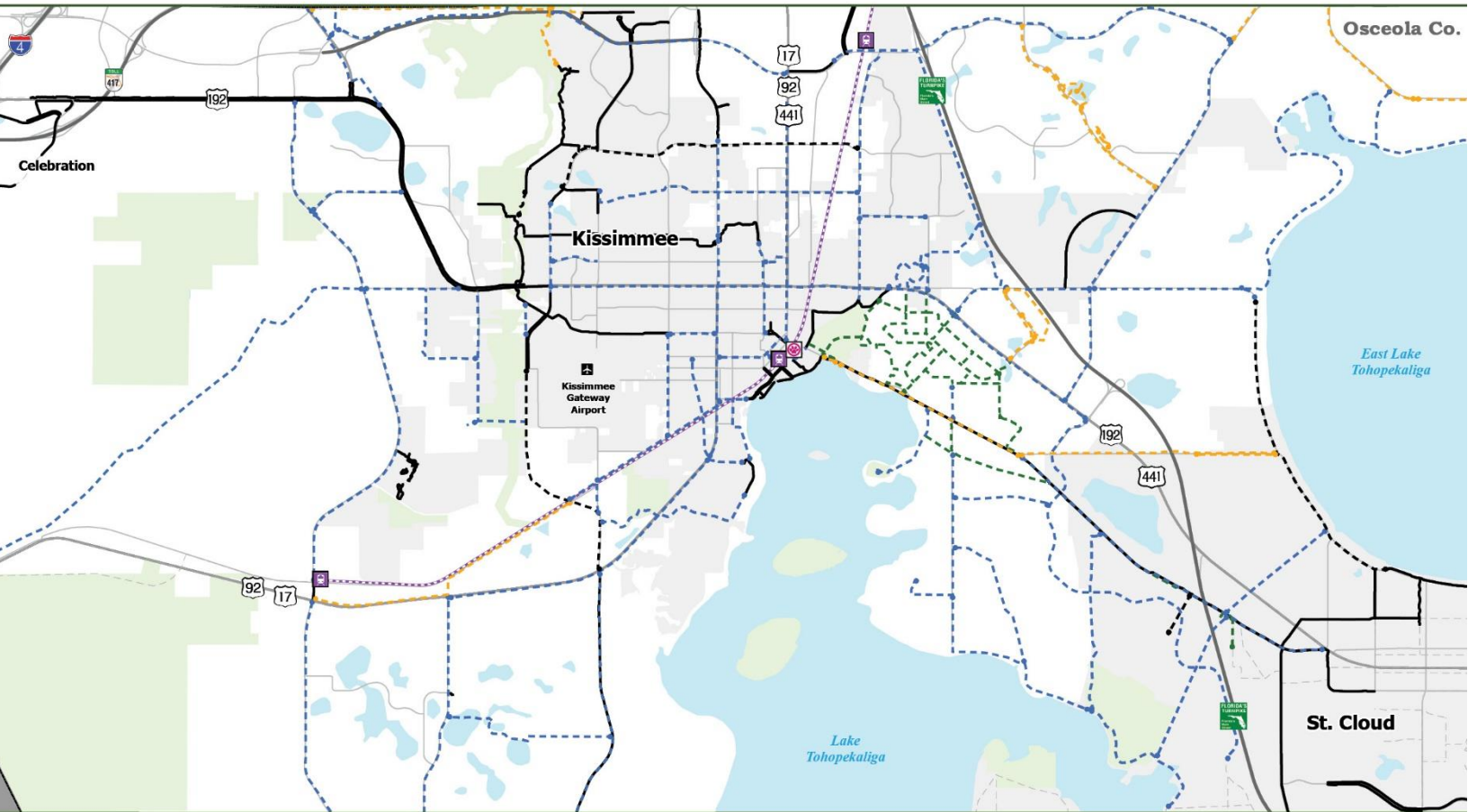


OSCEOLA COUNTY

TRAILS FEASIBILITY STUDY



OSCEOLA COUNTY

Trail Prioritization and Feasibility Report



April 2019

FINAL



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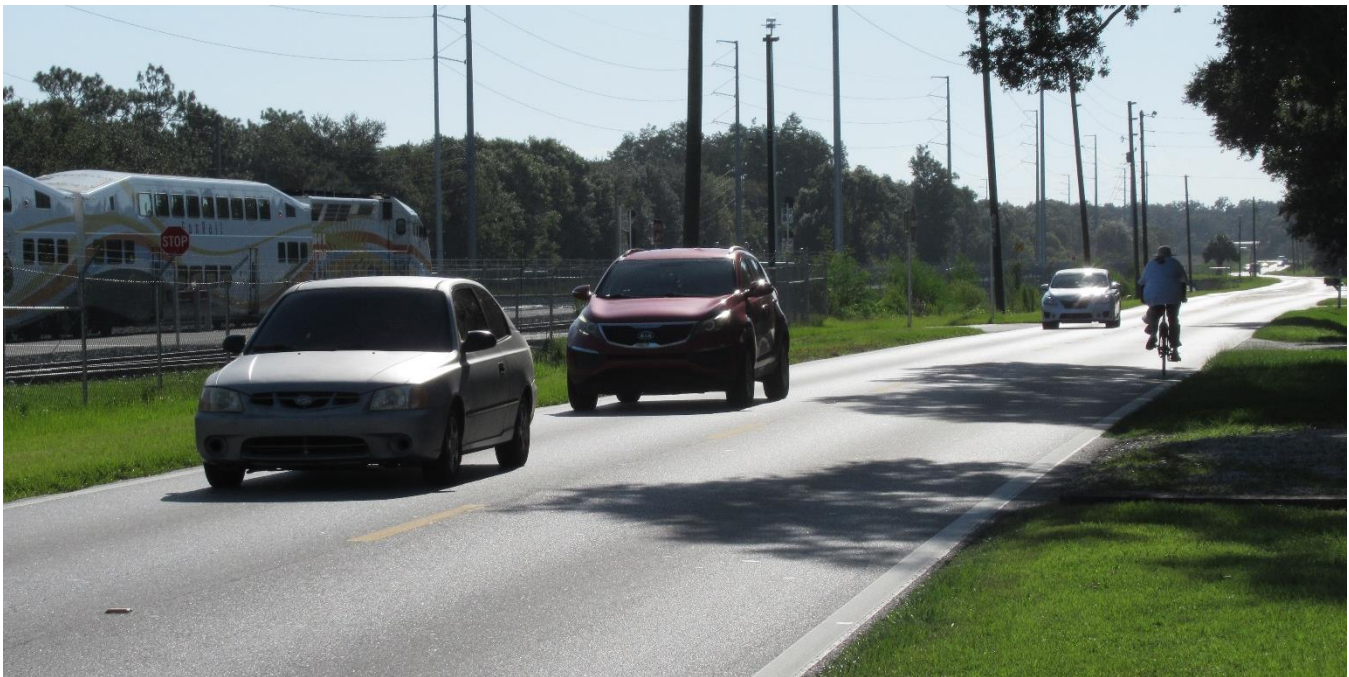
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INTRODUCTION

The Osceola County Trails Prioritization and Feasibility Study (Study) develops and documents a strategy for an interconnected trail network that will help further improve the desirability of Osceola County and enhance the quality of life in the community.

