



Hillsborough MPO  
Metropolitan Planning  
for Transportation



# Plant City Walk-Bike Plan



# PLANT CITY WALK-BIKE PLAN

PREPARED FOR:



**Hillsborough MPO**  
Metropolitan Planning  
for Transportation



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## 1.0 INTRODUCTION

The City of Plant City aspires to create a safer, more convenient, and more enjoyable place for residents and visitors to walk and bike. To achieve this aspiration, Plant City, in conjunction with the Hillsborough Metropolitan Planning Organization (MPO), commissioned the following Plant City Walk-Bike Plan (“Plan”), which is a city-wide comprehensive bicycle and pedestrian master plan. The Plan was developed by Atkins in partnership with Alta Planning + Design (“Project Team”). The Project Team worked in partnership with the City and MPO to develop a comprehensive and feasible Plan that provides connections to local and regional destinations including parks, schools, and surrounding destinations in the region.

The purpose of the Plant City Walk-Bike Plan is to accomplish the following: synthesize Plant City’s previous planning efforts, identify opportunities to fill in pedestrian and bicycle network gaps, and develop priority project concepts that will move projects from idea to implementation. This purpose was accomplished through public outreach and coordination via community and steering committee meetings, a walking and biking system assessment and evaluation, the development of recommendations, and an implementation plan.

The Plan begins by establishing a vision for a bikeable and walkable Plant City, accompanied by goals and objectives to achieve that vision. Subsequently, the Plan provides a community profile and a summary of the community involvement efforts. Additionally, the walking and biking system assessment and evaluation is described, which consisted of: a review of existing plans, a walk friendly and bicycle friendly community assessment, and an existing conditions analysis of bikeway and walkway networks is described. The final element of the Plan presents the recommendations and implementation strategies for Plant City. The recommendations include the development of an initial bicycle and pedestrian network, infrastructure recommendations and policies, support facility recommendations, and catalyst project concepts. The implementation strategies provide a funding plan and general timeline for walking and biking facility expansion and improvement within the City.

Overall, the Plant City Walk-Bike Plan provides a guide for Plant City and its partners to achieve their goals of creating a place where residents and visitors can walk and bike.



Collins Street Mural. Source: Plant City Government website.

## 1.1 VISION, GOALS, AND OBJECTIVES

This plan establishes a vision for a walkable and bikeable Plant City, with achievable goals and objectives to realize that vision. The vision, goals, and objectives provided guidance for the development of recommendations for this plan, and should function as guideposts for plan implementation.

### *Vision Statement*

**Walking and riding a bike in Plant City is a comfortable and normal part of daily life for people of all ages and abilities.**

This is the future envisioned by the Plant City Walk-Bike Plan, and it signifies an evolution in the way that Plant City accommodates people who walk and bike.

Several key themes are embedded in this vision, including comfort, daily life, and all ages and abilities.

- **“Comfortable”** suggests walking and/or biking are safe, convenient, and attractive travel options for people in Plant City.
- **“Daily life”** means that walking and biking are not niche activities, but are instead desirable for a variety of trip purposes.
- **“All ages and abilities”** means that the emphasis is on planning, designing, and building walking and biking facilities that will be used by a range of people throughout Plant City.

### *Goals & Objectives*

The following goals and objectives provide the steps in the process towards realizing the vision:

- Achieve **Bicycle Friendly and Walk Friendly Community** status.
- Adopt a **Complete Streets Policy**.
- Continue the **Safe Routes to Schools Program** with both infrastructure and policy elements.
- Develop a **downtown wayfinding plan and bicycle user map**.
- Research and pursue additional **grant** opportunities to improve biking and walking safety.



*Plant City village green. Source: Consultant Team.*

## 1.2 COMMUNITY PROFILE

The community profile provides context for the character and identity of the area. An understanding of the existing community composition is essential to the development of a Plan that will suit the specific needs of Plant City. The following community profile describes the community demographics, recent bicycle and pedestrian crash data, and community involvement in the Plan.

### *Community Demographics*

The community demographics section provides a selection of data derived from the US Census that is relevant to the development of a bicycle and pedestrian plan. The selected data includes age characteristics, median income, households with vehicles, and commute to work.

#### **Total Population**

Plant City is home to a population of approximately 36,000. The Plant City population comprises approximately three percent of the total population of Hillsborough County of 1,302,884. According to the Bureau of Economic and Business Research (BEBR) through the University of Florida, the population of Hillsborough County is projected to grow by eight percent by 2020, and by 25 percent by 2030.

#### **Age Characteristics**

Age is an important variable for biking and walking as it influences associated health characteristics which can severely impact transportation choices. Typically, around 30 percent of a community's residents do not drive due to age (this includes all of those under 16 and 15 percent of those over age 65), income, or physical disability. For example, people who are 65 and older are typically driving less, while those in the millennial generation are increasingly favoring non-automotive modes of transportation. Providing active transportation options encourages healthy lifestyles and can cost less than driving. The graph series in Figure 1.1 through Figure 1.3 illustrate the age characteristics of Plant City, Hillsborough County, and Florida.

To summarize, sixty percent of Plant City's population is between age 20 and 64, and 29 percent under the age of 20. The people within these age categories are the most likely to change their travel habits, and may be willing to make more trips by biking and walking. Additionally, eleven percent of Plant City's population is over the age of 65, which is the age when driving may no longer be a safe option for commuting or travelling. This population could also see considerable improvements in the type of commute or travel choices depending on location and safety.

When compared to Hillsborough County and Florida, Plant City's age cohorts are most similar to the County's, whereas the overall population in Florida is generally much older. Almost one in five people in Florida are over 65. Eighty-one percent of the population is under 65.

Figure 1.1 Plant City Age Characteristics, 2015

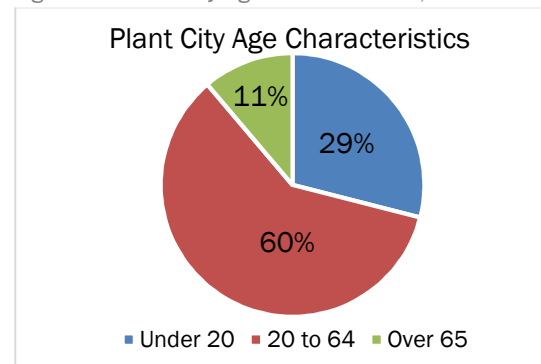


Figure 1.2 County Age Characteristics, 2015

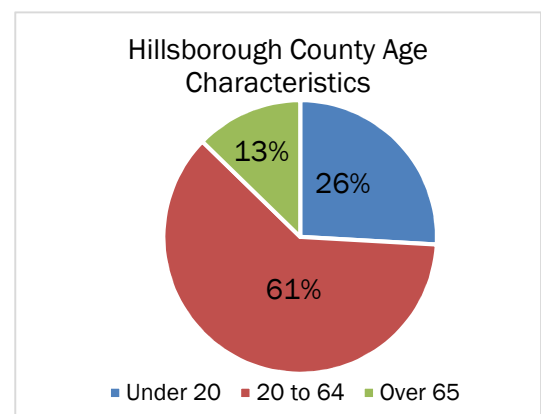
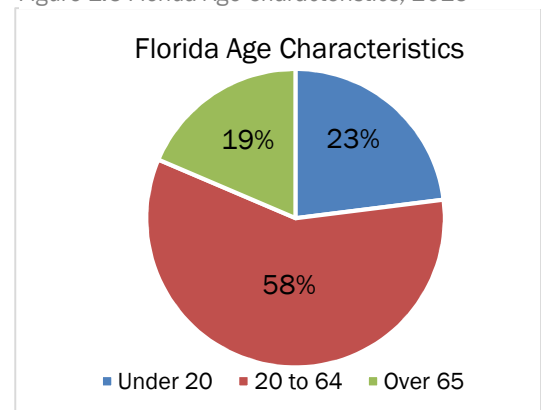


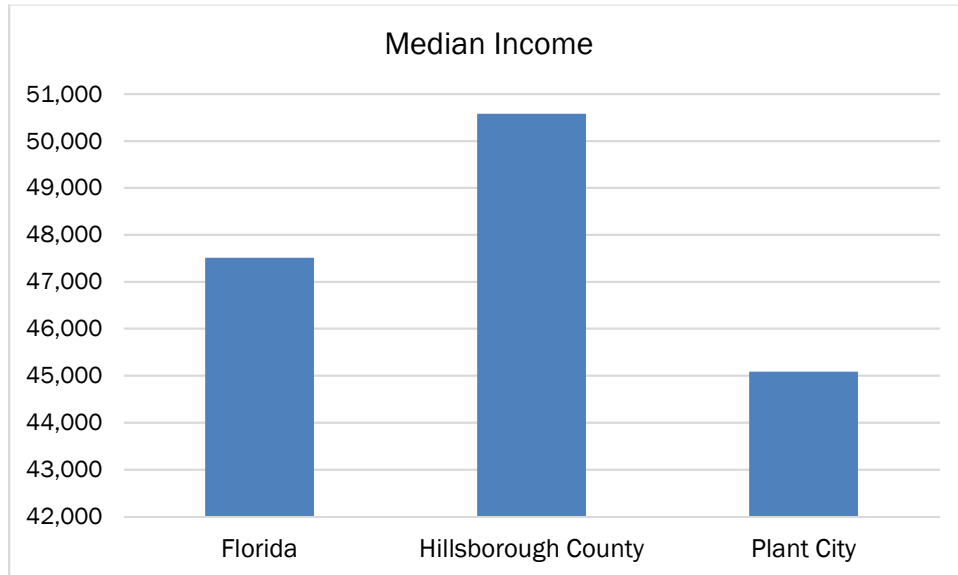
Figure 1.3 Florida Age Characteristics, 2015



### **Median Income**

The median income for Plant City in 2015 was less than Hillsborough County and Florida. As demonstrated in Figure 1.4, Plant City's median income is approximately \$2,500 less than Florida, and is approximately \$5,000 less than the median income for Hillsborough County.

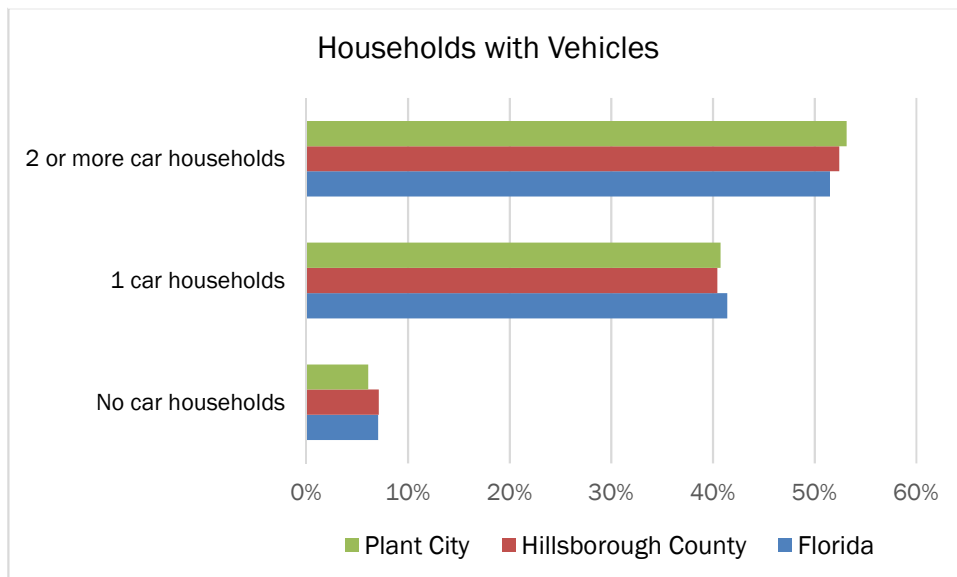
Figure 1.4 Median Income Comparisons, 2015



### **Households with Vehicles**

According to the US Census 2015 estimates, the households with vehicles characteristics are comparable throughout Plant City, Hillsborough County, and Florida. Approximately half of the households across the three geographies have two or more cars; approximately 40 percent of the households have one car, and around seven percent of the households have no cars.

