South Lake Trail
Phases III & IV

PRELIMINARY ENGINEERING REPORT

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SOUTH LAKE TRAIL PHASES III AND IV
PROJECT DEVELOPMENT AND ENVIRONMENT STUDY

Preliminary Engineering Report

1.0 SUMMARY

The ***Florida Department of Transportation (FDOT)*** is conducting a Project Development and Environment (PD&E) Study to evaluate alignments for a proposed multi-use trail facility that will link the Van Fleet Trail in Sumter County to the Phase I (Clermont/Minneola) Trail in the City of Clermont, Florida. Known as **South Lake Trail Phases III and IV**, the new trail facility may largely follow the abandoned Seaboard Coastal Railroad corridor which is now owned by CSX. The trail will extend from the Van Fleet Trail just south of the Mabel Trail Head, to the western terminus of South Lake Trail Phase I at West Beach on the southwestern shore of Lake Minneola a distance of approximately 14 miles. The study will carefully evaluate the potential environmental and social impacts resulting from the proposed improvements and will examine ways to avoid or minimize those impacts. The project location maps are provided in Figures 2.2A and 2.2B.

This ***Preliminary Engineering Report*** has been prepared consistent with Part 1, and Part 2, of the *FDOT PD&E Guidelines,* as well as the requirements for a Preliminary Engineering Report.

Generally, it is the intent of this project to optimize the use of the abandoned CSX rail corridor. The clear advantage in this approach is the utilization of an established unobstructed corridor that is mostly intact. In addition, true to most rail corridors, it has been established in upland areas or the rail bed grade has been previously elevated in low-lying areas to reduce flooding and to maintain unobstructed operations. However, the rail corridor has not remained completely intact and sections have been purchased, removed, and/or developed. In such cases, it has warranted evaluating alternative alignments that may provide a better solution for these impacted areas.

A number of different corridor alignments have been evaluated and compared to the CSX corridor. Through this evaluation process, it was determined that for the most part the best corridor remained to be the CSX corridor. However, a secondary route, Corridor 3E, was identified as an additional route that should be built. Corridor 3E provides a route north to South Lake High School and through proposed neighborhoods east of the School. It is recommended that this route be recognized in this study and be incorporated as part of the over all trail network. The actual design and construction of this additional trail will be accomplished by others apart from this project.

Preferred Alignment

As outlined in the contents of this report, a number of corridor alternatives were identified and evaluated. Through the course of study, the various options were narrowed and corridors eliminated. Through the course of this report, the preferred alignment was identified as follows:

- From the Project's beginning point at the Van Fleet Trail, the Corridor follows the CSX corridor east through the Withlachoochee State Forest in Sumter County and then crosses over into Lake County to the Hillary property.
- At the Hillary property, where the CSX corridor no longer exists, the trail will run due north to the SR 50 right of way. Utilizing the very southern edge of the SR 50 right of way, the trail will parallel the road until it reaches where the CSX right of way is immediately adjacent to the SR 50

right of way approximately 500 feet west of Lee Road. The trail will then rejoin the CSX alignment.

- The trail remains in the CSX corridor through open pastureland until it reaches the western edge of the City of Mascotte. From this point the trail will continue along the CSX alignment through downtown Mascotte though much of the CSX right of way has been sold. Currently many of the sold parcels remain in tact. Where the trail crosses SR 50 a grade separated overpass is proposed.
- Where the trail encounters CR 33, topography conditions offer opportunity to go under the road for a grade separated crossing. The trail continues east along the CSX corridor to just west of Atlantic Avenue. At this point the trail again departs the CSX corridor and heads north along the eastern edge of the Calvachio property to where it then turns east and eventually works its way back to the CSX corridor just east of Atlantic Avenue where the corridor begins to parallel SR 50. This departure is largely due to the absence of the CSX corridor and buildings and/or structures having been built in the old rail corridor, including a gas station.
- From where the trail reconnects with the CSX corridor, the trail follows the corridor along SR 50 until it reaches SR 19. At SR 19, the trail will turn north along SR 19 for approximately 1 ½ blocks to where there will be an at-grade crossing on SR 19. The trail will then head east through a future downtown park, and along Crittenden Street where it then rejoins the CSX corridor at the northeast corner of Crittenden Street and SR 50. The trail then remains in the CSX corridor along SR 50 and turns north along CR 565A until it reaches CR 561.
- Since much of the CSX corridor has been developed east of CR 561, the trail crosses CR 565A just west of the CR 561 intersection where it then follows along the south and west side of CR 565A. Just north of the CR 565A bridge over the Palatlakaha River, the trail crosses back over to the CSX corridor which is again intact. The trail then continues south until it reaches its connection point with the existing South Lake Trail.

Trail Typical Section
The trails cross section maintains a 40-50 foot right of way with a 14-foot wide asphalt multi-use trail. There are limited sections where there are exceptions to the overall trail design.