This Study sets the course for closing key gaps within the Osceola County Trail Network through improvements to the bicycle and pedestrian infrastructure. In order to maintain and increase the quality of life for all its citizens, network improvements are being developed for users of all skill levels and abilities in order to meet their transportation and recreation needs. The goal is to achieve a Trail Network that enables active transportation on a system that embraces existing natural features and includes amenities such as landscaping and other design elements.



Purpose

This Study includes a comprehensive review of the County's existing trail network, proposes new trail routes and evaluates the feasibility of the network improvements. It includes an examination of the opportunities and challenges of constructing additional miles of trails that will be a key part of the Osceola County Trail Network. Key aspects of this feasibility study are to:

- Confirm the existing route alignments and determine the gaps;
- Propose new trail routes;
- Evaluate issues and opportunities;
- Coordinate with County staff in various departments as well as staff from adjoining municipalities on proposed trails;
- Prioritize trail projects for implementation;
- Assess feasibility within the right-of-way; and
- Develop an opinion of probable costs to support the planning of future funding.



Trail Defined

For the purpose of this study, “trails”, also referred as “shared use paths” or “paths”, are defined as “linear corridors and any adjacent support parcels on land or water providing public access for recreation or authorized alternative modes of transportation” by the [2018 Florida Statutes](#) under the Florida Greenways and Trails Act 260.013. Routes should be useable, safe and welcoming for people of all ages and abilities, and support travel for both recreational and transportation purposes. The County has a number of wide sidewalks that comprise the existing trail system. Trail enhancement strategies provide guidance for future design to provide more than minimums and seek opportunities for improvements. The



SHINGLE CREEK TRAIL HORIZONTAL CLEARANCE

The Florida Department of Environmental Protection produced [Florida State Trail Design Standards](#) to be followed as a guide when implementing trails in urban, suburban, or natural/rural areas. Guidance on implementation includes direction for planning, surface type, amenities and minimum width.

Trail amenities, such as trailheads, connectivity nodes, wayfinding materials, and rest areas, provide opportunities to define and create the trail’s character. Well-designed amenities enhance user experience, improve safety and security, and welcome new trail users to explore the facilities. Sample layouts and guidance for developing these amenities are provided in *Memo II – Trail Guidance: Amenities & Branding* part of the *Osceola County Neptune Trail Enhancement and Connectivity Report* (June 2018) which acts as a guide for development of future County trail projects. Recommendations provided in the Memo include opportunities to promote trail use and distinguish individual corridors with consistent local branding incorporated in elements such as signage and color.



SHINGLE CREEK TRAIL AMENITIES



Existing Trail & Shared Use Path Network

The first task of the study was to complete a preliminary assessment of the existing and planned trail network in the County in terms of the general coverage and connectivity. References from Osceola County, City of Kissimmee, and City of St. Cloud were used to support the network review process. Community and roadway design plans and guidelines were reviewed, as well as bicycle and pedestrian master plans. These review documents are included in Appendix A.

The County's existing trail network is based on data provided by the County, as shown in its Comprehensive Plan TRN5-2040 map, and is expanded based on review of aerial imagery. For the purpose of developing the existing network, trails include both stand-alone alignments such as the Shingle Creek Trail, as well as alignments that parallel major roadways as shared use paths such as Neptune Road and Pleasant Hill Road. All trails and shared use paths with a paved width of greater than eight feet are included. Some of the shorter segments represent shared use paths that connect, support and provide bicycle and pedestrian mobility throughout the County. Collectively, these trail segments represent the state of the system in 2018.