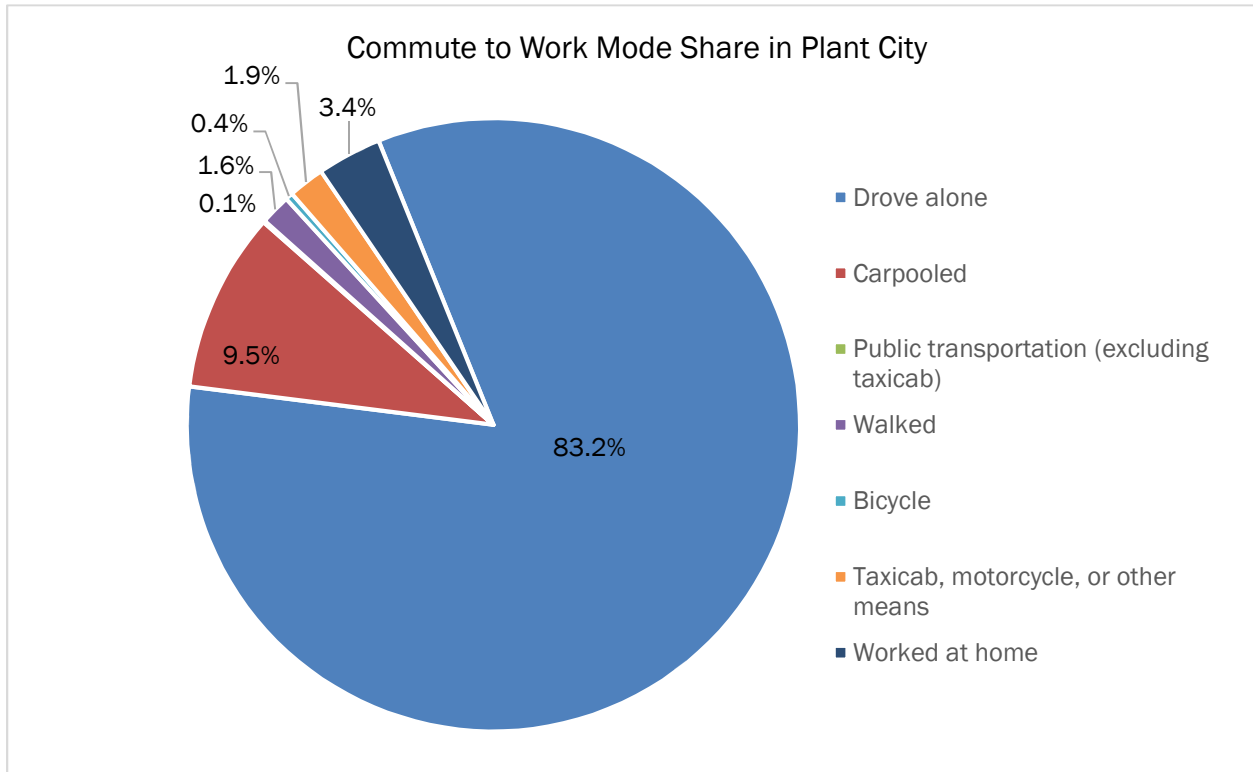
Figure 1.5 Households with Vehicles Comparison, 2015



### **Commute to Work**

How a community commutes to work gives a snapshot of how a community travels in general. As demonstrated in Figure 1.6, 83 percent of the Plant City population in 2015 drove alone on their commute to work. This is representative of a typical community where commuters are likely to venture longer distances to larger urban areas to perform their daily jobs. Additionally, just under ten percent of the population car-pooled in 2015. Walking or using a biking collectively make up just under 2 percent of the means of commuting to work.

Figure 1.6 Commute to Work, 2015



Source: United States Census Bureau; American Community Survey Five Year Estimates, 2015



### ***Bicycle and Pedestrian Crash Data***

Crash data was collected and analyzed for Plant City from 2011 to 2016 using the Signal-4 Analytics database. In this period, a total of 115 crashes involved people biking or walking. Eleven of these crashes resulted in fatalities. Many of the crashes that occurred within the City were clustered in high speed, high traffic roadway corridors and their adjacent neighborhoods. The three most significant crash locations were on James L. Redman Parkway approaching Alexander Street, Alexander Street by Plant City High School, and three blocks north and south of Thonotosassa Road (US 92). Figure 1.8 on the following page illustrates the overall crash locations in the City.

### ***Bicycle Crashes***

A total of 57 crashes involved bicyclists, of which two in fatalities. The two fatal bicycle fatalities occurred on Park Road and James L. Redman Parkway.

### ***Pedestrian Crashes***

A total of 64 crashes occurred involving pedestrians, resulting in the death of eight people. Three of these fatalities occurred within a mile of one another. These three clustered fatalities were located at:

- Turkey Creek Road, just north of SR 574
- SR 574, just east of Turkey Creek Road
- SR 574, between Elnor Street and Reynolds Street

### ***Crash Rate***

Comparing crash rates illustrates differences between Plant City and the surrounding area. As displayed in Figure 1.7, the rate of crashes per 1,000 people was more frequent in Plant City from 2011 to 2016 than Hillsborough County. Additionally, crashes in the City were more likely to result in fatalities. However, Hillsborough County was more likely to have crashes that involved pedestrians, or crashes that involved bicyclists and pedestrians that resulted in serious injuries.

Figure 1.7 Crash Rate

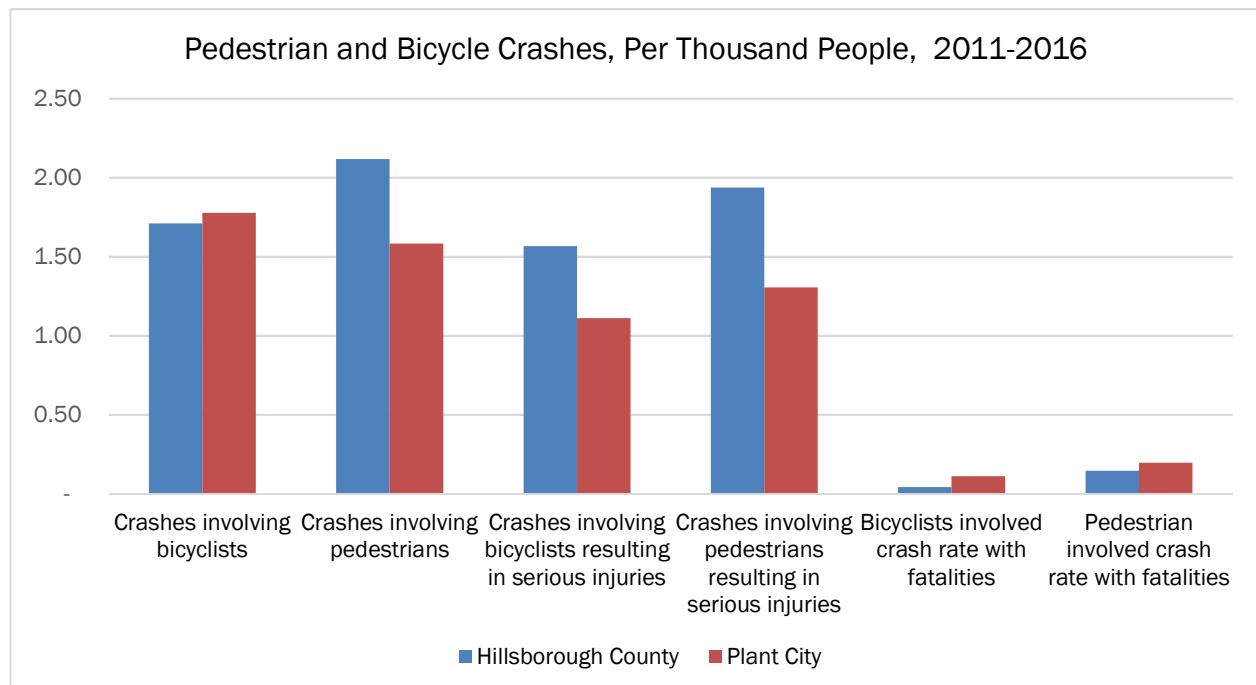
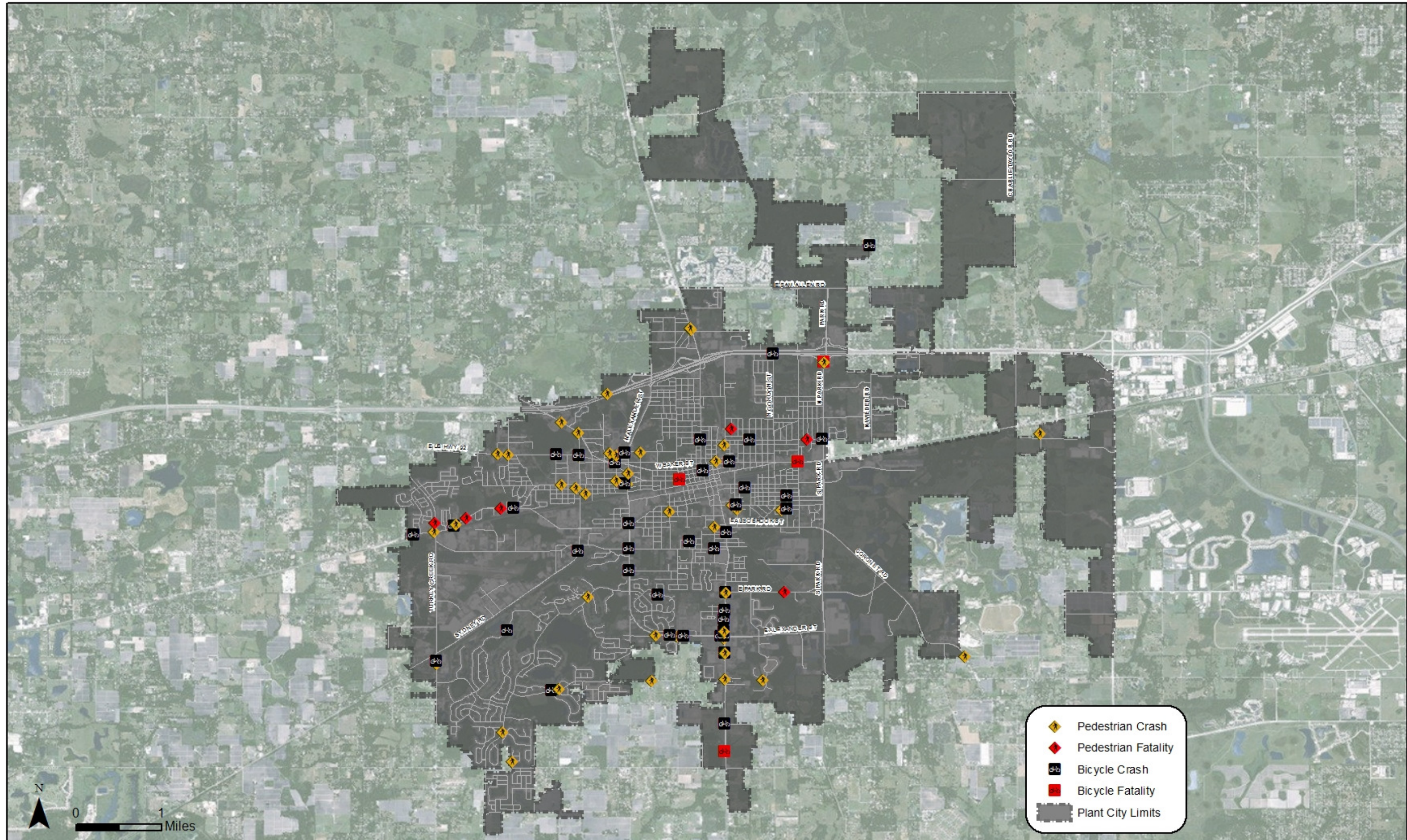


Figure 1.8 Bicycle and Pedestrian Crash Locations



### 1.3 COMMUNITY INVOLVEMENT IN THE PLAN

Community involvement was central to the development of this Plan. Input from the community guided the study team towards policy and development regulations involving infrastructure elements including trails, sidewalks, and bikeways. Community feedback was received during steering committee meetings, an open house, and other public events. Strong interest in the plan was shown at each meeting, with nearly 40 people attending the open house, consistent participation from the steering committee, and iterative dialogue throughout the plan's development. Key themes that were identified during the community involvement meetings are outlined at the end of this section.



Community open house. Source: Consultant team.

#### *Technical Steering Committee Meetings*

Three technical steering committee meetings were held over the course of the plan development. The technical steering committee consisted of staff from various City departments, including Planning & Zoning, Engineering, Community Development, and Parks and Recreations. A direct outcome of the steering committee was an increase in non-infrastructure recommendations provided within this report. The study team was directed to emphasize consideration given to the lighting and safe crossings of major roadways such as West Reynolds Street and East Baker Street (US Highway 92) through Downtown, Alexander Street, and James L. Redman Parkway.

#### *Community Open House*

The City and MPO hosted a community open house on the evening of Thursday, February 2, 2017 from 4:30 PM to 7:30 PM at the Bruton Memorial Library. City staff, representatives from the Hillsborough MPO, and members of the Atkins consultant team hosted the meeting. The open house format allowed the public to attend at their convenience to review the bicycle and pedestrian networks, provide comments, and learn the next steps of the plan development. The structure of the open-house included:

- A sign-in table and location map for the participants to pin their home or work location within the City.
- A PowerPoint presentation summarizing the study and various bicycle and pedestrian information running on a loop.
- An exhibition of maps including existing bicycle and pedestrian conditions and the bicycle network.
- “Thought Boards” presenting four questions for the meeting participants to respond to via post-it notes.
- A large map of the City for participants to provide comments on regarding bicycle and pedestrian needs.
- Comment forms for participants to contribute any additional remarks.
- A board displaying examples of bicycle and pedestrian improvements.

#### *Open House Participants*

Approximately forty (40) people attended the open house, with thirty (30) participants who signed in on the attendance sheet. A general map of Plant City was included at the sign-in sheet table where participants could pin the location of their home or work. Twenty-four (24) of the participants pinned their locations on the map:

- 9 within the Walden Lake area
- 6 around central Plant City/Downtown
- 2 along Trapnell Road, southeast of Plant City
- 2 located northeast of Plant City
- 1 near Cherry Street/HCC
- 1 off Maryland Avenue
- 1 along Martin Luther King Boulevard and Forbes Road
- 1 off Turkey Creek just west of the City
- 1 off Keene Road

### **Open House Maps**

An exhibition of maps was included in the open house for the community to react to, such as suggesting edits, changes, or include additional information. The five maps presented were:

- *Existing Pedestrian Conditions Map*
  - Showed the existing sidewalk network along major roads.
- *Pedestrian Clusters around Points of Interests (POIs)*
  - POIs included schools, library, hospital, churches, retail corridors, and parks.
  - Clusters indicated quarter mile and half mile radii from the POI to demonstrate 5-minute and 10-minute walking distances.
- *Existing Bicycle Conditions Map*
  - Showed existing bicycle lanes and paved shoulders.
- *Bicycle Clusters around POIs Map*
  - POIs were the same as on the pedestrian maps
  - Clusters indicated three quarter-mile and one and half-mile radii from the POIs to demonstrate 5-minute and 10-minute bike rides.
- *Bicycle Network Map*
  - Presented a draft bicycle network.



