



**LAKE  
COUNTY**  
FLORIDA  
*Real Florida.  
Real Close.*



**OFFICE OF PARKS AND TRAILS  
MASTER PLAN**

**VOL. II  
TRAILS**

**SEPTEMBER 2018**

**Tindale**  **Oliver**  
design



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A special thank you goes out to the public who attended the stakeholder interviews and public workshops and provided input.

The following elected officials, departments, offices, committees and consultants participated in the development of the Lake County Trails Master Plan Update.

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**Sean Parks – District 2**

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**Josh Blake – District 5**

Lake County's 14 Municipalities

Parks, Recreation, and Trails Advisory Board

Lake County Office of Parks & Trails

Lake County Public Works Department

Lake County Agency for Economic Prosperity

Tourist Development Council (TDC)

Lake-Sumter Metropolitan Planning Organization (LSMPO)

Bicycle and Pedestrian Advisory Committee (BPAC)

Representatives of various agencies (FDOT, OGT, FDEP, and Others)

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## Executive Summary

This updated Trails Master Plan represents an extensive and highly collaborative effort involving the community, the Office of Parks and Trails and numerous agencies and committees to review and update the vision for the Lake County Trails system. This vision will continue to direct the expansion and maintenance of the system. This update does not preclude the prior plan, and should be used in conjunction with the 2008 Trails Master Plan.

In addition to staff input, an extensive outreach effort included interactive workshops in each Commission District as well as feedback from 14 Municipalities, Lake County Agency for Economic Prosperity, Tourist Development Council, Lake County Public Works Department, Bicycle and Pedestrian Advisory Committee (BPAC), and the Lake-Sumter Metropolitan Planning Organization (LSMPO). Feedback highlighted opportunities for collaboration as well as identified new trails to add to the network. Maps at the end of this section illustrate the Master Plan, the identified Regional Trails and the Blueway Network. Additional detail about the alignments can be found in Section 6.

### Mileage Charts

The plan identifies an entire network, the regional network as well as a smaller sub-set of priority trails. The entire network includes many trails that are conceptual. **Conceptual trails** are trail opportunities to be explored if related roadway projects emerge or a development opportunity is identified but would not be pursued on their own. The **priority trails** are those modified from the prior plan and several new alignments that were supported during the outreach process. These trails were evaluated and prioritized using the criteria shown in Section 9. The **regional network** represents the longer trails that make cross-county and adjacent county connections. They satisfy the Lake-Sumter Metropolitan Planning Organization’s (LSMPO) definition of regional trails and many of the miles are on the Florida Department of Transportation (FDOT) SUNTrail opportunity network. Tables (ES) 1 shows the proposed mileage of each network and Table (ES) 2 shows the breakdown of existing trails and mileage.

**Table (ES) 1: Multi-Use Trail Network Mileage**

Network	Existing	Proposed Miles	Total
Entire network*	52	336	388
Priority network**	14	164	178
Regional network**	14	131	145

\* local trail mileage is included when known

\*\* Includes only estimated County maintained miles

**Table (ES) 2: Existing Multi-Use Trail Network and Mileage**

Multi-use Trail	Miles
South Lake Trail (Phase I & II)	12.60
Hancock Trail (Phase I,II,III)	6.20
Wilson Lake Trail	3.00
Black Still Lake Trail	0.75

**Table (ES) 2: Existing Multi-Use Trail Network and Mileage, continued**

Multi-use Trail	Miles
Sleepy Hollow Trail	0.10
Tav-Lee Trail (Phase I)	3.50
Green Mountain Trail (Montverde Greenway Trail)	1.00
Lake Apopka Loop Trail	16.10
Fountain Lake Trail	2.00
Magnolia Trail	1.00
Venetian Garden Trail	0.50
Gardenia Trail	0.80
Leesburg-Wildwood Trail (Phase I)	2.70
Tremain Street Greenway Trail	0.50
Captain Haynes Road Trail	0.80
<b>Total</b>	<b>51.55</b>

**Table (ES) 3: Existing Major and Minor Trailheads**

Major Trailheads	Multi-Use Trail
Green Mountain Scenic Overlook & Trailhead	Lake Apopka Loop Trail
Minneola Athletic Complex	Hancock Trail
McDonald Canal Boat Ramp	Lake Apopka Loop Trail
Minor Trailheads	Multi-Use Trail
Cooper Memorial Library	Hancock Trail

### Maintenance

Maintenance is a critical component to this plan and to the future of the trails system. Generally, the Office of Parks and Trails is responsible for the maintenance of trails outside municipal boundaries and the municipalities agree to maintain the trails within their limits through maintenance agreements which are completed early in the design process.

### Needs Assessment

To determine how much investment should be made in trails we need to assess where we are based on population needs. These needs are based on the State Comprehensive Outdoor Resources Plan (SCORP) guidelines for level of service (LOS). For multi-use trail the guideline is 1 miles of multi-use trail from every 5000 residents. <sup>1</sup> Lake County has 52 miles of multi-use trail and a population of 331,724 <sup>2</sup> so the county should have 66 miles of multi-use trail to meet current needs. The LOS for Nature/Hiking Trails is 1 mile for every 6750 residents. <sup>3</sup> Lake County currently has 218 miles of nature/hiking trails <sup>4</sup>

<sup>1</sup> (2008 SCORP and 2008 Trails Master Plan)

<sup>2</sup> (BEBR 2017)

<sup>3</sup> (2008 SCORP and 2008 Trails Master Plan)

<sup>4</sup> (OG&T 2016)

across all agencies which far exceeds the 49 miles required to meet SCORP. Even with Lake County's fast growing population the county should meet its Multi-use Trail requirement with completion of South Lake Trail/Coast to Coast, Wekiva Trail, and Neighborhood Lakes Trail which will add about 25 additional miles over next 5 years.

### *Implementation items*

The Plan identifies alignments and opportunities as well as implementation recommendations that should be taken to ensure the success of the plan. The entire list is available in Section 5 and the most critical items are listed below:

- To support the expansion and maintenance of the Lake County Trails System, work towards a dedicated and/or increasing existing funding source, including possibly trail impact fees, user fees, and/or a bond referendum, for construction and maintenance of trails within Lake County.
- Continue to coordinate trail plans review with the Lake County Public Works Department and other agencies during PD&E and the design stages.
- Coordinate annual reviews of funding through the Lake-Sumter MPO and BPAC.
- Coordinate with the Lake-Sumter MPO on submissions of projects to the annual List of Priority Projects, including trailheads and trail amenities.
- Coordinate with local governments for adoption of the Lake County Trails Master Plan into local Comprehensive Plans, city trails masters plans, and work to protect trail corridors.
- Continue to develop and maintain relationships with other jurisdictions for the coordination, implementation and management of the trail system with the goal of local management of trails within jurisdictional boundary.
- Continue to coordinate with staff in adjacent counties, MPOs, OGT and FDOT to plan for and construct trails across county lines to help create a seamless and connected regional trail network.
- Continue to coordinate with the Lake County Public Works Department to include trails and wider sidewalks on new roadways and roadway expansion plans.

### *Plan highlights*

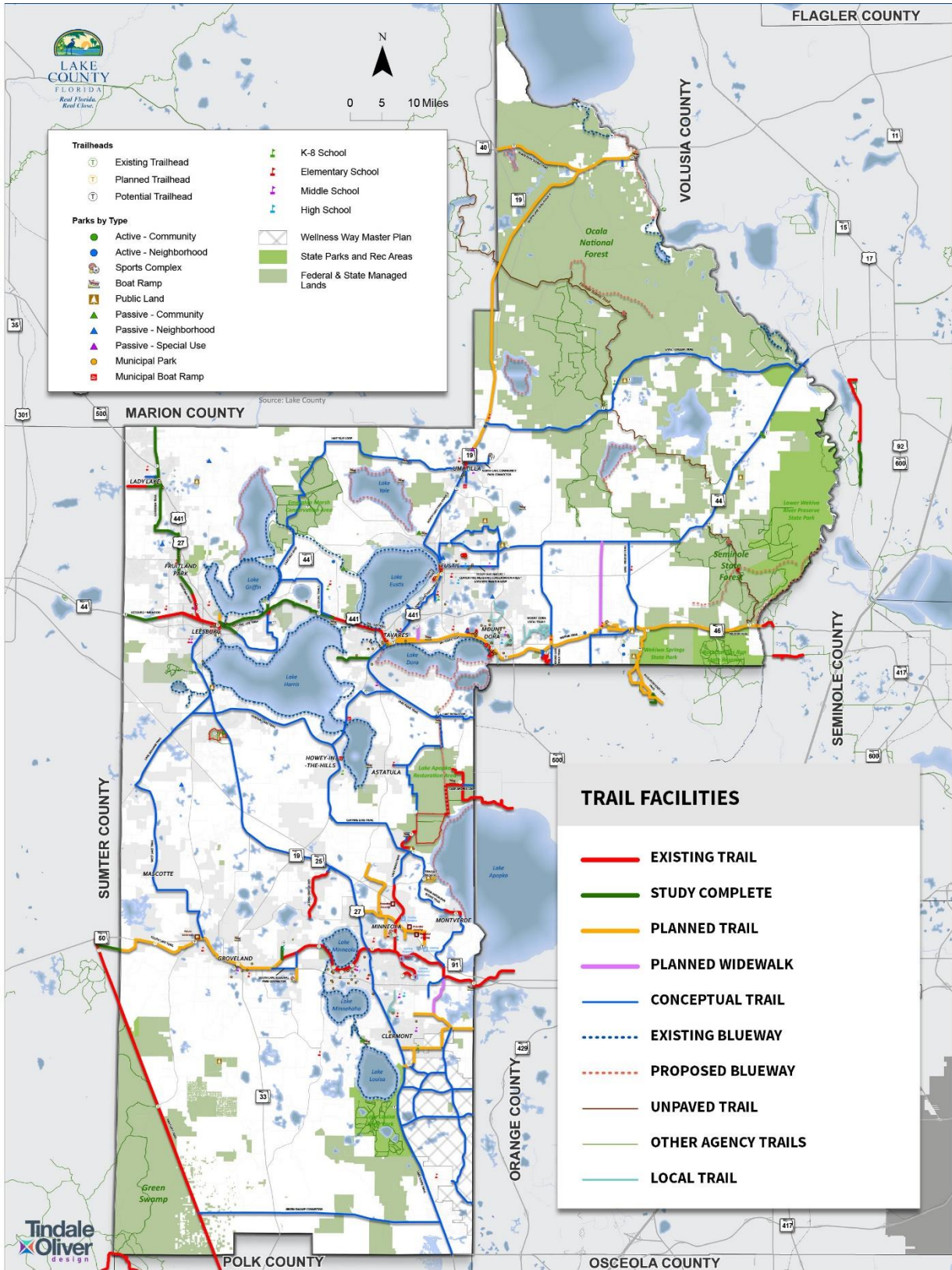
#### **Master Plan**

The Master Plan has been developed to illustrate all proposed trail opportunities in Lake County and incorporates by reference all municipal plans. Land developers have and will continue to play a large role in the expansion and enhancement of the county trail network and this plan creates a framework for that ongoing collaboration and should be designed to connect to existing or planned infrastructure. Opportunities exist within roadway right-of-way as well as in independent rights-of-way. Each of these trail types take a different approach to move designs through the process. Regardless of the approach, collaboration and communication are required. Map ES-1 illustrates the Lake County Trails Master Plan.

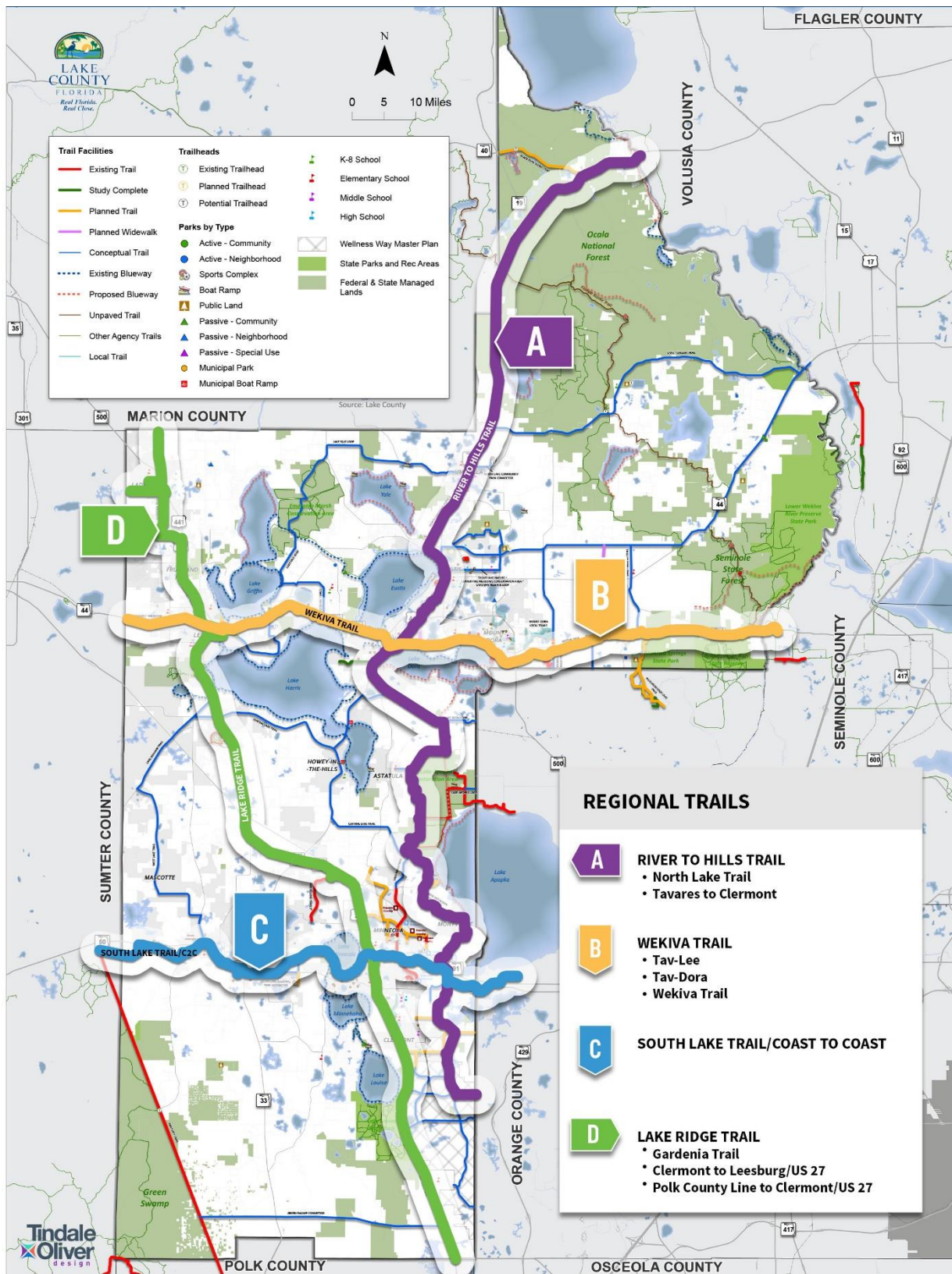
## **Regional Trails**

The Plan represents a regional vision to develop primary trail routes throughout the County. The Regional Trails connect the major areas of the county as well as connecting to adjacent counties and the FDOT statewide network. Construction of these major trails will require collaboration by a variety of agencies and represents a long term vision. Map ES-2 illustrates the Lake County Regional Trails Master Plan.

Map ES 1: Lake County Trails Master Plan



## Map ES 2: Lake County Regional Trails



## Blueways

Blueways are scenic paddling trails that provide a guided navigable route along or around Lake County's various rivers and lakes. They require collaboration with Florida Department of Environmental Protection (FDEP), U.S. Army Corps of Engineers, and the United States Coast Guard (USCG) for permitting and sign implementation along navigable waterways. In addition, cooperation with various municipalities, St. Johns River Water Management District (SJRWMD) and Lake County Water Authority (LCWA) to install signage and to provide access points is often required.

The proposed blueways build on an already robust blueway trail system in the County. Blueways can connect water bodies or be self-contained. Table (ES) 2 details the existing and proposed mileages for blueways in Lake County. Map ES3 illustrates the existing and proposed blueways plan. See Section 9.2.4 for additional information.

### Purpose

They offer trail users an opportunity to experience the wonderful natural resources and scenic beauty of Lake County while also bringing additional economic impacts to the county and local communities through tourism. These paddling trails tie in well with the Lake County Agency for Economic Prosperity's vision of "Real Florida, Real Close" Map ES-3 illustrates the Lake County Blueways Master Plan.

### Maintenance

Blueways have an annual maintenance and repair cost of around \$6,000.00 per year for the existing 162 mile system. This covers checking and straightening signage, replacing damaged signage, and light vegetative clearing around signs so they remain visible to trail users.

### Implementation Costs

Bring a new blueway trail into the system is not free. A new blueway requires permitting, design, signage, signage installation, maps, and updates to [www.paddl lake.com](http://www.paddl lake.com) and Office of Parks and Trails website. The estimated cost for the approximate 100 miles (See Table ES-3) of new paddling trails will be \$70,000.00 to bring into the County's system and additional \$4,000.00 per year in maintenance.

### Shared Resources

The Office of Parks and Trails worked closely with the Office of Communications and Office for Economic Prosperity to develop maps that can be found at [www.paddl lake.com](http://www.paddl lake.com) or printed from online resources on the Office of Parks and Trails webpage.

In 2010 Lake County and LCWA entered into a memorandum of understanding for sharing of canoes and kayaks, related equipment, and join participation in interpretive nature trips. This includes up to 6 guided "Paddling Adventures" each year open for free to the public.

**TABLE (ES) 2: EXISTING AND PROPOSED BLUEWAYS**

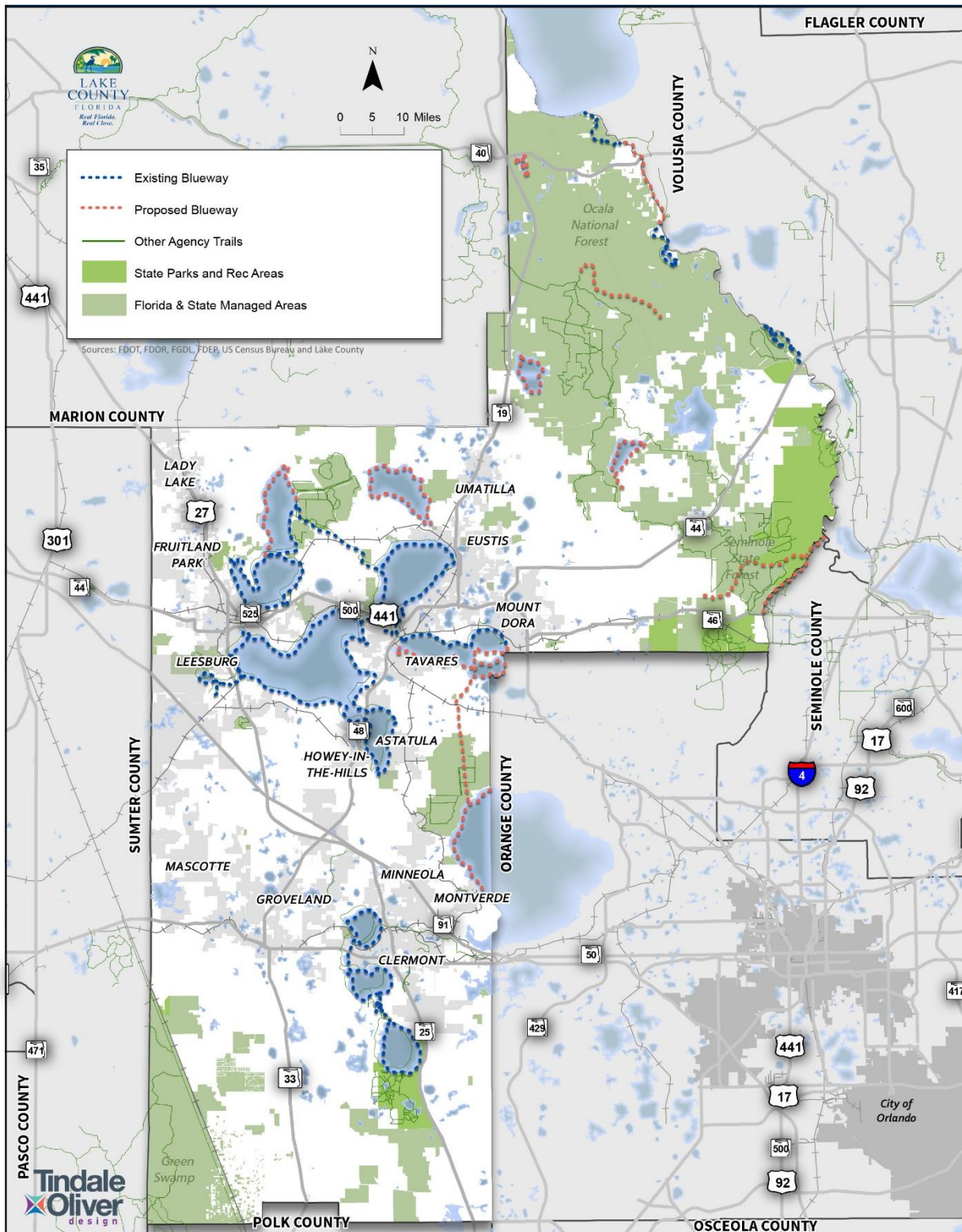
Blueway	Mileage	Status
Blue Creek Run	8.2	Existing
Stagger Mud Run	7.54	Existing
St. Francis/Dead River Run	10.78	Existing
Lake Griffin Run	16.59	Existing
Lake Harris Run	36.89	Existing
Helena Run	8.67	Existing
Golden Triangle Run	21.0	Existing
Palatlahaha Run	28.96	Existing
Lake Eustis/Haynes Creek Run	22.6	Existing
St. Johns River Run	11.48	Proposed
Wildcat Lake Run	3.24	Proposed
Alexander Springs Run	12.44	Proposed
Lake Dorr Run	5.43	Proposed
Lake Norris/Upper Blackwater Creek Run	6.63	Proposed
Wekiva Wild & Scenic River Run	11.69	Proposed
Lake Beauclair Run	4.6	Proposed
Apopka-Beauclair Canal Run	3.97	Proposed
Lower Blackwater Creek Run	14.38	Proposed
Upper Lake Griffin	12.26	Proposed
Lake Yale Blueway	3.0	Proposed
Lake Apopka Blueway	10.00	Proposed

**TABLE (ES) 3: Number and Miles of Existing and Proposed Blueways**

	Number of Blueways	Miles	Annual Cost
Existing Blueway Trails	9	162	\$6,000
Proposed Extensions or New Trails	12	100	\$4,000

# TRAILS

Map ES-3: Lake County Existing and Proposed Blueways



## Nature/Hiking Trails

### Purpose

Nature/Hiking Trails are an important component in outdoor recreational opportunities and provide a more up-close opportunities to enjoy nature and outdoor hobbies such as bird-watching, photography, butterfly watching, and native plant viewing. These trails may vary in width from simple footpath to a wider packed surface like clay or lime rock. These trails are usually entirely inside an existing park but a few like the Florida Trail connect many destinations through scenic natural corridors.

### Planning Process

Nature/Hiking Trails are usually developed with the idea of minimizing impacts to the ecosystem while providing access to keep vistas, ecosystems, and wildlife viewing. Most are simply cut by mowing or bush hogging and then mapped with GPS to create trail maps.

### Needs Assessment

The recommended miles of nature/hiking trail is 1 mile for every 6,750 residents. Lake County has 32.7 miles of nature/hiking trails located inside county parks. In addition the Office of Greenways and Trails states there are 218 miles of nature/hiking trails (This includes equestrian trails that can be used for hiking) as of 2016 through Lake County's State and Federal owned lands. These lands include Ocala National Forest, Seminole State Forest, Emerald Marsh Conservation Area, Lake Louisa State Park, and others.

**Table (ES) 4: Existing County Maintained Nature Trails**

Nature Trail Park Location	Miles
Ferndale Preserve	7.00
Haynes Creek Park	0.80
Lake Idamere Park	1.50
Lake Jem Park & Boat Ramp	0.40
North Lake Community Park	1.70
P.E.A.R. Park	5.10
Paisley Park	0.40
Palatlahaha River Park & Boat Ramp	0.80
Pine Forest Park	0.50
Ellis Acres Reserve	3.20
Lake May Reserve	2.30
Pasture Reserve	2.70
Pine Meadows Conservation Area	6.30
<b>Total</b>	<b>32.7</b>

## 1 Introduction

### 1.1 Purpose

Trails are an integral part of Lake County communities. Being used for recreation and increasingly for transportation, trails help connect people to places while providing local and regional opportunities for walking and biking. They also provide economic and health benefits to the surrounding communities.

The Trails Master Plan Update (Plan) is to provide a framework for continuing to expand and improve the Lake County trail system. Picking up where the 2008 Trails Master Plan left off, this Plan identifies new alignments and updates the ones previously identified. This document also prioritizes those trail alignments and identifies implementation actions that support trail development. Much has changed since the adoption of the prior plan, including construction of major trail segments, so in addition to new trails, this plan includes an increased focus on maintaining what the County has already constructed and collaboration with other agencies.

### 1.2 Planning Process

The development of the Plan began in 2017 with a review of GIS data, policies, background documents, stakeholder interviews and public workshops. This effort established the existing and future conditions of the County, as well as its needs and overall vision.

#### 1.2.1 Needs Assessment

Understanding what exists and what future demand will be is an important step to establish the needs for the plan and ultimately identify projects that respond to those needs. The *Needs Assessment Technical Memo* looked at implementation progress, demographics, regional needs as well as economic development and staffing. This Technical Memo can be found in the Appendix and highlights are provided here.

In 2008 a plan vision was created to guide the planning process. This Vision is still applicable and will continue to set the stage for future planning efforts.

**Develop a cohesive countywide trail system that will connect people and places through a regional network**

To achieve this vision, east/west alignments were created by the construction of the Wekiva Trail (including extending it to the Sumter County Line) and completion of the South Lake Trail/Coast-to-Coast Trail. A north/south alignment was identified and is part of the MPOs trails vision to help build out the network of regional trails.

Population growth in the Four Corners Area and an assessment of existing facilities revealed an overall lack of trails and other recreation opportunities. For this reason, the area has been highlighted for future study.

#### 1.2.2 Community Input Highlights

To ensure community input, the Office of Parks & Trails hosted community workshops to get feedback in each County Commission District. Each workshop used the same format, presenting the existing conditions, as well as some preliminary findings. Participants were given the opportunity to markup maps with trail ideas and other feedback. An online survey supplemented the workshop gatherings to obtain comments from the community at large. The recommendations from the workshops and the

online survey where then reviewed and refined by Staff. The *Community Survey Results Memo* detailing the workshops and survey responses can be found in the Appendix and highlights are provided here:

- Trails are very popular with Lake County residents, with 40% noting that they use trails daily or weekly
- There is a strong community desire to finish trails and parks projects that have been started
- Partnerships with local agencies are considered key to getting projects done
- Facilities should be planned for high growth areas of the County, such as the Four Corners

Specific trail connections and projects were identified by workshop attendees and on-line survey participants:

- Coordinate with FDOT on a trail along US 27 and on the North Lake Trail Phase 3
- Develop a loop between Tavares, Mount Dora and Eustis
- Connect the Wekiva Trail to the South Lake Trail
- Connect Umatilla to North Lake Community Park

## 2 Economic Benefits

There are numerous studies that show the economic benefit of trails within their communities. The Florida Office of Greenways and Trails notes that every million dollars spent on trails yields 9.6 jobs. State trails like the Withlacoochee State Trail have had a direct economic impact of over \$36 million dollars.<sup>5</sup>

In 2011 the *Economic Impact Analysis of Orange County Trails* report noted that Orange County found that the average trail user spends \$20 per visit, contributing up to \$42.6 million to Orange County's regional economy from visitor spending and that Trail use-related spending contributed \$5 million annually to downtown Winter Garden's local economy.<sup>6</sup>

The Florida Coast-to-Coast Connector Economic Benefits and Market Report anticipates that the 250 mile cross-Florida trail will generate an annual economic benefit of \$120 million. A significant portion of the Coast-to-Coast trail runs through Lake County and is already constructed. The completion of the final segments will inevitably boost the economic benefits realized by Lake County. The Economic Development Direction for the City of Dunedin attributes the 65% reduction in downtown vacancy rates specifically to the Pinellas Trail going through Downtown Dunedin and "A 2012 economic analysis by Miami-Dade County concludes that each mile of urban trail increased property values by as much as \$45 million over twenty five years, generating \$1 million in additional property tax revenues."<sup>7</sup>

In 2015 the Bamoral Group did an economic impact study for the city of Mount Dora in Lake County for the potential Wekiva Trail benefits to the city and nearby unincorporated areas. It found that the 15.2 miles trail would generate about \$7.9 million and support 114 jobs annually.<sup>#4</sup>

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<sup>5</sup> <https://floridadep.gov/downloadfile/10953/9718/Draft%202018-22%20FGTS%20Plan.pdf>

<sup>6</sup> <https://headwaterseconomics.org/trail/1-orange-county-trails/>

<sup>7</sup>

[http://static1.squarespace.com/static/552ea744e4b034c9174834f7/t/564cb6b4e4boaf3391f90220/1447868084144/Coast\\_to\\_Coast\\_Report\\_PROOF.pdf](http://static1.squarespace.com/static/552ea744e4b034c9174834f7/t/564cb6b4e4boaf3391f90220/1447868084144/Coast_to_Coast_Report_PROOF.pdf)

<sup>4</sup> City of Mount Dora Trail Impact Study by Bamoral Group 2015

### 3 ADA Transition Plan Recommendations

The Lake County Multiuse Trails Accessibility Study & ADA Transition Plan (adopted September 2017) was written to provide Lake County with information necessary to improve the access, accessibility and safety along their multi-use trails. The recommendations in the Transition Plan were developed by generating an inventory of the condition of the following County trails and identifying steps to address the compliance issues found:

- Black Still Lake Road Trail
- Hancock Trail
- Sleepy Hollow Road Trail
- South Lake Trail
- Wilson Lake Parkway Trail

Of the segments analyzed, 23 sections were identified as non-compliant. Issues include inaccessible or obstructed features such as benches and trash cans and signage and curb ramp deficiencies. The specific recommendations can be found in the *Lake County Multi-use Trails ADA Compliance Plan Report Appendix*. The Office of Parks and Trails has implemented a plan to address these issues.

### 4 Benchmarking

Adjacent and nearby counties are all working on developing trail networks. As part of this project, a number of counties were contacted to better understand how they manage trail construction and maintenance. Plan miles were also noted for comparison and are listed in the following table. Their approach to construction and maintenance is described below.

**Table 1: Adjacent County Existing and Planned Multi-use Trail Mileage**

County	Existing Miles (or under construction)	Planned and/or Conceptual Miles	Total
Lake <sup>A</sup>	52	336	388
Polk <sup>B</sup>	106	360	466
Volusia	61	10	71
Seminole	56	40	96
Ocala	10	99	109
Orange County	49	170	219

<sup>A</sup> includes local trail mileage    <sup>B</sup> includes paved and unpaved

**Polk County** has no dedicated funding sources for trail construction. They use a variety of sources, but primarily rely in federal TMA- SU funds coordinated by the TPO and FDOT. Maintenance is funded through General Revenue funds - there is no dedicated source.

**Volusia County** uses both local and federal funds for construction. The Volusia ECHO Program is the dedicated local funding source. It is financed by bonds backed by county ad valorem taxes. Volusia ECHO Program sets aside \$1 million/year for construction of trail projects. The Volusia ECHO Program is set to expire in 2020 unless an extension is approved by referendum. Volusia County Trails are also funded by federal funds (SU, Transportation Alternatives, Recreation Trails Program) and state funds

(SUN Trail funds). Operations and maintenance of trails is paid from the County's General Revenue fund.

**Seminole County** residents approved a \$25 Million bond program - \$20 Million dedicated to trails that was generated through property taxes - back in 2000. This tax sunset in 2010. In 2014 residents approved a penny sales tax for Transportation projects, some \$53 Million of which named toward future trails development projects to be spent by the County and the local municipalities. Collection of the penny tax began in 2015 and will sunset in 2025. The current penny tax is for use of capital improvements only. The previous bond program included a revenue stream for maintenance, but only in terms of capitalized improvements, such as repaving and other physical improvements.

Routine maintenance – mowing shoulders, trash pickup, leaf and debris blowing and tree trimming – are all from the County's General Fund on a yearly basis. The bond fund was also used to assist in serving as a match for grants, so projects were also funded through FDOT LAP, CARL, FCT, FRDAP, RTP and TEA-21. The County was able to secure grants for almost 50% of the project costs over the duration of the previous bond program.

On a yearly basis, Seminole County has a contract for outsourced maintenance (the maintenance activities described above) of \$178,030. The County also has a small staff of trades workers and inspectors that are also part of a yearly General Fund budget, but these also have all of their passive parks lumped together with the trails. This overall fund also includes a budget for monthly utilities expenditures, materials for repairs, operating budgets for our facilities, IT, etc. While the \$178k is the primary source, there is an operating budget for work beyond and above routine or general maintenance.

Seminole County also has a few agreements in place where trail or trailhead maintenance are contracted by another entity. For example, the City of Lake Mary maintains a portion of the Cross Seminole Trail within their city limits; a property management group maintains a portion of the Seminole Wekiva Trail along International Drive in Heathrow; and the City of Winter Springs maintains the Black Hammock Trailhead restrooms. Those efforts also contribute to the routine maintenance responsibilities and provide valuable resources.

This review affirms a current challenge with trails. They are in demand and being constructed more than ever before, but agencies are having to do a lot with few resources. Generally, maintenance is a 'hidden item,' often pulled from a general revenue fund. Because it is typically lumped in with other things, it can be hard to ascertain a true cost. Construction is often successfully coordinated with roadway projects, but the funding for stand-alone trails is generally coordinated by the MPO using FDOT funds or grants. These funds are also limited. The creation of SUNTrail in 2014 created another fund source, but that is specifically limited to trails on their adopted network and does not cover trailheads.

It is important to note that trails also include water-based trails or blueways. By way of comparison, Lake County has 162 miles of existing blueways and 10 new ones planned with a total of 100 miles. Lee County's Great Calusa Blueway is a paddling trails that meanders through the coastal waters of Lee County from the Pine Island Sound to Estero Bay, up the Caloosahatchee River and through its tributaries. The 190-mile trail guides canoeists and kayakers via easy-to-identify brown-and-white signs through shallow areas away from powerboat traffic. Osceola County's Shingle Creek Paddling Trail is

has 7 marked miles, but has 20 miles of available trail and Volusia County has 9 blueways, including the 10-mile Hontoon Dead River Paddling Trail. At the time of this writing, none of trails had maps or signage posted yet, but directional and informative signage is planned along all of their trails.

## 5 Trail Implementation Recommendations

Developing a plan is only the first step in the process to creating a robust and successful trail system. After plan adoption, collaboration and action are what make the plan successful. The following implementation recommendations have been developed to ensure the success of this Plan.

- To support the expansion and maintenance of the Lake County Trails system and work toward developing a dedicated funding source, such as trail impact fees, user fees, grants, and/or a bond referendum, for construction and maintenance of trails within Lake County.
- Work toward maintaining a minimum level of service of one linear mile of Multi-use Trail per 5000 residents and one mile of nature/hiking trails per 6750 residents.
- Continue to make the Trails Master Plan available online. Distribute as needed to all municipalities, county, state, and federal agencies with jurisdiction over property along the alignments.
- Continue to coordinate trail plans review with the Lake County Public Works Department and other agencies during PD&E and the design phases.
- Coordinate annual reviews of funding through the Lake-Sumter MPO.
- Coordinate with the Lake-Sumter MPO on submissions of projects to the annual List of Priority Projects, including trailheads and trail amenities.
- Trails Master Plan should be incorporated by reference into the Lake County Comprehensive Plan and other long-range planning documents, such as those dealing with land use, environmental planning and transportation planning.
- Coordinate with local governments for adoption of the Lake County Trails Master Plan into local Comprehensive Plans, city trails masters plans and work to protect trail corridors.
- Continue to develop and maintain relationships with other jurisdictions for the coordination, implementation and management of the trail system with the goal of local management of trails within jurisdictional boundary.
- Continue to coordinate with other non-government entities on regional planning issues related to the trail system.
- Continue to coordinate with the Lake-Sumter MPO, Florida Department of Environmental Protection (DEP), the Office of Greenways and Trails (OGT), Florida department of Transportation (FDOT), Department of Community Affairs and others to pursue grant opportunities.

- Continue to coordinate with staff in adjacent counties, MPOs, OGT, FDOT and others to plan for and construct trails across county lines to help create a seamless and connected regional trail network.
- Continue to coordinate with the Lake County Public Works Department to include trails and wider sidewalks on new roadways and roadway expansion plans.
- Review and revise this Plan as needed at least every ten years. Interim updates to the map or Plan may be required to fully utilize partnership opportunities.
- Develop an Adopt-a-Trail program, similar to the Adopt-a-Park program where entities or individuals can 'adopt' a length of trail to keep litter-free.
- Complete land acquisition agreement with the State (FDEP) for the needed trail right-of-way (165 acres, Parcel 7 Neighborhood Lakes) for the planned Wekiva trailhead and Neighborhood Lakes multi-use trail.
- Create a sign package in coordination with Office of Communications that standardizes all trail signage across county maintained sections. This should include Safety Medallions, Trail Markers, and Information Signage.

## 6 Master Plan and Trail Alignments

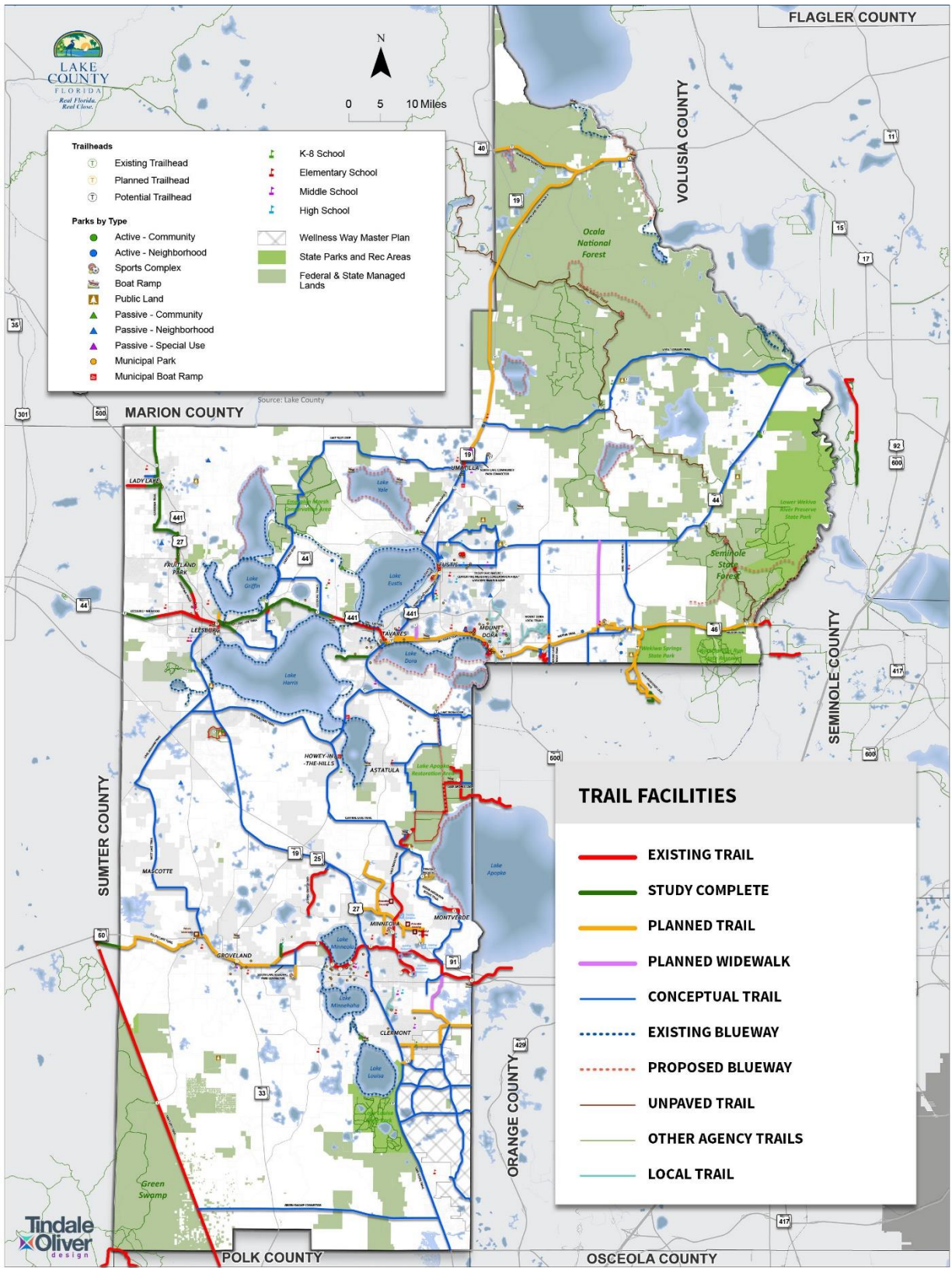
The effort to update the 2008 plan had two goals. The first goal was to update the previously identified alignments to reflect construction and current need. The second goal was to identify new alignments to expand the trail system. Therefore, the Plan is shown in two ways: an overall Master Plan map that illustrates the entire network and Area Maps that focus on specific alignments and opportunities identified based on staff and community feedback.

Each area may include trail opportunities that would be managed or funded by different agencies. Because there is so much growth in the County, it is recommended that Office of Parks & Trails continue to work closely with the Lake County Public Works Department to identify and construct trails as roadways are designed or upgraded. Municipalities, including Mount Dora, Groveland, Leesburg and Minneola, maintain their own local trails plans and should continue to prioritize and collaborate with the County and the MPO to fund local trail projects. The Lake-Sumter MPO maintains the priority list for trail project funding with an emphasis on regional trails.

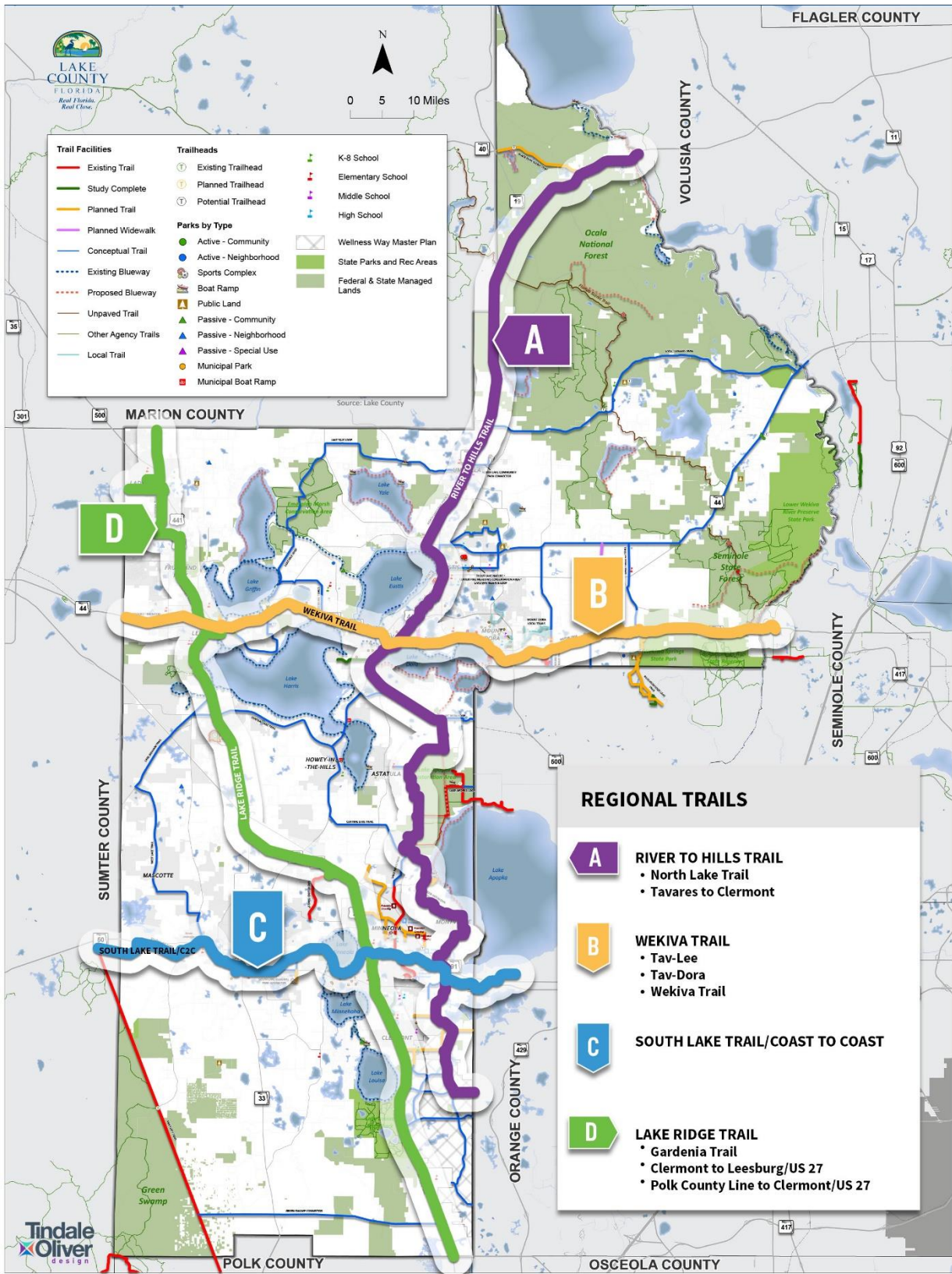
This plan is a living document that supports the construction of trails and pathways by policy and implementation action. The alignments and maps may be updated at any time.

Maps 1 through 3 illustrated the Lake County Trails Master Plan, Regional Trails Master Plan, and Blueways Master Plan, respectively.

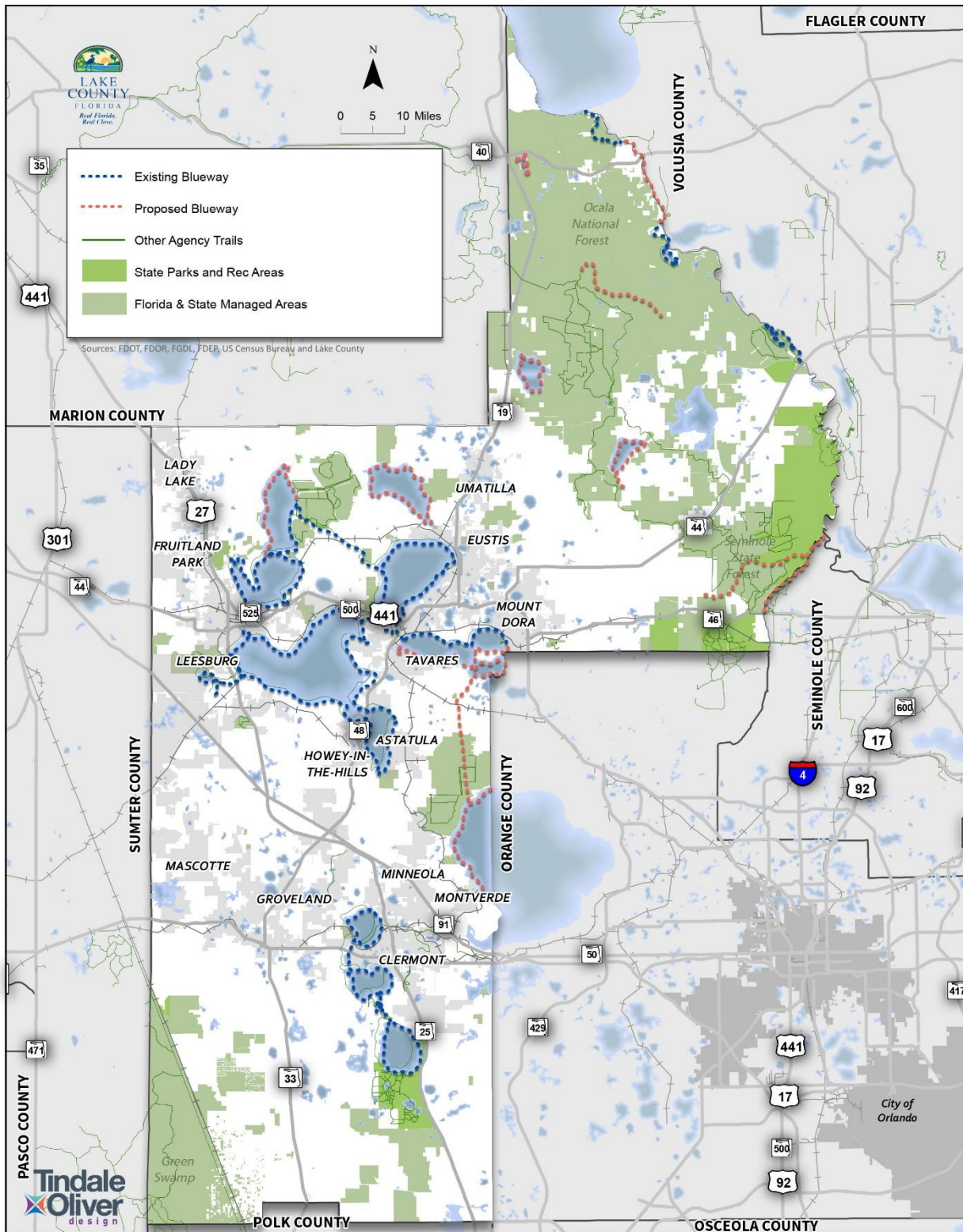
Map 1: Lake County Trail Master Plan



Map 2: Lake County Regional Multi-use Trails Plan



Map 3: Lake County Existing and Proposed Blueways



## *Area Maps*

Maps were developed to illustrate alignments that are considered a priority. The 2008 plan identified a number of trail concepts that are included on the Master Plan Map, but community support was focused on these priority trails.

The following pages present the trail alignments and information about the lead agency anticipated timing, and funding for each. Notes are included where there are additional details about trail design.

Alignment maps include:

- Figure 1: North Lake Trail (phase I, II and III)
- Figure 2: Tav-Dora Trail
- Figure 3: Four Corners to the South Lake Trail
- Figure 4: South Lake Trail to Tavares
- Figure 5: Trout Lake Nature Center to Pine Meadows Conservation Area to Lake May Reserve Loop Trail
- Figure 6: Tav-Lee Trail
- Figure 7: Umatilla to North Lake Community Park
- Figure 8: Gardenia Trail
- Figure 9 South Lake Trail
- Figure 10: Wekiva Trail
- Figure 11: Central Lake Trail



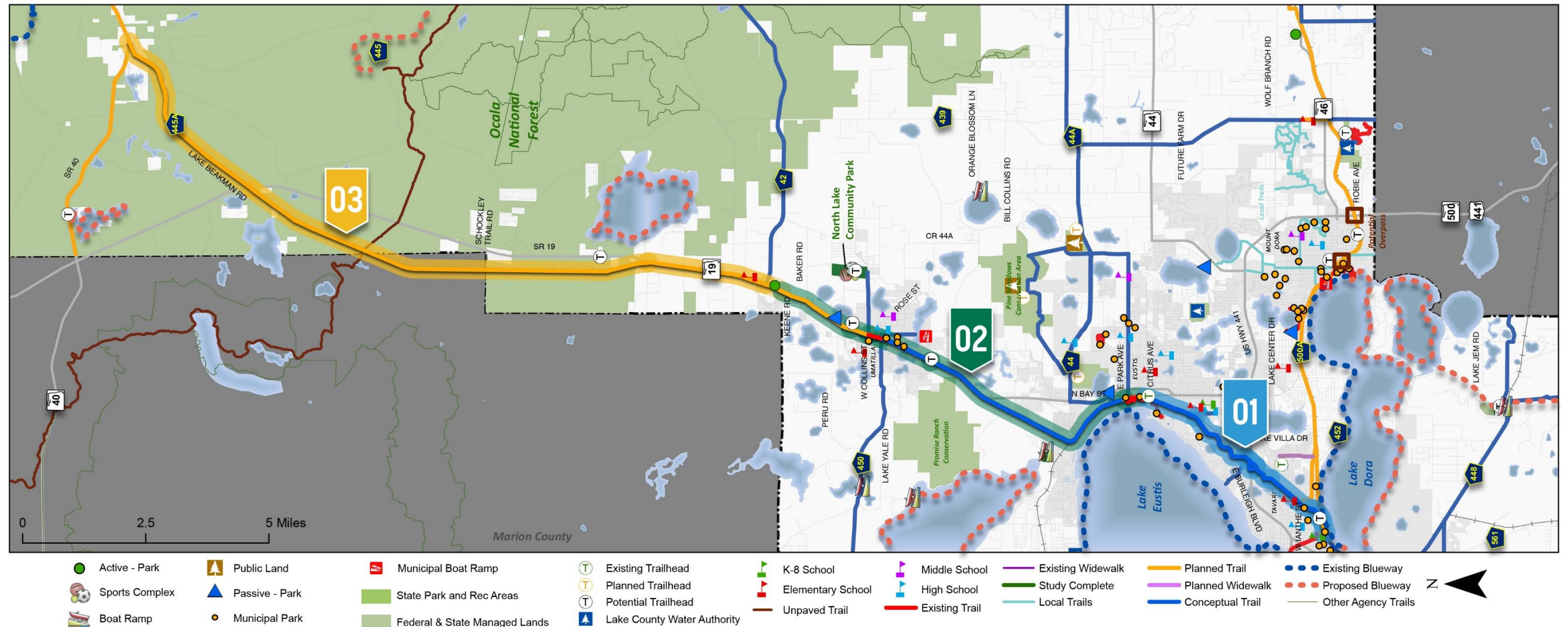
## Figure 1: North Lake Trail



This trail provides a connection between Tavares and Astor, connecting the downtowns of Tavares and Eustis as well as providing views of Lake Eustis and pristine forests in north Lake County. Trailhead opportunities exist at the Lake Pearl Community Center, Old Ocala National Forest Visitor Center and Umatilla Park and at Ferran Park. A PD&E study is planned for 2020 the segment from Eustis to the Black Bear Scenic Trail, the other segments are unfunded. When complete this trail will become part of the regional River to Hills Trail.

Number	Trail	Miles	Segment	Lead Agency	Anticipated Timing	Funding	Notes/Phases
1	Northlake Trail Phase 1	4.35	Begins at the Tavares Station Trailhead near Wooten Park (Tavares) and ends north of Ferran Park (Eustis).	County / Municipalities	Roadway widening or Independent project	Unfunded	
2	Northlake Trail Phase 2	8.28	From North of Ferran Park (Eustis) to CR 42 (Umatilla)	County / Municipalities	Roadway widening or Independent project	Unfunded	
3	Northlake Trail Phase 3	15.07	From CR 42 to Black Bear Scenic Trail (along SR 40)	County / Municipalities	Roadway widening or Independent project	PD&E funded for 2020	FDOT has also funded a PD&E study for the Black Bear Scenic Trail running along SR 40 connecting Marion and Volusia Counties.

Figure 1: North Lake Trail Alignment



## Figure 2: Tav-Dora Trail

This trail is part of the regional Wekiva Trail and will connect the cities of Tavares and Mount Dora, using Old 441 or railroad right-of-way. Connections are proposed to the YMCA and to Sylvan Shores Park. This trail also provides a connection to the North Lake Trail as well as the Wekiva Trail to the east.



