Multimodal Transportation Planning – URP6930 University of South Florida – City of Palmetto, FL Community Sustainability Partnership Program, Fall 2016

# **Evaluation and Appraisal Review of the Comprehensive Plan Transportation Element**



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# **EXECUTIVE SUMMARY**

This report was prepared to assist the City of Palmetto in evaluation and appraisal of the transportation element of its comprehensive plan, which is scheduled for completion in November of 2017. Pursuant to Rule Chapter 73C-49, Florida Administrative Code every City must determine whether the need exists to amend the comprehensive plan to reflect changes in state requirements (Chapter 163, F.S.) since the last comprehensive plan update. The purpose of the study is to assist the City in this determination, and to help the City advance its multimodal planning objectives.

Graduate students of the USF Urban Planning Program conducted the study in Fall of 2016 as part of their coursework for URP 6930.905 Multimodal Transportation Planning under the direction of Professor Kristine Williams, AICP, of the Center for Urban Transportation Research (CUTR). The evaluation began with an inventory of regional and modal plans and guidelines to gain an understanding of the planning context and inform the evaluation and appraisal of Palmetto's transportation element in relation to other agency transportation plans and projects. Meetings and interviews were also conducted with staff or consultants of the Sarasota/Manatee Metropolitan Planning Organization (MPO), Manatee County Area Transit Agency (MCAT), Florida Department of Transportation (FDOT), Tampa Bay Area Regional Transportation Authority (TBARTA), and the City of Palmetto for further insights.

Interviews with area transportation officials and professionals indicate that current transportation issues and priorities for the City of Palmetto and Manatee County include the following: congestion on the bridges, as well as US 41 and 8<sup>th</sup> Avenue; the US 301/41 interchange; safety and crash reduction; auto dominance and lack of adequate bicycle and pedestrian facilities; parking management; lack of reliable transit service; and lack of public understanding of and support for multimodal solutions.

Students then proceeded to evaluate the plan in relation to state planning requirements and key topics of importance to a multimodal system, including land use and the "multimodal" environment, network improvement, operations and safety, and implementation. Their careful study of each key topic resulted in several policy recommendations for the city, including but not limited to, the following: strengthening multimodal and complete streets policy language, mapping the bicycle and pedestrian network, identifying priorities for safety improvements, and implementing mobility fees and parking management strategies. Overall, the report identifies strategies and policies that will benefit Palmetto as they update their comprehensive plan.



# **INTRODUCTION**

This report was prepared to assist the City of Palmetto in evaluation and appraisal of the transportation element of its comprehensive plan, which is scheduled for completion in November of 2017. Pursuant to Rule Chapter 73C-49, Florida Administrative Code every City must determine whether the need exists to amend the comprehensive plan to reflect changes in state requirements as provided in Chapter 163, F.S. since the last comprehensive plan update. The purpose of the study is to assist the City in this determination, and to help the City advance its local multimodal planning objectives.

Graduate students of the USF Urban Planning Program conducted the study in Fall of 2016 as part of their coursework for URP 6930.905 Multimodal Transportation Planning under the direction of Professor Kristine Williams, AICP, of the Center for Urban Transportation Research (CUTR). Key resources used in the assessment included the CUTR/FDOT reports *Multimodal Transportation Best Practices and Model Element* and the *Mobility Review Guide*, which served as a guide for evaluating the comprehensive plan.

The evaluation began with an inventory of regional and modal plans, guidelines, and documents, to gain an understanding of the context for transportation planning in Palmetto in relation to other agency transportation plans and projects. Meetings and interviews were also conducted with staff and consultants of the Sarasota/Manatee Metropolitan Planning Organization (MPO), Manatee County Area Transit Agency (MCAT), Florida Department of Transportation (FDOT), Tampa Bay Area Regional Transportation Authority (TBARTA), and the City of Palmetto for further insights. Students then proceeded to examine the plan in relation to state planning requirements and key topics of importance to a multimodal system, including land use and the "multimodal" environment, network improvement, operations and safety, and implementation.

# **Community Planning Act of 2011**

The 2011 Florida Community Planning Act made numerous changes to Florida's planning and growth management requirements that must be considered when the City of Palmetto updates its comprehensive plan. These changes include making transportation concurrency optional and adding numerous multimodal transportation requirements.

Chapter 163.3177(6)(b), F.S., now states that the purpose of the transportation element is to plan for a multimodal transportation system "...that places emphasis on public transportation systems, where feasible. The element shall provide for a safe, convenient multimodal transportation system, coordinated with the future land use map or map series and designed to support all elements of the comprehensive plan." (emphasis added)

Each local government is to address mobility issues "...in relationship to the size and character of the local government." Generally, the requirements of importance to Palmetto are as follows:

1. Each local government's transportation element shall address traffic circulation, including the types, locations, and extent of existing and proposed major thoroughfares and transportation routes, including bicycle and pedestrian ways... The element shall include a map or map series showing the general location of the existing and proposed transportation system features and shall be coordinated with the future land use map or map series. The element shall reflect the data, analysis, and associated principles and strategies relating to:

a. The existing transportation system levels of service and system needs and the availability of transportation facilities and services.

b. The growth trends and travel patterns and interactions between land use and transportation.



c. Existing and projected intermodal deficiencies and needs.

d. The projected transportation system levels of service and system needs based upon the future land use map and the projected integrated transportation system.

e. How the local government will correct existing facility deficiencies, meet the identified needs of the projected transportation system, and advance the purpose of this paragraph and the other elements of the comprehensive plan.

2. Local governments within a metropolitan planning area designated as an M.P.O. pursuant to s.339.175 shall also address:

a. All alternative modes of travel, such as public transportation, pedestrian, and bicycle travel.

b. Aviation, rail, seaport facilities, access to those facilities, and intermodal terminals.

c. The capability to evacuate the coastal population before an impending natural disaster.

d. Airports, projected airport and aviation development, and land use compatibility around airports, which includes areas defined in ss. 333.01 and 333.02.

e. An identification of land use densities, building intensities, and transportation management programs to promote public transportation systems in designated public transportation corridors so as to encourage population densities sufficient to support such systems.

The City has already taken certain steps to lay a foundation for multimodal transportation improvements in its plan, but current information must be updated and additional maps and policies should be incorporated relative to pedestrian, bicycle and transit networks and planned improvements. These suggested updates are noted throughout this report. In addition, should the City wish to better manage development on one or more key transportation corridors, such as US 41 or 8<sup>th</sup> Avenue, it can choose to designate the corridor in its transportation element pursuant to s. 337.273. Once designated, the City may adopt a transportation corridor management ordinance for the roadway that addresses land use, access management, supporting network, right of way, intergovernmental coordination and related issues.

# **Current Transportation Issues and Priorities**

Interviews with area transportation officials and professionals indicate that current transportation issues and priorities for the City of Palmetto and Manatee County include:

- Congestion on the bridges, as well as US 41 and 8<sup>th</sup> Avenue (Green Bridge and DeSoto Bridge). Traffic on 8th Avenue is a direct result of traffic flowing to and from Bradenton and will pose challenges to planning the city's walkability and bikability. Given the lack of additional bridge crossings on the Manatee River, crashes and other incidents can cause heavy traffic delays during rush hours. Congestion is made even worse during special events when Palmetto closes off the Green Bridge to vehicle traffic.
  - a. Improvements to the Green Bridge that connects Palmetto and Bradenton at 8<sup>th</sup> Avenue will therefore directly affect Palmetto. If it was safer for pedestrians and bicyclists to cross the Green Bridge, it could encourage more walking and biking and decrease the amount of local traffic on the bridge.



- b. The multimodal corridor emphasis plan aims to improve 10th Avenue West as an alternative route to US 41. The redevelopment potential in Palmetto and numerous historical buildings and landmarks could bring in additional revenues to support ongoing multimodal transportation initiatives in Palmetto.
- 2. **The US 301/41 interchange** greatly affects the traffic flow of Palmetto by contributing to congestion. However, it is not yet identified on the MPO priority project list for funding.
- 3. **Safety and crash reduction**, particularly along US 41 and at the interchange of 301 with US 41. High vehicle speeds and frequent access connections on 8th Avenue and US 41 pose safety issues for pedestrians and bicyclists.
  - a. Decreasing the amount of driveway cuts will be critical to improving safety and operations. The businesses along 8th Avenue have parking in the rear or side and traffic could use side streets for access to parking.
  - b. The 10th Street railroad project requires Palmetto, MPO, and FDOT cooperation, to address safety issues with people crossing at railroad lines. Alternative crossings are needed.
- 4. Auto dominance and lack of bicycle and pedestrian facilities. Bringing streets and roads up to current FDOT standards, providing bicycle lanes, sidewalks, and other multimodal facilities. Bicycle traffic currently uses sidewalks on the major roads and needs to be separated from road traffic due to speeds and other safety issues. Improvements are needed to the overall bicycle and pedestrian network in both connectivity and safety, especially in the tomato plant packing district where sidewalks are narrow, broken and contain large gaps. Palmetto needs to focus on implementing a complete streets system and walkable environment. This will also help to revitalize the businesses in downtown Palmetto.
  - a. The City received funding from FDOT and the MPO to implement six phases of a complete street project on 10<sup>th</sup> Avenue. The first phase of the project is currently under construction alongside Riverside Drive, and the remainder will be made throughout the 2019-2020 fiscal year.
  - b. The City hopes to develop a multimodal linear park trail integrated into the broader transportation network, helping to connect gaps in bicycle and pedestrian facilities. The multi-modal trail spanning across the green bridge will be completed during the next fiscal year and will link the Riverside Drive project to downtown Bradenton and their Riverwalk.
- 5. **Parking management**. Riverside Drive, located near downtown Palmetto, has reached its parking capacity. A new business that has attracted hundreds of employees moved in within the last few years and parking has become an issue as the business has grown.
  - a. The City is considering parking reforms, including the potential of installing a parking garage on nearby redeveloped property through a potential public/private partnership with the large employer. Shops and other uses could be provided on the ground floor of the garage.
- 6. Lack of reliable transit service: Providing a well-developed and reliable bus transit system to serve the City, including the high proportion of low income residents, many of whom lack access to an automobile. Buses are infrequent, often late, and if one misses the bus, their commute is doubled. The City lacks sufficient revenue to fund bus transit operations, including driver salaries.
  - a. Lack of funding remains a significant obstacle to improving the bus system. There is also a mindset that the only people who use the bus are those with no other option, which will continue to hamper efforts to improve the system.
- 7. Lack of public understanding of and support for multimodal solutions. More must be done to overcome the belief that the only transportation solution is to continue to add additional travel lanes.



a. A recent public survey for the Central Manatee Network Alternatives Analysis found that while the transit system is important for about 15% of the population in the study area, the majority still use their car to get to and from work or school. The survey also revealed that the majority would not ride a bus even if the crucial improvements were offered the transit system in the area.



# SUPPORTING PLANS AND GUIDELINES

Regional plans and studies were reviewed in detail to identify area plans, projects and guidelines of importance to the City of Palmetto as it updates its transportation plan. This review included but was not limited to FDOT's *Five Year Work Program* and *Florida Transportation Plan/Strategic Intermodal System,* Sarasota/Manatee MPO's *Long Range Transportation Plan, Transportation Improvement Program, Palmetto/Bradenton Downtown Mobility Study,* and *Water Taxi Feasibility Study,* Tampa Bay Area Regional Transportation Authority's *Master Plan,* and Manatee County's *Transit Development Plan.* Page numbers refer to the location in the documents reviewed, unless otherwise specified.

# **FDOT Central Manatee Network Alternatives Analysis**

**Background:** FDOT District One, FHWA, Manatee County, the cities of Palmetto and Bradenton, and the Sarasota/Manatee MPO are conducting the CMNAA study in order to offer a system of short and long term multimodal transportation investments in the study area. The study area is within the cities of Bradenton and Palmetto as well as unincorporated Manatee County. The study area boundaries are 26<sup>th</sup> Ave. W on the west, Ellenton-Gillette Road on the east, 17<sup>th</sup> Ave. W on the south, and 17<sup>th</sup> St. W on the north (see map in study, pg. 3). This is an ongoing study.

**Public Outreach:** The CMNAA conducted public outreach efforts, including interviews between August 2014 and April 2015 with the City of Palmetto. Additionally, a survey was conducted in Jan. 2016 to learn more about vehicular and non-vehicular travel patterns. This may be useful for our Palmetto Multimodal update (pg. 4). Notable results include 17% of survey respondents saying it takes them 45 minutes or more to get to work, with an average commute time of 26.5 minutes. Approximately 70-80% of respondents also said they could not bike or walk safely to work or school (pg. 10).