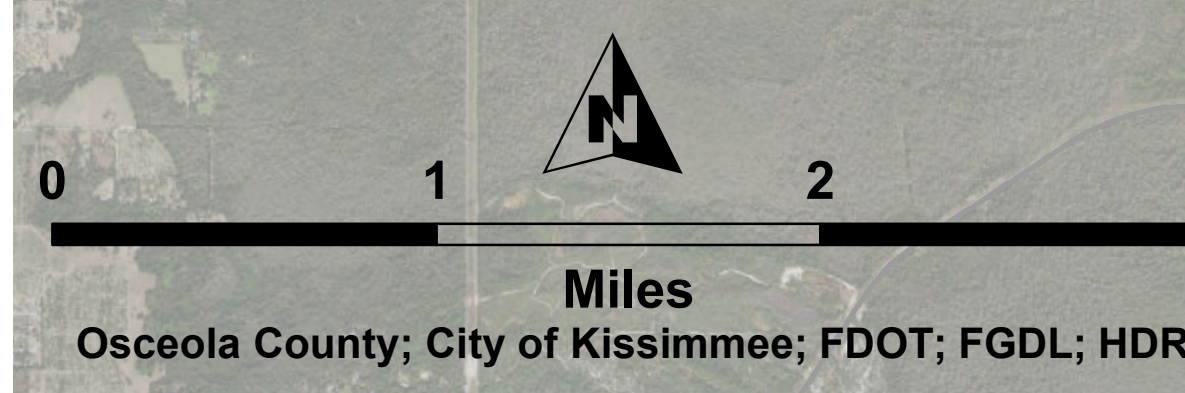
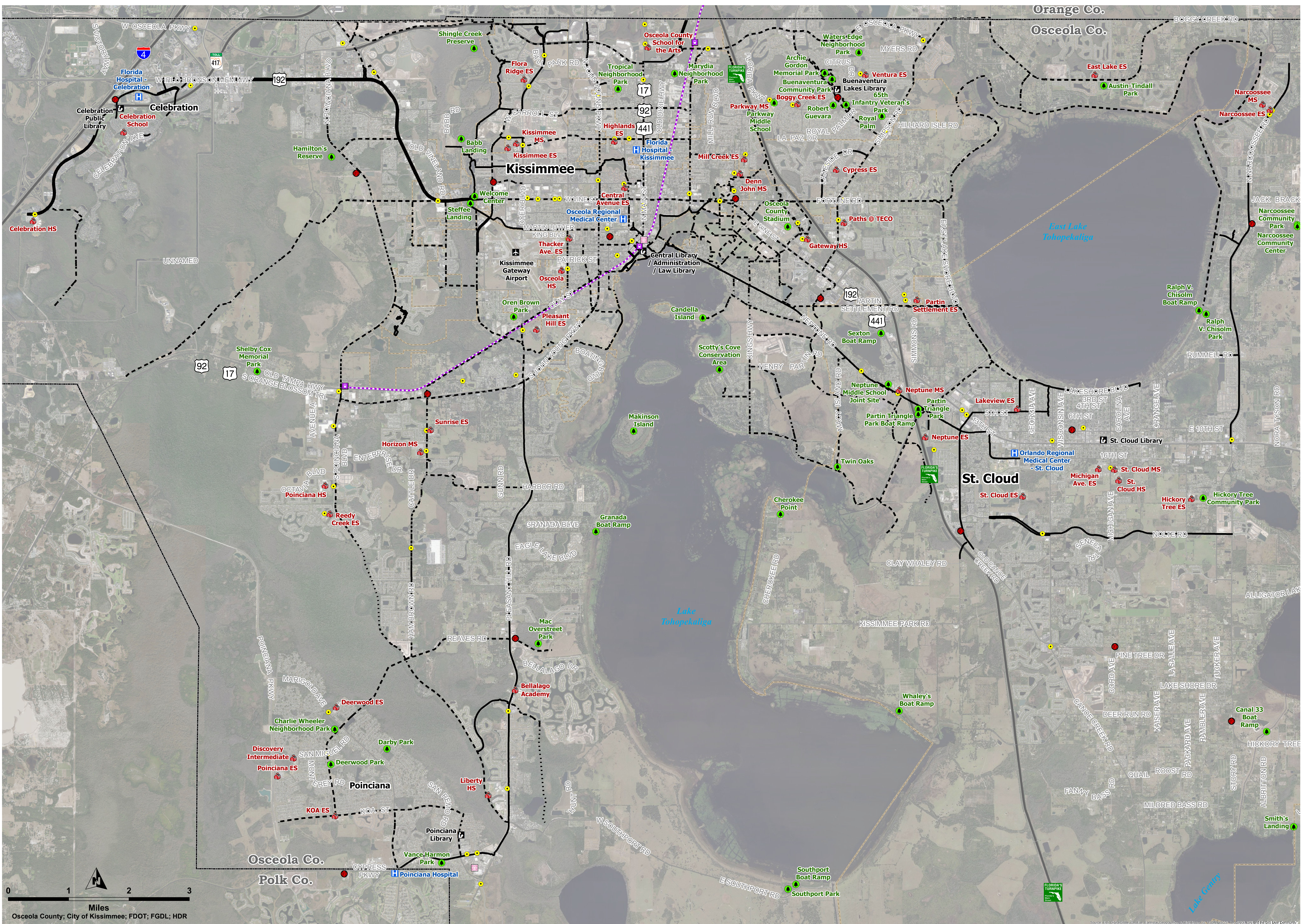
Proposed Network

The County's proposed trail network compliments the state and regional efforts to close the gaps that currently exist in the trail network, and provides additional opportunities for trips to be made on an expanded and interconnected trail network for both transportation and recreational purposes.

Gaps are segments of discontinuity between existing and proposed trails. Segments were identified along primary arterial connectors that lacked pedestrian and bicycle facilities, and recognized unserved destinations. The intent of the assessment is to provide, on a regional and big picture level, a proposed trail network that adequately connects key facilities, activity centers, and community destinations, allowing travelers of all ages and abilities to make trips for recreation and/or transportation purposes. The Study also looked to identify existing shared use paths that can significantly be improved. One example is the Neptune Road Trail which extends from Brinson Pier Park southeast beyond the South Florida Water Management District (SFWMD) C-31 Canal through the City of St. Cloud, east of Old Canoe Creek Road. While the Neptune Road Trail is a path of eight feet in paved width, it is analyzed for opportunities to improve user comfort such as widening and landscaping opportunities. The existing shared use path on Pleasant Hill Road is also a path of eight feet in paved width that is considered for proposed improvements.

The full network of trails, existing and proposed, is shown on the Existing and Proposed Network map provided as Figure 1.





Trail Alignments	Existing Transit	Activity Centers	Jurisdictions
Existing Trail/Multi-Use Path	SuperStop	School	City Boundary
Proposed Trails	Sunrail Station	Park	County Boundary
Other Trails	Sunrail	Hospital	
		Fire Station	
		Major Employer	
		Library	

Osceola County Trail Network Feasibility Analysis

Existing and Proposed Trail Network

Figure 1

TRAIL SYSTEM PRIORITIZATION

Trail Network

The initial assessment and prioritization for the Osceola County Trail Network considered all trails from existing through planned, including those in use, under design, programmed, previously planned, and recently proposed. The analysis effort was focused on the area between SR 535 and the City of St. Cloud within the Urban Growth Boundary.

Approach

Based on an initial trail network assessment, coordination with County staff members, and feedback provided during stakeholder meetings, a comprehensive list of trail projects was developed. In order to determine which of the trails should undergo a more detailed amount of focus and study, a preliminary prioritization was completed. This preliminary prioritization was based on qualitative and quantitative metrics using existing GIS information provided by the County. A list of eight high priority projects were identified. The feasibility analysis of these trails included a one-day field visit and an environmental screening to prepare these trails for a design phase.

Analysis Methodology

The proposed trail network was sub-divided into trail projects generally ranging from 1 to 10 miles in length connecting existing trails or other suitable end points. These trail projects are stand-alone projects that could be developed and provide value independently. Using this stand-alone approach, 74 trail projects were developed. The projects were ranked using qualitative assessment and quantitative analysis to develop a final list of projects for the County.

Eight categories for quantitative project scoring to support the prioritization are listed below:

1. **Regional Trail Corridors** – An all-or-nothing score if the trail corridor would connect to the Regional Trail System (SunTrails).
2. **Trails Initiatives** – An all-or-nothing score based on if the trail corridor is a continuation of an existing trail or trail initiative. These focused on continuing linear trails or closing existing loops.
3. **Alternative Transportation Connections** – Graduated scoring based on if the trail corridor is adjacent, through or provides a connection within 0.25 miles of other transportation connections.
4. **Significant Destinations** – Graduated scoring based on if the trail corridor provides direct or indirect connection to one or more significant destinations such as parks, recreation areas, schools, and community centers.
5. **Funding Partners** – Graduated scoring associated with the number for funding and approval partners. This assumes that multi-agency trails should be prioritized in coordination with funding partners such as the City of Kissimmee, City of St. Cloud, and the Florida Department of Transportation.
6. **Bike/Pedestrian Crash Frequency** – Graduated scoring based on total bike/pedestrian crashes per mile of the trail corridor.
7. **Total Population, Employment Density and School Enrollment** – Graduated scoring based on the total population, employment density and school enrollment within ½ mile of the proposed trail corridor.
8. **Removes Barriers** – Graduated scoring based on if the trail corridor provides a connection across an arterial for bicycling and/or walking based on the number of lanes of the arterial.