Number	Trail	Miles	Segment	Lead Agency	Anticipated Timing	Funding	Notes/Phases
1	Tav-Dora Trail Phase 1	2.18	Along E Alfred St/Old 441 North Lake Trail to Bay Rd	County/ Municipalities	TBD	Unfunded	Proposed to occupy Old 441 right-of-way. Connection to North Lake Trail to be determined during design and proposed to be trail along Old 441. Widening study for Old 441 did not include trail and ROW may be insufficient. Alternative wide sidewalk connection possible along E Caroline St/Dora Ave and connect to E Alfred St.
2	Tav-Dora Trail Phase 2	1.81	From Bay Rd to Lakeshore Dr	County/ Municipalities	TBD	Unfunded	Part of Old 441 Improvement Study (2008). Anticipated to be constructed in Old 441 ROW or partially utilizing railroad ROW. CR 500A/Old 441. An alternative alignment runs adjacent to the Florida Inland Railroad.
3	Tav-Dora Trail Phase 3	1.17	From Lakeshore Dr to Tremain S	County/ Municipalities	TBD	Unfunded	Proposed to be constructed with Old 441 improvements
4	YMCA Connector	0.76	From Old US 441 to Winsled Blvd	Municipalities	TBD	Unfunded	Proposed connection to be wide sidewalk or trail
5	Sylvan Shores Connector	0.10	From Old 441, crossing Park Place to Sylvan Shores Park	Municipalities	TBD	Unfunded	Proposed connection to be wide sidewalk or trail

Figure 2: Tav-Dora Trail Alignment



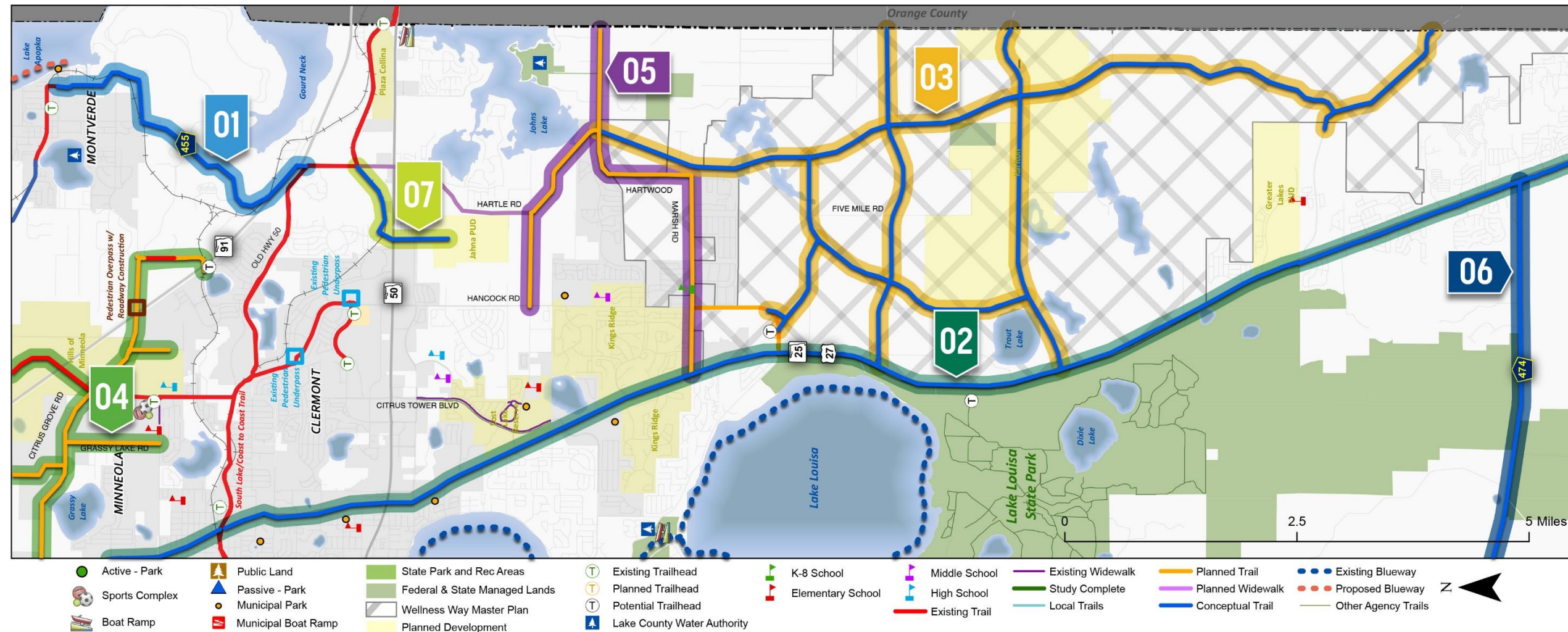
## Figure 3: Four Corners to South Lake Trail

The trails in this area are envisioned as a combination of regional and local trails. The primary trail along US 27 connects the Four Corners area to the South Lake/Coast to Coast Trail. This is part of the regional River to Hills Trail. Many of the trails are anticipated to be built in collaboration with the Lake County Public Works Department and will be constructed during road widening or new roadway construction projects. The Wellness Way Plan also includes an extensive trail system. Per the Area Plan, there must be trail connections to all parks 100 acres or larger.



Number	Trail	Miles	Segment	Lead Agency	Anticipated Timing	Funding	Notes/Phases
1	CR 455 (Green Mountain Scenic Trail)	3.8	Old Hwy 50 to Downtown Montverde	County/ Municipalities	Roadway widening	Unfunded	Anticipated to occupy CR 455 right of way.
2	US 27	16.55	Polk County Line to South Lake/ Coast to Coast Trail	County/ Municipalities	Roadway widening	Unfunded	Anticipated to occupy US 27 and private development right-of-way.
3	Wellness Way Trails	22.16	Conceptual new roadways in wellness way	Developer	With development	Unfunded	Roadways identified in Sector Plan. Anticipated to be constructed by developer.
4	Citrus Grove Rd, Grassy Lake Rd, Fosgate Rd	5.17	US 27 to Blackstill Lake Rd. Includes Grassy Lake extension and Triple E Rd South extension	Public Works Department	Roadway widening	Planned/Funded	To be built with the roadway widening/construction.
5	Hartwood Marsh Rd Extension	4.61	County line to US 27	Public Works Department	Roadway widening	Planned/Funded	To be built with the roadway widening/construction.
6	CR 474	8.53	US 27 to Van Fleet Trail	County/ Municipalities	Roadway widening	Unfunded	Anticipated to occupy CR 474 right-of-way.
7	South Lake Trail to Jahna Planned Development	1.59	South Lake Trail to Jahna Planned Development	County/ Developer	TBD		Proposed to use rail and road right-of-way

Figure 3: Four Corners to South Lake Trail Alignment



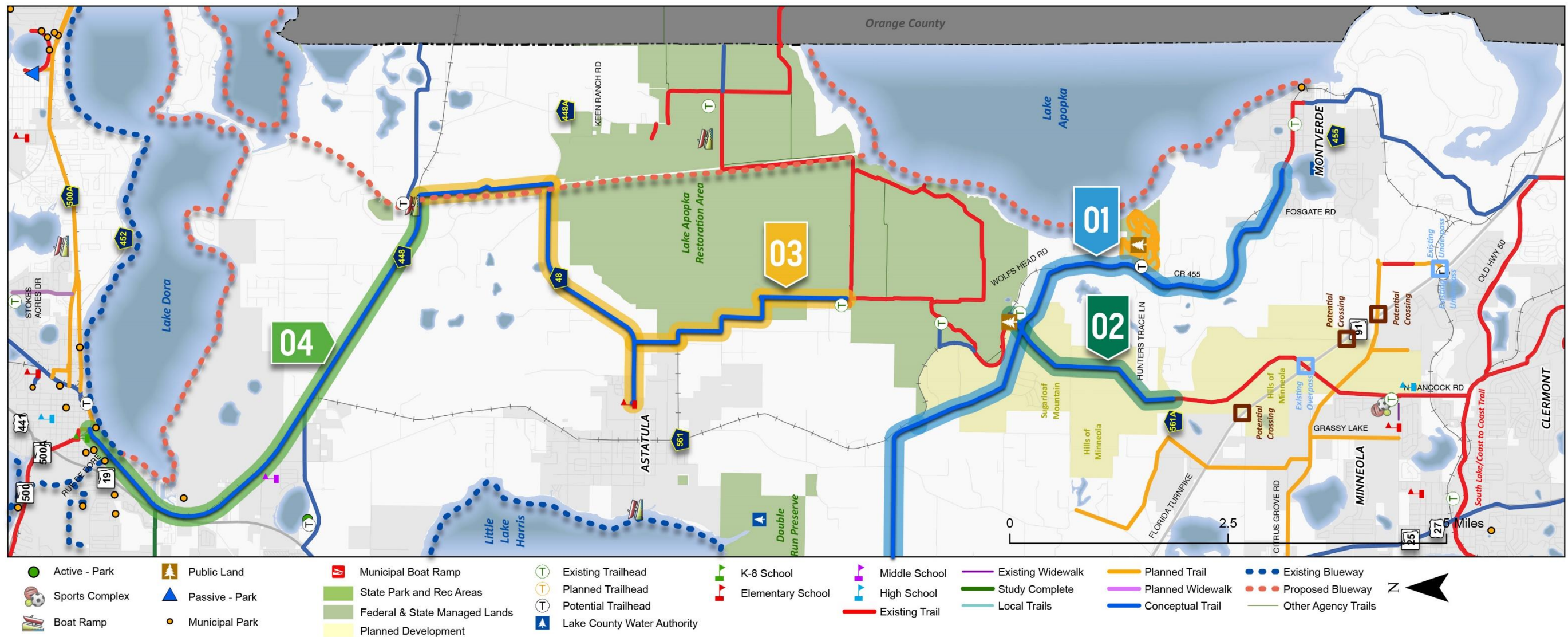
## Figure 4: South Lake Trail to Tavares

The trails in this area continue the effort to create a primary north south corridor that will let people on bicycles ride from Polk County to the Black Bear Scenic Trail experiencing all that Lake County has to offer in between. Many of the proposed trails would be constructed in existing road right-of-way and they connect to existing infrastructure. The trail segment north of the Clay Island Trailhead is proposed to run along the Apopka-Beauclair Canal (A-B Canal).



Number	Trail	Miles	Segment	Lead Agency	Anticipated Timing	Funding	Notes/Phases
1	CR 455 (Green Mountain Scenic Trail)	9.65	Montverde to US 27		TBD	Unfunded	Proposed within CR 455 right-of-way
2	Hills of Minneola/Sugarloaf Mountain Developments	2.29	Hancock Trail Phase IV-- CR561A to Green Mountain Scenic Overlook and Trailhead	Developer	TBD	With development	Trail proposed with Development
3	CR 48	7.05	Clay Island trailhead to Lake Jem Park Trailhead		TBD	Unfunded	Proposed within CR 48 right-of-way an along the Canal
4	CR 448	6.25	Lake Jem Park Trailhead to Tavares		TBD	Unfunded	Proposed within CR 448 right-of-way

Figure 4: South Lake Trail to Tavares Alignment



## Figure 5: Trout Lake Nature Center to Pine Meadows Conservation Area to Lake May Reserve Loop Trail

This conceptual trail connects three important county assets, Trout Lake Nature Center, Pine Meadows Conservation Area and Lake May Reserve, ultimately allowing users to connect to the North Lake Trail. The proposed alignment uses a combination of public rights-of-way, county and private property. Coordination between the land owners would be necessary to design this trail. Next steps: Add to MPO priority list to fund study to define the alignment.



Number	Trail	Miles	Segment	Lead Agency	Anticipated Timing	Funding	Notes/Phases
1	Trout Lake Nature Center-Pine Meadows CA-Lake May Reserve Loop Segment 1	1.13	North Lake Trail to Trout Lake Nature Center	County/ Municipalities	TBD	Unfunded	Proposed to run along SR 19 to CR 44
2	Trout Lake Nature Center-Pine Meadows CA-Lake May Reserve Loop Segment 2	2.42	Trout Lake to Pine Meadows Conservation Area	County/ Municipalities	TBD	Unfunded	Lake County and private property
3	Trout Lake Nature Center-Pine Meadows CA-Lake May Reserve Loop Segment 3	1.77	Pine Meadows Conservation Area to Lake May Reserve	County/ Municipalities	TBD	Unfunded	County and private property
4	Trout Lake Nature Center-Pine Meadows CA-Lake May Reserve Loop Segment 4	4.29	Lake May to the North Lake Trail/Eustis	County/ Municipalities	TBD	Unfunded	Proposed side path along Estes Rd and Bates Ave
5	E CR 44	2.11	Trout Lake Nature Center to Lake May Reserve	County/ Municipalities	TBD	Unfunded	Proposed side path along CR 44

Figure 5: Trout Lake Nature Center to Pine Meadows Conservation Area to Lake May Loop Trail Alignment



## Figure 6: Tav-Lee Trail

Part of the Wekiva Trail, this trail will connect Tavares and Leesburg. Connecting to Phase I (from Lakes Boulevard in Tavares and Main Street in Tavares). An overpass was proposed between Sleepy Hollow Rd and College Drive if warranted. The FDOT Transportation Engineering Manual (TEM) allows for an overpass to be constructed for a trail crossing without warrant. Depending on usage and traffic volume, an interim at-grade crossing could be analyzed during the design phase.



Number	Trail	Miles	Segment	Lead Agency	Anticipated Timing	Funding	Notes/Phases
1	Tav-Lee Trail Phase II	0.52	Venetian Trail/Canal St to Bentley Rd	County/ Municipalities	With US 441 construction	Unfunded	Study Complete 2006. Anticipated with US 441 Construction.
2	Tav-Lee Trail Phase II	1.12	Bentley Rd to Ice Cream Rd	County/ Municipalities	With US 441 construction	Unfunded	Study Complete 2006. Coordination with City of Leesburg and Utility required.
3	Tav-Lee Trail Phase II	1.1	Ice Cream Rd to Sleepy Hollow Rd	County/ Municipalities	With US 441 construction	Unfunded	Study Complete 2006. Coordination with City of Leesburg and Utility required.
4	Tav-Lee Trail Phase I	2.49	Sleepy Hollow Rd to College Dr	County/ Municipalities	With US 441 construction	Unfunded	Study Complete 2004. Coordination with FDOT and Leesburg Regional Airport required. Overpass proposed on this segment.
5	Tav-Lee Trail Phase II	1.38	College Dr to Kinne Pierce Rd	County/ Municipalities	With US 441 construction	Unfunded	Study Complete 2006. To be constructed as part of waterfront redevelopment. Coordination required with Lake Harris Waterfront Development and property owners behind commercial strip just east of Lakes Boulevard.
6	Sabal bluff Connector	.49	From Sleepy Hollow Rd to Sabal Bluff Preserve Park	Municipalities	TBD	Unfunded	Study Complete 2006. Coordination with City of Leesburg and Utility required.
7	Leesburg Trail/ Sunnyside Loop	4.88	From US 441 to Hollow Lane	Municipalities	TBD	Unfunded	
8	Silver Lake Loop	5.6	From US 441 to US 441	Municipalities	TBD	Unfunded	

Figure 6: Tav-Lee Trail Alignment



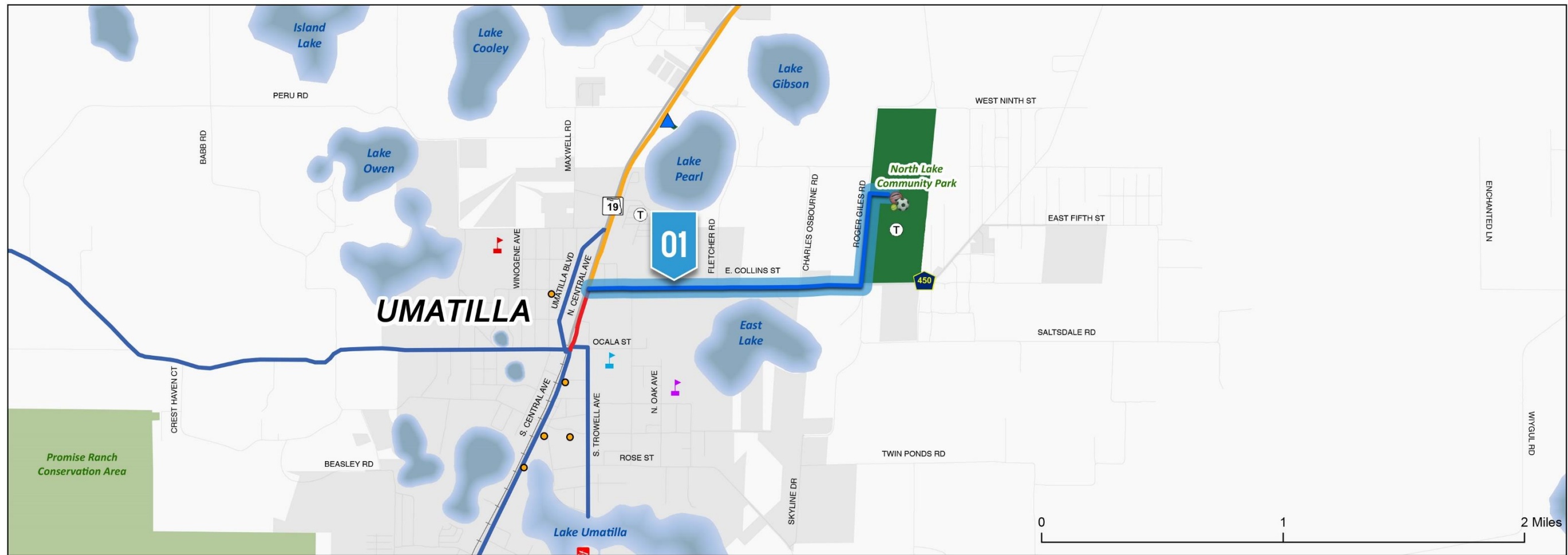
## Figure 7: Umatilla to North Lake Community Park

This trail creates a connection from the proposed North Lake Trail to North Lake Community Park. This alignment was well supported during the public outreach effort.



Number	Trail	Miles	Segment	Lead Agency	Anticipated Timing	Funding	Notes/Phases
1	E Collins St	1.26	N Central Ave/North Lake Trail to Roger Giles Rd	County/ Municipalities	TBD	Unfunded	This conceptual alignment would create a connection to North Lake Community Park. A wide sidewalk or trail along Roger Giles Road is also recommended. The next step is a feasibility study to determine the alignment options and a preferred alignment.

Figure 7: Umatilla to North Lake Community Park Trail Alignment



- Active - Park
- Public Land
- Municipal Boat Ramp
- Existing Trailhead
- K-8 School
- Middle School
- Existing Widewalk
- Planned Trail
- Existing Blueway
- Sports Complex
- Passive - Park
- State Park and Rec Areas
- Planned Trailhead
- Elementary School
- High School
- Study Complete
- Planned Widewalk
- Proposed Blueway
- Boat Ramp
- Municipal Park
- Federal & State Managed Lands
- Potential Trailhead
- Lake County Water Authority
- Local Trails
- Conceptual Trail
- Other Agency Trails



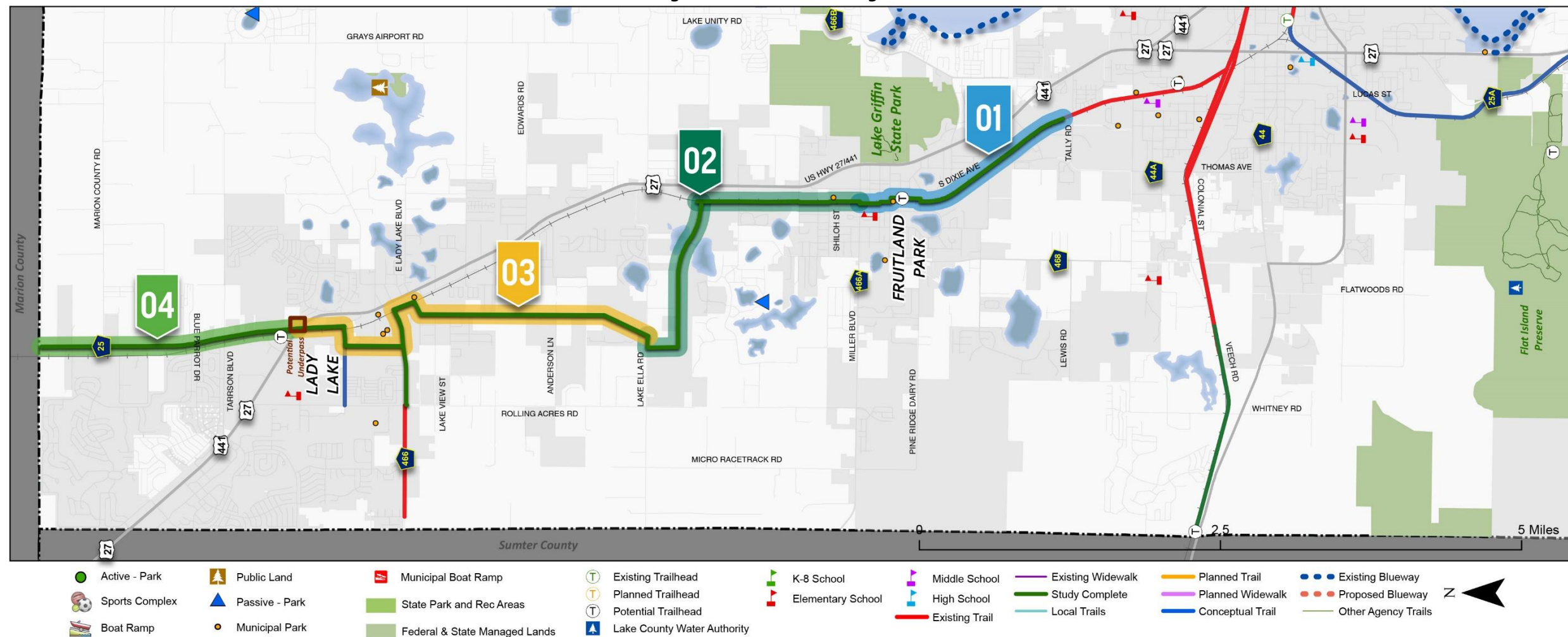
## Figure 8: Gardenia Trail

The Gardenia Trail begins at the Leesburg-Wildwood Trail in Leesburg and travels north to the Town of Lady Lake. PD&E studies have been completed for all three phases and would need to be revisited if this trail becomes a priority for funding. This trail connects the communities of Leesburg, Fruitland Park, The Villages and potentially to the rural areas of Marion County. Phase I identified a trailhead at Susan Street. This trailhead will utilize the existing parking area at the Susan Street Sports Complex and the Leesburg Recreational Complex. Restrooms and picnic pavilions, as well as bicycle racks should be included. Phase II proposed a trailhead at the ball park on Shiloh St and Phase III proposed one near the Lady Lake Town Center. Trail stops (bench, shade, trash can, and water fountain) are recommended throughout. An overpass or bridge is proposed just north of CR 24 at SR 441.



Number	Trail	Miles	Segment	Lead Agency	Anticipated Timing	Funding	Notes/Phases
1	Gardenia Trail Phase 1: Leesburg-Wildwood trail and Martin Luther King, Jr. Blvd (CR 466A)	1.71	From Tally Road to Martin Luther King Blvd (CR 466A)	County / Municipalities	TBD	Unfunded	PD&E Study complete 2006; ROW proposed is abandoned rail line owned by the City of Leesburg. Small segment north of Tally Rd needs to be acquired.
2	Gardenia Trail Phase 2	5.09	From CR 466A to Lake Ella Rd	County / Municipalities	TBD	Unfunded	PD&E Study complete 2008; Alignment includes rail right-of-way as well as alternative alignments.
3	Gardenia Trail Phase 3	4.05	From Lake Ella Road to Marion County Rd in Lady Lake	County / Municipalities	TBD	Unfunded	PD&E Study complete 2008; Preferred right-of-way is a combination of existing publically-owned right-of-way, proposed developers' agreements and a former rail corridor.
4	Marion County Connector	1.5		County / Municipalities	TBD	Unfunded	Next steps include a study and coordination with Marion County.

Figure 8: Gardenia Trail Alignment



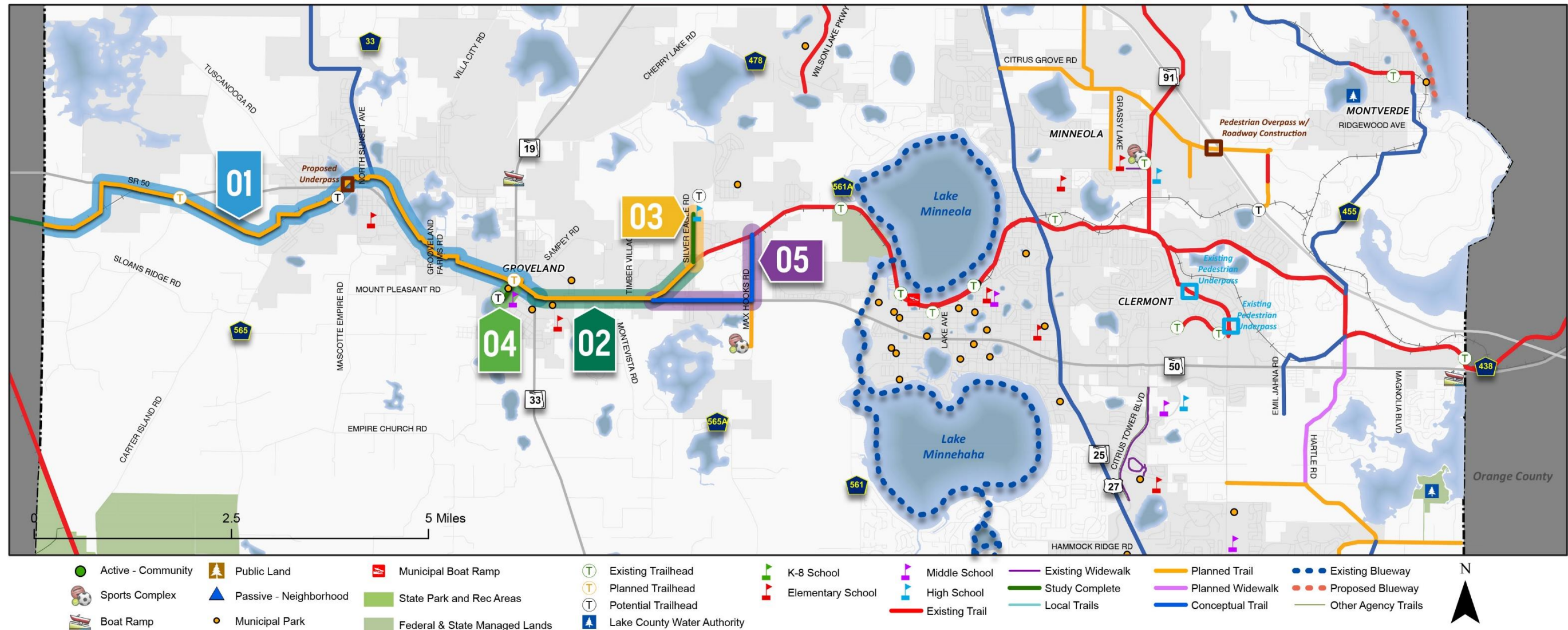
## Figure 9: South Lake Trail

This 22.6 mile long trail connects the Van Fleet State Trail in Sumter County to the West Orange Trail in Orange County. It is also part of the Coast-to-Coast Trail that will allow users to ride across Florida from St. Petersburg to Titusville.



Number	Trail	Miles	Segment	Lead Agency	Anticipated Timing	Funding	Notes/Phases
1	South Lake Trail Phase IV	7.36	Sumter County Line to Villa City Rd (CR 565A)	FDOT	CST 2025	FDOT	
2	South Lake Trail Phase IIIB	6.37	SR 19 to Silver Eagle Rd	FDOT	CST 2018-2019	FDOT	
3	South Lake High Connector	0.61		Groveland	TBD	Unfunded	May be sidewalk or trail in roadway right-of-way
4	Lake David Connector	0.27		Groveland	TBD	Unfunded	May be sidewalk or trail in roadway right-of-way
5	South Lake Regional Park Connector	1.50	Hook St from CR 565A to Park or CR565A/SR 50 to South Lake Regional Park	Lake County	TBD	Unfunded	May be sidewalk or trail in roadway right-of-way. Two possible connections to South Lake Trail, Max Hooks Rd from CR 565A or along SR 50 from CR 565A.

Figure 9: South Lake Trail Alignment



## Figure 10: Wekiva Trail

Connecting Mount Dora to Seminole County, this trail is being built in phases by the Florida Department of Transportation in conjunction with the construction of the Wekiva Parkway. At about 15 miles in length, this trail provides a connections to the much of the Lake County Trail Network as well as the West Orange Trail. North/south trails connecting to the Wekiva Trail include Neighborhood Lakes Trail as well as the trails proposed by the City of Mount Dora. Trailheads are proposed in Mount Dora, at the Wolf Branch Sink Preserve, in East Lake Park, and along the Neighborhood Lakes Trail. An overpass will be constructed over US 441.



Number	Trail	Miles	Segment	Lead Agency	Anticipated Timing	Funding	Notes/Phases
1	Wekiva Trail, Phase 1	5.53	Mount Dora to CR 437	FDOT	2021	FDOT	Requires County/City of Mount Dora to acquire CSX ROW
2	Wekiva Trail, Phase 2	2.96	CR 437 to Hojin St	FDOT	2021	FDOT	
3	Wekiva Trail, Phase 3	6.7	Hojin St to Lake County/Seminole County Line	FDOT	2021	FDOT	
4	Wekiva Trail, Phase 4/ Neighborhoods Lakes Trail	2.6	Wekiva Parkway to the Lake County/Orange County Line	FDOT	2022	FDOT	

Figure 10: Wekiva Trail Alignment



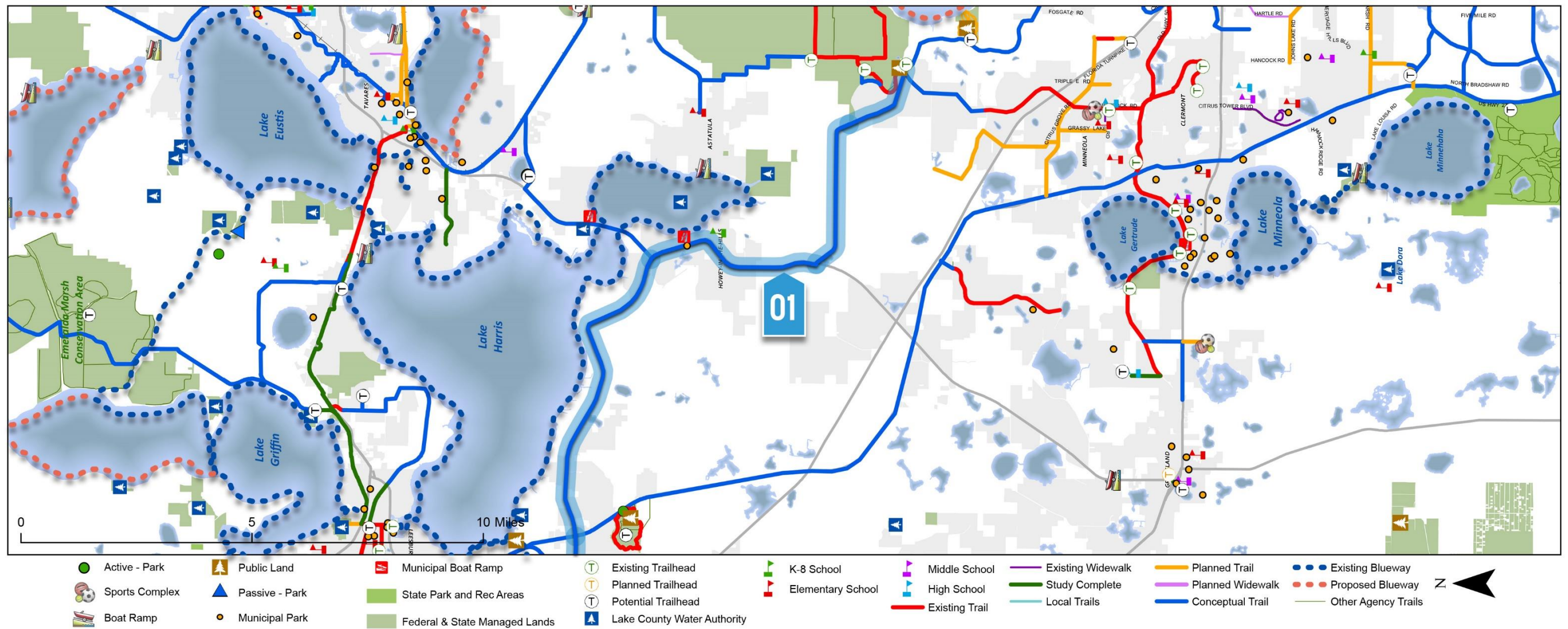
## Figure 11: Central Lake Trail

The Central Lake Trail runs east/west through Lake County along CR 48. A trail will connect along US 27 to allow easy access to P.E.A.R Park. The Central Lake Trail also connects the communities of Yalaha, Howey-in-the-Hills and Ferndale. The Central Lake Trail is an important connector trail.



Number	Trail	Miles	Segment	Lead Agency	Anticipated Timing	Funding	Notes/Phases
1	Central Lake Trail	18.9	CR 33 to Ferndale	Lake County	TBD	TBD	

Figure 11: Central Lake Trail Alignment



## 7 Potential Trail Connections

One of the important features of the Lake County trail network is the ability it provides trail users to access the county’s parks and recreation areas. Table 2 lists the myriad connections the trails provide.

**Table 2: Trail/Park Connections**

Trail Name	Potential Park Connection(s)
<b>Black Bear Scenic Trail</b>	Ocala National Forest
	Astor Lions Park
	Wildcat Lake
	Butler Street Boat Ramp
<b>North Lake Trail</b>	Ocala National Forest
	Lake Dorr Conservation Area
	Alexander Springs Recreation Area
	Umatilla Park
	McTureous Park
<b>Lake-Volusia Trail</b>	Ferren Park
	Clearwater Lake Recreation Area
	Paisley Park
<b>Trout Lake Nature Center-Pine Meadows CA-Lake May Reserve Loop Trail</b>	Ellis Acres Reserve
	Trout Lake Nature
	Pine Meadows Conservation Area
<b>State Road 44 Trail</b>	Lake May Reserve
	South Pine Lakes Reserve
<b>Wekiva Trail/Neighborhood Lakes Trail</b>	Pine Forest Park
	Seminole State Forest
	Rock Springs Run State Reserve
	Lower Wekiva River State Park
	Neighborhood Lakes Reserve
	East Lake Community Park
	Sorrento Park
	Wolf Branch Sink Preserve
<b>Tav-Dora Trail</b>	Wooton Park
	Gilbert Park
	Sylvan Shores Park
	Donnelly Park
	Palm Island Park
<b>Lake Yale Loop Trail</b>	Emeralda Marsh Conservation Area
	Sabel Bluff Preserve
	Sawgrass Preserve
<b>Gardenia Trail</b>	Lake Griffin State Park
<b>Tav-Lee Trail</b>	Sleepy Hollow Sports Complex
	Sable Bluff Preserve
	Bourley Historic Nature Park

**Table 2: Trail/Park Connections, continued**

<b>Trail Name</b>	<b>Potential Park Connection(s)</b>
<b>Central Lake Trail</b>	Hickory Park
	Griffin Stormwater Park
	Woodlee Sports Complex
	Lake Idamere Park
<b>U.S. 27 Trail</b>	PEAR Park
	Lake Louisa State Park
	Helena Run Preserve
	Flat Island Preserve
	Hilochee Wild Management Area
<b>Green Mountain Scenic Trail</b>	Sketcher Property
	Ferndale Preserve
	Green Mountain Scenic Overlook & Trailhead
	Lake Apopka North Shore
<b>South Lake Trail</b>	South Lake Regional Park
	Lake David Park
<b>County Road 48/448 Trail</b>	Lake Jem Park & Boat Ramp
	Lake Idamere Park

## 8 Trail Maintenance

The opening of a new trail is cause for celebration. It's a chance to acknowledge the efforts that preceded the opening and celebrate the new community amenity that has the potential to improve public health and give users transportation choices. With each segment opening however, a maintenance plan needs to be developed and often this effort falls to Parks & Trails staff already assigned to other things. In 2017, Lake County Office of Parks and Trails staff maintained approximately 18 miles of trails, 1 major trailhead (Green Mountain) and 1 minor trailhead (Cooper Library) with 2 full time staff. By 2022, The Coast-to-Coast Trail and the Wekiva Trail will be completed adding up to 32 miles of trail and 6 new trailheads to be managed and maintained.

**Table 3: Current Trails being maintained by the Office of Parks and Trails**

Trail Name	Miles
South Lake Trail, Ph 2	5.5
South Lake Trail, Ph 3A	2.6
Hancock Trail	6.2
Wilson Lake Parkway	3.0
Black Still Lake	0.5
Sleepy Hollow	0.1

The existing trails are ageing adding demands to the maintenance of the system. For example Phase II of the South Lake Trail, part of the larger Coast-to-Coast Trail, is approximately a decade old and its age and challenges related to design and weather are evident. Much like a roadway, maintenance activities such as filling holes, resurfacing and managing damage done by stormwater run-off can extend the life of trail putting off expensive reconstruction. However, both major and minor repairs need to be included in capital budgets to maintain the trail network.

The cost-per-mile maintenance cost vary by location of the trail, surface and often, how it was constructed. Current bids for routine trail maintenance in Lake County average \$5,100 for mowing, edging, blowing and litter pick-only. A 2015 report by the Rails to Trails Conservancy noted the challenge of determining maintenance costs is often exacerbated because the cost of maintenance for the rail-trails it studied is often included in larger existing budgets.<sup>8</sup> Per discussions with adjacent counties, this is a common issue for maintenance for most trails. This lack of specificity makes it hard to quantify staff need; however, even based on an average bid cost of \$5,100 per mile (see Table 2), it is clear that the costs of maintaining the Lake County Trail System will increase significantly over time. While often agencies incorporate volunteer time to satisfy maintenance needs, it is recommended that the County consider an additional 1.5 staff positions to support the trail growth through 2022 and continue to review staff needs as the system is expanded.

**Table 4: Average Routine Maintenance Cost of Lake County Trails**

Year	Mileage	Avg Annual Maintenance Cost	Cost per Month
2018	18 (existing)	\$61,200.00	\$5,100*

\*Present-day-costs, inflation should be factored in according to Lake County Budgeting practices

<sup>8</sup> Maintenance Practices and Costs of Rail-Trails. <https://www.railstotrails.org/resourcehandler.ashx?id=6336>

Trail maintenance includes a wide variety of tasks, from routine maintenance such as “mowing and blowing” to less frequent tasks like heavy trimming and sign replacement. Table 3 lists tasks associated with maintenance and the proposed frequency. The Office of Parks & Trails is currently managing the routine maintenance according to this schedule. It is recommended that this schedule be reviewed annually and adjusted as needed.

**Table 5: Lake County Trails Routine Maintenance and Minor Repair Program**

Routine Trail Maintenance and Minor Repair Schedule	
Twice Weekly	Blowing off trail and trash/litter (empty cans, pickup within 50’ of trail)
Every 7-10 Days	Mowing, Edging, Weed-eating
Seasonally – spring	Mulching and weeding planting beds
Bi-weekly	Light trimming of tree and overhanging vegetation
Monthly	Sign and amenities basic cleaning, inspections
Twice yearly	Major trimming (limbing up to 13’ over trail right-of-way and keeping all shrubs/vegetation where possible off trail by 5’)
Yearly	Power washing all amenities, mulching, minor repainting
Every 2 years (sooner if needed)	Painting curbs and stop bars
Every 2 years	Professional restriping
As needed	Maintaining signage and replacing damaged or faded signs

A copy of the checklist used by County staff to manage all aspects of trail maintenance can be found in the Appendix and is used to track tasks as well as assist in the training of staff. The checklist encompasses more than just routine maintenance, including review of safety features, signage and asphalt condition. This holistic approach is of critical importance to the safety and comfort of the trail because it allows for issues to be identified and fixed before they become major expenses. As noted in the *Best Practices in Trail Maintenance Report* published for the Ohio River Greenway Development Commission:

Despite the difficulties with comparing collected cost data, which is compiled by different agencies on varying criteria, it is clear that initial construction costs dwarf the costs of routine maintenance and enhancement of existing facilities; however ... deferring maintenance can dramatically increase maintenance costs and invert that cost balance. Unfortunately, deferment is common since funding for routine maintenance has been comparatively difficult to secure. As trails age without appropriate maintenance, opportunities for substantial cost-savings through early intervention shrink. Despite a present lack of funding and technical support, local trail managers are obligated to maintain federally-funded trailways in accordance with standards for public safety and access rights.<sup>9</sup>

<sup>9</sup> LTAP, Indiana and Development Commission, Ohio River Greenway, "Best Practices in Trail Maintenance" (2014). Indiana Local Technical Assistance Program (LTAP) Publications. Paper 8. <http://docs.lib.purdue.edu/intappubs/8>

Additional annual maintenance and minor repair costs for paved trails is \$22,000 per mile, bringing the total cost per mile to \$26,400, which includes but is not limited to landscaping (trimming, tree removal, sodding, herbicide), sign maintenance, boardwalk repairs, railing and fencing repairs, embankment / slope repairs, asphalt and concrete repairs, graffiti & vandalism, electrical repairs, site furnishings / amenities, swales, ADA repairs, retention ponds, and general safety repairs. Funding source for trail maintenance and repair is the Municipal Service Taxing Unit (MSTU).

## 8.1 Resurfacing and Major Repairs

As the Lake County Trail System is expanded and ages it will be increasingly important to develop a plan to extend the life of the trails and maintain a quality trail experience for users. With trail reconstruction costs similar to new construction, resurfacing and repair should be considered a more cost effective use of staff resources. It is recommended that in addition to a routine maintenance schedule, a longer interval schedule for major repairs and maintenance should be developed. Table 4 presents a suggested schedule. Current needs include resurfacing, structural repairs, and ADA improvements. The funding source for the items listed are sale tax and park impact fees.

**Table 6: Maintenance and Major Repair Proposed Timing**

5 Years
<ul style="list-style-type: none"> <li>• Major repairs such as, professional repainting and restriping, major flood damage                             <ul style="list-style-type: none"> <li>○ Determined by annual maintenance check</li> <li>○ Cost: Material cost plus labor</li> </ul> </li> <li>• Sealcoating to increase longevity of trail surface                             <ul style="list-style-type: none"> <li>○ Note: Add as line item to Capital Improvement Program</li> </ul> </li> </ul>
10 Years
<ul style="list-style-type: none"> <li>• Resurfacing, depending on condition.                             <ul style="list-style-type: none"> <li>○ Typical resurfacing cost is \$300,000 per mile</li> </ul> </li> <li>• Signage replacement/maintenance</li> <li>• Reconstruction. Process includes re-grading the trail base and resurfacing the facility.                             <ul style="list-style-type: none"> <li>○ Cost varies based on terrain and condition of facility.</li> <li>○ May require re-design and engineering at additional costs.</li> </ul> </li> </ul>

## 8.2 Pavement

Pavement longevity can be maximized by ensuring trail construction standards are maintained. Particularly with trails designed in roadway right-of-way, trails can be subject to the impacts of storm-water runoff from the roadway. If not designed properly with roadway impacts in mind, damage that needs major repair, particularly in the case of storm-water run-off is more likely to occur. Construction standards must take conditions into account. As a reference, FDOT recommends designing a bicycle trail equivalent to a paved shoulder.

Properly constructed and inspected at regular intervals, asphalt multi-use trails have a potential lifecycle of 10 years. Non-profit trade organization, FP<sup>2</sup> reports that every \$1 spent on pavement preservation yields a savings on future rehabilitation or reconstruction of \$6 to \$10<sup>10</sup> While this is

<sup>10</sup>Why Pavement Preservation, <http://fp2.org/why-pavement-preservation/>).

specifically about the preservation of roadway pavement, and trail load and conditions may differ, it is reasonable to say that preservation for as long as possible is the preferred goal for the trail system.

While asphalt is generally the material used for trail construction, there are circumstances when using concrete is appropriate because of its durability. In Lake County, concrete is to be used at all trail/road intersections and may also be used for the trail surface for any trails. It should be considered in areas prone to high water volume or flow across the trail and in locations where root growth is a possible concern. The appropriate material should be determined during design. Concrete curbing, as used along the Druid Rd Trail, should be considered in locations where drainage, extreme wear and tear or root intrusion is anticipated, sections that require prescribed fire management of adjacent habitat, and where a new trail connects to one that already has the curb.

In natural areas, paving may not be appropriate. In that case, packed limerock may be used. Lake County uses limerock for such trails as the Lake Apopka Loop Trail. It may also be appropriate to use limerock, or other porous/semi-porous materials, as an interim step before funding is found for adding the hard surface.

### 8.3 Vandalism

Graffiti and damage to facilities along trails can contribute to a feeling of not being safe and may discourage trail usage while encouraging more vandalism, creating a vicious cycle. During all routine maintenance inspections, any evidence of vandalism should be noted and repaired as soon as possible. Anti-graffiti paint may be applied during construction to deter graffiti and ease future maintenance cleaning.

### 8.4 Bridge and Boardwalk Maintenance

As the system expands, over- and under-passes, as well as boardwalks will be constructed. Maintenance for these special features will need to be factored into the budget. To the extent possible, design of these features should incorporate materials that minimize the amount of maintenance needed and be selected with longevity in mind. Inspection to ensure user safety should be incorporated into the monthly inspection schedule. Special attention should be paid to railings, posts, the deck surface and boardwalk surfaces, and joints. Bi-annual inspections of bridges performed by licensed professionals should be also included in the budget.

### 8.5 Technology

Increasingly, communities are turning to technology and crowd-sourcing to improve communication and efficiency. Cities such as St. Petersburg, FL have implemented smartphone apps such as **SeeClickFix** to improve citizen engagement as well as maximize limited agency resources. This sort of application, available for both iPhone and Android users, could be implemented by Lake County to help capture user comments on a variety neighborhood issues including reporting concerns about the trails. Using the app, citizens can send photos and descriptions while app notes geolocation. Issues are then routed to the right departments.

Data collection by staff is currently done in the form of checklists on paper in the field and then transcribed at a later time. Software such as **Fulcrum** allows for data collection any time anywhere with a higher level of efficiency and precision. Using smart phones or tablets geo-references data and photos can be collected in the field. Highly customizable, Fulcrum allows for the drag and drop creation of

forms and checklists that could be developed to meet Lake County Office of Parks & Trails unique needs.

## 8.6 Volunteer Trail Steward Program

The anticipated increase in trail mileage and required maintenance will require additional staff attention. One way to stretch resources is to supplement staff with volunteers. As noted in the Action items section, developing an Adopt-a-Trail program, is a way to supplement Parks and Trails staff.

Agencies across Florida utilize volunteers in a number of ways. In Pinellas County an Auxiliary Ranger program supports the Parks Department by patrolling the parks and the Pinellas Trail by bicycle and by foot. In addition to the benefit of providing an extra set of eyes and security on the trail, they act as ambassadors for the County. In Citrus County, through the Florida Department of Environmental Protection, Division of Parks and Recreation and Parks, volunteers maintain the Withlacoochee State Trail, build structures, and help to maintain amenities while also acting as ambassadors and promoters of the trail. Maintenance includes trimming encroaching trees and controlling exotic plants. Volunteers do interpretive programs with the community and manage the social media activity. To support the trail, they host an annual fundraiser to help with the 'care and feeding of the trail.' According to their website, "A yearly average of \$200,000 of in kind labor from 46 volunteers donating 10,000 hours to the Withlacoochee State Trail."<sup>11</sup>

## 8.7 Maintenance Agreements

With the help of its local and state partners, it is the goal of Lake County to develop a county-wide trail system. This includes managing the Plan, collaborating with local and other agencies and in areas outside municipal boundaries, and maintaining the trails. Local trails, or trails within municipal boundaries may be constructed by the Lake County Public Works Department in conjunction with the Lake County Office of Parks & Trails, with the understanding that the municipality will be responsible for maintaining them once they are open to the public. Maintenance agreements are typically entered into during the design phase. The requirement is similar for trails constructed by the Florida Department of Transportation (FDOT). During the design phase, a maintenance agreement is required to be signed and trail manager must be identified. An example of the FDOT Guidance for Multi-Use Trail Development and Maintenance and a Maintenance Agreement Template are included in the Appendix.

### References

#### Trail Maintenance

LTAP, Indiana and Development Commission, Ohio River Greenway, "Best Practices in Trail Maintenance" (2014). Indiana Local Technical Assistance Program (LTAP) Publications. Paper 8.

<http://docs.lib.purdue.edu/inltappubs/8>

"Maintenance Practices and Costs of Rail-Trails"

<https://www.railstotrails.org/resourcehandler.ashx?id=6336>

St John's County, FL Greenway, Blueway and Trails Final Report (2003)

[http://www.sjcfl.us/LAMP/media/SJC\\_GBT/trail\\_op\\_main\\_mgmt.pdf](http://www.sjcfl.us/LAMP/media/SJC_GBT/trail_op_main_mgmt.pdf)

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<sup>11</sup> "What we do," <https://www.rttwst.org/volunteer-rails-to-trails.php>

Best Practices for Bicycle Trail Pavement Construction and Maintenance in Illinois

<https://www.ideals.illinois.edu/bitstream/handle/2142/45812/FHWA-ICT-12-009.pdf?sequence=2>

Major reconstruction: <http://www.greenwaysfoundation.org/resources/BestPractices-TrailMaintenance.pdf>

Greenways Foundation. <http://www.greenwaysfoundation.org/resources/BestPractices-TrailMaintenance.pdf> INDOT the cost-per-mile of building out and maintaining an existing separate alignment, shared-use path at \$115,000.

**Trail surfaces:**

[www.railstotrails.org/build-trails/trail-building-toolbox/trail-building-and-design/surfaces/](http://www.railstotrails.org/build-trails/trail-building-toolbox/trail-building-and-design/surfaces/)

## 9 Trail System Design

Trail design and the design and implementation of the supporting elements such as trailheads and wayfinding signage are integral to the development of an outstanding trail system and critical to the safety and enjoyment of trail users. Design of trails may be done by the Department of Transportation, Lake County Public Works Department or consultants, but all have to meet certain standards and criteria.

Design standards developed by both the Florida Department of Transportation and by the Lake County Public Works Department are based on the *AASHTO Guide for the Development of Bicycle Facilities* (2012) and various other guidance. As these sources are updated on a regular basis, it is recommended that the most current versions be consulted. A list of resources is available at the end of this section.

### 9.1 American Disabilities Act Compliance

Trails are required to be built in accordance with certain standards of accessibility and accessibility by all users is an important goal for Lake County. The U.S Access Board sets design standards to ensure that access. According to the U.S Access Board, a multi-use trail specifically designed and designated for hiking and bicycling would be considered a pedestrian trail. Shared-use paths are included in this definition. Because of this use by pedestrians, these facilities are subject to the accessibility requirements of the American Disabilities Act. Paths in the public right-of-way that function as sidewalks should be designed in accordance with the proposed *Public Rights-of-Way Accessibility Guidelines* (PROWAG). These guidelines also apply to street crossings. Shared-use paths built in independent rights-of-way should meet the draft guidelines in the Advance Notice of Proposed Rulemaking on *Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way Proposed Technical Provisions Applicable to Shared Use Paths* once adopted. In most cases the AASHTO guidelines meet or exceed these guidelines.

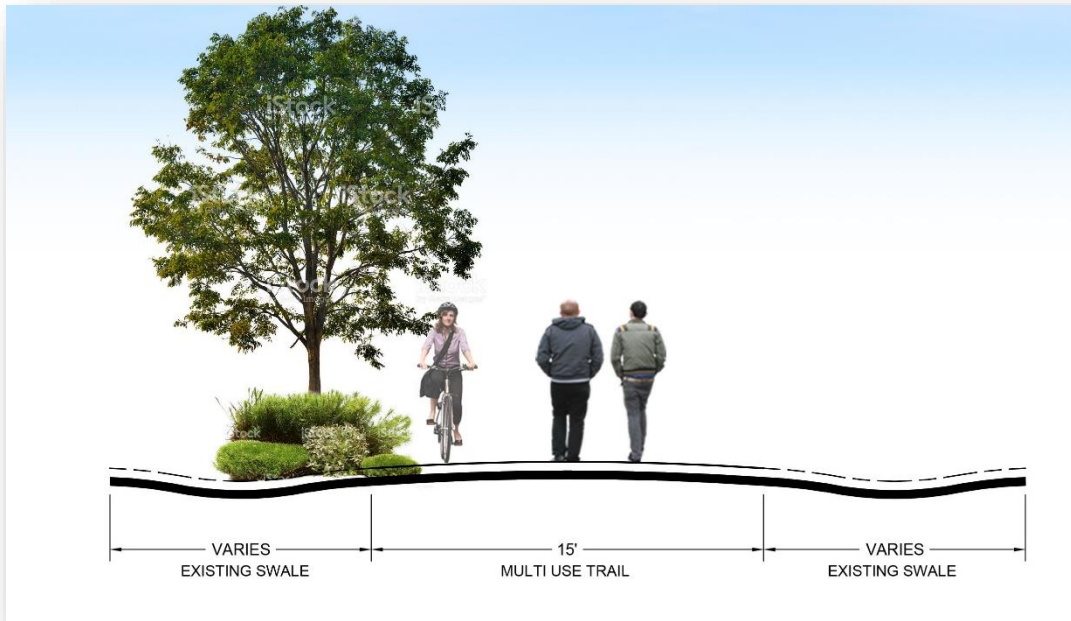
The following subsection includes a discussion of trail types and the elements of the trail system in Lake County.

### 9.2 Trail Types

#### 9.2.1 Multi-Use Trails

Multi-use trails are bikeways that are physically separated from motor vehicle traffic by an open space or barrier. They may be within the highway right-of-way or constructed in an independent right-of-way. They are intended for use by non-motorized users, including pedestrians and bicyclists, and are typically designed for two-way travel. Generally 12.5 feet wide or more, in areas where a great deal of pedestrian and bicycle use is anticipated, 15 feet is the recommended width. When adjacent to the roadway they are also known as shared-use paths and often serve a transportation as well as a recreation function. Depending on the adjacent land use, the availability of a side-path may allow users to commute or replace short distance car trips to the store or other destinations. This type of facility should be considered the standard for the trail system because separated facilities have been shown to offer the best experience for riders of all ages. Figure 12 illustrates a typical multi-use trail section.

Figure 12: Typical Multi-Use Trail Section



### 9.2.2 Recreational trails

Recreational trails are typically in parks and may be paved or unpaved. Trail surfaces should at least be compacted to allow for use by bicyclists, pedestrians and wheelchair users. Appropriate materials not limited to crushed shell, granular, wood chips or mowed grass. Multi-use trails may connect to recreational trails to encourage access to parks and increase the health benefits of walking and bicycling. Standard width is 6-8 feet with 8' of overhead clearance.

Figure 13: Typical recreational trail section



### 9.2.3 Greenways

A linear open space established along either a natural corridor, such as a riverfront, stream valley, or ridgeline, or over land along a railroad right-of-way converted to recreational use, a canal, a scenic road, or other route; any natural or landscaped course for pedestrian or bicycle passage; an open space connector linking parks, nature reserves, cultural features, or historic sites with each other and populated areas; or a local strip or linear park designated as a parkway or greenbelt. Greenways may be paved or unpaved; the transition to paved surface may be one that is prioritized over time.

### 9.2.4 Blueways

Blueways or paddle trails are the water equivalent of a hiking trail and should be designed to support a variety of users. Amenities such as landings, sanitary facilities and signage are already common along the existing Lake County Blueways and their inclusion should be continued along the new facilities. Physical and geo-positioned markers are already in use along the Lake County Blueway Trails System. Blueway launches should be ADA accessible wherever possible. The Office of Parks and Trails with St Johns River Water Management District (SJRWMD) recently designed and installed an accessible paddle launch at McDonald Canal.



*Accessible gangway provides access*

While generally requiring less maintenance than trails, blueways do have maintenance needs. Blueway signage may need to be added to a new paddling trail or replaced if it gets damaged or faded and an annual check of the signage is recommended. Like any trail system, it benefits from information about it being easily accessible. The County maintains the website [www.paddlelake.com](http://www.paddlelake.com) as the primary source of information regarding Lake County paddle trails.

**Table 7: Existing and Proposed Blueway Mileage**

To supplement staff resources, it is recommend that Lake County consider an Adopt-a-Blueway Maintenance Program. This program is similar to the Adopt-a-Park and Adopt-a-Trail programs. An Adopt-a-Segment Trail Maintenance Program uses volunteers to oversee and maintain sections of the blueway system. In Vermont, a group of trail maintainers help maintain the Northern Forest Canoe Trail. Volunteers typically adopt about ten miles of paddle trail and inspect their segments in the spring and fall. Their

Blueway	Mileage	Status
Blue Creek Run	8.2	Existing
Stagger Mud Run	7.54	Existing
St. Francis/Dead River Run	10.78	Existing
Lake Griffin Run	16.59	Existing
Lake Harris Run	36.89	Existing
Helena Run	8.67	Existing
Golden Triangle Run	21.0	Existing
Palatlahaha Run	28.96	Existing
Lake Eustis/Haynes Creek Run	22.6	Existing
St. Johns River Run	11.48	Proposed
Wildcat Lake Run	3.24	Proposed
Alexander Springs Run	12.44	Proposed
Lake Dorr Run	5.43	Proposed
Lake Norris/Upper Blackwater Creek Run	6.63	Proposed
Wekiva Wild & Scenic River Run	11.69	Proposed
Lake Beauclair Run	4.6	Proposed
Apopka-Beauclair Canal Run	13.97	Proposed
Lower Blackwater Creek Run	14.38	Proposed

responsibilities include general upkeep such as sign replacement, clearing vegetation and picking up trash.<sup>12</sup>

While the needs of each blueway may vary, generally, signage should be inspected seasonally, if not more frequently for the following:

- Condition of the signage for damage or fading
- Any damage to the mounting
- Vegetation obstructing the signage
- Dirt and stains

The National Park Service maintains a website for managers and users of the National Water Trail System that can be used as a reference for the maintenance of Lake County's Blueway system.<sup>13</sup> Annual maintenance includes checking, cleaning, repairing, relocating (if needed) or replacing signs, clearing vegetation from around signs to maintain viability. This requires use of motorized boat.

Generally maps and trail information should be available both printed and can be picked up at the Office of Parks and Trails and online at [www.paddlelake.com](http://www.paddlelake.com). Depending on demand, print runs may need to be more frequent occurrence however, because of the flexibility and accessibility, on-line may be considered the primary resource for current paddle trail information. Additional costs may be incurred for permitting and installation of signage along navigable waterways.

### *Economic Benefits of Blueways*

A 2015 report by the River Management Society attempted to quantify the economic benefits of blueways.<sup>14</sup> The varied and unique nature of each trail and surrounding communities makes it hard to draw any conclusions about revenue, but it is worth noting that there are both direct and indirect benefits that should be considered when discussing the benefits of the blueway system. Direct benefits include things like lodging, restaurants, outfitters/guides, retailing and services, as well as activities. Indirect impacts include tax revenue, employment or household income and real estate or immigration. Lake County has 162 miles of existing blueways that offer users a variety of experiences that are as diverse as the County, from the rural Wekiva trail to the proposed urban canals that connect Lake Jem to Mount Dora. These paddling trails should continue to be developed in cooperation with the Agency for Economic Prosperity.