Trail Structures
Aside from the trailhead facilities, there are relatively few structures for this trails 14 to 15 mile length. From west to east, the proposed structures are as follows:

- Where the trail shares the SR 50 right of way, a retaining wall may be require for certain locations to maximize right of way utilization
- SR 50 Overpass in Downtown Mascotte
- CR 33 tunnel
- Dukes Lake Bridge

Boardwalk at the Lake Hiawatha wetlands

1.1 Commitments

As outlined in Section 3.0 of this report, the South Lake Trail Phases III and IV were approved as part of a much larger trail network known as the Central Florida Loop.

Lake County has approved and adopted the South Lake Trail as part of their transportation master plan and recreation element of the Comprehensive Development Plan.

The Lake-Sumter Metropolitan Organization has ranked Phases III an IV as the regions number one priority. As such, funding becoming available in July 2005 has been committed to the future phases of this project.

As part of the Project Development & Environment Study that was performed for this project, the proposed design for this trail incorporated the following:

- An uninterrupted multi-use trail approximately 14 miles in length connecting the Van Fleet Trail in Sumter County with the South Lake Trail Phase I in Clermont
- A landscaped 14 foot wide asphalt path, with narrowing at specified location due to right of way or physical constraints.
- The structures outlined above
- Trail Heads
  - Lee Road Limited Service
  - Downtown Mascotte Full Service Trail Head and Park
- Trail connections with the Mascotte Civic Center
  - Trail connections with Lake David Park in Groveland

1.2 Recommendations

Corridor 3E (South Lake High School Route) be designed and constructed by others as part of this trail network.

The grade-separated crossing at the Hiawatha canal bridge on CR 565A be further examined and developed as an alternate alignment.

The Groveland Depot be restored and serve as a trail head for Phases III and IV.

2.0 INTRODUCTION

2.1 Purpose

The purpose of the South Lake Trail Phases III and IV Preliminary Engineering Report is to address the current project status, establish the project need, summarize collected data and describe engineering alternatives and recommendations for development of a multi-use trail. The proposed trail extends from the Van Fleet Trail in Sumter County, Florida to the western terminus of South Lake Trail Phase I located just west of the City of Clermont, Lake County, Florida. The overall length of the trail will be approximately 14 miles. The justification for this corridor has been made through the preparation of a Corridor Report that includes a Planning Analysis, an Engineering Analysis, an Environmental Evaluation, and all associated documentation.

This report has been prepared consistent with the Project Development Process and has followed the "FDOT Project Development and Environment Manual, Volume 1, Chapter 9 - Project Development", published 07/01/88 and all subsequent revisions. This report addresses the nature of existing facilities, current and future conditions, design criteria and concepts, environmental considerations, and estimated costs for construction and right of way acquisition.

2.2 Project Description

The Florida Department of Transportation is conducting a study to evaluate alignments for a proposed asphalt multi-use trail facility that will link the Van Fleet Trail to the South Lake Trail Phase I (Clermont/Minneola Trail). Known as South Lake Trail Phases III and IV, the alignment of this new trail facility may largely follow the abandoned Seaboard Coastal Railroad corridor. The trail will extend from the Van Fleet Trail in Sumter County, to the western terminus of South Lake Trail Phase I at West Beach on the southwestern shore of Lake Minneola in Clermont in Lake County, a distance of approximately 14 miles. The study will carefully evaluate the potential environmental impacts resulting from the proposed improvements and will examine ways to avoid or minimize those impacts. The project location map is provided on Figures 2.2A and 2.2B.