Table 1 summarizes the scoring criteria, point allocation, and weighting used.

TABLE 1 | SCORING CRITERIA

CATEGORY	CRITERIA	POINTS	WEIGHT
Regional Trail Corridors	Connects to Regional Trail System - SunTrails	100	20%
Trail Initiative	Continuation of an existing trail initiative or loop	100	20%
Alternative Transportation Connections	Adjacent or through a SunRail Station or LYNX SuperStop	100	10%
	Connection within 0.25 mile of SunRail Station	75	
	Connection within 0.25 mile of LYNX SuperStop	50	
	Connection within 0.25 mile of LYNX Stop	25	
Significant Destinations (Parks, Recreation Area, Schools/Colleges, Community Centers)	Direct connection to 2 or more significant destinations	100	10%
	Direct connection to 1 significant destination	80	
	Indirect connection within 0.25 mile to 2 or more significant destinations	60	
	Indirect connection within 0.25 mile to 1 significant destination	40	
	Indirect connection within 0.5 mile to 1 or more significant destinations	20	
Funding Partners	Exclusively Osceola County jurisdiction	100	20%
	Shared jurisdiction with one Partner	50	
	Shared jurisdiction with two or more Partners	25	
Bike/Ped Crash Frequency (Years 2011-16)	Total Bike/Ped crashes per mile of project length > 5	100	10%
	Total Bike/Ped crashes per mile of project length 2-5	80	
	Total Bike/Ped crashes per mile of project length 1-2	60	
	Total Bike/Ped crashes per mile of project length 0-1	40	
Total Population, Employment and school enrollment within ½ mile of trail project, per trail mile of project segment	Total pop + emp + school enrollment within 0.5 mile of project, per trail mile \geq 10,000	100	5%
	Total pop + emp + school enrollment within 0.5 mile of project, per trail mile = 7,500 - 9,999	80	
	Total pop + emp + school enrollment within 0.5 mile of project, per trail mile = 5,000 - 7,499	60	
	Total pop + emp + school enrollment within 0.5 mile of project, per trail mile = 2,500 - 4,999	40	
	Total pop + emp + school enrollment within 0.5 mile of project, per trail mile < 2,500	20	
Removes Barriers (Provides crossing / connection over limited access facility or arterial)	Crosses a limited access facility or provides a connection across six or more lanes of an arterial for bicycling and/or walking	100	5%
	Provides a connection across four or five lanes of an arterial for bicycling and/or walking	75	
	Provides a connection across three or fewer lanes of an arterial for bicycling and/or walking	25	
Maximum Total Score		100	100%



Ranking and Prioritization Type

The analysis methodology was used to develop a prioritized list of projects for the County. This prioritized list is categorized into four prioritization types based on both the rank and the stage of the proposed trail projects. These types include: NeoCity related projects, High Priority projects, System projects, and Previously Designed Projects. Project summaries for each of the trails identified and not previously studied in the *Neptune Trail Connection Report* (June 2018) are provided in Appendix B.

NeoCity Trails

NeoCity and NeoCity connectors were previously studied by the County and are considered the highest priority trails at the time of this Study. Summary information for these trails is provided in Appendix B with additional information available in the *Neptune Trails Connection Report* (June 2018). These are considered by this Study to be the County's highest priority as they help establish a new multimodal node of development.

High Priority Trails

High Priority Trails are identified as a priority to the County in seeking grant funding and partnership opportunities. These locations in the County include rapidly developing areas and major activity/employment centers. A series of four one-day field audits were conducted with County staff to facilitate corridor and project-specific discussions on alignment options, issues, constraints, and opportunities. The information gleaned from these field audits helped greatly in shaping the feasibility concepts. Additionally, these trails were investigated for potential contamination risks via a desktop screening. Concept sheets for each of the High Priority Trails are provided in Appendix C. These concept sheets show the proposed alignment in more detail and identify Alternative Alignments which provide additional recreational value usually by circling parks or wetland areas. The field visit summaries for each of the trails are included in Appendix D.

System Trails

A majority of the proposed trail network was defined as System Trails. These trails fill in the County network allowing for most destinations within the Urban Growth Boundary to be reached on a dedicated bicycle and pedestrian facility. A desktop review was conducted for these trails to develop one page summaries outlining opportunities and constraints.

Previously Designed Trails

Similar to the System Trail, previously Designed Trails were reviewed at a desktop level with summaries provided. The Designed Trails are designated as portions or all of a trail that have been advanced to a Design Phase as part of a previous or parallel project. Details for exact alignment, design recommendations, and probable cost are not provided for these trails as those details have already been developed for the County. The Designed Trails are:

- Rank 15: Shingle Creek on Buckley Drive Trail from N Hoagland Boulevard to South of Vine St;
- Rank 18: Shingle Creek on Hoagland from Pleasant Hill Rd to N Hoagland Blvd;
- Rank 26: Shingle Creek Gap from the Shingle Creek Trail termini;
- Rank 27: Fortune West from E Vine St to Simpson Rd;
- Rank 37: Tohoqua from Twin Oaks Conservation Area to Neptune Rd;
- Rank 55: Fortune East from Simpson Rd to E Lakeshore Blvd;
- Rank 56: Lakeshore Blvd from Fortune Rd to Louisiana Ave; and
- Rank 57: Carroll St Complete St from W Donegan Ave to Michigan Ave.



Table 2 shows the results of the trail prioritization.