## 9.3 Lake County Trail Hierarchy

### 9.3.1 Regional Trails

As defined in the 2008 Master Plan, **Regional Shared-Use Trails** are characterized by their interconnection to regional destinations and other statewide trails. These trails should be 15 feet in width and consist of an asphalt or concrete surface. They provide for long distance travel by recreational users by connecting major trail systems. While these trails also connect local destinations, such as schools, parks, and downtown areas, to communities, they are considered the backbone of the larger statewide trail system. Because of the length of these trails, they often attract users from other areas of the state or country and are the "showcase" trails of the Lake County Trails Network.

<sup>12</sup> <https://www.northernforecanoetrail.org/stewardship/adopt-a-segment/>

<sup>13</sup> <https://www.nps.gov/WaterTrails/Toolboxes/Trail%20Maintenance>

<sup>14</sup> *An Economic Argument for Water Trails*, <https://www.nps.gov/WaterTrails/Toolbox/DownloadFile/209>

Trailheads, including parking and restrooms, and other trail amenities such as benches and wayfinding signage are critical features of these trails. The design and construction of these “showcase” trails should be developed to maximize the user experience and provide a positive and memorable impression of Lake County. Signage and trail counters (see 8.4.4) are important enhancements for regional trails.

The Lake County Regional Trail Network is defined by major north-south and east-west routes. Trails in the network include the South Lake Trail which is part of the longer cross Florida Coast-to-Coast Trail, the Wekiva Trail that include the Tav-Dora and Tav-Lee Segments and connects to the West Orange Trail in Orange County, the North Lake Trail which is part of the longer River to Hills Trail and the Lake Ridge Trail spanning from the Polk County Line/Four Corners area to Lady Lake and the Marion County line. See Section 6 for the Regional Trail Network.

### 9.3.2 Minor Shared-use trails

Minor Shared-Use Trails are considered the “arterials” of the Lake County Trails Network: the primary purpose of these trails is to provide countywide interconnectivity between the local trails and connect destinations such as schools, parks, downtown areas, and natural areas, to communities and neighborhoods. They often link to regional shared-use trails within Lake County. These trails are generally at least 12 feet in width and consist of an asphalt or concrete surface. Amenities may include trailheads that provide parking and restroom facilities.

### 9.3.3 Local Trails

Community Walkways or Local Trails connect neighborhoods to local destinations and shared-use trails. Although they are identified on the Lake County Trails Master Plan Map, these trails are largely the responsibility of a local municipality or community and will not be included in the prioritization process for the Lake County Trails Master Plan. While community walkways and local trails utilize regional shared-use trails for connectivity, the focus for these trails is their connection between the “front door” of residences and local destinations including parks and places of work. These walkways are 8 to 10 feet in width and consist of an asphalt or concrete surface. (In some cases, the connection may be made by a wide sidewalk or widewalk). If they are constructed adjacent to roadway corridors, they should include transit connectivity.

## 9.4 On-Road Facility Types

There a number of different on-road bicycle facility types that make use of the roadway network and can enhance the trail network by connecting parks and trails and creating transportation opportunities . Listed here from least to most protected, they accommodate different categories of users. Increasingly, research is showing that the more protected a bicyclist is from vehicles, the more comfortable the majority of riders feel.

## 9.4.1 Bicycle shoulders

Shoulders are a facility commonly used on rural roads. They provide a separate, dedicated space for bicyclists but are not marked as a bicycle facility. The minimum shoulder width is 4' but on high speed roadways or roadways with a lot of bicycle users, wider shoulders are recommended.

## 9.4.2 Bike lanes

A bike lane is a space dedicated to bicycle travel on the roadway. They are a minimum of four feet wide if no curb and gutter, five feet wide if that is included. Typical users are those comfortable riding with traffic and represent a fairly small segment of the bicycle riding community. This facility type should be considered during roadway resurfacing projects and can be used to make connections between trails. Bike lanes are not considered the preferred facility type to develop a community friendly trail system. Adding green paint in conflict areas is an approved way to increase the safe operation of bicycle lanes.

## 9.4.3 Buffered bike lanes

A buffered bike lane is also a space dedicated to bicycle travel on the roadway, however buffered bicycle lanes are seven feet wide with a painted buffer to provide extra space between the bicyclist and adjacent vehicles. These facilities provide an additional degree of comfort to bicyclists and should be considered for all new roads being constructed in the County, particularly where higher volumes of bicycle traffic is anticipated.

## 9.4.4 Separated Bicycle Lanes

Separated bicycle lanes are on-road facilities that include a traffic separator and dedicated space for bicyclists. They can be one or two-way depending on the need or the roadway condition and can often be constructed between the existing curbs if the roadway has excess capacity. In urban areas, this type of facility can provide a high level of comfort for bicyclists, similar to that of a shared-use path. Design care must be taken at intersections and driveways. Adding this type of facility has been associated with an increase in bicycle usage.



*A paved shoulder is often the bicycle facility associated with a rural road.*



*A marked bike lane provides dedicated space on the roadway for bicyclists.*



*A buffered bike adds additional separation between bicyclists and vehicles.*



*A separated lane adds an additional physical separate between bicyclists and vehicles.*

## 9.5 Supportive Elements

### 9.5.1 Trailheads and rest areas

Lake County maintains two primary types of trailheads depending on its location on the trail. Locations for trailheads should be considered early in the design process. Proposed trailhead locations are shown on the maps in Section 6.

- Major trailheads consist of the following elements: restroom, bike rack, bench, water station, trash can, information kiosk, bike repair station and optional pavilion and vehicle parking. Locations for major trailheads will be determined during design.
- Minor trailheads consist of bike rack, bench, trash can and information kiosk. Locations for minor trailheads will be determined during design.
- Rest Areas are small pull-off areas made of concrete off to the side of a trail. They are included where feasible every ½ mile and include a bench, trash can and bicycle rack.



*An example of a minor trail head in Lake County*

### 9.5.2 Trail signage

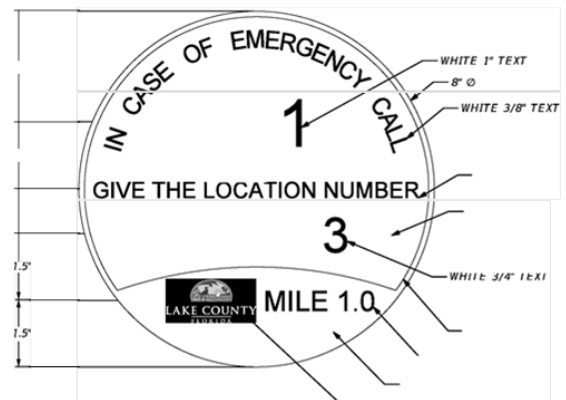
Lake County is in the process of developing a signage program. This program will ensure consistency of information along all trails in Lake County as well as helping to build and maintain the Lake County brand. Examples of the regulatory and wayfinding signage can be found in the Appendix.

### 9.5.3 911 Emergency Response System Markers (ERSM)

Feeling safe on a trail is critical to its use. Installing location decals like one pictured below on trails is an increasingly common practice to both enhance the feeling of safety and allow emergency responders to locate trail users. Exercise distance monitors is also possible because users can track distance according to the markers.

In Orange County, a process has been developed between Parks and Recreation, Trails Division and Fire, EMS and Law enforcement. 911 operators used GPS to mark the coordinates every 1/10<sup>th</sup> of a mile. An excel spreadsheet was created and given to 911 dispatch and EMS. This spreadsheet also noted for best entry point for each location and whether ambulance and fire truck could fit or only ambulance.

It is increasingly common to install and maintain them for the life of the trail. Maintenance will include replacement of decals.



*An example of a location decal used in on the trails in Orange County.*

## 9.5.4 Trail Counters

Understanding trail usage is critical to properly staff and maintain trails. Knowing usage can also help make the case to expand the system or improve facilities. Cities across the U.S. including Boulder, San Francisco and Seattle are installing trail counters. According to the Portland Bureau of Transportation,

“...counting bicycles informs the Portland Bureau of Transportation about its progress toward making bicycling a fundamental part of life in Portland and gives feedback about the usefulness of its investments in bicycle infrastructure and city streets.” (Brooks, 2014)

It is recommended that trail counters be installed at major trailheads and at county lines, with a focus on the Wekiva Trail and the South Lake/Coast to Coast Trail. The County is currently planning on installing counters are the following locations:

- Green Mountain/Lake Apopka Loop Trail
- South Lake Trail
- Hancock Trail
- Wekiva Trail
- Neighborhood Lakes Trail
- Pine Meadows Conservation Area
- Ferndale Preserve
- P.E.A.R Park
- Black Bear Scenic Trail
- North Lake Trail



*Bicycle barometer in Boulder, CO.  
Source: PeopleForBikes*

## 9.6 Crossings

Trail/roadway intersections are essential components of a trails system because they are the most prone to conflict and crashes. Designing intersections that give bicyclists and vehicle operators enough time to react to each other is crucial to minimizing the opportunities for crashes. There are design tools available to help all users navigate intersections, as described below.

Because each crossing is unique, the specific geometry and location will factor into the design of each intersection. It is important to note that circumstances of use may change over time and this should trigger a review and modification as needed of certain intersections. If for example a trail has a higher volume of users than might have been anticipated, it is recommended that the trail crossings be reviewed. It is also important to consider changes to surrounding land use. A crash trend or higher than projected volumes for either vehicle or bicyclist users may require the need to redesign the crossing to address the challenges.

### 9.6.1 Stopping Sight Distance

Safety at trail intersections (trail and roadway, trail and driveway, etc.) relies on enough time for the users of all modes to see any oncoming conflict. This ‘stopping sight distance’ will vary depending on trail conditions, including slope and design speed. Figure 14 showing table 224.10.2 from the 2018 FDM shows the minimum recommended stopping sight distances. Additional information on calculating these distances can be found in the AASHTO Guide for the Development of Bicycle Facilities (2012).

Figure 14: Minimum Stopping Site Distances (Florida Design Manual)

**Table 224.10.2 Minimum Stopping Sight Distances**

Minimum Stopping Sight Distance (feet)																
Design Speed	Grades															
	Downhill							Flat	Uphill							
	9%	8%	7%	6%	5%	4%	3%		3%	4%	5%	6%	7%	8%	9%	
18 MPH	Use 30 MPH Values						156	149	134	123	120	118	115	113	111	109
30 MPH	539	485	444	410	383	Use 18 MPH Values										

(1) Stopping sight distance based on an object height of 0.0 feet and an eye height of 4.5 feet

Source: Florida Design Manual, 2018

### 9.6.2 Intersection Design

Trail crossings typically take one of three forms: mid-block, intersection or grade-separated (over/underpass). Each has its own design and usage challenges. While the crossing types are discussed below, refer to the AASHTO *Bike Guide*, section 5.3 and the AASHTO's *Guide for Planning, Design and Operation of Pedestrian Facilities* for more details.

Determining assignment of right-of-way at an intersection is of critical importance and typically the approach taken should be to apply the least traffic control that will be effective.

#### Unsignalized crossings

Unsignalized crossings may occur where the trail intersects with the roadway. Assignment of right-of-way is key to identifying the appropriate traffic control devices for the circumstance. Factors such as traffic and trail volume, sight distance and grade should be taken into account. High-visibility crosswalks with the appropriate signage and marking for both modes should be the minimum. Per AASHTO, the amount of restriction placed at an intersection should be appropriate for the intersection. Unnecessary risk and disregard of signage can result if more restriction than necessary is included at intersections.

#### Enhanced at-grade crossing or signalized crossing

A Pedestrian Hybrid Beacon is a pedestrian actuated traffic control device that provides a dark indication to motorists until activated by a pedestrian, at which time a flashing yellow followed by a solid red indication is provided to motorists to direct them to stop. The solid red indication advances to a flashing red indication that allows motorists to proceed with caution once a pedestrian has cleared the crossing.



A pedestrian hybrid beacon helps stop traffic when actuated so a pedestrian can safely cross

A Rectangular Rapid Flashing Beacon (RRFB) is a traffic control device consisting of two rapidly and alternately flashing rectangular yellow indications having LED array based pulsing light sources that function as a warning beacon. A number of these have already been installed across the state. Guidance for usage has changed therefore It is recommended that designers confer with FDOT District 5 during design.

### *Trail/subdivision Intersections*

Trail/subdivision entrances are often challenging because of design as well as volume of users. It is important to treat these like you would an unsignalized intersection, with adequate sight distance and assignment of priority. Yield signs should be considered unless residential volume is high. High visibility crosswalks or a variation that uses green paint should be considered to bring attention to the crossing.

### *Overpasses and underpasses*

Overpasses and underpasses may be considered in locations where traffic volumes are too high to manage with an at-grade crossing, such as multi-lane highway crossings. In some instances an overpass can be constructed after the trail is open if volumes justify it so can be part of a longer term plan for the trail.

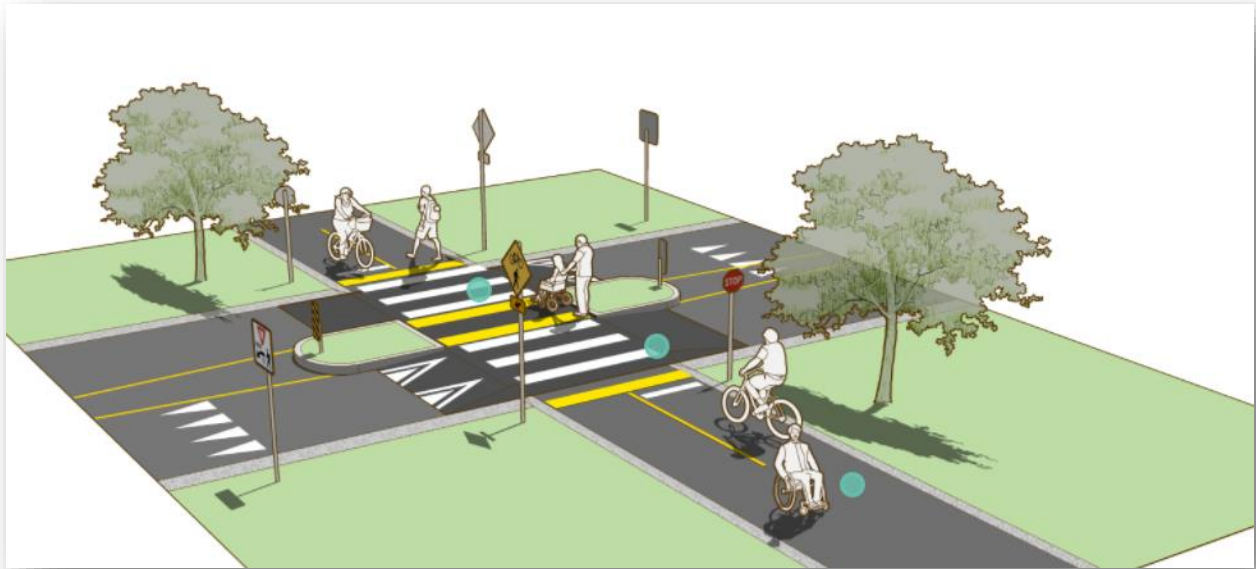
### *Crosswalks*

Crosswalks provide critical clarification at intersections, identifying a safe space for bicyclists and pedestrians to cross, as well as heightening the visibility of users of the crossing. The design of a crosswalk should depend on the facility type, adjacent street function, surrounding land use and level of potential conflict.

*The Small Town and Rural Design Guide* has identified a number of factors that can be included to make a crossing safer including median islands, raised crossings and crosswalk markings (see Figure 15). The National Association of City Transportation Officials *Bikeway Design Guide* has identified a number of crosswalk designs that can be implemented depending on need. Features the Guide highlights include green paint in the intersection and “elephant tracks” or wider white striping along the outside of the intersection.

It is recommended that each intersection or crossing be designed for the context, including the features that would provide the most clarity for all users of the crossing. Standard intersection design drawings are included in the Appendix.

Figure 15: Shared Use Path Crossing



Source: *Small Town and Rural Design Guide* (FHWA)

### 9.6.3 Geometric Design Criteria

Basic trail design criteria are provided below. More detail can be found in the *AASHTO Guide for the Development of Bicycle Facilities*.

#### *Lateral Clearance*

The minimum lateral clearance distance is two feet. The MUTCD requires three feet clear between trail and signage.

#### *Overhead Clearance*

The recommended overhead clearance for structures is ten feet, with a minimum of eight feet. Trees will be limbed up thirteen feet above the trail surface.

#### *Striping*

Striping may be installed where passing is inadvisable, including at the approach and departure of intersections. Striping may also be advisable where trail user volume is high, sight distance is restricted or design speed is low.

#### *Cross slope*

Shared use paths adjacent to roadways function as sidewalks according to PROWAG and therefore cannot have a cross slope greater than 2%. A 1% cross-slope is recommended for ease of use by people with disabilities.

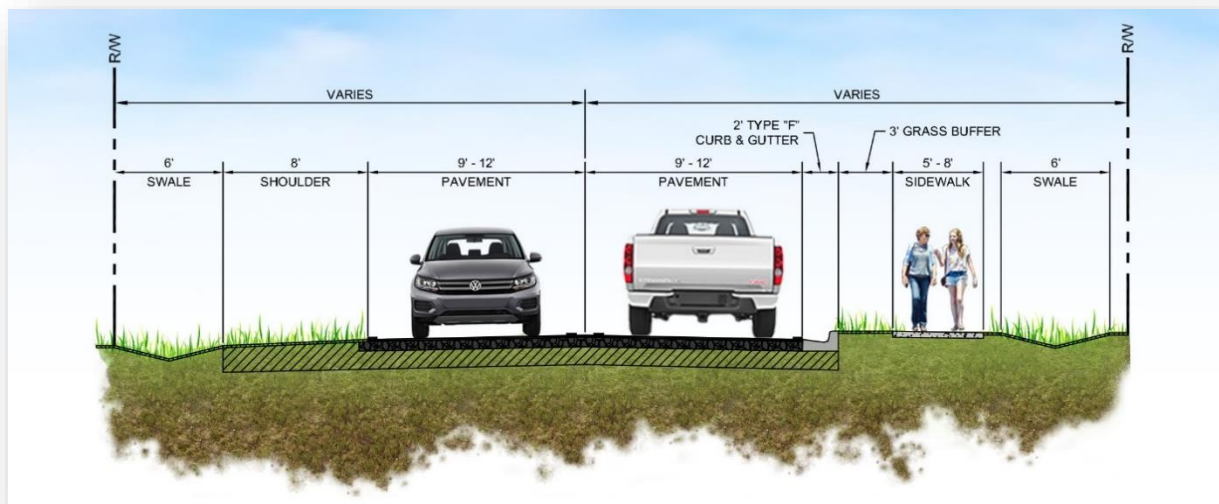
#### *Grade*

The maximum grade of a shared use path adjacent to a roadway is 5%. Grades for paths in an independent right-of-way should not exceed 5%. Switchbacks and pull-outs can be provided to mitigate excessive grade changes. Signage should also be provided to warn users of grade changes.

## 9.6.4 Multi-Use Trail Sections

The following are graphics illustrate the proposed typical sections for different roadway configurations in Lake County. Each option is dependent on available right-of-way. Lake County Office of Parks and Trails will continue to collaborate on trail design and construction.

**Figure 16: Local Road with 5' Sidewalk**



**Figure 17: Local Road with Adjacent Multi-Use Trail**

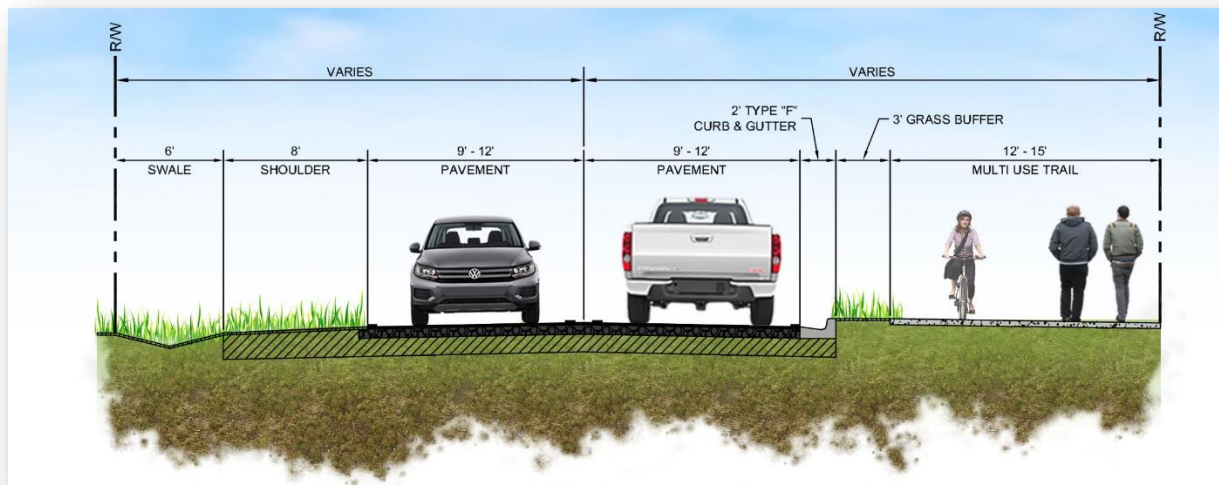


Figure 18: Multi Lane Road with Multi-Use Trail and Sidewalk

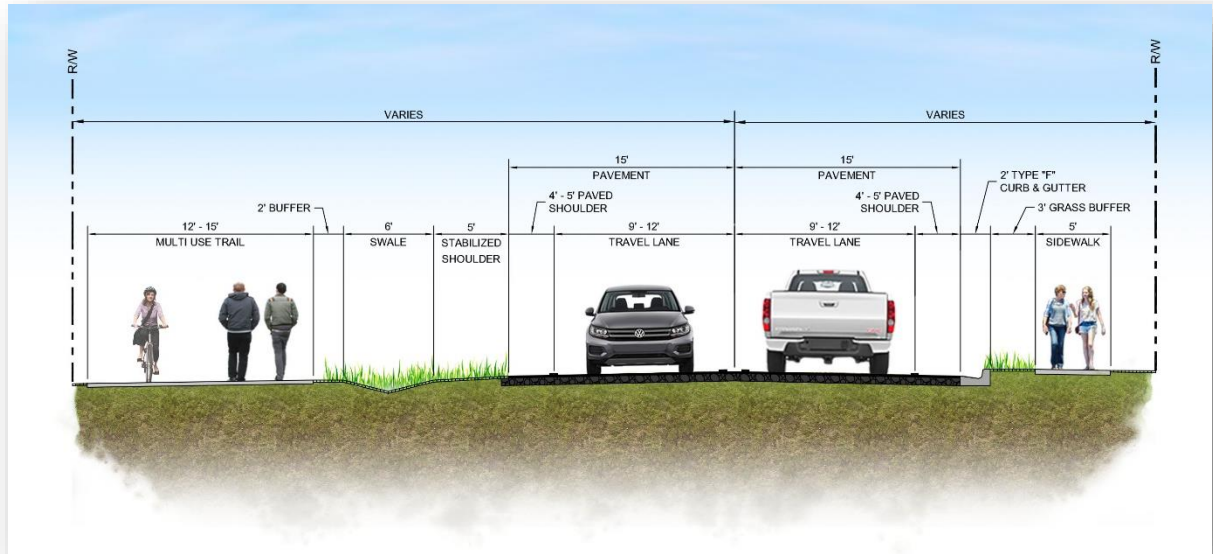


Figure 19: Divided Multi-Lane Road with Multi-Use Trail and Sidewalk

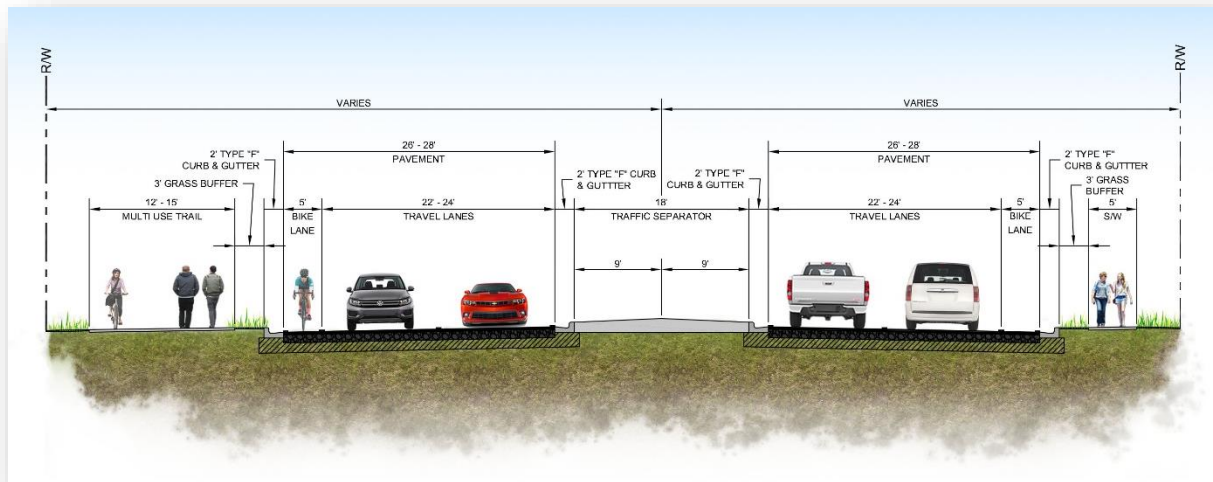


Figure 20: Horse Trail Adjacent to a Multi-Use Trail in Natural Area

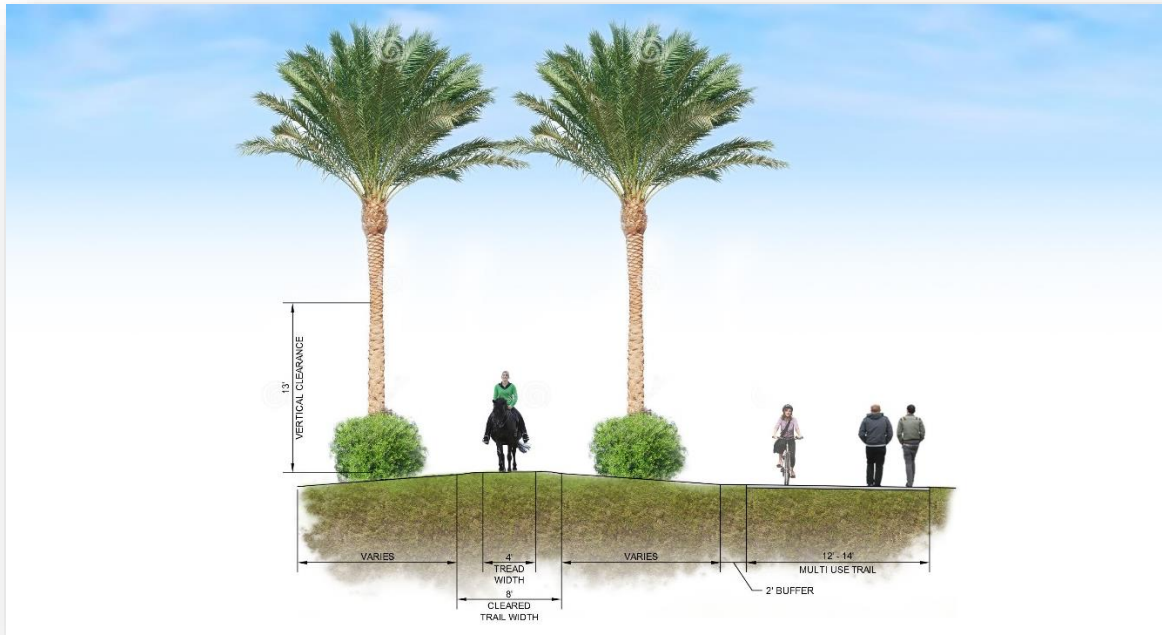
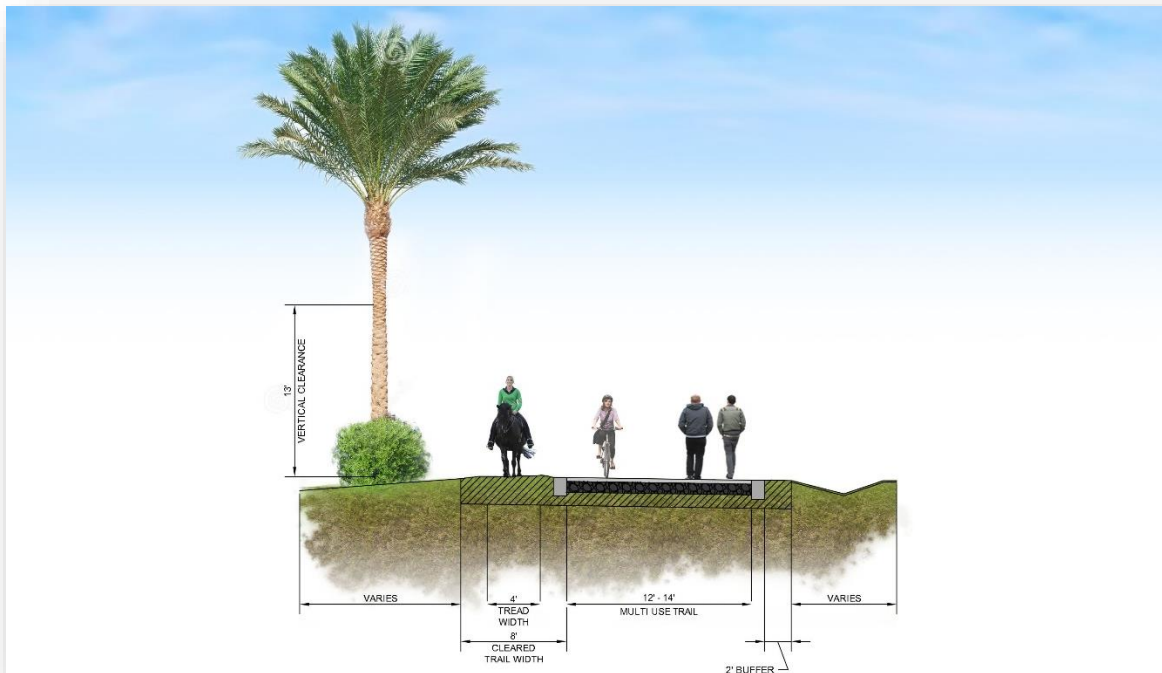


Figure 21: Horse Trail Adjacent to a Multi-Use Trail with Curb



### 9.6.5 Trail Design Resources

The following guides were used when developing the design criteria for Lake County's trails.

- Florida Design Manual (2018)
- Guide for the Development of Bicycle Facilities, (2012, 4<sup>th</sup> Ed.), AASHTO
- Guide for Planning, Design and Operation of Pedestrian Facilities, (2004), AASHTO
- Traffic Engineering Manual, Florida Department of Transportation (2016)
- Manual of Uniform Traffic Engineering Devices, Federal Highway Administration
- Small Towns and Rural Multimodal Networks Guide, Federal Highway Administration (2016)
- NACTO Bikeway Design Guide (web version)
- 2008 Lake County Trails Master Plan

## 10 Planning Document Recommended Changes

The alignments, recommendations and design elements included in this plan have been developed to enhance and expand the bicycle and pedestrian network across the County. Plan implementation is a highly collaborative effort that is supported by the Lake County's Comprehensive Plan, Land Development Code and other planning documents. Recommended additions are underlined.

### Lake County Comprehensive Plan, Planning Horizon 2030

#### I-1.3.1.2 Guiding Principles of Traditional Neighborhood Development

Provide for an integrated network of local two-lane streets, ~~bicycle trails~~ multi-use paths, and ~~pedestrian paths~~ sidewalks to connect neighborhoods, access the Neighborhood Core and promote connectivity throughout the Traditional Neighborhood.

#### Objective I -2.3 Ferndale Community

Policy I-2.3.24 Trails Consistent with maintaining the rural character of Ferndale, Lake County shall work to establish an integrated network of trails within the community for pedestrian, biking, and equestrian use. It shall be the intent of the County to link this trail system with the Ferndale Preserve and proposed trails planned for the Hills of Minneola, Sugarloaf Mountain, the Lake Apopka North Shore Restoration Area, and The Green Mountain Scenic Byway.

#### Objective VI-1.9 Coordination with local, regional, state and federal agencies for recreational facilities

Policy VI-1.9.8 Trails Program Lake County shall continue working towards expanding and improving its trails program by coordinating with federal, state, regional, and local public agencies and private organizations to implement the Lake County Trails Master Plan, ~~September 2008 and 2018 or its successor document.~~ and subsequent documents.

### Parks and Recreational Element

#### Objective VII 1.5 Trails and Greenways

Policy VIII-1.5.8 Bicycle Storage for Public Facilities and New Development. The County shall provide bicycle storage facilities at existing County parks, and shall analyze the need to provide such facilities at other public buildings. The Land Development Regulations shall incorporate

provisions requiring all new shopping centers, recreation areas, and other public use developments to provide storage facilities for bicycles.

## Lake County Comprehensive Plan, October 11, 2010

OBJECTIVE 2-5: FACILITIES FOR BICYCLE AND PEDESTRIAN WAYS; AND ESTABLISHMENT OF SCENIC ROADWAYS. Promote a System of Bicycle and Pedestrian Ways in Planning For Transportation Facilities, and Analyze Roadways For Scenic Designations.

Policy 2-5.1: Planning for Bicycle and Pedestrian Facilities. ~~By 1992, Lake County shall prepare a plan for developing bicycle and pedestrian ways which connect residential areas to recreation areas and major activity centers.~~ Lake County shall continue to plan for and actively work to implement the identification, design and construction of multi-use trail facilities throughout the County.

Policy 2-5.2: Rails-to-Trails Program. Lake County shall coordinate with and support local organizations of Rails-to-Trails Incorporated in order to analyze the feasibility of acquiring abandoned railroad right-of-ways within the County for use as regional bicycle and pedestrian paths.

Policy 2-5.3: Provision of Bicycle and Pedestrian Ways for New Developments. ~~By February 1992,~~ Land Development Regulations for Lake County shall require evaluation within the development review process that requires applicants of Planned Unit Developments, site plans, subdivisions, plats and replats to address and if necessary meet the needs for bicycle and pedestrian facilities.

Policy 2-5.4: Consideration of Bicycle Storage Facilities for Existing Public Facilities and for New Developments. The County shall provide bicycle storage facilities at existing County parks by 1994, and shall analyze the need to provide such facilities at other County public buildings within the proposed bicycle and pedestrian plan. By February 1992, Land Development Regulations shall incorporate provisions requiring all new shopping centers, recreation areas, and other public use developments to provide storage facilities for bicycles.

## 11 Trail Prioritization

Table 6 presents the prioritization criteria developed to ensure that the limited funds available for trail construction are applied to projects that align with the County's and community's goals. These criteria reflect a combination of overall goals for the regional non-motorized transportation network as well as feasibility and economic development potential.

Trail development is a collaborative process. Municipalities play an important role in advancing the trail construction process by becoming advocates for their local plans and the segments that fall within municipal boundaries. For example, Howie-in-the-Hills has adopted a resolution expressing their interest and support for the construction of trails through the town. A copy of the resolution can be found in the Appendix. Partnership can include local funding and includes maintenance responsibilities. The County is developing its own trails and is responsible for maintenance of trails outside local boundaries. At every level, the MPO is an important partners in the trail construction process, working with the County and local agencies to develop priorities for funding.

To develop the list, each trail alignment illustrated in the individual area maps in Section 6 was scored based on how well it satisfied the criteria. Trails that are funded are not included in this list. The prioritization reflects conditions on the ground now and feedback obtained during Plan development. Trails are recommended to be re-scored as development occurs or community needs change.



Table 8: Trails Master Plan Prioritization Criteria

Prioritization Criteria			Segments										
	Points	Notes	Priority Ranking										
			1	2	3	4	5	6	7	8	9	10	11
Connectivity			North Lake Phase III - Umatilla to Black Bear Scenic Trail	Tav-Dora Trail	Trout Lake Nature Center-Pine Meadows Conservation Area-Lake May Reserve Loop	South Lake Trail to Tavares	Four Corners to South Lake Trail	Tav-Lee Trail	North Lake Phase I: Eustis-Tavares	North Lake Phase II: Umatilla to Eustis	Gardenia Trail	Central Lake Trail	Umatilla to North Lake Park
Connects to parks (≥20 acres)	5	Assign points if trail connects to a park that is 20 acres or larger	5	0	5	5	5	0	0	0	5	5	5
Makes regional trail connections	10	Assign points if trail is on regional (connecting counties) trail system maps (OGT, MPO)	10	10	0	10	10	10	10	10	10	0	0
Corridor connects to 2 or more trails	10	Assign points if trail connects to 2 or more existing or planned trails	10	10	0	10	10	10	10	10	0	10	0
Connects to 1 other trail	5	Assign points if trail connects to 1 other trail or proposed trail	0	0	0	5	5	5	5	0	5	0	0
Connections to destinations	max. 10	Assign 1 point for each destination along trail corridor: schools, parks (≤20 acres)	10	10	10	10	10	10	10	10	10	5	2
Connects cities or downtowns	2	Assign points if trail connects cities or downtowns	2	2	0	2	2	2	2	2	2	2	0
Connects existing infrastructure	2	Assign points if trail connects existing infrastructure (trail, bike lanes, etc)	0	2	0	0	0	2	2	2	2	2	0
Connects to a transit line	2	Assign points if trail creates access to transit	0	0	0	0	0	0	0	0	0	0	0
OGT priority network	10	Assign points if trail is on OGT priority trail network	10	10	0	10	10	10	10	10	0	0	0
<b>User Experience</b>													
Improves user safety	10	Assign points if there are known safety issues/crashes in the/along the corridor that this segment would address	10	19	10	10	10	10	10	10	10	10	10
Access to key viewpoints, vistas, wildlife habitats, etc.	10	Assign points if corridor includes viewpoints, vistas, wildlife habitats, etc.	10	0	10	10	10	0	0	0	0	10	0
Greenway or off-road trail corridor	10	Assign points if corridor is proposed off-road or in green space	10	0	10	0	0	0	0	0	0	0	0
Adjacent to major roads	2	Assign points if trail is proposed along a roadway corridor	2	2	2	2	2	2	2	2	2	2	1
Creates loop options - 5 points if local loop, 10 pts if regional loop	5 or 10	Assign points if trail segment is part of an identified local or regional loop	0	10	5	5	5	10	0	0	0	0	5
Trail expected width is 14 feet or more	2	Assign points if trail is planned to be 14' or wider	2	2	2	0	2	2	2	0	0	0	0
Trail includes identified opportunities for new trailhead facilities	2	Assign points if alignment includes areas identified for potential trailheads	2	2	2	0	0	2	2	2	2	2	0
<b>Environmental Impacts</b>													
Wetlands, species, floodplain - subtract 10 pts. If boardwalk or other elements are incorporated to protect areas, subtract 5 pts.	subtract 5 or 10	Subtract points if trail impacts wetlands, protected species habitat, floodplain, etc.	0	0	0	0	0	0	0	0	0	0	0
<b>Economic Development</b>													
Trail corridor connects commercial and residential properties - expected opportunity to eliminate car trips is high	5	Assign points if trail is expected to have high economic impact	0	5	0	0	0	5	5	0	5	0	0
Trail corridor is not to adjacent to commercial or residential properties - expected economic development potential is low	2	Assign points if trail is expected to have low economic impact	0	0	2	2	2	0	0	0	0	2	2
Trail corridor has tourist economic potential	10	Assign points if trail has been identified by EDC or helps support EDC policy goals	10	10	10	0	0	10	10	10	0	0	0
<b>Equity (Assign One)</b>													
Few or no other bicycle/pedestrian connections are available in the areas surrounding the trail corridor (0-3)	10	Assign points if trail is proposed in area where there are few or no bicycle/pedestrian facilities	10	0	10	0	10	0	10	10	0	10	10
Several other bicycle/pedestrian connections are available in the areas surrounding the trail corridor (4-7)	5	Assign points if trail is proposed in area where there are several bicycle/pedestrian facilities	0	5	0	5	0	5	0	0	0	0	0
Numerous other bicycle/pedestrian connections are available in the areas surrounding the trail corridor (7 or more)	2	Assign points if trail is proposed in area where there are numerous bicycle/pedestrian facilities	0	0	0	0	0	0	0	0	2	0	0
<b>Complexity (Assign One)</b>													
High complexity (right-of-way needs to be acquired, easements negotiated, drainage issues) - subtract 5 pts	subtract 5	Subtract points if trail design/construction is complex	0	-5	-5	0	-5	-5	-5	-5	-5	-5	0
Low complexity (no right-of-way is required, land generally available for trail)	5	Assign points if trail design/construction is less complex	5	0	0	5	5	0	0	0	0	0	5
<b>Community Support</b>													
On MPO priority list	10	Assign points if corridor is on the MPO priority list	10	0	10	10	10	0	10	10	0	0	0
Identified in local plans	5	Assign points if the corridor is identified in local plans	5	5	5	0	0	0	5	5	0	5	0
Community support identified during plan development	5	Assign points if, during Plan development public involvement, support was identified	5	5	5	5	5	0	0	0	5	5	5
Local agency/group advocacy for alignment	5	Assign points if alignment has support of a local agency or advocacy group	5	5	5	5	0	5	0	0	5	5	0
Local agency ownership of long term operation and maintenance	10	Assign points if local agencies have been identified for long term operation and maintenance	0	10	10	0	0	0	0	0	10	0	10
Miles of trail that would be maintained by local agencies	max. 5	Assign points for each mile of the proposed trail that would be maintained locally	0	3	5	0	0	2	0	9	10	0	1
<b>Readiness</b>													
Conceptual only	0		0	2	0	0	0	2	0	0	0	0	0
Planning study completed	2	Assign points if planning study has been completed	2	0	0	0	0	2	0	0	0	0	0
Feasibility assessed	2	Assign points if feasibility of trail has been studied	0	0	0	0	0	2	0	0	2	0	0
Design complete	5	Assign points if design has been completed	0	0	0	0	0	2	0	0	2	0	0
Right-of-Way acquired or planned to be acquired	10	Assign points if needed right-of-way has been acquired	0	0	0	0	0	0	0	0	5	0	0
<b>Total Assigned Points</b>			<b>135</b>	<b>124</b>	<b>113</b>	<b>111</b>	<b>108</b>	<b>105</b>	<b>100</b>	<b>97</b>	<b>89</b>	<b>70</b>	<b>56</b>
<b>Priority Ranking</b>			<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>

## 12 Funding Plan

The collaboration between the Lake County Office of Parks & Trails and the Lake County Public Works Department as well as with the Lake-Sumter MPO and FDOT has led to the construction of many miles of trail since the 2008 Plan adoption. The trails that have been built have been included in plans to construct or widen a roadway. In some cases an identified need might have to be satisfied with a wide sidewalk, as determined by available right-of-way acquisition. Additional trails have been identified and/or studied and need to be advanced to next the phase. Study costs are not included in the funding plan, but if a study is needed it is noted. It is important to continue to work with the Lake County Public Works Department to build trails and make trail network connections as opportunities arise.

The Florida Department of Transportation is in the process of constructing a trail adjacent to the Wekiva Parkway and is developing the cross Florida Coast-to-Coast Trail that encompasses the South Lake Trail and runs from Sumter County to Orange County. The Coast to Coast Trail is on the DEP identified Priority Trails and is eligible for SUNTrail funds, a FDOT managed funding source. These funds are also available by individual grant for other segments on the Priority Trail Map. More information about the SUNTrail program is available on the DEP website.<sup>15</sup> Table 7 shows the planning level costs, using FDOT generalized costs, for each alignment identified by staff or public input. These costs will be refined as the trails are studied. A breakdown of the FDOT generalized costs, can be found in the Appendix.

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<sup>15</sup> <http://www.floridasuntrail.com/>



Table 9: Planning-Level Costs for Priority Alignments

Ranking	Name	Length (miles)	Trail Cost (2019 Est)	Number of Over / Underpasses	Overpass / Underpass Cost (Est)	Number of Trailheads	Trailhead Cost (Est)	Total (2019 Est)
	<b>North Lake Trail (All Phases)</b>	<b>27.7</b>	<b>\$12,960,059</b>			4	2,000,000	<b>\$14,960,059</b>
7	North Lake Phase I: Begins at the Tavares Station Trailhead near Wooten Park (Tavares) and ends north of Ferran Park (Eustis)	4.35	\$2,035,244			1	500,000	\$2,535,244
8	North Lake Phase II: From North of Ferran Park (Eustis) to CR 42 (Umatilla)	8.28	\$3,873,981			1	500,000	\$4,373,981
1	North Lake Phase III: From CR 42 to Black Bear Scenic Trail (along SR 40)**	15.07	\$7,050,833			2	1,000,000	\$8,050,833
<b>4</b>	<b>South Lake Trail to Tavares Area Trails**</b>	<b>22.95</b>	<b>\$10,737,666</b>					<b>\$10,737,666</b>
	CR 455 (includes Green Mountain Scenic Trail)	9.65	\$4,514,966					\$4,514,966
	Sugarloaf Mountain Development: Hancock Trail Phase 4 / Lake Apopka Loop Trail*	2.29	\$1,071,427					\$1,071,427
	CR 48 (Clay Island trailhead to Lake Jem Park Trailhead)	7.05	\$3,298,499					\$3,298,499
	CR 448 (Lake Jem Park Trailhead to Tavares)	6.25	\$2,924,201					\$2,924,201
9	<b>Gardenia Trail (all phases)</b>	<b>10.85</b>	<b>\$5,076,413</b>	2	\$8,000,000	3	1,500,000	<b>\$14,576,413</b>
	Marion County Connector	1.5	\$701,808					\$701,808
5	<b>Four Corners to South Lake Trail Area Trails</b>	<b>28.88</b>	<b>\$13,512,148</b>			2	1,000,000	<b>\$14,512,148</b>
	CR 455 (includes Green Mountain Scenic Trail - Old Hwy 50 to Downtown Montverde)	3.8	\$1,777,914			2	1,000,000	\$2,777,914
	US 27 (Polk County Line to South Lake / Coast to Coast Trail)	16.55	\$7,743,284					\$7,743,284
	Wellness Way trails*	22.16	\$10,368,047					\$10,368,047
	Citrus Grove Rd, Grassy Lake Rd, Fosgate Rd	5.17	\$2,418,899					\$2,418,899
	Hartwood Marsh Rd Extension	4.61	\$2,156,891					\$2,156,891
	CR 474 (US 27 to Van Fleet Trail)	8.53	\$3,990,949					\$3,990,949
	South Lake Trail to Jahna Planned Development	1.59	\$743,917					\$743,917
2	<b>Tav-Dora Trail (Plus Connectors)**</b>	<b>6.02</b>	<b>\$2,816,590</b>	1	\$4,000,000	3	1,500,000	<b>\$8,316,590</b>
6	<b>Tav-Lee Trail</b>	<b>6.61</b>	<b>\$3,092,635</b>	1	\$4,000,000	2	1,000,000	<b>\$8,092,635</b>
	Leesburg Trail/Sunny Side Loop	4.88	\$2,283,216			1	500,000	\$2,783,216
	Silver Lake Loop	5.6	\$2,620,084			1	500,000	\$3,120,084
	Sabal Bluff Connector	0.49	\$229,257			1	500,000	\$729,257
3	<b>Trout Lake Nature Center-Pine Meadows Conservation Area-Lake May Reserve Loop Trail</b>	<b>11.72</b>	<b>\$5,483,462</b>			3	1,500,000	<b>\$6,983,462</b>
	Primary Alignment (Segments 1-4)	9.61	\$4,496,251					\$4,496,251
	CR 44 Alternative Alignment (Segment 5)	2.11	\$987,210					\$987,210
11	<b>Umatilla to North Lake Community Park Connection: Widewalk / Trail</b>	<b>1.26</b>	<b>\$589,519</b>					<b>\$589,519</b>
	<b>Wekiva Trail: Seminole County Line to Mt. Dora (includes Neighborhood Lakes Trail)**</b>	<b>17.79</b>	<b>\$8,323,446</b>	1	\$4,000,000	4	2,000,000	<b>\$14,323,446</b>
	<b>South Lake Trail/Coast to Coast: Silver Eagle Road to Sumter County Line**</b>	<b>13.73</b>	<b>\$6,423,885</b>	1	\$4,000,000	2	1,000,000	<b>\$11,423,885</b>
	South Lake High School Connector	0.61	\$285,402					\$285,402
	Lake David Connector	0.27	\$126,325					\$126,325
	South Lake Regional Park Connector	1.5	\$701,808					\$701,808
10	<b>Central Lake Trail</b>	<b>18.9</b>	<b>\$8,842,784</b>					<b>\$8,842,784</b>
	<b>Grand Total of All Trails</b>	<b>217.08</b>	<b>\$101,565,686</b>	<b>6</b>	<b>\$24,000,000</b>	<b>26</b>	<b>\$13,000,000</b>	<b>\$138,565,686</b>
	<b>Grand Total of Ranked Trails</b>	<b>166.41</b>	<b>\$77,858,604</b>	<b>4</b>	<b>\$16,000,000</b>	<b>17</b>	<b>\$8,500,000</b>	<b>\$113,358,604</b>

**Notes:**

Ranked Trails are in bold lettering

Cost is based on 2016 FDOT Long Range Estimates plus 29% Project Unknowns (Drainage, Signage, Markers, and Construction Contingencies)= \$428,169.30 per mile (2016)\* Inflation adjusted at 3.0% = \$467,872.15 (2019 Estimated) per mile

Design and Right-of-way acquisition is not included in costs.

Cost is based on a stand-alone 12 foot wide shared-use trail. Cost may vary if trail is built with a roadway construction project.

Trailheads vary in cost depending on size and amenities. Average cost utilized.

Construction costs to be funded by Federal/State Grants, FDOT, County, Municipalities or Developer.

\*Wellness Way and Sugarloaf Mountain Trails potentially funded with planned/future development.

\*\*On Lake-Sumter MPO Priority List/ Funding currently allocated by FDOT for construction.

+See Appendix Section 10

## 13 Acronyms

Lake-Sumter Metropolitan Planning Organization	LSMPO
Office of Greenways & Trails	OGT
Florida Department of Transportation	FDOT
Bicycle and Pedestrian Advisory Committee	BPAC
Lake County Water Authority	LCWA
St. Johns River Water Management District	SJRWMD
Tourist Development Counsel	TDC
Florida Department of Environmental Protection	FDEP
Long Range Estimate	LRE
State Comprehensive Outdoor Recreation Plan	SCORP
Level of Service	LOS
Bureau of Economics and Business Research	BEBR



# APPENDIXES

1. Needs Assessment Technical Memo
2. Community Survey Results
3. Lake County Trail Intersection Standards
4. Lake County Trail Sections
5. Lake County Trail Signage and Trailhead Design Standards
6. FDOT LRE Cost Information
7. FDOT Maintenance Agreements
8. Trail Inspection Checklist
9. Lake County Trail Rules and Etiquette
10. Lake-Sumter MPO List of Priority Projects
11. Trail Master Plan Display Board
12. Conceptual Trail Mileage Estimates
13. Wekiva Trail, Conceptual SR 46 Trailhead
14. North Trailhead Map and Cost Estimates
15. Mt Plymouth Bike Map
16. ADA Accessible Gate Standards
17. ADA Accessible Launch
18. Lake-Sumter MPO Letter of support
19. Lake Apopka Resolution
20. Howie-in-the-Hills Trails Resolution
21. Amenities for Parks and Trails Master Plan



# Lake County Trails Master Plan Update

## Technical Memorandum 1-B: Data and Needs Assessment

September 2018

Prepared for:

**Lake County Office of Parks & Trails**



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Tavares, Florida 32778

Prepared by:

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## Section 1: Introduction

Lake County adopted its Countywide Trails Master Plan (Trails Master Plan) in 2008 and is undertaking this update to ensure that the Trails Master Plan reflects the most current information and recommendations for the county's trails system. One of the first steps in this process is to conduct a needs assessment to identify the existing trails inventory, assess updated demographic/socioeconomic information, understand recent or ongoing planning efforts that could influence the County's trails program, and, essentially, form the framework for the recommendations to be developed later. Pertinent findings from this Needs Assessment will be integrated into the update of the Trails Master Plan.

In addition to this Introduction, the following sections are included:

- **Section 2 – Implementation of 2008 Countywide Trails Master Plan** presents the progress made in implementing the previous master plan and discusses trails planning in some of the surrounding counties.
- **Section 3 – Baseline Condition Analysis** analyzes the existing demographic characteristics of the county, including updated population projections and existing and future land use and development patterns.
- **Section 4 – Planning Document Review** summarizes plans and studies pertinent to existing and future trails facilities and programs throughout the county and region.
- **Section 5 – Regional Connectivity** analyzes opportunities for regional connections and identifies where trails in Lake County might connect to a larger multi-county or statewide network.
- **Section 6 – Economic Development** documents the relationship between trails, parks and recreation, and economic development, including special events.
- **Section 7 – Staffing and Operation Assessment** the findings of the operations and finance assessment of Lake County's Office of Parks and Trails.

## Section 2: Implementation of 2008 Countywide Trails Master Plan

The purpose of the 2008 Trails Master Plan was to provide a long-term vision and to bring that vision into short-term focus with a realistic and practical approach to connectivity between schools, parks, neighborhoods, town centers, libraries, and the surrounding counties. The Lake County 2008 Trails Master Plan Goal was the following:

*Develop a cohesive countywide trail system that will connect people and places through a regional network.*

The following section provides an overview of the trail system underway in 2008, trail accomplishments between 2008 and 2016, and currently-funded trail projects to understand the progress made since the prior plan adoption and to determine any change in needs and priorities for Lake County residents and visitors.



Source: Lake County Countywide Trail Master Plan, 2008

## 2008 Trail System Summary

The 2008 Trails Master Plan inventoried existing trails at the time and consisted of the following:

- 29.7 miles of County trails
- 11.5 miles of local trails
- 145.9 miles of blueways
- 185 miles of nature/park trails

The trails component is further divided as noted below, and each type of trail plays an integral role in the development of the overall trail network:

- **Regional/Priority Shared-Use Trails** – characterized by their interconnection to regional destinations and other statewide trails; priority trails are those regional shared-use trails included in the 20-Year Funding Goal for the 2008 Trails Master Plan.
- **Minor Shared-Use Trails** – considered to be the arterials of the Lake County Trails Network; characterized by their interconnection to regional shared-use paths within Lake County but do not necessarily link statewide trails directly to each other.
- **Local Trails** – considered the collectors and distributors of the Lake County Trails Network, connecting neighborhoods to local destinations and regional and minor Lake County shared-use trails; largely the responsibility of the local municipality or community.
- **Park and Nature Trails** – often the most scenic trails, constructed to blend as much as possible into the natural surroundings and to minimize their impact on the surrounding ecosystems.
- **Paved Shoulders** – often used by AASHTO Class A bicyclists for transportation and long-distance recreational travel.
- **Blueways** – scenic waterways that include an abundance of scenery and wildlife, as well as easy non-motorized boat access.

## Trail Accomplishments (2008–2016)

Since the adoption of the Plan, the landscape of trails planning and development in Florida and in the United States has changed. Trails are increasingly considered to be a measure of quality of life and are an amenity that communities are coming to expect. Trails also are taking their place in the transportation network, in addition to being a recreational amenity.

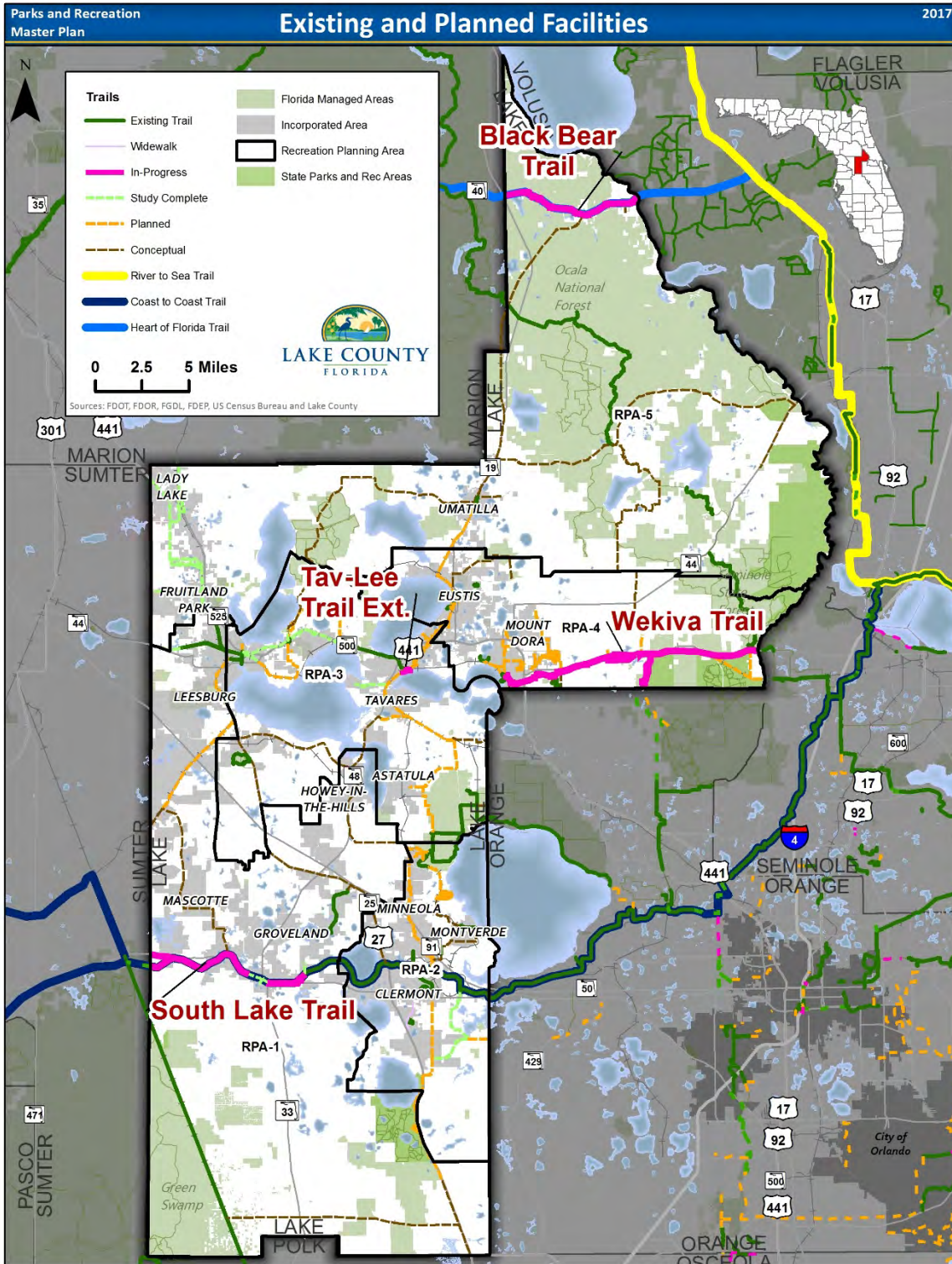
The process of providing trails also has been becoming increasingly collaborative, as the demand is high and available funding is limited. Cities are working with Counties and MPOs to prioritize projects and identify funding, and the Florida Department of Transportation (FDOT) is playing a greater role, often building trails as part of roadway expansion projects.