**Context:** The City of Palmetto is considered a large public employer. Downtown Palmetto contains cultural amenities and historic sites, including the Palmetto Historical Park, Sutton Park, the Palmetto Armory, and the Women's Club of Palmetto (the latter two are on the National Register of Historic Places) (pg. 5-6).

**Local Visions:** This includes the Manatee County Complete Streets Initiative and Policy, which seeks to promote active mobility and public and environment health for all users. One of the corridors for a potential pilot project is 8<sup>th</sup> Ave. W between 10<sup>th</sup> Street W and Riverside Drive in Palmetto. The Sarasota/Manatee MPO Bicycle, Pedestrian and Trails Master Plan includes pedestrian projects on Riviera Dunes Way from US 41/US 301 to Haben Blvd in Palmetto and Tamiami Trail from 17<sup>th</sup> St. E to 10 St. E in Palmetto (pg. 7).

**Programmed Improvements:** Projects funded in the current work program include a roundabout at 14<sup>th</sup> Ave. W at 17<sup>th</sup> St. W; 10<sup>th</sup> Ave. W Complete Street PD&E; US 301/41 interchange safety project; Business 41 bike lane sidewalk from Green Ridge to Riverside Drive; and the Green Bridge Multi-use trail project (pg. 8).

**Deficiencies:** The Desoto Bridge (\$82M replacement cost), the U.S. 41 Bridge over US 301 (\$4M replacement cost), and the US 41 Bridge over CSX Railroad (\$3M replacement cost) are substandard, have no pedestrian/bike connectivity, and need to be repaired or replaced (pg. 13). Transit accessibility and LOS is generally poor due to low frequencies and lack of service, particularly between Palmetto and Bradenton and in eastern Palmetto (LOS E/F) (pg. 20-21). Approximately 70% of aerial or collector roadways functioning at bicycle LOS E/F and 23% of roadways are pedestrian LOS E/F (pg. 22-25, see maps).

# **FDOT 5 Year Work Program**

This document details multimodal transportation projects within Florida that are scheduled to be implemented. Certain circumstances may cause changes to the work program projects, such as



changes of federal or state revenue estimates (full list, pg. 2). Projects related to Palmetto's Multimodal plan include the following:

- **10th Ave from Riverside Drive to 17th Street:** Urban Corridor Improvements, federal funding, programed for 2019 with \$325,000 cost. Also, PD&E/EMO study being conducted, federal funding, programmed for 2017 with \$1,000,000 cost.
- Business 41 (8th Ave) from 14th Street West to 9th Street West: Pedestrian Safety Improvements, state 100% funding, programmed for 2017 with \$537,195 cost.
- Blackstone Park at 14th Ave W, 23rd St W and Business 41: Sidewalks, federal funding, programed for 2020 with \$407,653 cost.
- **Palmetto Highway Lighting:** Routine Maintenance, state 100% funding, \$189,139 throughout 2017-2019.
- Palmetto Traffic Signals Reimbursement: Traffic Signals, state 100% funding, \$256,257 throughout 2017-2021.
- US 41 at US 301 (10<sup>th</sup> St. E) in Palmetto: Sidewalks, federal funding, programmed for 2017 with \$505,128 cost.
- **US 41 Green Bridge Multi-Use Path:** Bike Path/Trail, federal funding, programmed for 2018 with \$2,203,040 and state 100% funding with \$52,650.

# Sarasota/Manatee 2040 Long Range Transportation Plan and TIP

The 2040 LRTP identifies many areas of interest to our Multimodal update. The public stated that the following are needed: a bike share system, Bus Rapid Transit, improved connectivity of bike/pedestrian facilities, other transit options like trolleys or water ferries, expanded multimodal trail network, better enforcement of traffic laws as they relate to bicyclists and pedestrians, more complete streets and walkable communities, longer transit operating times, and focused transit service on the busiest corridors (pg. 2-15). However, while the public wants all of these things, there is less money than was available in the last LRTP. Funding constraints will likely continue and make it hard to plan beyond next year's budget (pg. 2-19).

The Sarasota/Manatee MPO is committed to minimizing and mitigating the negative impacts of transportation projects on the natural and built environment. Environmental mitigation for transportation projects in Florida is completed through a partnership between the MPO, FDOT, and the state and federal environmental resource and regulatory agencies in compliance with Section 373 Florida Statutes (F.S.) (pg. 2-20). The MPO also recognizes the importance of transportation planning on health outcomes, such as safety, air quality, physical activity, and noise (pg. 2-22).

The MAP-21 National Performance Goals include safety, infrastructure condition, congestion reduction, system reliability, freight movement and economic vitality, environmental sustainability, and reduced project delivery delays. The goals and objectives in this document are in alignment with the national goals. Policy 2.3 is particularly relevant to Palmetto: "Improve the multimodal mobility of residents, tourists and visitors through access improvements and connections to downtown business districts, beaches, employment centers, and other key destinations" (pg. 3-5). Performance measures in this section include reduction in VMT, travel time, and freight corridors.

Policy 4.2 is also relevant as Palmetto seeks to coordinate its plans with other agencies and surrounding region: "Enhance intergovernmental coordination and joint planning to ensure efficient use of resources, protect transportation investments, and preserve right-of-way for future rail, road, or multimodal improvements" (pg. 3-7). Performance measures in this section include a decrease in congested lane miles and duration of congestion. Finally, Policy 5.3 is also particularly relevant: "Support, strengthen, and create multimodal walkable centers that serve as attractive community focal points and encourage redevelopment of established corridors, centers, and neighborhoods to reduce



sprawl, expand jobs and housing choices, support transit service, and improve pedestrian safety and accessibility" (pg. 3-8). Performance measures include an increase in miles of multimodal, complete streets, or other transportation alternatives.

The document discusses the Financially Feasible Plan (map on pg. 5-1), which identifies all multimodal projects from the Project Priorities List that can be funded through the year 2040. Key principles and funding sources are listed on pg. 4-3, but important points include that transit funds will continue to maintain the current system with no expansion.

Page ES-17 in the TIP lists several projects for U.S. 41 Multi-Modal Emphasis Corridor Project Priorities for 2014, five of which have Palmetto listed as the applicant. Page ES-23 mentions the Blackstone Park sidewalk improvements as a Transportation Alternative Program (TAP) Project Priority that is funded. Page ES-24 lists the 10<sup>th</sup> Ave. through Riverside Drive project for Palmetto a US 41 Multi-Modal Emphasis Corridor Project Priority that is partially programmed.

#### Sarasota/Manatee MPO Water Taxi Feasibility Study

Achieving water taxi service in the Sarasota/Manatee region requires unique public/private partnerships.

**Challenges** include Manatee and Sarasota County's transit systems having uneven funding and the need for seamless operation without which the water taxi system would experience only small success. Water taxi service could provide both social/recreational trips and enable commuters to reach their destinations. The pilot system is recommended for Sarasota, with enhancement and extensions planned if the pilot is a success. Service of relatively short duration with trips of higher frequency would be recommended between downtown Bradenton, Palmetto, and the Civic Center (pg. 1-2).

**Costs and Funding:** Capital costs for vessels range from \$150,000 to more than \$2.5 million, with the study recommending \$250,000 per vessel for its purposes. At least two vessels would be needed per route, with a spare for breakdowns. The Sarasota pilot program would have \$500,000 capital costs, with annual operating costs just over \$500,000. Annual operating costs would be \$500,000 to \$750,000 per route, or \$2 million for a complete system with three routes and seven vessels operating seven days a week for 12 service hours per day, year round. Funding sources include federal and state grants, with fares (\$2-5) covering no more than 50 percent of operating costs. Other funding sources include advertising revenue, public promotions, private or nonprofit partnerships and development extractions (pg. 3-4).

#### Recommended Routes and Priority Service Areas: See map on pg. 5.

**Next Steps:** The S/M MPO must endorse the concept and include waterborne transportation in its 2030 LRTP with relevant funding listed. A more detailed implementation plan must be completed for the pilot area. Grant funding applications must be prepared for the FDOT and the US DOT. Additionally, performance measures must be established, including patronage (passengers per revenue hour) and operating subsidy (percentage of operating costs). Further steps will be taken to expand service with regional coordination if the pilot is a success (see pg. 6).

**Opportunities/Constraints for the Bradenton/Palmetto Area:** Two marinas, downtown tourist/business destinations, the Manatee County Civic Center and potential adjacent hotels at Haban Blvd are all opportunities. Additionally, DeSoto and Green Bridges are expected to be congested in the future. Significant redevelopment efforts in the core of Palmetto make this area a more viable terminal than other places. Service can operate from Ft. Hamer to downtown Bradenton or Palmetto, which would provide alternatives to the congestion on US 301 and SR 64. Restaurants in the marinas could benefit from lunch/evening service and generate higher demand. The constraints include limited existing transit service in the area, a market primarily for lunch/dinner/nightlife, and hospital/institutional land uses, which may not generate ridership (pg. 9).



# Sarasota-Manatee MPO Bicycle, Pedestrian and Trails Master Plan

Regional and State Plans include the Florida Greenways and Trails System Plan (2012) and the FDOT District One Multi-Use Trails Study. Local Plans include the Manatee County Pedestrian/Bicycle Safety Action Plan and the Manatee County Greenway and Trails Master Plan.

Palmetto has a Walk Score of 78, which is the best of all the areas listed in the study (pop. 13,000, 4.3 square miles, 43 years as median age) (pg. 1-1.8). The Manatee County Pedestrian/Bicycle Safety Action Plan (PSAP) listed short-term action items such as pedestrian timings, targeted location enforcement, countdown pedestrian signals, school zones, lighting, mid-block crosswalks, and sidewalk and ADA upgrades (pg. 2.6). Long-term items include bus stop upgrades, sidewalk upgrades, bike lanes, and raised medians. The plan mentions the complete streets pilot program on 8<sup>th</sup> Ave W in Palmetto (pg. 2.8).

Palmetto's 8<sup>th</sup> Ave (US 41) between Green Bridge and 17<sup>th</sup> St. is listed as one of the worst corridors for bicyclists and pedestrians (pg. 4.6). The intersection between US 301 in Palmetto and 10<sup>th</sup> St. E, 8th Ave at 10th Street, 17th St and US 41, US 41 Bus. and 10th Ave, 8th Ave and 7th Street, are all listed as the worst for bicyclists and pedestrians (pg. 4.8). Palmetto has two projects listed as priority pedestrian projects (Riviera Dunes Way and S. Tamiami Trail) ranked at 27 and 28 respectively (pg. 6.4). Palmetto also has two priority bicycle projects (10<sup>th</sup> St. W/E and 17<sup>th</sup> St. W/E) ranked at 11 and 19 respectively (pg. 6.6). The map on pg. 6.11 shows all projects.

# Manatee County Area Transit Development Plan and Transportation

#### **Disadvantaged Service Plan**

This document states that the City of Palmetto Comprehensive Plan was reviewed as one of the documents they wished to be consistent with (pg. 22). Appendix A lists a consistency review with other plans (pg. 76). Key considerations for Palmetto included: a goal to increase the number of transit trips per capita in Palmetto is established; the plan identifies the goal for Palmetto to become a multi-modal city; the goal to create a policy to reduce greenhouse gases by allowing increased density in areas served by transit is established (pg. 81). The document outlines objectives and policies from Palmetto's 2030 plan that deal with transit (pg. 108-110).

MCAT is addressing concerns through projects such as: a planning level review of service levels as part of the TDP Major Update, a bus stop assessment, and plans to continue efforts to coordinate with SCAT. Additionally, MCAT has bought nine new vehicles, hired a mobility manager, and looked into technology improvements (pg. 74).

#### Manatee County - How Will We Grow?

This report reviews past studies of growth and planning in Manatee County and finds the consistent recommendations. Additionally, it provides background and analysis on three different growth alternatives for the unincorporated county, including **Alternative 1** ("stay the course" option, continues with low densities in high growth and other areas); **Alternative 2** (Southwest County focus, focuses additional population to the southwest area); **Alternative 3** ("activity center" focus, with more dense growth within designated areas (pg. 2-3). Alternative 1 would include the proposed changes of recognizing mixed-use development, utilizing transit oriented development, and having greater building heights in certain areas (pg. 53). The goal of Alternative 2 is to place 60% of the 2035 future population growth into the Southwest County (pg. 58). Alternative 3 focuses on nodes of exchange located near large residential areas, known as activity centers. They are mixed use and the intent is to have a greater variety of uses within a short walk, bike, auto trip, or transit ride (pg. 65). Manatee County has several



areas that are generally considered existing activity centers, but some are growing, including parts of beach communities and the downtowns of Bradenton and Palmetto (pg. 78). The North Palmetto Enterprise Zone and Urban Infill & Redevelopment Area is also mentioned as a targeted activity center (pg. 79).