TABLE 2 | LIST OF TRAILS IN PRIORITIZED ORDER

TRAIL RANK	TRAIL NAME	CONNECTION	PRIORITY TYPE	LENGTH (MI)
1A	Greenway	Veloway Trail to proposed off street path	NeoCity	0.7
1B	Pond	Neptune Trail to proposed off street path	NeoCity	3.7
1C	Veloway	Neptune Rd to E Irlo Bronson Memorial Hwy	NeoCity	2.4
2A	Lakefront Trail Connector	Lawrence Silas Blvd to Brinson Park	NeoCity Connector	0.5
2B	West Greenway Bridge	Oak Street Trail to NeoCity Greenway Trail	NeoCity Connector	0.07
2C	Pond Trail Connector	Neptune Road Trail to NeoCity Pond Trail	NeoCity Connector	0.3
2D	Bill Johnston Connector	Neptune Rd to Will Barber Rd	NeoCity Connector	0.8
2E	Shawnda Lane Trail	Johnston Connector Trail to Veloway Trail and Neptune Road Trail	NeoCity Connector	2.0
2F	Partin Canal Trail	Aultman Rd to Neptune Rd	NeoCity Connector	1.8
2G	Neptune Trail Realignment	Ames Rd to Neptune Middle School	NeoCity Connector	0.4
2H	Neptune Rockets Trail	Neptune Rd to Neptune Elementary School	NeoCity Connector	0.5
3	Bill Beck	Fortune Rd to E Irlo Bronson Memorial Hwy (US 192)	High Priority	2.3
4	Vineland Connector	Kissimmee Vineland Rd (SR 535) to Shingle Creek Preserve	High Priority	4.0
5	Shingle-Poinciana SunRail	S Poinciana Blvd to Future Hoagland Intersection	High Priority	3.2
6	Partin Settlement	Neptune Rd to E Lake Shore Blvd	High Priority	3.6
7	Reaves	S Poinciana Blvd to Future Mac Overstreet Regional Park	High Priority	2.6
8	Buenaventura	E Osceola Pkwy to Simpson Rd	High Priority	4.2
9	Boggy Creek	E Osceola Pkwy to N Narcoossee Rd	High Priority	7.1
10	Neptune Trail Enhancements	Lakeshore Blvd to Partin Settlement Rd	High Priority	2.5
11	Clay	S Hoagland Blvd to W Penfield St	System	1.6
12	Old Hoagland	Shingle Creek Trail to W Clay St	System	0.7
13	East Osceola Pkwy	Orange Ave / SunRail to Simpson Rd	System	4.6
14	Lakefront Connector	Hacienda Cir to W Penfield St and Lakeview Dr	System	1.1



TRAIL RANK	TRAIL NAME	CONNECTION	PRIORITY TYPE	LENGTH (MI)
15	Shingle Creek on Buckley Dr	N Hoagland Blvd to South of Vine St	Designed	0.4
16	Pleasant Hill Rd Path	Cypress Pkwy to S John Young Pkwy	System	8.0
17	Poinciana Blvd	Reaves Rd to S Orange Blossom Trl	System	4.7
18	Shingle Creek on Hoagland	Pleasant Hill Rd to N Hoagland Blvd	Designed	2.6
19	Shingle Creek Trail South	Pleasant Hill Rd to Hacienda Cir	System	2.0
20	Poinciana South	Pleasant Hill Rd to Reaves Rd	System	3.3
21	Ham Brown	Reaves Rd to S Orange Blossom Trl	System	4.4
22	Central Ave	Martin Luther King Junior Blvd to Lake Tivoli Blvd	System	1.0
23	Vine St Complete St	N Hoagland Blvd to Fortune Rd	System	4.4
24	Neptune Rd South	Partin Settlement Rd to 13th St	System	3.9
25	Will Barber	Neptune Rd to NeoCity	System	0.4
26	Shingle Creek Gap	Shingle Creek Trail Termini	Designed	0.3
27	Fortune Rd West	E Vine St to Simpson Rd	Designed	1.6
28	Hoagland	E Irlo Bronson Memorial Hwy to Quality Ct and Dyer Blvd	System	1.5
29	Harbor Rd Connector	Ham Brown Rd to Pleasant Hill Rd	System	2.0
30	Kings Hwy	Scottys Rd to Partin Canal Trail (2F)	System	2.1
31	Simpson Rd	E Irlo Bronson Memorial Hwy (US 192) to E Osceola Pkwy	System	4.4
32	Osceola Pkwy Central	Shingle Creek Preserve to S Orange Blossom Trl	System	2.7
33	Bill Beck Extension	Bill Beck Blvd to Mill Sough Rd	System	0.9
34	Valencia College Connector	Vine St to E Osceola Pkwy	System	4.2
35	Poinciana Central	Old Tampa Hwy to Siesta Lago Dr	System	4.6
36	Cross Prairie Pkwy	Continental St to E Irlo Bronson Memorial Hwy (US 192)	System	5.4
37	Tohoqua	Twin Oaks Conservation Area to Neptune Rd	Designed	0.5
38	Kissimmee – St. Cloud Connector	Neptune Rd to Lakeshore Blvd	System	1.5
39	West Kissimmee Canal	Hacienda Cir to Emmett St	System	1.5
40	Denn John Ln	Vine St to Valencia Community College	System	0.3