FIGURE 2.2A – PROJECT LOCATION MAP

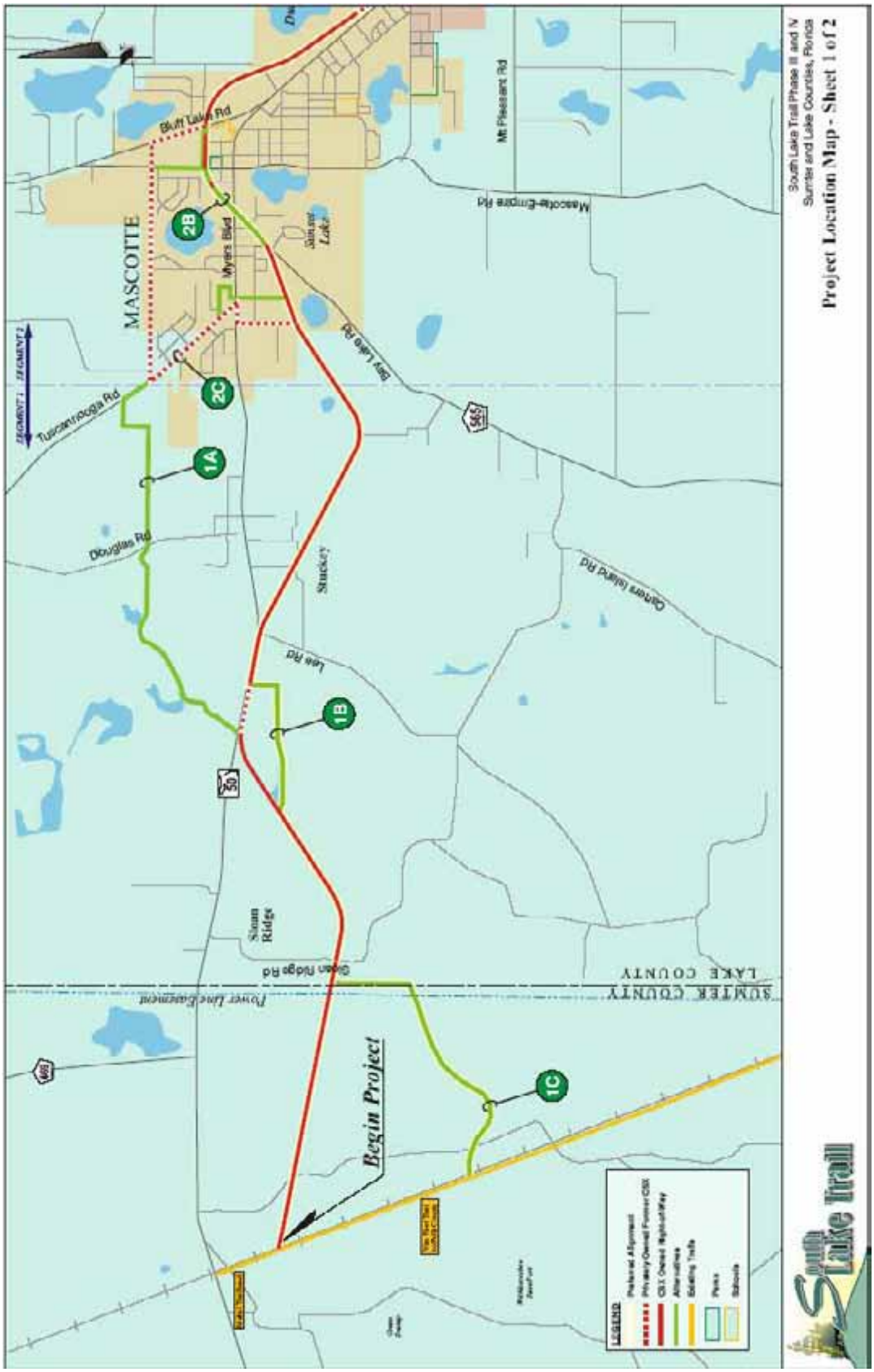
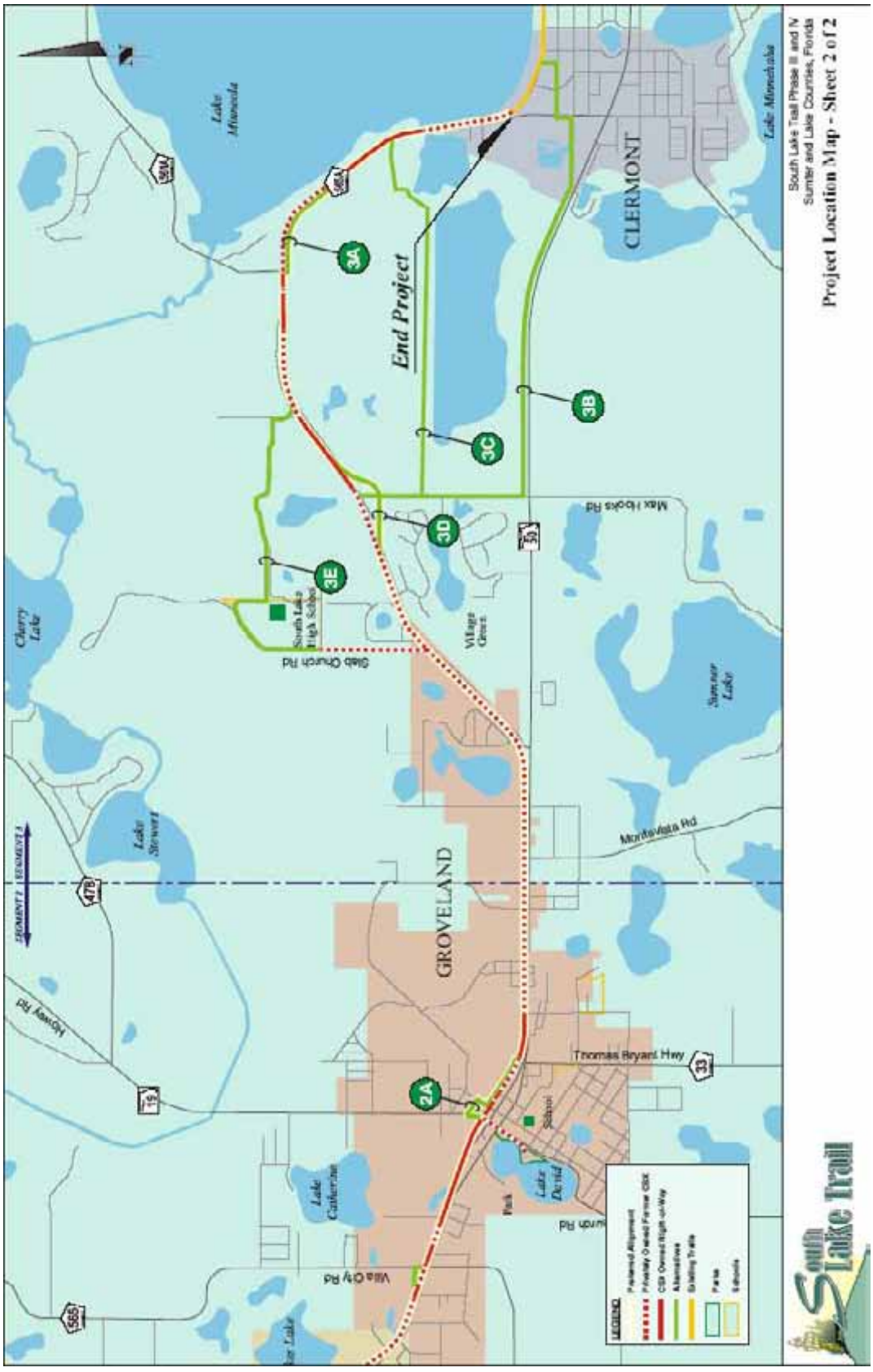