**Transportation for Alternatives:** Alternative 1 did not provide any clear benefits. Alternative 2 had the lowest overall vehicle miles traveled, fewest line mile additions, lowest estimated costs, and highest levels of transit ridership. However, it had the worst congestion. Alternative 3 provided the fewest hours traveled and fewest hours of delay. Congestion will continue to occur along the US 41 and US 301 corridors through year 2035 for any of the scenarios being studied (pg. 139). Regardless of the chosen alternative, common recommendations include improvements in core areas for complete streets, expansion of the transit system, and implementing a "wide node, narrow road" philosophy to avoid widening the roads.

Generally, the studies reviewed in this document say that lower densities (0-3 units per acre) and higher densities (greater than 24 units per acre) are more expensive to serve with infrastructure than medium densities (6-9 units per acre). Key components for reducing trips and VMT include greater numbers of destination within walking distance and a walkable design of the streetscape (pg. 31). The Carrying Capacity Study for May 2006 found that a significant change in the land use pattern, such as a regional employment center, would shift the transportation dynamic and reduce VMT (pg. 36).

**Concurrency:** The document gives an overview of the 1985 Growth Management Act, which mandated "concurrency management". While this was supposed to reduce urban sprawl, it had the opposite effect. Now, the Community Planning Act of 2011 no longer requires local governments to have a concurrency system (pg. 44-45).

### **TBARTA Master Plan**

This document recommends that there should be a focus on establishing priorities as a region to maximize funding opportunities (pg. 5). Priority projects as they relate to Manatee County/Palmetto include the University Parkway/I-75 Interchange, 15<sup>th</sup> St E (i.e., widening, bike lanes, sidewalks), in Bradenton, U.S. 41 Multimodal Emphasis Corridor (i.e., roundabouts, pedestrian crossings, bike racks, new sidewalks), and Regional Multi-Use Trails and Greenways.

Three midterm projects that relate to Palmetto include: BRT between Bradenton and Sarasota, BRT along SR 64 and Anna Maria/I-75, and express bus service between Palmetto and Bradenton to St. Pete and Tampa.

#### **Downtown Mobility Study**

This study lists several projects within Palmetto, including several improvements on 10<sup>th</sup> St (i.e., bicycle lands, signage, and pavement markings), a roundabout at Haben and Riviera, and improvements at 8<sup>th</sup> Ave. W (i.e., reduce from 4 lane undivided to 3 lane with center turn lane, bicycle lanes, and enhanced pedestrian facilities). It also lists several trails, including the Willow-Ellenton Trail, the 14<sup>th</sup> St. Trail, and the Downtown Palmetto Trail. Finally, it mentions the Palmetto Downtown Circulator. The description includes the following: capital cost and 5 year operating cost to increase service on MCAT Route 13. The cost is \$6,290,000. These are all short and midterm projects (pg. E5-E7).

Major projects include the **Green Bridge/Tamiami Trail**, which enhances the multimodal environment and can become an outstanding bicycle and pedestrian network (pg. E-9). Another major project is the **13**<sup>th</sup> **St. Transit Mall in Bradenton**. In the long term, there is hope for BRT linkages to Sarasota and express bus or even passenger rail service to Tampa and St. Petersburg. This could help anchor Palmetto and Bradenton as highly accessible and economically vital destinations (pg. E-10).



**Palmetto Overview:** The study states that Palmetto's roads are relatively well connected by a grid network that breaks down east of U.S. 41. Meanwhile, 8<sup>th</sup> Ave is categorized as potentially unsafe with conflicts between pedestrians and turning vehicles. Additionally, the majority of arterial and collector roadways in Palmetto do not have medians. Transit coverage is considered generally acceptable, but there is no Sunday service, with other daily service ending at 7:30 p.m.

Palmetto has a significant portion of elderly and low-income individuals. The study presents factors that help to measure **pedestrian access**. Pedestrian factors include sidewalk presence, width, buffer space, protection, crosswalks, and pedestrian signal. Roadway factors include posted speed, number of through lanes, median type, left turn lands, traffic volumes, traffic speeds, and width of lane. Two roadways in Palmetto have LOS A or B: 10<sup>th</sup> Ave and 4<sup>th</sup> St. The remaining roadways have LOS C or D, with some at LOS E or F. This includes 8th Avenue (US Business 41), Memphis Road (17th Street), US 301 and US 41 (pg. 15-16).

**Bicycle factors** include lane/shoulder, outside lane width, condition, and parking. Roadway factors include posted speed, number of through lanes, median type, left turn lanes, traffic volumes, and traffic speeds. Palmetto has several roadways with LOS B or better (full list on pg. 19). Roadways with LOS E or F include parts of the two bridges and 8th Ave, US 41 and Memphis Road in Palmetto. The remaining roadways have LOS C or D. Neither pedestrians nor bicyclists can use the Desoto Bridge because of its design (pg. 19).



# LAND USE AND MULTIMODAL ENVIRONMENT

# Introduction

Land use and related characteristics of the multimodal environment are essential aspects of the plan update. This includes the organization and location of land uses, land use mix, density and intensity of development, and other related multimodal policies. Assessments and recommendations made are aimed at assessing and contributing to a built environment conducive to walking, bicycling, and transit use.

A walkable and dense environment encourages residents to go outside and interact with their neighbors and helps to create that small town atmosphere that Palmetto envisions. A built environment that supports walking, cycling and transit typically embodies the following land use and network characteristics:

- A complementary mix and range of land uses;
- An interconnected network of streets to encourage walking and bicycling, with traffic calming where high levels of pedestrian and bicycle activity are present or planned;
- Appropriate densities and intensities of use within walking distance of transit stops;
- Daily activities within walking distance of residences, allowing independence to persons who do not drive;
- Public uses, streets, and squares that are safe, comfortable, and attractive for the pedestrian, with adjoining buildings open to the street and with parking not interfering with pedestrian, transit, automobile, and truck travel modes.

# Gaps

A review of the Palmetto transportation and land use elements shows a lack of sufficient focus on creating a built environment that supports non-auto modes. The city's existing built environment and overall transportation network is designed primarily for vehicular traffic and is generally inhospitable to pedestrians, cyclists, and other vulnerable road users. The current streetscape is characterized by few or no street trees, wide vehicle lanes, large setbacks and parking lots, less than adequate pedestrian/bicycle/transit facilities and Euclidian style separation of land uses. While Palmetto does enjoy a robust grid system, which is and will be beneficial in establishing a walkable, bikeable, and transit friendly city, the network for non-automobile modes is at times nonexistent.

Contributing to this assessment, the plan lacks a clear and specific set of strategies to achieve a mix of services and uses within the urban core, a major stated goal of the plan. Weak, imprecise, and vague language is characteristic of the plan, and remains a key shortcoming. Particular gaps or limitations in the current plan and policy language with regard to the multimodal environment are noted below:

- Does not explicitly prioritize bicycle and pedestrian mobility and facilities in the downtown core, as well as near schools or services, major employers, the tomato packing district, or other areas that attract or are planned for pedestrian activity. For example, Objective 2.6 and subsequent policies requiring the city to support the implementation of multi-modal facilities "where feasible," yet feasibility remains undefined.
- Lacks strong policies and strategies to increase density or achieve minimum densities within the urban core and on transit routes. While the highest density is permitted on the Multi-Modal



Emphasis Corridor/US41 designated by the Sarasota-Manatee MPO, no reference is made to increasing density or providing for transit compatible land uses near transit stops and station areas. Policies 2.6-2.8 reflect the "encouragement" of placing transit-compatible land uses along existing transit corridors, such as 8th Avenue, but do not specifically require this. The Plan lacks clear policies and requirements for multimodal transportation impact assessment and mitigation. The plan "encourages" developers to contribute to items such as covered bus shelters, benches, bus landing pads, bicycle parking, or street lighting, but does not "require" such contributions.

- Calls for "incentivizing" infill development and increased land use intensities within the Downtown Commercial Core Area, but fails to identify strategies or define the type of incentives for these developments. The plan generally goes no further than "encouraging" mixed-use development and uses language such as "may" instead of "shall" when addressing new developments within the Community Redevelopment Area.
- Lacks strategies for adaptive reuse of abandoned commercial or industrial buildings. States that the City will consider the use of innovative parking strategies, but no policies or strategies are identified.
- Lacks maps or map series that relate future land use to bus transit routes and other components of the transportation system.

### **Recommendations and Example Policies**

The following section outlines recommendations for the future plan update and explores examples of possible policies that can be utilized to achieve the goals and objectives of the City of Palmetto.

#### Strengthen Multimodal and Complete Streets Policy Language

The tendency of the plan to use weak and/or vague policy language, such as "encourage" and "may", implies that many policies are merely suggestions. Although the use of "may" rather than "shall" in certain policies does provide the City some flexibility as it relates to development, policies with stronger language are needed for issues such as Complete Streets, pedestrian & bicyclist safety, and developer requirements to move the City toward an effective multimodal plan.

For example, in Policies 2.11.1 through 2.11.4, the City states that it will "encourage" and "promote" the implementation of Complete Streets practices throughout the City (COP, 2015). An example of a strong Complete Streets policy with vulnerable road users in mind comes from the Town of Norwell, Massachusetts.

"It is the intent of the Town of Norwell to formalize the planning, design, operation, and maintenance of streets so that they are safe for users of all ages, all abilities, and all income levels as a matter of routine. This Policy directs decision-makers to consistently plan, design, construct, and maintain streets to accommodate all anticipated users including but not limited to pedestrians, bicyclists, motorists, emergency vehicles, and freight and commercial vehicles" (SGA, 2016, pg. 12).

Another example, Policy 1.2.5.2, states that the City will "encourage" infrastructure development including transit stop and shelter improvements (COP, 2015). Policy 1.10.3 states that the City will update their zoning requirements to "encourage" bicycle parking (COP, 2015). These infrastructure improvements can be required as a condition of development. This report recommends bicycle parking as a requirement for new developments, rather than a suggestion, as is current best practice of cities throughout the United States. An example policy is below:



"The city shall require secure (racks and lighting) bicycle parking at commercial and institutional facilities along with automobile parking" (Transportation Policy 44 City of Orting Comprehensive Plan, 2005 from Washington, State Department of, 2007, pg. 25).

Overall, it is recommended that the City do a thorough review of their Transportation Element with an eye towards the type of language the policy uses in regards to legal requirements for new developments. Generally, language which merely encourages certain types of development or considers bicycle, pedestrian, or transit improvements should move towards requiring these types of development or improvements. While it is recognized that certain requirements may impose a restrictive burden on the City or developers, policies should be examined on a case-by-case basis to evaluate the benefits and burdens of requiring rather than encouraging the type of growth and environment the City wants.

#### **Enact Parking Management Strategies**

Managing the amount of land devoted to surface parking is one way to enhance walkability and increase density in the urban core. While the existing comprehensive plan begins to consider innovative parking management strategies, they are not adequately developed. It is recommended that the City of Palmetto address parking management in future updates to the comprehensive plan to better clarify their goals and objectives. Suggested updates include policies that outline parking maximums in the Downtown Commercial Core Area, parking pricing strategies, shared use parking, and other methods of reducing the land devoted to parking and encouraging non-auto modes.

See an example policy for parking maximums below:

"Reduce the suburban character of development, preserve opportunities for infill development, and provide for efficient use of land by setting maximum parking standards. This policy is intended to aid the creation of a major commercial/retail district within the city" (Land Use Policy LU-311, District One Policies City of Renton Comprehensive Plan, 2004 from Washington, State Department of, 2007, pg. 24).

See an example policy for shared parking below:

"Many businesses have different hours of the day during which they are most busy. Whereas a movie theater is occupied during the evening hours, an office building flourishes during the day. In this type of situation, there is an opportunity for shared parking. Shared parking lots consume less land and are a more efficient use of land compared to the construction of separate parking areas for each individual business. (Land Use Policy LU 3.13 City of Spokane Comprehensive Plan, 2001 from Washington, State Department of, 2007, pg. 23).

It is recommended that the City of Palmetto work closely with area transportation agencies and employers to reduce parking needs through the use of telecommuting, carpool programs, vanpool programs, etc. See example policies for these strategies below:

"The City shall encourage TDM strategies in downtown St. Petersburg by working with the FDOT to provide funding and technical support for local transportation management initiatives."

"The City shall support and promote ridesharing and vanpooling programs" (St. Petersburg, City of, 2016, pg. T-15).

