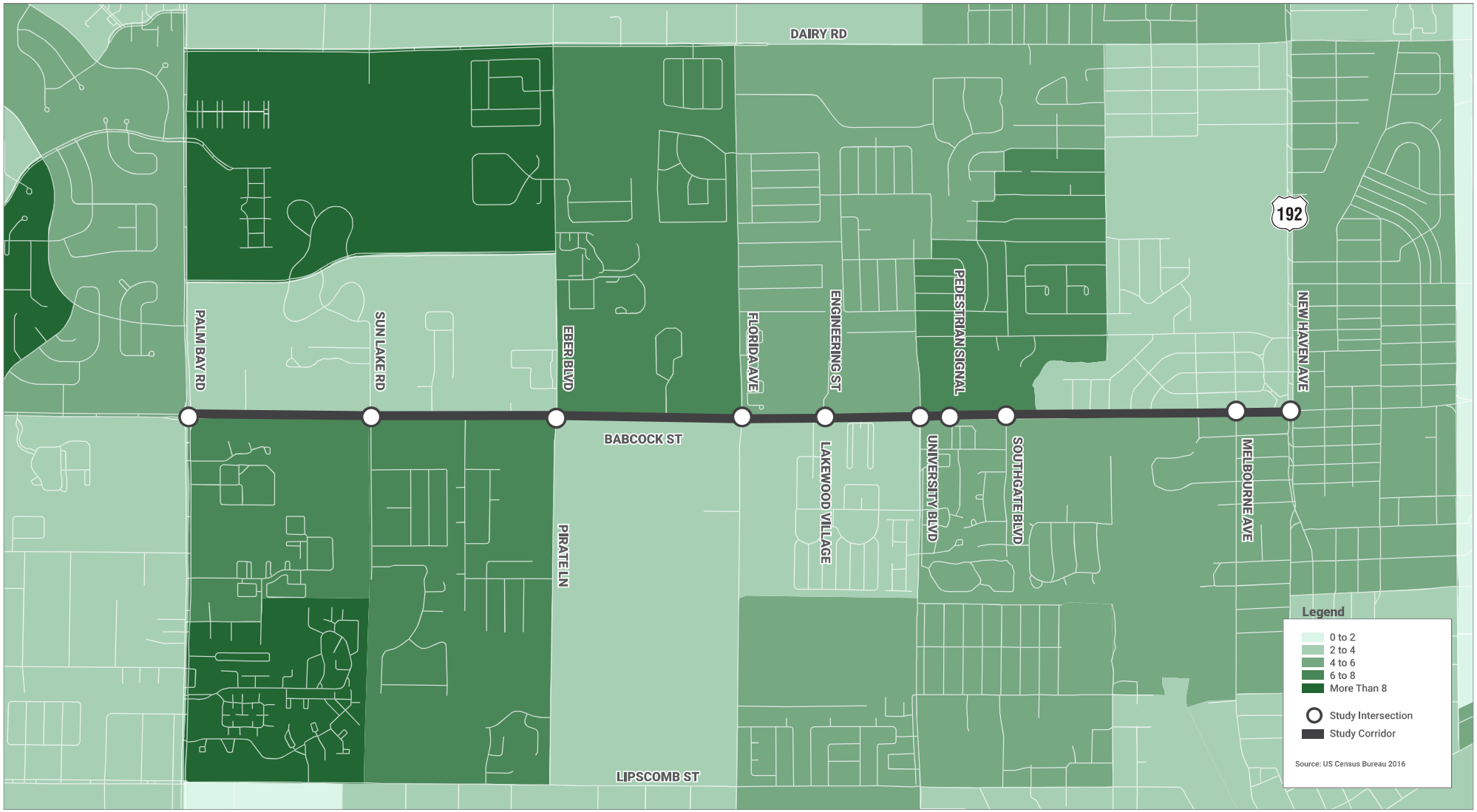

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FIGURE 10 | **Population Density**