FIGURE 2.2B – PROJECT LOCATION MAP



3.0 NEED FOR IMPROVEMENT

3.1 Area Needs

3.1.1 System Linkage

As the project's name suggests, South Lake Trail Phases III and IV provides the missing links in the overall South Lake Trail system. Ultimately, South Lake Trail is proposed to extend from the Van Fleet Trail in Sumter County just west of the Lake County line, to the west end of the West Orange Trail located at the Orange/Lake County line. Phases III and IV are the segments that extend from the Van Fleet Trail to the west side of Clermont, a distance of approximately 14 miles.

In addition, Figure 3.1A illustrates that South Lake Trail itself is an important link in a much larger Central Florida trail network known as the Central Florida Loop. The Central Florida Loop is a 200-mile greenway and trail system that extends north along the Withlacoochee Trail and State Forest, turns east along the Florida National Scenic Trail, then turns south to travel through the Ocala National Forest and ultimately turns back west as it ties into a series of trails through the Orlando area including the South Lake Trail. The location of the Central Florida Loop is shown in Figure 3.1A.

FIGURE 3.1A - CENTRAL FLORIDA LOOP

Additionally, South Lake Trail provides system linkages to other trail networks such as the Van Fleet Trail that will link up to the Polk Unified Greenway System (PUGS), to the south. When completed, South Lake Trail will provide a system linkage that will make it possible to

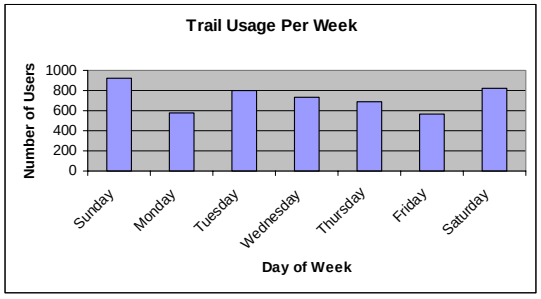
link Lakeland and Central Polk County to paved trails as far north as Seminole and Volusia Counties.

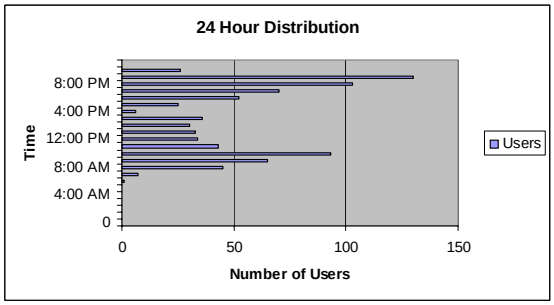
3.1.2 Anticipated Trail Usage

In general, central and south Lake County experiences a high level of trail usage. The County and other organizations host various bicycle events throughout the year. Furthermore, many of the areas in south Lake County are used for training purposes. Considering all of these factors, it is reasonable to expect the trail usage to be relatively high in spite of its relatively remote location. In evaluating other trail usage, the following information has been reported:

Trail	County	Users/Month
West Orange Trail	Orange	55,000
Little Econ Greenway	Orange	36,000
Pinellas Trail	Pinellas/Hillsborough	90,000
Seminole/Wekiva Trail	Seminole	27,000

When comparing trail characteristics such as lengths, surrounding environments, access points, number of trail heads, etc., the Little Econ Trail and the Seminole/Wekiva Trail had the greatest similarities to South Lake Trail Phases III and IV. Based on these comparisons, it is estimated the trail usage for this project will be around 30,000-35,000 users per month. In addition, the following graphs illustrate the number of daily trail users and provide insight to the distribution of usage about the Little Econ Trail.