Community Open House. Source: Consultant Team.

During the open house, participants indicated three POIs that should be added to the maps. The three locations were the Boys and Girls Club, the YMCA, and the Strawberry Festival Grounds.

### **Open House Thought Boards**

Four questions were displayed on two boards for meeting participants to respond to via post-it notes. The questions were:

- *What does Plant City mean to you? (Describe in one word or phrase)*
  - The most common responses were “friendly” and “community”.
- *What are the top three places you go to most in Plant City?*
  - Common responses were “Downtown”, “church”, and “park”.
- *What is your biggest concern regarding bicycle and pedestrian mobility in Plant City?*
  - Top responses were “lighting”, “safety”, and “connectivity”.
- *What should be the number one bicycle and/or pedestrian priority project for Plant City?*
  - Popular responses were “lighting”, “crosswalks” and “trails”.

### **Open House General Comment Map**

A large map of Plant City was placed on a table for the participants to write comments on using post-its and markers. Comments received on this map included:

- Notation of high traffic areas.
- Facility location prioritization.
- Requests to connect Walden Lake to Downtown.
- Notation of specific areas for lighting improvements.
- Requests for trails and trailheads.

### **Comment Forms**

Forms were provided for participants to write any additional comments. The comment forms received are summarized as follows:

- Listed additional connectivity points.
- Noted that it was difficult to find safe places to run.
- Noted lack of sidewalks and lack of connectivity of sidewalks.
- Requested a sidewalk maintenance plan.
- Education on leash laws in rural areas.
- Requested road widening on Mudlake Road.
- The need for connecting areas north of I-4 to the rest of the City.
- Requests to include code regulations to require developers to build connecting sidewalks and trails for new developments.



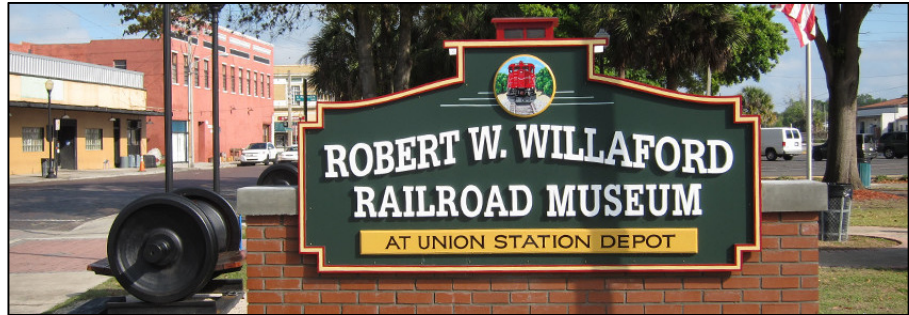
Community open house. Source: Consultant Team.

### **Community Key Themes**

During public and stakeholder input sessions, participants answered questions relating to frequently visited places, community values, and about safety for biking and walking. These themes represent the community priorities for establishing a safer and more convenient biking and walking system in Plant City, and should be used when prioritizing master plan implementation decisions.

### **Maintaining the City Character**

Residents want to maintain the character of Plant City. Participants overwhelmingly responded that their community is a friendly place. Participants characterized the people of the City as polite, and the community as having a historic charm. They also noted that the downtown has potential for growth, and an attractive historic character. Participants also described the rapid development occurring in the areas around town, especially in the northeast portions of the City. They pointed out the hometown appeal of Plant City that brings many new residents and visitors every year.



*Downtown Plant City. Source: Plant City Government website.*

### **Improving Bicycle and Pedestrian Mobility and Access**

Another consistent theme found throughout the planning process was a concern for bicycle and pedestrian safety, mobility, and accessibility. Participants noted concerns for safety when walking or biking, a desire for better connections between points of interest and residences, and lighting in low visibility areas. Additional concerns raised include safe routes to schools, safe crossings, wayfinding signage, and physical separation of people driving motor vehicles from those who are walking or using a bike.

### **Connecting Residences with Destinations**

Plant City residents want to have better bicycle and pedestrian connections to local destinations. The charming downtown includes a number of destinations that residents frequently visit, including the library, many shops, churches, and McCall Park. Plant City has several parks inside and outside of the downtown core that cater to the recreational and leisure needs of the community. Furthermore, the major commercial corridors and along James L. Redman Parkway have gained traction in bringing residents to the larger stores found in Plant City.



*Plant City Water Tower. Source: Plant City Observer.*

### **Build a Network for Walking and Biking**

The lack of an overall network for biking and walking has created a culture where people believe the car is the only safe means to get from one place to another. Residents suggested that the City should build a network that connects destinations and promote these non-motorized options. Citizens stated that if given the opportunity, they would walk or bike more to destinations to save on the cost of driving and improve their health.

## 2.0 WALKING AND BIKING SYSTEM ASSESSMENT AND EVALUATION

The second component of the Plant City Walk-Bike Plan is a walking and biking system assessment and evaluation. This assessment and evaluation consists of a review of existing plans, a walk friendly and bicycle friendly community assessment, and an existing conditions analysis reviewing current bikeway and walkway networks.

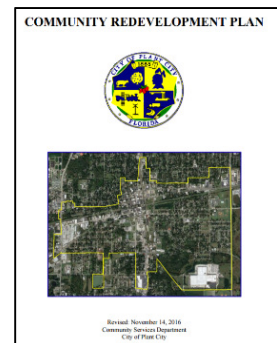
### 2.1 REVIEW OF EXISTING PLANS

Since 2000, Plant City has adopted several plans and initiatives that relate to the walking and biking environment. The Project Team reviewed these plans to ensure accuracy with existing plans and initiatives, and to also provide historical context of the City's future needs. The seven studies reviewed are listed below, and summarized in this section.

- Plant City Community Redevelopment Plan (2016)
- Hillsborough MPO Greenways and Trails Update (2016)
- Imagine 2040: Plant City Comprehensive Plan (2016)
- Plant City Recreation and Open Space Plan (2009)
- Northeast Plant City Area Master Plan (2008)
- Midtown Redevelopment Vision Plan (2007)
- Plant City Multimodal Transportation Needs Plan (2000)

#### *Plant City Community Redevelopment Plan (2016)*

The Plant City Community Redevelopment Plan was updated in November 2016. The plan encourages development and redevelopment of office and commercial activity centers as pedestrian places. Furthermore, the plan promotes rejuvenation of the central core. Examples of central core rejuvenation were: providing more housing opportunities, increasing density, and encouraging pedestrian movement within the downtown core. The plan also desires to increase the availability of the parks within redevelopment area boundaries, improve existing sidewalks, and construct new sidewalks to provide better connectivity.



#### *Hillsborough MPO Greenways and Trails Update (2016)*

The Hillsborough MPO Greenways and Trails update unified the Hillsborough County Greenways Master Plan (1995) and the City of Tampa's Greenways and Trails Master Plan (2000). The document provided best practices for infrastructure elements such as wayfinding and pavement markings. Additionally, the document proposed a trail system called the Plant City Connector, which would connect Plant City to the trail systems in Polk and Pasco County. It was noted that this facility is not eligible for SunTrail funding. Further details regarding the Plant City Connector are:



- Promotes a child-friendly environment, increases safety and mobility of those dependent on non-automotive forms of transportation.
- Represents an opportunity for the MPO and Plant City to collaborate.
- The next steps include coordination with Plant City, Hillsborough County, and neighboring counties to develop specific trail alignments and conduct preliminary engineering studies.

### *Imagine 2040: Plant City Comprehensive Plan (2016)*

The most recent update to the Plant City Comprehensive Plan was adopted in February 2016. The plan identified that a better correlation was needed between land use patterns to encourage more bicycle and pedestrian usage. The plan also requires new DRIs and other large developments to provide bicycle and pedestrian amenities. Included with the plan is a bicycle level of service map and a multi-use trails and sidepaths map. Additionally, the plan identified bicycle and pedestrian crash clusters, recommended a series of bicycle and pedestrian projects, and stated that trails and sidepaths identified in the 2040 LRTP should be implemented.

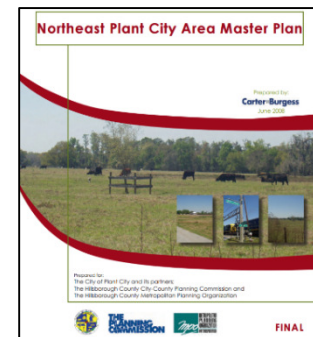


### *Plant City Recreation and Open Space Plan (2009)*

The Plant City Recreation and Open Space Plan was adopted in July 2009. In regards to bicycle and pedestrian planning, this plan indicated that Plant City should work with the state and county on all road improvement projects to ensure the inclusion of bicycle and pedestrian facilities. Additionally, the plan recognized that some areas should be retrofit to better serve for bicyclists, pedestrians, and people with a disability.

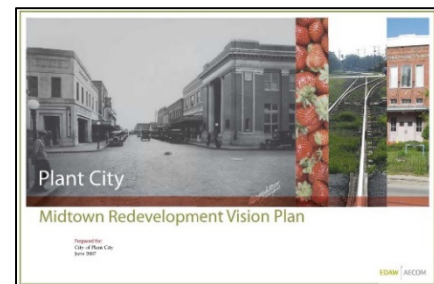
### *Northeast Plant City Area Master Plan (2008)*

The Northeast Plant City Area Master Plan was adopted in June 2008. The plan was undertaken to address anticipated growth in the area, to ensure that adequate public services and facilities will be provided, and to ensure that the area is well integrated into Plant City. This area plan encourages mixed use development patterns and multimodal transportation systems. Additionally, this plan promotes land use scenarios that show a series of greenways connecting residential and non-residential areas and the implementation of pedestrian and bicycle facilities on new roadway construction.



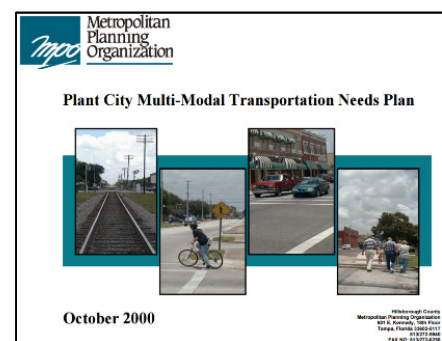
### *Midtown Redevelopment Vision Plan (2007)*

The Midtown Redevelopment Vision Plan was commissioned to identify options and community preferences for the physical environment of Midtown. The plan was adopted in June 2007. Community preferences identified in this plan include: more mixed use redevelopment, an increase in maximum density and height, elimination of building setback lines, creation of a central civic space, the improvement of streets and sidewalks, the widening of existing sidewalks, and the implementation of complete street concepts on all area roadways.



### *Plant City Multimodal Transportation Needs Plan (2000)*

The Plant City Multimodal Transportation Needs Plan was adopted in 2000. Identified issues include: neighborhood access around rail lines, excess downtown vehicular traffic, truck traffic downtown, transportation disadvantaged needs, connectivity and continuity of bicycle and pedestrian facilities, and goods movement needs of industrial development areas. The plan also identified specific pedestrian and bicycle needs. The pedestrian needs included mobility considerations such as new sidewalks, sidewalk maintenance, and safety improvement programs. The identified bicycle needs included the need for a separate, comprehensive bicycle plan and strategies for bicycle safety and mobility.





## 2.2 WALK FRIENDLY AND BICYCLE FRIENDLY COMMUNITY NEEDS ASSESSMENT

A Walk Friendly Community (WFC) and Bicycle Friendly Community (BFC) assessment was conducted by the Project Team based on data collected, interviews with stakeholders, and on the WFC and BFC application criteria. The assessment was used to identify existing policy, regulatory needs, infrastructure needs, and gaps related to walking and biking in Plant City. This section provides an overview of the WFC and BFC programs, conducts a needs assessment via a 'scorecard', and summarizes the findings of the assessment.

### *Walk Friendly and Bicycle Friendly Community Programs*



The Walk Friendly Community (WFC) program is a national initiative led by the Pedestrian and Bicycle Information Center (PBIC) intended to encourage communities to improve their local pedestrian environments. Similarly, the Bicycle Friendly Community (BFC) program led by the League of American Bicyclists is intended to help communities make bicycling a viable transportation and recreation option regardless of age. Both programs incorporate assessments that are useful for discovering where a community stands with respect to pedestrian and bicycling facilities and activities.

The WFC and BFC assessments recognize existing successes in communities as well as provide a framework for those communities trying to achieve higher walking and bicycling rates.

Both assessments address the “Five Es”: engineering, education, evaluation, enforcement, and encouragement. The engineering category refers to infrastructure-related elements (e.g., bike lanes, sidewalks, ADA accommodations, etc.), while the other four Es refer to non-infrastructure efforts such as safety campaigns, planning, and evaluation. Comprehensive pedestrian and bicycle plans should address all five Es to effectively advance pedestrian and bicycling activities in a community. Communities seeking status as WFC and BFC must make relevant advances in each of the Five Es.



### **Becoming a Walk Friendly Community**

Communities wishing to become a WFC must apply to Walk Friendly Communities via an online application. The WFC Assessment Tool available on the website includes questions related to the Five Es and other relevant community information. After an application is submitted, a multi-person review panel scores the applications, and then WFC award designations are announced.