To understand progress that has been made towards completing the Plan, existing trails as well as those planned for construction were mapped. As shown on **Map 1**, much has been accomplished since the adoption of the 2008 Plan. A list of trails constructed or planned for construction as of 2016 is shown in **Table 1**. As of 2016, there are 50 miles of paved trails, with 21 miles planned for construction.

One way to measure progress is to calculate miles of available trail by population. In the 2008 Plan, the trail level of service is 1 mile of paved trail per 5,000 residents. Given the current population of 325,875 (US Census, July 2015), 65 miles of miles of paved trail are required to satisfy the current adopted level of service.

Another way to measure progress is to look at benchmarks uses by national organizations such as the National Recreation and Park Association. The *2016 NRPA Field Report: Park and Recreation Agency Performance Benchmarks* notes that “agencies serving more than 250,000 people in their area have a median of 90.1 miles of trails under their purview.” Lake County has 52 miles of existing trails and 21 miles of trails planned for construction. Once constructed, there will be 73 miles of trails in Lake County. This Plan update will build upon the existing and planned 73 miles. In comparison, Seminole County currently maintains 80 miles of existing trails and Orange County has 32 miles, but their 2012 Plan calls for a 170-mile county-wide trails system, and Volusia County maintains 2 showcase trails totaling 33 miles, with another 27 funded for construction by 2018.

# Map 1: Lake County Trail Accomplishments



**Table 1: Trails Planned for Construction, as of 2016**

Project Name	Mileage
<b>Wekiva Trail</b>	16.47
<b>Tav-Lee Trail Extension</b>	0.45
<b>South Lake Trail</b>	9.67
<b>Black Bear Scenic Trail</b>	7.75
<b>Total Mileage</b>	<b>34.34</b>

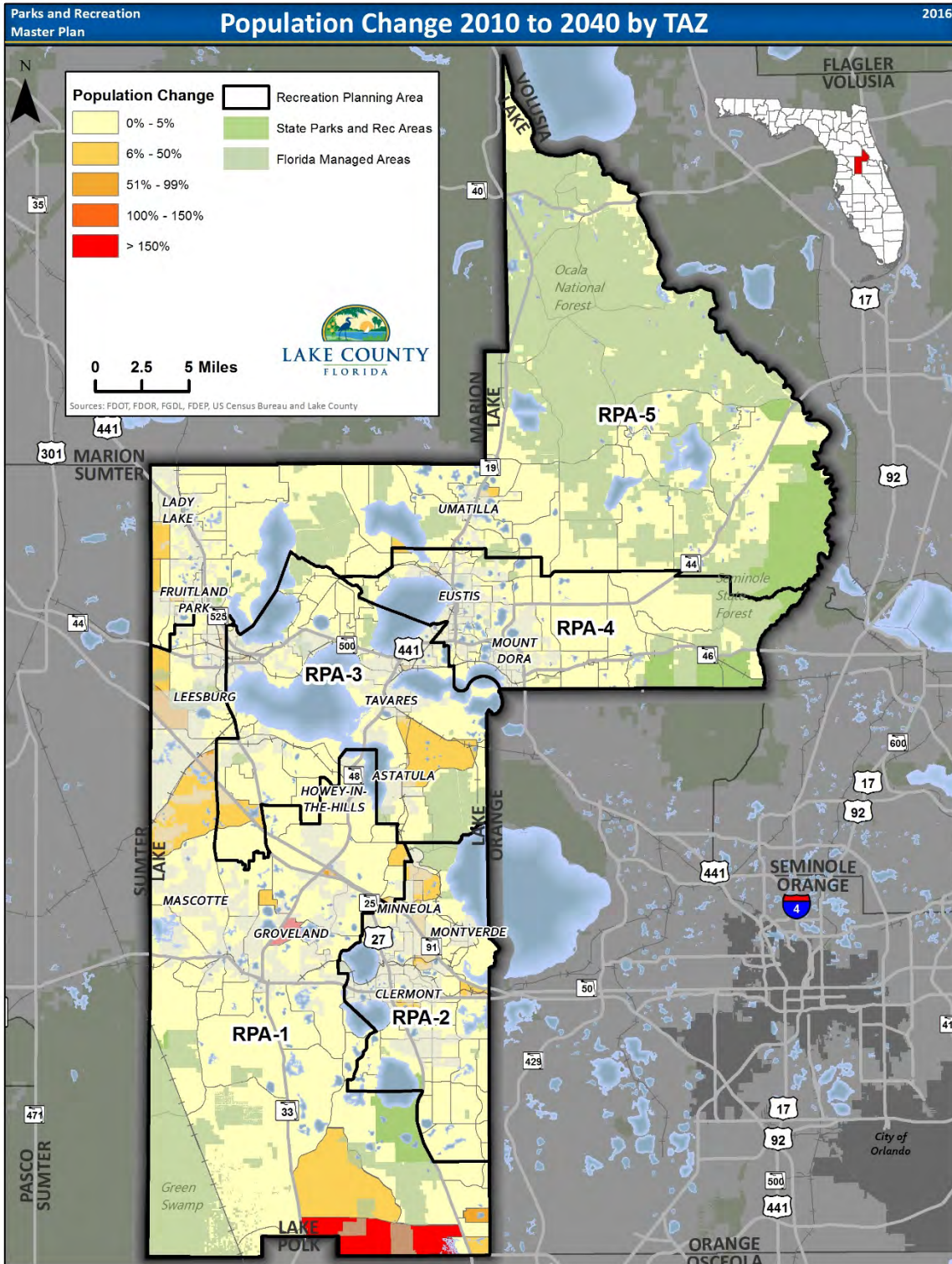
### Section 3: Demographic and Socioeconomic Analysis

Understanding demographics and population forecasts is important when developing a trail system to ensure facility availability and distribution. This section provides an overview of the general demographic and socioeconomic conditions of Lake County, including population, race/ethnicity, student population and school sites, age distribution, and household income in relation to the five Planning Areas (PA) of Lake County. Also incorporated is future growth based on the Lake-Sumter MPO 2040 Long Range Transportation Plan (LRTP) and analysis completed by the East Central Florida Regional Planning Council to identify where growth is likely to be most significant in the coming years. This analysis will help identify areas where facilities or recreation access might be needed. Key considerations for each analyses are identified that may impact the update of the Trails Master Plan.

#### Population

The 2014 population is based on the most recent data from the US Census Bureau. To assess future demand, the population change from 2010 to 2040 was analyzed to identify areas of high population growth. This information will be used to develop a plan that is responsive to the needs of Lake County as the population grows (see Table 2 and Map 2).

Map 2: Lake County Population Change, 2010 to 2040



**Table 2: Lake County Population Change**

Maps	RPA-1	RPA-2	RPA-3	RPA-4	RPA-5
2014 Population	Highest proportion of population (5,001 to 9,028) concentrated at southeast corner, east of US 27, and around Groveland	Highest proportion of population (5,001 to 9,028) concentrated at southern end, south of SR 50 and Clermont	Highest proportion of population (2,001 to 5,000) concentrated in southern end, near Yalaha, Astatula, Tavares	Highest proportion of population (5,001 to 9,028) concentrated near Sorrento and Plymouth	Highest proportion of population (2,001 to 5,000) concentrated in Lady Lake, Umatilla, south of Lake Norris, and east of Lake Tracy
2010–2040 Population Change	Highest population growth (1,701 to 6,900) anticipated at southeast corner and near Mascotte, Groveland	Highest population growth (901 to 3,500) anticipated around Minneola and Montverde	Highest population growth (1,701 to 3,500) anticipated around Tavares, Astatula	Highest population growth (901 to 6,900) anticipated north of Mount Dora and Eustis, southwest of Seminole State Forest	Highest population growth (1,701 to 6,900) anticipated near Lady Lake and Umatilla
Opportunities	Explore E/W non-prioritized trail connection (CR 474) to South Lake-Citrus Ridge Trails Phase I; explore trail connection to South Lake Trail and West Lake Trail	Explore trail connections to South Lake Trail, Sugar Loaf Mountain Trail, Hancock Road Trail, South Lake-Citrus Ridge Trails Phase I	Explore trail connections to Tav-Lee Trail, Sugar Loaf Mountain Trail, Tav-Dora Trail, North Lake Trail Phase I	Explore trail connections to Tav-Dora Trail, Lake-Wekiva Trail, North Lake Trail Phase I	Explore trail connections to Gardenia Trail
<p>Next steps:</p> <ul style="list-style-type: none"> <li>• Evaluate opportunities for trails in areas of projected population growth</li> <li>• Consider developing non-prioritized trails in communities where population growth anticipated</li> </ul>					

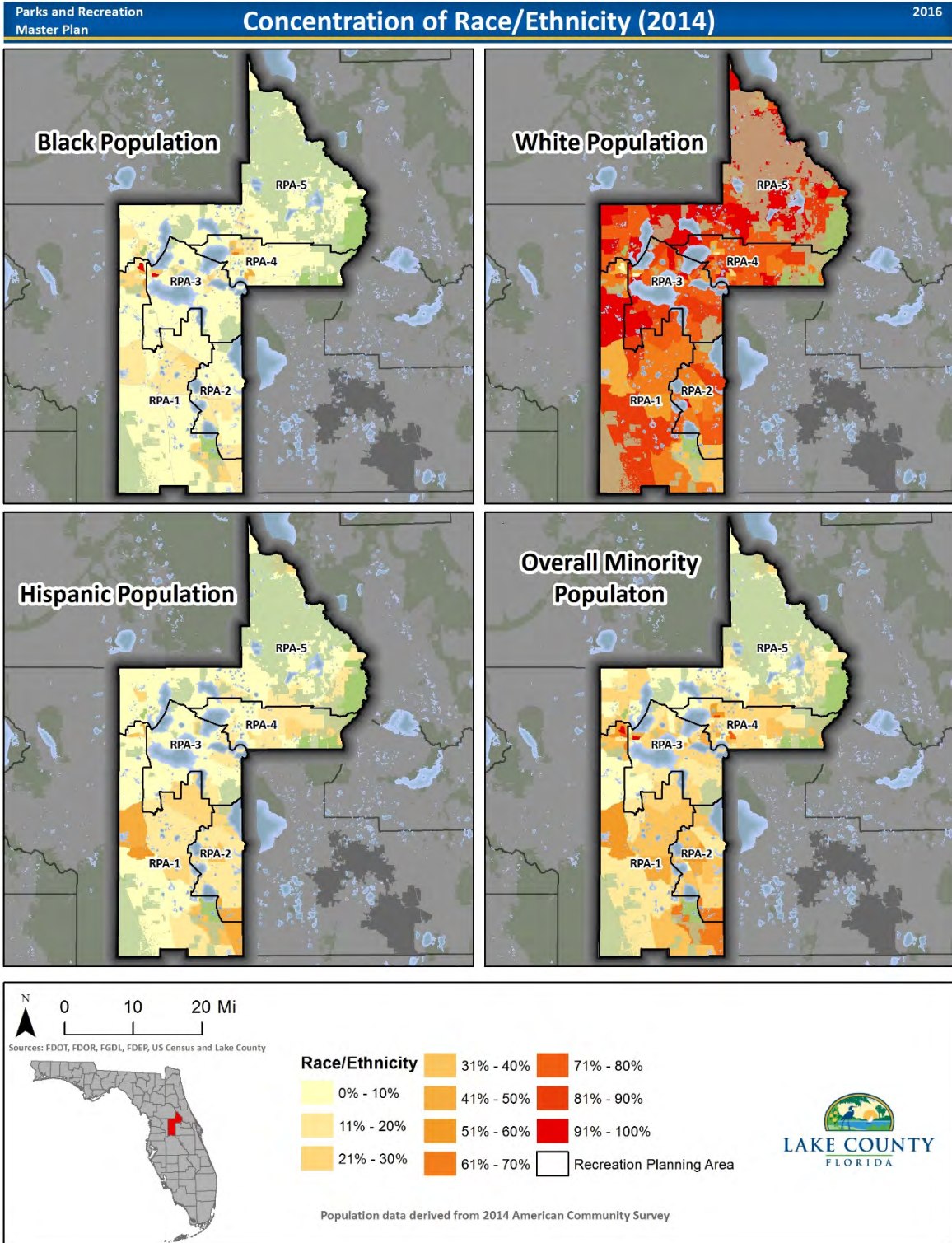
## Race/Ethnicity

Race and ethnicity were analyzed to understand racial disparities and access to the trail system (Table 3 and Map 3).

**Table 3: Lake County Race/Ethnicity**

Maps	RPA-1	RPA-2	RPA-3	RPA-4	RPA-5
<i>Hispanic Population</i>	Majority (29.5% to 55.7%) concentrated south of Lake Louisa, west of Mascotte and Groveland, and southwest of Howey-in-the-Hills	Majority (29.5% to 55.7%) concentrated around Sawgrass Lake and Trout Lake, Minneola, and Clermont	Majority (18.4% to 29.4%) concentrated west of Lake Eustis	Majority (18.4% to 29.4%) concentrated near Mount Dora, Eustis, Sorrento, and Plymouth	Majority (18.4% to 29.4%) is concentrated near Lady Lake and Astor
<i>Black/African American Population</i>	Majority (12.9% to 29.36%) concentrated south of Lake Louisa, north of Mascotte and Groveland	Majority (12.9% to 29.36%) concentrated east of Clermont	Majority (29.37% to 91.67%) concentrated near Leesburg	Majority (29.37% to 64.16%) concentrated near Eustis and Mort Dora	Majority (12.9% to 29.36%) concentrated near Lady Lake, Fruitland Park and Umatilla
<i>Opportunities:</i> Consider social equity in identification of trail opportunities.					

Map 3: Lake County Concentration of Race and Ethnicity (2014)



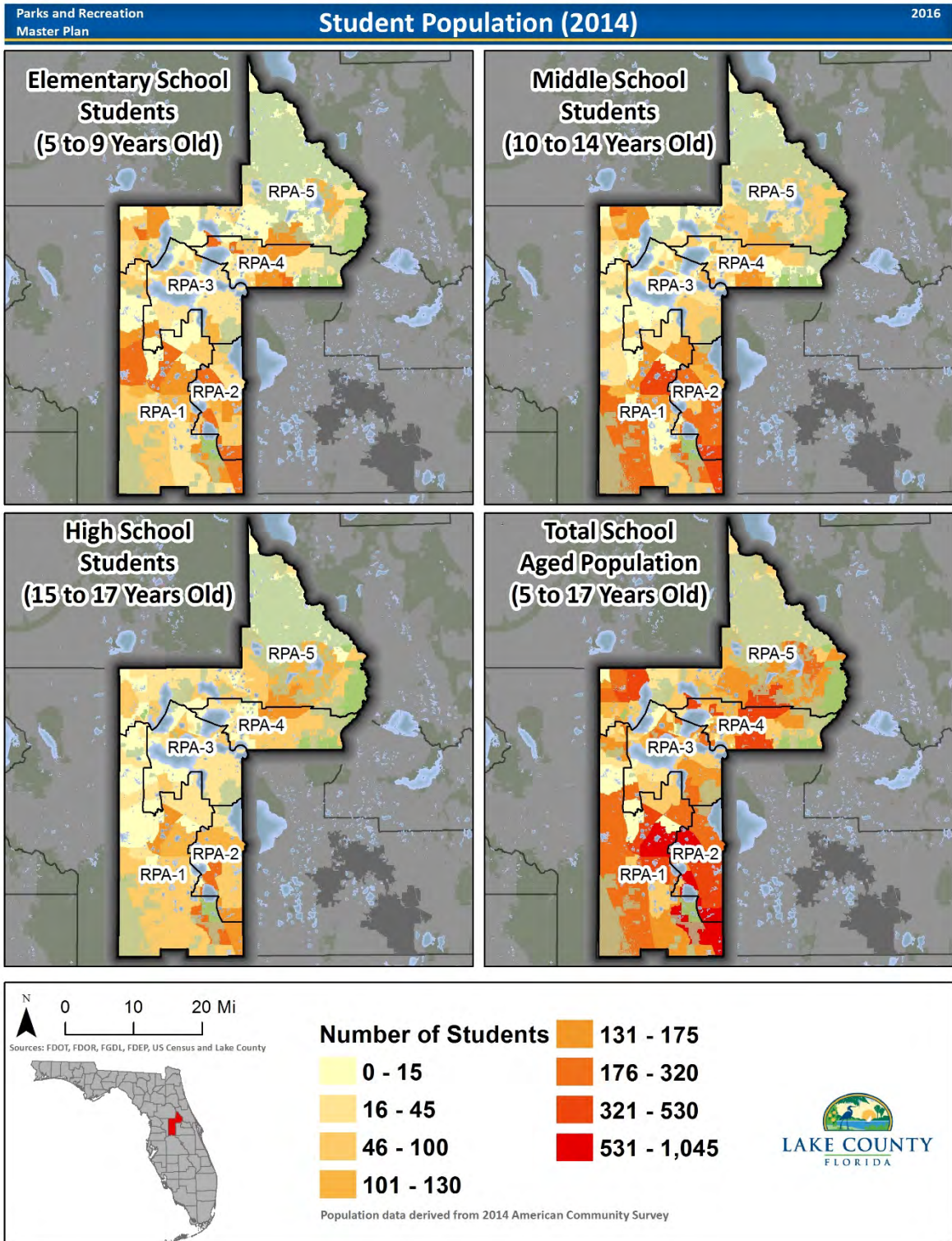
## Student Population/School Sites

Student population and existing public schools were analyzed to understand facility needs around schools (Table 4 and Maps 4 and 5). Connecting schools and communities was a goal of the 2008 Master Plan. Illustration of the two-mile buffer around schools allows for analysis of the facilities within that distance that might allow safe walking and bicycling to schools.

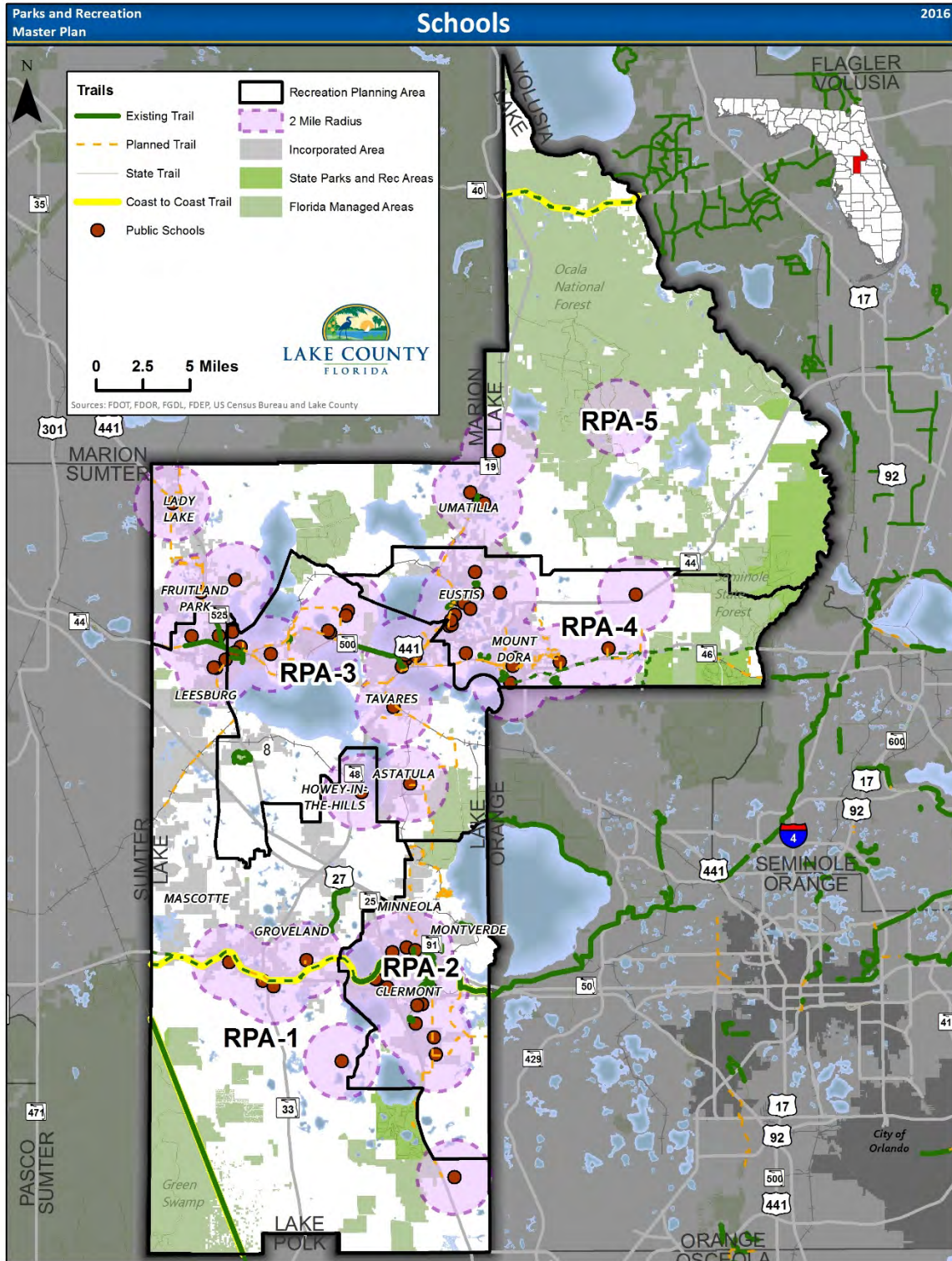
**Table 4: Lake County Student Population/School Sites**

Maps	RPA-1	RPA-2	RPA-3	RPA-4	RPA-5
Student Population (Ages 5–17)	Majority concentrated around Mascotte Groveland, and southeast corner	Majority concentrated around Clermont, Minneola, and southeast corner	Majority concentrated around Leesburg and south of Astatula	Majority concentrated around Sorrento, Mount Plymouth, Eustis, and Grand Island	Majority concentrated around Lady Lake, Pine Lakes, and south of Lake Norris
Schools	10 public	12 public	14 public	16 public	6 public
<i>Opportunities:</i> Coordinate with local municipalities and School Board to identify opportunities to develop priority list of trail or sidewalk needs within 2 miles of schools.					

Map 4: Lake County Student Population



Map 5: Lake County Existing Schools and 2-Mile Buffer



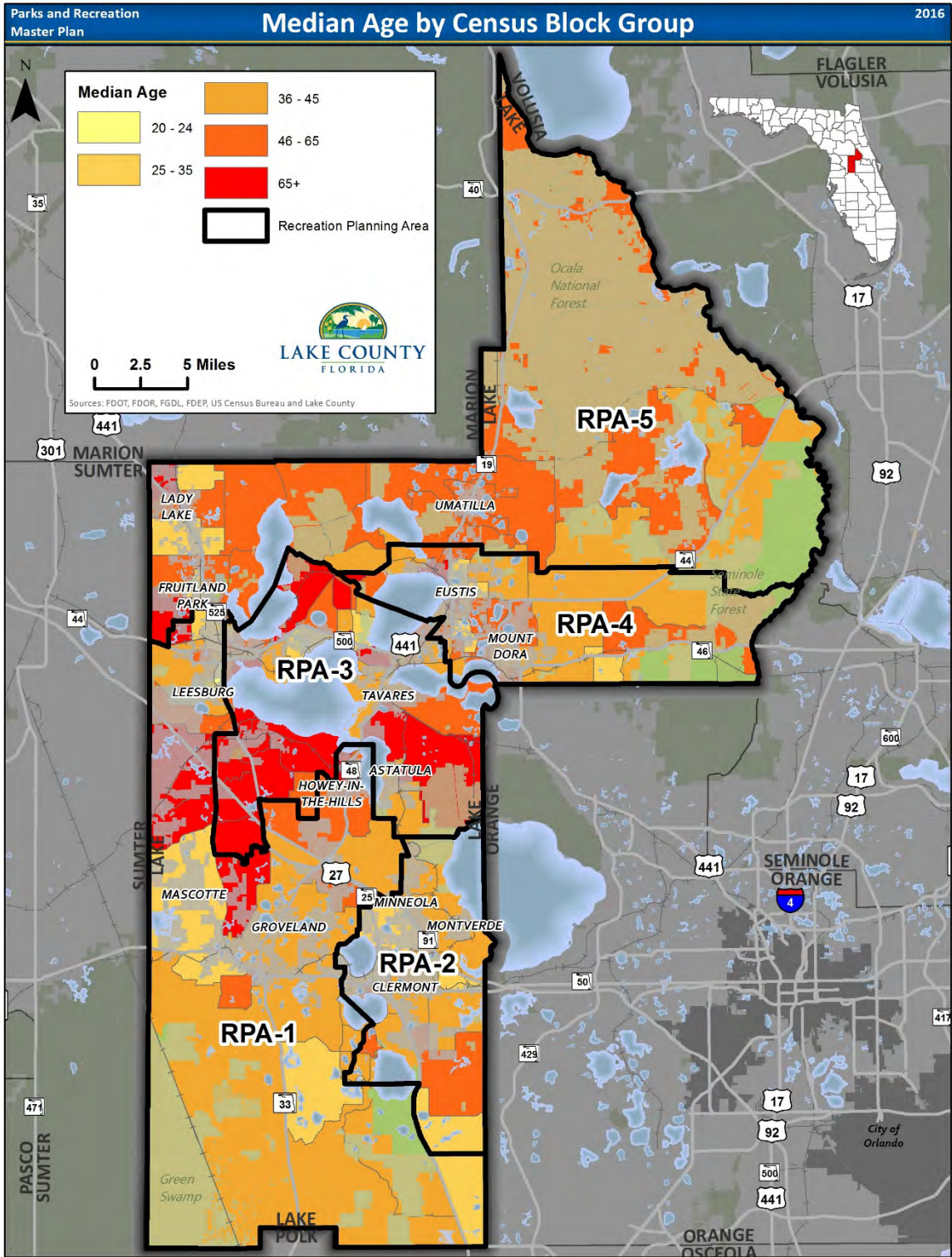
## Age Distribution

Age distribution was analyzed to identify areas that might benefit from trail features that are appropriate to various age groups (see Table 5 and Map 6).

**Table 5: Lake County Median Age**

Maps	RPA-1	RPA-2	RPA-3	RPA-4	RPA-5
Median Age	Majority between ages 25–45; some older adults over age 65 concentrated to northwest, south of Ronald Regan Turnpike	Majority between ages 25–45; some older adults ages 46–65 concentrated to southeast	Majority over age 65; next largest age group ages 25–45	Majority under age 65; some older adults over age 65 concentrated to northeast of Lake Eustis	Majority ages 36–65; some older adults over age 65 concentrated to west
<p><i>Opportunities:</i> Apply an 8–80 strategy for trails and trail enhancements, potentially targeting areas with high populations of users with specific needs; design takes into account needs of children age 8 to people age 80.</p>					

### Map 6: Median Age



## Household Income

Median household income was analyzed to identify areas of low income to ensure equal access to trails to provide community building, recreation, exercise and transportation (Table 6 and Map 7).

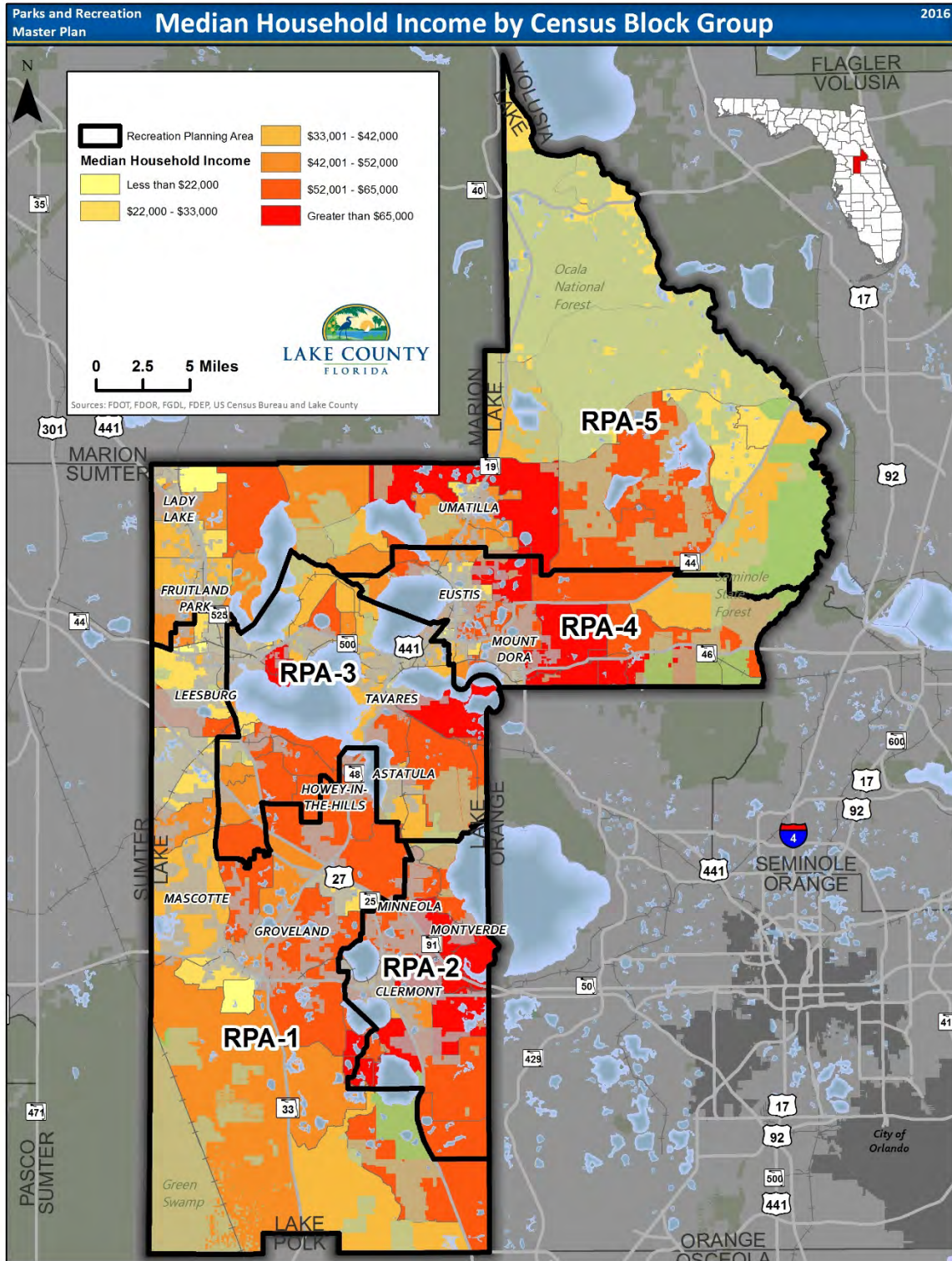
**Table 6: Lake County Median Household Income**

Maps	RPA-1	RPA-2	RPA-3	RPA-4	RPA-5
Median Household Income	Majority \$34,999–\$64,999; small number in northeast earning less than \$10,000	Majority \$44,999–\$65,000+; small number in west earning less than \$34,000	Majority \$34,999–\$64,999; small number in north earning less than \$24,000	Majority \$44,999–\$65,000+; small number in southwest earning less than \$24,000	Majority \$24,999–\$64,000; some earning \$65,000+ located in central area; small number in west earning less than \$24,000
<p><i>Opportunities:</i> Connect sidewalks, bike lanes, and/or local trails to low-income neighborhoods to promote physical activity and health as well as improve economic opportunity by creating access to employment not dependent on car ownership; provide safe walking and biking access to schools, workplaces, shopping, and civic buildings.</p>					

## Section 4: Trails-Related Planning Documents

A review of past trails related plans/studies was conducted to identify key considerations that may impact the update of the Trails Master Plan, including accessibility studies, transportation plans, greenway/trail system plans, statewide outdoor recreation planning, County policies, local redevelopment plans, and engineering studies/reports (Table 7).

Map 7: Lake County Median Household Income



**Table 7: Review of Past Trails-Related Plans/Studies**

Plan/Study Reviewed	Date	Responsible Agency	Plan/Study Overview	Opportunities
Lake County Multiuse Trails Accessibility Study and ADA Transition Plan	March 2016	Lake County	Outlines development of multiuse trails inventory and database, prioritization of improvements, and phasing plan to implement improvements based on anticipated funding available over next five years.	<ul style="list-style-type: none"> <li>• Incorporate ADA requirements/ standards for multiuse trails and amenities, such as accessible routes, curb ramps, obstructions/ inaccessible features and signage.</li> <li>• Include multiuse trails improvement program and prioritization process, such as identifying responsible entity, consolidating/relocating amenities, and prioritizing improvement responsibilities.</li> <li>• Reduce financial costs by “piggybacking” on planned roadway projects and partnering with other jurisdictions or organizations on implementing trail improvements.</li> </ul>
City of Clermont Downtown & Waterfront Master Plan	March 2015	City of Clermont	Focuses initiative to enhance downtown and waterfront.	<ul style="list-style-type: none"> <li>• Potential to connect Citrus Tower Trail and Lakeshore and Hammock Ridge bike routes to South Lake Trail.</li> <li>• Encourage local trail connections to South Lake Trail, such as 12<sup>th</sup> St, Minneola /East, and Third St Trail Connectors.</li> </ul>
Lake-Sumter MPO 2040 LRTP	Adopted December 2015	Lake-Sumter MPO	Guides MPO decisions on expenditure of federal and State transportation funds for highway, transit, freight, pedestrian, bikeway projects within Lake-Sumter MPO planning area.	<ul style="list-style-type: none"> <li>• Identify trail connections to other regional trails.</li> <li>• Include MPO’s TIP to Trail Implementation and Funding Schedule.</li> </ul>
Coast to Coast Connector – Report 3	December 2015	FL Dept. of Environmental Protection	Provides overview of C2C project and trail developments from July–December 2015	<ul style="list-style-type: none"> <li>• South Lake gap (SR 50/SR 33) from CR 565 to CR 565A with estimated cost of \$28,678,973.</li> <li>• Continue to coordinate with Office of Greenways and Trails to implement C2C connector.</li> </ul>

Plan/Study Reviewed	Date	Responsible Agency	Plan/Study Overview	Opportunities
Mt. Plymouth-Sorrento Community Redevelopment Area – Redevelopment Plan	March 2014	Lake County	Provides blueprint to improve existing built environment and plan growth due to construction of the Wekiva Pkwy.	<ul style="list-style-type: none"> <li>• Identify opportunity to use abandoned railroad rights-of-way for recreational trail system connecting Mt. Plymouth-Sorrento to extensive trail system in Seminole County and to Mt. Dora and adjacent Lake County communities.</li> <li>• Plan for trailheads in strategically located areas along Wekiva Trail within CRA.</li> <li>• Encourage development of ecotourism facilities, such as kayaking, biking, hiking and paddleboarding.</li> <li>• Coordinate with CRA on sidewalks and paving or repaving projects to improve connectivity.</li> </ul>
Florida’s Statewide Comprehensive Outdoor Recreation Plan (SCORP)	2013	Florida Dept. of Environmental Protection	Outlines five-year policy plan, establishes framework for statewide outdoor recreation planning.	<ul style="list-style-type: none"> <li>• Central Region has highest seasonal recreation use by visitors participating mostly in resource- based activities, followed second in user oriented activities.</li> <li>• Within Central region are several resource-based activities relating to trail system that are below LOS of statewide median, such as: <ul style="list-style-type: none"> <li>– Bicycling paved</li> <li>– Bicycling unpaved</li> <li>– Hiking</li> <li>– Horseback riding</li> <li>– Off-highway vehicle driving</li> </ul> </li> <li>• Evaluate LOS to balance local needs and needs of tourists.</li> <li>• Plan for additional resource-based activities (as specified above).</li> </ul>

Plan/Study Reviewed	Date	Responsible Agency	Plan/Study Overview	Opportunities
Florida Greenways & Trails System Plan	2013	Florida Dept. of Environmental Protection	Outlines new vision for Florida Greenways and Trails System in advancing Florida's economy, tourism, health, transportation, recreation, conservation, quality of life.	<ul style="list-style-type: none"> <li>• Need to coordinate planning efforts with local/regional entities on land trails opportunities of state and regional significance:               <ul style="list-style-type: none"> <li>- North Lake Trail Corr.</li> <li>- SR 40 Trail Corr.</li> <li>- FNST Corr.</li> <li>- Silver Springs to Mount Dora Bikeway Corr.</li> <li>- Umatilla to Minneola Corr.</li> <li>- Tav-Lee Trail Corr.</li> <li>- Lake Apopka Look Trail Corr.</li> <li>- West Orange Trail Corr.</li> <li>- Lake to Cross Florida Greenway</li> <li>- Inverness to Leesburg Corr.</li> <li>- Palatka Rail Trail Corridor</li> <li>- South Lake-Minneola Trail Corr.</li> <li>- Lake Louisa Trail Corr.</li> <li>- Van Fleet State Corr.</li> </ul> </li> <li>• Need to include water-based trails:               <ul style="list-style-type: none"> <li>- Stagger Mud Lake Run Paddling Trail Corr.</li> <li>- Alexander Springs Trail</li> <li>- St. Francis/Dead River Run Paddling Trail Corr.</li> <li>- Hontoon Dead River Paddling Trail</li> <li>- Lake Norris Paddling Trail</li> <li>- Blackwater Creek Paddling Trail</li> <li>- Harris Chain-of-Lakes Trail</li> <li>- Palatlaka Run Paddling Trail Corr.</li> </ul> </li> </ul>
Predictive Economic Impact Study for Mount Dora to Seminole Wekiva Trail	Sept 2011	Florida Greenways and Trails Foundation	Estimates economic impacts for City of Mount Dora as result of trail running through downtown, connecting to the proposed Wekiva Parkway Trail, Seminole Wekiva Trail, and eventually West Orange Trail.	<ul style="list-style-type: none"> <li>• Coordinate with City of Mount Dora in prioritizing downtown connection.</li> <li>• Explore other downtown connections to enhance local and regional economy.</li> </ul>

Plan/Study Reviewed	Date	Responsible Agency	Plan/Study Overview	Opportunities
Lake County Comprehensive Plan—Capital Improvement Element	Adopted in 2010	Lake County	Identifies need for and location of shared-use trails throughout unincorporated Lake County.	<ul style="list-style-type: none"> <li>• Reevaluate minimum LOS of 1 mi. of regional or minor shared-use trail per 5,000 residents and 1 linear mi. of hiking/nature trails per 6,750 residents.</li> <li>• Correct existing deficiencies to accommodate future growth, replace deteriorated or obsolete facilities pursuant to applicable LOS standards.</li> </ul>
Lake County Comprehensive Plan—Conservation Element	Adopted in 2010	Lake County	Aids in use and protection of natural resources in Lake County, including environmentally- sensitive lands and open space.	<ul style="list-style-type: none"> <li>• Explore opportunities for new greenways/blueways to meet population growth and tourism.</li> <li>• Give indications of environmentally-sensitive areas suitable for acquisition and development for recreational and open space purposes.</li> <li>• Enhance natural resources and environment with policies relating to passive recreation activities including trails, greenways, blueways within open space corridors.</li> </ul>
Lake County Comprehensive Plan—Economic Development Element	Adopted in 2010	Lake County	Achieves economic sustainability by enhancing and promoting its many cultural and recreational amenities.	<ul style="list-style-type: none"> <li>• Connect multi-use trails to culturally-diverse neighborhoods.</li> <li>• Develop historical/educational interpretative signs along trails.</li> <li>• Enhance/connect multi-use, equestrian trails, blueways to regional networks.</li> <li>• Evaluate LOS to balance local needs and needs of tourists who may also use local facilities.</li> </ul>
Lake County Comprehensive Plan—Future Land Use Element	Adopted in 2010	Lake County	Provides for efficient allocation of public facilities and services and variety of transportation options.	<ul style="list-style-type: none"> <li>• Provide internal network of streets, pedestrian paths, bicycle trails for traditional neighborhoods, Mount Plymouth-Sorrento Community, Sunnyside Planning Area, Ferndale.</li> <li>• Develop/implement plans for paved shoulders or trails suitable for bicycles along Green Mountain Scenic Byway segment of CR 455 and along CR 561A within boundaries of Ferndale.</li> <li>• Link trail system with Ferndale Preserve and proposed trails planned for Hills of Minneola, Sugarloaf Mountain, Lake Apopka North Shore Restoration Area, and Green Mountain Scenic Byway.</li> </ul>

Plan/Study Reviewed	Date	Responsible Agency	Plan/Study Overview	Opportunities
Lake County Comprehensive Plan—Future Land Use Element (cont'd)	Adopted in 2010	Lake County		<ul style="list-style-type: none"> <li>• Open space within Wekiva Study Area (WSA) and Wekiva River Protection Area defined as land area that remains undeveloped or minimally developed, such as trails and boardwalks.</li> <li>• Protect rural areas through designation of scenic rural roadways and trails.</li> <li>• Protect resources of Florida Black Bear Scenic Byway Corridor through provision of bicycle and pedestrian facilities or trails.</li> <li>• Support adoption and development of Lake Apopka Loop Trail System and connections to existing trails and recreational facilities.</li> </ul>
Lake County Comprehensive Plan—Parks and Recreation Element	Adopted in 2010	Lake County	Facilitates development and management of parks and facilities for recreation system that includes environmental lands, trails, and other recreational opportunities that meets diverse needs of growing community.	<ul style="list-style-type: none"> <li>• Evaluate LOS to balance local needs and needs of tourists who may also use local facilities; minimum LOS of 1 mi. of regional or minor shared-use trail per 5,000 residents and 1 linear mi. of hiking/nature trails per 6,750 residents.</li> <li>• Encourage development of comprehensive greenway, blueway, trails, equestrian, and bikeway system.</li> <li>• Interconnect existing and future dedicated open space areas, pedestrian and bicycle trails, hiking trails, equestrian trails, canoe runs, and, where appropriate, utility corridors, into greenways/blueways network.</li> <li>• Streamline parks, recreation facilities and programs to focus on providing larger scale facilities to link them with trails system.</li> <li>• Reevaluate trail right-of way acquisition strategies and develop priority list.</li> </ul>

Plan/Study Reviewed	Date	Responsible Agency	Plan/Study Overview	Opportunities
Lake County Comprehensive Plan—Parks and Recreation Element (cont'd)	Adopted in 2010	Lake County		<ul style="list-style-type: none"> <li>• Explore incentives for private landowners in creating trail system.</li> <li>• Update potential major funding sources (i.e., Federal, State, local).</li> <li>• Establish 5-, 10-, 20-year funding goals.</li> <li>• Develop Trail Implementation/Funding Schedule for each prioritized trail.</li> <li>• Implement design/maintenance techniques, materials, procurement methods to provide most cost-effective measures to develop and maintain trail facilities.</li> <li>• Reevaluate trail-related impact fees.</li> </ul>
Lake County Comprehensive Plan—Transportation Element	Adopted in 2010	Lake County	Encourages efficient and coordinated bicycle and pedestrian system to ensure safe, convenient, efficient travel of pedestrians and bicyclists through bicycle lanes, sidewalks, trails connecting to schools, neighborhoods, major trip generators.	<ul style="list-style-type: none"> <li>• All new and rebuilt collector and arterial facilities to provide bicycle lanes and sidewalks</li> <li>• Identify new roads since 2008 with bicycle lanes and sidewalks that could link to trail system.</li> <li>• Reevaluate design standards to identify modifications to specifications and prototypical cross-sections and trailheads; updates to overpass/underpass and trailhead locations.</li> <li>• Coordinate with lead agencies in acquisition and development of trail system using abandoned railroad right-of-way and studying implementing options for coordinated provision of bike trail network.</li> <li>• Explore incentives for private landowners in creating trail system.</li> </ul>
Lake County Comprehensive Plan—Wellness Way Area Plan Amendment	Adopted in 2010	Lake County	Establishes Wellness Way Urban Service Area for future economic development and balance growth with continued development of Horizon West.	<ul style="list-style-type: none"> <li>• Establish potential trails and blueways within WWUSA connecting to adjacent existing trails and parks.</li> <li>• Provide connectivity of Lake Louisa State Park to existing Orange County Trails.</li> <li>• Include soft in addition to hard surface trails.</li> <li>• Develop Trail Implementation and Funding Schedule within WWUSA.</li> <li>• Explore incentives for private landowners in creating trail system within WWUSA.</li> </ul>

Plan/Study Reviewed	Date	Responsible Agency	Plan/Study Overview	Opportunities
Preliminary Engineering Report, East Revels Rd in Lake County and South Lakeshore Blvd in Howey-in-the-Hills	August 2009	Lake County/ Town of Howey-in-the-Hills	Documents findings of engineering assessment for proposed capacity widening improvements for East Revels Road and S. Lakeshore Boulevard to further enhance safety of the pedestrians and bicyclists.	<ul style="list-style-type: none"> <li>Explore opportunity to connect E. Revels Road and S. Lakeshore Boulevard to trail system.</li> </ul>
City of Mount Dora Trails Master Plan	April 2009	City of Mouny Dora	Establishes overall vision and strategy for development of comprehensive, interconnected trail network.	<ul style="list-style-type: none"> <li>Continue to coordinate with City of Mount Dora on implementing regional shared-use trails and trailheads, Lake-Wekiva and Tavares-Dora Trails.</li> <li>Encourage City to implement trail connections to regional trails to enhance the overall network.</li> <li>Coordinate with City in exploring blueway connections to Lake Dora.</li> </ul>
Cherry Lake Rd – Jalarmy Rd – E. Apshawa Rd Preliminary Engineering Report	July 2008	Lake County	Evaluates Cherry Lake Rd, Jalarmy Rd, E. Apshawa Rd to determine number of lanes needed for vehicles and facilities needed to accommodate bicycles and pedestrians within project corridor.	<ul style="list-style-type: none"> <li>Explore opportunity to connect Cherry Lake Rd, Jalarmy Rd, E. Apshawa Rd to Regional South Lake Trail.</li> </ul>
Eustis Downtown Master Plan	July 2008	City of Eustis	Builds on desired vision for better downtown by enhancing and expanding existing parks, improving pedestrian/bicycle connections.	<ul style="list-style-type: none"> <li>Coordinate with City in exploring trail connections to downtown and blueway connections to waterfront/marina.</li> </ul>

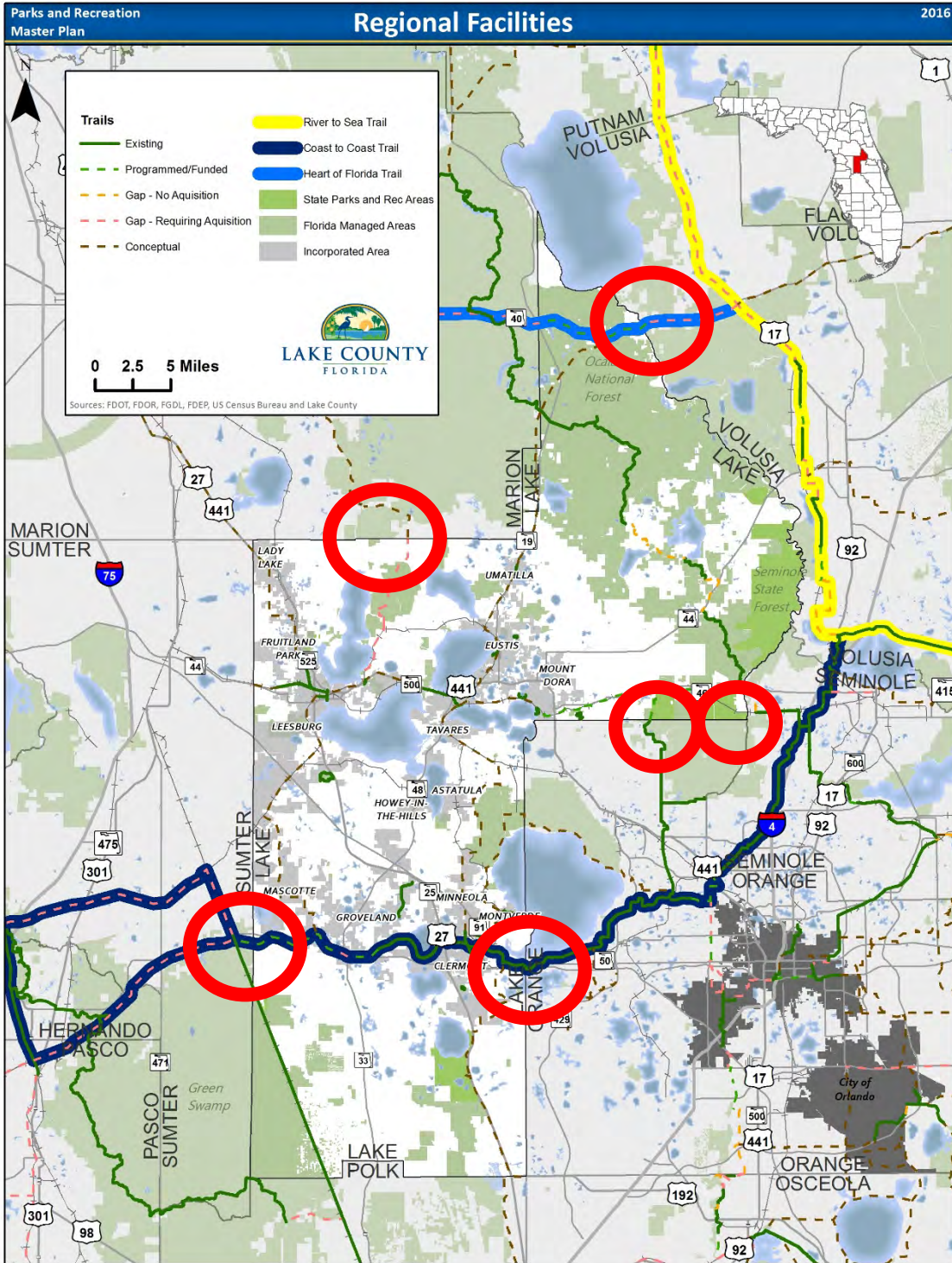
Plan/Study Reviewed	Date	Responsible Agency	Plan/Study Overview	Opportunities
Lakeshore Drive Bridge Improvements – Phase I Preliminary Engineering Study	June 2008	Lake County	Documents findings for replacement of Lakeshore Drive bridge, identifies improvements to accommodate future traffic demand, pedestrian/bicycle movement.	<ul style="list-style-type: none"> <li>• Explore connection to Hancock Rd Trail.</li> </ul>
Town of Monteverde – CR 455 Corridor Master Plan	May 2008	Lake County/ Town of Monteverde	Creates multi-modal transportation investment plan to address safety, traffic flow, drainage improvements, pedestrian environment, and bicycle facilities along 2.44 miles of CR 455.	<ul style="list-style-type: none"> <li>• Explore connection to Sugar Loaf Mountain Trail.</li> </ul>
Kurt Street Preliminary Engineering Study	February 2008	Lake County	Determines number of lanes needed for vehicles and facilities needed to accommodate bicycles and pedestrians within Kurt St and Lakeview Ave corridor.	<ul style="list-style-type: none"> <li>• Explore connections to Eustis-Tavares Trail and Tavares-Dora Trail.</li> </ul>

## Section 5: Regional Connectivity

Florida, like many states, has acknowledged the importance of multi-use trails for its citizens. In Lake County, the effort to fund trails is a collaborative effort among the local and county government agencies and, the Lake-Sumter MPO, and FDOT. Priority lists or an application process managed by the MPO has been one of the methods by which to get trail construction funded. Counties and local municipalities have, also funded local trail construction.

In 2014, FDOT created a funding source for a statewide multi-use trail system called SUN (Florida Shared-Use Non-motorized) Trail Network, acknowledging the importance of regional trails. This funding source is competitive, and applications for the funds cross county boundaries and highlight the importance of trails locally and also regionally. The network is currently evaluated every few years and priority trails for funding are identified. Map 8 shows two trails on the SUNTrail network in Lake County. The South Lake Trail is part of the Coast to Coast Trail that links St. Petersburg to Titusville. The Black Bear Scenic Trail in northern Lake County is also on the network as part of the Heart of Florida Loop Trail. The Coast to Coast Trail is the #1 trail funding priority in the State. The second priority, the St. John's River-to-Sea-Loop in Volusia County, while not in Lake County, creates opportunities for Lake County to make regional connections. Additional trails being planned in Orange County create opportunities for communities in fast-growing sections of south and east Lake County. The areas illustrated on Map 8 are areas that should be considered during the plan development process because of work going on in adjacent Counties.

### Map 8: Regional Connectivity



## Section 6: Economic Development

The Lake County Office for Economic Prosperity is responsible for the promotion and strengthening of the local tourism industry. Promotion and support for a variety of tourism-related activities are funded by resort tax collection. To continue to expand the collection of this tax, the Office developed an action plan to work directly with the business community, cities, and other stakeholders to promote eco-tourism, recreation, sports, and tourism. The action plan includes the following:

- Complete and implement a new grant application process to fund the promotion of tourism and attract visitors to Lake County.
- Target new events that generate overnight purchases in Lake County, thereby generating additional Tourist Development Tax revenue.
- Support existing events that bring tourists to Lake County through marketing and financial support, and constantly look for new opportunities to bring tourists to Lake County (e.g., marketing, cooperation between private and public sector, cooperation between cities).
- Identify infrastructure needs, pursue funding and completion (e.g., trail systems, sporting venues) through a coordinated system.
- Consider conducting a “tourism” workshop and invite all partners to evaluate existing programs and facilities and to explore opportunities for greater coordination, improved outreach, etc.
- Consider establishing a “Tourism” Business Retention and Expansion Program that specifically addresses the needs of existing tourism-related businesses.

The Office manages a competitive Capital Projects Funding Program that supports individual communities’ efforts to establish or expand existing facilities for tourist programs that will increase the number of overnight visitors to Lake County. This partnership program has funded the construction of a large sports facility of the South Lake Campus of Lake-Sumter Community College as well as the Sleepy Hollow Sports Complex in Leesburg.

While investments in the past have been to sports complexes and in support of tournaments, an area of opportunity for Lake County to develop could be triathlons that take advantage of both the lakes and trail system in the County. This Master Plan will explore specific opportunities for the Office of Parks and Trails, Office for Economic Prosperity, and Tourist Development Council to partner or where tourist development tax revenue can be used to fund capital improvements to recreational facilities such as trails or trail amenities to enhance tourism; however, additional funding for the operations and maintenance of such facilities will also need to be considered.

## Section 7: Staffing and Operation Assessment

Lake County's FY 2017 budget includes financial policies, operational focuses, services provided, and other information about the county and its government. Basic functions and principal activities of each department/division are presented, along with summary of personal services, operating expenses, capital outlay, and other expenses. A review of capital and operating expenses was conducted for the Office of Parks and Trails and for capital improvements to provide insights for the Countywide Parks and Recreation System Master Plan update.

The Office of Parks and Trails develops and maintains County parks, recreation sites, trails, and boat ramps and preserves natural areas and public lands for the citizens of Lake County and maintains abandoned cemeteries. Parks and trails maintenance and operations are funded primarily out of the Parks Municipal Service Taxing Unit (MSTU), as well as additional revenue from the General Fund, Impact Fees, Boating Improvements Fund, Fish Conservation Fund, Capital Improvement Fund, athletic fields, concession and pavilion rentals, and various grants. In FY 2017, Public Land maintenance, restoration, and operations will be funded from the parks MSTU through a transfer from the General Fund.

As shown in Figure 1, staffing for the Lake County Office of Parks and Trails consists of 32 full-time personnel responsible for operating, administrating, and maintaining the County's parks, public lands, and trails. Discussions with staff identified additional needs to maintain the trails program. Additional staff may be needed to adequately maintain the trails planned for construction.

All stand-alone trails and blueways are maintained by staff under the Trails/Active/Passive Recreation staff in the org chart shown below and the trails within parks are maintained by the staff assigned to those parks. Because of this integration, please refer to Section 5 of the *Lake County Parks & Recreation System Master Plan, Technical Memorandum 1-A, Data Needs Assessment* for additional information regarding the operational and financial structure of the Lake County Office of Parks and Trails.