# **Prioritize Bicycle and Pedestrian Mobility**

Accommodating pedestrian and bicycle mobility is loosely addressed in Policies 2.6.2, 2.8.4, and 2.11.1-2.11.4 (COP, 2015), which state that Complete Streets practices are *encouraged* and that the City shall *consider* the use of wider outside lanes for bicycle travel where feasible. Nonetheless, policies and strategies are needed to prioritize bicycle and pedestrian facility improvements in certain areas and/or



under certain specified conditions and to define the nature of those improvements. For example, the City could enact a policy that prioritizes sidewalks and bicycle facilities, as well as bicycle and pedestrian network connectivity, within one-quarter mile of all bus stops and schools to ensure safe and convenient access for pedestrians and cyclists.

#### Adopt Developer Requirements for Pedestrian and Bicyclist Amenities

The City would benefit from adoption of a transportation impact assessment policy and procedure that addresses *all* modes of transportation. Current transportation impact assessment and site plan review procedures should be expanded to address four basic concerns – can people reach developments conveniently and safely on foot, by bicycle, by bus, and by car?

Existing policies within the Palmetto Comprehensive Plan encourage developers to contribute to the provision of bicycle parking for multifamily and commercial uses as well as providing amenities for the convenient use of active transportation and public transportation, but the language could be expanded. An example of a policy using more decisive language could be as follows:

"Developers of new multifamily, commercial, or office structures may be required to contribute towards providing amenities such as improved sidewalks, bicycle facilities and parking, public transit shelters and landing pads, and street lighting within the City of Palmetto, pursuant to a transportation impact study and the City's adopted mobility plan."

This example policy was inspired by the City of Lakeland's Comprehensive Plan, Transportation Element, in which it is stated:

"Development review and concurrency-related facility improvement costs shall be the responsibility of the developer, but could include contribution of funding toward improvements actually made by transit authorities, local governments, Florida DOT or other official entities. Eligible transit or non-motorized mitigation strategies may include but are not limited to one or more of the following, on and/or off-site improvements:

a. Funding of bus shelters and/or bike racks, including all installation costs;

*b.* Set aside of land and dedicated easement, as needed, for future bus shelter and/or bike rack facilities;

c. Off-site sidewalk improvements within the CCTSA or TOC Overlay;

*d.* Funding for enhanced transit services and/or transit capital facilities and equipment within and/or to the CCTSA, TOC Overlay or Urban Development Area;

e. Depending on the level of congestion, additional strategies may be required to alleviate project impacts including use of staggered work hours for employees to promote off-peak travel; establishment of employee car or vanpools programs; establishment of incentive programs for employees to use transit; and/or development requirements for the installation of amenities such as showers and changing rooms to encourage bicycle commuting (COL, 2015, pg. 211)."

The implementation of a multimodal transportation impact assessment procedure, as well as a mobility plan and fee, will be discussed in more detail in the Implementation section.



#### Land Use and Urban Design Strategies to Reinforce Public Transportation

Below are recommendations on incorporating land use and urban design strategies to reinforce public transportation:

1. Define transit-compatible land uses and require them to locate on existing and planned transit routes (see Table 1 from Model Regulations and Plan Amendments for Multimodal Transportation Districts) (Williams and Seggerman, 2004).

Land Use	Peak	Off-Peak
High Density Residential	•	
Commercial/Office		
Destination Retail		
Convenience Retail	•	
Entertainment		
Institutional	•	
Day Care		
School	•	
Grocery Stores		
Restaurants		

**Table 1: Transit Compatible Land Uses** 

- 2. Identify areas in which it might be appropriate to consider greater residential densities, in order to make transit and alternative transportation modes viable in the future. The comprehensive plan also neglects to address appropriate densities within walking distance (typically ¼ mile) of bus stops and station areas. Reference the Florida Department of Transportation's Framework for Transit-Oriented Development (FDOT, 2011) to determine the appropriate transit-supportive densities for certain areas of Palmetto.
- 3. Develop a closer working relationship with Manatee County Area Transit (MCAT) and Sarasota County Area Transit (SCAT) to develop a land use plan that explicitly supports the two systems' primary transit corridors.
- 4. Reduce or eliminate the required setbacks (allowing the structure to come to the lot line) for new structures on transit-supportive corridors to support a more pedestrian-friendly environment. It is critical to acknowledge that every trip on public transportation begins and ends as a pedestrian or bicyclist.
- 5. Emphasize provision of transit facilities and supporting strategies, including sheltered bus stops, clearly identified bus route markings, easy sidewalk accessibility, and consistency in bus stop design. Currently, the city of Palmetto has policies that encourage multimodal corridors through the use of transit facility improvements. However, no specific strategies are listed. Such transit facility improvements provide improved transit accessibility for all users and create a more attractive transit environment.

The City of Palmetto is in the process of updating its bus stops. While the newly designed bus stops do incorporate these facility improvements, the City should also incorporate a policy into its comprehensive plan to ensure continued accessibility of transit facilities for all transit users. An example policy is below:

"Policy 3.1A: Provide facilities that are compliant with the Americans with Disability Act (ADA) and amenities that support all users of the multi-modal transportation system, including persons with disabilities, the elderly and economically disadvantaged (such as new sidewalk connections, trails and enhanced bus stops/shelters)" (HCMPO, 2009, Ch. 1, pg. 5)



#### **Integrated Land Use and Transportation Map**

As noted previously, Chapter 163.3177, F.S. states that the transportation element, "shall include a map or map series showing the general location of the existing and proposed transportation system features and shall be coordinated with the future land use map or map series." Toward this end, the city should prepare a map or map series relating the transportation and land use elements to serve as a long-term vision for community development and multimodal transportation.

For example, the city of Palmetto could prepare a map that adopts concepts used in the Broward County I-95 Corridor Mobility Planning Project (see Figure 1). A series of maps were prepared that illustrate transportation and land use relationships with place types identified in relation to the corridors. Land use characteristics are mapped and place types identify multimodal districts and nodes, as well as freight districts and centers. The third map identifies aspirational future scenarios that match transit oriented development to key transit corridors. Other place types identified and matched to transit and/or roadway corridors include local and regional activity centers and multimodal corridors and nodes.



Figure 1: Integration of land use and multimodal transportation concepts.

Source: FDOT, Broward County I-95 Corridor Mobility Planning Project

#### **Reinforce Densities in the Urban Core and Support Mixed-use Development**

Below are recommendations relating to reinforcing densities supporting mixed-use development within Palmetto's designated urban core and CRA



1. Consider establishing a form-based code for areas of the City where a greater density and mix of uses is desired (e.g., areas not zoned for single family residential).

Form-based codes focus on building form, rather than use and density, thereby permitting a wide range of uses and densities appropriate to the existing or planned environment. This method of zoning can support livability while accommodating moderate densities and a mix of uses appropriate to a small town character throughout the City, as well as more intense uses within the Downtown Commercial Core Area. It also provides the option of implementing certain design criteria (such as façade, materials, and building design) in the Downtown Commercial Core area, of the City as desired, and could thereby replace the outdated downtown design guidelines. It would also serve as an incentive for redevelopment and urban infill within the community redevelopment area (Downtown Commercial Core/CRA).

- 2. Establish a minimum rather than maximum density for residential and non-residential development in the downtown core.
- 3. Provide for a vertical mix of uses downtown and require ground floor retail and other services on multi-story developments and parking garages.
- 4. Incorporate policies and form based zoning that supports a mix of uses at the neighborhood level. These uses can include, but are not limited to, small shops, schools, public parks, small offices, and low-rise multifamily developments, and 'missing middle' housing (e.g. townhouses, bungalow courts, duplexes, and courtyard apartments).



# NETWORK IMPROVEMENT

### Introduction

This section evaluates policies and strategies related to various components of the transportation network as reflected in the transportation element of the City of Palmetto comprehensive plan. It then sets forth recommendations for Palmetto to implement in its next update to the plan. These recommendations are aimed at accomplishing the following objectives: fewer vehicle miles traveled, decreased congestion, alternative routes for short trips, improved accessibility, and facilitation of walking, bicycling, and transit. The recommendations that follow are based on research into transportation conditions specific to Palmetto, and take into consideration the city's overall multimodal transportation goals.



Figure 2: Areas of Network Improvement

# Gaps

Although Palmetto benefits from a well-connected street grid, the network is not being used to its full potential. As a result, the City lacks a truly multimodal network. Most traffic is concentrated onto arterials, with comprehensive plan policies that discourage the expansion of local roads. Policies such as 2.2.1, which minimizes the expansion of traffic through residential areas, impedes the establishment of alternate and parallel routes. Other gaps and deficiencies that contribute to an incomplete multimodal network include the following: bridge replacement and repair costs, low transit accessibility/Level of Service (LOS), and low bicycle/pedestrian LOS on most arterial or collector roadways.

According to the FDOT Central Manatee Network Alternatives Analysis, the Desoto Bridge (\$82M replacement cost), the U.S. 41 Bridge over US 301 (\$4M replacement cost), and the US 41 Bridge over CSX Railroad (\$3M replacement cost) are substandard, have no pedestrian/bike connectivity, and need to be repaired or replaced. Transit accessibility and LOS is generally poor due to low frequencies or headways and lack of service, particularly between Palmetto and Bradenton and in eastern Palmetto (LOS E/F). Approximately 70% of arterial or collector roadways are functioning at bicycle LOS E/F and 23 percent of roadways are pedestrian LOS E/F.

According to the Sarasota-Manatee MPO Bicycle, Pedestrian and Trails Master Plan, Palmetto's 8th Ave (US 41) between Green Bridge and 17th St. is listed as one of the worst corridors for bicyclists and pedestrians. The intersection between US 301 in Palmetto and 10th St. E, 8th Ave at 10th Street, 17th St



and US 41, US 41 Bus. and 10th Ave, 8th Ave and 7th Street, are all listed as the worst for bicyclists and pedestrians.

The tendency to cater primarily to high-speed vehicle travel on arterial roads contributes to a network where the majority of right-of-way is dedicated to moving cars. 8th Avenue stands out as a corridor that would benefit from multimodal treatments, especially when considering its role as a gateway to the City, the existing demand for pedestrian crossings, and its proximity to the Green Bridge multimodal trail and the 10th Avenue Complete Streets project.

Palmetto has some scheduled improvement projects related to the bicycle and pedestrian network. Per the Sarasota-Manatee MPO Bicycle, Pedestrian and Trails Master Plan, Palmetto has two projects listed as priority pedestrian projects (Riviera Dunes Way and S. Tamiami Trail), ranked at 27 and 28 respectively. Palmetto also has two priority bicycle projects (10<sup>th</sup> St. W/E and 17<sup>th</sup> St. W/E), ranked at 11 and 19 respectively. Our research suggests a variety of other strategies to reinforce active transportation and, in turn, enhance the livability of the City as it continues to grow.

### **Recommendations**

#### **Develop Context Sensitive Roadway Typologies**

Although the current plan inventories Palmetto's major roadways by their functional classification (arterial, collector, or local road), these classifications do not take into consideration the types of users found on a corridor or the surrounding context of a corridor. For example, 8<sup>th</sup> Ave W is simply categorized as a four lane undivided arterial. Although this categorization is fitting, it does not acknowledge the changes in users and context that the corridor experiences as it moves through the City.

From its northernmost point within City limits, 8th Ave is surrounded by mostly rural land uses that become progressively more urban as the corridor moves south. At the southernmost point within City limits, 8th Ave is surrounded by urban land uses with higher levels of pedestrian, bicyclist, and transit activity. Different segments along the corridor serve different contexts and different road users, they therefore serve different functions and should be classified differently.

Complete Streets typologies go beyond the traditional system of functional classification, to categorize streets according to the types of users and the surrounding land use contexts. These typologies allow for a more comprehensive view of a street's existing and desired conditions. These typologies can be applied not only based on existing conditions, but can also be used as a means of establishing a future vision for a corridor. This helps to ensure that future corridor planning efforts will support this vision with consideration to future land use objectives and anticipated users.

As shown in Figure 3, the Broward County Complete Streets Guidelines lay out common street types that can be used as typologies. In the next plan update, the City could apply similar typologies to Palmetto's roadway network. For example, using these criteria, Tamiami Trail might be considered a boulevard (higher-speeds, more car-oriented while still accommodating other modes), 8<sup>th</sup> Ave might be considered an avenue (connects urban centers, high bicycle and pedestrian activity), 10<sup>th</sup> Ave might be considered a street (local, low speed road) with a special main street designation.