### **Becoming a Bicycle Friendly Community**

Communities wishing to become a BFC must submit an application to the League of American Bicyclists that answers questions related to the Five Es and provides other relevant community information. After an application is submitted, a local review is conducted to obtain local feedback and followed by the review by a panel of national bicycle professionals. Communities designated a BFC will receive an award and two Bicycle Friendly Community road signs.

### *WFC and BFC Scorecards*

The Project Team developed walking and biking scorecards based on WFC and BFC application criteria. The results of the scorecards were used to identify the next steps for Plant City to achieve WFC and BFC recognition. The Project Team assessed Plant City for each of the Five Es based on the field observations and research conducted by the Project Team, and input from the steering committee for WFC and BFC eligibility. The results of the assessment are displayed in Table 2.1 and Table 2.2.

### **Scorecard Findings**

For both walking and biking, Plant City has infrastructure, policies, or programs in place to become a WFC or BFC. However, Plant City scored low on each assessment based on the WFC and BFC scorecards.

**WFC Scorecard**

Plant City scored a 13 out of a possible 21 points on the WFC scorecard. Points were scored in all five categories. The score shows that Plant City may soon be ready to apply, but also has improvements that should be made before becoming a designated Walk Friendly Community. However, several WFC elements are already in place, and in a relatively short time frame, Plant City can make significant progress towards becoming a WFC.

**BFC Scorecard**

Plant City scored a 10 out of a possible 19 points on the BFC scorecard. Points were counted in the Education, Evaluation, Enforcement, and Encouragement categories. No points were recorded in the Engineering category. The score shows that Plant City has some improvements to make before becoming a designated Bicycle Friendly Community, particularly related to infrastructure for biking. However, several BFC elements are already in place for Plant City, and, in a relatively short time frame, Plant City can make significant progress towards becoming a BFC.

**WFC and BFC Conclusion**

The results of the WFC and BFC assessment demonstrate that Plant City may be ready to apply for WFC or BFC in the near future, particularly after the adoption of this Plan. The City should also take significant steps towards implementing the needed improvements to achieve the designation for either program. The recommendations for this Plan, when implemented, will position Plant City to apply for and receive WFC and BFC designations.

Table 2.1 WFC Scorecard

| Question   | Yes | No         | Notes   |
|--|-----|------------|---|
| <b>Engineering</b>   |     |            |   |
| Does your community have a comprehensive, connected and well-maintained pedestrian network?  | 0   | 1          | Foremost reason why the City requested a Bike/Pedestrian Plan from the MPO.   |
| Is there a Complete Streets Ordinance or another policy that mandates the accommodation of pedestrians on all road projects?         | 0   | 1          | Implementing a complete street project on Collins Street. Most of the regulated roads in the City are under the jurisdiction of Hillsborough County and FDOT. |
| Has your community adopted an ADA Transition Plan for the public right of way?   |     |            | Reviewing all intersections for compliance with ADA   |
| <i>If yes, provide more info (e.g., what year was the plan adopted, provide a copy of the plan, what has been implemented, etc.)</i> | 1   | 0          |   |
| Does your community have a policy requiring sidewalks on both sides of arterial streets?   | 1   | 0          | Required of new development in Plant City.  |
| Does your community have a policy requiring sidewalks on both sides of collector streets?  | 1   | 0          | Required of new development in Plant City.  |
| Does your community require sidewalks to be constructed or upgraded with all (or the majority of) new private development?           | 1   | 0          |   |
| <b>Engineering Score Total</b>   |     | <b>4/6</b> |   |
| <b>Education</b>   |     |            |   |
| Is there a community-wide Safe Routes to School Program that includes pedestrian education?  | 1   | 0          | Participation in this program is through the MPO's School Transportation Working Group.   |
| Are there pedestrian education courses available for adults in the community?  | 0   | 1          | Not to our knowledge.   |
| Does your community educate motorists and pedestrians on their rights and responsibilities as road users?                            | 0   | 1          | Not to our knowledge. Maybe DMV.  |
| <b>Education Score Total</b>   |     | <b>1/3</b> |   |
| <b>Evaluation</b>  |     |            |   |
| Is there a specific plan or program to reduce pedestrian/motor vehicle crashes?  | 1   | 0          | As part of planning processes and committees of the MPO. Staff proposed the concept of Vision Zero to City Commission in March 2017.                          |
| Does your community have a current comprehensive pedestrian plan or pedestrian safety action plan?                                   | 0   | 1          | Foremost reason why the City requested a Bike/Pedestrian Plan from the MPO.   |

| Question  | Yes          | No | Notes   |
|---|--------------|----|---|
| Is there a pedestrian advisory committee that meets regularly?  | 1            | 0  | Yes, as part of the MPO's BPAC.   |
| Does your community have a pedestrian program manager?  | 1            | 0  | City Engineer   |
| Has your community established a connectivity policy, pedestrian-friendly block length standards and connectivity standards for new developments, or convenient pedestrian access requirements? | 1            | 0  | Provisions are noted in Plant City's Parking and Subdivision Regulations. |
| Is your community served by public transit, and if so, what route planning/trip information is provided for transit passengers?   | 0            | 1  |   |
| <b>Evaluation Score Total</b>   | <b>4/6</b>   |    |   |
| <b>Enforcement</b>  |              |    |   |
| Do law enforcement officers receive training on the rights and responsibilities of all road users?  | 1            | 0  |   |
| Does your community have law enforcement or other public safety officers on foot?   | 1            | 0  | Limited times and areas.  |
| Do local ordinances promote safety and accessibility for pedestrians?   | 1            | 0  | Vision Zero was endorsed by the City Commission in March 2017.            |
| <b>Enforcement Score Total</b>  | <b>3/3</b>   |    |   |
| <b>Encouragement</b>  |              |    |   |
| Does the community celebrate pedestrians with special events or media outreach?   | 0            | 1  |   |
| Does the community host any major community pedestrian events?  | 0            | 1  | Not as the primary purpose, usually a walk in support of a charity event. |
| Is there an active pedestrian advocacy group in the community?  | 1            | 0  | Yes, as part of the MPO's BPAC.   |
| <b>Encouragement Score Total</b>  | <b>1/3</b>   |    |   |
| <b>Walk Friendly Total (21 points possible)</b>   | <b>13/21</b> |    |   |

Table 2.2 BFC Scorecard

| Question  | Yes        | No | Notes  |
|---|------------|----|--|
| <b>Engineering</b>  |            |    |  |
| Does your community have a comprehensive, connected and well-maintained bicycling network?  | 0          | 1  | The reason why the City requested a Bike/Pedestrian Plan from the MPO.   |
| Is bike parking readily available throughout the community?   | 0          | 1  | Limited.   |
| Is there a complete streets ordinance or another policy that mandates the accommodation of cyclists on all road projects?   | 0          | 1  | Implementing a complete street project on Collins Street. Most of the regulated roads in the City are under the jurisdiction of Hillsborough County and FDOT.                      |
| Does your community require bike lanes to be constructed or upgraded with all (or the majority of) new private development?   | 0          | 1  | Limited, provisions are noted in Plant City's Parking and Big Box Regulations. Most of the regulated roads in the City are under the jurisdiction of Hillsborough County and FDOT. |
| <b>Engineering Score Total</b>  | <b>0/4</b> |    |  |
| <b>Education</b>  |            |    |  |
| Is there a community-wide Safe Routes to School Program that includes bicycle education?  | 1          | 0  | Participation in this program is through the MPO's School Transportation Working Group.  |
| Are there bicycling education courses available for adults in the community?  | 0          | 1  | Not to our knowledge.  |
| Does your community educate motorists and cyclists on their rights and responsibilities as road users?  | 0          | 1  | Not to our knowledge. Maybe DMV.   |
| <b>Education Score Total</b>  | <b>1/3</b> |    |  |
| <b>Evaluation</b>   |            |    |  |
| Is there a specific plan or program to reduce cyclist/motor vehicle crashes?  | 1          | 0  | As part of planning processes and committees of the MPO. Staff proposed the concept of Vision Zero to City Commission in March.  |
| Does your community have a current comprehensive bicycle plan?  | 0          | 1  | Foremost reason why the City requested a Bike/Pedestrian Plan from the MPO.  |
| Is there a bicycle advisory committee that meets regularly?   | 1          | 0  | Yes, as part of the MPO's BPAC.  |
| Does your community have a bicycle program manager?   | 1          | 0  | City Engineer  |
| Has your community established a connectivity policy, bicycle-friendly block length standards and connectivity standards for new developments, or convenient bicycle access requirements? | 0          | 1  |  |
| <b>Evaluation Score Total</b>   | <b>3/5</b> |    |  |

| <b>Enforcement</b>   |              |   |  |
|--|--------------|---|--|
| Do law enforcement officers receive training on the rights and responsibilities of all road users?                           | 1            | 0 |  |
| Does your community have law enforcement or other public safety officers on bikes?   | 1            | 0 | Limited - Special Events.  |
| Do local ordinances promote safety and accessibility for bicyclists?   | 1            | 0 | Vision Zero was endorsed by the City Commission in March.                  |
| <b>Enforcement Score Total</b>   | <b>3/3</b>   |   |  |
| <b>Encouragement</b>   |              |   |  |
| Does your community have an up-to-date bicycle map?  | 0            | 1 | No City maintained maps. The MPO has regional maps that address bicycling. |
| Does the community celebrate bicycling during National Bike Month with community rides, Bike To Work Day, or media outreach? | 1            | 0 | For the first time in March 2017.  |
| Does the community host any major community cycling events or rides?   | 1            | 0 | YMCA   |
| Is there an active bicycle advocacy group in the community?  | 1            | 0 | Yes, as part of the MPO's BPAC.  |
| <b>Encouragement Score Total</b>   | <b>3/4</b>   |   |  |
| <b>Bicycle Friendly Total (19 points possible)</b>   | <b>10/19</b> |   |  |

## 2.3 EXISTING CONDITIONS ANALYSIS

The Project Team conducted a field review of the existing bikeway and walkway networks. The field review determined the adequacy of existing facilities based on safety, connectivity, completeness of network, destination connectivity, barriers and constraints, and ultimately the ability to serve the needs of different types of bicyclists and pedestrians. The results of the field review of existing sidewalks and bicycle facilities are summarized in this section.

### *Existing Walkway Network*

Plant City began requiring sidewalks in 2001 through subdivision regulations, influencing the existing walkway network. The existing walkway network was mapped using GIS software in collaboration with Plant City staff and the Project Team. The resulting map is displayed in Figure 2.3. Existing sidewalks are displayed in a solid yellow line, and existing trails are displayed in a dashed yellow line. As indicated on the map, most of Plant City's sidewalks are located within the core of the city. The downtown area contains a substantial network of sidewalks and some crossings. However, these facilities are somewhat aged and beginning to show wear, impacting overall network accessibility. Major roadways, where sidewalks are needed most, have gaps where no sidewalks exist. In many neighborhoods around Plant City, sidewalks were not constructed during land development, or were only constructed on one side of the street. Examples of existing sidewalk and crossing conditions are displayed in Figure 2.1 and Figure 2.2.



Figure 2.1 Mendonsa Road sidewalk. Source: Project Team.

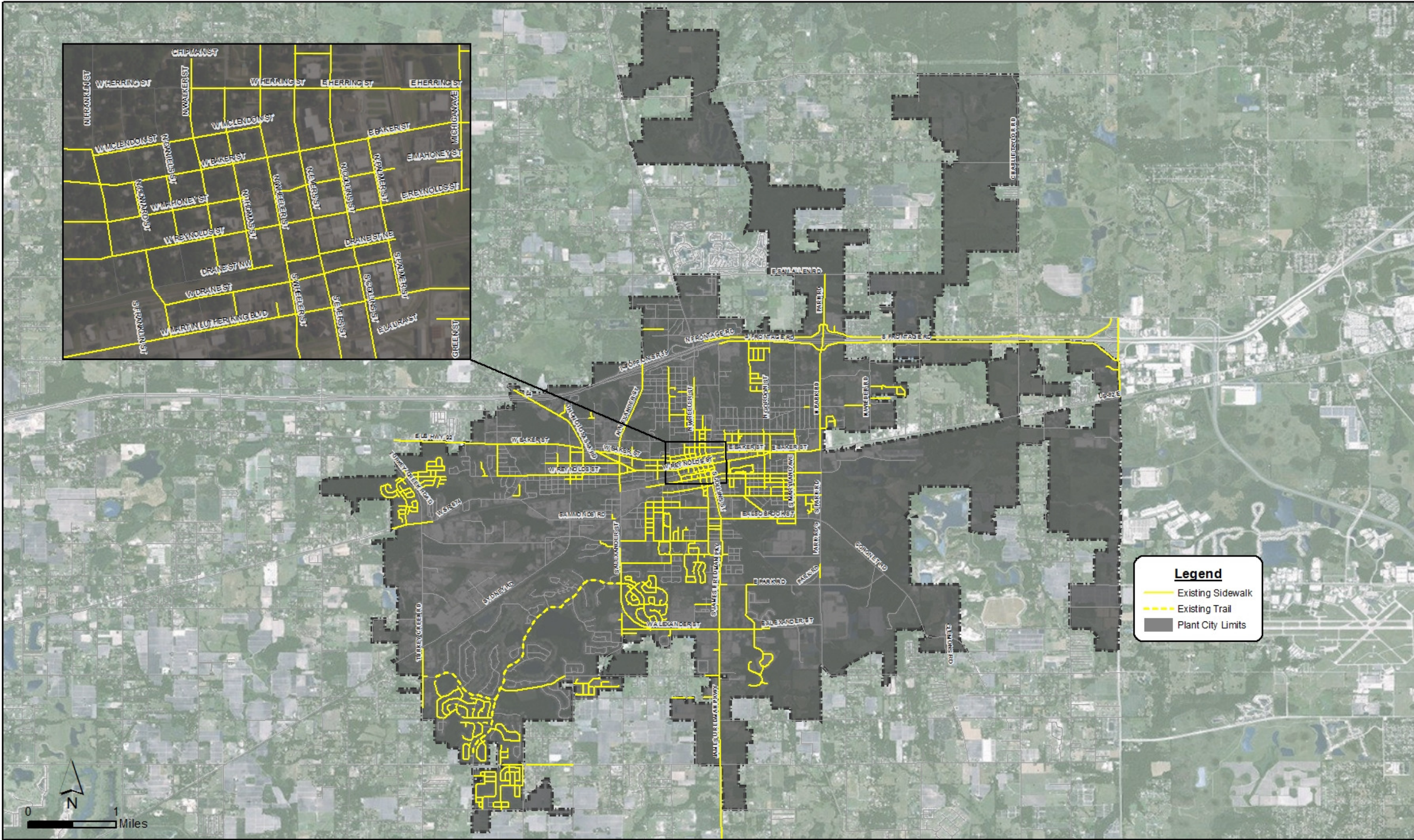


Figure 2.2 Intersection of James L. Redman Parkway and Alexander Street. Source: Project Team.