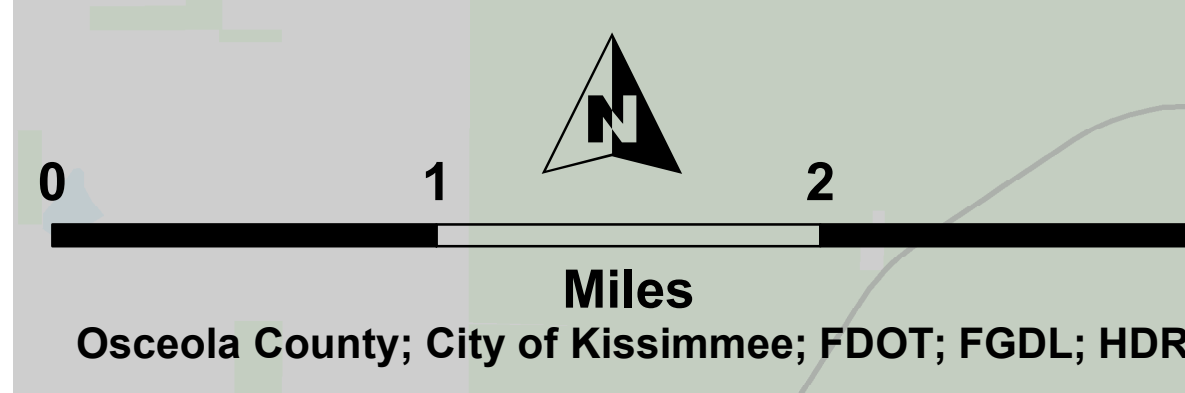
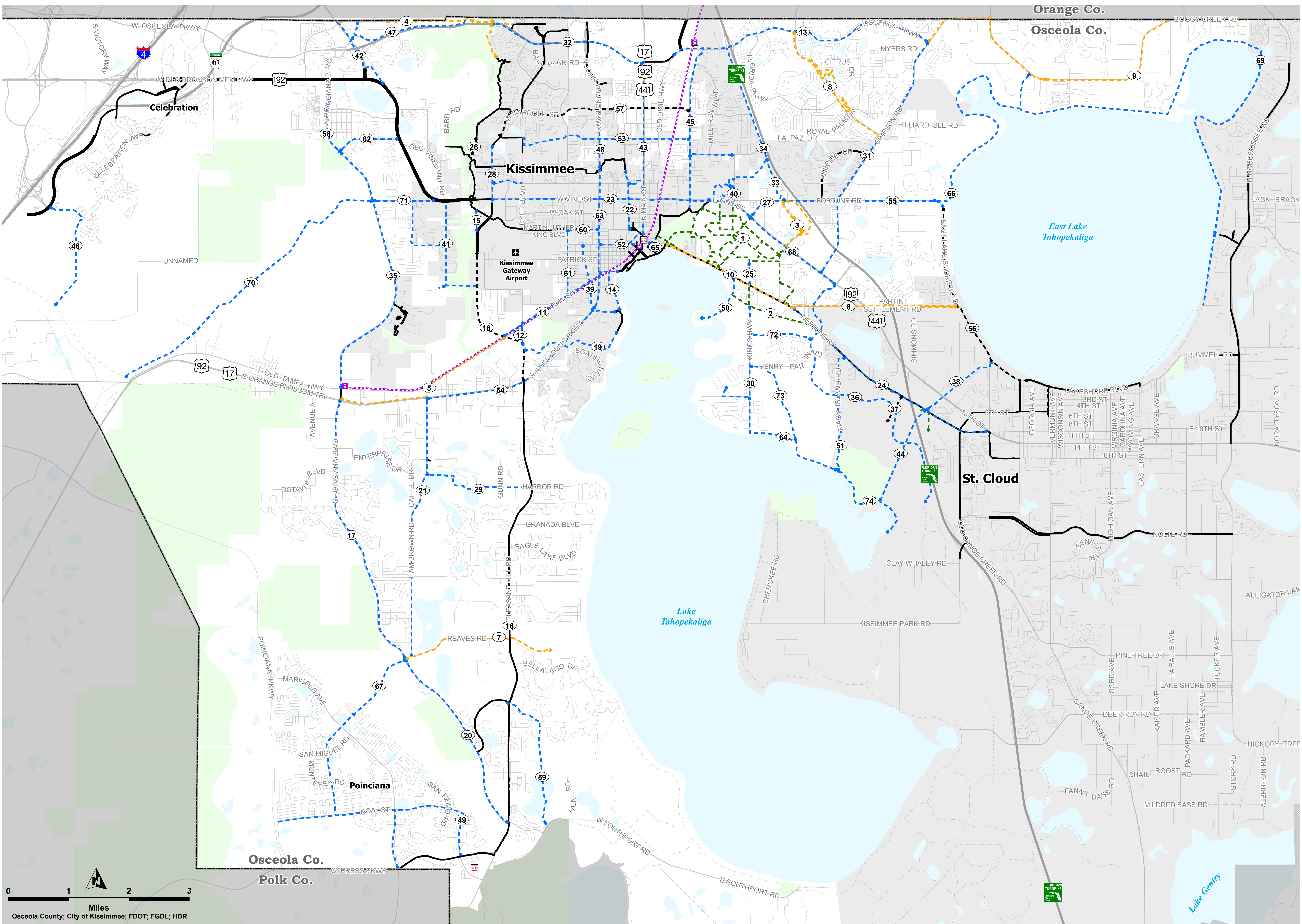


TRAIL RANK	TRAIL NAME	CONNECTION	PRIORITY TYPE	LENGTH (MI)
41	Roma-Yowell	Shingle Creek Trail to Oren Brown Rd and W Irlo Bronson Memorial Hwy (US 192)	System	3.3
42	Vineland Rd (SR 535)	Polynesian Isle Blvd to W Irlo Bronson Memorial Hwy (US 192)	System	1.5
43	Main St	Neptune Rd to E Osceola Pkwy and W Columbia Ave	System	3.2
44	C31 South	Neptune Rd to Lake Tohopekaliga	System	1.7
45	Michigan	Oak St Trail to E Osceola Pkwy and Denn John Ln	System	3.4
46	Celebration Connector	Reedy Creek to Celebration Blvd	System	2.3
47	West Osceola Pkwy	Kissimmee Vineland Rd (SR 535) to Shingle Creek Preserve	System	2.3
48	John Young Pkwy Complete St North	Lake Tivoli Blvd to Carroll St	System	1.1
49	Poinciana Community Trl	Poinciana Pkwy to Reedy Creek and Cypress Pkwy	System	6.7
50	Brownie Wise Pk	Brownie Wise Park to Neptune Rd	System	1.1
51	Macy Island	Lake Tohopekaliga to Neptune Rd	System	2.0
52	Mabbette	N John Young Pkwy to W Neptune Rd and Broadway	System	0.9
53	Donegan Ave	Dyer Blvd to Michigan Ave	System	3.0
54	Orange Blossom Trl	Ham Brown Rd to Osceola Park Dr	System	3.3
55	Fortune Rd East	Simpson Rd to E Lakeshore Blvd	Designed	1.8
56	Lakeshore Blvd	Fortune Rd to Louisiana Ave	Designed	3.5
57	Carroll St Complete St	W Donegan Ave to Michigan Ave	Designed	3.7
58	Poinciana North	Siesta Lago Dr to W Irlo Bronson Memorial Hwy (US 192)	System	1.3
59	Southport Connector	Southport Rd to Pleasant Hill Rd	System	2.4
60	Martin Luther King Blvd	N Thacker Ave to N John Young Pkwy	System	0.5
61	Thacker	W Clay St to Martin Luther King Blvd	System	1.1
62	Siesta Lago	N Poinciana Blvd to Irlo Bronson Memorial Hwy (US 192)	System	1.1
63	John Young Pkwy Complete St South	Osceola Park Dr to Lake Tivoli Blvd	System	2.4
64	Twin Oaks	Pine Island Rd to Macy Island Rd	System	2.3
65	Lynx to Lakeshore	Lakeshore Blvd Trail to Neptune Rd	System	0.3



TRAIL RANK	TRAIL NAME	CONNECTION	PRIORITY TYPE	LENGTH (MI)
66	East Lake Loop West	Fortune Rd to Boggy Creek Rd	System	5.0
67	Poinciana Reedy Creek Bridge	Laurel Ave to S Poinciana Blvd and Reaves Rd	System	1.3
68	Irlo Bronson Memorial	Fortune Rd to Shady Ln	System	1.8
69	East Lake Loop North	Chisholm Park Trl to Lake Vista Dr	System	10.1
70	Intercession City	S Orange Blossom Trl to S Poinciana Blvd	System	5.3
71	Oren Brown	N Poinciana Blvd to Irlo Bronson Memorial Hwy (US 192)	System	1.0
72	Kindred	King Hwy to Cross Prairie Pkwy	System	1.1
73	Kindred Twin Oaks	Kings Hwy to Lake Tohopekaliga	System	1.6
74	Twin Oaks South	Twin Oaks Pk to Dick Island	System	1.9