On a trail with average usage usage it can be expected to have approximately 784 users per day. Interestingly, trail usage is fairly evenly distributed throughout the week with the highest counts being on the weekend. During the daytime hours, the AM peak is generally between 9:00AM and10:00 AM with 93 users, and the PM peak is around 8:00PM with 130 users. The PM peak will vary seasonally due to shorter day light hours in the winter months.

It may also be reasonable to assume periodic peaks in trail usage due to the many coordinated bicycle events in that area of Lake County.

3.1.3 Federal, State, or Local Government Authority

The project has been incorporated into the planning activities for Lake County, the Lake/Sumter Metropolitan Planning Organization, and the Office of Greenways and Trails. The project is being coordinated with federal, state, local agencies, representatives of affected jurisdictions, and the public. A complete history of the comments and coordination efforts for this project are provided in Section 7.13, Results of the Public Involvement Program. A summary of coordination meetings to date is provided below.

- Elected Officials and Agency Kickoff Meeting – 2/2/04
- St. Johns River Water Management District – 3/8/04
- Lake County BOCC – 4/6/04
- Mascotte City Council – 4/12/04
- Groveland Advisory Committees – 4/15/04
- Groveland CRA – 5/3/04
- Public Kickoff Meeting – 5/25/04
- Southwest Florida Water Management District – 6/30/04
- Lake County School Board Staff – 7/28/04
- Sumter County BOCC – 8/10/04
- South Lake High School – 9/14/04
- FDOT Staff Team Meeting – 10/13/04
- Withlacoochee State Forest Representatives – 10/27/04
- City of Groveland City Manager and Planning Staff – 11/3/04

3.1.4 Social Demands / Economic Developments

As outlined in Sections 3.1.1 and 3.1.2, there is a great deal of bicycling activity in South Lake County by not only day-to-day trail users but also various events and training programs, including Olympic training programs. The community benefits economically with these kinds of trail usages. As a result, is is anticipated that downtown areas such as Groveland and Mascotte, will be revitalized as so many other small communities have along other trail systems. In meeting with these communities, it was learned that both communities are looking forward to the economic development typically brought by a trail and the resultant increase in the overall quality of life for the community. Likewise, public meetings that have been held to date have reflected extraordinary support for the trail.

3.1.5 Modal Interrelationships

Trail projects provide multi-modal solutions for alternative means of transportation along roadway corridors. Since the proposed route largely follows SR 50, South Lake trail provides a parallel alternative for east/west travel in central Lake County via a safe non-automotive mode of transportation. In addition, since the route interconnects with other trail systems it facilitates alternative transportation links to a multitude of destinations.

The trail will also provide opportunities in the future to link to or establish interrelationships with other modal services such as local or regional transit systems. Likewise, since this project is part of a much larger network of trails, it can provide an economical transportation alternative for many of the disadvantaged residents that live near the corridor. The trail could even provide access to vanpooling and car-pooling opportunities.

3.1.6 Safety

Currently within the project limits of South Lake Trail Phases III and IV there are no separate facilities for non-vehicular uses such as pedestrians, bicyclists, and roller bladers to travel through the area. In addition, there are no continuous sidewalk systems or other pedestrian

features that could serve as a multi-use facility.

In spite of the lack of facilities, there is an ongoing demand in the area. Bicyclists and pedestrians are currently exposed to hazardous conditions in the project area along SR 50 and CR 565A, thereby amplifying the need for this improvement. SR 50 has a posted speed limit of 55 mph and is heavily traveled with a high percentage of truck traffic, which does not encourage pedestrian use.

Providing a separate multi-use facility is paramount to providing safety improvements for non-vehicular area trail users. Currently, there are no such facilities in the corridor which forces both pedestrians and bicyclists to share narrow, high-speed roadway corridors which have tremendous amounts of truck traffic. This project will provide a safe travel facility largely eliminating those conflicts. In addition, in the City of Mascotte there are no traffic lights along SR 50 and no provisions for street crossings. This project includes a grade-separated crossing that will enhance the safety of the community.

Among all the safety improvements this project will bring to the corridor, one of the most important improvements is access to area schools and recreation facilities. Currently bicycle/pedestrian access to these facilities is limited or non-existent. The proposed route selected was designed with the intent to provide access to parks and schools ensuring the safety of children, young adults, and people of all ages.

In addition, to improved safety, a separate trail facility will also provide numerous other benefits including encouraging healthy physical activity, providing a safe alternate mode of transportation, connecting two existing multi-use trails, providing the potential to raise property values, providing the potential to spur re-development in downtown areas and aid in developing an increased sense of community within an area. In addition, this trail is part of an overall plan to provide an interconnected trail loop around the Central Florida area. It is also a major missing link in the Florida Department of Environmental Protection (FDEP) Rails-to-Trails program.