The sidewalk on the southern side of Mendonsa Road connects a suburban area to a major transportation corridor. Collector roads and arterials should have sidewalks on both sides of the roadway for pedestrian safety and access.

The intersection of James L. Redman Parkway and Alexander Street makes for an uncomfortable walking experience from one corner to the next. Overall, the intersection has 27 total vehicular travel lanes plus one bike lane, making for significant distances from one corner to the next. Additionally, during the field review, it was observed that many vehicles making right turns on red do not yield to pedestrians.

Figure 2.3 Pedestrian Network



Existing Pedestrian Network



### Existing Bikeway Network

The existing bikeway network was mapped using GIS software with layers from FDOT, Hillsborough County, and Plant City. The results of the mapping process are displayed in Figure 2.6 on the following page. Existing on-road bikeway facilities displayed by a solid yellow line include bike lanes and paved shoulders. The existing off-road facilities displayed in by a dashed yellow line include paved trails.

The existing bikeway network is located primarily outside of the core of the City. Additionally, most of the destinations likely to generate biking trips such as parks, schools, and Downtown, are within a five to ten-minute bike ride (less than 2 miles) of where people live. Expanding the bikeway and trail network will provide opportunities to safely and conveniently connect people by bike to these popular destinations. Most of the facilities in are traditional bike lanes, either four feet or five feet in width, with a few larger buffered bike lanes, such as the ones recently completed as part of the resurfacing of Thonotosassa Road. Examples of existing bicycle infrastructure are displayed in Figures 2.4 and 2.5.

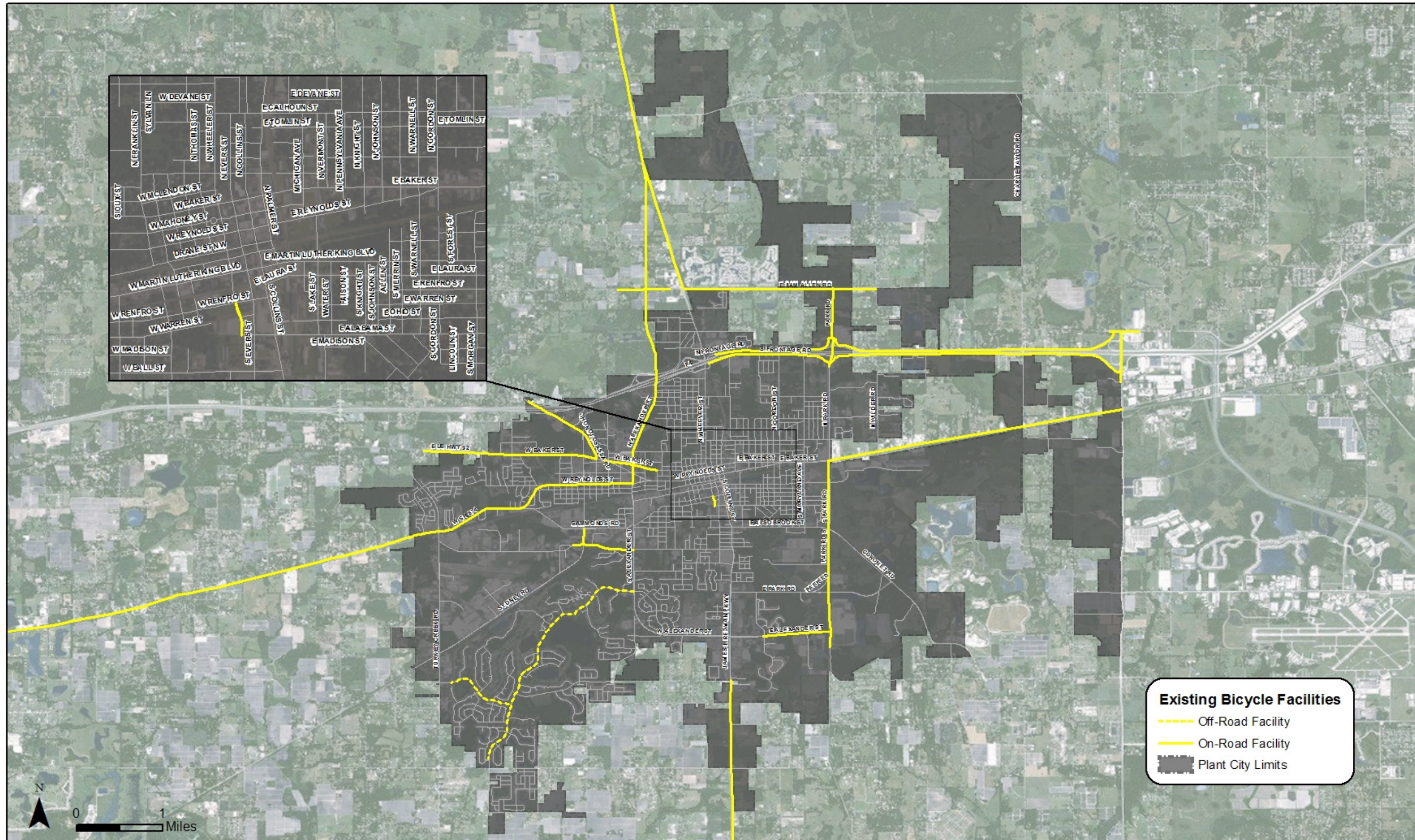


Figure 2.4 Thonotosassa Road bike lane. Source: Google maps.



Figure 2.5 Existing paved shoulder on Wheeler Street. Source: Project Team..

Figure 2.6 Existing Bicycle Network



### Existing Trail Network

The existing trails within Plant City are located within parks as walkways, or in neighborhoods such as Walden Lake. The trails are indicated as dashed lines on the existing pedestrian and bicycle network maps in Figure 2.3 and Figure 2.6. While these trails are recreational amenities, they lack the use or connectivity to serve a transportation function. Photos of the existing trails are displayed in Figure 2.7 and Figure 2.8.



Figure 2.7 Walden Lake trail. Source: Google maps.



Figure 2.8 Walden Lake trail. Source: Google maps.

## 3.0 RECOMMENDATIONS

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A comprehensive set of infrastructure improvements, policy changes, and programs are recommended in this section that will increase the safety, convenience and enjoyment of bicycling and walking in Plant City. These recommendations were developed based on the existing conditions assessment, field observations, previous studies, along with stakeholder and community input.

Furthermore, these recommendations work towards the realization of the Vision and Goals for the Plant City Walk Bike Plan. Careful coordination should be conducted with stakeholders in the area, including the Hillsborough MPO, Hillsborough County, and FDOT to ensure consistency with other planning efforts. Coordination efforts are especially important, since consistency and reliability is critical for all system users.

The central recommendations of this study are the development of an initial bicycle and pedestrian network. The initial bicycle network; with a highlighted central spine for Plant City that connects residential areas, parks, schools, and activity areas; will form the backbone of the system. The initial pedestrian network focuses on filling in gaps around the City center, and connecting neighborhoods to points of interest. Included with the network recommendations are additional infrastructure recommendations for bicycles, pedestrians, and trails.

The next set of recommendations focuses on infrastructure and support facilities. The infrastructure segment describes different types of bikeway, walkway, and trail improvements that can be implemented along the networks and throughout the City. The recommended support facility is bikeshare. The bikeshare section reviews bikeshare system types and offers recommendations on how Plant City may implement their own system.

After the network and infrastructure recommendations, three catalyst projects are identified, one each for the bicycling, pedestrian, and trail categories. These catalyst projects are intended to kick-start the walking and biking efforts of the community, and serve as examples of future improvements throughout the City. The priority projects include a keystone trail beginning in Downtown Plant City, intersection safety improvements at a high-profile intersection, and an initial bicycle network grid.

The final set of recommendations focuses on programs, policies, and strategies that encourage, enforce, and educate those in the community about walking and biking. They are divided into general and specific policy categories.

### 3.1 BICYCLE AND PEDESTRIAN NETWORKS

The establishment of bicycle and pedestrian networks is a central element of the Plan. These networks provide the guidelines in which infrastructure should be developed, and planning and policy efforts focused. The networks were created on the premise of connecting residential areas, parks, schools, and activity areas. The location of the parks and schools was available using City and County information, but the activity areas were realized through stakeholder and community meetings. Existing infrastructure, planned projects, and field review were also taken into account throughout the development of the networks. Existing and future trails are depicted on both maps, as trails serve people walking and people biking.

#### *Bicycle Network*

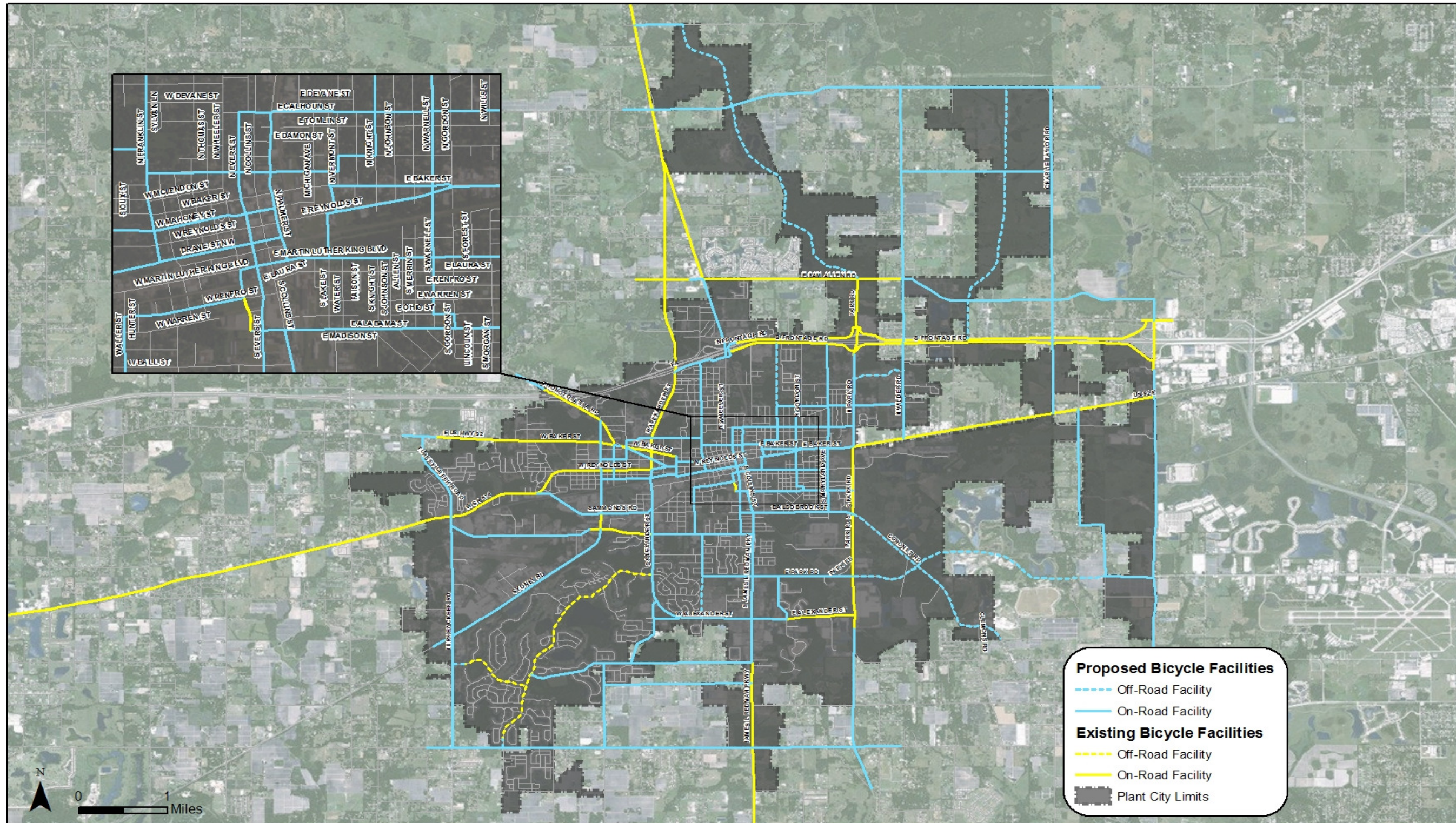
The bicycle network is centered on the long-term development of a spine network for bicycles. Historically, Plant City first developed around the railroad, with Henry Flagler and Henry Plant both constructing routes through the City. The Atlantic Coast Line (ACL) and Seaboard Coast Line (SCL) crossed each other on the southeast edge of downtown, where a central passenger station was built. Paying homage to the Plant City's rail heritage, two spine network routes have been developed, one serving east-west movement and the other facilitating north-south movement. The two routes cross each other just outside the Robert W. Willaford Railroad Museum (restored train station) in Downtown. Implementation of two of the catalyst projects (minimum bicycle grid and Canal Connector Trail further detailed in the Catalyst Project section) serve as components of the long-term spine network. Figure 3.1 displays the spine network in orange, existing facilities in yellow, and other recommended facilities in light blue.