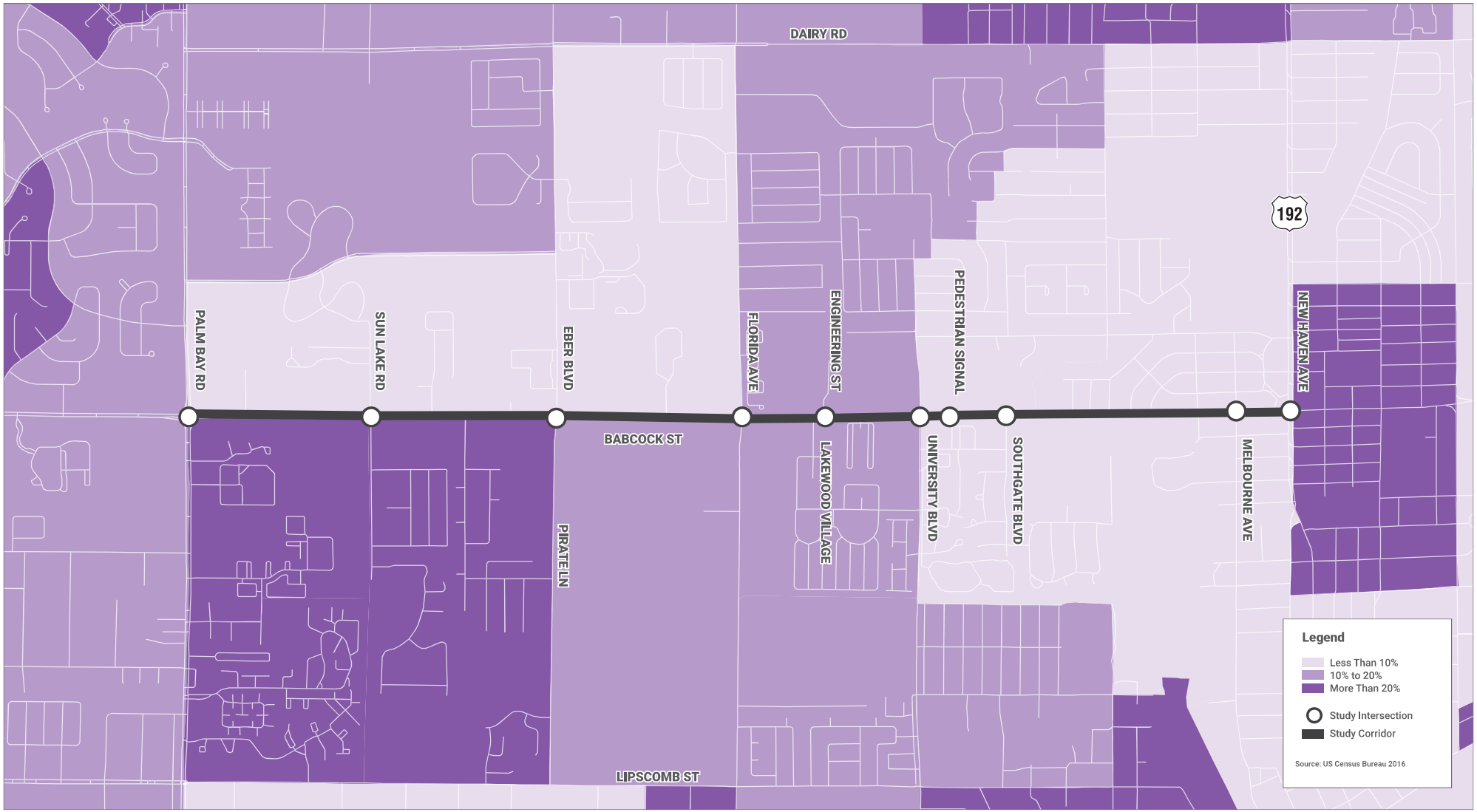

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FIGURE 11 | **Residents Under 18 Years Old**