4.0 EXISTING CONDITIONS

4.1 Existing Corridor Characteristics

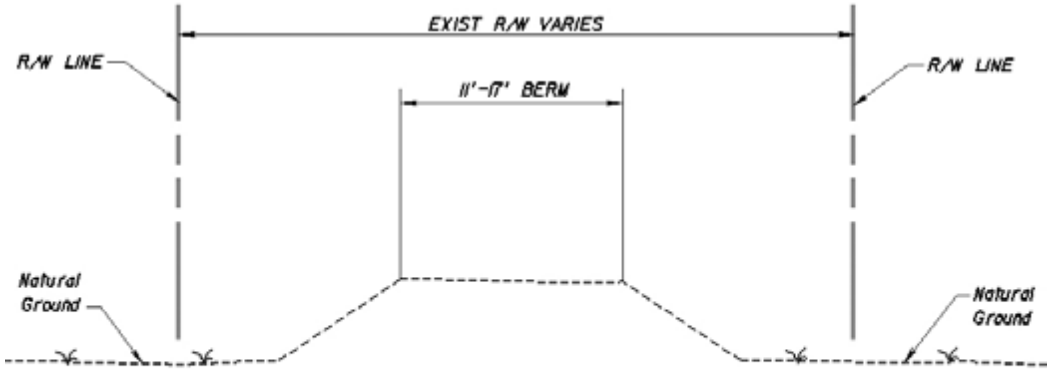
The South Lake Trail Phases III and IV is a new alignment that generally follows the abandoned CSX Railroad Corridor from approximately 1.3 miles south of the Van Fleet Trailhead in Sumter County, to the western terminus of South Lake Trail Phase I at West Beach on the southwestern shore of Lake Minneola in Clermont, Lake County, Florida as shown on Figures 2.2A and 2.2B. The right of way of the continuous rail corridor is no longer intact, as local property owners have purchased some portions of the original rail alignment.

As depicted in Figures 2.2A and 2.2B, the project is separated into three Segments moving from west to east with, each of the alternative corridors assigned a letter designation. Segment 1 extends from the projects begin point at the Van Fleet Trail in Sumter County (Station 10) to just west of the City of Mascotte (Station 265). Segment 2 extends from just west of Mascotte (Station 265) to Oak Street in Groveland, east of downtown (Station 545). Segment 3 extends from Oak Street (Station 545) to the project's end point at the West Beach Trail Head in Clermont (Station 805+). As such, the following existing conditions discussions have been categorized by the three Segments.

4.1.1 Typical Sections

The existing typical section for the majority of the route is the abandoned CSX railroad embankment with the rail, ties and rock ballast removed. The typical section generally consists of a 1 foot to 3-foot high berm with side slopes that are generally 1:3. The top width of the berm varies from11 feet to 17 feet.

In areas where the project corridor deviates from the old railroad corridor the proposed typical section will consist of a 14' wide paved trail at or slightly above the natural ground level.



EXISTING TYPICAL SECTION
SOUTH LAKE TRAIL, PHASES III & IV

With the exception of a short segment along SR 50, South Lake Trail Phases III and IV is not incorporated into the typical section of any existing roadways. It generally follows the abandoned CSX railroad alignment. The rail corridor is generally viable in most places; however, it does not resemble the rail bed that existed when it was an active railroad. The

corridor is typically a flat-grassed area that is rutted in areas where it is used as an access road. In some areas, particularly in Segment 1, the fill that was placed to maintain the rail grade is still apparent.

The photographs shown in Figures 4.1A through 4.1D show the typical existing conditions found throughout the corridor as described above.

FIGURE 4.1A: RAIL BED UNDISTURBED

FIGURE 4.1B: RAIL BED USED FOR ACCESS TO PROPERTIES

FIGURE 4.1C: RAIL BED ADJACENT TO ROADWAY

FIGURE 4.1D: RAIL BED NOT APPARENT

4.1.2 Pedestrian and Bicycle Facilities

As outlined in Section 3.1.5, there are no bicycle facilities provided in this portion of Lake County. Likewise, pedestrian sidewalks are extremely limited and only found in the downtown areas of the cities of Groveland and Mascotte.

4.1.3 Right of way

The existing right of way along the alignment of the South Lake Trail is described as follows:

4.1.3.1. Segment 1

From the Van Fleet Trail to the Boyette property east of Sloan's Ridge Road, the right of way width is typically 100 feet. The proposed trail corridor would utilize only 40 feet where the rail corridor has been purchased by private property owners.

From the southeast corner of the Boyette property, a new 40-foot right of way would need to be created to extend the trail north to the SR 50 right of way. As an interim trail location, the trail route will utilize the 110 foot of SR 50 right of way for approximately 4,100 feet to where it would rejoin the rail corridor at the northwest corner of the Hodges property located at the southwest corner of SR 50 and Lee Road. From the western boundary of the Hodges property to the terminus of Segment 1, the right of way width is typically 50 feet.