The bicycle network recommendations include nearly 80 miles of new on-street bikeways and 14 miles of new trails. These additional routes will dramatically increase Plant City's bicycle network connectivity. The recommended bikeways and trails provide for a comprehensive, safe and logical network that connects downtown Plant City to the area's schools, parks, neighborhoods, and commercial corridors. Further, the network facilitates connections to adjacent communities. The complete bicycle network is shown in Figure 3.2.

Figure 3.1 Spine Network



Figure 3.2 Bicycle Network



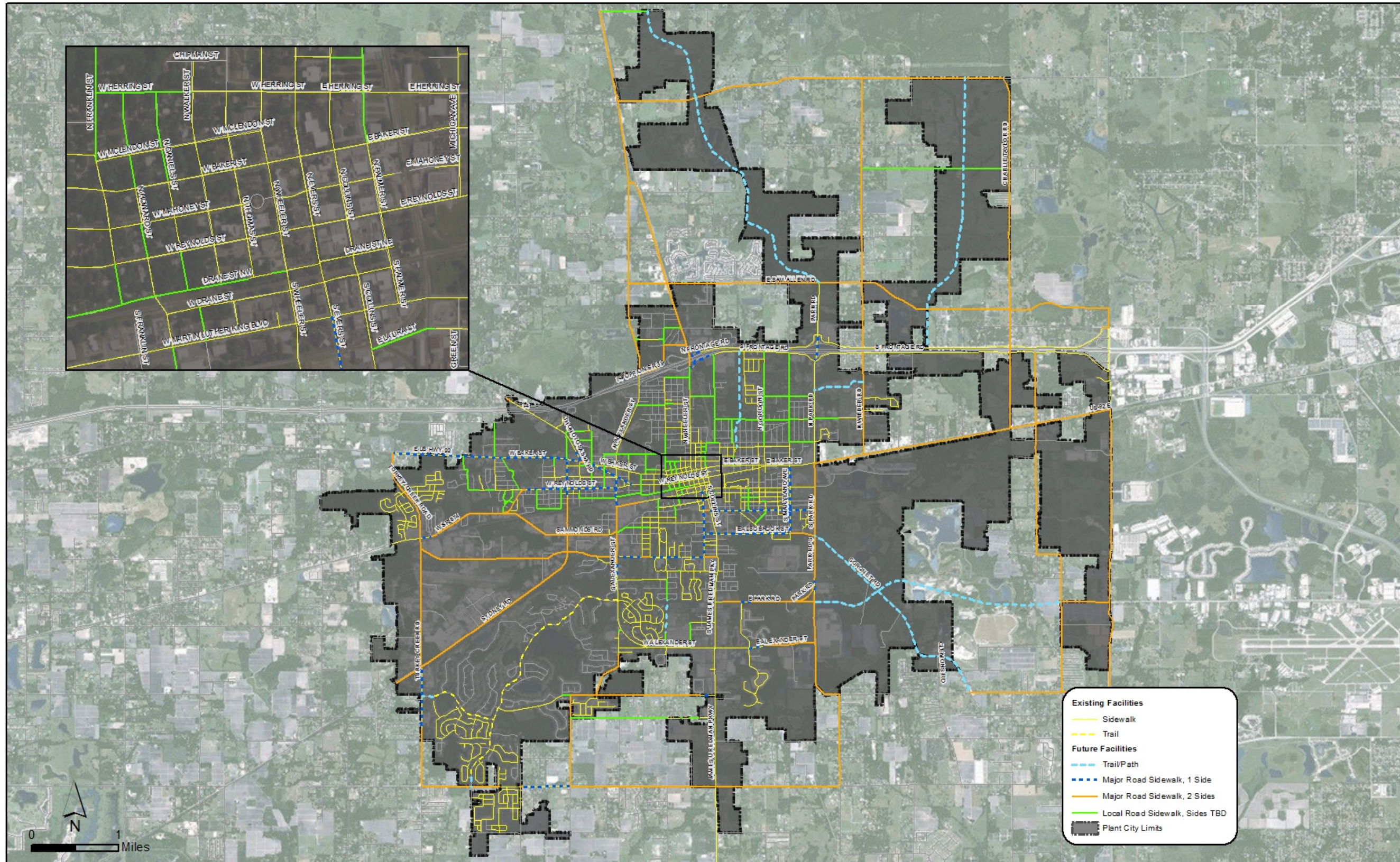
### *Pedestrian Network*

The focus of the pedestrian network is on providing access via the appropriate facilities to destinations such as parks and schools, and along major corridors. The planning process identified both existing and potential areas for new sidewalks within Plant City. The goal of the pedestrian network is to create a connected network of walkways that facilitate people walking for transportation and recreation. These improvements in walking infrastructure will need to be coordinated between different departments, jurisdictions and property owners.

The pedestrian network map provides an overview of the pedestrian network recommended for Plant City. The network was created in close collaboration with City and MPO staff, and community and steering committee input. The map is displayed on the following page in Figure 3.3. The pedestrian network includes the existing sidewalk and trail facilities shown in yellow. The future facilities are divided into four categories based on the type of infrastructure needed: trail/path (light blue); major road sidewalk, one side (darker blue); major road sidewalk, two sides (orange); local road sidewalk, to be determined (TBD, green). The major road sidewalk, one side is shown as a dashed line in order to see the existing sidewalk underneath, in yellow.

Many of the local roads (non-collector/arterial facilities) are two-lane low volume / low speed facilities. The exact configuration of sidewalks on these roadways will be determined in the future by the City. Assuming that sidewalks are provided on one-side, the Plan identifies nearly 21 miles of new sidewalk facilities on local roads.

Figure 3.3 Pedestrian Network





## 3.2 INFRASTRUCTURE AND SUPPORT FACILITIES

The infrastructure and support facilities element provides recommendations for bikeways, walkways, and trails. Building upon the bicycle and pedestrian networks, this section provides applicable facility options for bicycle and pedestrian improvements. The facility options are divided into bicycling, pedestrian, and trail facilities.

### *Bicycling Recommendations*

The two types of bicycling recommendations provided in this section are infrastructure development and bicycling support facilities. The infrastructure development element provides guidance implementing the initial bicycle network. The bicycling support facilities details bikeshare opportunities for Plant City.

### *Infrastructure Development*

The focus of bikeway network development should be on creating safe, low-stress bikeways for a wide range of users. Selecting the best bikeway facility type for a given roadway can be challenging, due to the range of factors that influence bicycle users' comfort and safety. In some cases, there is no single correct facility, and the selection of an appropriate bikeway must balance traffic conditions, land use context, and implementation cost.

Typically, as vehicle speeds and volumes increase along the roadway, so too should the provision of dedicated space exclusively for people biking, as well as increased physical separation (horizontal and vertical) between vehicles and people biking. Other factors beyond speed and volume which affect facility selection include traffic mix of automobiles and heavy vehicles, the presence of on-street parking, available roadway or roadside space, intersection density, surrounding land use, transit stops, transit frequency, and roadway sight distance.

The overall goal of the on-street bicycling infrastructure recommendations is to provide guidelines for implementing the initial bicycle network. Some facilities may be constructed as part of roadway projects, while others could be retrofits for facilities with adequate right-of-way through roadway reconfiguration projects. Generally, on-street bikeway implementation should be considered as a routine part of capital roadway projects, resurfacing projects, or as standalone re-striping projects.

**Bicycle Facility Selection Chart**

As a starting point to identify a preferred facility, the bicycling facility selection chart in Figure 3.4 on the following page provides a tool to determine the recommended type of bikeway to be provided in particular roadway speed and volume situations. To use this chart, identify the appropriate number or lanes, daily traffic volume, and travel speed on the existing or proposed roadway, and locate the facility types indicated by those key variables. The previously mentioned other factors beyond speed and volume are not included in the facility selection chart, but should always be considered in the facility selection and street design process. The darker colors indicate the ideal range for the facility. The lighter colors represent a less-than-ideal range for the facility, but the facility would still be considered acceptable. Examples and descriptions of the facility types are provided in Figure 3.5 through Figure 3.8.

Figure 3.4 Bicycle Facility Selection Chart

**Bicycle Facility Selection Criteria**



### **Bicycle Facility Types**

Several different kinds of bikeways are recommended in this chapter. Brief descriptions are provided here. Consistent with bicycle facility classifications throughout the nation, these bicycle facility design guidelines identify the following classes of facilities by degree of separation from motor vehicle traffic.

- *Bike Boulevard* - Low-volume and low-speed street that has been optimized for bicycle travel through a combination of speed and volume management strategies, wayfinding signage, shared-lane markings, and major-minor intersection crossing treatments.



Figure 3.5 Example bicycle boulevard in Berkeley, CA.

- *Bike Lane* - A portion of the roadway that has been designated by striping, signing, and marking for the preferential and exclusive use of bicyclists.



Figure 3.6 Example bike lane in Tampa, FL.

- *Buffered Bike Lane* - Buffered bike lanes are conventional bicycle lanes paired with a designated buffer space, separating the bicycle lane from the adjacent motor vehicle travel lane and/or parking lane.



Figure 3.7 Example buffered bike lane in Fairfax, VA.

- *Cycle Track* - Also known as protected bike lanes, cycle tracks provide physical separation from motor vehicle traffic through the use of a raised curb, flexible bollards, trees, parked cars, planter boxes, or other elements.



Figure 3.8 Cycle track on East Cass Street, Tampa, FL.

### **Bike Share**

Bike share systems allow people to make short, spontaneous trips. Bike share users typically check out a bike at a station using a kiosk, ride for a short period of time (around 30 minutes or less), and return the bike to another station in the system. Most systems employ a pricing schedule that encourages short, frequent trips and discourages bikes being in use for long periods of time, rather than longer-term rentals that can be accomplished through a bicycle shop.

Bike share systems implement a variety of strategies for success. Different topographies, institutional capacities, and user bases demand different types of systems and technologies. While individual city's systems vary from one context to another, the Institute for Transportation and Development policy have shared characteristics of most successful systems include:

- Networks with dense coverage, averaging about a fifth of a mile between stations.
- Bicycles that are comfortable, aimed towards commuting with parts that discourage theft and re-sale.
- A secure locking system that easily check bicycles into and out of the system.
- A wireless tracking system, such as radio-frequency identification devices (RFIDs), that locates where a bicycle is picked up and returned and identifies the user.
- Real-time monitoring of station occupancy rates through wireless communications, such as general packet radio service (GPRS).
- Real-time user information through various platforms, including the web, mobile phones and/or on-site terminals.
- Pricing structures that incentivize short trips helping to maximize the number of trips per bicycle per day, especially during peak travel times or other strategic times.

There are three major planning phases for a bicycle share system necessary and undertaken in succession to create a system:

1. A **Feasibility study** should be conducted to define how conceivable a bike share system would be to implement. This study would consider the potential demand for a system, and preliminary financial and institutional resources that need to be considered. This includes the necessary analysis to see what capital, fiscal impacts and types of technologies would be necessary to implement the system.
2. **Detailed planning and design** would follow a feasibility study that indicates a system would be able to support a successful venture by either the public or private sectors, or a partnership between the two. This phase would identify the number and size of stations, along with their associated hardware and software.
3. The final step is to **create the business and financial plans**, including advertisements, permitting and contracting with firms to implement the system.



Figure 3.9 Example bikeshare facility.

### **Bike Share Considerations for Plant City**

There are a growing number of bike share systems developing in communities near Plant City. Lakeland and Tampa both have systems that were developed independently of one another. Additionally, the University of South Florida has implemented a campus bike share system to discourage driving single occupancy vehicles across campus. Bike share systems can be implemented by either public entities or by private operators. Plant City should consider investing in the initial system through capital improvements of the system, permitting, and other considerations, depending upon the nature of the agreement with the service provider.

#### *Station-Based System*

Station placement is a key component of bicycle share systems. Stations (or docks) placed outside of a reasonable distance from one station to another will leave riders discouraged, while stations too close together may not encourage people to use the system. The City should evaluate commercial, institutional, recreational, and residential areas with popular destinations, such as the Downtown, hotels, hospitals, and parks, for future bike share locations. Additional consideration could be given to temporarily locating stations at major local events, such as the Florida Strawberry Festival. If the City pursues a bikeshare system with stations, it is recommended that several stations be placed Downtown, potentially at the Robert W. Willaford Railroad Museum, near City Hall and the Bruton Memorial Library, the County services building, and the 1914 PCHS Community Building.

#### *Free-Floating System*

Plant City could also consider the implementation of a free-float system offered by many bicycle share companies. Instead of a station-based system, these bicycles operate using GPS, allowing users to lock the bike at any public rack within a designated area when complete. These systems typically incorporate partnerships with local businesses or not-for-profits. Major partners or sponsors could include a downtown chamber of commerce, restaurants, and other businesses interested in contributing to the ongoing assistance in maintaining the system.