Street Type	Description	Comment
Boulevard*	Walkable, moderate speed	Serves as primary transit
(conventionally called	divided arterial in urban	routes. Should have bike lanes
arterials)	environments that traverses	and sidewalks standard. May
	and connects districts and	have shared-use paths. Often
	cities. Primarily a longer	has a planted median. May
	distance route for all vehicles	have on-street parking when
	including transit, goods	passing through urban centers
	movement, and emergency	and urban cores.
	response. Design speeds	
	should be 35 mph or less.	
Avenue*	Walkable, low speed collector	Serves as primary pedestrian
(conventionally called	or minor arterial that serves as	and bicycle routes. Should
collectors or urban minor	a short-distance connector	have local transit routes. May
arterials)	between districts or urban	or may not have a median.
	centers and provides access to	May or may not have on-
	abutting land. Links streets	street parking depending on
	with boulevards. For all	context.
	vehicles including transit.	
	Design speeds should be 30	
	mph or less; strong	
	consideration should be given	
	for 25 mph or less when on-	
Charles A.	street parking is provided.	Contraction of the
Street*	Walkable, low speed facility	Can be commercial or
(conventionally called	that primarily serves as access	residential. Bicycles are
local streets)	to abutting properties and	served by shared space.
	local traffic in neighborhoods.	Commercial streets should
	Connects to adjoining	always have sidewalks.
	neighborhoods. Serves local	Residential streets should
	function for vehicles and	nave sidewalks unless traffic
	ransic. Design speeds should	volumes are less than 1,200
	not exceed 25 mpn.	MPH or less
Alley/Lane	Walkable link between streets	Narrow space characterized by
Alley/Laffe	allows access to garages	walking speeds
*May have comports with specialized functions and features such as a Main Speeds.		

#### Figure 3: Common Street Types - Broward County Complete Streets Guidelines

Once the typologies are determined, the comprehensive plan should include a map of the roadway network, showing the typology of each roadway and their relation to one another. Figure 4 is an example from the Indian Trail, NC comprehensive plan. It illustrates various types of thoroughfares, boulevards and village centers, which are shown in pink circles.





Figure 4: Street network map- Indian Trail comprehensive plan

#### **Establish Design Standards**

Adopting multimodal design standards can help to ensure that future roadway projects include the necessary facilities to accommodate anticipated users. The current plan specifies that the City shall incorporate multimodal design standards into new and reconstructed thoroughfare streets, but does not establish the standards.

In the next comprehensive plan update, the City should adopt existing standards by reference. Potential standards are those adopted by the Florida Department of Transportation, the National Association of City Transportation Officials, the Federal Highway Administration, and/or the American Association of State Highway Officials.

Example Policy:

The following example from South Bend, IN demonstrates how a plan can adopt previously established design standards by reference. The policy also addresses the need for a balanced and flexible design approach.

#### "Sec. 5 Design Standards:

(a) The City shall follow accepted or adopted design standards and use the best and latest design standards, policies, principles, and guidelines available. Principles and strategies of good street and bikeway designs offered by the National Association of City Transportation Officials (NACTO) shall be utilized first and foremost in decision making. Guidelines and standards may include, but not be limited to, Federal Highway Administration (FHWA), American Association of State Highway [and Transportation] 16 Officials (AASHTO), Indiana Department of Transportation (INDOT), the Institute of Transportation Engineers (ITE), the Americans with Disabilities Act



(ADA), the Public Right-of-Way Accessibility Guidelines (PROWAG), and the American Society of Landscape Architects (ASLA).

(b) In recognition of various context, public input, and the needs of many users, a flexible, innovative, and balanced approach that follows other appropriate design standards may be considered, provided that a comparable level of safety for all users can be achieved."

#### **Support the Development of Parallel Routes**

As mentioned above, the current comprehensive plan does not include policies to promote the development of parallel routes to help alleviate traffic on arterial roads. The current plan seeks to minimize expansion of local roads, focusing traffic towards primary arterial routes.

By prioritizing capacity upgrades onto local roads and collectors that run parallel to arterials, the City could help take traffic off of these congested routes. This would give drivers more route choice and open up the possibility of reattributing right-of-way to multi-modal facilities on congested arterials.

**Potential Policy:** 

"The City shall prioritize capacity expansion onto routes that run parallel to major arterials, as a means of promoting route choice and mitigating congestion."

#### **Evaluate Right-of-Way Distribution on Existing Routes**

Retrofitting existing corridors with multimodal facilities can be challenging. Right-of-way restrictions can prevent the addition of features such as sidewalks or bike lanes, and road widening is often expensive and impractical in many situations. Considering these challenges, the City should explore ways to redistribute right-of-way on roads lacking appropriate multimodal facilities. Consider designating certain corridors as bicycle, pedestrian, and transit emphasis corridors. Lane width reductions and road-diets are two strategies that the City could use to re-distribute right-of-way.

#### Lane Width Reduction

Many roads are striped with wider than needed travel lanes. For many years 12-ft lanes were considered the standard and applied to roads everywhere without regard to context. Recent guidance indicates however, that 12-ft lanes may be excessively wide for many roadways. AASHTO's *Policy on Geometric Design of Highways and Streets* lists 10-12 feet as acceptable lane widths on rural and urban arterials. The guide states that although 12-foot lanes are preferred on high-speed principal arterials, for "conditions operating at lower speeds (35 MPH or less), narrower lane widths are normally quite adequate and have some advantages" (AAHTO, 2001).

Furthermore, studies conducted by the Transportation Research Board concluded that reduced lane widths do not contribute to increased crash frequencies and that narrower lane widths may even reduce crash instances (Potts, Harwood, & Richard, 2007). This was supported in a study by the Texas Transportation Institute, which concluded that greater lane widths contribute to higher speeds (Fitzpatrick, Carlson, Wooldridge, & Brewer, 2001) Higher speeds often contribute to increased crash severities, especially in regards to vulnerable road users such as pedestrians.

Finally, a study by the Florida Department of Transportation found that lane widths did not impact traffic capacity and concluded that capacity is not decreased by lane width reductions (Petritsch, 2009). Considering this research, the City should identify potential candidates for lane width reduction. Figures 5 and 6 show how right-of-way could be re-distributed on 10<sup>th</sup> Street by reducing excessive lane widths.





Figure 5: 10th Street existing conditions



Figure 6: 10th Street with potential lane-width reduction

#### **Road Diet**

A road diet, also referred to as a lane reduction or lane elimination, is a strategy in which the number of travel lanes along a roadway is reduced. An FHWA review of road diet case studies found numerous safety benefits to road diets. Reduced crossing distances and enhanced facilities typically reduce bicycle and pedestrian related crashes, and reduced speeds reduce the frequency and severity of most crash types. The study also found that concerns regarding negative capacity impacts are often overstated as turn lane additions frequently found in traditional road diets help to move traffic more effectively (FHWA, 2014).

The traditional road diet involves the conversion of a four-lane undivided roadway to a two-lane roadway with bicycle and pedestrian facilities, and a two-way left turn lane or median. This strategy



could be used in Palmetto on 8<sup>th</sup> Avenue to reduce excessive speeding and to accommodate bicyclists along the corridor. Currently, bicyclists use the sidewalks. Figures 6 and 7 demonstrate how a road-diet could change the 8<sup>th</sup> Ave Corridor.



Figure 7: 8th Avenue existing conditions



Figure 8: 8th Avenue after potential road diet

Knowing that the City of Palmetto is going after the "small town look", and safety remains the major concern on 8<sup>th</sup> Avenue, a road diet may present a wanted solution for this section of the road. Additionally, the current posted speed on 8<sup>th</sup> Avenue, 35 miles per hour, is frequently overlooked and drivers tend to go 5-15 miles over the posted speed limit on this corridor for a variety of reasons related to road design. The survival rate for pedestrian crashes at 40mph, an expected speed along this corridor,



is only 1 out of 10, presenting a major concern for a road with few pedestrian crossings (see Figure 8). Although 8th Avenue is a major route that carries about 33% of through traffic in a North-South direction across the Manatee River, pedestrian and cyclist safety should be a major concern (*CMNAA*, 2016).



Figure 9: Speed and pedestrian fatalities.

Source: (Hattaway, 2015)

Given the overly high speeds on 8<sup>th</sup> Avenue and its place as a main entry into the City, we recommend redesigning it as a multimodal avenue. The City should consider a road diet consisting of a median treatment and more pedestrian- and bicycle-friendly amenities. Taking into consideration the large mobile home community to the west, a larger residential community on the east side, and many operating businesses and restaurants on both sides along 8th Avenue, prioritizing pedestrian and bicyclist can save lives, reinforce the multimodal network, and contribute to economic activity by encouraging human activity on the street. These proposed road diet improvements could include road restriping (changing to two lane divided), addition of a median or two-way left-turn lane, crosswalks, roundabouts at intersections, and wider sidewalks. A roundabout where 8<sup>th</sup> Avenue enters the City, for example, could be designed to serve as a gateway while calming traffic and alerting drivers that they are entering a small town.

Road diets are effective measures that have proven to reduce the number and severity of crashes and fatalities. Raised medians and additional landscaping cause drivers to be more alert and contribute to the aesthetics of the area. A pleasant and safe streetscape environment will attract more pedestrians and bicyclists into the area, improve business growth and development and promote a healthier community in the future.

An example of a strikingly similar project can be found on Nebraska Ave on Tampa, FL. This section of US-41 underwent a road diet in 2007, and has since witnessed a 61% reduction in fatal and serious injury crashes including a steep reduction in bicycle and pedestrian crashes. Table 2 shows the similarities between the Nebraska Ave corridor in Tampa and the 8<sup>th</sup> Ave corridor in Palmetto, suggesting that a similar project could work on 8<sup>th</sup> Ave.



#### Table 2: 8th Ave and Nebraska Ave Corridor Comparison

	8th Ave	Nebraska Ave (pre-road diet)
Route	US 41	US 41
Functional Class	Minor Arterial	Minor Arterial
Cross-section	Four lane Undivided	Four Lane Undivided
AADT	24,000	21,500
Posted Speed	35 mph	35 mph
Land Use	Residential/Commercial Mix	Residential/Commercial Mix
Safety Issues	Bike/Ped Crashes	Bike/Ped Crashes

Source: Chin, 2007

Furthermore, a similar project has been proposed in downtown Bradenton along 8th Avenue West as shown in Figure 10.



Figure 10: Road Diet along 8<sup>th</sup> Avenue West in Bradenton

Source: 8th Avenue West Pedestrian Safety Improvements, 2016

#### **Bicycle/Pedestrian Mapping**

The City should map existing bicycle and pedestrian networks to help identify missing network links and deficiencies. The Sarasota/Manatee MPO Bicycle, Pedestrian, and Trails Master Plan and the FDOT Central Manatee Network Alternatives Analysis may be useful sources of information for this. For example, see Figure 11, which shows potential bicycle improvements from the latter report. Geographic information systems (GIS) are an extremely helpful tool for preparing and updating these maps. By laying out existing bicycle, pedestrian, and perhaps even transit networks into a simple GIS map, Palmetto can easily identify its foundation for multimodal transportation as well as its existing gaps. This will help to prioritize future multimodal transportation projects as Palmetto continues to work toward becoming a more bikeable and walkable area.





An example of a city that has implemented a similar strategy to the suggested bicycle/pedestrian mapping is St. Petersburg. CityTrails is St. Petersburg's bicycle/pedestrian master plan that aims to identify existing facilities and potential improvements. Figure 12 below shows an example of their mapping system. Palmetto could create a similar mapping system customized to the City's size, existing system, and future goals.





#### Figure 12: St. Petersburg's CityTrails Map

#### Palmetto's Transit Network: Planning for Future BRT

The transit network is an integral part of any city's network improvement plans. Bus Rapid Transit (BRT) has become a popular topic in public transit discussions as pressure has mounted for better quality transit services in the face of diminishing funding sources. BRT is an enhanced bus system designed to combine the efficiency of a light rail system with the flexibility of traditional buses (MacKechnie, 2016). The following provides an overview of BRT characteristics.

#### **BRT Characteristics**

There are several characteristics that are incorporated to varying degrees in BRT systems.

*Vehicles:* BRT vehicles are often stylized and more recognizable than traditional transit buses. Additionally, while some of these vehicles may be conventional, many of them are articulated. This means that the buses have two or three sections linked by a pivoting joint, which allows for a longer vehicle length and higher service capacity while still permitting the bus to safely maneuver (MacKechnie, 2016).

*Enhanced Stations:* While some systems have more traditional stops, many have complex shelters containing a distinct design. These shelters are permanent, weather protected, and have raised platforms to mimic rail station boarding. Many also contain real-time arrival and departure data and ticket machines. Stations are typically spaced ½ to 1 mile apart (MacKechnie, 2016) (Pessaro, 2016).

*Off-Board Fare Collection:* The ticket machines mentioned in the previous characteristic help to eliminate the delay from passengers paying on-board, making the BRT boarding process more streamlined (Institute for Transportation & Development Policy, 2016).