**Figure 1: Lake County Office of Parks and Trails Organizational Chart**

## Section 8: Next Steps

This information provided in this technical memorandum, along with public input gathered through a community survey and public workshops scheduled for December 2016 through March 2017, will form the framework for the Trails Master Plan recommendations to be developed over the next six months.

# Lake County Parks & Trails Master Plan Update

## Community Survey Results

September 2017

Prepared for:

### Lake County Office of Parks & Trails



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## Introduction

Community feedback about current and future parks and trails needs and opportunities was essential to the development of the Parks and Trails Plan Updates. To make sure a broad range of feedback was gathered, public workshops were held in each of the Recreational Planning Areas in Lake County and an on-line survey was developed. This survey was available at each public workshop and online by a link from the Office of Parks and Trails website from December 8<sup>th</sup> 2016 to April 3<sup>rd</sup>, 2017. It is important to note, the community survey was structured as an opinion survey and is not viewed as statistically valid. A copy of the survey instrument is provided at the end of this document.

A total of 5 workshops were held and 565 surveys were submitted, either through the website or in person at the public workshops. The results of the workshops and all surveys received were combined and are summarized below. An additional 393 were received after the end of the data collection period and not combined into the summary below.

## Community Workshops

The purpose of the workshops was gather community feedback on the needs and opportunities for Lake County's Parks and Trails. The meeting included a short presentation by Tindale Oliver Design that discussed the current state of the parks and trails system and ongoing parks and trails improvements. Attendance varied by location but at each event, participants were then broken into 5 groups to answer questions relating to parks and trails system strengths, gaps, and opportunities and note comments and ideas on a set of maps provided at each table. The workshops were summarized in a series of memos that are included at the end of this memo.

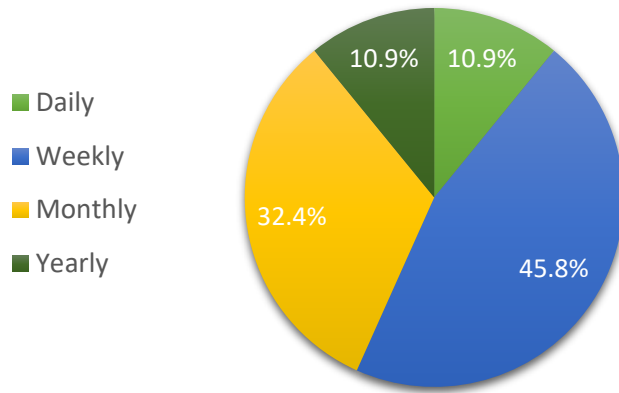
## Community Survey Questions

The survey included **general** questions about opportunities and maintenance, as well as **specific** questions about the parks and trail facilities managed by Lake County Parks and Trails Division. The following presents the information collected.

### Park and Facility Usage

In question 1 participants were asked if they use a specific type of facility (sports complexes, active parks, passive parks, public lands and trails); if their response was positive, they were directed to a series of more specific questions about the facilities.

**Figure 1-1: How often do you use sports complexes or large sports facilities?**



Participants were asked how often they visited sports complexes or large sports facilities such as North Lake Community Park. Of the respondents, almost half, or 49%, said they use sports complexes, with 45.8% using them weekly and 32.4% using them monthly, as shown in Figure 1-1.

**Figure 1-2: Which sports complexes do you use?**

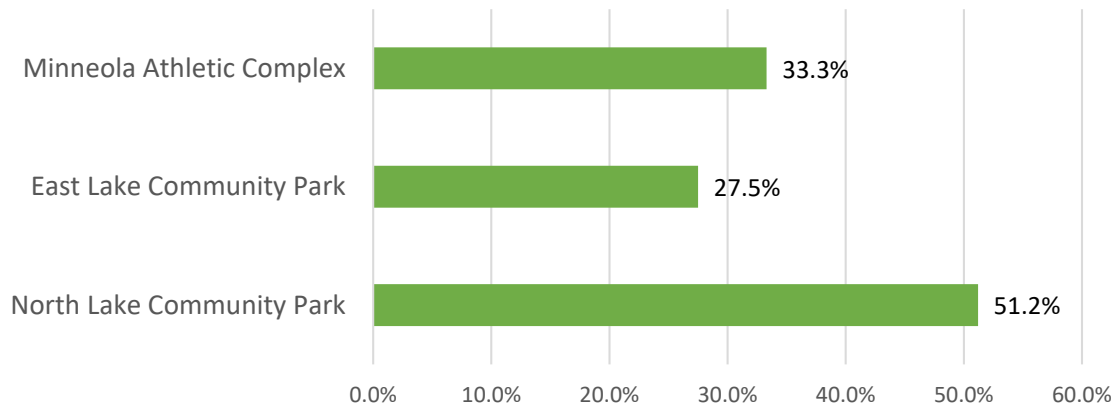
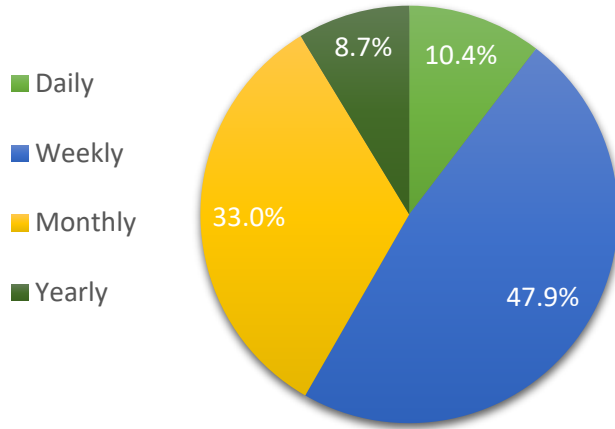


Figure 1-2 shows that North Lake Community Park is the most frequently visited sports complex, followed by Minneola Athletic Complex. Respondents were able to check all that applied.

**Figure 1-3: How often do you use active parks?**



Almost 60% said they use active parks like Astor Lions Park in Lake County. Of those, 10.4% use the facilities daily, 47.9% weekly, and 33.0% monthly, as shown in Figure 1-3.

**Figure 1-4: Which active parks have you visited?**

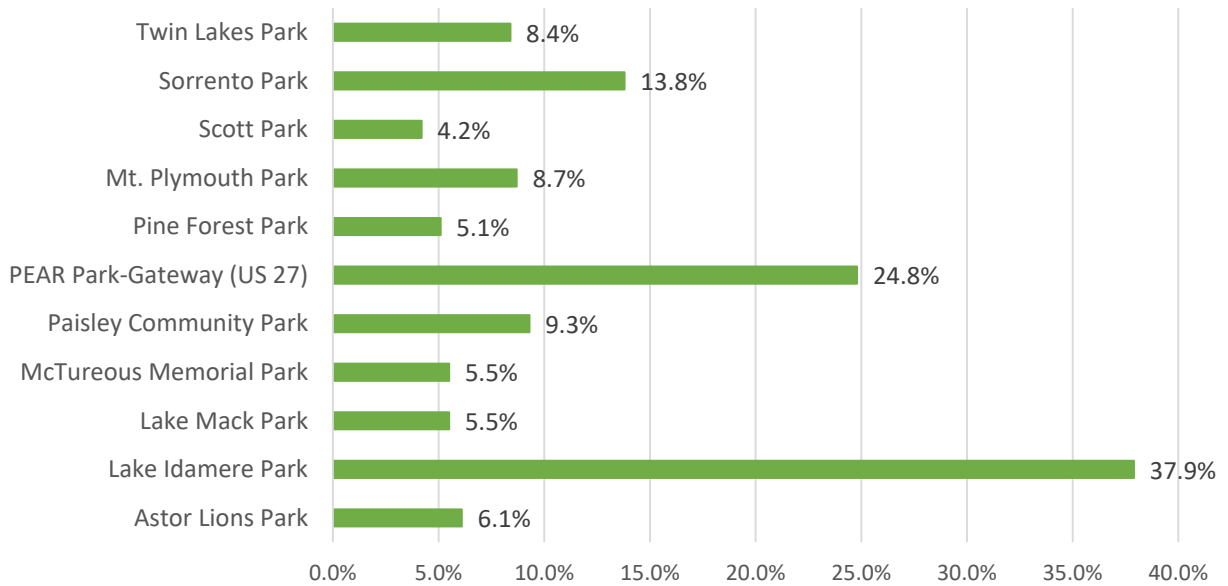
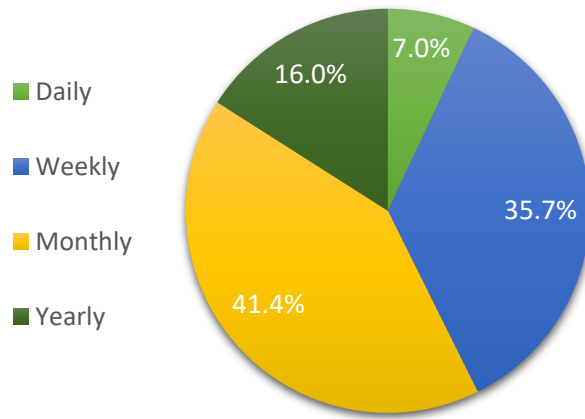


Figure 1-4 shows that 37.9% of respondents who use active parks have been to Lake Idamere Park and 24.8% have been to PEAR Park Gateway, among others. Respondents were able to check all that applied. Review with staff indicated that in the case of South Umatilla Park participant confusion with Umatilla's sports park resulted in more votes than reasonably expected.

**Figure 1-5: How often do you use passive parks?**



For the 78.4% who responded that they use passive parks like PEAR PARK, 7.0% use the facilities daily, 35.7% weekly, and 41.4% monthly, as shown in Figure 1-5.

**Figure 1-6: Which passive parks have you visited?**

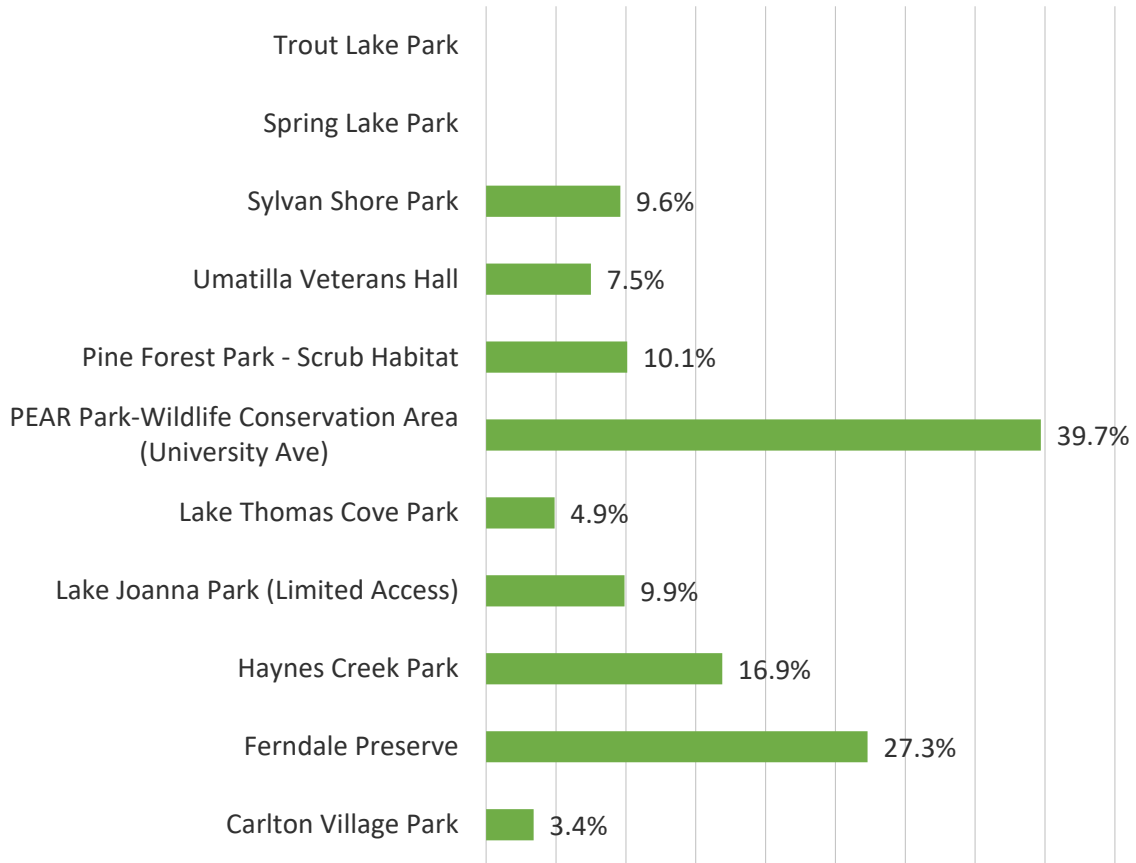
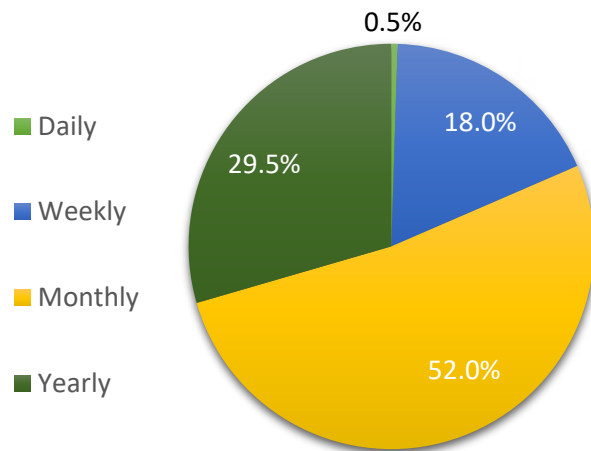


Figure 1-6 shows that 39.7% of respondents have been to PEAR Park Conservation Area, 27.3% have been to Ferndale Preserve and 16.9% of respondents have been to Haynes Creek Park, among others. Respondents were able to check all that applied. Several parks, including Trout Lake Park and Spring Lake Park got more votes than is reasonable given the limited amenities. Review with staff suggests that in the case of Trout Lake Park, there was confusion among respondents between Trout Lake Park and Trout Lake Nature Center.

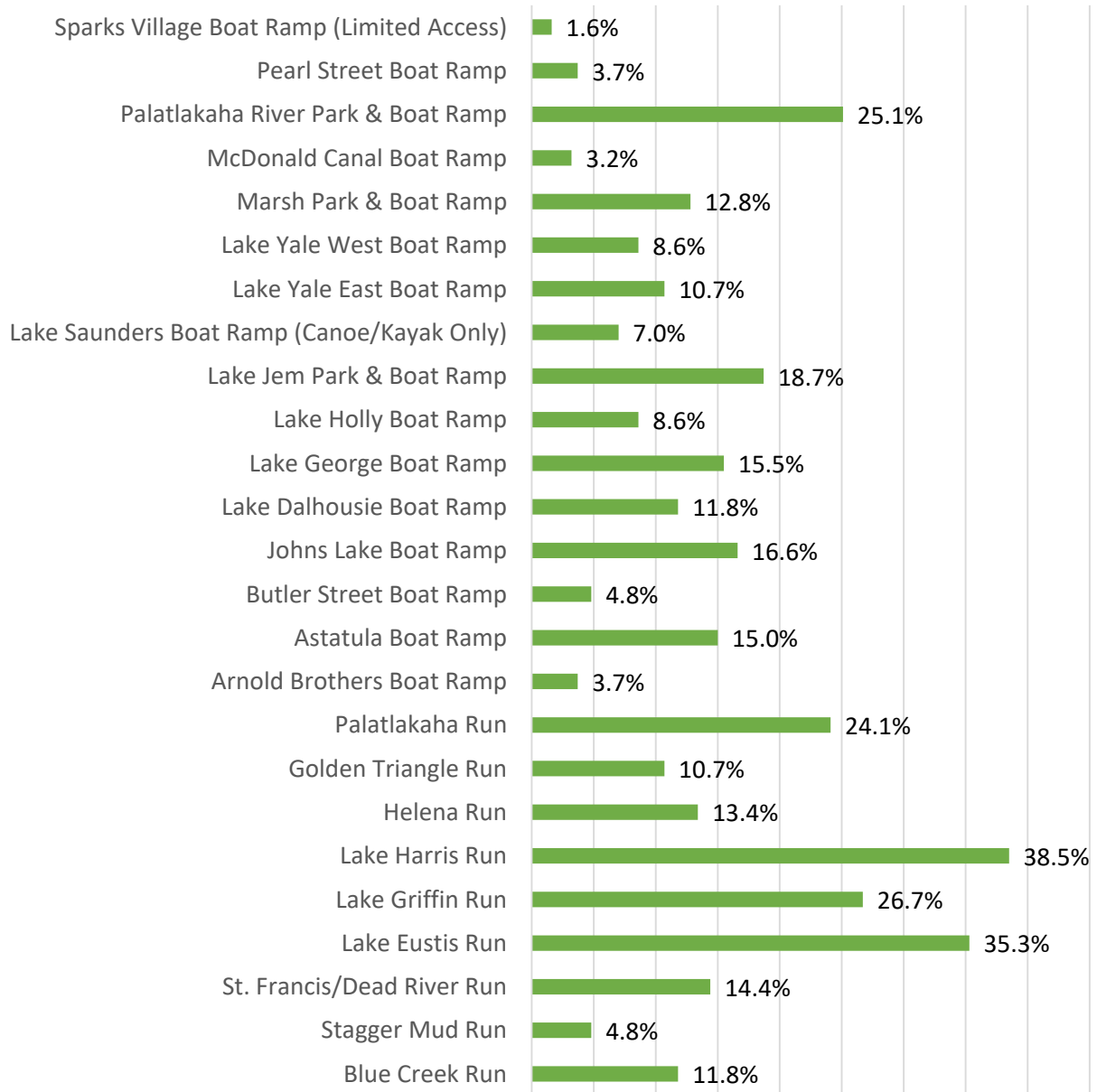
**Figure 1-7: How often do you use boat ramps/blueways?**



The majority (60.1%) said that they do not use boat ramps or blueways, and 39.9% have. Figure 1-7 shows that 0.50% use the facilities daily, 18.0% weekly, 52.0% monthly, and 29.5% at least once per year.

In total, 38.5% of respondents have been to Lake Harris Run, 33.5% to Lake Eustis Run, and 26.7% to Lake Griffin Run. Respondents were able to check all that applied. Figure 1-8 illustrates the percentage of the 225 respondents that have visited each blueway/boat ramp. Respondents were able to check all that applied.

**Figure 1-8: Which boat ramps/blueways have you visited?**



**Table 1-1: Top Five Most Frequently Visited Blueways and Boat Ramps**

Blueway/Boat Ramp	Percentage
Lake Harris Run	38.5%
Lake Eustis Run	35.3%
Lake Griffin Run	26.7%
Palatlahaha River Park & Boat Ramp	25.1%
Lake Jem Park & Boat Ramp	18.7%

The next questions asked if participants use public lands (conservation area under the County’s Public Lands Management Program) and to estimate how often. Of survey respondents, 56.5% have visited public lands. Of those, 12.0% use the facilities daily, 27.6% use them weekly, 47.0% use them monthly, and 21.1% use them at least once a year, as shown in Figure 1-9.

**Figure 1-9: How often do you use public lands?**

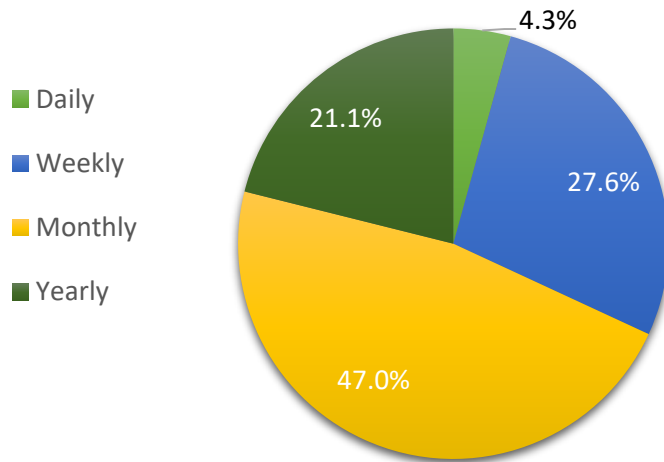
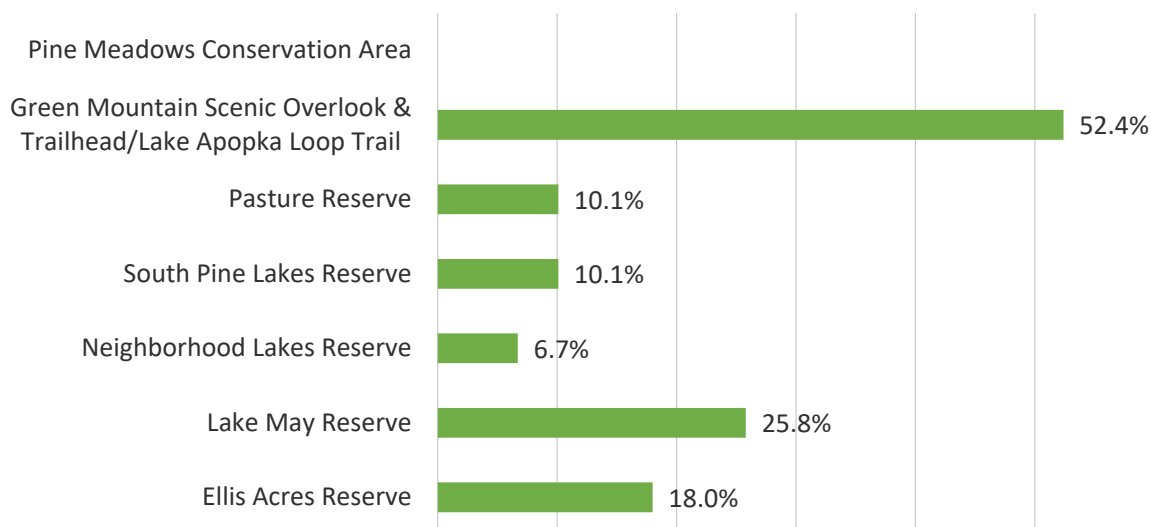
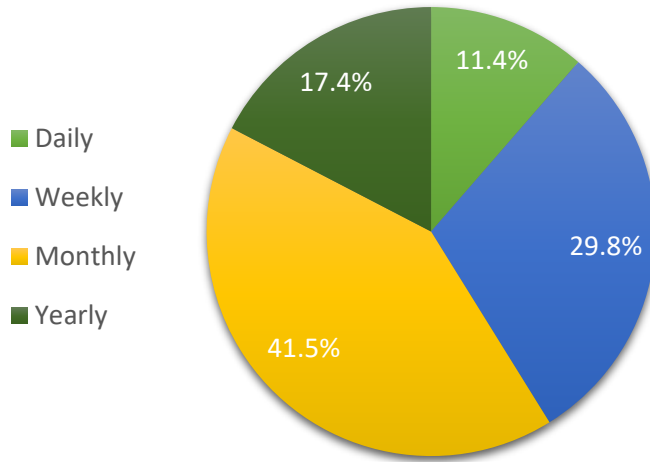


Figure 1-10 shows that 52.4% of respondents have been to Green Mountain Scenic Overlook & Trailhead/Lake Apopka Loop Trail, 25.8% to Lake May Reserve. A number of respondents selected Pine Meadows Conservation Area but after discussion with staff it was decided that given the limited access to the area at the time of the surveys, the results were due to respondent confusion about the access. Respondents were able to check all that applied.

**Figure 1-10: Which public lands have you visited?**



**Figure 1-11: How often do you use multi-use trails (paved stand alone, e.g., South Lake Trail)?**



In total, 60.7% had used multiuse trails, with 11.4 % using them daily, 29.8% weekly, 41.5% monthly, and 17.4% at least once per year, as shown in Figure 1-11.

**Figure 1-12: Which multi-use trails have you used?**

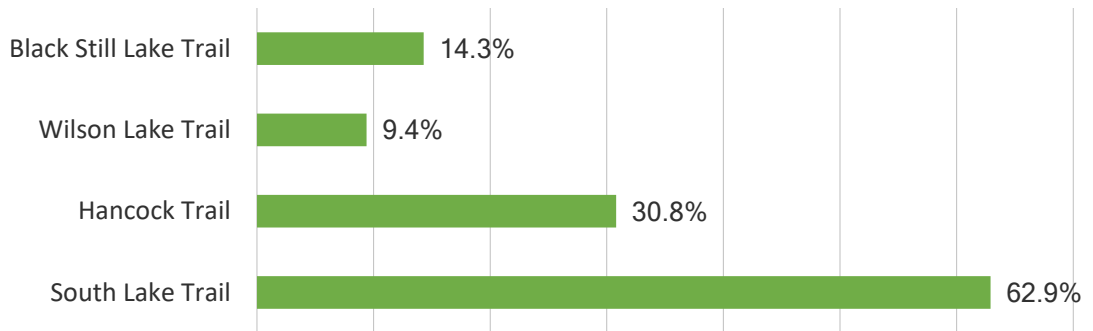
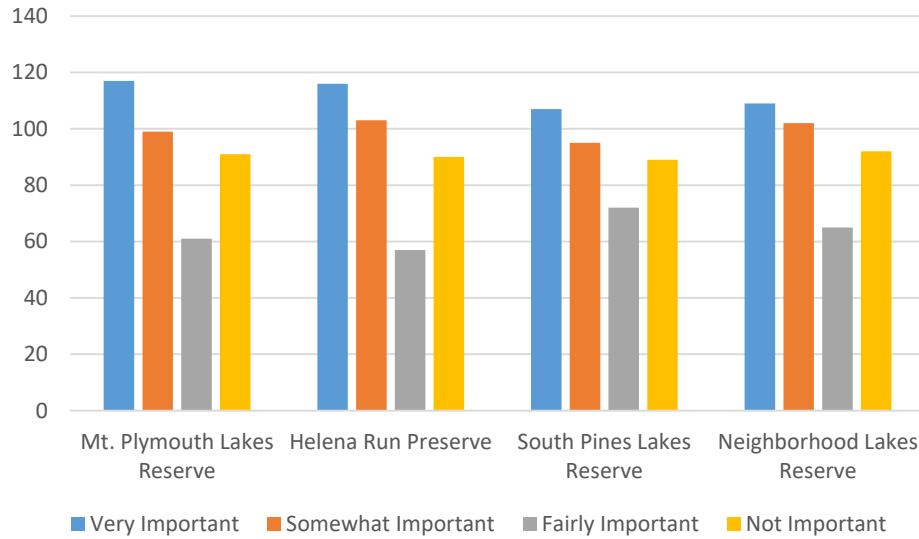


Figure 1-12 shows that 62.9% of respondents use South Lake Trail, 30.8% use Hancock Trail, and 15.0% use Black Still Run Trail, among others. Respondents were able to check all that applied.

Lake County maintains a number of public lands to which there is no public access. To gauge interest in providing access to these lands, respondents were asked to rate the importance of access to each property. Figure 1-13 shows that public access to Mt. Plymouth Lakes Reserve, and Helena Run Preserve were indicated as “very important” to survey respondents. Access to Lady Lake Reserve was noted in the survey

by a number of respondents, but because there is no way to provide public access to the area, the votes noted but disallowed.

**Figure 1-13: Importance of access to public lands**



**Figure 1-14: Do you use parks and recreation facilities in neighboring counties?**

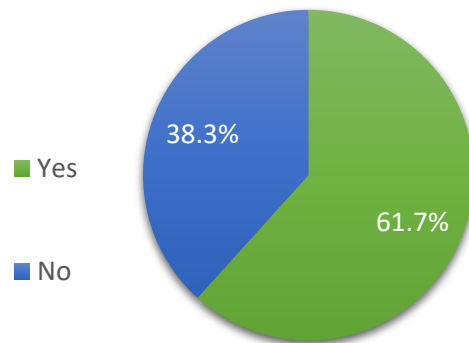
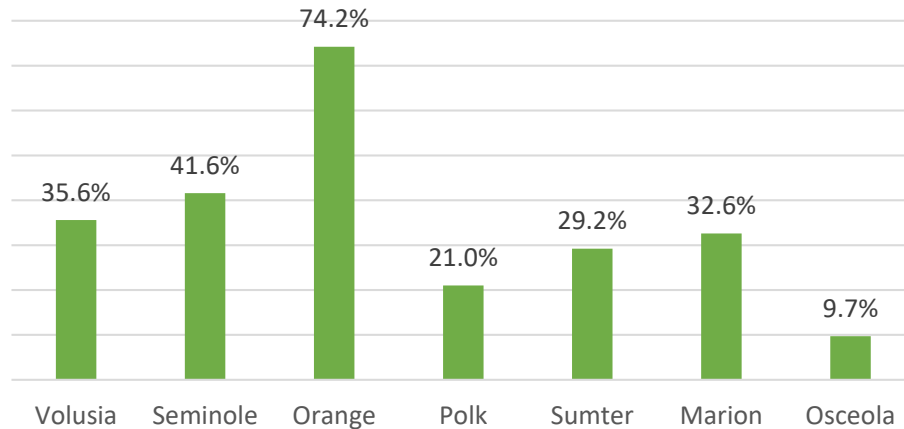


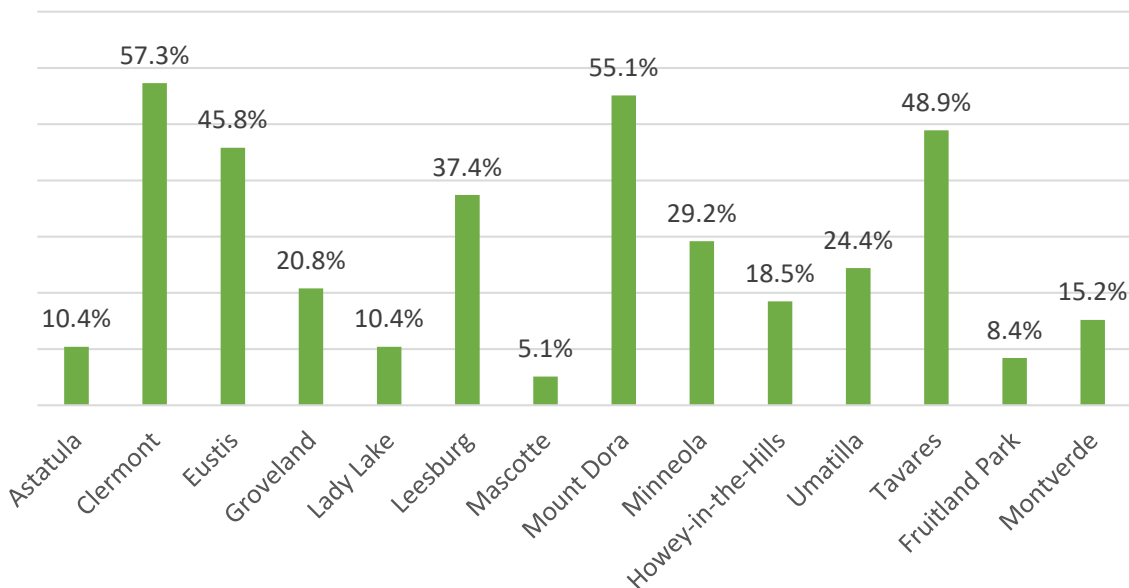
Figure 1-14 shows that 61.7% of respondents use parks and recreation facilities in neighboring Orange, Seminole, and Polk counties. Facilities most commonly noted include West Orange Trail in Orange County, Van Fleet Trail (which travels through Polk and Lake counties), and Northeast Regional Park (Orlando).

**Figure 1-15: Which county parks and recreation facilities do you use?**



As shown in Figure 1-15, when asked in which counties respondents use facilities, Orange County ranked as the most frequent at 74.2%, followed by Seminole County at 41.6% and Volusia County at 35.6%

**Figure 1-16: In which cities do you use recreational facilities?**



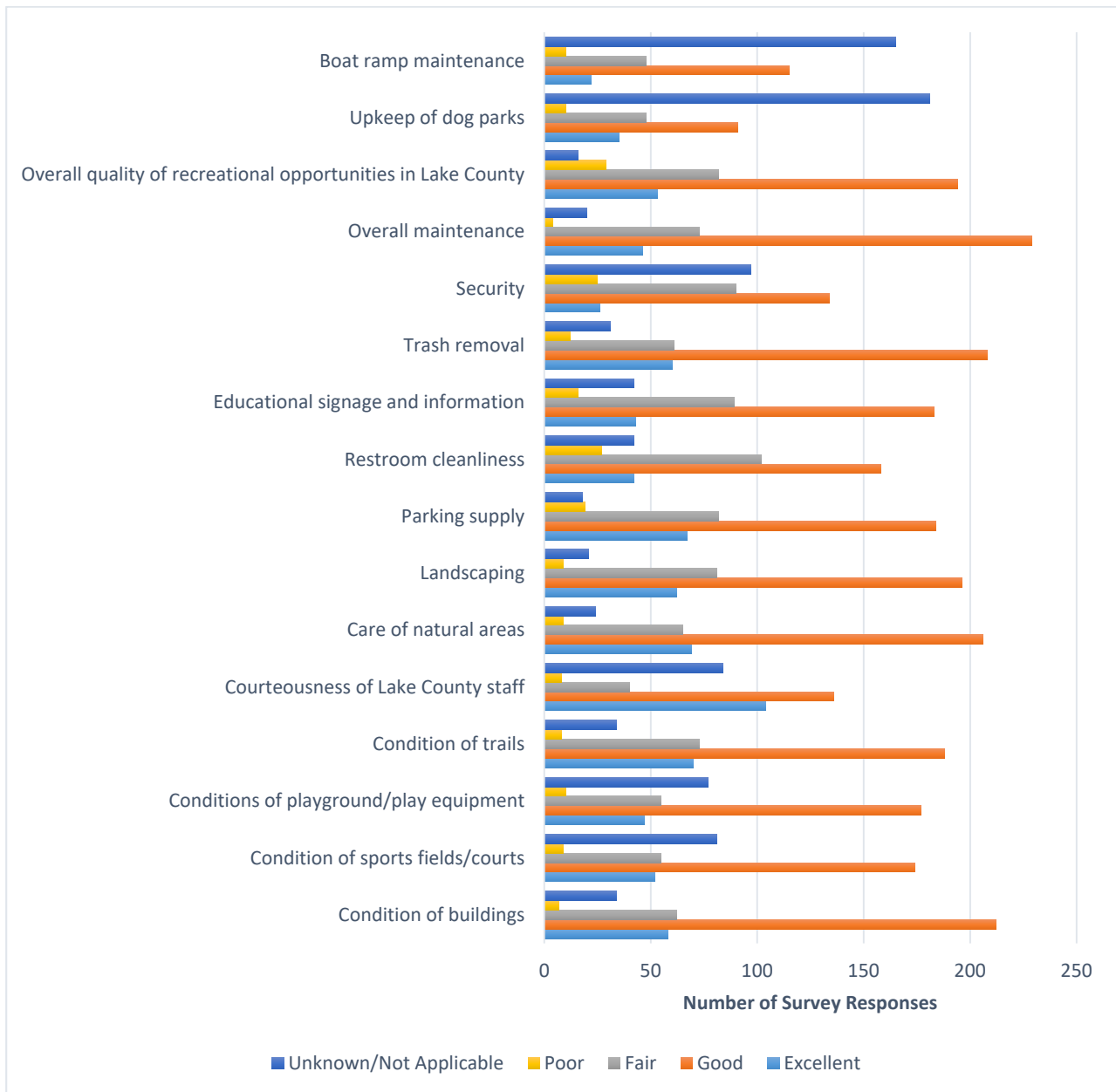
Respondents were also asked if they use parks and recreation facilities in cities in Lake County. As shown in Figure 1-16, 83.5% of respondents stated that they use facilities in Clermont the most frequently, at 57.3%, followed by Mt. Dora at 55.1% and Tavares at 48.9%. Respondents could check all that applied.

### 1. Quality of Facilities, Maintenance, and Funding

Respondents were asked for their opinions on quality, maintenance, and funding of facilities. Figure 1-17 shows that respondents generally felt that overall quality was either “good” or “excellent.” Of the items noted as “excellent,” “courteousness of staff” was ranked the highest followed by “condition of trails” and

“care of natural areas.” These categories also rated highly as “good,” as did most other items. “Security,” “boat ramp maintenance,” and “upkeep of dog parks” received the most frequent “poor” ratings. Comparing the number of “poor” to “excellent” responses on these items revealed that, with the exception of “security,” respondents were at least six times more likely to give the County an “excellent” or “good” rating for these categories.

**Figure 1-17: Overall quality of facilities**



Respondents were given an opportunity to identify additional recreational facilities they would like to see in Lake County. Some of most frequent responses include:

- More disc golf courses
- Archery

- Skate parks
- Youth football fields
- Additional multi-use trails
- Basketball courts
- Remote-control Airplane Park
- Parks in Groveland, Tavares, Four Corners, etc.

Because the Lake County Office of Parks and Trails funds are limited, it is important to get community feedback on how the funds should be prioritized by rating various expenditure categories as “very important,” “somewhat important,” “fairly important,” and “unimportant.” The top funding priorities are the following. Figure 1-18 shows the rankings for each area:

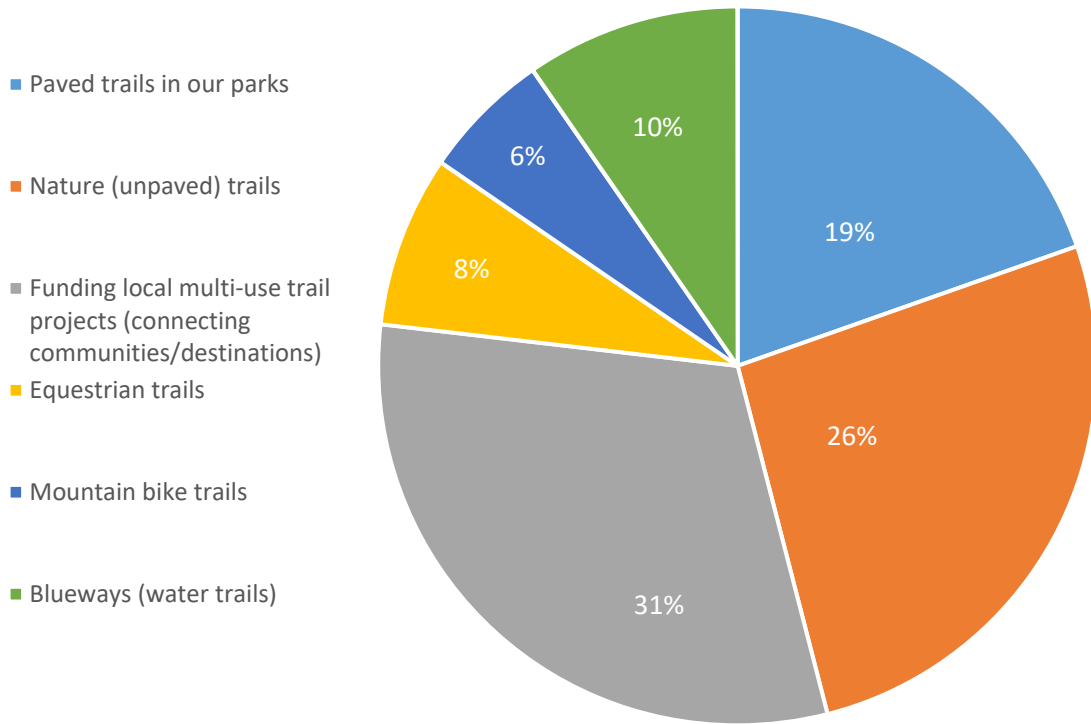
- Maintaining existing facilities
- Preserving natural areas/conserving public lands
- Building new trails
- Connecting existing trails
- Acquiring land for future park development
- Upgrading or expanding existing parks (i.e., restrooms, sports lighting)
- Playgrounds

**Figure 1-18: Prioritized funding**

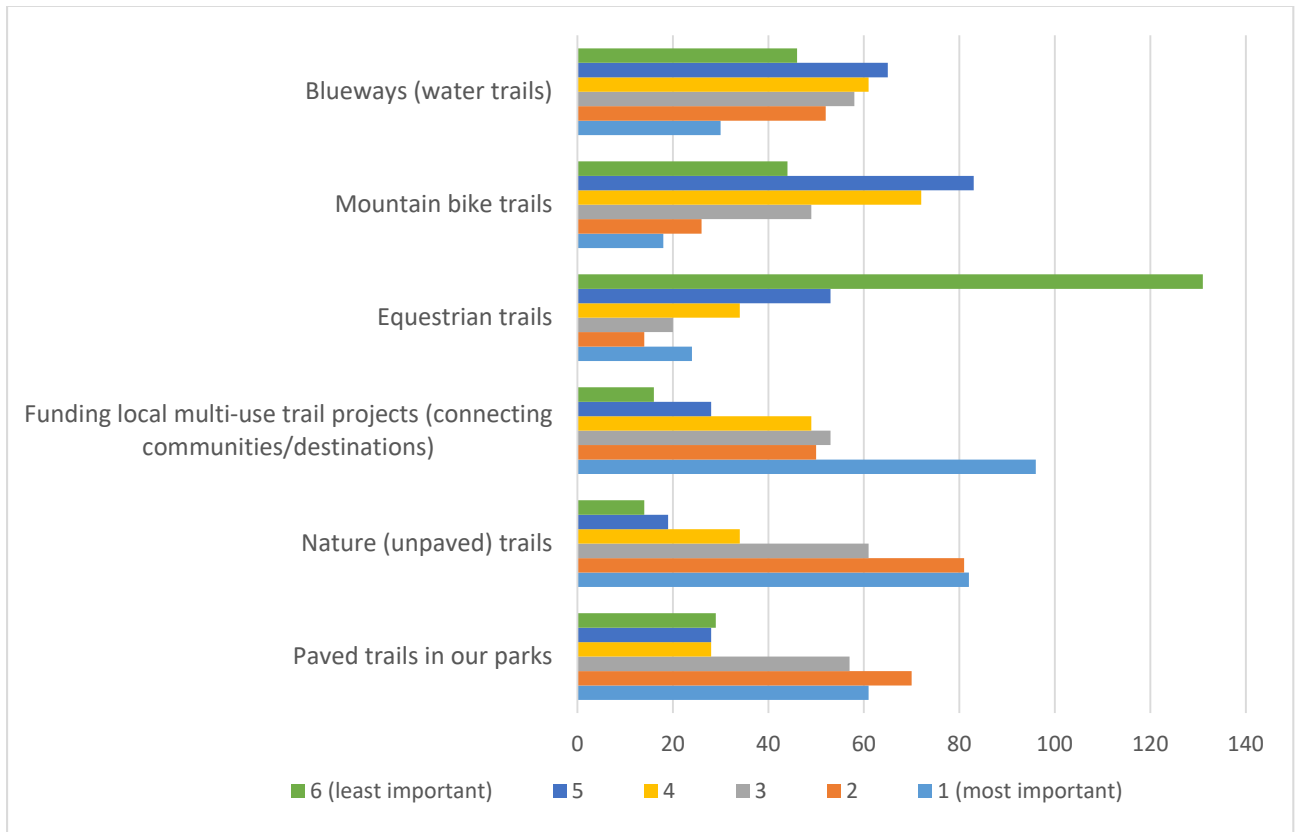


Lake County Parks plans for, constructs, and maintains a variety of types of trails. To better understand the areas in which the community would like to see funds invested, respondents were asked to rank their preference of trail type, with “1” being the most important and “6” being the least important. Figure 1-19 shows that “funding local multi-use trail projects (connecting communities and destinations)” as the most important, followed by “nature (unpaved trails),” and “paved trails in our parks.” Figure 1-20 illustrates the ranking for each trail category, reinforcing the top three areas for investment.

**Figure 1-19: Highest ranked trail type for investment**



**Figure 1-20: Priority of types of trails that should be funded**



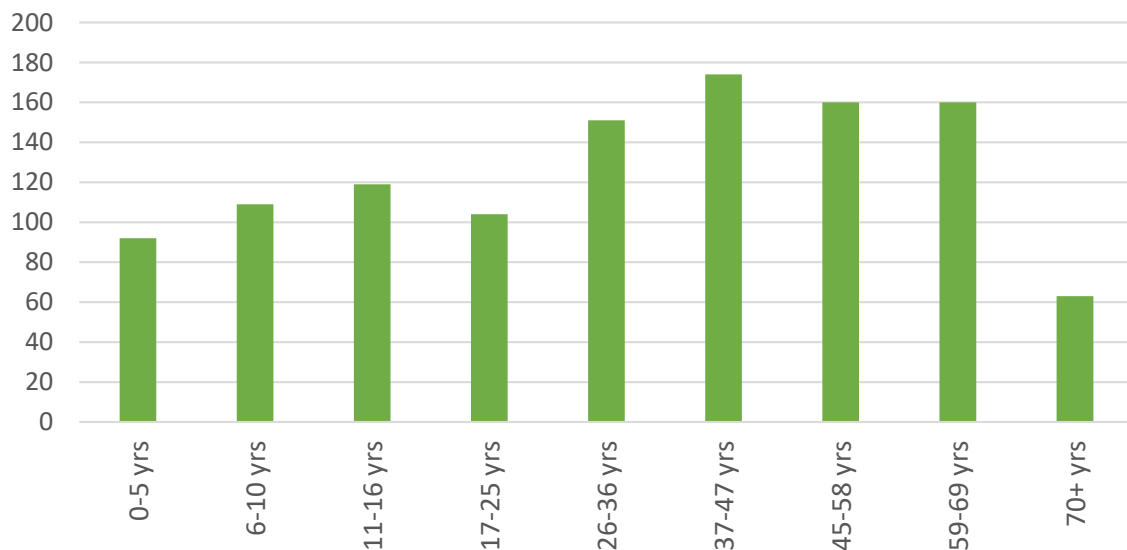
The survey was also an opportunity get input on where additional trails are needed. Frequently provided responses include:

- Eustis-Tavares–Umatilla–Mt Dora connectivity
- North Lake Trail
- Trail along US 27 to PEAR Park
- Completion of Lake Apopka Trail
- Trail along US 19 to Groveland
- Use the railroad right-of-way for trails: Tavares, Mt. Dora, Sugarloaf Trail
- Trail along US 27 to Four Corners

## 2. Demographics

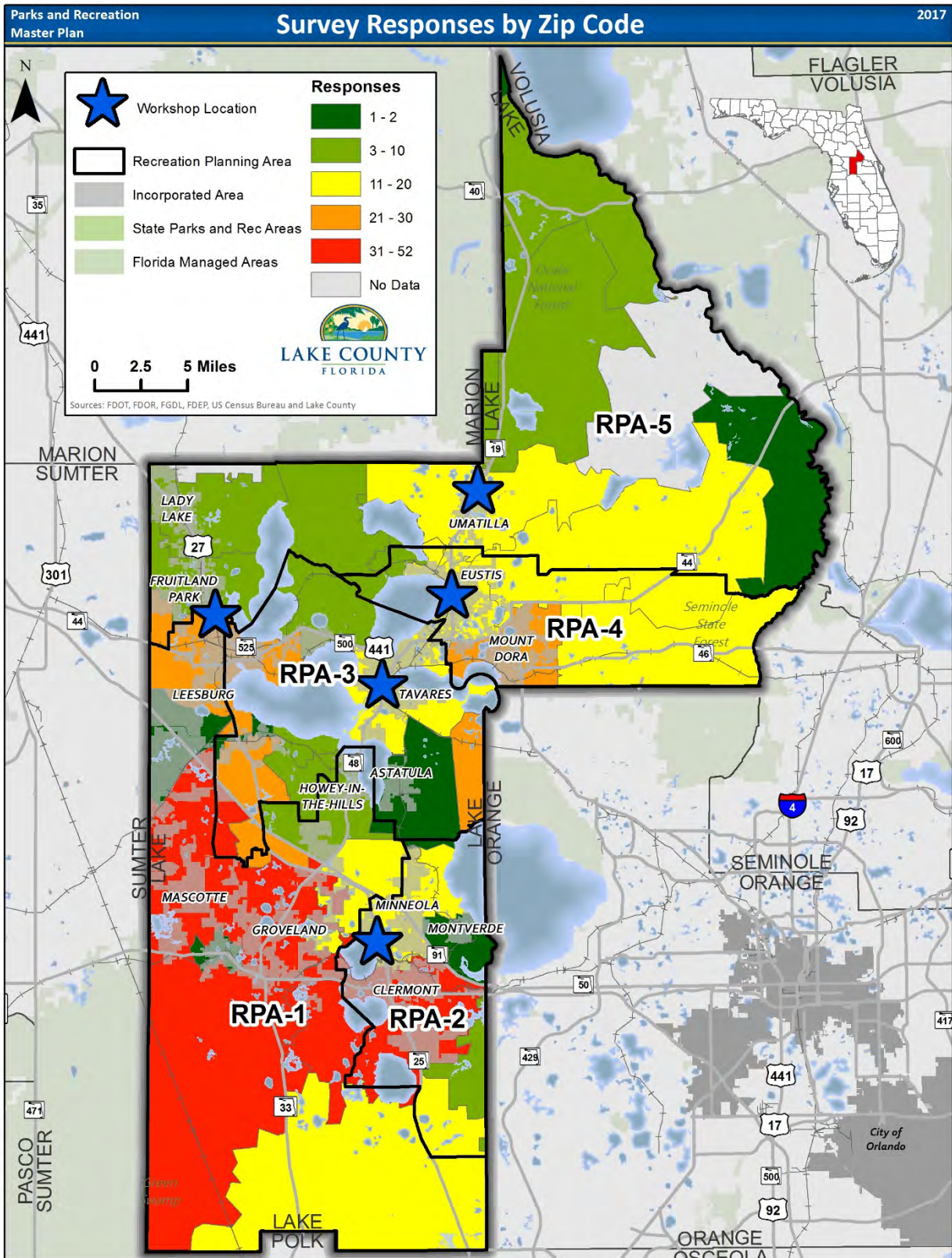
Lake County’s parks and trails are intended serve all ages, and needs across population groups vary. The goal of the Master Plan update is to ensure that the County’s parks and trails continue to respond to the needs of the entire community. As part of the survey, respondents were asked to indicate the age of each of their household members. Figure 1-21 shows household members by age. Overall, the survey represents the interests of **1,132** community members.

**Figure 1-21: Ages of household members of survey respondents**



Survey respondents were asked to provide their home ZIP code to gauge the geographic distribution of participation. As shown in Map 1-1, residents within Recreational Planning Areas (RPA) 1, 2, and 3 provided the most feedback.

Map 1-1: Survey responses by ZIP Code



## Summary and Conclusions

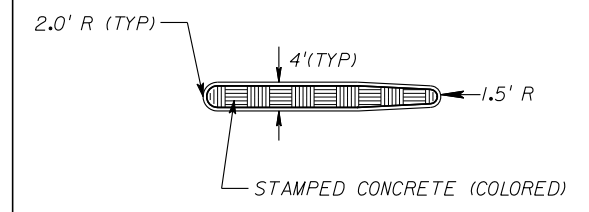
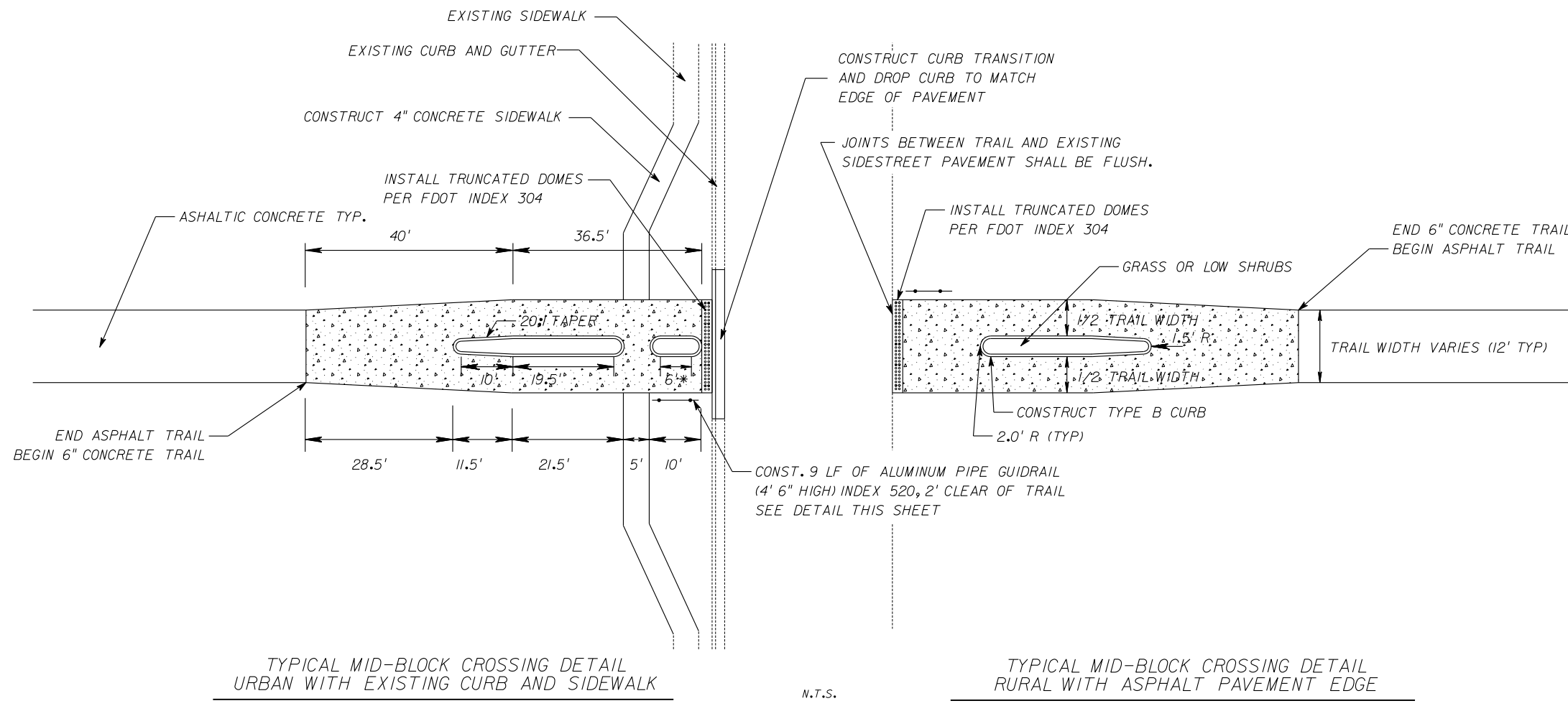
During the public involvement phase of the Master Plan update, input from the workshops and the survey was analyzed to identify needs and interests of the community. Some of the common themes identified include the following:

- Maintaining and enhancing the County's existing parks and trails in a clean and safe manner is a highly rated community priority.
- There is a strong desire to finish parks and trails projects that have been started.
- Based on the survey we know sports complexes are very popular, with more than 55% of respondents noting they use these facilities either daily or weekly. Looking to the future, the County should continue to invest in active parks and sports complexes for recreational purposes, but also recognize they have an economic and tourist benefit.
- Based on public comments and the fact that more than 40% of respondents said they use multi-use trails daily or weekly, we can conclude that connectivity through trails to population centers, parks and other destinations is important to Lake County residents from not only a recreation perspective but also to enhance access and mobility, and improve healthy lifestyles. Simply put there is great interest in connecting trail projects to create networks. Priorities for funding of trail projects include local multi-use trail projects connecting communities and destinations, nature (unpaved trails), and paved trails in parks.
- The public lands in Lake County are very well used, with 12.0% saying they use the facilities daily, 27.6% weekly, 47.0% monthly, and 21.1% at least once per year. There is also interest in opening up additional public lands for public access for eco-tourism. Therefore, we believe the County should continue to the provision of public lands, but also recognize the importance of being good stewards through proper management of the County's valuable environmental resources.
- Enhance water based recreation opportunities such as blueways and boat ramps in such a manner to serve residents, as well as visitors.
- Develop partnerships/communication with cities and other agencies to leverage the County's funds and provide added value to residents and visitors.
- Prepare for future population growth in such areas as southeast Lake County, especially the Four Corners/Wellness Way area.

