

Trail Feasibility

October 2006

1. Introduction

What's inside?

- 1 Introduction
- 2 Project Purpose & Scope
- 3 Physical Inventory & Assessment of Right-of-Way
- 4 Trail Concept Plan
- 5 Financial Feasibility

The University of Florida Bureau of Economic and Business Research statistics indicate that in 2005 the population increased by 19% since the 2000 Census.

The City of Port Orange, Florida has submitted to the Volusia County Metropolitan Planning Organization (VCMPO) an application for matching funds for a bicycle and pedestrian implementation plan for the Florida Power and Light (FPL) transmission corridor from Clyde Morris Boulevard to Jackson Street, crossing Nova Road. This application proposes the creation of a twelve (12) foot wide paved path through this approximately 6,700 foot long corridor. The trail is proposed to be constructed on the FPL easement from beginning to end. The location of this trail is illustrated in Figure 1.

In 2000, the VCMPO completed an update to its 2020 Long Range Transportation Plan (LRTP) for the County. One of the priorities that emerged from the transportation plan was the "importance of providing pedestrian and bicycle facilities as a means of expanding the travel opportunities for county residents."¹ The 2020 LRTP also recognizes the importance of bicycle and pedestrian facilities

as a tool for economic development and as an expansion of recreational activities for residents and visitors. The Volusia County Trail plan represents approximately 76 miles of multi-use trails throughout the County.

In 2004, the City of Port Orange conducted a survey of city residents to gauge their priorities for recreation. The number one priority of the survey respondents was trails. This segment of the proposed multi-use trail directly connects to or passes by the Port Orange City Center Complex, Silver Sands Middle School, the Halifax Medical Complex, commercial areas, and Memorial Park. The Municipal Complex includes various pedestrian features for school children as well as for recreational uses. Memorial Park also includes pedestrian facilities. The sidewalk system is proposed for Herbert Street, as shown in Figure 1, which can connect to this proposed system through sidewalks on City Center Drive. The Port Orange community will benefit by provisions for connections between these areas. By connecting to the Dunlawton Avenue

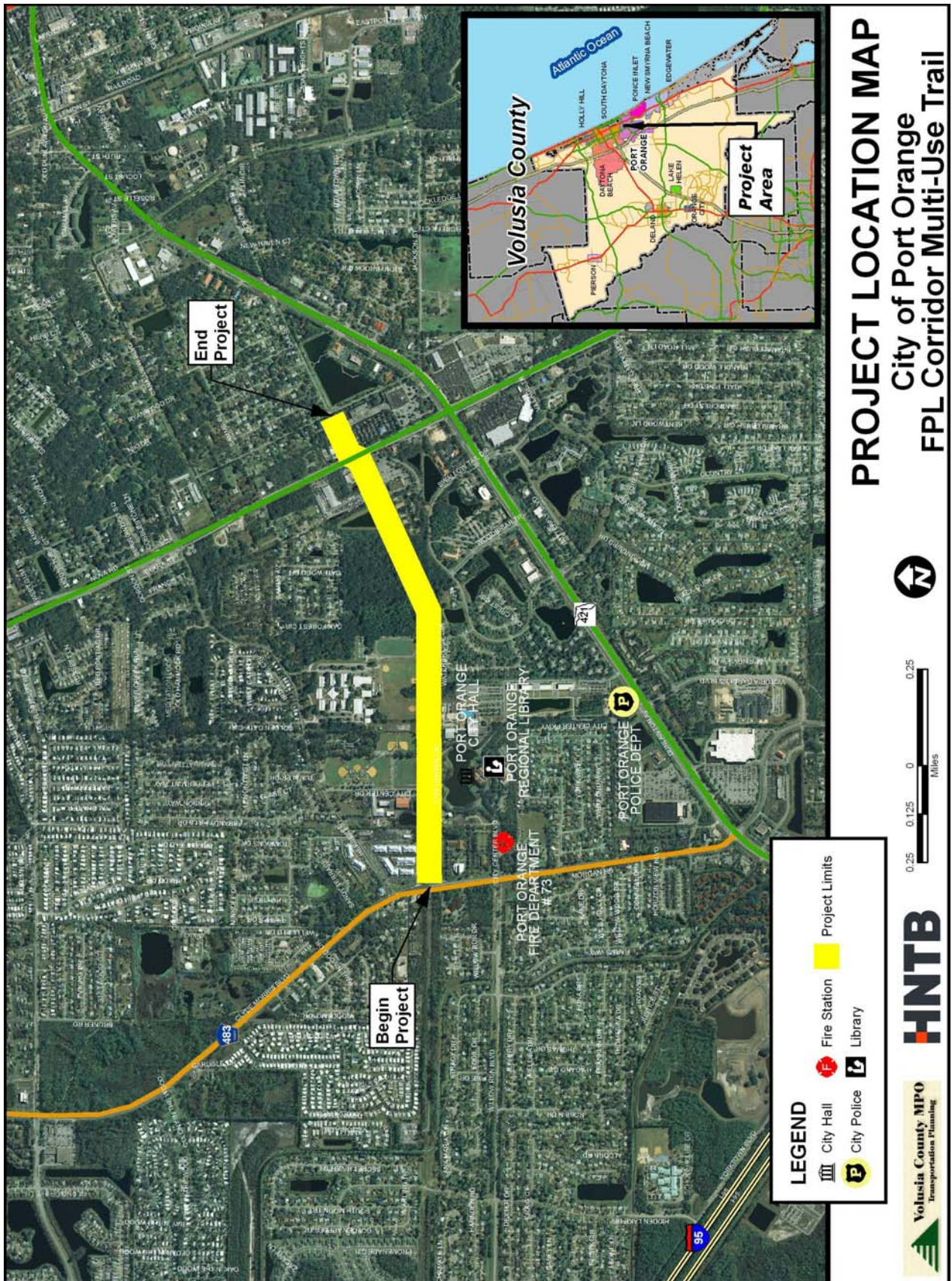
pedestrian facilities, this trail will offer enhanced pedestrian access to destinations in the eastern portion of the community, the Intercoastal waterway and the Atlantic Ocean. This trail will provide alternative forms of transportation for this growing community.