Trail Alignments		Existing Transit		Jurisdictions		Other	
	Existing Trail/Multi-Use Path		System Projects		City Boundary		Water Body
	NeoCity Projects		Designed Trails		Urban Growth Boundary		Conservation Area
	High Priority Projects		Other Trails		County Boundary		
			SuperStop				
			Sunrail Station				
			Sunrail				

Osceola County Trail Network Feasibility Analysis

Prioritized Trail Network by Type

Figure 2

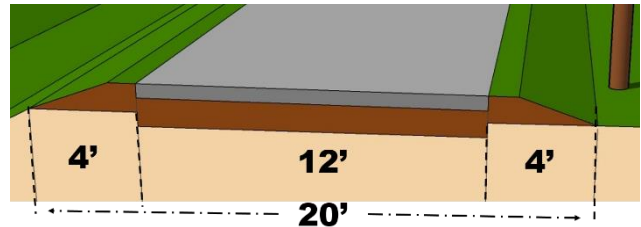
IMPLEMENTATION ANALYSIS

Each trail project was analyzed to assess the potential opportunities and challenges associated with constructing the trail within the existing right-of-way, adjacent roadways, and land uses. Multi-page analysis summaries were developed for the High Priority Trails and one-page summaries for the System Trails and Designed Trails. The trail summaries are intended to function as stand-alone documents providing maps, photos and concise information related to issues and opportunities specific to that trail concept. Key considerations for trail feasibility review and preparation of trail concept summaries is presented in the following sections.

Trail Alignment

A primary consideration of the feasibility of implementing a trail project is the placement or alignment of the trail within a chosen corridor. For trails along their own corridors, such as the existing Shingle Creek, there is flexibility to align with the natural elements to minimize impacts and cost. Most of the trails proposed in this Study share corridors with existing or planned roadways and are constrained by the roadway alignment and the width of the right-of-way for that corridor.

To standardize the approach, an alignment width of 20 feet is used throughout the network. This width is based on a standard 12 feet in paved width trail with a four foot buffer on either side to provide a clear zone. The image identifies the elements of the typical section by width.



It is recognized and addressed for the High Priority Trails that this width is not always available. Additionally, it is noted that in many cases, there is a need to bias the paved portion of the trail creating a large buffer on one side over another at the design stage. The FDOT Design Manual (FDM) provides guidance for trails which may be applied on the Osceola County Trail Network. Key guidance includes:

- The minimum width for a 2-way pathway is 10 feet. Widths range from 10 to 14 feet, with a reduced width of 8 feet being applied for short distances if needed due to physical constraints;
- Provide a minimum 4 feet lateral offset to obstructions on both sides of a shared use path; and
- A minimum 8 feet vertical clearance to obstructions should be met.

The alignment also considers the need for replacing existing sidewalks, preferential crossing locations, and access to communities (residential neighborhoods and schools). The trail feasibility analysis also identifies the level of comfort and safety of trail users; without which a successful public facility cannot be created.

Right-of-Way Review

Trail concepts prepared as part of this Study were generally established with a specific goal to minimize or negate the need for right-of-way acquisition to minimize potential project costs and implementation challenges. A qualitative right-of-way assessment was completed during the concept development stage based on information obtained from the Osceola County Property Appraiser's website. Specific locations proposed to make use of publicly-owned land were noted on the concept summaries as were locations with likely right-of-way impacts to privately-owned parcels. An example of a corridor where development of a trail will require right-of-way is along Old Tampa Highway, where the right-of-way is limited and coordination with private property owners is needed.



Security

Crime Prevention through Environmental Design (CPTED) is a multi-disciplinary approach to deterring criminal behavior through environmental design. This concept should be evaluated at the design phase for each trail project. The following lighting and landscaping strategies work harmoniously to provide a safe accessible trail:

- Eliminate hiding areas by keeping landscaping low and well maintained;
- Place amenities in visible, common areas;
- Avoid lighting with excessive glare; and
- Ensure potential problem areas are well lit.

Environmental Assessment

A contamination screening desktop analysis was performed for the High Priority Trails. This analysis included a review of historic aerial photographs (from 1994 to 2017) and regulatory documents within ¼-mile (or 1-mile for superfund sites, brownfields, and landfills) of the proposed trail alignments. It should be noted that the contamination screening does not fully comply with the requirements listed in Part 2, Chapter 20 of the FDOT Project Development and Environmental Manual (last updated June 14, 2017) and ASTM E 1527-13. HDR understands this is a preliminary evaluation and recommends a detailed contamination screening, complying with requirements of Level 1 investigation (FDOT Part 2, Chapter 20) and/or Phase 1 Environmental Site Assessment (per ASTM E 1527-13) be completed as part of future trail development.

The results of this preliminary screening are summarized in the Environmental section of the concept summaries, and provides insight as to the expected environmental impacts associated with individual projects, which allows identification of potential fatal flaws in trail alignments and development of more accurate trail construction costs. The detailed contamination screenings for each of the High Priority Trails are provided in Appendix E.

Opinion of Probable Cost

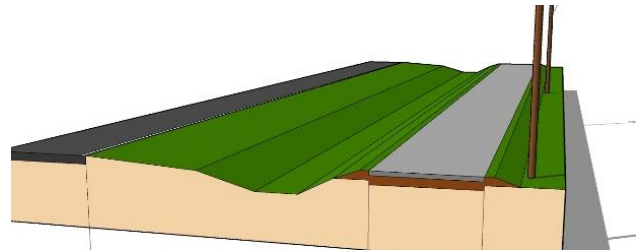
A preliminary opinion of probable cost has been prepared for each of the trails evaluated with the exception of those previously studied or designed. The costs were developed based on an assessment of the existing conditions and data available at the time of this Study. Field visits and a desktop analysis noted the different scenarios of existing typical sections observed throughout the County. In some scenarios, a corridor has a five foot wide sidewalk behind an existing swale with an adequate amount of right-of-way to accommodate a shared use path without impacting existing drainage. In other areas, there is an existing sidewalk to accommodate pedestrians and bicyclists as of today, as well as an open drainage swale with limited public right-of-way. Based on the physical opportunities and constraints of the corridors, three different proposed typical sections were developed, denoted as Typical 1, Typical 2, and Typical 3. Examples of existing scenarios and its designated future typical section are provided below with a description of each Typical Section.



Proposed Typical 1 – Typical 1 accommodates a 12 foot wide shared use path with a four foot buffer on each side without impacting the current drainage configuration. This typical section is also assigned to corridors that have an existing curb and gutter. Costs associated with this typical include the construction costs associated with clearing and grubbing, removal of existing sidewalk and excavation, and six inches of concrete sidewalk and driveways.