Other strategies could include encouraging temporary bike rental services for major events such as the Strawberry Festival, or pop-up bikeway projects to encourage people to bike rather than drive once in Plant City. By providing bicycles and bikeway projects, the city could alleviate downtown congestion, and increase economic stimulus in the downtown area during events.

Cities with bike share systems that share some similar characteristics with Plant City include:

- Macon, GA (population 93,000)
- Gainesville, FL (population 127,000)
- Lakeland, FL (population 101,000)
- Charleston, SC (population 130,000)
- Spartanburg, SC (population 38,000)



Figure 3.10 Spartanburg, SC Bicycle Share System.

Plant City may consider reaching out to various service providers and discussing the system's potential and future ventures.

### ***Pedestrian Infrastructure Recommendations***

The pedestrian infrastructure recommendations focus on promoting walkability by implementing the pedestrian network. This section provides guidance on pedestrian facility types.

### **Pedestrian Facility Implementation Contexts**

Pedestrian infrastructure should be implemented in context with the surrounding area. The four context examples provided are neighborhood streets, major roads, rural shoulders, and streetscapes.

- *Neighborhood Streets* – Neighborhood streets should have sidewalks on at least one side where densities are up to three dwelling units per acre. On streets with higher density or streets with non-residential land uses, the City should require or prioritize sidewalks on both sides of the street.

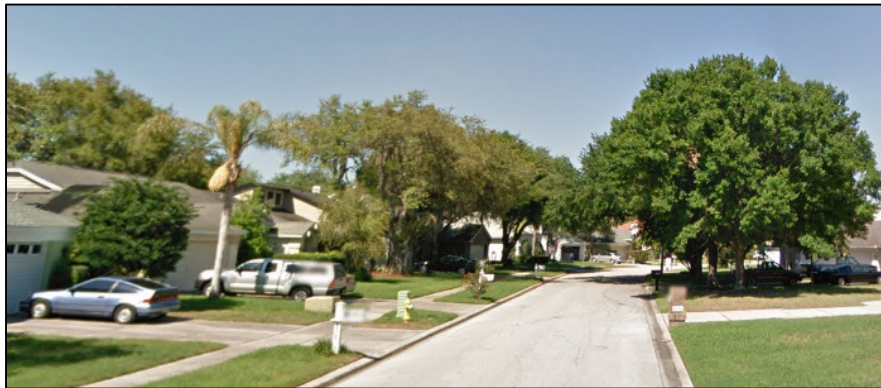


Figure 3.11 Walden Lake sidewalk, Plant City. Source: Google maps.

- *Major Roads* – Along major roadways (collector streets and above), sidewalks should be provided on both sides of the roadways.



Figure 3.12 Major road with sidewalks on both sides. Source: Project Team.

- *Rural Shoulder* – In rural areas, a paved shoulder can provide space for people walking outside of the roadway when there are no sidewalks. However, a shoulder is often inadequate for people who are walking along roadways with speeds above 30 miles per hour. In this instance, dedicated pedestrian facilities should be located adjacent to the roadway.



Figure 3.13 Rural shoulder example. Source: ruraldesignguide.com

- *Streetscape Elements* – A landscape buffer should also be provided to plant shade trees and to create separation between vehicles and people walking along Neighborhood Streets and Major Roads. Pedestrian-scale lighting is also critical along major roads, neighborhood streets, and at intersections.



Figure 3.14 Pedestrian scale lighting, downtown Plant City. Source: Project Team.

### **Facility Implementation**

Many of these facilities can be implemented during routine resurfacing projects. Coordination between departments, jurisdictions, and property owners, can help to determine the necessary steps to implement a facility during resurfacing or road widening projects.



### ***Trails Infrastructure Recommendations***

The overall goal for the trail infrastructure recommendations is to increase health, physical activity, and wellness within Plant City and the region, and to connect neighborhoods to local destinations and rural areas. The proposed trails in Plant City detailed in the bicycle and pedestrian network maps will provide an off-street alternative to on-street bikeways and walkways, and will provide a network that can accommodate all ages and abilities of cyclists and pedestrians. The trail recommendations envisioned in this plan combine recreation and transportation enhancements in one investment.

Trails allow for two-way, off-street bicycle use that may also be used by pedestrians, skaters, wheelchair users, joggers, and other non-motorized users. These facilities are frequently found in parks, along rivers, and in greenbelts or utility corridors where there are few conflicts with motorized vehicles. Trail facilities can also include amenities, such as lighting, signage, and fencing (where appropriate). Key features of trails include:

- Frequent access points from the local road network.
- Signs to direct users to and from the trail.
- A limited number of at-grade crossings with streets or driveways.
- Terminating the trail where it is easily accessible to and from the street system.
- Separate treads for pedestrians and bicyclists when heavy use is expected.

### ***Trail Facility Types***

There are three main types of trail facilities: multi-use or shared paths, sidepaths, and neighborhood accessways.

- *Multi-Use (or Shared-Use) Paths in Independent Right-of-Way (ROW)*  
These paths, located in independent rights of way, are trails that are separate from a roadway and generally follow natural features such as a water way or ridge; utility corridors, such as a powerline easement; or along a railroad corridor, such as a rail-with-trail route. These corridors offer excellent transportation and recreation opportunities, particularly for users of all skill levels preferring separation from traffic.
- *Sidepath*  
A sidepath is a type of shared use path that is located within a road corridor's right of way, yet still is at least 10 feet wide and has protection from the roadway. A sidepath typically has more interaction with traffic through curb cuts for businesses and residences. This sub-type of multi-use path is more common in urban and suburban contexts due to right-of-way constraints. Sidepaths should give special consideration to the size (length) and number of curb cuts, roadway crossings, and landscaping.
- *Neighborhood Accessways*  
Neighborhood accessways provide residential areas with direct bicycle and pedestrian access to parks, trails, greenspaces, and other recreational areas. They most often serve as small trail connections to and from the larger trail network, typically having their own rights-of-way and easements. Additionally, these smaller trails can be used to provide bicycle and pedestrian connections between dead-end streets, cul-de-sacs, and access to nearby destinations not provided by the street network.

### 3.3 PRIORITY CATALYST PROJECTS

The Project Team identified three priority catalyst project recommendations for Plant City to implement. These projects are intended to kick-start the walking and biking focus of Plant City. The projects include an iconic trail beginning in Downtown, an initial bicycle network grid, and intersection safety improvements. They are meant to serve as examples for future improvements throughout Plant City.

#### *Canal Connector Trail*

Plant City currently lacks recreational trails that could fit into a regional context. The creation of a high-quality iconic trail will activate community space, create a community-oriented place and provide new open space for City or County programs, along with a place to recreate or commute to work. Therefore, a trail project was identified by the Project Team named the Canal Connector Trail. The Canal Connector Trail extends the on-street system connecting residential communities, commercial areas, and points of interest to a key recreational route for cyclists and pedestrians. Activities could be held on native landscaping, farmer's markets, and walking or biking programs. Trailheads could be developed at South Frontage Road and in Gilchrist Park, as well as a midpoint stop at Cherry Street. An existing photo of the proposed trailhead location is provided in Figure 3.15, and a rendering of the potential trailhead is provided in Figure 3.16. The land required for much of this trail project is already owned by Plant City and would require minimal right-of-way acquisition to construct.

Additionally, it is recommended that the Canal Connector Trail feature the following trail amenities:

- 12 foot (minimum width) shared-use path.
- Native landscaping.
- Safe, logical transition from on-street bikeways to trail.
- Pedestrian-scale lighting.
- “Eyes on the Trail” and other crime prevention through environmental design principles.
- Neighborhood access points.
- Shaded seating and water fountains.

Figure 3.15 Canal Connector Trailhead, current condition.



Figure 3.16 Canal Connector Trailhead, rendering.



### US 92 and Alexander Parkway Safety Improvements

An additional catalyst project is completing safety improvements at the intersection of US 92 and North Alexander Street. At this intersection, people walking must cross multiple lanes of traffic with frequent turning vehicles. Also, due to the intersection configuration, crossing from one side of the road to another may require waiting for the signal to change twice. Improving this intersection will not only enable pedestrians to utilize safer crossings and provide higher visibility of pedestrians to those driving, but will set an example for other improvements around the City. Figure 3.17 provides a before and after rendering of the intersection improvements.

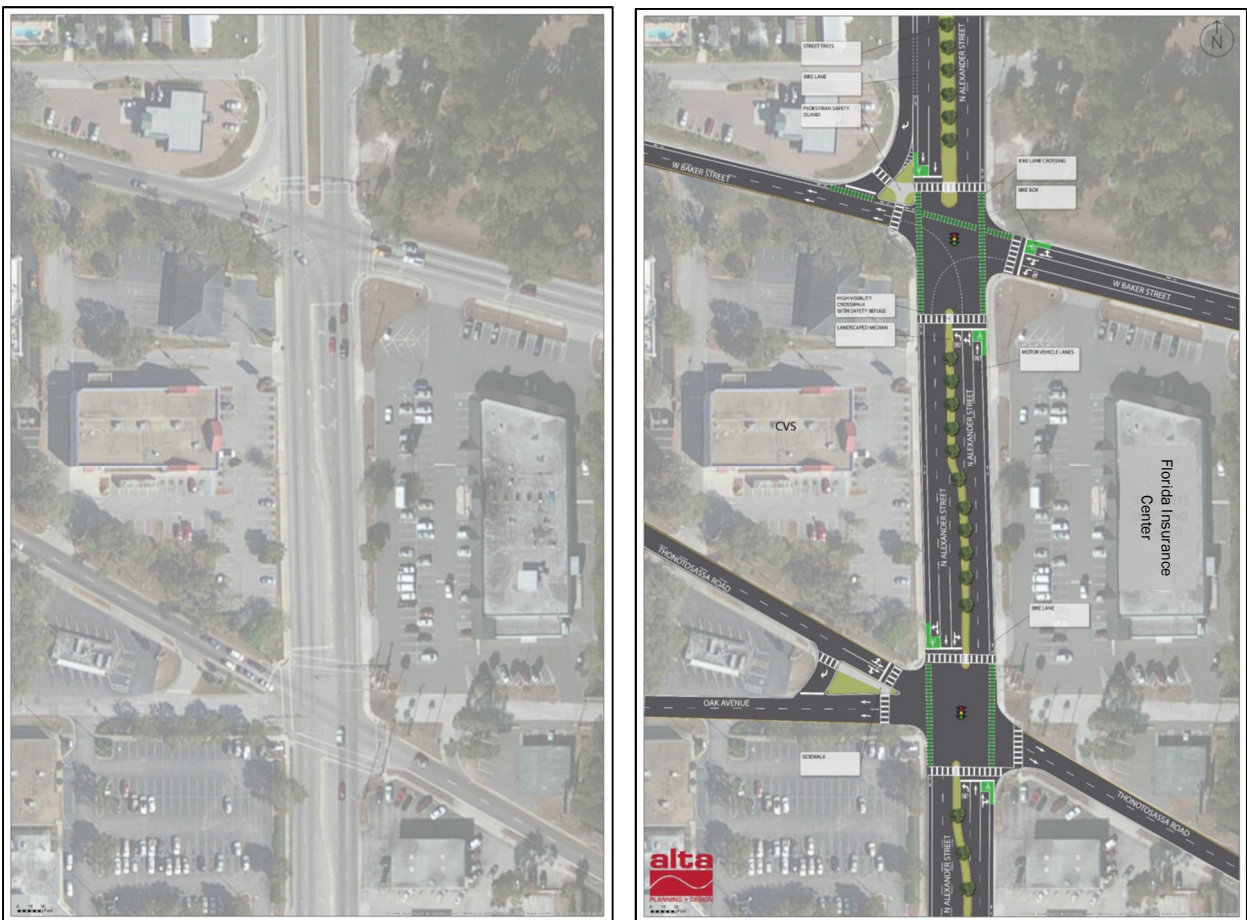
#### **Before:**

The image on the left represents a snapshot of the existing conditions present along North Alexander Street. This area has been the location of a number of bicyclist and pedestrian crashes of varying causes.

#### **After:**

The image on the right represents a re-conceptualized North Alexander Street to be more bicycle and pedestrian friendly. This includes the addition of improved pedestrian crossings, ramps, streetscaping, and other treatments. The improvements also include bicycle facilities such as marked crossings, bike boxes, and landscaping.