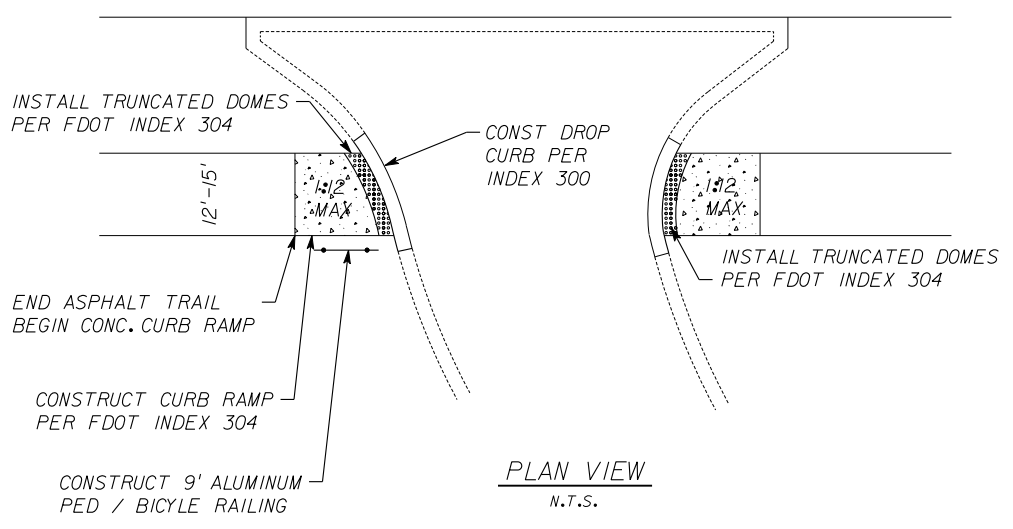
### Key Projects - Parks & Trails

- Enhancements to existing park facilities include adding pickleball to North Lake Park, finish East Lake Park, complete South Lake Regional Park, partner with the City of Tavares on a park, Include playground equipment at the MAC for older kids, and add boat ramp/playground on Lake Apopka

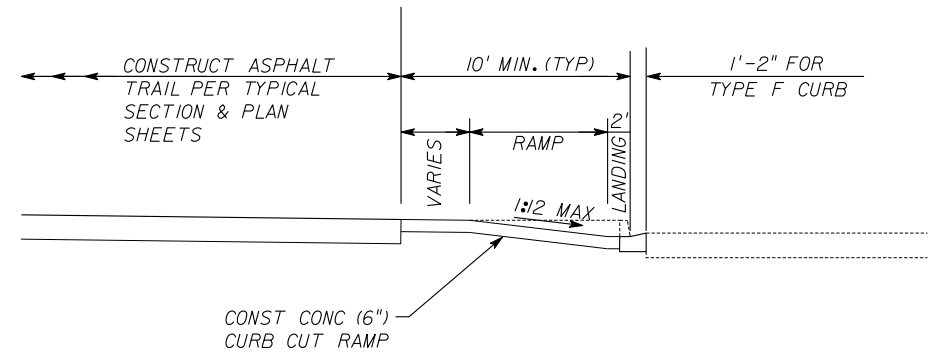
- Expand parking and restrooms (increase maintenance) in existing parks, boat ramps and at trail heads.
- Increase number of lighted fields and multi-purpose fields at active parks and sports complexes
- Make ADA improvements within the parks and ensure new facilities are accessible, including the addition of more “Boundless Playgrounds”
- Provide non-traditional sports opportunities like Disc golf, Fishing Tournaments, and Lacrosse
- Enhance existing trail facilities with lighting and restrooms.
- Trail connections and projects identified in the surveys and at the workshop include:
  - Create loop between Trout Lake Nature Center, Lake May and Pine Meadows
  - Create connections between Tavares-Eustis-Mount Dora-Umatilla
  - Coordinate with FDOT on trail along US27 and on the North Lake Trail, Phase 3
  - Develop the Tavares-Mt Dora-Eustis Trail loop, complete the South Lake Trail, connect to the Wekiva Trail
  - Connecting Umatilla to North Lake Park.



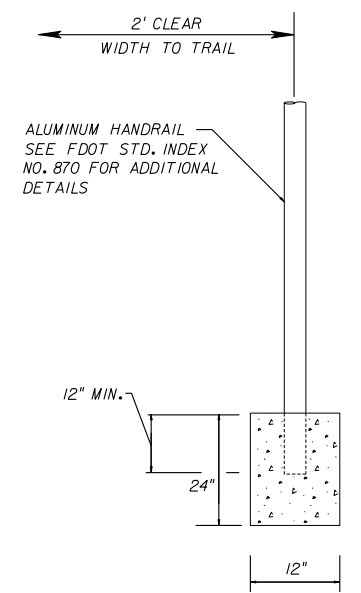
**OPTIONAL MEDIAN TREATMENT**  
N.T.S.  
SEE PLANS FOR LOCATIONS



**PLAN VIEW**  
N.T.S.



**SECTION VIEW**  
N.T.S.



**HANDRAIL CONNECTION DETAIL**  
N.T.S.  
SEE PLANS FOR LOCATIONS

**CURB CUT RAMP DETAIL**

REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

**Inwood**  
consulting engineers

David A. Graeber, P.E. Certificate No. 7074  
P.E. No. 56940 870 Clark Street Oviedo, FL 32765

**LAKE COUNTY  
PARKS AND TRAILS DIVISION**

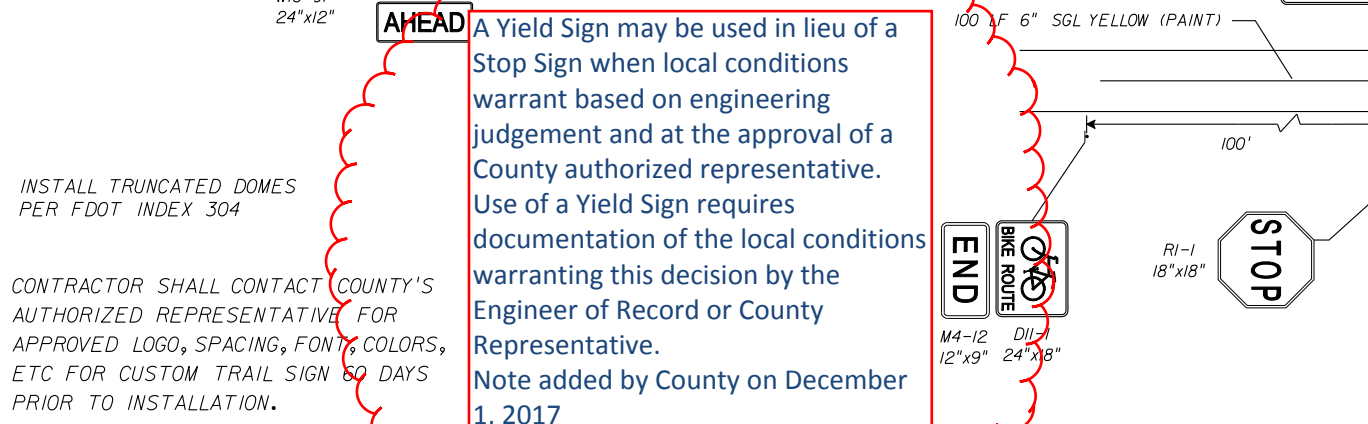
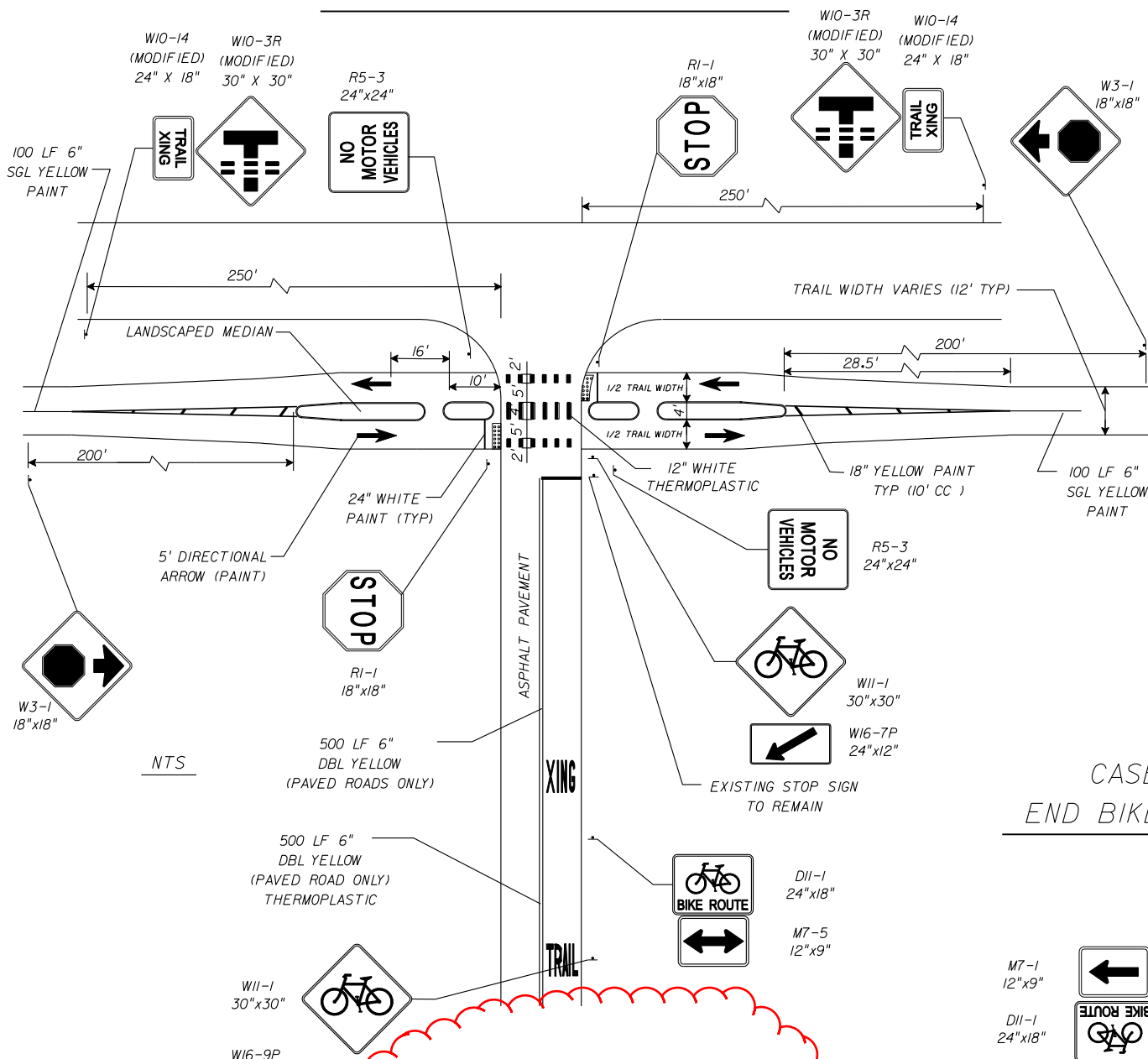
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
	LAKE COUNTY	

**STANDARD  
INTERSECTION DETAILS**

SHEET NO.  
1 of 3



CASE IV  
MAJOR SIDE STREET CROSSING

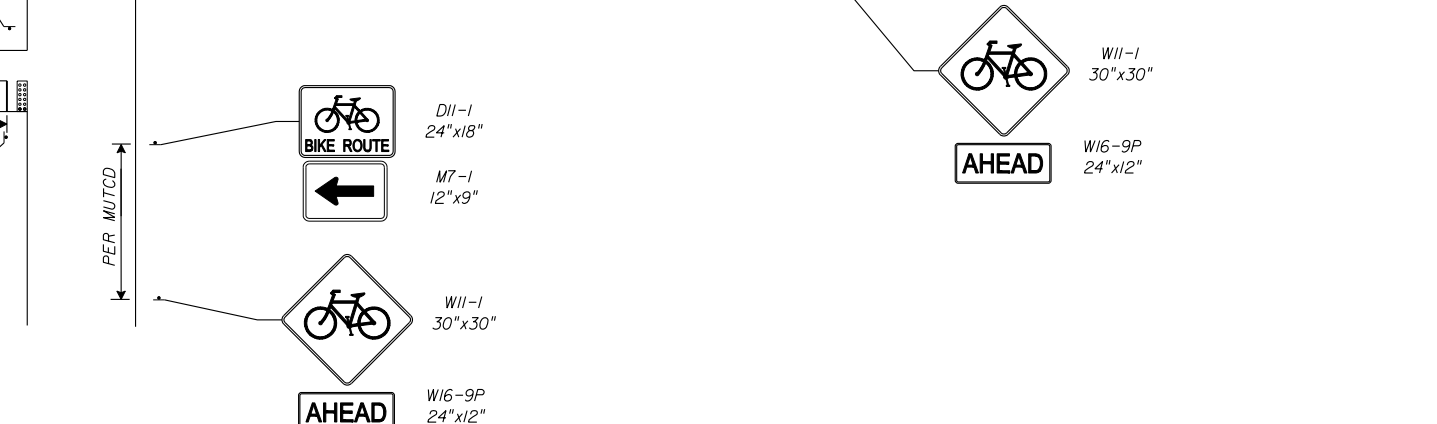
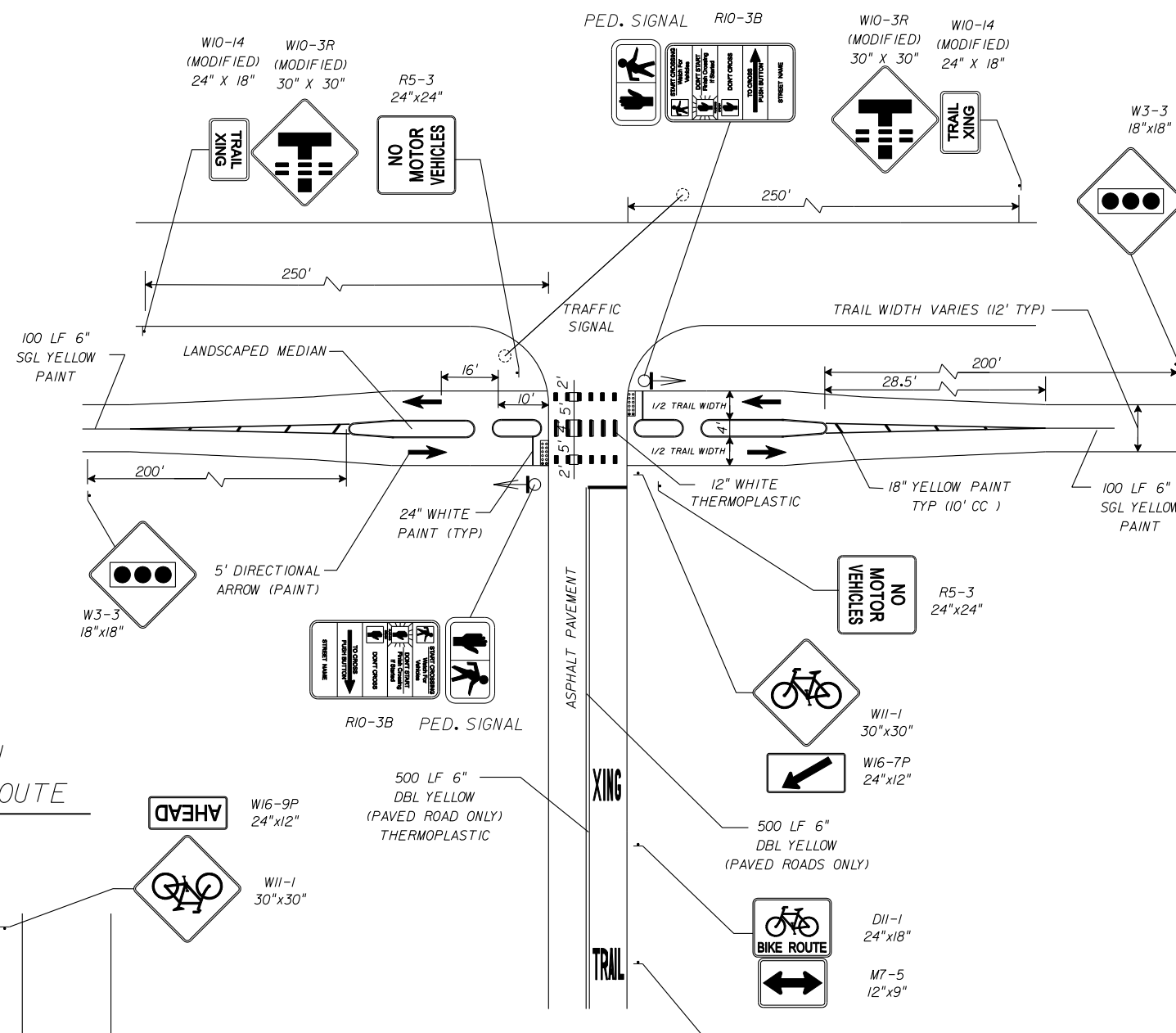


INSTALL TRUNCATED DOMES PER FDOT INDEX 304

CONTRACTOR SHALL CONTACT COUNTY'S AUTHORIZED REPRESENTATIVE FOR APPROVED LOGO, SPACING, FONT, COLORS, ETC FOR CUSTOM TRAIL SIGN 60 DAYS PRIOR TO INSTALLATION.

**A Yield Sign may be used in lieu of a Stop Sign when local conditions warrant based on engineering judgement and at the approval of a County authorized representative. Use of a Yield Sign requires documentation of the local conditions warranting this decision by the Engineer of Record or County Representative.**  
Note added by County on December 1, 2017

CASE V  
SIGNALIZED SIDE-STREET CROSSING



REVISIONS					
DATE	BY	DESCRIPTION	DATE	BY	DESCRIPTION

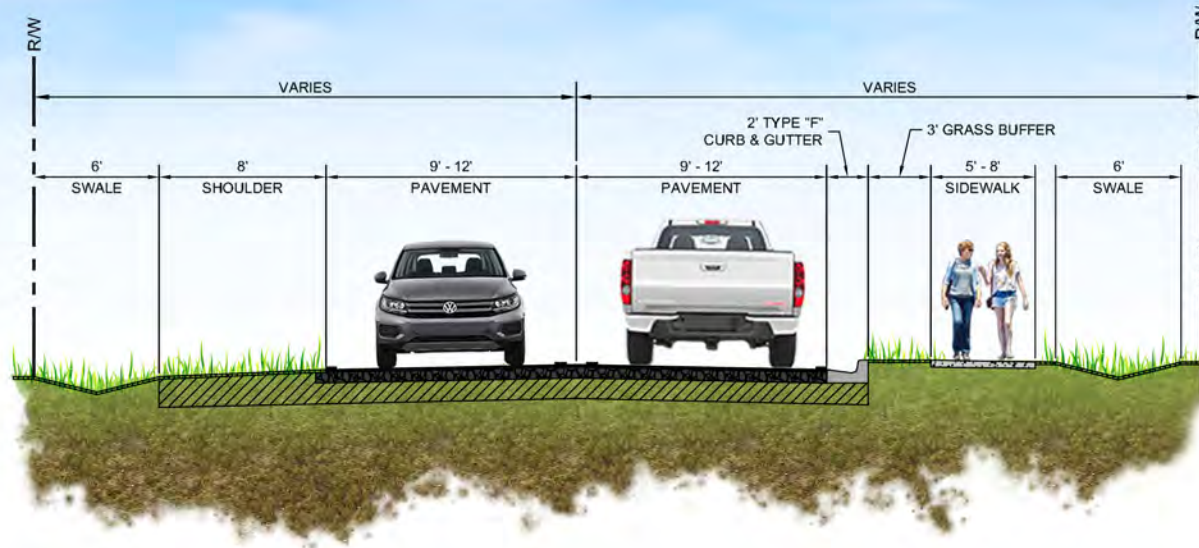
**Inwood**  
consulting engineers

David A. Graeber, P.E. Certificate No. 7074  
P.E. No. 56940 870 Clark Street Oviedo, FL 32765

LAKE COUNTY  
PARKS AND TRAILS DIVISION

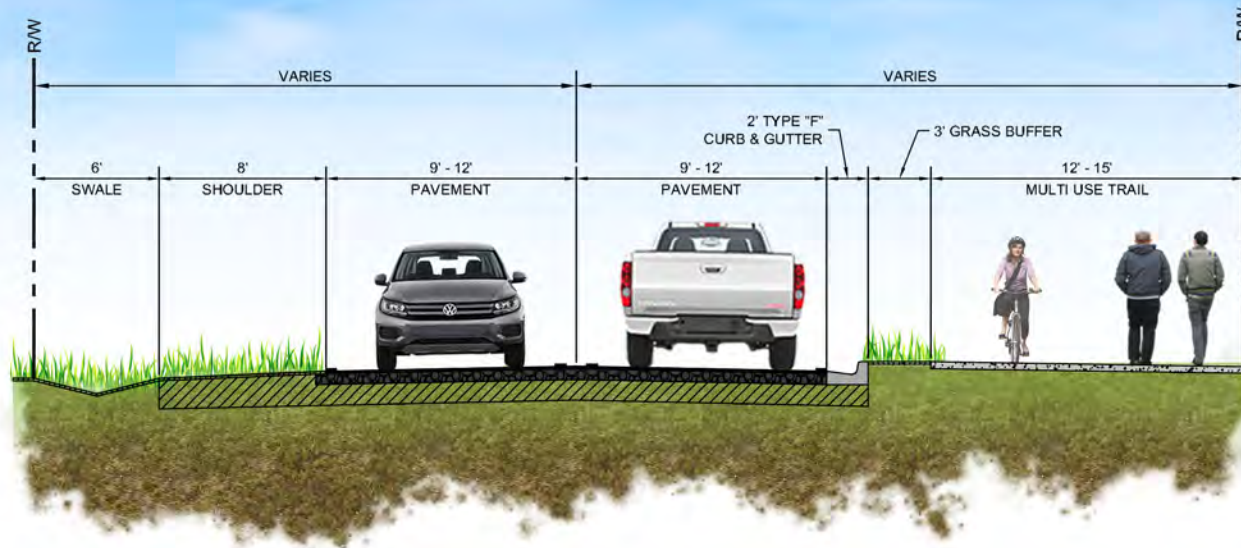
ROAD NO.	AGENCY	FINANCIAL PROJECT ID
	LAKE COUNTY	

STANDARD  
INTERSECTION DETAILS



SCALE: N.T.S.

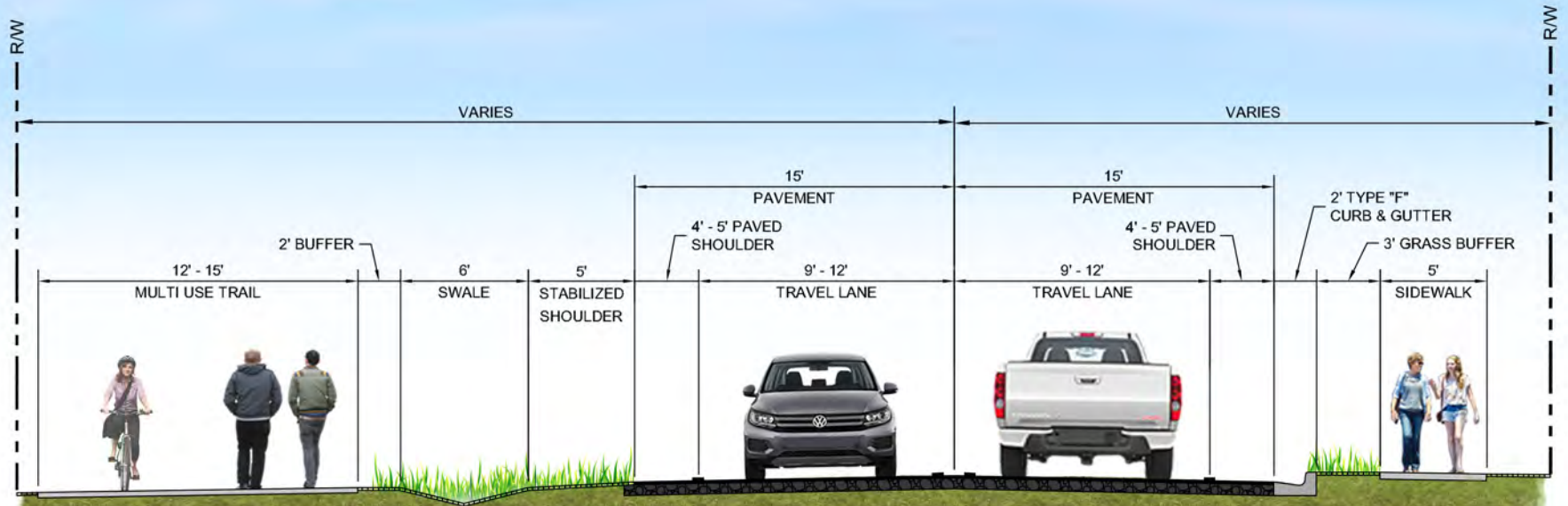
**LOCAL ROAD WITH 5' SIDEWALK**



SCALE: N.T.S.

**LOCAL ROAD WITH 12' -14' MULTI USE TRAIL**

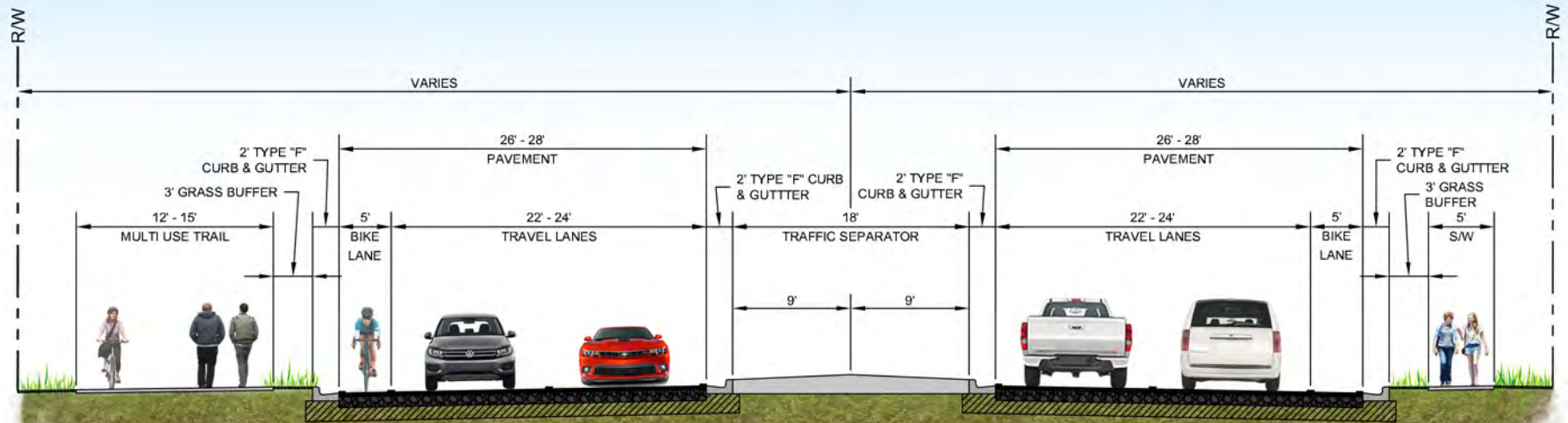




**COLLECTOR ROAD WITH 12' -15' SHARED USE PATH**

SCALE: N.T.S.

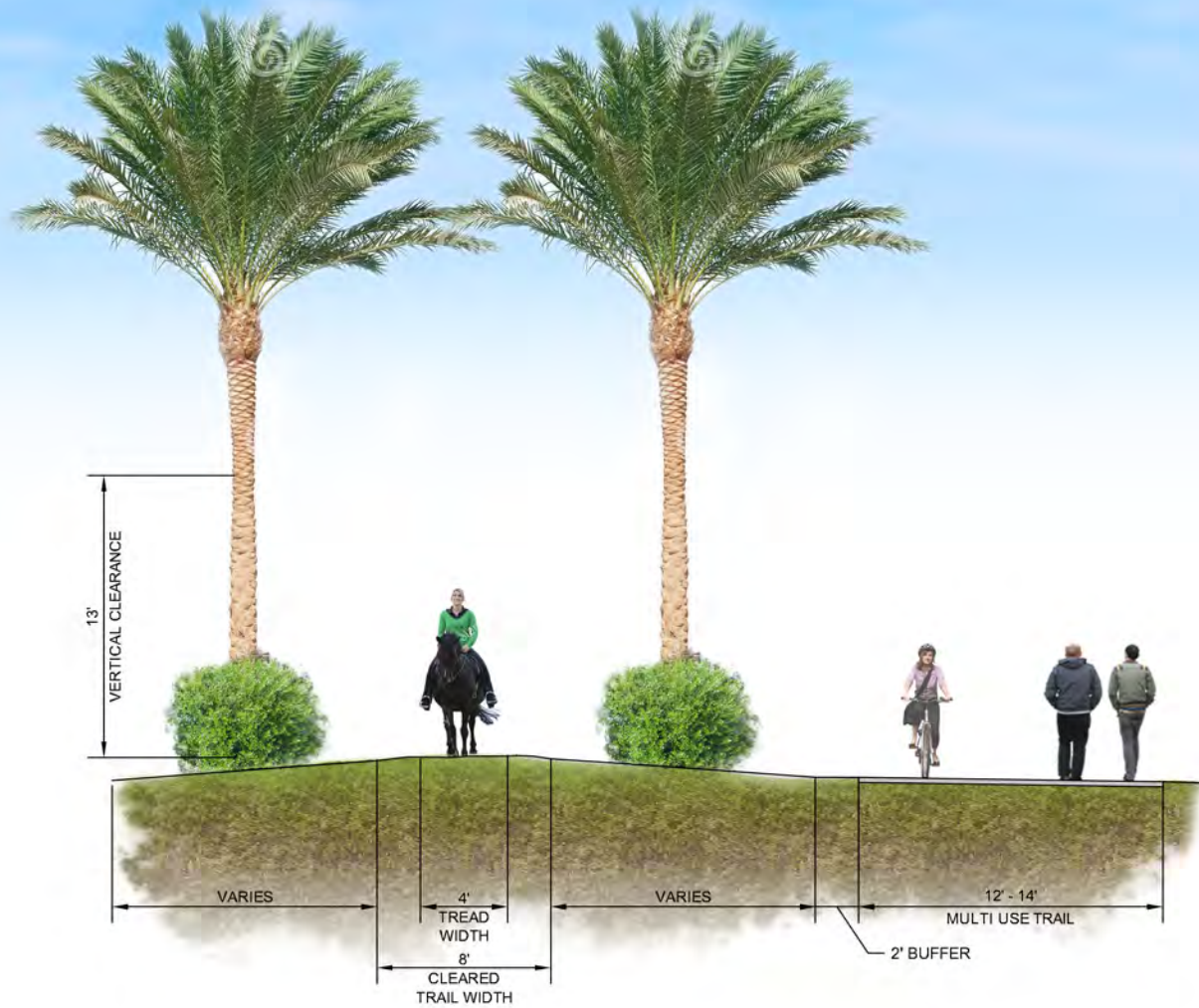




**COLLECTOR ROAD - MULTI LANE**

SCALE: N.T.S.

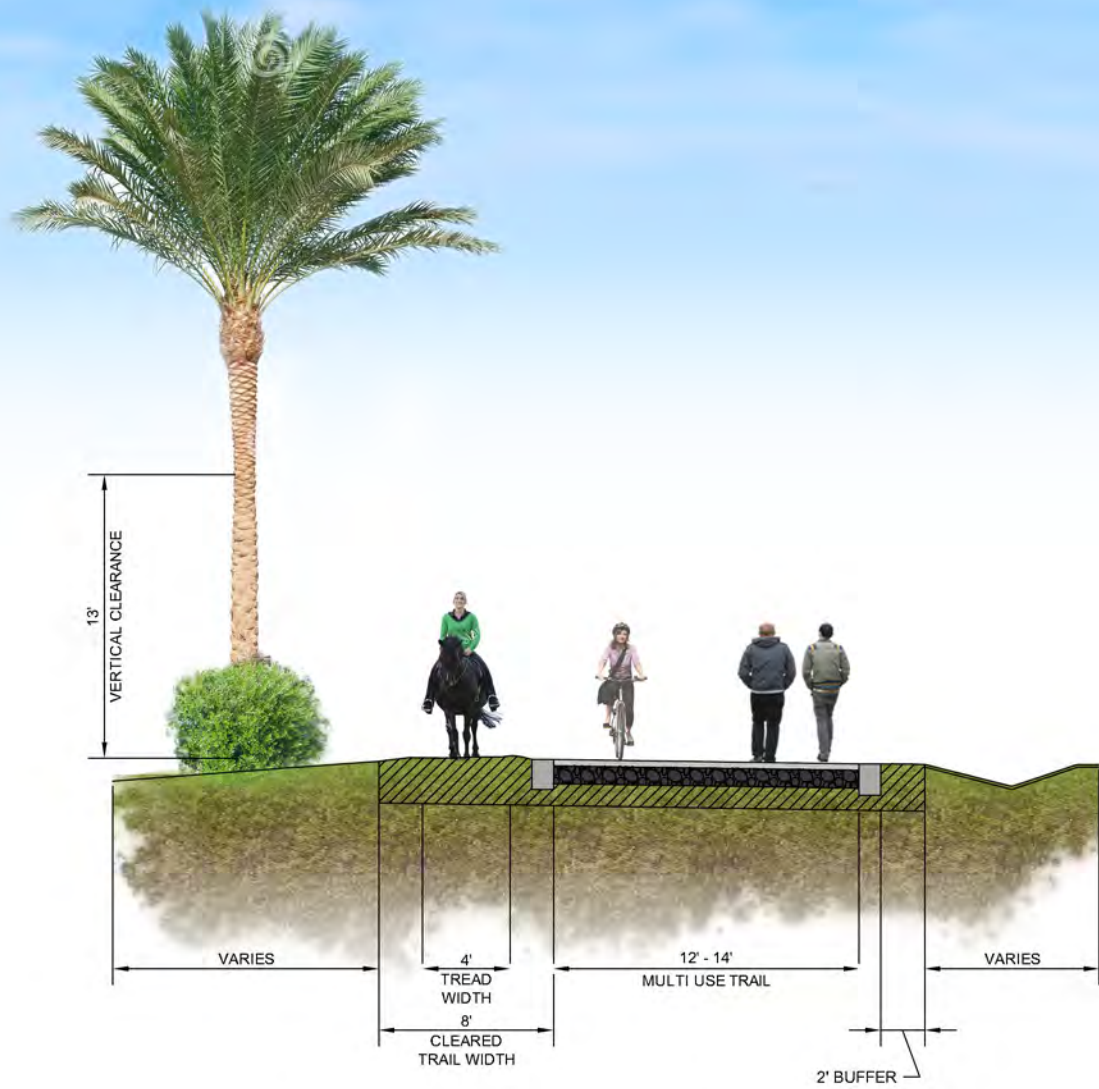




**EQUESTRIAN TRAIL THROUGH NATURAL AREA**  
**CONCEPT 1**

SCALE: N.T.S.





**EQUESTRIAN TRAIL THROUGH NATURAL AREA**  
**CONCEPT 2**

SCALE: N.T.S.





**EQUESTRIAN TRAIL THROUGH NATURAL AREA**  
**CONCEPT 2**

SCALE: N.T.S.



## Trail Signage and Standards

The Office of Parks and Trails is in the process of finalizing. Will be updated when approved.

FDOT Long Range Estimating System - Production					
R4: Project Details Composite Report					
By Version					
<b>Project:</b> SHRUSE-O-01-BB			<b>Letting Date:</b> 01/2055		
<b>Description:</b> Two Directional, 12' Shared Use Path					
<b>District:</b> 09	<b>County:</b> 99 DISTRICT/STATE WIDE				
<b>Project Manager:</b> Cost-Per-Mile Model					
<b>Version 10 Project Grand Total</b>					
					<b>\$331,914.18</b>
<b>Description:</b> June 2016 Update					
<b>Pay Items</b>					
Pay Item	Description	Total Quantity	Unit	Weighted Avg. Unit Price	Total Amount
102-1	MAINTENANCE OF TRAFFIC	6.00			\$16,266.32
101-1	MOBILIZATION	10.00			\$28,737.16
110-1-1	CLEARING & GRUBBING	3.90	AC	\$11,329.10	\$44,183.49
160-4	TYPE B STABILIZATION	9,386.67	SY	\$3.65	\$34,261.35
285-701	OPTIONAL BASE,BASE GROUP 01	7,040.00	SY	\$16.04	\$112,921.60
334-1-11	SUPERPAVE ASPHALTIC CONC, TRAFFIC A	528.00	TN	\$139.73	\$73,777.44
570-1-2	PERFORMANCE TURF, SOD	2,347.00	SY	\$2.54	\$5,961.38
999-25	INITIAL CONTINGENCY AMOUNT (DO NOT BID)	1.00	LS	\$15,805.44	\$15,805.44
<b>Project Unknowns</b>			0.00	%	\$0.00
<b>Design/Build</b>			0.00	%	\$0.00
<b>Version 10 Project Grand Total</b>					<b>\$331,914.18</b>

FDOT Long Range Estimating System - Production					
R4: Project Details Composite Report					
By Version					
<b>Project:</b> RAILS2-O-02-BB				<b>Letting Date:</b> 01/2055	
<b>Description:</b> Rails to Trails project (12' width)					
<b>District:</b> 09	<b>County:</b> 99 DISTRICT/STATE WIDE				
<b>Project Manager:</b> Cost-per-Mile Model					
<b>Version 10 Project Grand Total</b>					
					<b>\$306,954.53</b>
<b>Description:</b> June 2016 Update					
<b>Pay Items</b>					
Pay Item	Description	Total Quantity	Unit	Weighted Avg. Unit Price	Total Amount
102-1	MAINTENANCE OF TRAFFIC	2.00			\$5,211.01
101-1	MOBILIZATION	10.00			\$26,576.15
110-1-1	CLEARING & GRUBBING	3.07	AC	\$11,329.10	\$34,780.34
120-1	REGULAR EXCAVATION	3,285.00	CY	\$5.04	\$16,556.40
160-4	TYPE B STABILIZATION	9,386.67	SY	\$3.65	\$34,261.35
285-701	OPTIONAL BASE,BASE GROUP 01	7,040.00	SY	\$16.04	\$112,921.60
334-1-11	SUPERPAVE ASPHALTIC CONC, TRAFFIC A	387.20	TN	\$139.73	\$54,103.46
570-1-2	PERFORMANCE TURF, SOD	3,121.00	SY	\$2.54	\$7,927.34
999-25	INITIAL CONTINGENCY AMOUNT (DO NOT BID)	1.00	LS	\$14,616.88	\$14,616.88
<b>Project Unknowns</b>			0.00	%	\$0.00
<b>Design/Build</b>			0.00	%	\$0.00
<b>Version 10 Project Grand Total</b>					<b>\$306,954.53</b>

FDOT Long Range Estimating System - Production					
R4: Project Details Composite Report					
By Version					
<b>Project:</b> MIDXWK-O-05-BB				<b>Letting Date:</b> 01/2055	
<b>Description:</b> Mid-Block Crossing					
<b>District:</b> 09	<b>County:</b> 99 DISTRICT/STATE WIDE				
<b>Project Manager:</b> Cost Model					
<b>Version 11 Project Grand Total</b>					
					<b>\$120,051.93</b>
<b>Description:</b> June 2016 Update					
<b>Pay Items</b>					
Pay Item	Description	Total Quantity	Unit	Weighted Avg. Unit Price	Total Amount
102-1	MAINTENANCE OF TRAFFIC	10.00			\$9,449.19
101-1	MOBILIZATION	10.00			\$10,394.11
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	10.00	SY	\$38.61	\$386.10
527-2	DETECTABLE WARNINGS	16.00	SF	\$27.32	\$437.12
630-2-11	CONDUIT, F& I, OPEN TRENCH	45.00	LF	\$9.58	\$431.10
630-2-12	CONDUIT, F& I, DIRECTIONAL BORE	505.00	LF	\$15.38	\$7,766.90
632-7-1	SIGNAL CABLE- NEW OR RECO, FUR & INSTALL	1.00	PI	\$5,216.50	\$5,216.50
633-4-1	SIGNALS COMMUNIC- TWISTED PAIR CABLE	436.00	LF	\$2.60	\$1,133.60
635-1-11	PULL & JUNCTION BOX, F&I, PULL BOX	4.00	EA	\$624.74	\$2,498.96
635-2-13	PULL & SPLICE BOX, F&I, 30" X 60" OR 36"	1.00	EA	\$2,589.90	\$2,589.90
639-1-122	ELECTRICAL POWER SRV,F&I, UG,PUR CONT	1.00	AS	\$2,028.29	\$2,028.29
639-2-1	ELECTRICAL SERVICE WIRE, F&I	252.00	LF	\$9.86	\$2,484.72
646-1-11	ALUMINUM SIGNALS POLE, PEDESTAL	1.00	EA	\$1,104.38	\$1,104.38
649-31-203	M/ARM,F&I, WS-130,SINGLE ARM,W/O LUM-60	1.00	EA	\$32,532.79	\$32,532.79
650-1-14	TRAFFIC SIGNAL,F&I ALUMINUM, 3 S 1 W	4.00	AS	\$899.33	\$3,597.32
653-1-11	PEDESTRIAN SIGNAL, F&I LED COUNT, 1 WAY	2.00	AS	\$679.41	\$1,358.82
665-1-11	PEDESTRIAN DETECTOR, F&I, STANDARD	2.00	EA	\$947.83	\$1,895.66
670-5-111	TRAF CNTL ASSEM, F&I, NEMA, 1 PREEMPT	1.00	AS	\$26,002.90	\$26,002.90
700-1-11	SINGLE POST SIGN, F&I GM,	4.00	AS	\$325.66	\$1,302.64
700-3-101	SIGN PANEL, F&I GM, UP TO 12 SF	2.00	EA	\$328.01	\$656.02
706-3	RETRO-REFLECTIVE PAVEMENT MARKERS	10.00	EA	\$3.39	\$33.90

FDOT Long Range Estimating System - Production					
R4: Project Details Composite Report					
By Version					
<b>Project:</b> MIDXWK-O-05-BB			<b>Letting Date:</b> 01/2055		
<b>Description:</b> Mid-Block Crossing					
<b>District:</b> 09	<b>County:</b> 99 DISTRICT/STATE WIDE				
<b>Project Manager:</b> Cost Model					
<b>Version 11 Project Grand Total</b>					
					<b>\$120,051.93</b>
<b>Description:</b> June 2016 Update					
<b>Pay Items</b>					
Pay Item	Description	Total Quantity	Unit	Weighted Avg. Unit Price	Total Amount
711-11-123	THERMOPLASTIC, STD, WHITE, SOLID, 12"	200.00	LF	\$2.18	\$436.00
711-11-125	THERMOPLASTIC, STD, WHITE, SOLID, 24"	72.00	LF	\$4.00	\$288.00
711-16-101	THERMOPLASTIC, STD-OTH, WHITE, SOLID, 6"	0.04	GM	\$3,926.85	\$157.07
711-17	THERMOPLASTIC, REMOVE	69.00	SF	\$2.22	\$153.18
999-25	INITIAL CONTINGENCY AMOUNT (DO NOT BID)	1.00	LS	\$5,716.76	\$5,716.76
<b>Project Unknowns</b>			0.00	%	\$0.00
<b>Design/Build</b>			0.00	%	\$0.00
<b>Version 11 Project Grand Total</b>					<b>\$120,051.93</b>

FDOT Long Range Estimating System - Production					
R4: Project Details Composite Report					
By Version					
<b>Project:</b> SIDEWK-O-03-BB			<b>Letting Date:</b> 01/2055		
<b>Description:</b> Sidewalk construction; 5' one side, 4 inch depth					
<b>District:</b> 09	<b>County:</b> 99 DISTRICT/STATE WIDE				
<b>Project Manager:</b> Cost-per-Mile Model/Template					
<b>Version 10 Project Grand Total</b>			<b>\$155,261.80</b>		
<b>Description:</b> June 2016 Update					
<b>Pay Items</b>					
Pay Item	Description	Total Quantity	Unit	Weighted Avg. Unit Price	Total Amount
102-1	MAINTENANCE OF TRAFFIC	2.00			\$2,635.80
101-1	MOBILIZATION	10.00			\$13,442.58
110-1-1	CLEARING & GRUBBING	1.25	AC	\$11,329.10	\$14,161.38
120-1	REGULAR EXCAVATION	322.66	CY	\$5.04	\$1,626.21
522-1	CONCRETE SIDEWALK AND DRIVEWAYS, 4"	2,933.33	SY	\$38.61	\$113,255.87
570-1-1	PERFORMANCE TURF	3,121.07	SY	\$0.88	\$2,746.54
999-25	INITIAL CONTINGENCY AMOUNT (DO NOT BID)	1.00	LS	\$7,393.42	\$7,393.42
<b>Project Unknowns</b>			0.00	%	\$0.00
<b>Design/Build</b>			0.00	%	\$0.00
<b>Version 10 Project Grand Total</b>			<b>\$155,261.80</b>		

FDOT Cost per Mile (LRE)

Description	Cost per mile
Two directional 12' Shared-use path	\$428,169.29
Rails to Trails project (12' width)	\$306,954.53
Sidewalk, 5' one side, 4" depth	\$155,261.80
Mid-block Crossing	\$120,051.93
Over/underpass	\$4,000,000
Trailhead	\$500,000

Source: <http://www.fdot.gov/programmanagement/Estimates/LRE/summary.pdf>

**FDOT Long Range Estimating System - Production**

**R4: Project Details Composite Report**

By Version

**Project:** SHRUSE-O-01-BB **Letting Date:** 01/2055

**Description:** Two Directional, 12' Shared Use Path

**District:** 09 **County:** 99 DISTRICT/STATE WIDE

**Project Manager:** Cost-Per-Mile Model

**Version 10 Project Grand Total** **\$428,169.29**

**Description:** June 2016 Update

Pay Item	Description	Total Quantity	Unit	Weighted Avg. Unit Price	Total Amount
102-1	MAINTENANCE OF TRAFFIC	6.00	DA		\$16,266.32
101-1	MOBILIZATION	10.00	%		\$28,737.16
110-1-1	CLEARING & GRUBBING	3.90	AC	\$11,329.10	\$44,183.49
160-4	TYPE B STABILIZATION	9,386.67	SY	\$3.65	\$34,261.35
285-701	OPTIONAL BASE, BASE GROUP 01	7,040.00	SY	\$16.04	\$112,921.60
334-1-11	SUPERPAVE ASPHALTIC CONC, TRAFFIC A	528.00	TN	\$139.73	\$73,777.44
570-1-2	PERFORMANCE TURF, SOD	2,347.00	SY	\$2.54	\$5,961.38
999-25	INITIAL CONTINGENCY AMOUNT (DO NOT BID)	1.00	LS	\$15,805.44	\$15,805.44
<b>Subtotal</b>					<b>\$331,914.18</b>
<b>Project Unknowns</b>					
	Misc Drainage		5		\$16,595.71
	Misc Signing and Marking		2		\$6,638.28
	Misc Utilities		2		\$6,638.28
	Construction Contingency		20		\$66,382.84
<b>Project Grand Total</b>					<b>\$428,169.29</b>

**Not included in Planning Estimate, but may be identified during the PD&E phase:**

- Gravity Walls, Bicycle Railing
- Two-Lane Major Crossings (>1500 AADT)
- Two-Lane Minor Crossings (<1500 AADT)
- Signalized Crossing
- Mid-block Crossing
- Right of Way



## FDOT Guidance for Multi-Use Trail<sup>1</sup> Development and Maintenance

For purposes of this guidance, a multi-use trail is defined as a paved, shared use path which is typically 12 feet wide, but may commonly vary from 10 feet to 14 or more feet depending upon constraints or volume of use. In some areas of extreme constraints such as at bridges or in environmentally sensitive areas, a trail may be as narrow as 8 feet. A multi-use trail is differentiated from a sidewalk in that it is generally wider, is part of a larger regional and statewide systems of trails, and is accompanied by a higher level of facilities including trailheads, parking, wayside areas and other amenities. A trail is designed to facilitate mixed use travel and priority at intersections may be given to trail users. A sidewalk, by contrast, serves a local need and is routinely built as part of the normal bicycle and pedestrian accommodations within a roadway project. Sidewalks are designed primarily for pedestrian use (acknowledging that local codes may permit bikes on sidewalks) with priority at intersections normally given to roadway traffic.

### Trail Project Development and Reconstruction

FDOT can undertake the following phases for multi-use trails that are part of existing state and local plans: corridor and feasibility studies, PD&E, design, right of way, construction and reconstruction. Pursuant to 335.065(4), F.S., FDOT will give priority to trails that:

- a. Are identified by the Florida Greenways and Trails Council as a priority within the Florida Greenways and Trails System under chapter 260.
- b. Support the transportation needs of bicyclists and pedestrians.
- c. Have national, statewide, or regional importance.
- d. Facilitate an interconnected system of trails by completing gaps between existing trails.

A proposed trail project must be prioritized by the respective metropolitan planning organization (MPO)/transportation planning organization (TPO) if it falls within the boundary of an MPO/TPO. If not in an MPO/TPO boundary, the trail must be included in a plan of the applicable local government or other proposed managing agency such as the Department of Environmental Protection. FDOT will resurface or reconstruct a FDOT constructed multi-use trail that has reached the end of its pavement or bridge structure life-cycle. Trail reconstruction should be prioritized by the MPO/TPO or applicable local government/agency. Alternatively, the district, at its discretion, may reconstruct a trail in FDOT ROW in coordination with a road resurfacing project.

FDOT will manage the phases for multi-use trail projects that are included in the Five Year Work Program. If another entity desires to manager the project, it may serve as the project manager at

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<sup>1</sup> This guidance applies to paved multi-use trails developed by the department, regardless of funding source. Specific guidance regarding the Shared Use Non-motorized (SUN) Trail Network program and funding (339.81, F.S.) is in development and will be incorporated by reference once it is completed.

the district's discretion. For projects managed by FDOT, the department will construct the paved shared use path. If a local sponsor/agency desires a trailhead, restroom, or other amenities, that entity will be expected to secure the additional funding for those facilities, and then coordinate with FDOT regarding their incorporation into the project's design and construction. These facilities should be identified before design of the project. If mitigation is required for a project, it will be critical to identify the responsible entity early in the process.

If FDOT acquires new right of way (ROW) specifically for a trail, separate from existing FDOT ROW, it will be transferred to the local sponsor/agency for their long term management upon completion of construction.

## **Trail Maintenance**

*For FDOT Constructed Trails Inside of FDOT ROW* – FDOT will maintain the pavement and any bridge structures for a trail in its ROW, and will apply normal roadway maintenance standards such as mowing and litter control to the entire ROW inclusive of the trail. Beyond this, a local sponsor/agency will enter into a maintenance agreement with the department to undertake all other trail maintenance. The area of responsibility will be the footprint of the trail within FDOT ROW as defined by the district. The local agency/sponsor will be responsible for any mowing and litter control above FDOT roadway standards and maintenance of trail specific facilities and features such as ornamental landscaping, wayside areas, benches, litter receptacles, and restrooms. The local sponsor/agency will be identified prior to programming the PD&E phase. The maintenance agreement detailing the full maintenance requirements of that entity must be executed prior to letting for construction. A maintenance agreement template is attached.

*For FDOT Constructed Trails Outside of FDOT ROW* – Trails that are constructed outside of FDOT ROW shall be maintained by an entity other than FDOT. The department will enter into an agreement or other form of documented commitment to ensure that a local sponsor/agency is committed to long term trail maintenance. The local sponsor/agency will be responsible for all trail operation and maintenance needs which includes routine pavement and bridge structure repair, litter control, sweeping, vegetation management, and the maintenance of trail specific facilities and features such as ornamental landscaping, wayside areas, benches, litter receptacles, and restrooms. The local sponsor/agency will be identified prior to programming the PD&E phase. Each district will determine the appropriate form of commitment or agreement that will need to be executed prior to letting for construction. A maintenance agreement template is attached.

## Maintenance MOA Language for Multi-Use Trail Project within FDOT's Right-of-Way

1. The LOCAL GOVERNMENT acknowledges that the DEPARTMENT will require the LOCAL GOVERNMENT to maintain the entire Multi-Use Trail Project, as depicted in the Construction Plans and Specifications of F.P.I.D. # \_\_\_\_\_, for the useful life of the Multi-Use Trail Project, according to the DEPARTMENT standards, which include, but are not limited to, the Americans with Disabilities Act, Design Standards, and the Standard Specifications, and as amended from time to time.
2. Maintenance items to be maintained by the LOCAL GOVERNMENT shall include, but not be limited to: vegetation management, ornamental landscaping, trail heads, bathroom facilities, parking facilities, repair of slopes/erosion, removal of graffiti, boardwalks, gravity walls, sea walls, traffic barriers, railings, guardrail, signing, pavement markings, pedestrian/bicycle signals, lighting, benches, litter receptacles, and aesthetic features. The LOCAL GOVERNMENT shall maintain pavement surfaces free from residue accumulation, algae, vegetation, and other slip or trip hazards. The LOCAL GOVERNMENT shall trim landscaping, mow (if a higher standard than the DEPARTMENT standard is desired), sweep, edge and provide weed control along the Multi-Use Trail Project corridor from \_\_\_\_\_ to \_\_\_\_\_ from \_\_\_\_\_ to \_\_\_\_\_. The LOCAL GOVERNMENT shall ensure the safety of the Public by repairing slope erosion and maintaining signs, sign poles, striping, pavement symbols, traffic markings, detectable warning surfaces, pavers, crosswalks, bollards, delineators, walls, railings, barriers, guardrail, lighting, pedestrian/bicycle signals and any other safety features within the Multi-Use Trail Project corridor in accordance with DEPARTMENT standards. The LOCAL GOVERNMENT shall maintain paint on railings, sign poles, structures, etc. within the Multi-use Trail Project corridor. Repairs to any Multi-Use Trail Project structural or safety feature shall be in kind and to DEPARTMENT standards. The LOCAL GOVERNMENT shall maintain all landscaping to DEPARTMENT standards and all irrigation systems in good operational condition. The LOCAL GOVERNMENT shall maintain and repair the Multi-Use Trail Project at its sole cost and expense, in a good and workmanlike manner, and with reasonable care.
3. The Parties acknowledge and agree that the design plans for the Multi-Use Trail Project may not yet be finalized and are subject to review by the Department. Upon completion of the Multi-Use Trail Project, the Parties shall amend this Agreement to attach the latest version of the construction plans for the Multi-Use Project to this Agreement in order to show the extent of the Multi-Use Trail Project to be maintained by Recipient. The Recipient approves and delegates to Name, Title, the authority to enter into an amendment of this Agreement to attach the latest version of the construction plans as described above. No further Board or Council action shall be required to amend this Agreement for the sole purpose of incorporating the latest construction plans.
4. The DEPARTMENT shall mow, including litter control associated with the mowing cycle, within the Multi-Use Trail Project as defined in Section 2. of this Agreement according to

the Maintenance Rating Program (MRP) Manual. Mowing and litter control requirements above MRP standards shall be handled and performed by the LOCAL GOVERNMENT.

5. The DEPARTMENT shall maintain the pavement and bridge structures within the Multi-Use Trail Project as defined in Section 2. of this Agreement according to the DEPARTMENT Standards. The LOCAL GOVERNMENT shall maintain any aesthetic features associated with bridge structures, including, but not limited to, custom paint or coatings. Any requests for additional maintenance shall be handled and performed by the LOCAL GOVERNMENT.
6. The LOCAL GOVERNMENT shall pay utility bills for lighting, signals, and irrigation associated with the Multi-Use Trail Project.
7. The LOCAL GOVERNMENT shall conduct an annual inspection of the Multi-Use Trail Project to ensure that any and all safety deficiencies are addressed.
8. When the Multi-Use Trail Project is at the end of its useful life, the LOCAL GOVERNMENT shall prioritize the Replacement or Reconstruction of the Multi-Use Trail Project as if it was a new Project.
9. Should the LOCAL GOVERNMENT desire to add future amenities to the Multi-Use Trail Project, the LOCAL GOVERNMENT shall contact the DEPARTMENT for prior approval.
10. If at any time the LOCAL GOVERNMENT has not performed the maintenance responsibility on the Multi-Use Trail Project in accordance with this Agreement, the DEPARTMENT shall have the option of (a) notifying the LOCAL GOVERNMENT of the deficiency with a requirement that it be corrected within a specified time; or (b) the DEPARTMENT may perform the necessary maintenance at the LOCAL GOVERNMENT'S sole cost and expense, and send an invoice to the LOCAL GOVERNMENT, equal to the cost incurred by the DEPARTMENT for such maintenance. Any action taken by the DEPARTMENT does not relieve any obligation of the LOCAL GOVERNMENT under the terms and conditions of this Agreement. Failure to perform maintenance of the Multi-Use Trail Project in accordance with this Agreement may impact DEPARTMENT funding participation in future LOCAL GOVERNMENT projects.
11. The DEPARTMENT may require the LOCAL GOVERNMENT to remove the Multi-Use Trail Project in whole or in part and restore the property to the condition that existed immediately prior to the effective date of this Agreement if the DEPARTMENT determines: (a) the Multi-Use Trail Project or project feature is not or maintained in accordance with Section 1. of this Agreement; or (b) the LOCAL GOVERNMENT breaches a material provision (as determined by the DEPARTMENT) of this Agreement. Removal and restoration shall be completed by the LOCAL GOVERNMENT within \_\_\_\_\_ days of the DEPARTMENT'S written notice, or such time as the DEPARTMENT and the LOCAL GOVERNMENT mutually agree in writing. Removal and restoration shall be completed by the LOCAL GOVERNMENT in accordance with DEPARTMENT standards. Should the LOCAL GOVERNMENT fail to complete the removal and restoration work, the

DEPARTMENT may complete the removal and restoration at the LOCAL GOVERNMENT'S sole cost and expense and send an invoice to the LOCAL GOVERNMENT, equal to the cost incurred by the DEPARTMENT for such removal and restoration.

12. The DEPARTMENT may remove, relocate, or adjust the Multi-Use Trail Project in whole or in part at any time in the future as determined to be necessary by the DEPARTMENT in order that the adjacent State Road be widened, altered, or otherwise changed. The DEPARTMENT shall give the LOCAL GOVERNMENT notice regarding such removal, relocation, or adjustment.
13. This Agreement may be terminated under either of the following conditions: (a) by the DEPARTMENT, if the LOCAL GOVERNMENT fails to perform its duties under this Agreement, following ten (10) days written notice; or (b) by the DEPARTMENT, for refusal by the LOCAL GOVERNMENT to allow public access to public records subject to the provisions of Chapter 119, Florida Statutes.