In addition to linking recreation facilities, this presents opportunities to link various retail, dining and employment centers, providing alternative means of transportation between these facilities.

The University of Florida, Bureau of Economic and Business Research statistics indicate that in 2005 the population increased by 19 percent since the 2000 Census. The City of Port Orange has projected that by 2010 that number will increase by another 10 percent. More users will continue to find alternative means of transportation through this growing City. This trail can also serve to provide access to other means of transportation throughout the City including access to the VOTRAN system at applicable locations.

¹Volusia County Metropolitan Planning Organization, 2020 Long Range Transportation Plan, Chapter 5.

Figure 1: Project Location Map



2. Project Purpose & Scope

The following sections provide an overview of the Scope of Work completed for this feasibility study.

Study Purpose

This study evaluated the FPL Multi-Use Trail from Clyde Morris Boulevard to Jackson Street, crossing Nova Road, for use as a bicycle and pedestrian facility. The goal of this study is to allow the VCMPO to determine the feasibility of a bicycle/pedestrian path, considering items such as project need, support of jurisdictional planning studies, and construction cost estimates.

Physical Inventory & Assessment of Right-of-Way

Based on property maps, GIS maps, and the mapping provided by the City of Port Orange along the transmission corridor, the physical inventory was assessed as it relates to the proposed improvements. GIS databases were utilized to create mapping for the project and were supplemented with local municipal and county data.

The FPL transmission corridor through the proposed trail area ranges in width from 190 feet to 265 feet. Between Nova Road

and Jackson Street the FPL easement is 42 feet in width. The portion of the FPL Transmission corridor under consideration is approximately 6,700 feet long.

Upon review of the existing data available, a field review and analysis was conducted of the proposed corridor. This analysis provided information that was used to make specific recommendations for construction, safety, signing, and access. Also identified were potential locations for connections to public facilities, parking areas, and connections to other facilities that are part of the bicycle and pedestrian network.

Trail Concept Plan

The field analysis and mapping were used as a base for the planning of the proposed construction elements. Mapping of the proposed corridors identified environmental and natural features, surrounding land uses, surrounding roads, community developments and assets, and construction element locations. The final graphics include notes, diagrams, and callouts identifying the

trail, access points, trail features and enhancements to the natural and the cultural features.

A conceptual plan of the trail project area was prepared and includes all of the features listed, as well as any other proposed enhancements.

Financial Feasibility

Detailed estimates for construction were prepared based on the American Disabilities Act (ADA), the Florida Department of Transportation standards for design, the City of Port Orange Standards and the past construction bids for the construction of related projects.

The goal of this study is to allow the VCMPO to determine the feasibility of a bicycle/pedestrian path, considering items such as project need, support of jurisdictional planning studies, and construction cost estimates.

3. Physical Inventory & Assessment of Right-of-Way

A physical inventory and assessment (via field review) for the corridor was conducted in order to document present conditions, assets, and obstacles throughout the area. Topographic and soils maps were used to supplement the field reviews.

Two field reviews were conducted to determine the conditions along the proposed corridor. The initial field review was attended by the following persons, represented their respective entities:

- City of Port Orange – Melissa Booker
- HNTB Corporation – Kate Brady, PE

The second field review was conducted by HNTB staff members to study the corridor in more detail.