*Branding:* Many BRT systems contain unique branding, such as color schemes of buses and stations, distinct logos, and the reference to the line in a subway style (e.g., "Red Line") rather than with traditional route numbers (MacKechnie, 2016).

*Operation/Bus Lanes:* While some BRT systems operate in mixed traffic like traditional bus systems, the higher end systems often operate in reserved bus lanes or entirely segregated rights of way. Bus only lanes make BRT more efficient because the vehicles can travel faster without having to deal with traffic congestion in traditional mixed roadways (Institute for Transportation & Development Policy, 2016) (MacKechnie, 2016).

Service and Operating Plans: BRT systems ideally operate with a service frequency of 10 minutes, although lower end systems may operate with 15 minute or more service frequencies. As mentioned previously, station spacing is typically ½ to 1 mile apart to make the systems faster and more efficient. They also have two methods of scheduling control: schedule based (more traditional) and headway based (centered on service frequency) (Pessaro, 2016).

#### How BRT Applies to Palmetto

Manatee County Area Transit (MCAT) currently serves Palmetto with limited routes and longer service frequency. Additionally, the interviews with various Palmetto officials revealed less interest in expanded transit service and more focus on walkability and bikeability with complete streets and linear trail designs.

However, it is important that Palmetto considers BRT as it relates to larger neighboring cities. For example, three projects that relate to Palmetto include: potential BRT between Bradenton and Sarasota, BRT along SR 64 and Anna Maria/I-75, and express bus service between Palmetto and Bradenton to St. Pete and Tampa (Tampa Bay Area Regional Transportation Authority, 2015). In addition, the Downtown



Mobility Study mentions that there is hope in the long term for BRT linkages to Sarasota and express bus or even passenger rail service to Tampa and St. Petersburg. This could help anchor Palmetto and Bradenton as highly accessible and economically vital destinations (Renaissance Planning Group, 2009). If BRT were to be implemented in Palmetto in the distant future, it is likely that such service would be on the lower end of the BRT spectrum (i.e., BRT Lite) due to Palmetto's small size and low density.



Figure 13: A bus stop on 8th Ave. that could benefit from branding.



Figure 14: A bus stop on 8th Ave. that is well-marked and branded.

While these projects are still many years from fruition, should they be implemented, there is still much Palmetto can learn from the concept of BRT in the short term. This is particularly true in terms of enhanced bus stops and branding for current bus routes, which we found lacking in our walkability and bus stop assessments (see Figure 13). To accomplish this, Palmetto must make efficient transit service more of a priority and work more closely with MCAT. (See also Land Use and Multimodal Environment: Land Use and Urban Design Strategies to Reinforce Public Transportation.)



# **OPERATIONS AND SAFETY**

#### Introduction

The safe movement of people and goods, as well as the relief of congestion, are essential to the performance of the transportation system. This section focuses on evaluating current strategies and provide new strategies aimed at improving travel time, providing viable options to improve mobility on congested corridors, and reducing the potential for crashes.

### Gaps

Safety remains a key issue in the Palmetto and Bradenton area. The 2009-2014 bicycle, pedestrian and vehicular crash data, prepared by the Central Manatee Networks Alternative Analysis (CMNAA), reveals the City of Palmetto and Bradenton ranks far above the national average and state average for pedestrian and bicycle crashes (CMNAA, 2016). Gaps in the sidewalk network, wide intersections, distance between crossings, high traffic speeds, turning movements, and ADA maintenance and compliance issues all add to an unsafe environment within the city (Hattaway, 2015). The current comprehensive plan includes policies that address intersection and pedestrian and bicycle safety, however, the policies are too generalized, incomplete, or fail to provide direct guidance. For example, Policy 2.2.6, which gives priority to improving high crash intersections (Palmetto Comp. Plan, 2015, p. 34), fails to identify those intersections or to assign priority to them.

Additional examples include policies on driveways and access management. Language in policies such as Policy 2.2.2 and 2.2.3, which state that access to and from arterial streets shall be minimized consistent with FDOT specifications, city regulations, and through proper location and spacing of curb cuts are a step in the right direction. However, the City should also apply access management strategies to locally maintained roadways and adopt regulations to address the many existing access points to businesses that fail to comply with FDOT standards or access management best practices. Access to these properties could then be improved when the properties redevelop or a change in use occurs. Relating to access management, the plan also lacks policies that encourage, support, or require joint access or parking lot cross access for businesses, which are considered best practices.

# **Recommendations and Example Policies**

#### **Access Management**

Palmetto can implement regulatory techniques to support access management for improved safety and operations on arterials and collectors throughout the City. Regulating driveway spacing and corner clearance would reduce the likelihood of crashes occurring at the intersections of 10<sup>th</sup> and 17<sup>th</sup> streets as indicated in the crash data map.

Restricting the number of driveways per existing lot or ownership on major roads would prevent one business from having multiple entrances. In addition, driveways too close to intersections increase the potential for vehicular and pedestrian and bicycle conflicts and crashes at busy intersections. Figure 15 for example is a gas station with excessive and overly wide driveways. Figure 16 shows a popular restaurant with overly wide driveways very close to a busy arterial intersection. In both situations, pedestrians must look in multiple directions to avoid a crash or conflict with a vehicle.





Figure 15: Gas station on 8<sup>th</sup> Avenue with numerous wide driveways

Source: Google Earth, 2016



Figure 16: Restaurant at 8th Avenue and 17th Street intersection with wide access.

Source: Google Earth, 2016

Best access management practices for these issues include moving corner access as far from the intersection as possible and regulating driveway design to prevent overly wide driveways and provide adequate driveway throats. Many communities have adopted policies that support access management. The following are a few examples for consideration by the City in the update of its transportation plan:

#### Dunedin

Policy K-2: New strip commercial development (i.e., free standing, non-shared parking and separate access) shall be discouraged and the development of shopping centers with several attached businesses, common parking and access will be promoted.



#### Orlando

Policy 1.5.2 The City shall preserve the movement function of the major thoroughfare system by requiring development of parallel roads or cross access easements to connect developments as they are permitted along major roadways.

#### **Altamonte Springs**

Policy 2-1.8.2: Cross Access. The City shall require cross-access agreements when connecting adjacent properties to allow the traveling public to more conveniently enter and exit commercial, office and multi-family properties. It is the intent of the City to allow residents, people conducting business within the City, emergency vehicles, and special services such as transit vehicles to be able to use the cross-access areas. The City shall require pedestrian pathways between adjacent properties, similar to cross-access easements for automobiles.

#### **Priority Intersections for Safety Improvements**

Policy 2.2.6 of the City's current Comprehensive Plan gives priority to intersections with high crash rates (*Palmetto Comp. Plan*, 2015, p. 34). However, the plan does little to identify these intersections or to assign priority to them. We recommend that the City coordinate with the Florida Department of Transportation (FDOT) and use the Central Manatee Networks Alternative Analysis to obtain all relevant crash data; we also recommend updating the plan map or table identifying high crash intersections along with a policy that prioritizes improvements to these intersections (see Figure 17 as an example).



Figure 17: 2009-2014 Crash Data.

Source: (CMNAA, 2016)

#### Roundabouts

Roundabouts are safer than conventional signalized intersections due to the reduced number of conflict points. A signalized intersection has 32 conflict points (16 crossing, 8 diverging, and 8 converging), whereas a roundabout has 8 (0 crossing, 4 diverging and 4 converging) (Federal Highway Administration). By replacing a two-way stop intersection with a roundabout, an intersection can achieve an 82% reduction in severe/fatal injuries and a 44% reduction in all crashes (Federal Highway



Administration). By replacing a signalized intersection with a roundabout, an intersection can achieve a 78% reduction in fatal injuries and a 48% reduction in all crashes (Federal Highway Administration).



Figure 18: Conflict Points (Federal Highway Administration).

Modern roundabouts provide a significant reduction of angle crashes at an intersection, including the elimination of left-turn crashes. Safety of pedestrians is achieved due to the shorter distances at crossings. Pedestrians only look one way at a time while splitter islands provide extra refuge and safety. Lower traffic speeds allow better reaction for drivers and pedestrians, with drivers looking in the direction of pedestrians and not at a signal or toward oncoming traffic.

**Recommendation:** Consider a policy calling for evaluation of roundabouts as a safer and more cost effective alternative to signal replacement (average signal life = 15 years). For example current FDOT policy on roundabouts states that "Roundabouts shall be evaluated on new construction, reconstruction and safety improvement projects, as well as anytime there are proposed changes in intersection control that will be more restrictive than the existing conditions."

Figure 19 shows a potential roundabout treatment for 8<sup>th</sup> Avenue that could enhance both safety and operations, while achieving a gateway to the City. It could be completed by a road diet/lane reduction, as discussed in the Network Improvement section, as well as a potential midblock pedestrian crossing, due to the distance between the signalized intersection.





Figure 19: 8<sup>th</sup> Avenue safety improvement concept.

#### Pedestrian and Bicyclist Safety

In order to create a more walkable and livable community, the city should consider implementing a Sidewalk Improvements Plan to prioritize sidewalk projects and improve connectivity on local streets. Figure 20: Sidewalk Gaps shows a sidewalk deficiency map in the area. Although most of the arterial roads do have functional sidewalks, about 53% of the local streets lack sidewalks (*CMNAA*, 2016). The City has the opportunity to create a map or table identifying local streets that lack sidewalks and assign priority for improvement investments as a long-range safety goal.





Figure 20: Sidewalk Gaps

Source: (CMNAA, 2016)

The current comprehensive plan includes policies that address the safety of pedestrians and bicyclists. For example:

Policy 2.11.1: Improve public health and safety, active mobility and environmental quality by creating and maintaining an integrated network of multi-modal roadways for users of all ages and abilities through the Complete Street design, for roadways depicted in the Future Traffic Circulation map (Palmetto Comp. Plan, 2015, p. 37).

*Policy 2.11.4: Promote complete streets that contribute slowing down of traffic, reduce pollution and emissions, improve environmental quality and provides for local economic opportunities, where applicable (Palmetto Comp. Plan, 2015, p. 37).* 

*Policy 2.11.2: Provide streets for walking, bicycling and public -private transportation to enable convenient and active travel as a part of daily activities for all users, where applicable (Palmetto Comp. Plan, 2015, p. 37).* 

However, the policies would benefit from additional guidance. For example, while these policies reference "multimodal roads for all users" and "applicable" roadways in the Future Traffic Circulation map, the current Future Traffic Circulation map only depicts future auto-centric roads and the railroad. The future traffic circulation map should be updated with context sensitive roadway designations and policies should also designate major bike routes, pedestrian routes, and transit corridors.

#### 8<sup>th</sup> Ave Pedestrian Crossing

Given the significant amount of crashes occurring involving pedestrians and bicyclists, 8<sup>th</sup> Avenue corridor has caused many concerns for the City of Palmetto. Significant distance between crosswalk locations on 8<sup>th</sup> Avenue results in many residents preferring to risk crossing 8th Avenue at a non-signalized location, rather than at the signal on 17th or 10th Street.

8th Avenue is a four lane undivided road, currently classified as a Principal Arterial by the Florida Department of Transportation Road Classification Inventory (FDOT RCI, 2015). The distance between signalized intersections with pedestrian crossings is approximately ½ mile. FDOT could install a pedestrian activated signal halfway between the two signals as shown in Figure 12. If a roundabout were



installed at the intersection fo 17<sup>th</sup> Street and 8<sup>th</sup> Ave, traffic would slow to posted speeds when entering the City, further enhancing pedestrian safety.



Figure 21: Pedestrian Hybrid Beacons (PHB or HAWK)

These types of pedestrian crossings have proven to be effective on the busy arterial roads with infrequent pedestrian crossings. They are a good fit for multi-lane roads that lack medians (up to 6 lanes undivided) and have significant distances between signalized intersections. The placement and spacing of these devices should not be selected based solely on the volume of pedestrian but upon what is required to provide a safe crossing for pedestrians (*Pedestrian Hybrid Beacon Guide*, 2014). The Federal Highway Administration (FHA) study reported a 69% reduction in pedestrian crashes at PHB crossings and a 19% reduction for all other crashes (*Pedestrian Hybrid Beacon Guide*, 2014). The button activated pedestrian signal alternative is likely the most economically feasible and efficient way to add safety improvements. However, other improvements may need to achieve Vision Zero and other safety related goals.



# **IMPLEMENTATION**

### Introduction

Implementation strategies are noted throughout this report. This section highlights additional implementation strategies, including coordination with other agencies, incentives, and performance monitoring, as well as funding of multimodal transportation improvements.