## Maintenance MOA Language for Off-system Multi-Use Trail Project

1. The LOCAL GOVERNMENT acknowledges that the DEPARTMENT will require the LOCAL GOVERNMENT to maintain the entire Multi-Use Trail Project, as depicted in the Construction Plans and Specifications of F.P.I.D. # \_\_\_\_\_, for the useful life of the Multi-Use Trail Project, according to the DEPARTMENT standards, which include, but are not limited to, the Americans with Disabilities Act, Design Standards, and the Standard Specifications, and as amended from time to time.
2. Maintenance items to be maintained by the LOCAL GOVERNMENT shall include, but not be limited to: vegetation management, ornamental landscaping, trail heads, bathroom facilities, parking facilities, repair of slopes/erosion, removal of graffiti, boardwalks, gravity walls, sea walls, traffic barriers, railings, guardrail, signing, pavement markings, pedestrian/bicycle signals, lighting, benches, litter receptacles, aesthetic features, and all other features of the Multi-Use Trail Project. The LOCAL GOVERNMENT shall maintain pavement surfaces free from residue accumulation, algae, vegetation, and other slip or trip hazards. The LOCAL GOVERNMENT shall trim landscaping, mow, sweep, edge and provide weed control along the Multi-Use Trail Project corridor from \_\_\_\_\_ to \_\_\_\_\_ from \_\_\_\_\_ to \_\_\_\_\_. The LOCAL GOVERNMENT shall ensure the safety of the Public by repairing slope erosion and maintaining signs, sign poles, striping, pavement symbols, traffic markings, detectable warning surfaces, pavers, crosswalks, bollards, delineators, walls, railings, barriers, guardrail, lighting, pedestrian/bicycle signals and any other safety features within the Multi-Use Trail Project corridor in accordance with DEPARTMENT standards. The LOCAL GOVERNMENT shall maintain paint on railings, sign poles, structures, etc. within the Multi-use Trail Project corridor. Repairs to any Multi-Use Trail Project structural or safety feature shall be in kind and to DEPARTMENT standards. The LOCAL GOVERNMENT shall maintain all landscaping to DEPARTMENT standards or higher and all irrigation systems in good operational condition. The LOCAL GOVERNMENT shall maintain and repair the Multi-Use Trail Project at its sole cost and expense, in a good and workmanlike manner, and with reasonable care.
3. The Parties acknowledge and agree that the design plans for the Multi-Use Trail Project may not yet be finalized and are subject to review by the Department. Upon completion of the Multi-Use Trail Project, the Parties shall amend this Agreement to attach the latest version of the construction plans for the Multi-Use Project to this Agreement in order to show the extent of the Multi-Use Trail Project to be maintained by Recipient. The Recipient approves and delegates to Name, Title, the authority to enter into an amendment of this Agreement to attach the latest version of the construction plans as described above. No further Board or Council action shall be required to amend this Agreement for the sole purpose of incorporating the latest construction plans.
4. The LOCAL GOVERNMENT shall pay utility bills for lighting, signals, and irrigation associated with the Multi-Use Trail Project.

5. The LOCAL GOVERNMENT shall conduct an annual inspection of the Multi-Use Trail Project to ensure that any and all safety deficiencies are addressed.
6. When the Multi-Use Trail Project is at the end of its useful life, the LOCAL GOVERNMENT shall prioritize the Replacement or Reconstruction of the Multi-Use Trail Project as if it was a new Project.
7. If at any time the LOCAL GOVERNMENT has not performed the maintenance responsibility on the Multi-Use Trail Project in accordance with this Agreement, the DEPARTMENT shall have the option of (a) notifying the LOCAL GOVERNMENT of the deficiency with a requirement that it be corrected within a specified time; or (b) the DEPARTMENT may perform the necessary maintenance at the LOCAL GOVERNMENT'S sole cost and expense, and send an invoice to the LOCAL GOVERNMENT, equal to the cost incurred by the DEPARTMENT for such maintenance. Any action taken by the DEPARTMENT does not relieve any obligation of the LOCAL GOVERNMENT under the terms and conditions of this Agreement. Failure to perform maintenance of the Multi-Use Trail Project in accordance with this Agreement may impact DEPARTMENT funding participation in future LOCAL GOVERNMENT projects.
8. The DEPARTMENT may require the LOCAL GOVERNMENT to remove the Multi-Use Trail Project in whole or in part and restore the property to the condition that existed immediately prior to the effective date of this Agreement if the DEPARTMENT determines: (a) the Multi-Use Trail Project or project feature is not constructed or maintained in accordance with Section 1. of this Agreement; or (b) the LOCAL GOVERNMENT breaches a material provision (as determined by the DEPARTMENT) of this Agreement. Removal and restoration shall be completed by the LOCAL GOVERNMENT within \_\_\_\_\_ days of the DEPARTMENT'S written notice, or such time as the DEPARTMENT and the LOCAL GOVERNMENT mutually agree in writing. Removal and restoration shall be completed by the LOCAL GOVERNMENT in accordance with DEPARTMENT standards. Should the LOCAL GOVERNMENT fail to complete the removal and restoration work, the DEPARTMENT may complete the removal and restoration at the LOCAL GOVERNMENT'S sole cost and expense and send an invoice to the LOCAL GOVERNMENT, equal to the cost incurred by the DEPARTMENT for such removal and restoration.
9. This Agreement may be terminated under either of the following conditions: (a) by the DEPARTMENT, if the LOCAL GOVERNMENT fails to perform its duties under this Agreement, following ten (10) days written notice; or (b) by the DEPARTMENT, for refusal by the LOCAL GOVERNMENT to allow public access to public records subject to the provisions of Chapter 119, Florida Statutes.

# TRAIL INSPECTION CHECKLIST

NAME: \_\_\_\_\_

DATE: \_\_\_\_\_

SEGMENT: \_\_\_\_\_

REVIEWED BY: \_\_\_\_\_

DATE REVIEWED: \_\_\_\_\_

## ROUTINE MAINTENANCE

MOWED: YES/NO

EDGED: YES/NO

BLOWN OFF: YES/NO

TRASH EMPTIED: YES/NO

LITTER PICKED UP (50' EACH SIDE OF TRAIL): YES/NO

ADDITIONAL COMMENTS:

## OTHER MAINTENANCE AND ITEMS TO INSPECT

TREE LIMBED TO 13' OVER TRAIL: YES/NO

DETAILS:

SIGNS CLEANED: YES/NO

DATE COMPLETED:

KIOSKS CLEANED: YES/NO

DATE COMPLETED:

BENCHES/TRASH CANS CLEANED: YES/NO

DATE COMPLETED:

TRUNCATED DOME MATS CHECKED: YES/NO

DETAILS:

BOARDWALK CHECKED: YES/NO/NOT APPLICABLE

COMMENTS:

SAFETY RAILINGS AND BIKE LEANS CHECKED: YES/NO

COMMENTS:

STRIPING AND PAINTING CONDITION: GOOD/FAIR/POOR

DETAILS:

INVASIVE PLANTS REMOVAL THIS MONTH: YES/NO

DETAILS:

BICYCLE/PEDESTRIAN CROSSING SIGNALS OPERATING: YES/NO

DETAILS:

TRAIL ROAD CROSSING STRIPING CONDITION: GOOD/FAIR/POOR

DETAILS:

ASPALT CONDITION: GOOD/FAIR/POOR

DETAILS:

**SIGNAGE**

STOP/YIELD SIGNS IN PLACE AT REQUIRED LOCATIONS: YES/NO

ALL SIGNAGE STRAIGHT: YES/NO

ALL SIGNAGE AT PROPER HIEGHT: YES/NO

DETAILS:

STOP/YIELD SIGN CONDITION: GOOD/FAIR/POOR

DETAILS:

TRAIL SAFETY SIGNAGE CONDITION: GOOD/FAIR/POOR

DETAILS:

TRAIL INFORMATIONAL SIGNAGE: GOOD/FAIR/POOR

DETAILS:

TRAIL MILE MARKER CONDITION: GOOD/FAIR/POOR

DETAILS:

ROAD SIGNS FOR TRAILS IN PLACE: YES/NO

DETAILS:

ADDITIONAL COMMENTS

DETAILS:

# TRAIL RULES & ETIQUETTE

## **BIKE RIDERS**

- **PASS ON THE LEFT** - Be sure that when you are passing another trail user, stay on their left side and move to the right after you have passed them. Call out "passing on your left" so you don't startle the person you are passing.
- **PULL COMPLETELY OFF TRAIL IF YOU NEED TO STOP** - By pulling off the trail, you reduce trail congestion and you are less likely to impede other trail traffic and cause an accident.
- **WEAR A HELMET**- It's required for children under 16 years of age and it's a good idea for adults as well.
- **OBEY ALL TRAFFIC SIGNS**- Be sure to obey all trail traffic signs and follow any detour signs. Make sure you watch for car traffic, particularly where it crosses the multi-use trail.
- **PAY ATTENTION WHEN YOU RIDE** - Don't wear headphones and make sure you keep your eyes on the road to look for potential hazards. Stay in your lane.
- **RIDE IN SINGLE FILE** - Even if you are in a group, riding single-file helps keep the trail clear of congestion and reduces the chances of an accident.
- **THE SPEED LIMIT IS 15MPH** - The trail is not designed for extreme biking and too much speed can be a hazard to you and those around you.
- **STAY ON PAVED TRAIL** – Bicycles should not ride off the paved surface to reduce impact to vegetation and trail edges.
- **THE TRAIL IS BEST USED BY EXPERIENCED RIDERS** - While there is no age limit for bike riders, the multi-use trail is probably not the best place for someone to learn how to ride a bike. Children and adults who visit the trail should know how to ride.
- **RIDING IN THE DARK** - When riding in the dark, bicyclists are required to have a forward-facing white light that is bright enough to be visible from 300 feet in front, reflectors visible from the sides of the bicycle and a rear facing red light visible from 500 feet.
- **WATCH FOR MAINTENANCE WORKERS** – Mowing and maintenance staff are there to keep trail clean, safe, and attractive. Proceed with caution where they are working for their safety and yours.

## **PEDESTRIANS**

- **USE THE RIGHT SHOULDER WHEN IT IS ACCESSIBLE TO YOU** - Joggers and walkers should move with the flow of trail traffic. **Keep Right, Pass Left Rule**
- **STAY IN SINGLE FILE** - This reduces trail congestion, risk of people straying into other trail users paths, and allows faster trail users to pass safely.
- **STAY ALERT**- Be aware of where you are, watch and listen for other trail users.
- **KEEP YOUR DOG ON A SHORT LEASH** - Dogs are not allowed to be off-leash in or on any county park or trail. The maximum length of a leash is six feet. This includes retractable leads.
- **CLEAN UP AFTER YOUR DOG** – Dog owners are required to clean up after their dog. Help keep the trail area clean for all users.

## **OTHER TRAIL TRAFFIC**

- **EQUESTRIANS** - Horses are only allowed on **designated** horse trails. Be sure to let people know when it is safe to pass your horse when you encounter other trail users. It is recommended that equestrians wear helmets and only use the trails during the day to avoid potential hazards or obstacles that may be hidden from view in the dark.
- **SKATERS** - Both roller skating and rollerblading are permitted on the trail, and all skaters must obey the same rules as bicyclists.
- **MOTORIZED TRAFFIC** - **No motorized traffic is permitted on the trail.** This includes battery powers scooters, Hoover boards, and motorcycles. Electric scooters or wheel chairs for persons with mobility impairments are permitted.

## **EVERYONE**

- **PLEASE DO NOT LITTER** – Keep our trails clean, safe, and attractive for everyone. Put your trash in the trash cans or carry in, and carry out.
- **SHARE THE TRAIL** – Our multi-use trail system is for everyone, walkers, runners, rollerbladers, skate boarders, cyclists, and where designated horseback riders. Please be respectful and courteous to fellow users.



**2017**  
**LIST OF PRIORITY PROJECTS**

**Adopted April 26, 2017**  
**Amended August 23, 2017**  
**by the**  
**Lake~Sumter**  
**MPO GOVERNING BOARD**

**Coverage of Fiscal Years 2022/23 through 2039/40**

Prepared by the  
Lake~Sumter Metropolitan Planning Organization  
225 West Guava Street, Suite 211, Lady Lake, FL 32159



## List of Unfunded Priority Projects (LOPP)

Each Metropolitan Planning Organization (MPO) is required to develop a List of Priority Projects (LOPP), in coordination with the FDOT District Planning staff, and to submit the list to the District by September 1 of each year. The LOPP represents those projects that have not yet been programmed, but are considered high priorities by the MPO.

The MPO's LOPP must be formally reviewed by the technical and citizens' advisory committees and approved by the MPO Governing Board before being transmitted to the District. In addition, all major capacity projects on the priority list, with the exception of Florida Intrastate Highway System (FIHS) and bridge replacement projects, should be screened under the Efficient Transportation Decision Making (ETDM) process (programming screen), prior to being transmitted.

Projects from the LOPP are included in the FDOT Work Program to the maximum extent feasible. Any significant disputes identified during the ETDM programming screen will be resolved prior to adding the priority project to the Work Program. The District will coordinate with the MPO to resolve any significant issues pertaining to projects on the MPO priority list pursuant to the ETDM dispute resolution process.

The District's review of the MPO's List of Priority Projects should ascertain that, at a minimum, it considers the following: the MPO's approved Long Range Transportation Plan (LRTP), the Strategic Intermodal System (SIS) Plan, the priorities developed pursuant to the Transportation Regional Incentive Program (TRIP), and the MPO's public involvement procedures.

CONSTRUCTION PROJECTS  
TABLE 1

RANK	FM NUMBER	PROJECT NAME	FROM	TO	SPONSOR/ LOCATION	PROJECT DESCRIPTION	FUNDED PHASE(S)	FISCAL YEAR	REQUEST FOR NEW FUNDING	COST ESTIMATE	NOTES
1	4098701	SR 44	SR 500 (US 441)	SR 44/E ORANGE AVE	FDOT	WIDEN TO 4 LANES	ROW	2013/14	CST FY2018/19	\$16 M	FDOT PROJECT APPLICATION COMPLETE
2	434912-2	CR 470 - Segment 2	TP EAST RAMP	BAY RD	FDOT	WIDEN TO 4 LANES	ROW	2012/13	CST/FY2023	\$9 M	FDOT CANIDATE PROJECT TENTATIVELY FUNDED PD&E FY19, PE FY21 (NEED TO UPDATE THE PRIOR PROJECT PHASES)
3	2383943	SR 500/US 441	PERKINS ST	SR 44 (E DIXIE AVE)	FDOT	WIDEN TO 6 LANES	ROW	2011/12 2012/13	CST	\$7.9M	FDOT PROJECT APPLICATION COMPLETE
4	4293561	SR 500 (US 441)	SR 44	SR 46/WEKIVA CONN	FDOT	WIDEN TO 6 LANES	PE ROW	2013/14 2017/18	CST FY2018/19	\$24 M	FDOT PROJECT APPLICATION COMPLETE
5	430253-5	CR 466A PHASE 3B	PONISSETIA AVE.	JUST EAST OF TIMBERTOP RD	LC	WIDEN TO 4 LANES	ROW	2017/18	CST	\$7 M	APPLICATION COMPLETE - NON STATE ROADWAY
6		CITRUS GROVE PHASE 2	US 27	NORTH HANCOCK RD	LC	WIDENING TO 4 LANES	PE	2017/18	CST	\$15 M	APPLICATION COMPLETE - NON STATE ROADWAY
7	-	C-470 SIDEWALK	CR 436	OUTLET BRIDGE	SC	SIDEWALK	NA		DSB	\$172 K	APPLICATION COMPLETE
8	-	US 27 ATMS	SR 44	SE HWY 42	FDOT	ATMS FOR CORRIDOR	N/A		DSB	\$1.60 M	FDOT PROJECT APPLICATION COMPLETE
9	-	LAKE COUNTY ATMS.NOW PROJECT			LC	CENTRAL MGMT PLATFORM SYSTEM	STUDY		CST/EQUIPMENT PURCHASE/INSTALLATION	\$99 K	APPLICATION COMPLETE
10	-	HARTWOOD MARSH RD PAVED SHOULDER	HANCOCK RD	NEW CR 455 (HARTLE RD)	LC	NEW PAVED SHOULDER	PE	2017/18	CST	\$2 M	APPLICATION COMPLETE
11	4372981	C-575 BRIDGE OVER SPRING RUN	BRIDGE ID# 184052		SC	REPAIR/REHABILITATE BRIDGE	STUDY	2014/15	DSB	\$210 K	APPLICATION COMPLETE
12	439224-3	SOUTH BUENA VISTA BLVD	N ODELL CIR	SOUTH OF S ODELL CIR	SC	RESURFACING	NA	NA	DSB	\$1.29 M	APPLICATION COMPLETE
13	439223	CR 478	SR 471	CENTER HILL CITY LIMIT	SC	RESURFACING	NA	NA	DSB	\$1.7 M	APPLICATION COMPLETE
14		C-468	US 301	CR 505	SC	WIDEN to 4 LANES	NA	NA	CST	\$8.28 M	APPLICATION COMPLETE

RIGHT OF WAY PROJECTS  
TABLE 2

RANK	FM NUMBER	PROJECT NAME	FROM	TO	SPONSOR/LOCATION	PROJECT DESCRIPTION	FUNDED PHASE(S)	FISCAL YEAR	REQUEST FOR NEW FUNDING	COST ESTIMATE	NOTES
1	4309752	WEKIVA TRAIL SEGMENT 1	TREMAIN STREET	CR 437	LC/MD	MIXED USE TRAIL	PE	2015/16	ROW FY2019/20	\$10 M	PE PHASE UNDERWAY
2	4309753	WEKIVA TRAIL SEGMENT 2	CR 437	RED TAIL BLVD	LC	MIXED USE TRAIL	PE	2015/16	ROW FY2019/20	\$7 M	PE PHASE UNDERWAY
3	4270561	SR 50 REALIGNMENT/ SOUTH LAKE TRAIL, PHASE 3	CRITTENDEN RD	VILLA CITY	FDOT	REALIGNMENT	PD&E PE	2014/15	ROW FY2018/19	\$24.4 M	FDOT PROJECT APPLICATION COMPLETE
4	4270561	SOUTH LAKE TRAIL, PHASE 3	CRITTENDEN RD	VILLA CITY	FDOT	NEW MULTI USE TRAIL	PD&E PE	2014/15	ROW FY2018/19	\$1 M	FDOT PROJECT APPLICATION COMPLETE
5	4354711	SOUTH SUMTER CONNECTOR TRAIL	VAN FLEET TRAIL	WITHALOOCHOOCEE TRAIL	FDOT	MIXED USE TRAIL	PD&E PE	2018/19 2016/17	ROW FY2021/22	\$9 M	FDOT PROJECT APPLICATION COMPLETE SUNTRAIL PROJECT
6	4354761	CR 514 INTERCHANGE	@ I-75		FDOT	NEW INTERCHANGE	PD&E PE	2015/16 2016/17	ROW FY 2019/20	TBD	FDOT PROJECT APPLICATION COMPLETE
7	4301321	SR 35 (US 301)	C-470 (W)	SR 44	FDOT	WIDEN TO 4 LANES	PD&E PE	2013/14 2020/21	ROW FY2022/23	TBD	FDOT PROJECT APPLICATION COMPLETE
8	4355411	CITRUS GROVE ROAD PHASE 2	US 27	GRASSLY LAKE RD.	LC	WIDEN TO 4 LANES	PE	2014/15	ROW	\$1 M	APPLICATION COMPLETE
9	4349121	C-470 - Segment 1	CR 527	SR 91 (FL TPK)	FDOT	WIDEN TO 4 LANES	PD&E PE	2014/15 2019/20	ROW FY2021/22	TBD BY FDOT	FDOTPROJECT APPLICATION COMPLETE
10	4374641	EUDORA ROAD/OLD 441/CR 19A			LC	ROUNDABOUT/INTERSECTION IMPROVEMENT	PE	2017/18	ROW FY2018/19	\$250K	APP UPDATED FROM PE TO ROW - NEED ROW COST ESTIMATE
11		CR 470 - Segment 3	BAY RD	CR 33	FDOT	WIDEN TO 4 LANES	PER PE	2009/10	ROW FY2022/23	\$150 K	FDOT CANIDATE PROJECT Tentatively FUNDED PD&E IN FY19, PE IN FY21
12		CR 48/470 - Segment 4	CR 33	EAST OF PALATLAKAHA BRIDGE	FDOT	WIDEN TO 4 LANES	PER PE	2009/10	ROW FY2022/23	\$800 K	FDOT CANIDATE PROJECT Tentatively FUNDED PD&E IN FY19, PE IN FY21
13		LAKE COUNTYWIDE SIDEWALK PROGRAM	7 PROJECTS		LC	NEW SIDEWALKS	PE	FY2020/21	ROW FY2023/24	TBD	DESIGN FUNDED IN FY2021/22
14		HARTWOOD MARSH RD.	US 27	HANCOCK RD.	LC	WIDENING TO 4 LANES	PE	2016/17	ROW FY2018/19	\$2 M	APPLICATION COMPLETE
15		RIDGEWOOD ROUNDABOUT	RIDGEWOOD @ CR455		LC	ROUNDABOUT	PE	2017/18	ROW FY2018/19	\$300K	APPLICATION COMPLETE
16	435859-1	W. SR 50	US 98 (HERNANDO CO.)	CR 33 (LAKE COUNTY)	FDOT	WIDEN TO 4 LANES	STUDY PE	2015/16 2018/19	ROW FY 2020/21	TBD	FDOT PROJECT - PD&E FUNDED IN 2016/17 - DESIGN FUNDED IN FY 2018 \$4M

PE (DESIGN) PROJECTS  
TABLE 3

RANK	FM NUMBER	PROJECT NAME	FROM	TO	SPONSOR/ LOCATION	PROJECT DESCRIPTION	FUNDED PHASE(S)	FISCAL YEAR	REQUEST FOR NEW FUNDING	COST ESTIMATE	NOTES
1		SUMTER COUNTY ITS (PHASE 1)			SC	ITS	STUDY	2016/17	PE FY2018/19	\$200K	APPLICATION COMPLETE
2	-	ROLLING ACRES ROAD	US 27/US441	CR 466	LC	WIDEN TO 4 LANES	PD&E	2018/19	PE FY2020/21	\$2M	APPLICATION COMPLETE
3		C-501	C-468	C-470	SC	WIDEN TO 4 LANES	PER	2014/15	PE	\$1.4 M	APPLICATION COMPLETE
4	-	ROUND LAKE ROAD EXTENSION/CR 439	LAKE/ORANGE CL	CR 44	LC	NEW ALIGNMENT/ADD LANES	PD&E	2018/19	PE FY 2020/21	\$1M	APPLICATION COMPLETE
5	-	CR 437 REALIGNMENT	ADAIR AVE	SR 44	LC	REALIGNMENT & MULTI-MODAL DESIGN PHSE	PD&E	2017/18	PE FY 2018/19	\$750K	APPLICATION COMPLETE
6		SORRENTO AVENUE	ORANGE AVE	HOJIN ST	LC	COMPLETE STREETS	STUDY	2017/18	PE FY 2018/19	\$1M	APPLICATION COMPLETE
7		US 27	SR 44	US 441	LEES	COMPLETE STREETS	STUDY	2015/16	PE FY2018/19	TBD	STUDY FUNDED FY2016/17 UNDERWAY
8		PICCIOLA RD	US441	SAIL FISH AVE.	LC	NEW SIDEWALK	STUDY	2017/18	PE	\$115.31	APPLICATION COMPLETE
9		HARTLE RD/ CR 455	LOST LAKE RD	HARTWOOD MARSH RD	LC	WIDEN TO 4 LANES	PD&E	2017/18	PE FY 2019/20	\$1.2M	APPLICATION COMPLETE
10	4363601	BLACK BEAR SCENIC TRAIL	MARION/LAKE COUNTY LINE	VOLUSIA/LAKE COUNTY LINE	FDOT	SUNTRAIL PROJECT	PD&E	FY2020/21	PE 2023/24	TBD	FDOT PROJECT - FEASIBILITY STUDY UNDERWAY
11		OLD US 441	NORTH DISSTON AVENUE	MCDONALD ST	TAV/MD	COMPLETE STREETS	PER	2008	PE	\$2.1M	APPLICATION COMPLETE FOR DESIGN PHASE
12		UMATILLA SR 19	CR 450-A	OLD MILL STREAM RV PARK	UMA	COMPLETE STREETS	STUDY	2016/17	PE 2018/19	\$170K	STUDY FUNDED FY2016/17 UNDERWAY
13		SR 91 (FL TPK)	MINNEOLA INTERCHANGE	CR 470	FTE	WIDEN TO 8 LANES	PD&E		PE	TBD	FTE PROJECT
14	4349101	SR 91 (FL TPK)	CR 470	SR 25 (US 27) (N)	FTE	WIDEN TO 8 LANES	PD&E		PE	TBD	FTE PROJECT
15	CA	SR 91 (FL TPK)	SR 35 (US 301)	CR 470	FTE	WIDEN TO 8 LANES	PD&E		PE	TBD	FTE PROJECT
16		LAKE COUNTY INTELLIGENT TRANSPORTATION SYSTEMS (ITS) MASTER PLAN			LC	DESIGN PHASE	STUDY	2016/17	PE FY 2018/19	\$280 K	MASTERPLAN UNDERWAY

PD&E PROJECTS  
TABLE 4

Rank	FM Number	PROJECT NAME	FROM	TO	SPONSOR/ LOCATION	PROJECT DESCRIPTION	FUNDED PHASE(S)	FISCAL YEAR	REQUEST FOR NEW FUNDING	COST ESTIMATE	NOTES
1	435740-1	US 27 & SR 44			FDOT	INTERSECTION IMPROVEMENT	PER/ STUDY	2013/14 2014/15	PD&E 2018/19	\$1 M	FDOT PROJECT
2		US 27	CR 561 (S)	SR 48/470	FDOT	WIDEN TO 6 LANES	N/A		PD&E 2018/19	TBD BY FDOT	FDOT PROJECT APPLICATION COMPLETE
3		CR 561A	CR 561	CR 455	LC	REALIGNMENT OF CR 561A W/CR 561 & ROUNDABOUT	STUDY	2017/18	PD&E 2018/19	\$750 K	APPLICATION COMPLETE
4		NORTH LAKE TRAIL	CR 450	SR 40	UM	NEW TRAIL	STUDY	2017/18	PD&E 2020/21		APPLICATION COMPLETE
5		SR 44	SR 44 & ORANGE AVENUE	CR 46A	FDOT	WIDEN TO 4 LANES	N/A		PD&E 2018/19	TBD BY FDOT	FDOT PROJECT APPLICATION COMPLETE
6		SR 19	SR 50	CR 455	FDOT	WIDEN TO 4 LANES	N/A		PD&E 2020/21	TBD BY FDOT	FDOT PROJECT APPLICATION COMPLETE
7	NEW	FOSGATE ROAD EXTENSION AND BRIDGE	CITRUS GROVE ROAD	BLACKSTILL LAKE ROAD	FTE	NEW 2 LANE ROAD & BRIDGE	N/A	N/A	PD&E 2018/19	TBD BY FTE	FTE PROJECT
8	NEW	BUENA VISTA BLVD. ROAD EXTENSION & BRIDGE	SR 44	CR 470	SC	NEW 4 LANE ROAD & BRIDGE	N/A	N/A	PD&E 2018/19	TBD BY SC	PPP PROJECT WITH SUMTER COUNTY AND THE VILLAGES

PLANNING STUDY PROJECTS  
TABLE 5

RANK	FM NUMBER	PROJECT NAME	FROM	TO	SPONSOR/ LOCATION	PROJECT DESCRIPTION	FUNDED PHASE(S)	FISCAL YEAR	REQUEST FOR NEW FUNDING	COST ESTIMATE	NOTES
1		EAST AVENUE	GRAND HIGHWAY	MINNEHAHA AVE	CLR	COMPLETE STREETS	N/A	N/A	STUDY 2018/19	\$110K	APPLICATION COMPLETE Tentatively Funded in FY2018
2		US 301	CLEVELAND AVE (C-466A)	HUEY ST (C-44A)	WW	COMPLETE STREETS	N/A	N/A	STUDY 2018/19	\$200K	APPLICATION COMPLETE Tentatively Funded in FY2018
3		WEBSTER SR 471	CR 478A	NW 10TH AVE/CR 730	WEB	COMPLETE STREETS	N/A	N/A	STUDY 2018/19	\$100K	APPLICATION COMPLETE
4		WOLF BRANCH INNOVATION BLVD	CR 437	ROUND LAKE RD	MD	NEW 4 LANE RD	N/A	N/A	STUDY 2018/19	\$200K	APPLICATION COMPLETE
5		ORANGE ST & BROAD ST (SR 50)	ALABAMA AVE	SR 33	GRV	COMPLETE STREETS	N/A	N/A	STUDY 2018/19	TBD	PIA COMPLETE
6		EUSTIS SR 19 COMPLETE STREETS			EUS	COMPLETE STREETS	N/A	N/A	STUDY 2018/9	\$220K	APPLICATION COMPLETE
7		WEST MAIN ST IMPROVEMENTS	W MAIN ST @ CR 468	W MAIN ST @ US 27	LEES	CURB & GUTTER, ADA UPGRADE, ON STREET PARKING	N/A	N/A	STUDY 2018/19	\$100 K	APPLICATION COMPLETE
8		EAST MAIN ST IMPROVEMENTS	CANAL ST @ MAIN ST	SR 44 @ MAIN ST	LEES	CURB & GUTTER, ADA UPGRADE, ON STREET PARKING	N/A	N/A	STUDY 2019/20	\$113 K	APPLICATION COMPLETE
9		I-75 EXIT 309 SUMTER SCENIC BYWAY PROJECT			SUMTER SCENIC BYWAY/SC	ENAHNCMENT OF INTERSTATE EXIT TO NATIONAL CEMETARY	N/A	N/A	STUDY 2018/19	\$78 K	APPLICATION COMPLETE
10		LAKE DENHAM TRAIL	TRAIL HEAD AT W MAIN ST LEESBURG	SR 50	LEES	NEW TRAIL	N/A	N/A	STUDY 2019/20	\$150K	APPLICATION COMPLETE
11		SR 50 COMPLETE STREETS	CR 561 (12th STREET)	BLOXAM ST.	CLR	COMPLETE STREETS	N/A	N/A	STUDY FY 2018/19	\$254K	APPLICATION COMPLETE
12	NEW	TAV-DORA TRAIL STUDY	WOOTON PARK, TAVARES	TREMAIN STREET TRESTLE, MOUNT DORA	TAV, MD, LC	NEW TRAIL	N/A	N/A	STUDY 2018/19	\$250K	APPLICATION COMPLETE Tentatively Funded in FY2019
13	NEW	LAKESHORE DRIVE SIDEWALK, SOUTH LAKE	HAMMOCK RIDGE ROAD	HOOK STREET	LC	NEW 6' SIDEWALK	N/A	N/A	STUDY 2018/19	TBD BY LC	NEW PROJECT APPLICATION UNDERWAY

CANDIDATE PROJECTS  
TABLE 6

Rank	FM Number	PROJECT NAME	FROM	TO	SPONSOR/ LOCATION	PROJECT DESCRIPTION	FUNDED PHASE(S)	FISCAL YEAR	REQUEST FOR NEW FUNDING	COST ESTIMATE	NOTES
		WELLNESS WAY/ FM#4357231	US 27	SR 429	LC	NEW ROAD, ALTERNATIVE CORRIDOR EVALUATION	N/A		STUDY	TBD	ILLUSTRATIVE PROJECT UNTIL COMMITMENTS ARE FORMALIZED WITH LANDOWNERS AND DEVELOPERS
		CAGAN'S CROSSING PEDESTRIAN OVERPASS			LC	NEW US 27 OVERPASS FOR PEDESTRIANS	N/A		STUDY	TBD	LC RESOLUTION APPROVED NO PIA
		HOOKS ST	HANCOCK RD	EMIL JAHNA RD	LC	WIDEN TO 4 LANES	N/A		PE	\$800 K	LC RESOLUTION APPROVED NO PIA
		ITS			LC	ITS FIBER INFRASTRUCTURE	STUDY	2018/19	CST		APPLICATION COMPLETE
		FOSGATE ROAD EXTENSION	GRASSY LAKE RD	US 27	MIN	NEW ROAD					NO PROJECT APPLICATION ON FILE
		MONTVERDE GREENWAY TRAIL EXTENSION	EXISTING GREENWAY TRAIL TERMINUS	STRETCHER PROPERTY	MON	3,042 FT EXTENSION TO EXISTING TRAIL	N/A	N/A	STUDY 2018/19	\$50 K	NO PROJECT APPLICATION ON FILE

PD&E = PROJECT DEVELOPMENT AND ENVIRONMENTAL STUDY

CST = CONSTRUCTION

\* ELIGIBILITY TO BE DETERMINED OR APPLICATION PARTIALLY COMPLETED OR NEED FOR APPLICATION TO BE DETERMINED.

PE = PRELIMINARY ENGINEERING (DESIGN)

ROW = RIGHT-OF-WAY

REQUESTING AGENCY & LOCATION CODE:

AST = ASTATULA

LSMPO = LAKE-SUMTER MPO

BUSH = BUSHNELL

MAS = MASCOTTE

CLR = CLERMONT

MD = MOUNT DORA

EUS = EUSTIS

MIN = MINNEOLA

FP = FRUITLAND PARK

MON = MONTVERDE

GRV = GROVELAND

SC = SUMTER COUNTY

HOW = HOWEY-IN-THE-HILLS

TAV = TAVARES

LC = LAKE COUNTY

UMA = UMATILLA

LL = LADY LAKE

WW = WILDWOOD

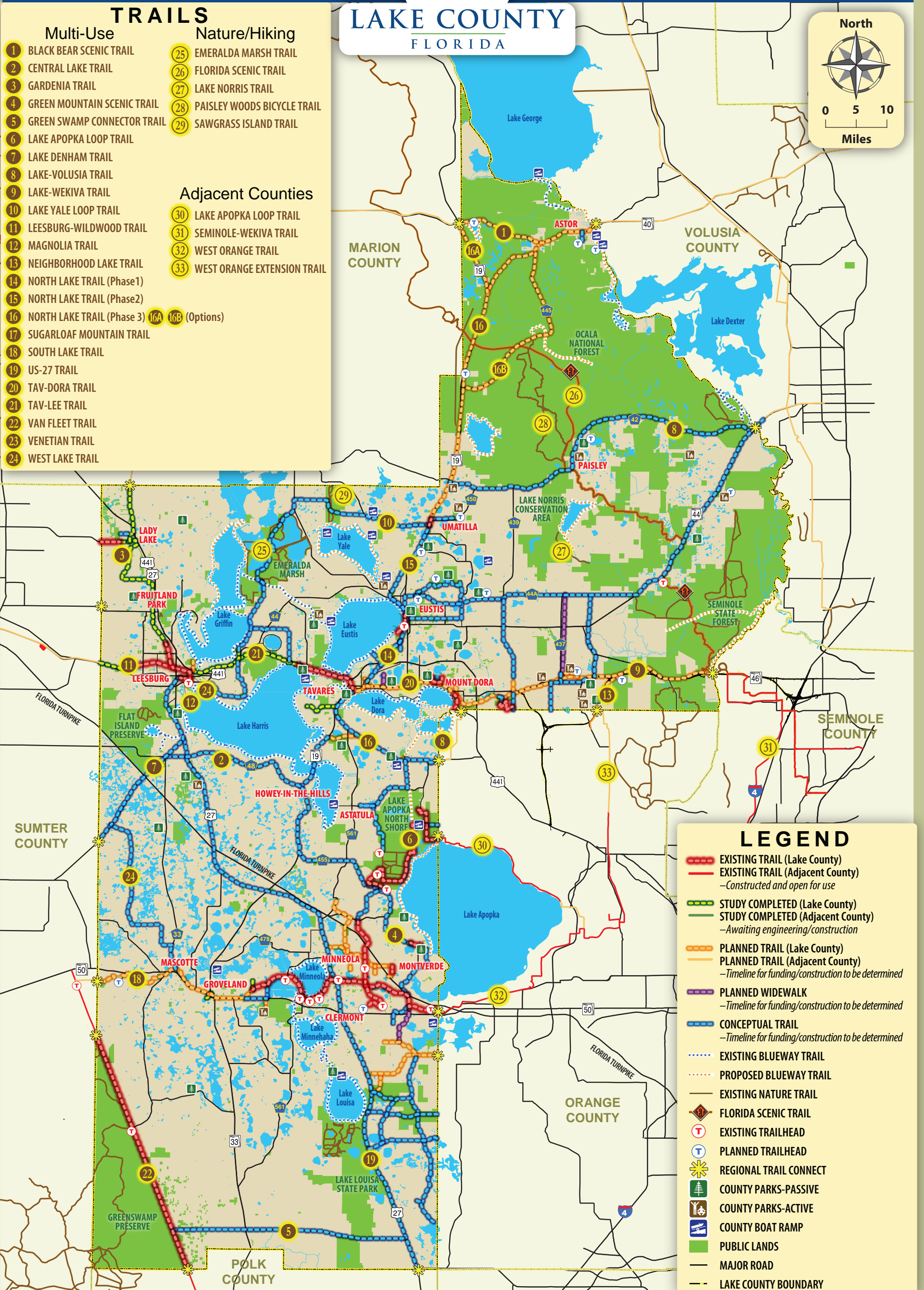
LEES = LEESBURG

# LAKE COUNTY TRAILS

## MASTER PLAN



## OFFICE OF PARKS & TRAILS



# LAKE COUNTY MULTI-USE TRAILS

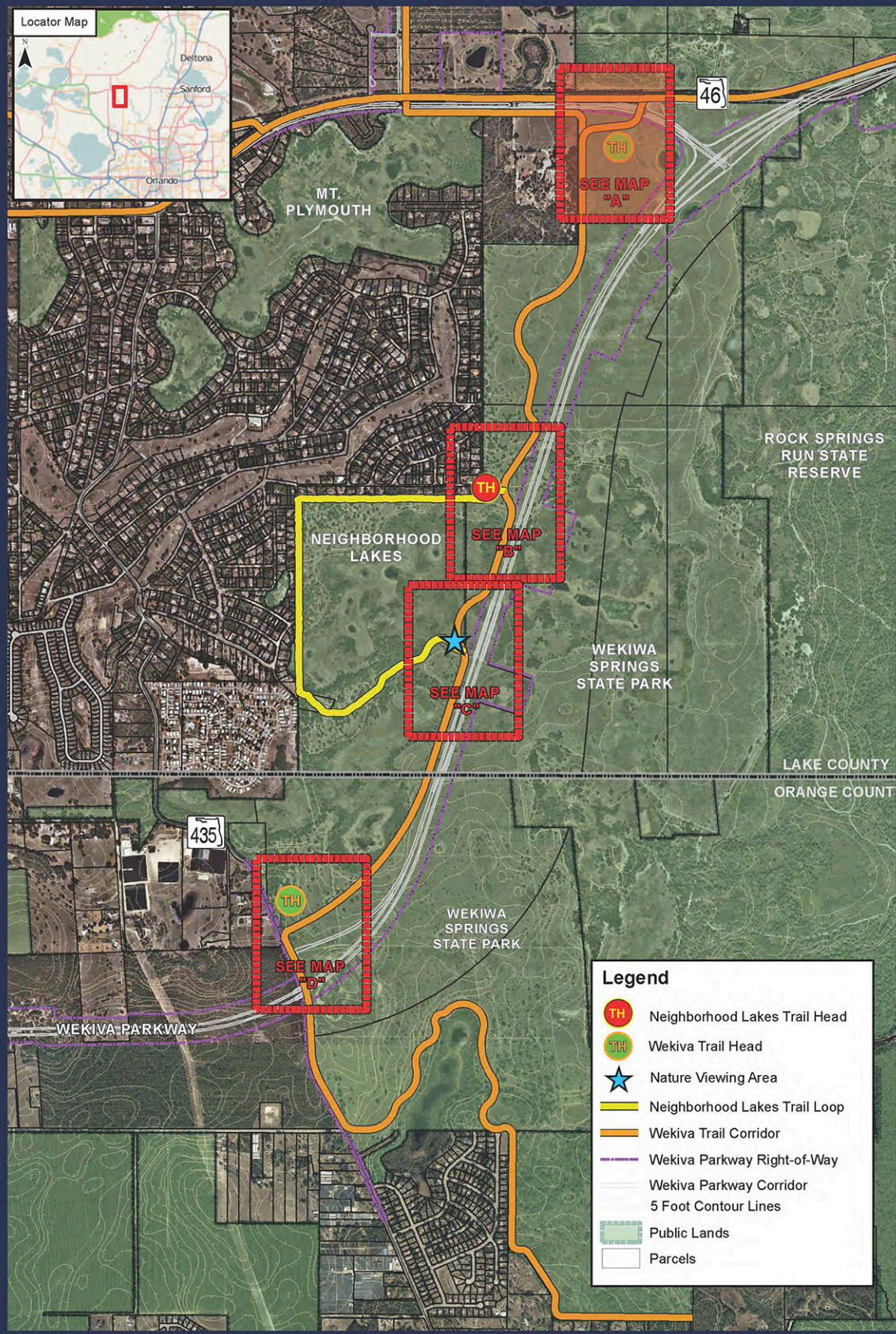
Existing Trails	Miles
South Lake Trail (Phase I & II)	12.60
Hancock Trail (Phase I,II, & III)	6.20
Black Still Lake Trail	0.75
Wilson Lake Trail	3.00
Sleepy Hollow Trail	0.10
Tav-Lee Trail (Phase I)	3.50
Green Mountain Trail (Montverde Greenway Trail)	1.00
Lake Apopka Loop Trail	16.10
Fountain Lake Trail	2.00
Magnolia Trail	1.00
Venetian Gardens Trail	0.50
Gardenia Trail (Phase I)	0.80
Leesburg-Wildwood Trail (Phase I)	2.70
Tremain Street Greenway Trail	0.50
Captain Haynes Road Trail	0.80
<b>Total</b>	<b>51.55</b>

Ranked, Under Design, or Under Construction Trails	Miles
Wekiva Trail	17.79
Tav-Dora Trail	6.02
South Lake Trail to Tavares Area Trails (Multiple Trail Names)	22.95
TLNC-PMCA-Lake May Reserve Loop Trail	11.72
Central Lake Trail	18.90
Tav-Lee Trail	6.61
Gardenia Trail (All Phases)	10.85
North Lake Trail (All Phases)	27.70
Four Corners to South Lake (Multiple Trail Names)	28.88
North Lake Regional Park Connector (Widewalk/Trail)	1.26
South Lake Trail/Coast to Coast	13.73
<b>Total</b>	<b>166.41</b>

Conceptual Trails	Miles
Lake-Volusia Trail	18.58
SR44/CR44A Trail	20.65
Lake Yale Loop Trail	19.07
Round Lake Road Trail	4.52
SR46A Trail	2.84
Lake Denhem/West Lake Trail	15.54
Green Swamp Connector Trail	12.48
Citrus Grove Trail	2.11
Scrub Jay Lane Trail	1.50
Fosgate Road/Blackstill Lake Trail	3.00
Wellness Way Trail (North-South Sawgrass Lake))	9.63
Wellness Way Trail (Shell Pond Area)	3.91
Wellness Way Trail (5 Mile Road Area)	3.71
Hartwood Marsh Trail	4.60
U.S. Highway 27 Trail	43.60
Wellness Way Trail (Un-named North-South Trail)	4.05
<b>Total</b>	<b>169.79</b>

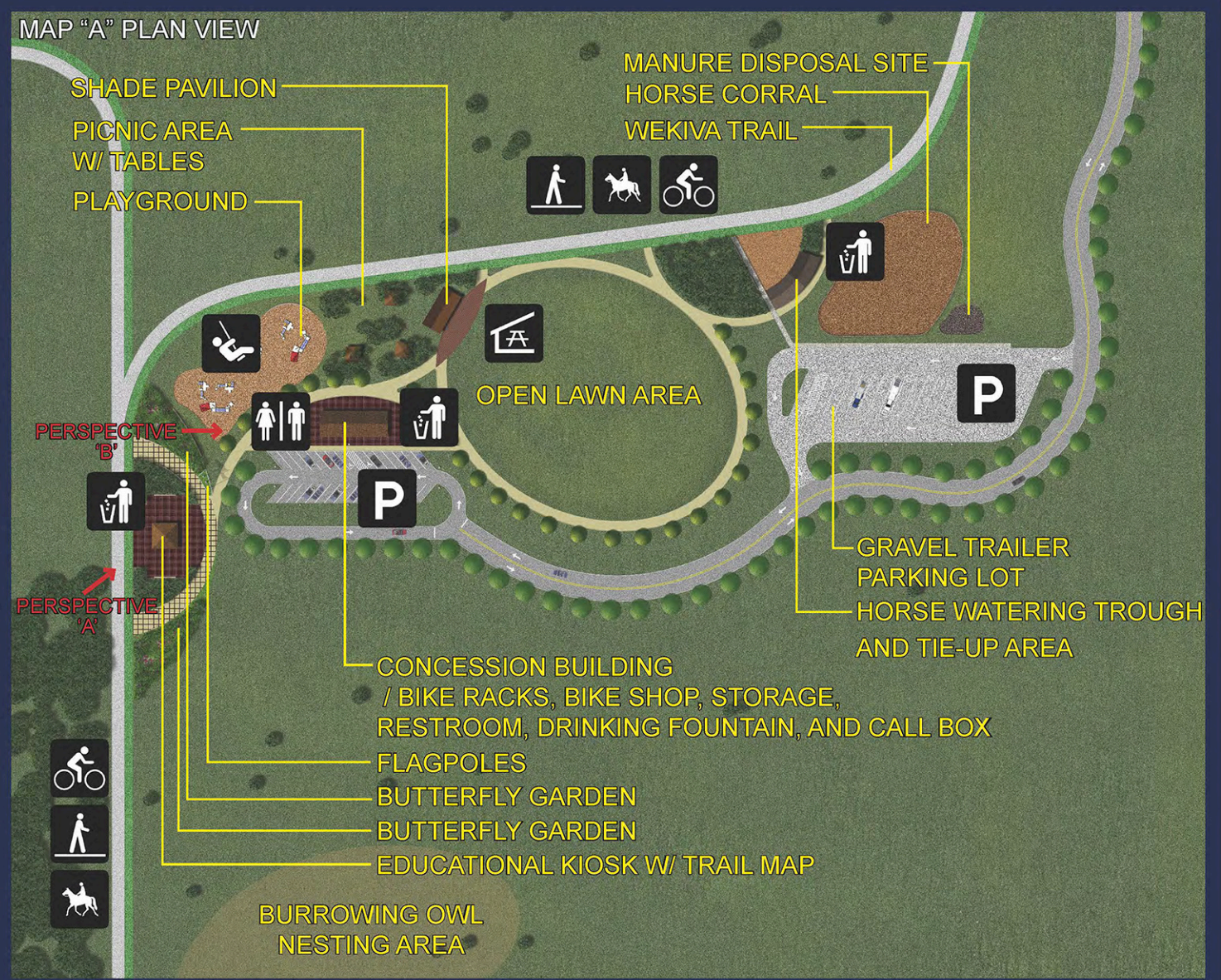
<b>Grand Total All Trails</b>	<b>387.75</b>
<b>Grand Total Planned and Conceptual</b>	<b>336.20</b>





The Neighborhood Lakes Trail is consistent with the Lake County Parks & Trails Master Plan and Parks & Recreation Master Plan.

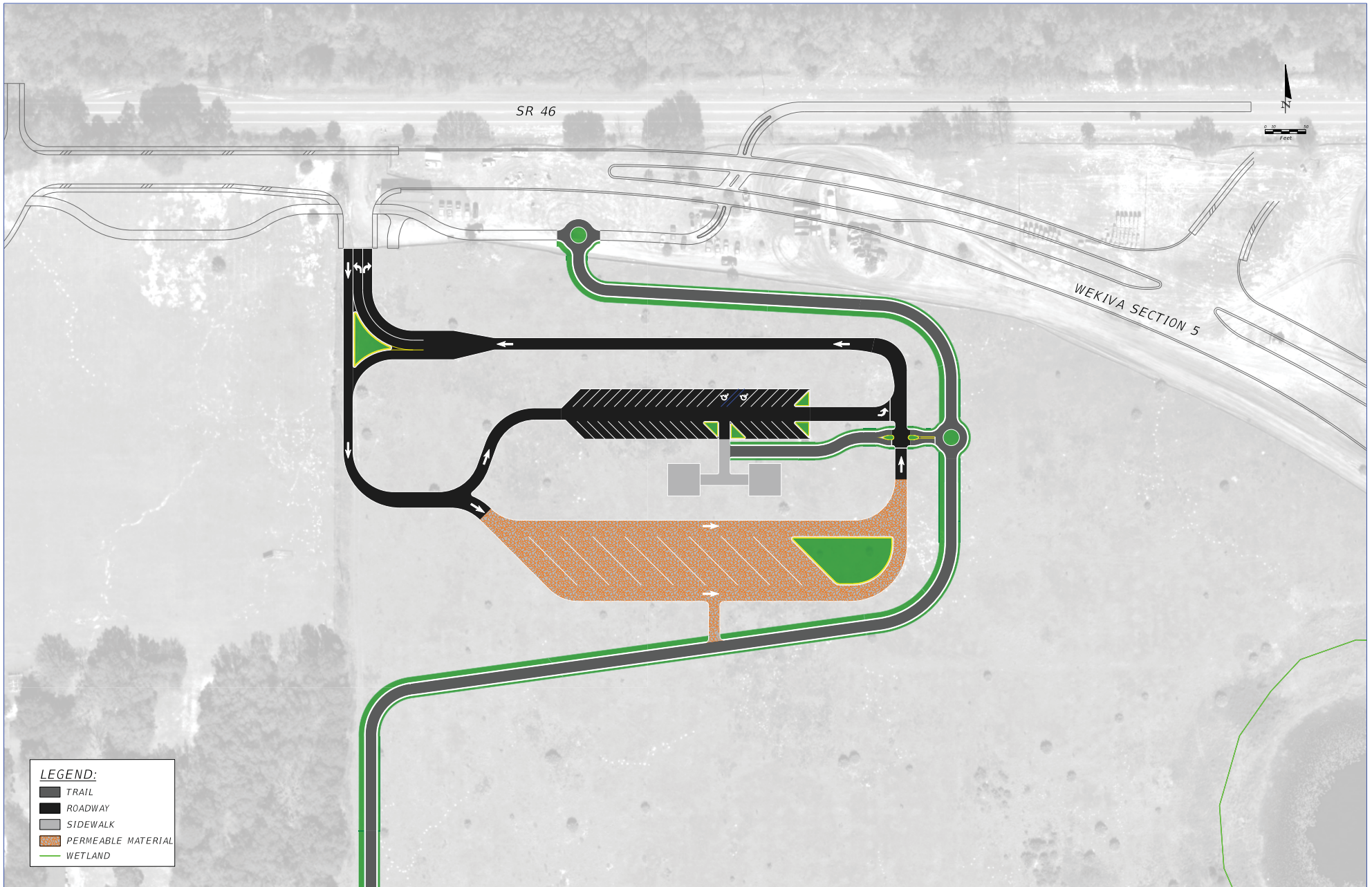
- Amenities:**
- Main trailhead with pavilion and amenities similar to those at the East Lake Community Park
  - Education panels similar to those at Ferndale Preserve
  - Kiosks identical to those along the South Lake Trail
  - Gate similar to North Shore Overlook and Trailhead
  - Shelters and pavilions similar to those used at other parks and preserves
  - Equestrian facilities
  - Restrooms, playground, and other amenities consistent with a major trailhead
  - Landscaping will all be with Florida native plants.



# Wekiva Trail

## CONCEPTUAL SR 46 TRAILHEAD





**LEGEND:**

	TRAIL
	ROADWAY
	SIDEWALK
	PERMEABLE MATERIAL
	WETLAND

*LAKE WEKIVA TRAIL*



STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION		
ROAD NO.	COUNTY	FINANCIAL PROJECT ID
TRAIL	LAKE	430975-5

*LAKE WEKIVA TRAIL*

SHEET NO.

SUSERS      SDATES      STINES      SFILES

## NORTH TRAIL HEAD ALT. 1

Total surface (acres)	3.729
<b>NUMBER OF PARKING SPOTS AVAILABLE FOR:</b>	
Trailers	9
Vehicles	40
Handicap	2
<b>COST</b>	

Pay Item	Description	Units	Quantity	Unit Cost	Price
	Contingency (15%)	LS	1	\$56,668.42	\$56,668.42
0120-6	Embankment	CY	13867.8	\$15.00	\$208,017.04
0160-4	Stabilization	SY	7316.0	\$7.50	\$54,869.68
285-704	OBG 4	SY	5837.8	\$15.00	\$87,567.67
285-706	OBG 6	SY	4737.7	\$21.50	\$101,859.98
334-1-52	PAVEMENT ASPHALT	TN	571.8	\$200.00	\$114,369.88
<b>Total:</b>					<b>\$623,352.66</b>

# MOUNT PLYMOUTH

## Historical Bike Loop

### SEMINOLE STATE FOREST



### Mount Plymouth Hotel

The Mount Plymouth Hotel, a golf resort built in 1926, was designed after the St. Andrew's golf course in Scotland. The rich and famous of the time such as Al Capone, Connie Mack and Babe Ruth had been known to stay there. The hotel even had its own private airfield. In the '50s, the 150-room hotel became a school until fire destroyed the building in 1987. The entrance to the hotel can still be found at the site of a small park at the intersection of Troon Avenue and Adair Drive.



### Gingerbread Houses

After working with developer Carl Dann on homes near the Dubsread Golf Course in Orlando, builder Sam Stoltz traveled to Lake County where he designed some of his most unique structures. Stoltz's storybook style "Gingerbread houses", constructed in the 1920s, earned Mt. Plymouth the name "Little Switzerland." They are known for their Cypress woodwork, panels depicting birds and sharp arches. Of these original "Plymouthonian" style houses, four still stand and can be seen along the route. One was said to be the home of Al Capone's bookkeeper.




### Natural Surroundings

The Mount Plymouth area gives visitors a chance to glimpse some of the abundant wildlife that call this part of Florida home. Several scenic vistas offer spectacular views of open space where deer can be seen galloping at dawn and dusk. The preservation lands in Mount Plymouth provide habitat for native plants and animal species, which include the Florida black bear, sandhill crane and the gopher tortoise, a state-designated threatened species. Birdwatchers with a keen eye should be on the lookout for American kestrel, loggerhead shrike, eastern meadowlark, brown thrasher and a possible glimpse of burrowing owls.