Based on discussion in the field, it was determined that the path should be constructed of either concrete or asphalt depending on the needs of the utility company for maintenance purposes. During the field visit, the attendees met with the Principal of Silver Sands Elementary School who indicated that he did not wish to provide a paved connection to the trail in order to limit the amount of people who may enter the school property.

The City would prefer to have the trail officially use the protected crosswalk at the intersection of Nova and Eagle Lake Trail, just

south of where the trail would access Nova Road, instead of a striped or brick paver across Nova at the midblock location where the corridor emerges.

Based on a review of the FPL easement corridor and discussions with FPL, it is clear that FPL does not have the right to allow construction of the permanent trail system. This construction and use would have to be coordinated with the various property owners along the corridor. This should be reviewed in more detail during the design phase of this project when right-of-way mapping information and survey information is available. Public involvement efforts should be undertaken at the time this project moves forward.

A photographic inventory of the corridor is presented to the right to provide an understanding of the physical features of the corridor.

Physical Description

The corridor for the multi-use trail begins at Clyde Morris Boulevard and continues east to the 105 acre Port Orange Municipal Complex. The Municipal Complex, shown in Figure 2, is home to City Hall, a regional library, a YMCA, an outdoor amphitheater (Figure 3), a sports complex, a skate park, a police headquarters, a fire/rescue station and a civic center. The Complex has been

developed to include pedestrian facilities to create a walkable, traditional campus-like setting, effectively linked to the surrounding neighborhoods. The Complex area also includes the Palmer College of Chiropractic Campus, a school for 600 students. A view of the new campus is shown in Figure 4. A performing arts pavilion is currently under construction near the amphitheater. This project area houses two of the top employers in the City including Halifax Health Systems (3,400 employees, including those in Daytona) and the City of Port Orange (390 employees).

Figure 5 provides a view of the FPL corridor from atop the rear of the amphitheater looking west. In this area, the trail may also connect to a shopping center on the north that would provide its own connection. Clyde Morris Boulevard is approximately 1,000 feet west of this location.

After passing behind the amphitheater, the corridor crosses City Center Drive and continues along the edge of the City Center Sports Complex. This location is shown in Figure 6.

The FPL corridor passes just behind the back of the Silver Sands Middle School property. After speaking with the Principal, it was



Figure 2: Port Orange Municipal Complex lake



Figure 3: Port Orange Municipal Complex Amphitheater



Figure 4: Palmer College of Chiropractic



Figure 5: FPL Corridor looking west from behind amphitheater



Figure 6: Looking east at City Center Drive



Figure 7: Back entrance to Silver Sands Middle School from FPL Corridor.



Figure 8: Undeveloped utility corridor looking east.



Figure 9: FPL corridor emerging at Nova Road looking southwest.



Figure 10: Nova Road looking southeast.

decided that no access would be directly provided to the school from the trail for safety purposes. The location of the school gate is shown in Figure 7 as viewed from the FPL corridor. The Herbert Street Sidewalk shown as proposed in the Cities application and shown in Figure 1, will provide access to school children as it does in the existing condition.

After traversing the back side of the school, the corridor continues to a point where it turns to head northeast toward Nova Road. Figure 8 shows that this area is undeveloped and consists only of the utility poles and trails worn by the tires of the maintenance trucks.

Prior to the bend in the corridor, the utility poles are large double post poles, as seen in Figures 5, 6 and 7. Northeast of the bend, the larger poles are replaced by smaller single post poles. The corridor emerges at Nova Road as a single post pole corridor, as can be seen in Figure 9.

There is no intersection at this location on Nova Road, a five-lane facility. The closest intersection is at Eagle Lake Trail further southeast on Nova Road. Figure 10

provides a visual of Nova Road looking in this general direction.

Figure 11 provides a picture of the FPL corridor after crossing Nova Road. The easement width decreases in this area along the distance to Jackson Street and Memorial Park. However, the trail system can be captured in this available area.

Jackson Street provides separation between the corridor easement and Memorial Park where the proposed multi-use trail will terminate. Memorial Park features a seven-tenths (7/10) mile walkway, two fountains, two fishing piers, and multiple picnic tables and benches. The parks illuminated walkway is eight (8) feet wide and also connects to the walkway along Dunlawton Avenue. The tie-in location for this project and the park itself are shown in Figures 12 and 13, respectively.

Right-of-Way

The majority of the FPL Corridor lies within an easement, which as noted earlier varies in width from 190 feet to 265 feet. Based on previous discussions between the City and FPL, there is general agreement that FPL will allow the easement to

be used for the multi-use trail as long as maintenance access is provided.