EXAMPLE: BUENAVENTURA BOULEVARD

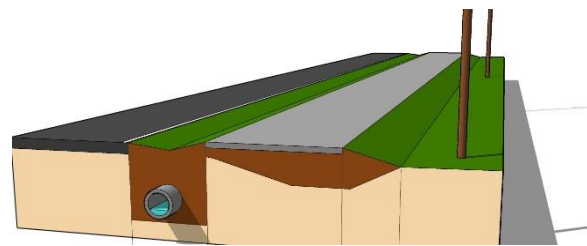


PROPOSED TYPICAL 1

Proposed Typical 2 – Typical 2 accommodates a 12 foot wide shared use path with a four foot buffer on each side that has impacted the current drainage configuration. This typical section includes all costs for Typical 1 with additional piping for drainage. This typical section is common for future trail alignments that are propose narrowing the width of drainage swales and thereby limiting the storage capacity.



EXAMPLE: BOGGY CREEK ROAD



PROPOSED TYPICAL 2

Proposed Typical 3 – Typical 3 allows a trail to be implemented where there is limited right-of-way to accommodate natural swale drainage. The placement of a curb and closed drainage allows the design to maximize the limited space between the roadway and the trail, ideally, designed to a landscape buffer.



EXAMPLE: REAVES ROAD

PROPOSED TYPICAL 3

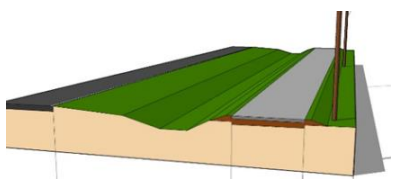
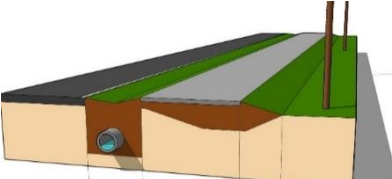
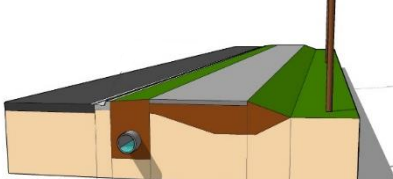


Pay item based construction costs are shown on an initial general cost per mile for a 12 foot wide shared use path with additional components added as needed. These are conceptual costs and also include the cost for single post signs and detectable warnings. It is important to note these opinions of probable cost do not include utility relocation costs. The costs include the following assumed percentages for construction related activities:

- Mobilization, 10% of construction subtotal
- Maintenance of Traffic (MOT), 10% of construction subtotal depending on specific project elements and location; includes removal of existing striping
- Erosion Control, 2% of construction subtotal
- Landscaping, 20% of construction subtotal
- Contingency, 30% of construction subtotal

Table 3 provides a summary of the cost per mile for each typical section as a construction subtotal.

TABLE 3 | PROPOSED TYPICAL SECTION COST PER MILE

TYPICAL 1	TYPICAL 2	TYPICAL 3
<i>CONSTRUCTION SUBTOTAL WITH MULTIPLIERS</i>		
\$1,400,000	\$2,100,000	\$2,400,000
		

*Costs are rounded up to the hundred thousands

The cost analysis also identified where short trail bridges over creeks and sloughs and new traffic signals are needed. These costs are individually added to the applicable trails.

Additional Elements:

- Short Trail Bridge, \$250,000
- New/Modified Signal, \$400,000

The total forecasted project cost opinions include professional services cost for design, survey, and construction engineering inspection. These services are fixed amounts and multipliers to provide a clearer forecast for projecting funding requirements.

Professional Services

- Construction engineering inspection (CEI), 15% of total construction cost including contingency
- Design and Survey, \$250,000 plus 10% of total construction cost including contingency



RECOMMENDATIONS FOR IMPLEMENTATION

Osceola County is enjoying a transportation paradigm change as it becomes more economically diverse and environmentally sustainable. One key element of the County's transportation system is its trail network, which provides opportunities for active transportation, recreation, and a high quality of life.

The Osceola County Trails Prioritization and Feasibility provides a guide for implementing a coordinated network of trails. Ongoing stakeholder coordination is critical to the successful implementation and management of the growing Osceola County transportation network and recreation realm. Osceola County should continue efforts to work with partnering agencies and citizens of the County to refine alignments and address changing needs, opportunities and constraints.

Transportation

Trails provide alternatives for getting around for people without access to cars or transit as well as those wanting to choose a healthier transportation alternative. Implementing the County Trail Network will increase mobility and accessibility by providing a new active transportation opportunity. The following list provides recommendations for a successful implementation of the County Trail Network:

- Coordination with entities such as FDOT, CSX/SunRail, and Partnerships with Kissimmee and St. Cloud will be needed to ensure project feasibilities where trail segments are proposed along state roadways, placed adjacent to rail corridors, or cross jurisdictional boundaries.
- Working with school board agencies and crossing guards increases the usefulness of the trail corridors near schools and increases the opportunities for and safety of students and faculty who walk or ride bicycles to and from school.
- Partnering with transit agencies, such as LYNX increases transportation options and expands transit access.
- Coordination to communicate and plan trail connectivity with FDOT, Florida Office of Greenways and Trails, Orange County, and cities within Osceola County.
- Partnering with the development community to connect the places future Osceola County residents will live, work, and play with trails as a transportation option.

Recreation

The implementation of the County Trail Network will complement the County's Parks Master Plan that is currently underway. Osceola County is one of the fastest growing counties in Central Florida, anticipating the population to double over the next 20 years, to over 450,000 residents. Osceola County's beautiful natural resources and outstanding sports facilities are just the beginning of a diverse and growing park system. The plethora of opportunities for trails around the County will complement the vast open spaces throughout the area.

One High Priority Trail, the Reaves Road Trail, for example, will provide direct access to a regional park located west of Lake Toho. Particularly when existing sidewalks are widened and may consume the width of an existing landscape buffer, coordination with City and County parks to evaluate existing trees and landscaping and determine a long-term plan to restore the urban tree canopy will be needed. Collectively, this positions the County to maximize its corridors for not only transportation, but recreation, aesthetics, and quality of life.



APPENDICES

APPENDIX A | COUNTY PROVIDED BACKGROUND INFORMATION

APPENDIX B | INDIVIDUAL PROJECT SUMMARIES

APPENDIX C | HIGH PRIORITY PROJECT CONCEPT PLANS

APPENDIX D | FIELD VISIT SUMMARIES

APPENDIX E | ENVIRONMENTAL SCREENINGS