# Gaps

#### **Vision and Policies**

Strong policies that implement a clear vision are essential to achieving the City's multimodal planning objectives. Current policies in the City of Palmetto's 2030 Comprehensive Plan primarily make suggestions and recommendations. While this a good start, stronger policies are needed to more effectively advance City goals related to the multimodal environment, future land use, complete streets, and safety. Prioritizing areas for improvement with stronger language and requirements will help the City direct growth that achieves local goals. Toward this end, the City should clarify its vision through adoption of a vision statement and integrated land use and transportation map.

#### Concurrency

Of particular importance to the multi-modal environment is the failure of the comprehensive plan to clarify and specify the status of concurrency within the City. Currently, the City of Palmetto is a concurrency exception zone under Florida Statue F.S. 163.3180(5)(f), yet the plan continues to address concurrency through automobile Level of Service (LOS) standards for transportation and other infrastructure improvements. Concurrency is no longer mandatory in Florida and other options, such as mobility fees and/or multimodal transportation impact assessment/site plan review, are now available to the City as it attempts to address the transportation impacts of development.

#### **Performance Measures**

The City of Palmetto's 2030 Comprehensive Plan currently includes a LOS performance measurement system for automobiles on roadways, establishing a minimum peak hour LOS of "D." The Plan furthermore utilizes the LOS standard adopted by Manatee County for all county and state roadways not on the State Highway System. Lacking is a performance measurement system that is inclusive of all modes, which helps in assessing the overall impact of development on the transportation network.

#### **Impact Fees and Incentives**

The City of Palmetto's 2030 Comprehensive Plan does not include specific incentives for achieving planning objectives – an essential component of plan implementation. Furthermore, the Plan lacks the identification of relevant transportation fees imposed by the City, such as development fees or impact fees.

#### **Capital Improvements**

The City of Palmetto's 2030 Comprehensive Plan currently includes the City's Capital Improvement Program for 2013-2017, including but not limited to relevant transportation projects. While this is not the most recent CIP, it is included. The major weakness of the CIP is that it does not break down funding and expenditures by project type and mode.

#### Parking

Current language in Palmetto's 2030 Comprehensive Plan allows for the use of unique or innovative parking management strategies, but makes no specific policy suggestions or requirements. In addition,



City regulations currently establish minimum parking requirements of two paved parking spots per residential unit, which unnecessarily contributes to an excess of surface parking.

### **Recommendations and Example Policies**

#### **Policy and Vision**

Strong policy language and a clear vision for the future are essential to achieving the City's objectives. Current language of the City of Palmetto's 2030 Comprehensive Plan primarily makes suggestions and recommendations that aim to steer the City towards their objectives. While this a good start, a clear vision statement and strong policies are needed to advance the City toward achieving the multimodal environment, future land use, complete streets, and safety recommendations in this report. Prioritizing areas for improvement with stronger language and requirements will help the City direct growth that achieves their goals and reduce uncertainty for the development community. Time is money for developers and vague policies that are open to multiple interpretations can unnecessarily delay the development review process and cause unforeseen costs to developers.

#### Concurrency

The 2011 Florida Community Planning Act made numerous changes to Florida's planning and growth management requirements, which include making transportation concurrency optional. Local governments must still adopt roadway level of service standards for planning purposes, but need not use them for concurrency management.

Currently, the City of Palmetto is a concurrency exception area under Florida Statute 163.3180(5)(i) F.S. Under this system, developers are not required to maintain transportation systems to an adopted level of service (LOS), but must still mitigate their impacts. Florida law encourages local governments who repeal transportation concurrency to adopt adopt an alternative mobility funding system (e.g., mobility fee) that uses one or more of the tools and techniques identified in F.S. 163.3180(5)(f). These include:

1. Adoption of long-term strategies to facilitate development patterns that support multimodal solutions, including urban design, appropriate land use mixes, including intensity and density.

2. Adoption of an areawide level of service not dependent on any single road segment function.

3. Exempting or discounting impacts of locally desired development (e.g., dense mixed use development downtown, etc.) on the transportation system.

4. Assigning secondary priority to vehicle mobility and primary priority to ensuring a safe, comfortable, and attractive pedestrian environment, with convenient interconnection to transit.

5. Establishing multimodal level of service standards that rely primarily on nonvehicular modes of transportation where existing or planned community design will provide an adequate level of mobility.

6. Reducing impact fees to promote development within urban areas and multimodal transportation districts, and a balance of mixed-use development in certain areas or districts, or for affordable or workforce housing.

Moving forward, it is recommended that the City of Palmetto repeal concurrency requirements within the City and specify mitigation strategies like those above that support multimodal transportation and development.



#### Performance Measures and Quality/Level of Service

In updating the comprehensive plan, the City is well advised to implement a multimodal LOS performance measurement system for planning purposes, similar to the system for roadway LOS. Given that the City adopts MCAT's LOS standards for the existing transit network, a pedestrian LOS and bicyclist LOS are recommended to encompass all modes of transportation. A pedestrian and bicycle LOS chiefly examines the availability and type of facilities for these two different modes. A variety of guiding documents and reports are available from FDOT, CUTR, and other sources on creating a methodology for measuring system performance in these areas. Figure 22 and Table 3 illustrate factors important to determining multimodal quality of service.



Figure 22: Multimodal quality of service illustration Source: Multimodal Q/LOS Webinar

#### Table 3: Statistically Significant LOS Criteria for Non-Automobile Modes in HCM 2010

Pedestrian LOS	Bicycle LOS	Transit LOS
<ul> <li>Presence and width of sidewalks</li> <li>Lateral separation of pedestrians and motorized vehicles</li> <li>Presence of barriers and buffers, such as parked cars and trees</li> <li>Volume and speed of motorized vehicles</li> </ul>	<ul> <li>Proximity of bicyclists to motorized vehicles</li> <li>Presence of a paved shoulder or marked bicycle lane</li> <li>Volume and speed of motorized vehicles and percentage of trucks</li> <li>Pavement condition</li> <li>Availability of on-street parking</li> </ul>	<ul> <li>Frequency – headways or transit vehicles per hour</li> <li>Speed or travel time</li> <li>Reliability or excess wait time</li> <li>Stop amenities</li> <li>Crowding or perceived travel time adjustments</li> <li>Pedestrian LOS</li> </ul>

Source: Measuring Multimodal Mobility with the Highway Capacity Manual.



In addition to LOS, many areas are moving toward performance based planning that uses performance measures along with specific targets to monitor progress in achieving multimodal objectives. Below is a set of performance measures developed by Altamonte Springs.

Mobility Strategy	Performance Measure*	Target*	
Transportation	Persons participating in ridesharing or vanpooling programs	3% annual increase of participants	
Demand Management	Number of businesses/ employers offering flexible work schedules	5% annual increase of participants	
Transportation Demand Management	Number of bus turn out facilities (at locations desired by LYNX)	1 per year as coordinated with LYNX	
	Number of improved and/or new bus shelters on LYNX routes	1 improved and/or new shelter each year	
	Number of intersection and/or signal improvements	1 per project generating > 5,000 net new daily trips	
Transportation System Management	Optimize signal synchronization	Annually, coordinated with Seminole County	
	Number of joint driveways and/or cross-accesses or combined driveways	1 per redevelopment/ development project	
	Amount of sidewalks added and/or expanded to the network	500 linear feet of sidewalk per year	
Pedestrian (Sidewalk) Enhancements	Linear feet of streetscaping/ landscaping which enhances the pedestrian environment	500 linear feet per year	
	Number of enhanced crosswalks	1 intersection per year	

#### **Table 4: Altamonte Springs Performance Measure Examples**

#### **Impact Fees**

The City currently does impose an impact fee on new development based on average trip lengths for different types of land uses. Under current policies, the City of Palmetto has an impact fee that is assessed based upon the type of development occurring: single family homes, multi-family, mobile home are assessed on a per unit basis, while commercial construction is assessed based upon square footage of the development and PM peak trips. These fees could be modified to better achieve the overall goals of the City.

A growing number of cities in Florida, including Altamonte Springs and Tampa, are implementing multimodal impact fees (or "mobility fees") that consider all modes including pedestrian, bicyclist, transit and automobile impacts. These fees may also vary by district, rather than using the same average trip length regardless of where a given land use is located. A multimodal impact fee would allow the City to determine how all modes of transportation are impacted, and provide flexibility in applying fee



revenues to more than just roadway capacity. The City of Tampa has been able to implement this strategy without increasing overall fees for developers.

A multimodal impact fee could be designed or adopted to collect funds for improving the multimodal environment. The fee's assessment would be based upon projected impacts to the planned multimodal transportation system, and fees levied would fund transportation-related improvements such as transit stops and amenities, pedestrian and bicycle projects, and safety or operational improvements to the roadway network. The fees could also be used to help fund the operation of MCAT services within and through the City limits.

#### Incentives

Current policies provide incentives via reduction in taxes and requirements for redevelopment projects within the CRA boundaries. These incentives, addressing everything from land use to demolition to stormwater, fail to include any incentives for transportation-related fees such as the currently established impact fee. In addition, the City should consider incentives to advance multimodal objectives. For example, the City could provide a 10% reduction in required minimum parking within the downtown CRA for every five bicycle parking spots provided. The City could also establish a preapproval process that provides streamlined approval for developments on transit corridors that apply transit-oriented design to support walking, cycling and transit use.

The City could also provide incentives in the form of reduced multimodal fees for development in the downtown core and/or along the 8th Ave multimodal corridor. Credits could also be provided when a development provides pedestrian, bicycle, and street amenities for public use such as benches or expanded sidewalks.

#### **Capital Improvement Plan and Program**

When planning and programming future transportation projects, it is helpful to disaggregate the projects by type of improvement and mode. This will allow the City to better monitor its progress toward achieving certain performance targets. Furthermore, methods of determining capital investment priorities for the various transportation modes should be developed that relate back to the City's multimodal objectives, performance measures and targets. For example, the City of Largo Multimodal Plan prioritized multimodal improvements by evaluating roadway corridors based on the following eight categories and their corresponding point value.

- Level of Service
- Pedestrian Needs
- Community Resource
   Connectivity
- Transit Connectivity

- Local Plans
- Bicycle Needs
- Safety

•

- Public Support
  - Supports

For example, corridors served by more than two transit routes earned three points in the Transit Connectivity category, whereas corridors served by one or two transit routes only earned two points. Corridors with a pedestrian level of service (LOS) below the target LOS by more than one earned three points, while those with pedestrian LOS below the target by less than 0.5 only earned one point. Projects with an average of four or more bicycle crashes within the last five years earned two points. Those projects on the corridor segments with the highest overall score became the top ranked city projects and were also illustrated in map form in the plan.



#### Parking

It is recommended the City revisit its minimum off-street parking regulations, particularly in the downtown core. Conventional off-street parking requirements result in a large supply of parking to accommodate peak demand, and promote use of the automobile. They also result in large surface parking areas that are unattractive to pedestrians, increase the length of the pedestrian trip, and discourage walking. Parking within the downtown core is recommended to be on-street or via parking garages. This type of policy would be in line with the City's goals of encouraging greater density within the Downtown CRA and allows for more valuable, developable land.

The City should consider innovative parking management strategies, like emphasizing short-term parking (e.g. parking duration limits, time-of-day limits, restricted parking zones) over long-term parking in the downtown area. Other popular parking management strategies include parking maximums, shared use parking, increasing the capacity of existing parking facilities, and remote parking with shuttle services. It is primarily recommended that the City begin charging a small parking fee, which is currently free in many areas within the Downtown CRA. Charging for parking would simultaneously give the City a revenue source, ideally for multimodal improvements, while encouraging citizens to take other modes of transportation. The City could also begin removing parking spots from downtown, allowing for more development, and decreasing congestion within the 10<sup>th</sup> Ave strip. If lack of parking is a major concern, parking can be moved to the area surrounding 10<sup>th</sup> Ave.

#### Coordination

Regional and interagency coordination are key to effective multimodal planning. Palmetto should continue to reach out and strengthen its coordination with other local governments and transportation agencies. It should also coordinate with Port Manatee regarding freight movement considerations. The City of Port St. Joe offers an example of an intergovernmental coordination policy, as presented in the National Center for Transit Research Model Element (Williams and Seggerman, 2014, pg. 185).

"Policy 1.5.6: The City shall collaborate with the Port St. Joe Port Authority, county, state, and federal agencies and with private entities responsible for water, highway, and rail connectivity to ensure that the intermodal transportation infrastructure and connectivity essential to Port operations are in place"

# CONCLUSIONS

This report presents a series of strategies for updating the City of Palmetto's 2030 Comprehensive Plan. The strategies are aimed at achieving the City's objectives for a strong and safe multimodal system and an invigorated downtown, while maintaining a small-town atmosphere. The City has many amenities, local officials and citizens who support multimodal transportation, and coordinates well with other agencies. Nonetheless, there are many deficiencies within the plan, even contradictions, which must be addressed. A key conclusion in regards to implementation is the need for the City to implement systematic policies and processes that work together to advance local multimodal goals.