The edge of the trail will be located a minimum of three (3) feet from any utility pole. The trail can be constructed of stabilized asphalt designed to withstand the weight of maintenance vehicles.

The existing easement provides enough opportunity for the inclusion of the trail based on permission/acquisition provided by the land owners.



Figure 11: Taken from Nova Road looking northeast down corridor.



Figure 12: Jackson Street looking southwest.



Figure 13: Memorial Park.

4. Trail Concept Plan

Establishing a trail system within Volusia County will offer residents and visitors a network of recreational facilities and alternative forms of transportation. This trail will provide a safe, pedestrian friendly connection to other proposed systems throughout Port Orange, neighboring towns and cities and throughout Volusia County.

The aerial images provided as a base to the conceptual figures of this report provide a visual image of several lake areas in the vicinity of the trail system. The City may wish to in the future provide recreational facilities within the lake areas, similar to that at the Memorial Park and the City Center. This trail will aide in supporting a greater system and provide access to these facilities from various areas of the community.

The concept proposed for this multi-use trail places the trail on the north side of the existing utility poles. At a minimum this trail should be constructed three (3) feet from the poles. A five (5) foot separation is provided for in the concept plans developed for this trail.

The proposed trail is twelve (12) feet wide,

the minimum FDOT requirement for a two way shared facility asphalt surface. The concept considers the use of a stabilization and base layer under the asphalt to provide suitable stability for maintenance and emergency vehicles.

The trail should be designed with a consistent cross slope of two (2) percent to allow for proper drainage. The concept provides for a white solid traffic stripe separating the two directions along the length of the trail. The trail will be used by both bicyclists and pedestrians alike.

Figure 14 illustrates in concept the proposed improvements to establish this multi-use trail. The plan sheet begins at Clyde Morris Boulevard where the trail will tie into the existing sidewalk.

Trash receptacles and benches are provided in strategic locations along the trail for the benefit of the users. The general locations of these are marked on the concept plans. Lighting and landscaping should also be constructed along this corridor to provide a safe, pleasing facility.

The City Center Complex offers numerous sidewalks

around the campus. At City Center Drive, the proposed trail will leave the FPL corridor to tie into the existing sidewalk on City Center Circle. The existing crosswalk is to be replaced with a painted/stamped crosswalk to bring greater attention to the pedestrians using the system. Pedestrian crossing signs are provided at all approaches to this crosswalk for added safety.

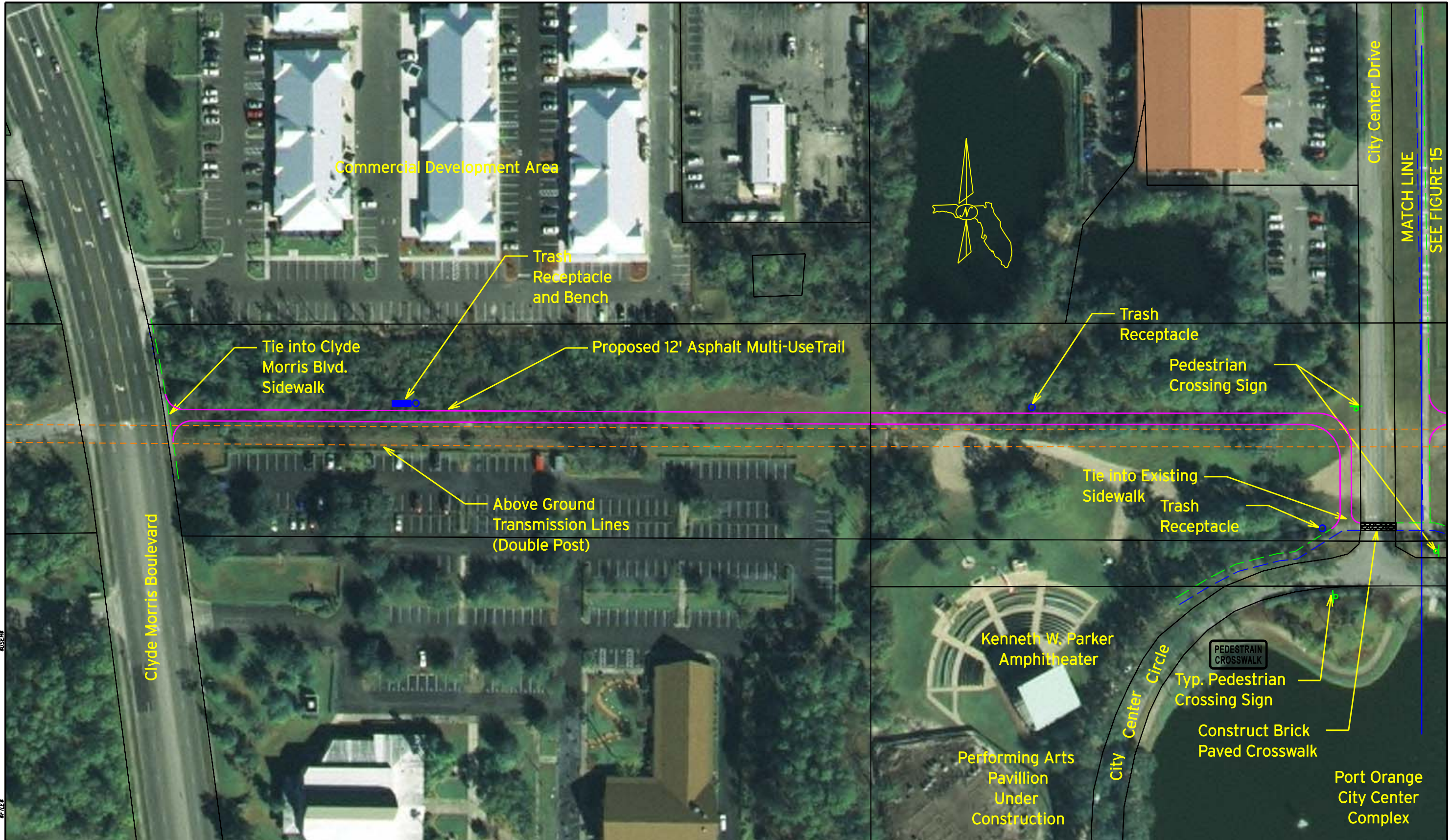
After crossing City Center Drive, Figure 15 illustrates the trail returning to the FPL corridor. The corridor runs behind the Silver Sands Middle School, which will not have direct access constructed during this project, as previously mentioned. This figure also shows the location of the City Center Gymnasium and the Port Orange Skate Park in relation to the proposed multi-use trail. The Chiropractic College is further south of the skate park and is not shown in this aerial image.