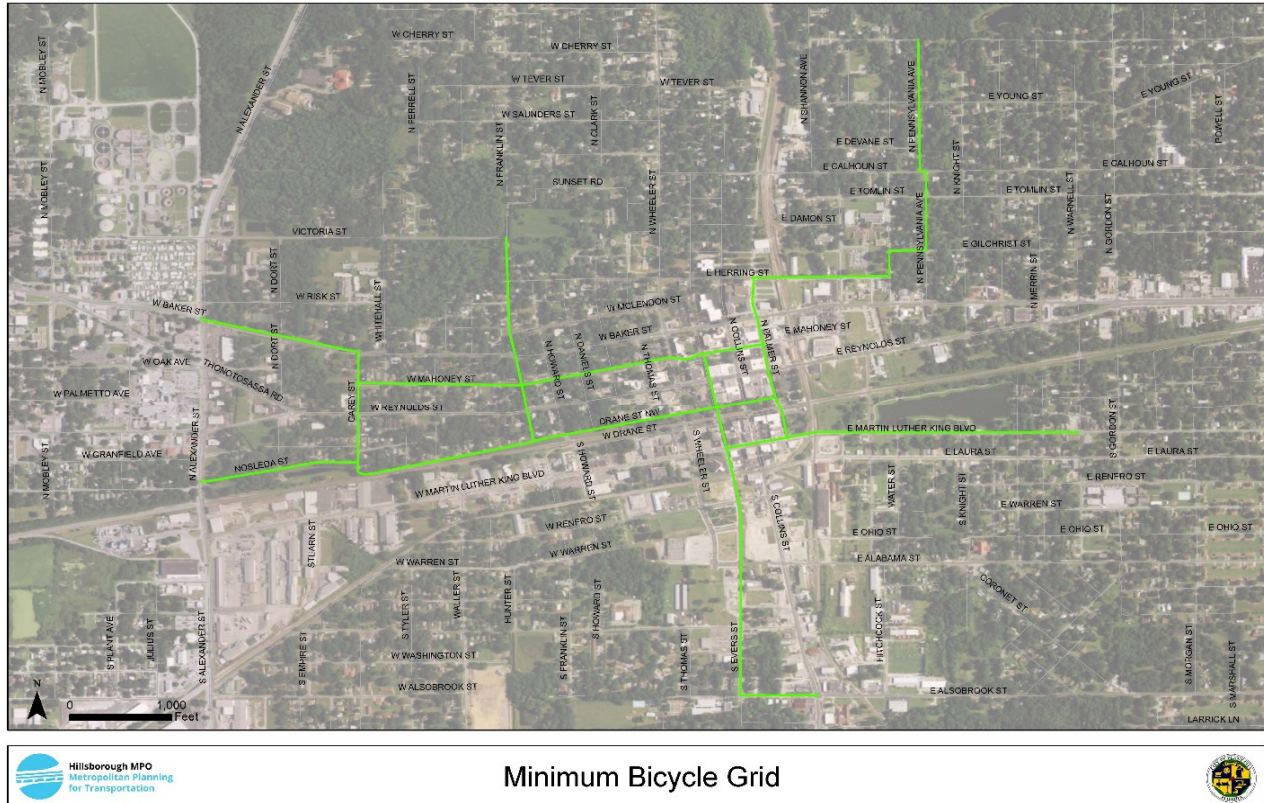
Figure 3.17 Intersection Safety Improvement Renderings: Before and After



### Create Minimum Bicycle Grid

The final catalyst project is the establishment of a minimum bicycle grid that would connect the four quadrants of the City. The network envisioned would be a mixture of on-street and off-street facilities. For people who are biking across town, this grid provides people with options for each direction of travel, while enabling the use of lower speed, lower vehicle volume roads. Additionally, the grid would tie into other facilities such as sidewalks, trails and other bikeways identified in this Plan. These facilities are key to providing people with safe, comfortable facilities as Plant City grows. This grid is displayed in Figure 3.18.

Figure 3.18 Minimum Bicycle Grid



### **Minimum Network**

It is recommended that the grid network be implemented primarily through bicycle boulevards. Elements such as traffic calming, pavement marking, curb extensions and landscaping are examples of improvements that can promote for additional safety, function, and aesthetics of the roadway.

A rendering of sample minimum network improvements along Palmer Street in Downtown displayed in Figure 3.19 through 3.21 demonstrate how roads within the grid network may look in the future. Palmer Street was chosen as it is one of four areas where initial improvements would connect people's homes with destinations in the Downtown. The rendered bicycle boulevard improvements include:

- An intersection enhancement at Baker Street and Palmer Street, which would alert drivers that bicyclists may be crossing.
- On-street pavement markings and signs to improve visibility also prepare drivers to be particularly cautious as this area is giving priority to people who are biking.

Some of the streets comprising the Minimum Bicycle Grid are brick-laid. Note that many bicycle facilities in European cities such as Amsterdam are comprised of bricks, cobblestones, etc. While generally this should not be a problem for slow-speed riding in Plant City, minimal modifications to materials used on some streets may be desirable. Completion of the Minimum Bicycle Grid in the core of Plant City will provide the foundation for implementing the larger bicycle network detailed in Section 3.1.

*Figure 3.19 Bicycle Boulevard Rendering, Current*



Figure 3.20 Bicycle Boulevard Rendering 1



Figure 3.21 Bicycle Boulevard Rendering 2



### 3.4 PROGRAMS AND POLICY RECOMMENDATIONS

Programs and policies help guide the vision towards reality through a policy framework and programmatic support for walking and biking. The establishment of policies and procedures help set precedent for roadway projects and desired future conditions. Programs help people understand how to safely use the transportation system that may have undergone changes such as bicycle boulevards or other safety improvements. Programs also encourage people to think about walking or biking where they may have traditionally only considered driving. These recommendations should be considered as individual steps that should be taken in careful coordination across the City departments and with other stakeholders in the area such as Hillsborough County and Hillsborough MPO. The two types of policies recommended are general policies and specific policies.

#### *General Policies*

##### **Adopt a Complete Streets Policy**

As described by Smart Growth America, Complete Streets are streets for everyone. They are designed and operated to enable safe access for all users, including pedestrians, bicyclists, motorists, and transit riders of all ages and abilities. By adopting a Complete Streets policy, communities direct their transportation planners and engineers to routinely design and operate the entire right-of-way to enable safe access for all users. This means that every transportation project will make the street network better and safer for drivers, pedestrians, and bicyclists, making the City a better place to live.

Therefore, Plant City should adopt a Complete Streets Policy to ensure that roadway improvements consider the movement and enjoyment of all road users. The City has already made great strides towards Complete Streets with the recent study of Collins Street from Baker Street to Alexander Street. This study considered the transfer of ownership of a segment of the roadway to the City and the construction of a bypass to move heavy vehicle traffic off of the corridor. The study also considered how to create more friendly spaces for people to walk and bike in the corridor through roadway reconfiguration.

##### **Implement “Alert Today, Alive Tomorrow” Campaign**

The Alert Today Alive Tomorrow campaign is an effort to inform and provide activities to Florida’s most dangerous places to bike or walk. The program uses television, radio, social media, transit advertising, local education, and enforcement activities in an effort to reduce the number of crashes in high risk areas. Hillsborough County ranked within the top ten counties for serious injuries and fatalities for biking and walking. Plant City should consider becoming more involved with this campaign to improve safety and access state resources in an effort to reduce the number of serious injuries and fatalities in Plant City.

##### **Continue Implementing Safe Routes to Schools**

Safe Routes to Schools (SRTS) is a movement to ensure that all students have safe and convenient biking and walking routes to schools. The movement includes many concepts for increasing the number of youth who bike or walk to school. These concepts are infrastructure improvements and programs geared toward encouragement of non-automotive means of getting to school and safe roadway use. FDOT has a strong Safe Routes to Schools Program that funds projects locally. Plant City should consider funding future needs identified within this plan and in other areas as development occurs through this FDOT program. Additionally, Bike Walk Tampa Bay has regional contacts that offer safety lessons through partners that could help facilitate lessons in Plant City.

##### **Develop a Pedestrian and Cyclist Wayfinding System**

Plant City should develop a wayfinding program that defines routes and identifies a sense of place for users to safely and comfortably walk or bike to key destinations in the community. Wayfinding systems encourage people who bike and walk to take routes other than those that they would normally drive. These walking



and biking routes typically have lower vehicular speeds and cars on the road, with additional facilities and considerations given to people who are not in automobiles. A wayfinding system may also help visitors from out of town who bike or walk better orient themselves to points of interest around town while not increasing the number of cars on the road.

**Create a Downtown Pedestrian and Bicycle User Map to Guide Visitors to Destinations**

In addition to a wayfinding system, the City should develop a pedestrian and bicycle user map focused on Downtown. User maps are important for visitors or people who want to walk or bike to local destinations. User maps also help orient visitors to important destinations within the City, such as parks, schools, the hospital, and Downtown.

**Undertake a Bike Share Pilot Program**

Bike share can provide visitors in Downtown an opportunity to visit cultural destinations and businesses by bike. Plant City should discuss lessons learned with the Cities of Lakeland and Tampa, and with bike share vendors about implementing a pilot project. This project would be small in scale, with one to two stations, to test the use of bike share as a tourism and economic development tool.

***Specific Policies***

These policies pertain to standards that may be potentially adopted to promote a more bikeable and walkable Plant City.

**Gaps in the sidewalk network should be closed.**

The sidewalk network should be complete and connected.

**Priority pedestrian areas should be universally accessible.**

Sidewalks and crossings should be ADA compliant and adequately maintained.

**Sidewalks should be on both sides of the roadway.**

Pedestrians should have access and a pathway on both sides of all collector and arterial streets and on local streets with commercial land uses or residential densities above three dwelling units per acre.

**Frequent and safe street crossings should be provided.**

Pedestrians should be able to cross safely and frequently along streets. Crossing should be marked or signalized to provide a safe crossing.

**Bridges and underpasses should provide sidewalks on both sides of the roadway.**

Pedestrians should be able to cross under or over canals and interstates on both sides of the roadway.

**Policy and regulatory tools should be developed that require or incentivize the construction, reservation, or dedication of trail corridors in conjunction with new development.**

Plant City will find development of a trail system in the City limits and to connecting communities difficult without strong requirements in place that ensure the required right of way, landscaping, and trail protections can be put in place to develop a system.

**Consider dedicating staff time, funding, or other resources towards the development of feasibility studies and implementation plan for the Plant City Trail System.**

The City should commission trail feasibility studies that include elements of public input, right of way review, preliminary environmental and engineering design, amenities, wayfinding and branding, landscaping, cost estimates, and other important elements of a successful trail.

## 4.0 IMPLEMENTATION PLAN

The City of Plant City is well positioned to make long strides in pedestrian and bicycle facilities through these actions and recommendations. Implementing the recommendations within this Plan will require leadership and dedication to bicycle, pedestrian, and trail facility development. Equally critical, and perhaps more challenging, will be meeting the need for a recurring source of revenue. Even small amounts of local funding could be very useful and beneficial when matched with outside sources. Most importantly, the City and MPO need not accomplish the recommendations of this Plan by acting alone; success will be realized through collaboration with regional and state agencies, the private sector, and non-profit organizations.

Given the constant change in funding availability at local, state, and federal levels, it is difficult to know what financial resources will be available at different time frames during the implementation of this Plan. However, there are still important actions to take in advance of major investments, including key organizational steps, the initiation of education and safety programs, and the development of strategic, lower cost infrastructure improvements. Following through on these priorities will allow the key stakeholders to prepare for the development of larger walkway or bikeway projects over time, while taking advantage of strategic opportunities as they arise.

### 4.1 FUNDING STRATEGY

Typically, cities have access to five funding sources that are key for implementing planning efforts:

- *Capital Budgets*: Regularly scheduled capital improvement budgets allow for projects to be done in a collaborative manner between agencies and regular spending.
- *Departmental Budgets*: City departments could share staff and financial resources to take mutual steps towards implementing projects with budgets, technical resources, and staff time.
- *Fees*: User or impact fees are key strategies to funding projects in the city budgets.
- *Fundraising Campaigns*: Frequently, the private and not-for-profit sectors are willing to assist the City with clearly defined, well-marketed campaigns to improve safety.
- *Grants*: Multiple grant resources are conducted throughout the year that could be identified and frequently used to implement elements of this Plan.

### 4.2 ESTIMATING PROJECTS

It is difficult to accurately estimate project costs in a high-level plan such as this one. However, many of these projects can be implemented during routine resurfacing projects. Further study is needed on specific roadways to determine whether sidewalks should be provided on one side or both, whether bicycle facilities are on-road or off-road, and whether the provision of side paths offsets the need for sidewalks and bike lanes. As such, generalized cost-per-mile information from FDOT is provided for different types of facilities. The cost estimates include:

- Sidewalks (5' on one side) = \$200,000
- Bike lanes (5' on both sides) = \$180,000
- Buffered bike lanes (7' on both sides) = \$260,000
- Multi-use trail (12' off-road on one side) = \$420,000
- Pedestrian-activated signal = \$20,000
- Crosswalk = \$3,000

This plan recommends construction of sidewalks on many local streets. As most are two-lane facilities with low traffic volumes, sidewalks could be constructed on just one side in some instances. The City should

consider setting aside at least \$200,000 per year for sidewalk construction on local roads. Based on the cost estimates above, this would allow for completion of the local road needs identified within twenty years.

### 4.3 IMPLEMENTATION ROLES

The following chart depicts the various agencies and stakeholders who will be involved in implementation of this plan. Continued coordination and collaboration among the groups is essential to the Plan's success.



## 4.4 IMPLEMENTATION TIMEFRAME

The timeline for recommendations varies for different facilities and programmatic improvements. Thus, improvements should be considered on a short term to long term basis depending on available funds and staff resources. These recommendations include priority projects for walking, biking, and trail systems and policies or programs that could also be adopted. Projects implemented in the short term will generally have the highest visibility and help provide people with tangible benefits as components of the Plan. They also provide a sense of guidance and direction showing that Plant City aims to be more pedestrian and bicycle friendly in realizing the vision.

Short-term recommendations include:

- Implement safety improvements in high pedestrian crash areas.
- Designate the Minimum Bicycle Grid network.
- Advance development of the Canal Trail through design and land acquisition.
- Construct sidewalks on local streets near the downtown core, schools, and parks.
- Continue promoting and facilitating Safe Routes to Schools.
- Adopt a Complete Streets policy.
- Implement an “Alert Today, Alive Tomorrow” campaign.
- Develop a pedestrian and bicycle wayfinding system.
- Create a downtown pedestrian and bicycle user map to guide visitors to destinations.
- Undertake a bike share pilot program.

Longer term recommendations include the provision of pedestrian and bicycle facilities on all collector and arterial roadways and completion of the spine network. These projects will require collaboration with the County, MPO, and FDOT to ensure that programmed projects include appropriate considerations for biking and walking.