As evident from the analysis, there is significant work to be carried out by the City of Palmetto. However, the City of Palmetto benefits from a strong gridded street system, frequently referred to as "good bones." The City has the ability to work with neighboring cities and agencies to create a comprehensive transportation system that functions for all ages and abilities utilizing all modes of transportation. Moving forward, we hope that these recommendations will be of use to the City of Palmetto in updating its comprehensive plan and creating a multi-modal environment that is beneficial to all roadway users.



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# APPENDIX A - 8TH AVENUE WALKABILITY AND BUS STOP ACCESSIBILITY ASSESSMENT

#### Introduction

A walkability and bus stop accessibility assessment were conducted for 8th Ave between 10th St and 17th St in the City of Palmetto. This corridor was selected based on concerns expressed by residents regarding pedestrian safety and the need for a midblock pedestrian crossing. Students evaluated the corridor segment to assist the City and the Florida Department of Transportation who maintains the corridor in this determination. In addition, students assessed bus stop accessibility and general network connectivity along the route to provide the City with additional insights for consideration as it moves toward achieving its multimodal transportation goals. This appendix reports on the findings and recommendations from both assessments.

# **Walkability Assessment**

The walkability assessment examined five considerations: space to walk, street crossing, driver behavior, safety rules, and overall joy of the walk. The walkability assessment will evaluate these five categories for the approximately .5 mile walk on 8th Ave between 10th St and 17th St. 8th Ave W is one of two main corridors in Palmetto and many residents of the mobile home park and migrant housing use walking as a main form of transportation. Various issues need to be addressed to make this corridor a more pedestrian friendly area.



#### Gaps

Sidewalks are present along both sides of the road for the duration of the corridor and are approximately 4' wide. The sidewalks are wide enough for two people to walk side by side but not wide enough to accommodate larger groups or much bidirectional traffic. The 8th Ave W corridor has no bike lanes, forcing cyclists onto the sidewalk, creating pedestrian and bicyclist conflicts. Parts of the sidewalk are made of decorative brick as seen in Figure 23.

#### **Facilities**

Several portions of the sidewalk along the 8th Ave route are broken and have large cracks that make it difficult and hazardous for pedestrian use. The bricks along the edge of the sidewalk make the walkway seem more narrow that it actually is and likely force bicyclists and pedestrians and wheelchairs to ride on the inside of the crosswalk. The brick diamonds found along the corridor also pose a likely obstacle to bicyclists and pedestrians in wheelchairs. As depicted in Figure 24, the diamonds are cracked and uneven, making them ever more difficult to traverse. Multiple points along the route do not have smooth transitions from sidewalk to sidewalk or sidewalk to driveway.

There are various obstacles in places on sidewalks that created a tight space for pedestrians walking in both directions. While most of the greenery is composed of low shrubs that don't interfere with pedestrian or driver visibility, there were a few areas where the greenery sticks out onto the sidewalk and interferes with pedestrian visibility and comfort. In spots, grass, palm fronds, and other landscaping was growing into the right-of-way as shown in Figure **24**. In other spots, utilities blocked the walkway as shown in Figure 26.



Figure 23: Typical Design of Sidewalk on this Section of Roadway





Figure 24: Cracked Pavement



Figure 25: Greenery Encroaching on Sidewalk





Figure 26: Utilities in Sidewalk

The speed limit on this stretch of road is 35 mph, which is around 40 mph for most people. The lack of traffic calming measures, wide lane width, and straightaway nature of the road, all creates incentives for people to break the speed limit. The walkability assessment confirmed that most people failed to observe the speed limit, with motorists climbing up towards 50 mph – an extremely unsafe speed for pedestrians.

#### Access

Very few buildings along the corridor provided proper access for pedestrians. There are multiple curb cuts that dramatically cut into the sidewalk causing the sidewalk to start and stop frequently. Numerous driveways are present throughout the corridor, many built with large turning radii that encourage drivers to turn in and out quickly, posing a risk to pedestrians. Many of these crossings are unmarked. The absence of a median also likely presents an issue, as cars are able to turn more freely in and out of businesses and side streets, creating additional conflicts. The wide driveways pose a great threat to the safety of the pedestrian as they are forced to deal with multiple rights of way. Some of the driveways are also sloped making it difficult for those with wheelchairs to cross.

Most businesses were set back behind large parking lots with no clear delineated pedestrian walkways to connect the building to the sidewalk. This creates conflicts with drivers in parking lots and makes businesses inconvenient to access and therefore less appealing to pedestrians.

The Publix at the corner of 11th St serves as an example of poor pedestrian access. Despite being a major pedestrian generator, the site provides no direct pedestrian access. Landscaping along 8th Ave prevents pedestrians from entering, and the existing sidewalk network does not connect to either of the two driveway entrances. In order to enter Publix, pedestrians must leave the sidewalk and cross vehicle driveways, without any delineation to assist them.

#### Crossings

Pedestrian crossings are available at the signalized intersections of 8th Ave and 10th St, and 8th Ave and 17th Street. These crossings are almost exactly 0.5 miles apart, making it difficult for residents along the



corridor to reach pedestrian generators on the other side of the street. As many of those in the neighborhood are elderly or of lower socioeconomic status, they may not have access to an automobile and have no choice but to cross the road on foot.

The existing crossing at 8th Ave and 10th Street is equipped with pedestrian signals at each corner of the intersection, but the push buttons do not offer auditory feedback to help orient vision-impaired pedestrians, or encourage pedestrians to wait for the walk light. The wheelchair ramps at the crosswalks serve two separate legs, making it difficult for visually impaired pedestrians to navigate. New FDOT standards require separate ramps for each leg of an intersection. There seemed to be adequate time provided to cross the road safely.

The existing crossing at 8th Ave and 17th Street was also equipped with pedestrian signals at each corner, none of which were equipped with auditory feedback push buttons. The geometry of the intersection is skewed, increasing crossing distances for pedestrians and contributing to sight distance issues. There was enough time provided for our group to cross the road safely, but slower pedestrians, such as the elderly or disabled, may have difficulties crossing in time. The crosswalks were striped with the old style pattern. The portion of road did not have any type of mid-block crossing.

#### Network

The sidewalk network continues over 1,000 ft. north and south of the corridor. The area to the north becomes gradually less dense until becoming mostly rural after 1,500 ft., where the sidewalks drop off. The area to the south consists of dense commercial development similar to what was observed along the corridor, although the setbacks are less and businesses are generally more pedestrian accessible. There are a number of restaurants that could act as pedestrian attractors. A little further to the south is the beginning of the Green Bridge, where a multi-modal path connecting Palmetto and Bradenton is currently under construction. Although the major east/west corridors of 10th and 17th are equipped with sidewalks, most of the side streets that intersect with the corridor do not have pedestrian facilities.

# **Recommendations**

#### Facilities, Access, and Network

While right of way is the main challenge on this stretch of road, the City should consider on-street bike facilities to help encourage bicyclists to stay off sidewalks, allowing more space for pedestrians. Designated or protected bike lanes and sidewalk expansions would require a road diet, removing space for automobiles and increasing right of way designated for pedestrian and cyclists, but this is recommended over sharrows (share the road arrows) given current speeds and driving conditions on the road.

Outside of increasing space for bicycle and pedestrian facilities, the City should repave sidewalks, removing decorative brick and providing a level surface. This will be particularly beneficial to those in wheelchairs and the disabled, who have a challenging time navigating the sidewalk in its current condition. The city should more pedestrian amenities, such as shade trees and better lighting, which can encourage pedestrian mobility

In terms of car access, given the current built environment, the City should revise development standards to regulate the number of driveways and limit turning radii. The City should furthermore consider working with FDOT on negotiating and funding the removal of curb cuts on the major arterial that are considered unnecessary or that may pose a safety hazard. Decreasing the amount of driveway cuts, placing parking lots in the rear of the businesses, and also using parallel reliever or service roads can help achieve a greater connectivity of businesses on the stretch. Greater business connectivity and less asphalt to walk across will encourage shoppers to walk between their needed trips, as opposed to



getting on the major arterial to travel a few hundred yards to the next business. The city should revise standards to require closer setbacks, pedestrian walkways, and other pedestrian-friendly design standards in order to create a welcoming environment for pedestrians.

In the future, the City should Increase frequency of maintenance along sidewalk to ensure that walkway is free of obstruction. Also there is a need to relocate utilities that obstruct walkways.

#### Crossings

Although a need exists for a midblock crossing, existing road conditions make implementation challenging. Right-of-way constraints make it difficult to install medians with pedestrian-safety-islands that would enhance safety and help make the installation of a crosswalk more feasible. High observed speeds along the corridor and the absence of a median would necessitate the use of a traffic control device, such as a HAWK or full pedestrian signal. Once again, right-of-way constraints make it difficult to install such a device, as there is limited space to install a supporting mast arm. Nonetheless, the implementation of medians with pedestrian-safety-islands and a mid-block crossing, if feasible, are highly recommended.

The existing crossing at 8th Ave and 10th Street is equipped with pedestrian signals at each corner of the intersection, but the push buttons do not offer auditory feedback to help orient vision-impaired pedestrians, or encourage pedestrians to wait for the walk light. The wheelchair ramps at the crosswalks serve two separate legs, making it difficult for visually impaired pedestrians to navigate. New FDOT standards require separate ramps for each leg of an intersection.

The existing crossing at 8th Ave and 17th Street was also equipped with pedestrian signals at each corner, none of which were equipped with auditory feedback push buttons. The geometry of the intersection is skewed, increasing crossing distances for pedestrians and contributing to sight distance issues. There was enough time provided for our group to cross the road safely, but slower pedestrians, such as the elderly or disabled, may have difficulties crossing in time. The crosswalks were striped with the old style pattern and should be updated to the new standard, as present on the 10th Street intersection.

Both crossings could benefit from signage alerting drivers to the potential presence of pedestrians in the crosswalk (Figure 24).



Figure 27: Signage Alerting Turning Vehicles to Yield to Pedestrians

# **Bus Stop Accessibility Assessment**

Throughout the project team's assessment of 8th Ave, special attention was given to the accessibility, quality, and spacing of MCAT/SCAT bus stops. 8th Avenue is a particularly busy corridor for public transit, with service from Routes 99, 13, and 1 (shared by SCAT and MCAT), the Skyway ConneXion Line,



and the 201 North County Connector line. Throughout the corridor studied, there are six bus stops. MCAT's transit center sits on the north edge of the City on 8th Avenue, outside the city center. This bus stop accessibility assessment looks at the condition of the amenities, where the bus stop signs are located, landing surfaces, and wheelchair accessibility.

#### Gaps

#### **Facilities**

Many of the observed stops along 8th Ave were well marked with a unique and prominent color and signage, indicating the routes served. At least one of the observed stops had a shelter available for patrons and nearly all stops had a bench available for patrons. All bus stops in the study area also provided a trash can.

Nonetheless, many gaps existed in terms of bus stop facilities. A few stops had worn and splintered benches and were furthermore without shade trees or a shelter to protect patrons from the elements, a major disincentive for public transit users. Most stops did not have a MCAT bus schedule posted, leaving users without a reference to the time their bus should arrive. All of the bus stops landing surfaces are concrete. However, the condition of the concrete varied. For some stops the concrete is a smooth surface while others have a broken surface. The landing area is not at least eight feet deep adjacent to the curb/street, posing problems for riders in a wheelchair or those who have other disabilities.

Overall, the bus stops were not consistent in terms of their overall facilities, with different bus stops having differing availability of shade, shelter, proper signage, and benches.

#### **Recommendations**

Although the City of Palmetto enjoys a connected street network and well-marked bus stops, shortcomings in the facilities and network still exist. Only on bus stop on the route analyzed provided a covered shelter for transit users, and the majority lacked any provisions for shade. Providing relief from Florida weather, such as the frequent thunderstorms and sweltering heat, provides transit users with a much more pleasant experience and decreases disincentives for transit use. While every stop did provide a bench, some benches were old and splintered, decreasing the aesthetic appeals of the stop. Some stops had new benches, which would be ideal for all stops if possible. Most stops did not provide the recommended eight feet depth adjacent to the curb/street for ADA compliance and general ease of access for those in a wheelchair or disabled; ensuring this necessary depth is a major recommendation for the City.

Outside of the facilities, all stops should have a schedule posted for the routes served by the stop and the times the busses should arrived. This will aid users in understanding the network, provide reassurance, and help in planning their trip. While the one covered stop did provide a schedule, the rest did not. As an overarching recommendation, the City should seek to achieve consistency in the appearance and design of bus stops.