Figures 16 and 17 provide aerial images of the undeveloped portions of the FPL corridor. Of importance to note is that the proposed trail passes to the north of an existing

Subdivision, although separated by a mature tree line. The location of the bend in the corridor is shown in Figure 16.

Figure 18 shows of the potential interaction between the trail and Nova Road. City staff has requested that the crossing of the trail occur at Eagle Lake Trail, as shown in this figure. Pedestrian crossing signage and pavement markings should be provided prior to the unsignalized intersection for increased safety. The proposed trail will terminate at Memorial Park where a third painted/stamped crosswalk will be constructed.

Also considered during the development of the conceptual plans were the topographic and soil conditions of the corridor. As can be seen in Figure 19, the topographic variations along the FPL corridor are minimal lending to a smooth passage for both bicyclists and pedestrians. Figure 20 indicates the soil conditions along the corridor. The soil types vary throughout; however, they should be suitable for construction of this type. Drainage should be addressed through the use of a swale system in final design.





MATCH LINE
SEE FIGURE 14

MATCH LINE
SEE FIGURE 16

Port Orange
City Center
Sports Complex

Silver Sands
Middle School

Proposed 12' Asphalt Multi-Use Trail

Trash Receptacle

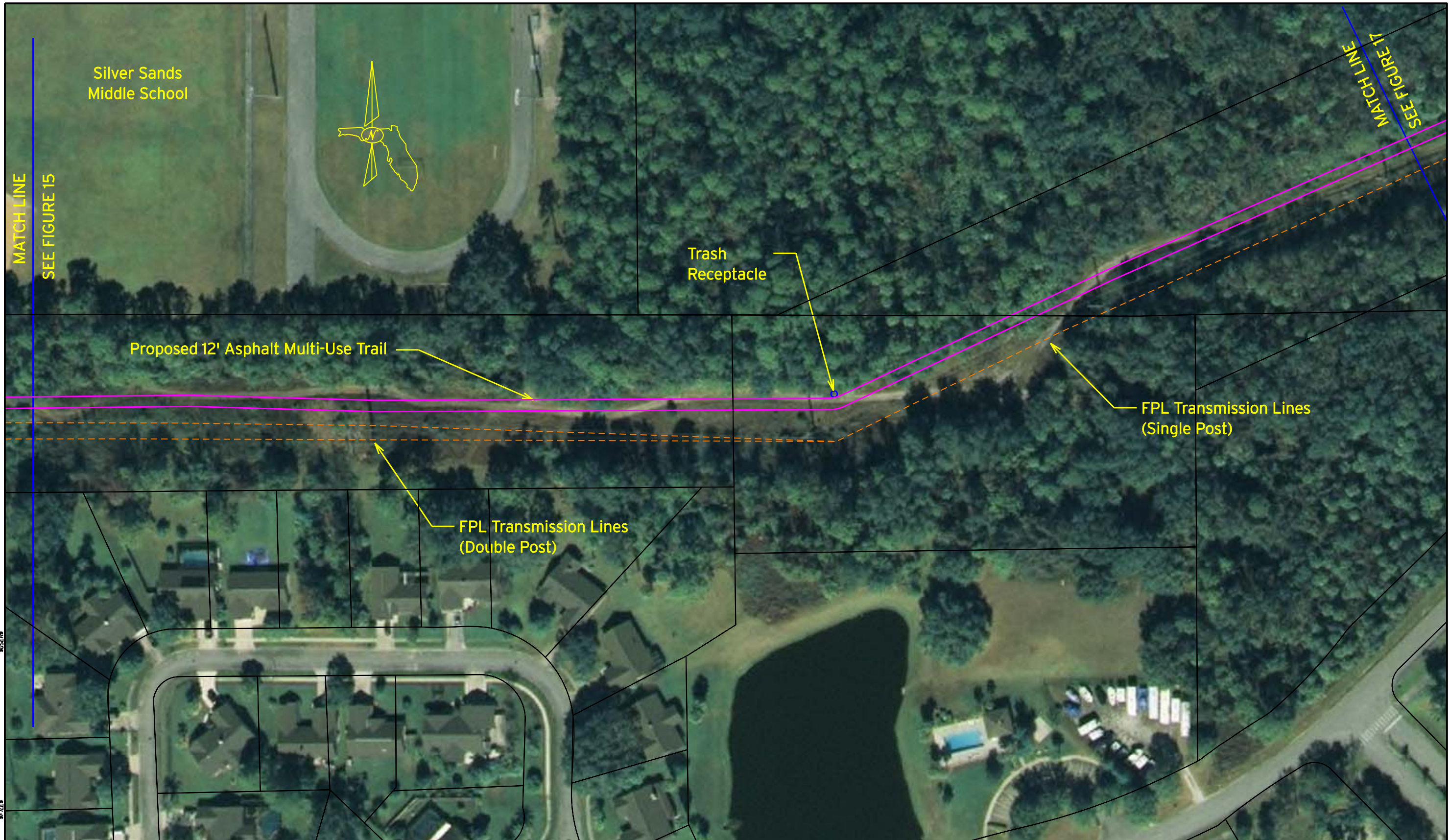
FPL Transmission Lines
Double Post

Port Orange
City Center Complex
(Existing Internal
Sidewalk System)

City Center
Gymnasium

Port Orange
Skate Park

DATE: 8/1/15
FILES: 8/1/15
USER: JLS



DATE
ST/MS
S/LES
R/SE/PS





MATCH LINE
SEE FIGURE 16

MATCH LINE
SEE FIGURE 18

Proposed 12' Asphalt Multi-Use Trail

Trash
Receptacle
and Bench

FPL Transmission Lines
(Single Pole)