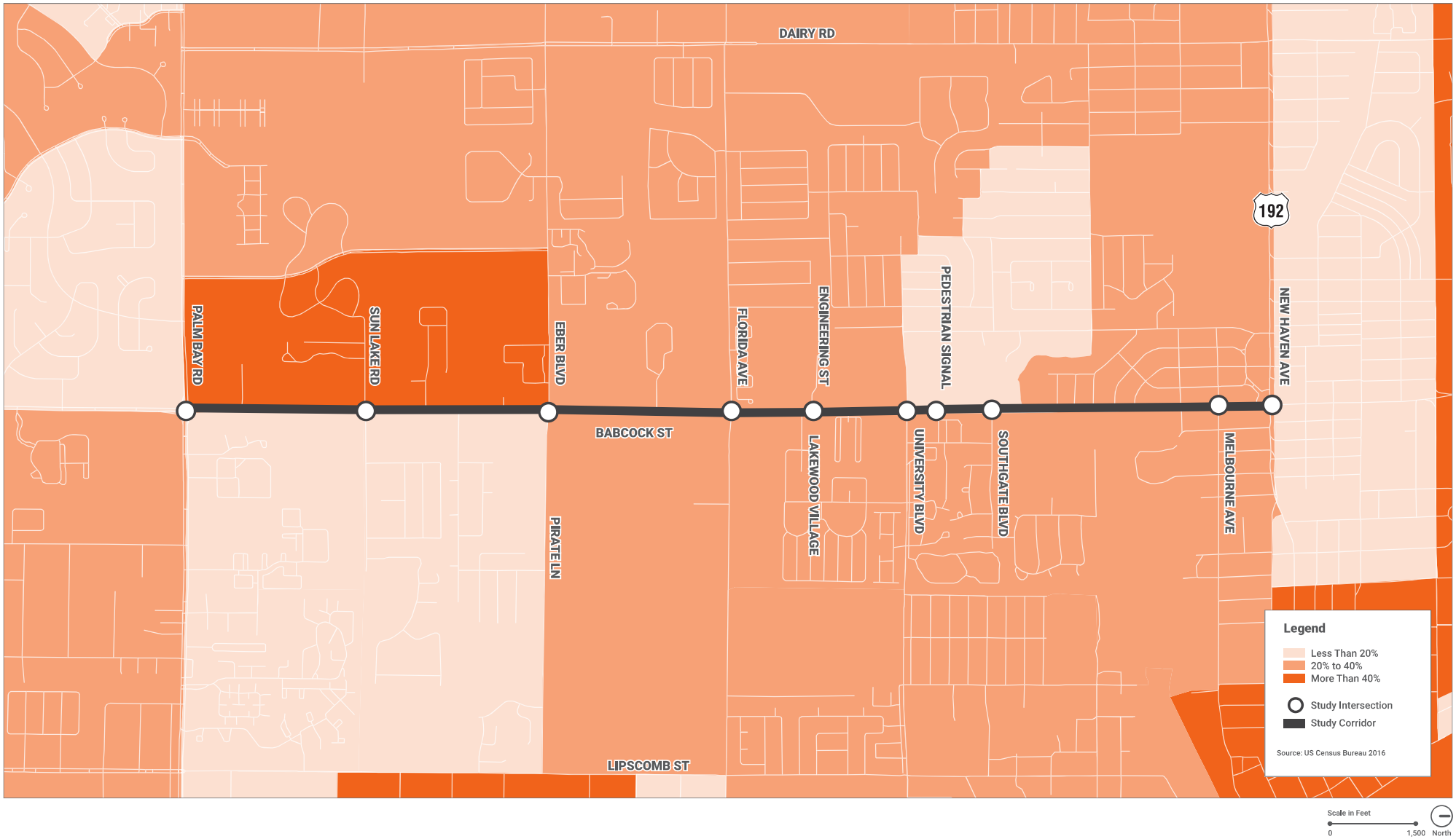

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FIGURE 12 | **Residents Over 65 Years Old**