#### MAP GUIDE

-  Observation Location
-  Parking
-  Playground



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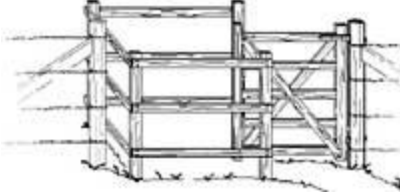
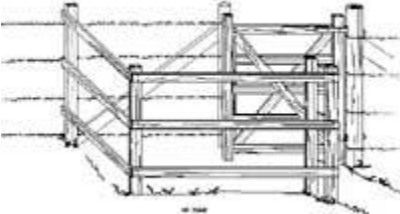
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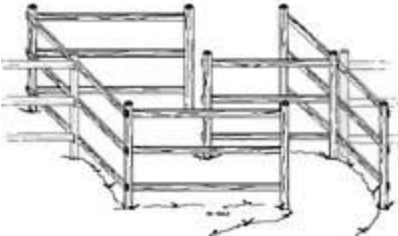

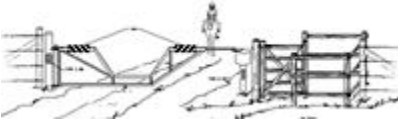
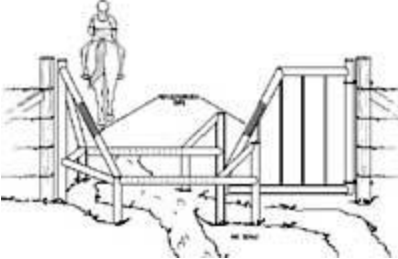
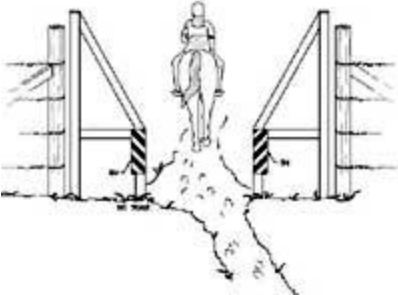


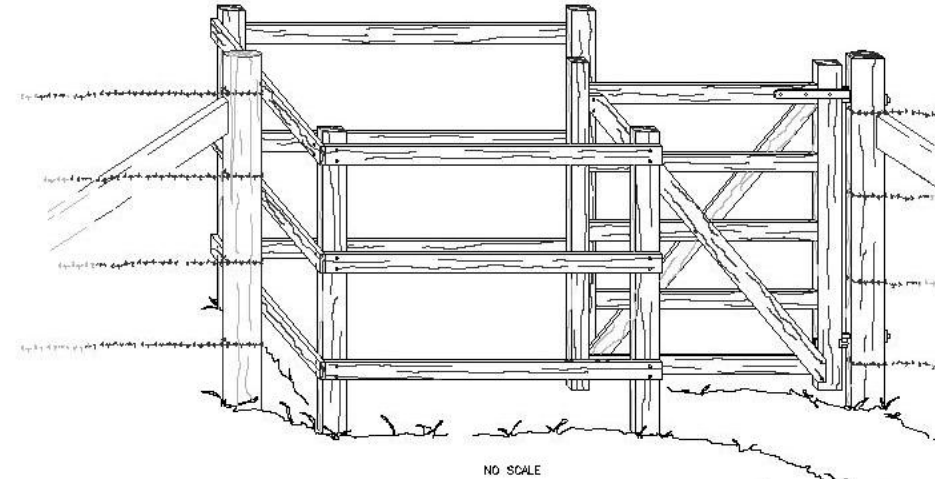
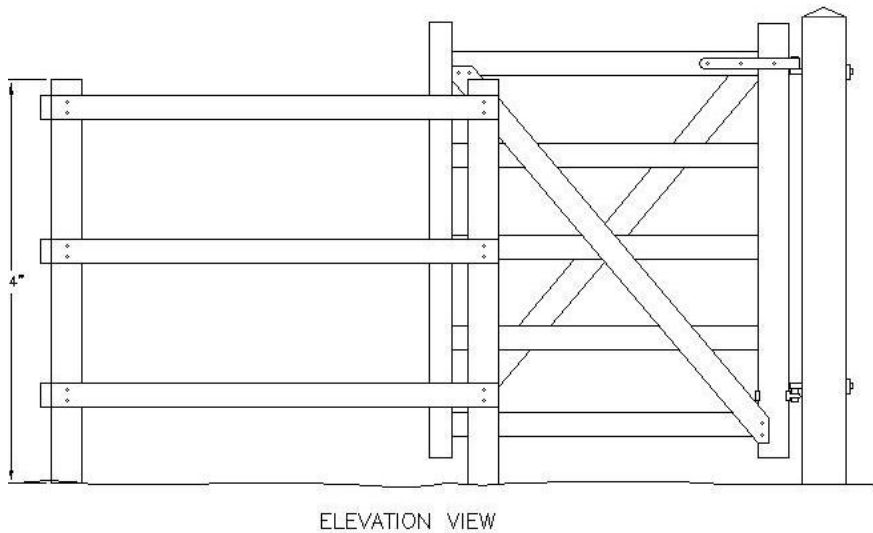
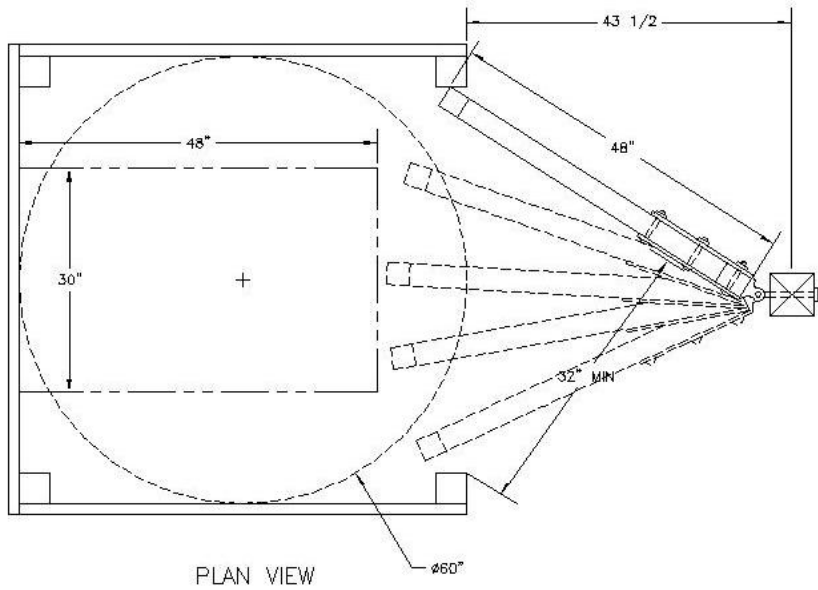
## Accessible Gates for Trails and Roads

### Accessible Recreation Facilities—Gates

Linked AutoCAD files are large. We recommend that you download AutoCAD files to your computer by right-clicking on the link, choosing "save target as" (or "save link as") and indicating your preferred folder and file name. If you do not have AutoCAD on your computer, use the **Image of Plan** link to view the plans or to print an 11" x 17" sheet showing the plans without the need to download a file.

Description or Illustration	Links
<p data-bbox="695 695 1121 756"><b>Timber Kissing Gate with Wheelchair Accessibility</b></p> 	<ul data-bbox="1262 721 1476 805" style="list-style-type: none"> <li>• <a href="#">Image of Plan</a></li> <li>• <a href="#">AutoCAD Plans</a></li> </ul>
<p data-bbox="625 987 1190 1081"><b>Timber Kissing Gate Modification for Existing Fence Opening with Wheelchair Accessibility</b></p> 	<ul data-bbox="1262 1013 1476 1097" style="list-style-type: none"> <li>• <a href="#">Image of Plan</a></li> <li>• <a href="#">AutoCAD Plans</a></li> </ul>
<p data-bbox="709 1336 1113 1398"><b>Chicane for Wheelchair Accessibility</b></p>	<ul data-bbox="1262 1362 1476 1446" style="list-style-type: none"> <li>• <a href="#">Image of Plan</a></li> <li>• <a href="#">AutoCAD Plans</a></li> </ul>

	
<p style="text-align: center;"><b>Forest Road Closure Gate with Wheelchair Accessibility</b></p> 	<ul style="list-style-type: none"> <li>• <a href="#">Image of Plan</a></li> <li>• <a href="#">AutoCAD Plans</a></li> </ul>
<p style="text-align: center;"><b>Horse-Friendly Forest Road Closure Gate with Horse and Wheelchair Accessibility</b></p> 	<ul style="list-style-type: none"> <li>• <a href="#">Image of Plan</a></li> <li>• <a href="#">AutoCAD Plans</a></li> </ul>
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<p style="text-align: center;"><b>"V" Horse Gate with Wheelchair Accessibility</b></p> 	<ul style="list-style-type: none"> <li>• <a href="#">Image of Plan</a></li> <li>• <a href="#">AutoCAD Plans</a></li> </ul>



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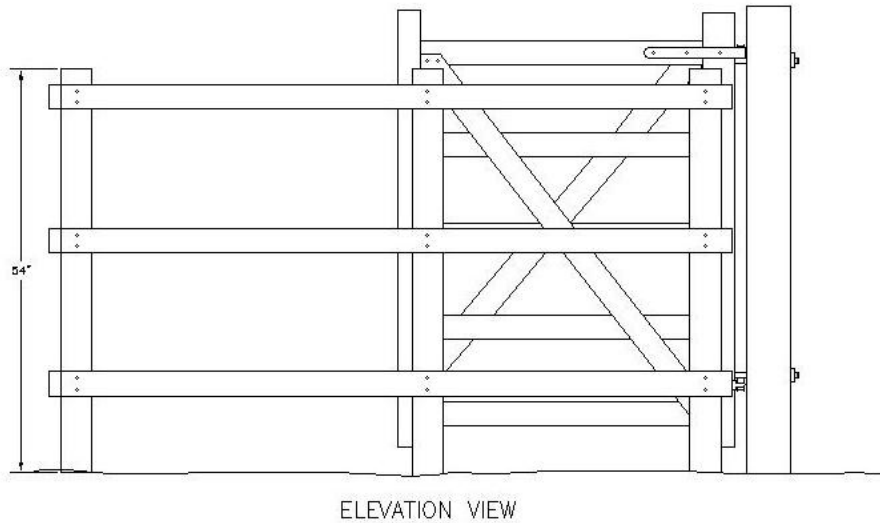
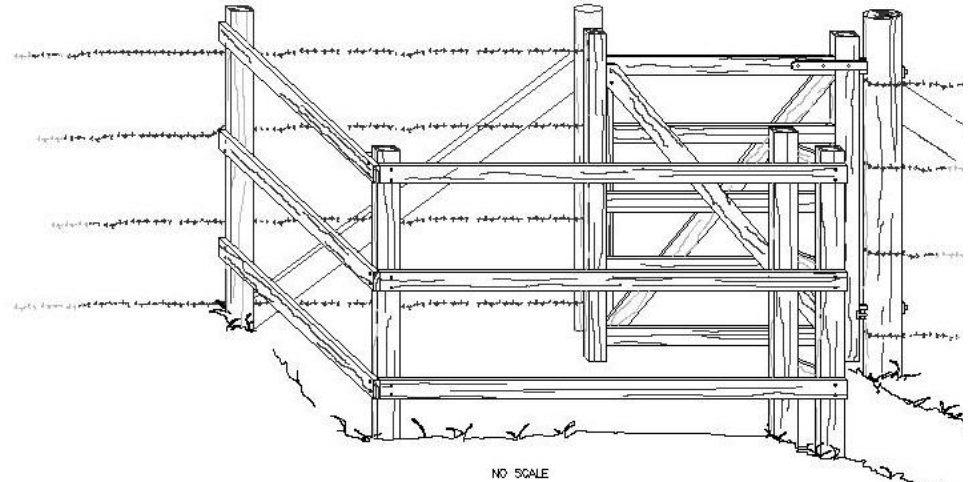
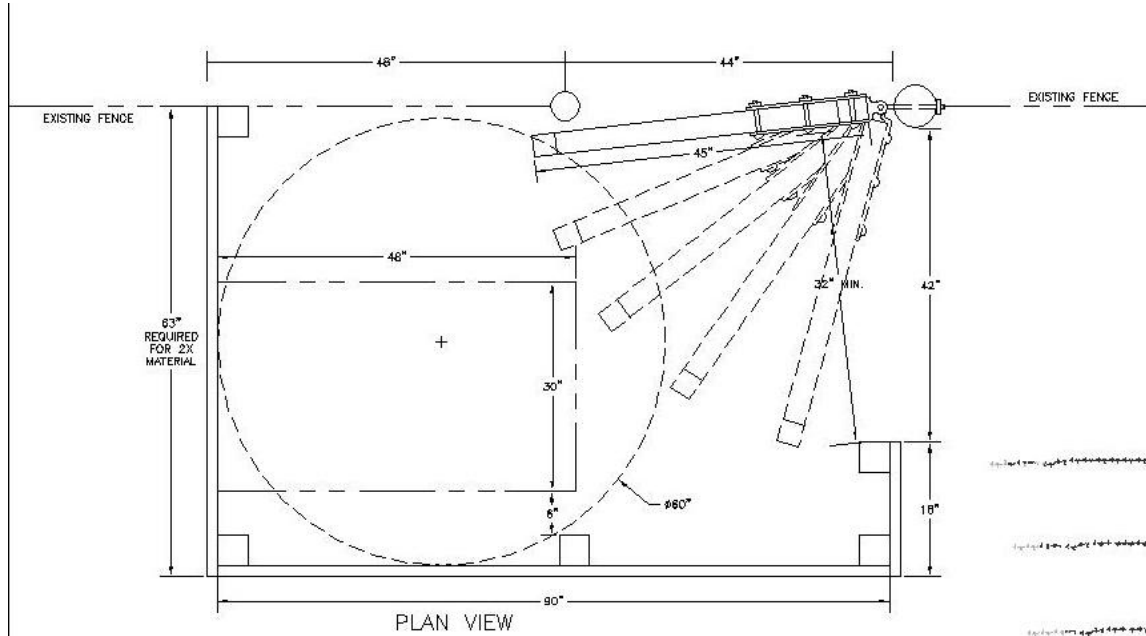
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2. THESE DRAWINGS ARE TYPICAL DRAWINGS AND MAY REQUIRE MINOR MODIFICATION FOR INSTALLATION.
3. SIGNAGE MAY BE CONSIDERED WHEN TRAIL IS CLOSED TO ATVs AND MOTORIZED TRAFFIC. SIGNS SHALL MEET REQUIREMENTS OF EM 7100-15, CHAPTER 6.
4. ADAPTED FROM THE SCOTTISH NATIONAL HERITAGE TIMBER KISSING GATE.

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DECIMALS +/-		
ANGLES +/-		
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DESIGNED: J.GROENIER		
CHECKED: J.GROENIER		
APPROVED: J.GROENIER		
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DATE: NOV 2005	SHEET 1 OF 2	MTDC- .1

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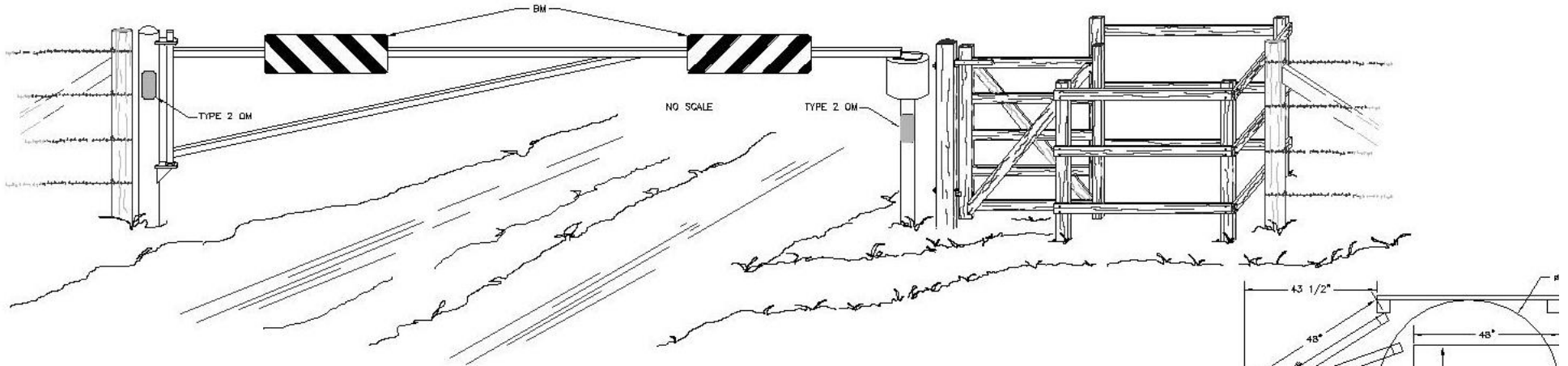
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JACOB GROENIER	DATE	REVISION
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APPROVED J.GROENIER	FOR WHEELCHAIR ACCESSIE	
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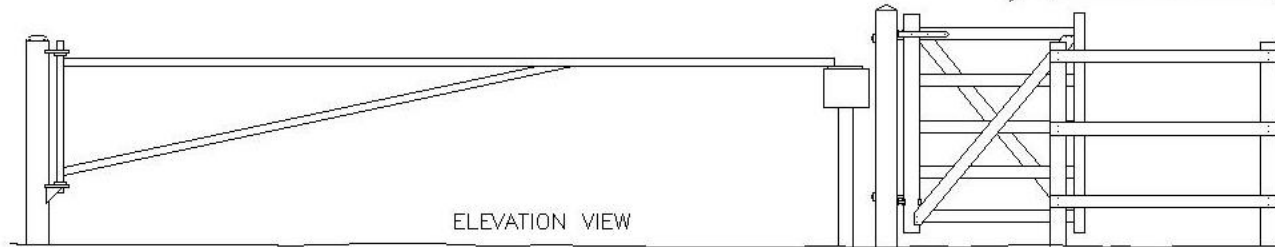
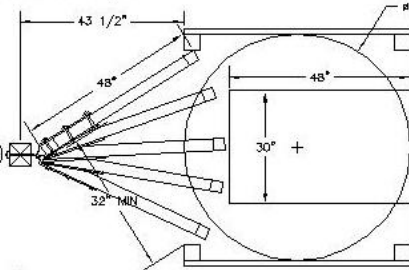
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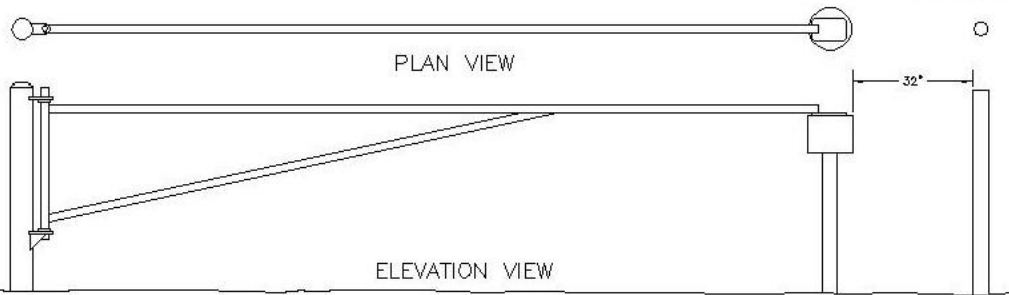
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- 3 THESE DRAWINGS ARE TYPICAL DRAWINGS AND MAY REQUIRE MINOR MODIFICATION FOR INSTALLATION.
- 4 ALL TRAFFIC CONTROL DEVICES SHALL MEET EM 7100-15, FIGURE 3C-14 AND SECTION 3A-8.5 GATE AND CATTLEGUARD SIGNING.
5. TIMBER KISSING GATE ADOPTED FROM THE SCOTTISH NATIONAL HERITAGE TIMBER GATE.

PLAN VIEW



ELEVATION VIEW

ROAD CLOSURE GATE WITH KISSING GATE  
SIGNING NOT SHOWN FOR CLARITY



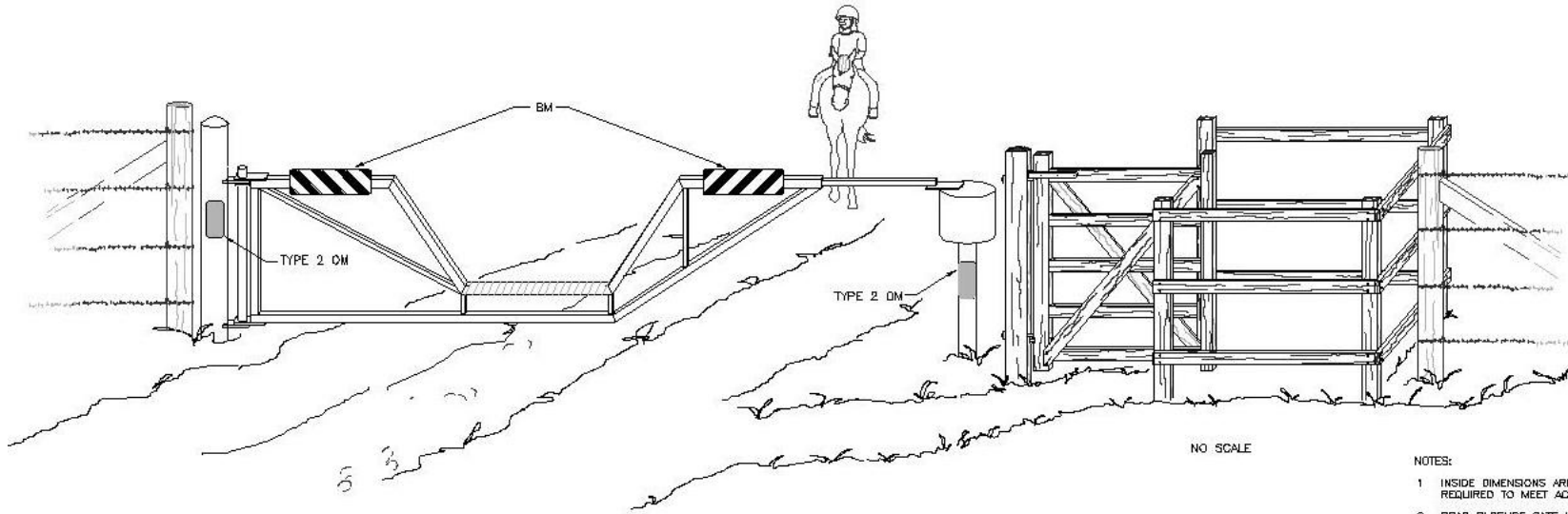
PLAN VIEW

ELEVATION VIEW

ROAD CLOSURE GATE WITH POST  
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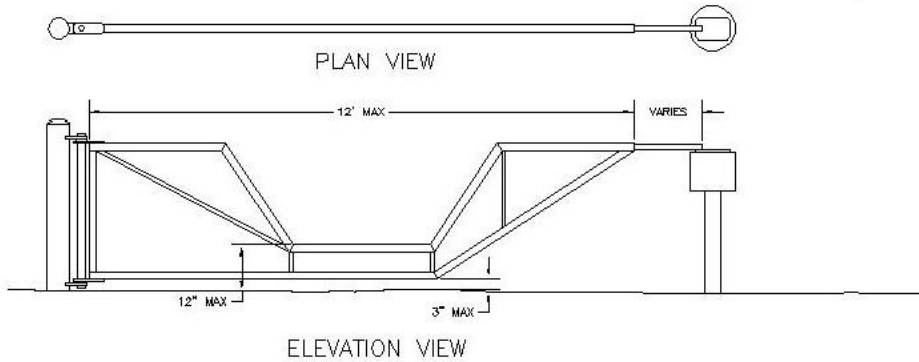
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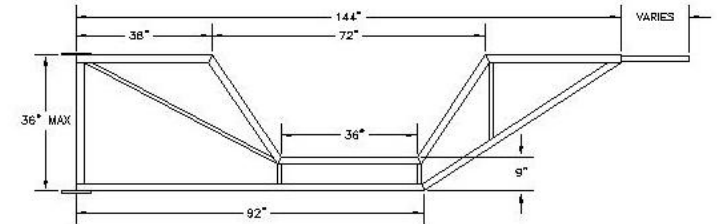
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- 4 ALL TRAFFIC CONTROL DEVICES SHALL MEET EM 7100-15, FIGURE 3C-14 AND SECTION 3A.9.5 GATE AND CATTLEGUARD SIGNING.
- 5 TIMBER KISSING GATE ADOPTED FROM THE SCOTTISH NATIONAL HERITAGE TIMBER GATE AND THE HORSE-FRIENDLY GATE IS USED IN THE UNITED KINGDOM.
- 6 OTHER ACCESSIBLE GATES FROM SHEETS 1 & 2 MAY BE USED IN PLACE OF THE KISSING GATE.
- 7 STEPOVER BARRIER SHALL BE WRAPPED WITH SOUND DAMPENING MATERIAL.

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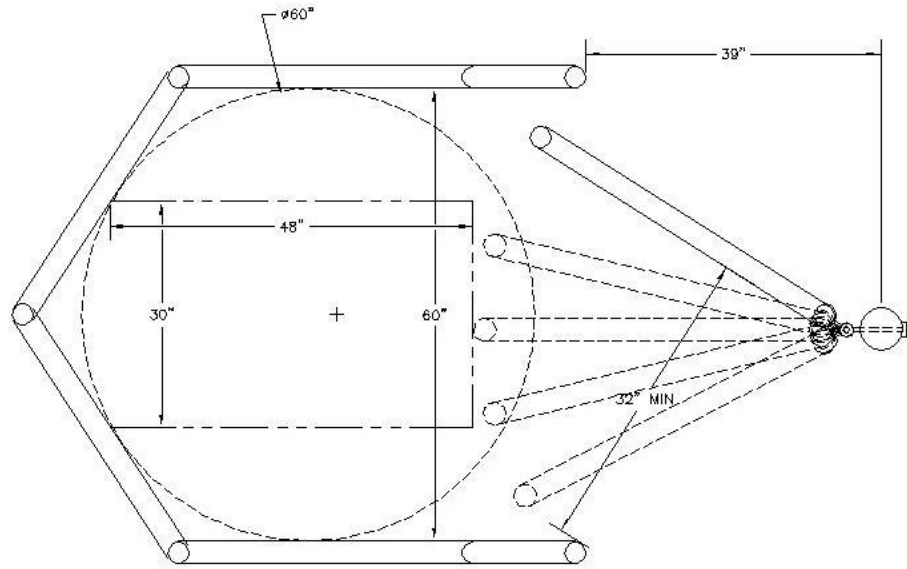
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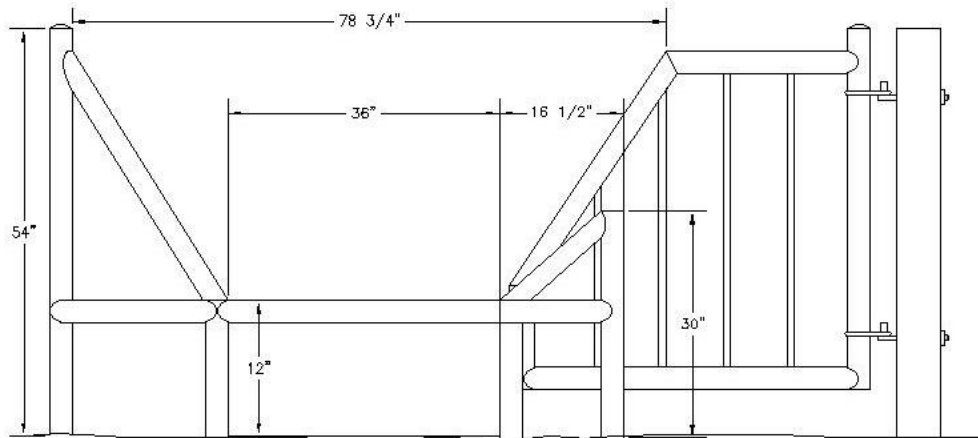
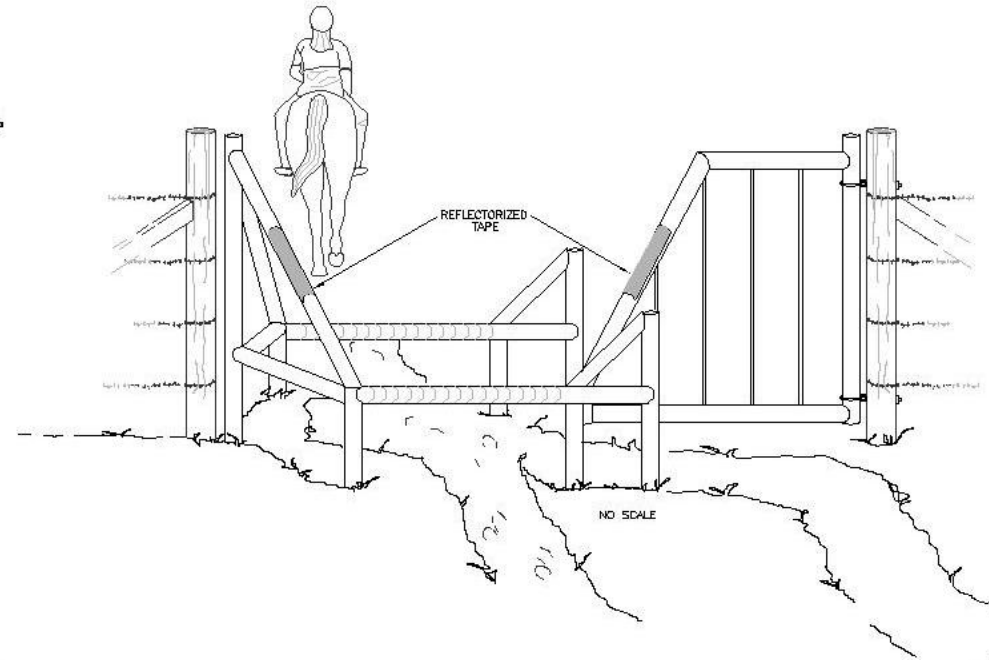
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SCALE 1/16 & NOTED	1058-03.dwg		
DATE NOV 2005	SHEET 3 OF 3	MTDC-1056	

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PLAN VIEW



ELEVATION VIEW

NOTES:

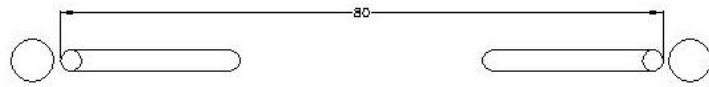
1. INSIDE DIMENSIONS ARE MINIMUM CLEAR DISTANCES REQUIRED TO MEET ACCESSIBILITY STANDARDS.
2. THESE DRAWINGS ARE TYPICAL DRAWINGS AND MAY REQUIRE MINOR MODIFICATION FOR INSTALLATION.
3. SIGNAGE MAY BE CONSIDERED WHEN TRAIL IS CLOSED TO ATVs AND MOTORIZED TRAFFIC. SIGNS SHALL MEET REQUIREMENTS OF EM 7100-15, CHAPTER 6.
4. STEPOVER BARRIER SHALL BE WRAPPED WITH SOUND DAMPENING MATERIAL WHEN CONSTRUCTED OF METAL.
5. WHEN MOUNTAIN BIKES AND/OR MOTORIZED VEHICLES ARE USED ON TRAIL, SIGNAGE IS REQUIRED PER EM 7100-15

**THIS IS A REDUCED PRINT**

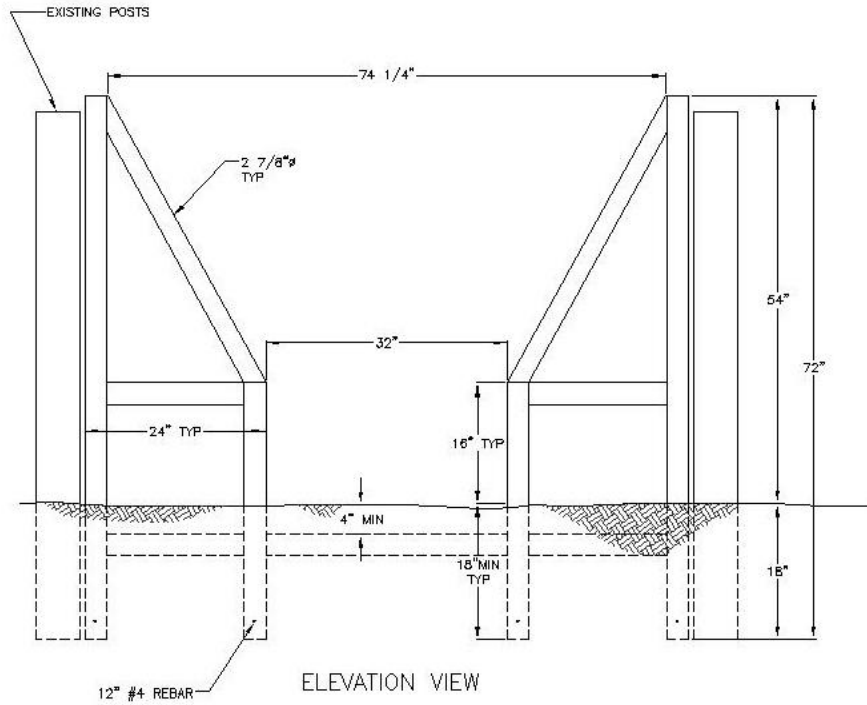
UNLESS OTHERWISE SPECIFIED	DATE	REVISION
TELEFRANCES:		
FRACTIONS +/-		U. S. DEPT. OF AGRICULTURE
DECIMALS +/-		FOREST SERVICE
ANGLES +/-		TECHNOLOGY & DEVELOPMENT
DRAWING UNIT IS INCHES		MISSOULA, MONTANA
ORAS SHOWN SIZES		TITLE
DRAWN D.MUCCI		HORSE GATE
DESIGNED J.GROENIER/MUCCI		WITH WHEELCHAIR ACCESS
CHECKED J.GROENIER		
APPROVED J.GROENIER		
SCALE 1/8" = 1'-0"	1007-01.dwg	
DATE NOV 2006	SHEET 1 OF 2	MTDC

Top

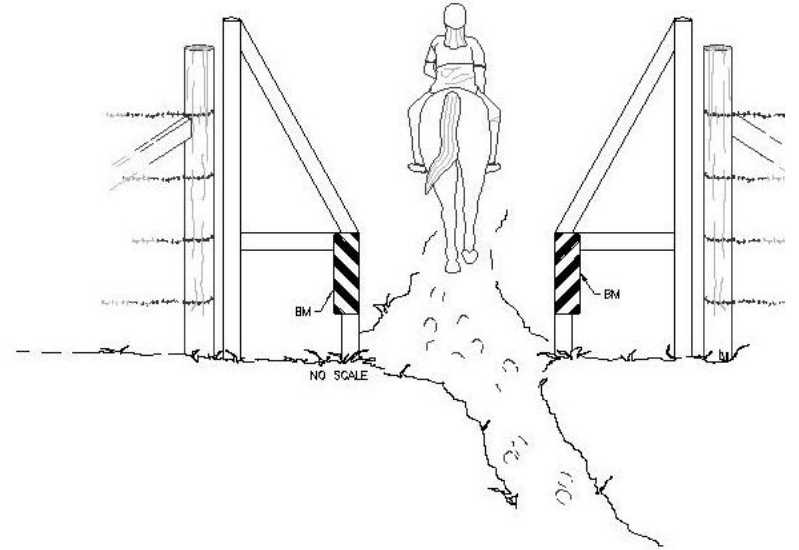
Back



PLAN VIEW



ELEVATION VIEW



THIS IS A REDUCED PRINT

NOTES:

1. INSIDE DIMENSIONS ARE MINIMUM CLEAR DISTANCES REQUIRED TO MEET ACCESSIBILITY STANDARDS.
2. THESE DRAWINGS ARE TYPICAL DRAWINGS AND MAY REQUIRE MINOR MODIFICATION FOR INSTALLATION.
3. REQUIRED SIGNS SHALL FOLLOW REGIONAL GUIDANCE AND THE SIGN AND POSTER GUIDELINES FOR THE FOREST SERVICE EM 7100-15.
4. ADDITIONAL GATE FOR KEEPING LIVESTOCK OUT MAY BE ADDED BUT WILL NOT MEET ACCESSIBILITY REQUIREMENTS.
5. WHEN MOUNTAIN BIKES AND/OR MOTORIZED VEHICLES ARE USED ON TRAIL, SIGNAGE IS REQUIRED PER EM 7100-15.

<small>U.S. FOREST SERVICE SYMBOL</small> TOLERANCES: FRACTIONS +/- _____ DECIMALS +/- _____ ANGLES +/- _____ <small>DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED</small>		DATE _____ REVISION _____ U. S. DEPT. OF AGRICULTURE FOREST SERVICE TECHNOLOGY & DEVELOPMENT C MISSOULA, MONTANA
DRAWN D.MUCCI DESIGNED B.M/ASHLEY NF CHECKED J.GROENIER APPROVED J.GROENIER	TITLE "V" HORSE GATE WITH WHEELCHAIR ACCESSIBILITY	
SCALE 1/8 & NOTED DATE NOV 2005	1057-01.dwg SHEET 2 OF 2	MTDC- 10

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RECORD OF REVISIONS

No.	DATE	DESCRIPTION
0	07/18/14	FDR APPROVAL
1		
2		

PROJECT NAME:  
**ALUMINUM FLOATING DOCKS & GANGWAY**

CUSTOMER NAME:  
**ST. JOHNS RIVER WATER MANAGEMENT DISTRICT**

CUSTOMER ADDRESS:  
---

PROJECT LOCATION:  
---

CMI ORDER NO.:  
---

CUSTOMER PO NO.:  
---

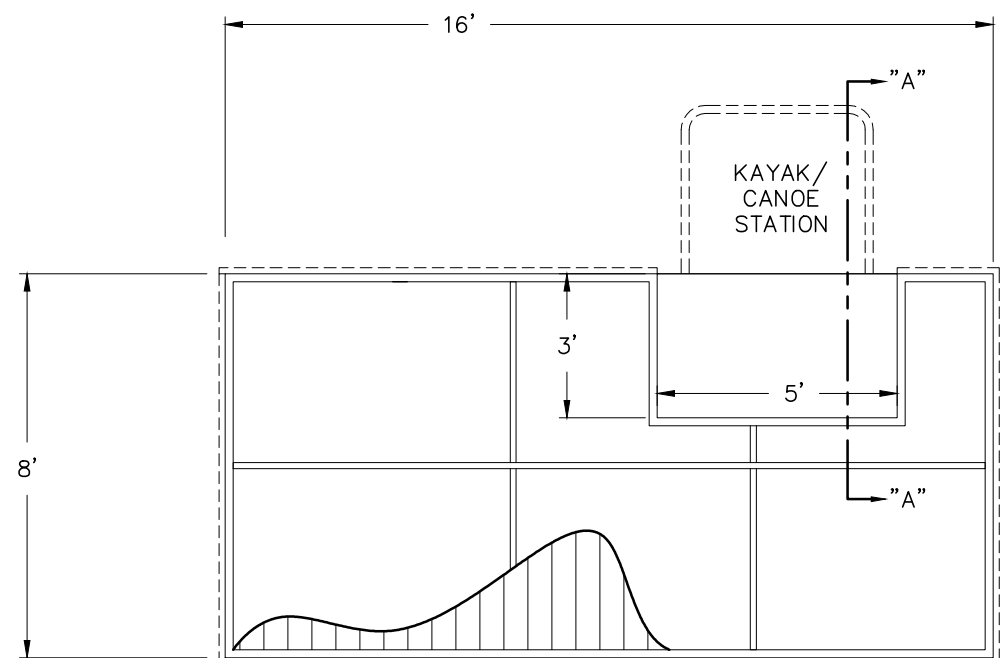
	NAME	DATE
DRAWN BY:	JCP	07/18/14

CHECKED BY:

DRAWING NO.: **G-1**  
**DOCK DETAILS, GENERAL NOTES**

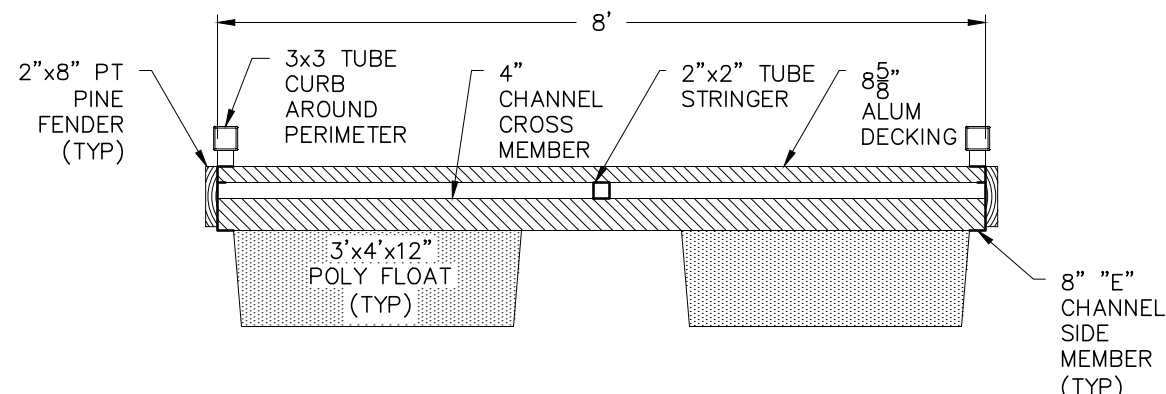
Physical properties are defined by ASTM testing standards, The Aluminum Association Design Manual, and/or standard engineering practice. The values shown are nominal and may vary; the information found in this document is believed to be true and accurate. No warranties of any kind are made as to the suitability of any CMI product for particular applications or the results obtained there from. ShoreGuard, C-Loc, TimberGuard, GeoGuard, Dura Dock, Shore-All, and Gator Gates are registered trademarks of Crane Materials International. ArmorWare, Ultra Composite, GatorDocks, and CMI Waterfront Solutions are trademarks of Crane Materials International. United States and International numbers 5,145,287; 5,881,508; 6,000,883; 6,033,155; 6,053,666; D420,154; 4,674,921; 4,690,588; 5,292,208; 6,575,667; 7,059,807; 7,056,066; 7,025,539; 1,245,061; Other patents pending. © 2010 Crane Materials International. All Rights Reserved.

Authorized By:



**8x16 DOCK PLAN**

SCALE:  
1/4"=1'-0"



**TYP. DOCK SECTION**

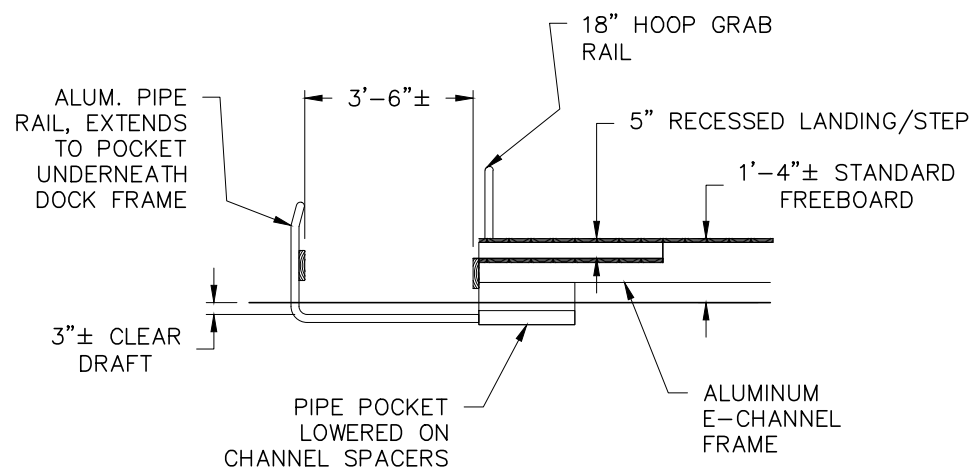
SCALE:  
1/2"=1'-0"

**EASY LAUNCH**



**EASY LAUNCH PERSPECTIVE VIEW (SEE PLAN VIEW FOR CORRECT LAYOUT/LOCATION ON DOCK)**

SCALE: N.T.S.



**EASY LAUNCH-SECTION A-A**

SCALE: N.T.S.

**NOTES:**

- ALL STRUCTURAL ALUMINUM IS ALLOY 6061-T6, MILL FINISH.
- ALL WELDED FABRICATION IN ACCORDANCE WITH AWS D1.2, UNLESS NOTED OTHERWISE. FILLER METAL TO BE 5356 SERIES WIRE.
- ALL HARDWARE IS STAINLESS STEEL, SERIES 304.
- ALL WOOD FENDERS TO BE S.Y.P. #1 PRESSURE TREATED TO 0.40 PCF CCA MINIMUM OR EQUAL. ISOLATE WOOD FROM ALUMINUM WITH BITUMINOUS PAINT, CARBOLINE BIT 50 OR EQUAL.
- FLOATING DOCKS DESIGNED FOR 16" MINIMUM UNLOADED FREEBOARD AND A MINIMUM 8" LOADED FREEBOARD UNDER A 25PSF LIVE LOAD.
- GANGWAYS DESIGNED FOR 50 PSF LIVE LOAD, L/180 DEFLECTION.
- HAND RAILING DESIGNED FOR 50 PLF LIVE LOAD OR 200# POINT LOAD.
- PILE GUIDE LOCATIONS ARE SUGGESTED FOR COMPATIBILITY WITH DOCK LAYOUT ONLY. PILE TYPE, SIZE, QTY, AND DESIGN BY OTHERS. RECOMMENDED INSTALLATION METHOD IS TO LOCATE DOCKS FIRST THEN DRIVE PILES PLUMB THROUGH INSTALLED PILE GUIDES TO ENSURE FREE MOVEMENT OF DOCKS THROUGH ALL TIDAL RANGES.
- DOCK DIMENSIONS SHOWN ARE NOMINAL FROM ALUMINUM TO ALUMINUM FRAME. FINAL FINISHED DIMENSIONS WILL VARY ACCORDING TO INSTALLED FENDERS & BUMPERS.

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RECORD OF REVISIONS

No.	DATE	DESCRIPTION
0	07/18/14	FDR APPROVAL
1		
2		

PROJECT NAME:

**ALUMINUM  
FLOATING DOCKS  
& GANGWAY**

CUSTOMER NAME:

**ST. JOHNS RIVER  
WATER MANAGMENT  
DISTRICT**

CUSTOMER ADDRESS:

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PROJECT LOCATION:

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CMI ORDER NO.:

---

CUSTOMER PO NO.:

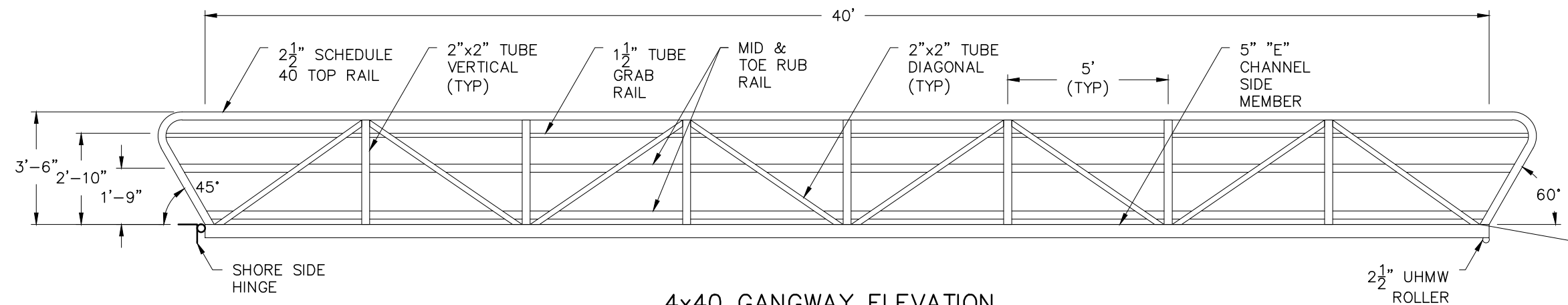
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	NAME	DATE
DRAWN BY:	JCP	07/18/14
CHECKED BY:		

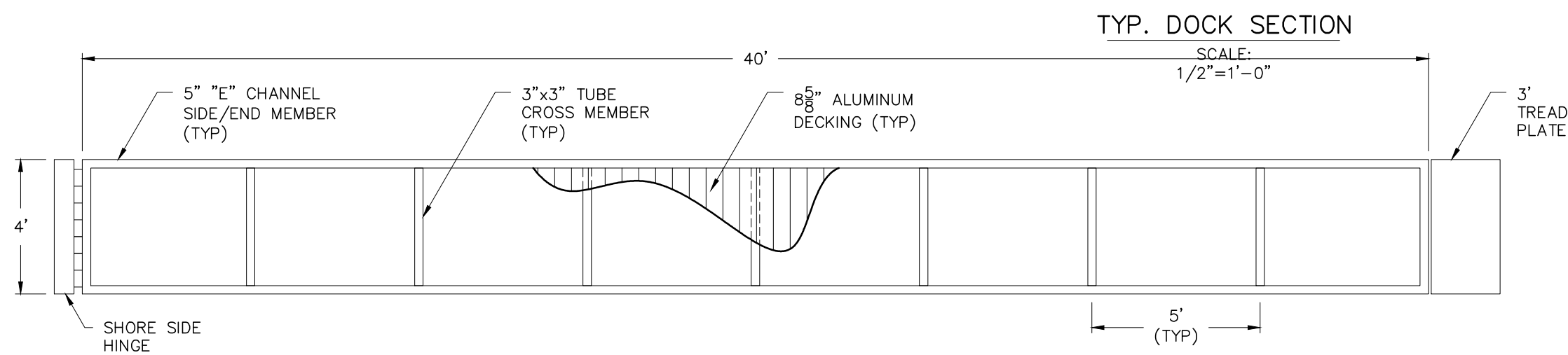
DRAWING NO.:

**G-2  
GANGWAY  
DETAILS**

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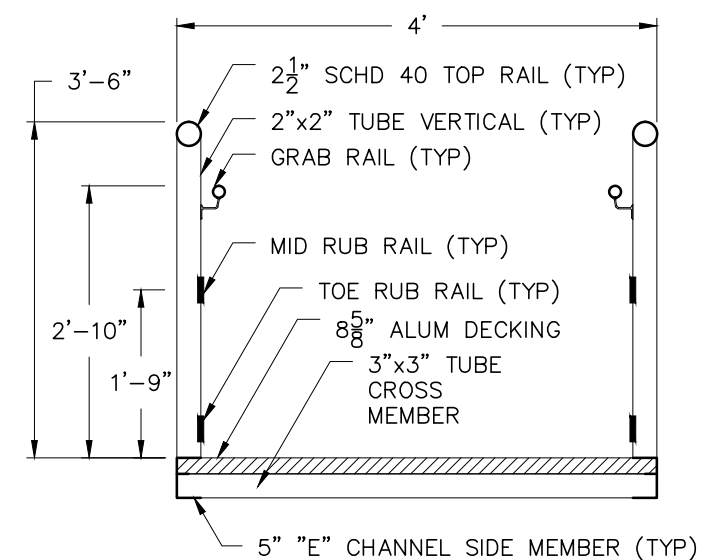


**4x40 GANGWAY ELEVATION**  
SCALE:  
1/4"=1'-0"



**TYP. DOCK SECTION**  
SCALE:  
1/2"=1'-0"

**GANGWAY SECTION**  
SCALE:  
1/2"=1'-0"





- Lake County
- Sumter County
- Town of Astatula
- City of Bushnell
- City of Center Hill
- City of Clermont
- City of Coleman
- City of Eustis
- City of Fruitland Park
- City of Groveland
- Town of Howey-in-the-Hills
- Town of Lady Lake
- City of Leesburg
- City of Mascotte
- City of Minneola
- Town of Montverde
- City of Mount Dora
- City of Tavares
- City of Umatilla
- City of Webster
- City of Wildwood
- Central Florida Expressway Authority
- Florida Central Railroad
- Lake County Schools
- Sumter County Schools

Roberto Bonilla, Director  
Office of Parks and Trails  
Lake County Board of County Commissioners  
2401 Woodlea Rd,  
Tavares, FL 32778

Hello Roberto Bonilla;

I wanted to provide you with the support of the Lake~Sumter MPO for the 2018 Lake County Trails Masterplan. The Masterplan is another great step forward in achieving the County's goals of being a destination for healthy active living. The Lake~Sumter MPO is eager to work with the County on implementing this strategic vision for a network of multiuse trails throughout the County.

The Masterplan is a well thought out plan for the community and will benefit from the approval and the implementation that will delivery health, wellness and prosperity to the community.

Thank you for your consideration of approval of this Masterplan

Sincerely,

Michael Woods, Executive Director

*"Promoting Regional Transportation Partnerships"*  
[www.LakeSumterMPO.com](http://www.LakeSumterMPO.com)

225 W. Guava Street, Suite 211, Lady Lake, FL 32159  
Phone (352) 315-0170 – Fax (352) 315-0993

RESOLUTION 2018 - 139

**A RESOLUTION OF THE BOARD OF COUNTY COMMISSIONERS OF LAKE COUNTY, FLORIDA; SUPPORTING THE LAKE APOPKA CONNECTOR TRAIL; AUTHORIZING THE CHAIRMAN TO SO ACT TO IMPLEMENT THIS SUPPORT; AND PROVIDING FOR AN EFFECTIVE DATE.**

**WHEREAS**, the Lake County Board of County Commissioners ("Board") desires to improve the quality of community life; and

**WHEREAS**, Lake Apopka, which is located in the southeastern portion of Lake County and is one of the largest lakes in the State of Florida, is increasing in popularity as a recreation destination; and

**WHEREAS**, The Friends of Lake Apopka proposed a greenways and trails plan to create a system of trails, bikeways, and greenways around Lake Apopka; and

**WHEREAS**, Orange County has submitted plans to MetroPlan Orlando for a Lake Apopka Connector Trail connecting the West Orange Trail to Magnolia Park on the shore of Lake Apopka; and

**WHEREAS**, the Board of County Commissioners supports the Lake Apopka Connector Trail and finds such project will benefit the residents of Lake County and those in surrounding communities.

**NOW, THEREFORE, BE IT RESOLVED** by the Board of County Commissioners of Lake County, Florida, that:


**Section 1.** The foregoing recitals are true and correct and incorporated herein.

**Section 2.** The Lake County Board of County Commissioners supports the Lake Apopka Connector Trail Project connecting West Orange Trail to Magnolia Park. The Chairman of the Lake County Board of County Commissioners is hereby authorized to request MetroPlan to make the Lake Apopka Connector Trail Project a priority.

**Section 3.** This Resolution shall take effect immediately upon its adoption.

DULY PASSED AND ADOPTED this 11 day of September, 2018.

ATTEST:

  
\_\_\_\_\_  
Gary J. Cooney, Clerk  
of the Board of County Commissioners  
of Lake County, Florida




BOARD OF COUNTY COMMISSIONERS  
OF LAKE COUNTY, FLORIDA

  
\_\_\_\_\_  
Timothy I. Sullivan, Chairman

Approved as to form and legality:

This 11 day of September, 2018.

  
\_\_\_\_\_  
Melanie Marsh, County Attorney

**RESOLUTION NO. 2017-003**

**A RESOLUTION OF THE TOWN COUNCIL OF THE TOWN OF HOWEY-IN-THE-HILLS, FLORIDA PERTAINING TO BIKE TRAILS; EXPRESSING THE TOWN'S SUPPORT, INTEREST, AND DESIRE FOR BIKE TRAILS TO BE DESIGNED AND CONSTRUCTED THROUGH THE TOWN; APPOINTING COUNCILOR ED CONROY TO WORK WITH ADJACENT MUNICIPALITIES, LAKE COUNTY, LAKE COUNTY PARKS & TRAILS, THE LAKE-SUMTER METROPOLITAN PLANNING ORGANIZATION, THE FLORIDA DEPARTMENT OF TRANSPORTATION, AND ALL OTHER NECESSARY STAKEHOLDERS AND AGENCIES REGARDING THE LOCATION AND CONSTRUCTION OF BIKE TRAILS THROUGH THE TOWN; PROVIDING FOR AN EFFECTIVE DATE.**

**WHEREAS**, Lake County Parks & Trails Division is in the process of updating its Parks & Recreation and Trails Master Plans which will be used as an overall guide to the development and operation of parks, recreation and trails facilities offering active and passive recreation, trails and boat ramps in Lake County over the next decade.

**WHEREAS**, the 2008 Lake County Trails Master Plan depicts numerous planned and existing paved trails.

**WHEREAS**, the Lake County Parks & Trails Division will be holding a series of public meetings regarding the comprehensive master plans and the Town of Howey-in-the-Hills desires to provide input to the Lake County Parks & Trails Division regarding future recreation and paved trails to be located in the Town and surrounding Lake County cities.

**WHEREAS**, there are hundreds of bike riders who ride through the Town on a frequent basis and the Town has few safe trails on which bike riders can ride.

**WHEREAS**, there is a great deal of development in various stages occurring in the Town, and the Town is in the optimal position to assist the Lake County Parks & Trails Division with implementing Town/County/private partnerships for construction of certain trails.

**WHEREAS**, the Town hereby expresses its support, interest and desire for the Lake County Parks & Trails Division to complete the required studies, design, and begin construction of three of the trails shown in the "planned stage" on the 2008 Master Plan – specifically (1) North Lake Trail Phase 1, (2) Sugar Loaf Mountain Trail, and (3) the Lake Denham Trail.

**WHEREAS**, the 2008 Trails Master Plan identifies connecting trails on SR 19 from the north Town limits to CR 455 and on CR 48 from SR 19 to the Lake Denham Trail as planning concepts.

**WHEREAS**, the construction of these trails will provide for regional trail and recreational connectivity, increased safety for current bike riders, walkers, and runners, and a beautiful scenic experience for trail users as they travel through the Town.

**NOW, THEREFORE, BE IT RESOLVED BY THE TOWN COUNCIL OF THE TOWN OF HOWEY-IN-THE-HILLS, FLORIDA:**


**Section 1.** The Town Council hereby expresses its support, interest, and desire for the following:

- 12-15' paved bike trails to be constructed within the Town of Howey-in-the-Hills, specifically, the ones identified on the 2008 Lake County Trails Master Plan as the (1) North Lake Trail Phase 1, (2) Sugar Loaf Mountain Trail, and (3) Lake Denham Trail, and the planned concept connecting trails through Howey-in-the-Hills.
- The addition of 5-foot shoulders to County Road 455 from Highway 19 to the Montverde roundabout and 12-15'-foot wide bike trail from the new Howey bridge to the intersection of Highway 19 and State Road 48.
- 12' paved bike trails on Number 2 Road and on Dewey Robbins Road from Highway 19 to Highway 27.

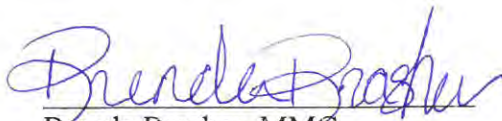
**Section 2.** The Town Council hereby appoints Councilor Ed Conroy to work with adjacent municipalities, Lake County, Lake County Parks & Trails Division, the Lake-Sumter Metropolitan Planning Organization, the Florida Department of Transportation, and all other bodies and agencies for which it is deemed necessary in order to locate, design and construct paved trails through the Town.

**Section 3.** This Resolution takes effect immediately upon its adoption.

**PASSED AND RESOLVED** this 13<sup>th</sup> day of March, 2017, by the Town Council of the Town of Howey-in-the-Hills, Florida.

  
Christian Sears  
Mayor

ATTEST:

  
Brenda Brasher, MMC  
Town Clerk

## Amenities for Parks & Trails

### Bike Rack-

Kirby Built Bike Rack (Standard Brand KBR-11) – Black Single Sided, 3 Bike.

Dimensions: 35” Length X 21” Width X 30” Height, Weight 29 lbs.

No Substitutions Permitted

\*See Photo



### Trash Cans-

Kirby Built Trash Cans (Olympia Brand KWR-39) – Black, 32 Gallon Receptacle.

Dimensions: 29” Diameter X 36” Height, Weight 48 lbs.

Round Receptacle Weather lid – 32 Added if specified

\*See Photo



Bench-

Kirby Built Bench (Hampton Style) – Cedar/Black

Dimensions: 75" Length X 24" Depth X 32" Height (18" High Seat)

\*See Photo



Picnic Table-

Kirby Built Picnic Table (Hex Table ABT 1600) – Black

Kirby Built Picnic Table (ADA Hex Table KPT-55) – Black

Dimensions: 70.5” Length X 72.25” W X 30” Height

\*See Photos



Dog Waste Station-

Kirby Built Recycled Pet Waste Station (KPET-12/APW1470) – Black

In-ground, with Sign, 5 Gallon

Dimensions: 17” Length X 20” Width X 69” Height, Weight 60 lbs.









LAKE  
COUNTY  
FLORIDA

*Real Florida.  
Real Close.*