Figure 19: Topographic Conditions along Corridor

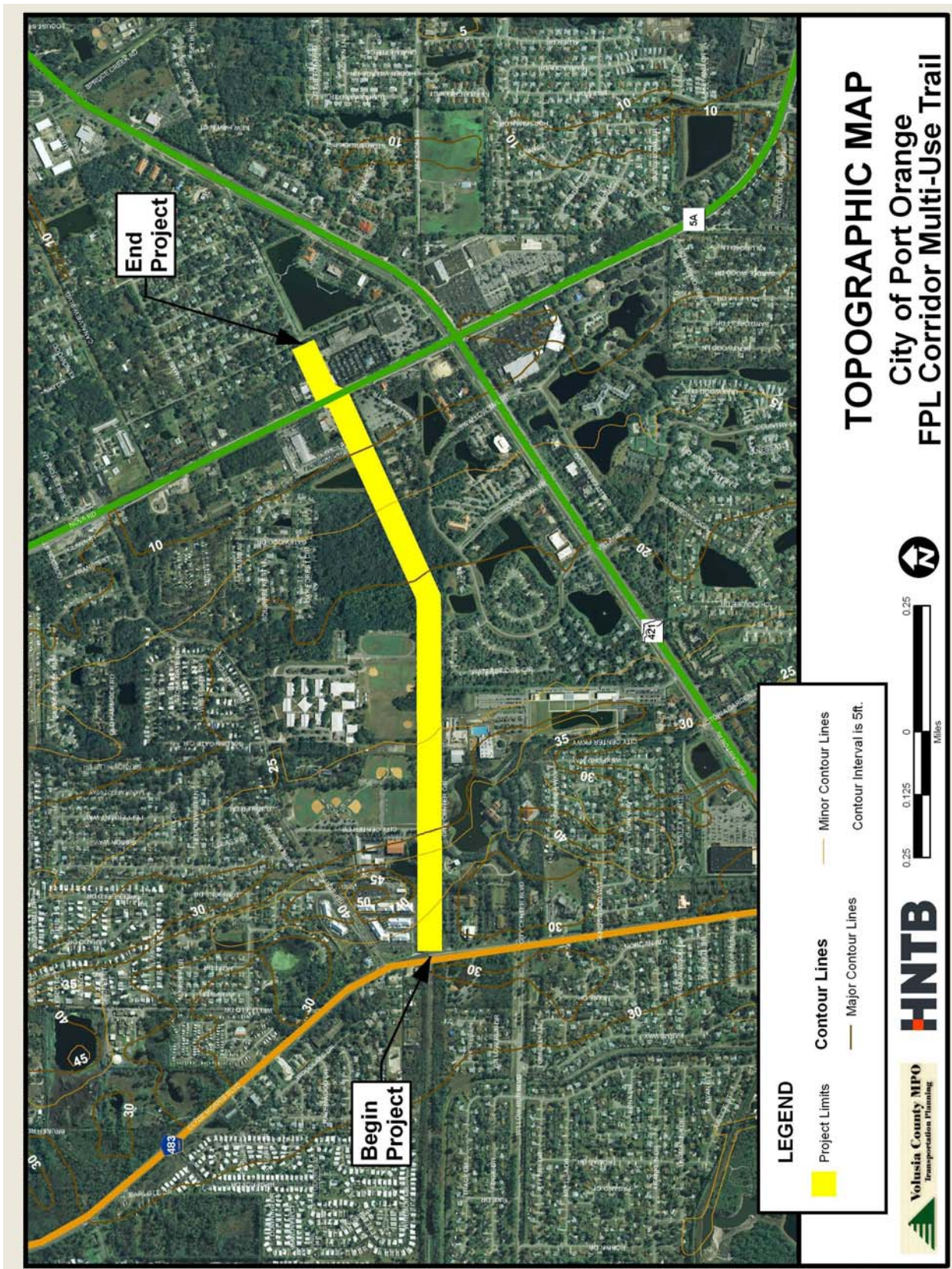
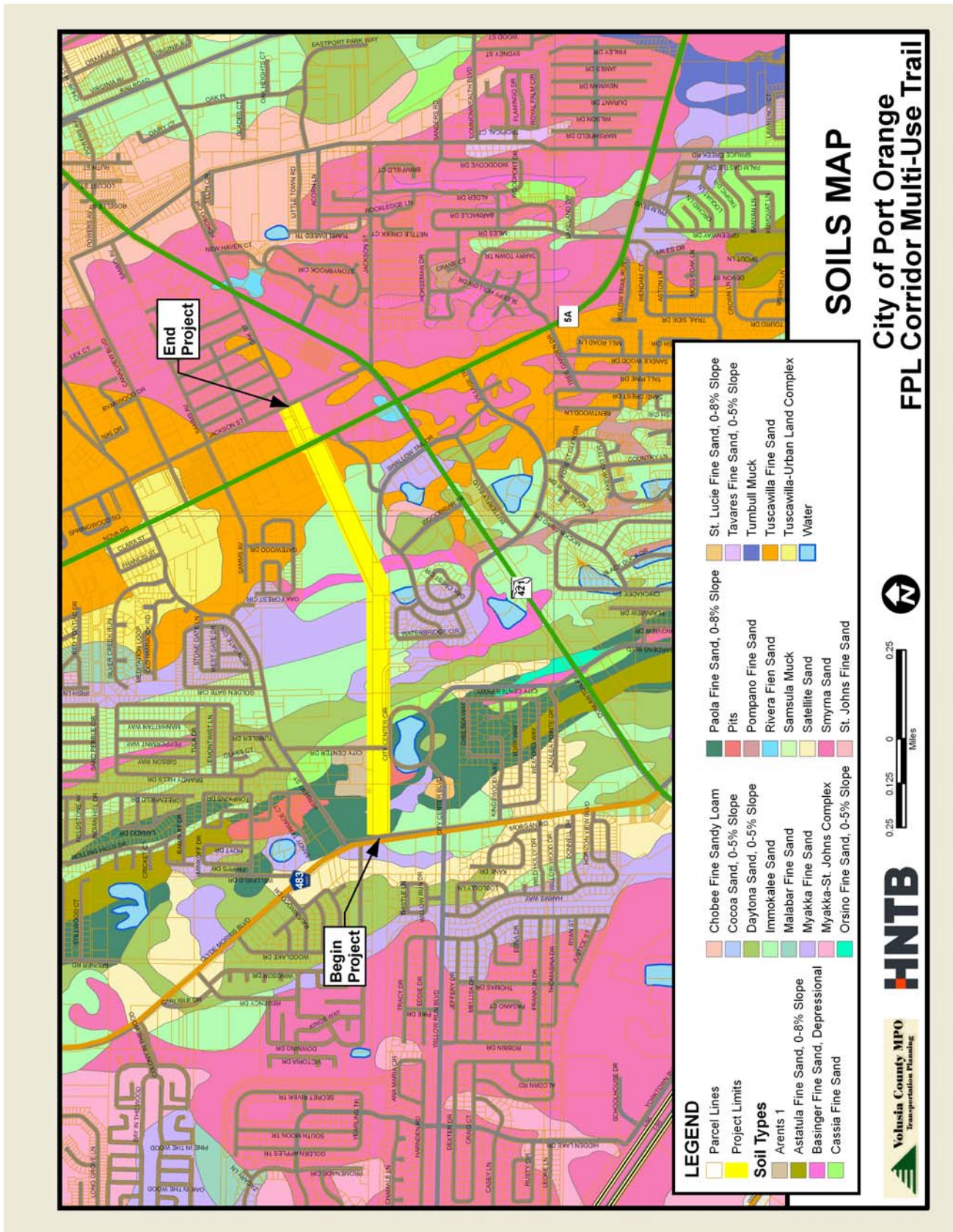


Figure 20: Soil Conditions along Corridor



5. Financial Feasibility

Table 1 provides cost estimates for the design and construction of the proposed multi-use trail. The item number and unit of measure are based on the Florida Department of Transportation Basis of Estimate manual. The unit prices are based on the average costs for each pay item as provided by the Florida Department of Transportation (Jan. 2005 to Dec. 2005).

The cost estimate is based on Florida Department of Transportation design for Bike Paths and Trails. This estimate includes cost for 4" asphalt, base and stabilization throughout the length of the corridor. The cost estimate does not include any right-of-way costs or utility relocations that are found to be necessary during the final design process.

As shown in Table 1, the total estimated cost for design and construction of the multi-use trail as detailed in the conceptual plan and discussed in this report is \$568,618.43.

This project will be planned, designed and constructed with a variety of funds. The project is eligible for federal funds that will flow through the Florida Department of Transportation and

VCMPO and will be matched by the City of Port Orange.

Table 1: Cost Estimates

ITEM NUMBER	DESCRIPTION	EST QTY	UNIT OF MEASURE	UNIT PRICE	EXTENDED PRICE
104-13-1	Staked Silt Fence	13,291.8	LF	\$1.22	\$16,216.00
110-1-1	Clearing & Grubbing (3.0 acres)	1.0	LS	\$15,000.00	\$15,000.00
120-1	Regular Excavation	1,908.9	CY	\$7.80	\$14,889.42
160-4	Type B Stabilization	11,888.7	SY	\$2.93	\$34,833.89
285-704	Base, Optional (Group 4)	9,478.6	SY	\$12.54	\$118,861.64
334-1-23	Superpave Asphaltic Concrete	613.5	TN	\$83.73	\$51,368.36
519-78	Bollards	2.0	EA	\$787.50	\$1,575.00
523-1-1	Patterned/Textured Pavement	210.7	SY	\$102.61	\$21,619.93
570-1-1	Performance Turf, Seeding	7,384.3	SY	\$1.35	\$9,968.81
700-40-1	Sign, Single Post, Less than 12	5.0	EA	\$279.37	\$1,396.85
710-7	Pavement Message, Painted	1.0	EA	\$47.50	\$47.50
710-25-61	Traffic Stripe-Solid, White, 6"	6,562.9	LF	\$0.80	\$5,250.32
721-74-1	Trash Receptacles	9.0	EA	\$1,800.00	\$16,200.00
721-75-1	Benches, Prefab	2.0	EA	\$2,600.00	\$5,200.00
SUBTOTAL BEFORE MOT AND MOBILIZATION					\$312,427.71
	Drainage		LS	5%	\$15,621.39
	Lighting		LS	5%	\$15,621.39
101-1	Mobilization		LS	10%	\$31,242.77
102-1	Maintenance of Traffic		LS	10%	\$31,242.77
SUBTOTAL BEFORE DESIGN/CONSTRUCTION/SCOPE CREEP					\$406,156.02
N/A	Engineering & Design		LS	15%	\$60,923.40
999-25	Initial Contingency		LS	5%	\$20,307.80
999-99	Scope Creep		LS	20%	\$81,231.20
TOTAL COST					\$568,618.43