4.1.3.2. Segment 2

From the terminus of Segment 1 to the western edge of the City of Mascotte the width of the right of way is typically 50 feet. At this point, the trail can remain on the CSX alignment through downtown Mascotte (Corridor 2B) where the right of way width is typically 50 feet except for a very constrained section approximately 100 feet in length between Bay Lake Road and Howard Avenue where the right of way width is narrowed to 25 feet. From the intersection of Howard Avenue and Knight Street, a new 40-foot right of way will need to be established in the absorbed rail corridor until it reaches the intersection of Hickory Avenue and Palmetto Street. From Hickory Avenue to just west of Atlantic Avenue, the right of way width is typically 50 feet. From this point north along the eastern edge of the Calvachio property to where it then turns east of Atlantic Avenue the right of way width varies from 25 to 40 feet.

4.1.3.3. Segment 3

From the terminus of Segment 2 to Silver Eagle Road, the width of the right of way is typically 40feet up to Silver Eagle Road. At Silver Eagle Road the route can either continue heading east on the rail corridor (Mainline), albeit a number of sections would need to be purchased from property owners, or the route could head north to South Lake High School (Alternate 3E).

4.1.3.4. Mainline

For the mainline, the trail would remain within the CSX corridor and continue east of Silver Eagle Road to Jack Underwood Road where the right of way width is typically 40 feet. At the north/south section of Jack Underwood Road, the trail would have to share right of way with the existing dirt road up to where it re-joins the old rail corridor.

4.1.3.5. Alternate 3E

Alternative 3E will typically have a right of way width of 40 feet. Alternate 3E runs north in the right of way of Silver Eagle Road on the east side up to South Lake High School.

The route then runs east and north through the school property. The right of way width will vary until the route re-joins the rail corridor just east of Jack Underhill Road.

East of Jack Underwood Road the trail remains in the CSX corridor paralleling CR 565A until it reaches CR 561. Since much of the CSX corridor has been developed east of CR 561, the trail crosses CR 565A just west of the CR 561 intersection where it then follows along the south and west side of CR 565A. From Jack Underwood Road to the bridge over the Palatlakaha River, the width of the right of way is typically 40 feet. From the CR 565A bridge to the existing South Lake Trail the width of the right of way is typically 50 feet

4.1.4 Horizontal Alignment

Since there is no pre-existing facility, there is no horizontal alignment. However, in light of the fact that the trail will mostly use the abandoned rail corridor, it can be concluded that the horizontal alignment has no shifts or curves of any consequence. Deviations from the rail corridor will be designed in accordance with all applicable design requirements.

4.1.5 Vertical Alignment

In looking at the rail corridor itself, the USGS Quadrangle Maps for the project limits show the various elevations of the three segments. The project traverses gently sloping terrain with minor elevation changes. Segment one elevations range from approximately 95 to 130 feet. Segment two elevations range from 90 to 105 feet. Segment three elevations range from 95 to 130 feet.

4.1.6 Drainage

The project will generally follow the abandoned CSX (Seaboard Coastal Railroad) corridor and travel through Sumter County and Lake County. Impacts to drainage and the floodplains will be minimal due to the fact the old railroad embankment will be used with little or no additional fill required. The existing drainage structures that were constructed by the railroad are proposed to remain, as they currently exist today with the only modifications to the end treatments required. The project length is approximately 14 miles and travels through the following Sections outlined in Table 4.1-1:

Table 4.1-1 – Project Sections

Section	***Township***	***Range***
13, 14	22	23
10, 11, 13-18, 23-24	22	24
14-16, 19-21, 23	22	25

Please see figures 2.2A and 2.2B for the project Location Map. The project has been divided into three segments for the purposes of the evaluating the existing drainage.

This project includes the following USGS Quad Maps located in Table 4.1-2:

Table 4.1-2 – USGS Quad Maps

Quad	*Quad #*	*USGS ID*
Mascotte	3716	28081E8
Clermont West	3715	28081E7

Please see Appendix B for the USGS Quad Maps showing the project information, existing drainage structures and project segments.

This project includes the following FIRM / FEMA Maps listed in Table 4.1-3:

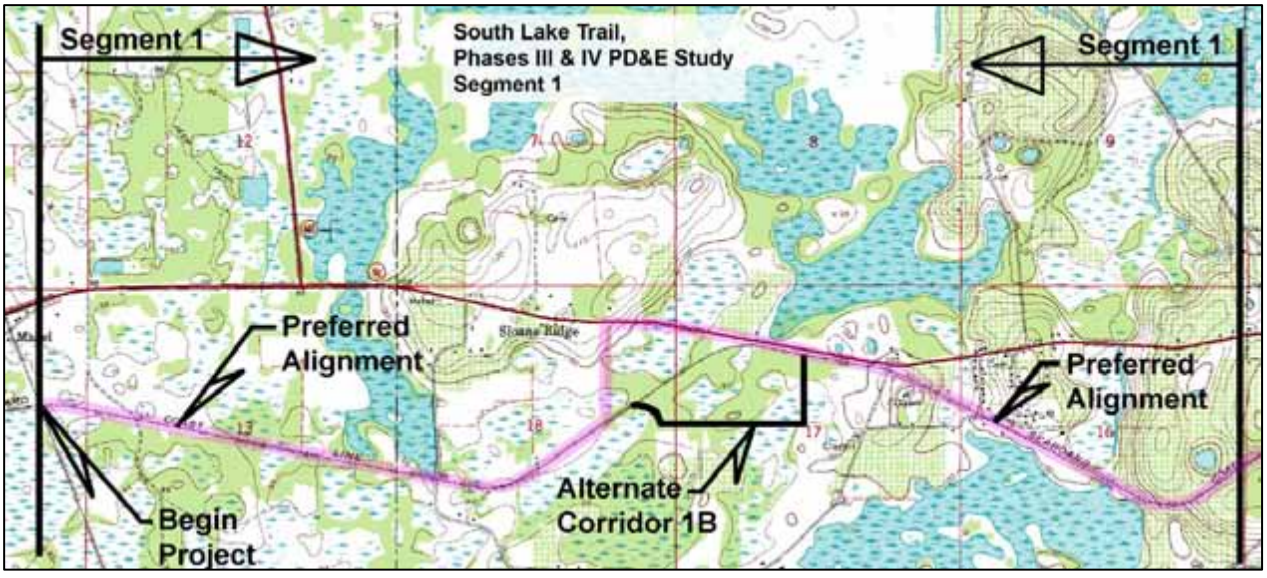
Table 4.1-3 – FIRM / FEMA Maps

FEMA FIRM Community-Panel Number	120296 0225 B	(Sumter County)
FEMA FIRM Community-Panel Number	12069C0525 D	(Lake County)
FEMA FIRM Community-Panel Number	12069C0510 D	(Lake County)
FEMA FIRM Community-Panel Number	12069C0530 D	(Lake County)
FEMA FIRM Community-Panel Number	12069C0540 D	(Lake County)
FEMA FIRM Community-Panel Number	12069C0535 D	(Lake County)
FEMA FIRM Community-Panel Number	12069C0545 D	(Lake County)

Please see Appendix C for a copy the FEMA maps.

4.1.6.1. Segment 1: From the Van Fleet Trail to western edge of the City of Mascotte

FIGURE 4.1E - SEGMENT 1 (STA. 10+00 TO 265+00)



4.1.6.1.a. Description

This portion of the project starts at the Van Fleet Trail and will utilize the old railroad corridor, which has been abandoned since the late 1960's. The beginning of this segment lies within the Withlacoochee State Forest (Sta. 10+00 to 61+50) and traverses through the Green Swamp. The old railroad berm is elevated 2'-4' above the natural ground in this area. Based on discussions with local state park personnel large portions of the area in the state forest floods; however, park personnel stated the old railroad bed had not been overtopped during any event that they can remember. Topography within the State Forest is very flat. The area consists primarily of large wetland areas connected through uplands by wetland strands. The area generally drains to the north where several culverts under SR 50 maintain a hydraulic connection that ultimately drains to the Withlacoochee River. The old railroad corridor has bisected several of these wetlands and wetland strands, maintaining a hydraulic connection in some areas with culverts. The typical drainage pattern in this area is for stormwater to collect in the wetland areas and slowly drain through the wetland strands. The railroad corridor has significantly affected the local drainage by bisecting several of the wetland strands with no hydraulic connection. Discussions with personnel from the Southwest Florida Water Management District (SWFWMD) indicate there are flooding problems in the area, some of which can be attributed to the railroad embankment. The possibility of adding cross drains under the railroad embankment to re-establish historic drainage patterns as part of this project was discussed with SWFMD personnel. They indicated that without a detailed study of the entire basin they would not recommend any additional cross drains. Their concern was the possibility of causing more flooding problems downstream (to the north). They did acknowledge that there might be some benefit obtained by placing crossings under the railroad embankment for the use of small animals as a corridor crossing.

The topography of the remainder of Segment 1 is similar to that described within the State Forest, flat areas with large wetlands connected by wetland strands. This area also generally drains to the north. Public, private roads and the old railroad embankment within this area have significantly impacted the historic drainage patterns. Hydraulic connections have been typically maintained by the installation of culverts. These are typically undersized and not well maintained. The first crossing encountered in this area is a dirt road (Sta. 64+00) that is used by the local landowner as a cattle crossing and to access his property to the north. The property owner stated that directly west of the cattle crossing when flooding occurs in the area the railroad grade will be overtopped as the water flows to the north. He stated that the railroad embankment historically did not overtop in this area but that there have been manufactured improvements to local roads south of his property that re-directed storm water that originally flowed east to the north. This property now floods more frequently and subsequently overtops the railroad bed. He requested that an additional culvert be installed at this location to help alleviate flooding in this area. He stated this is the only area that he knew of where the railroad bed had been overtopped.

The old railroad corridor is elevated until half way through Section 18 (approx. Sta. 120+00), where the local landowner has purchased the land from CSX and removed the old berm. At Sta. 120+00 the alignment will leave the railroad corridor and head north

to SR 50. At SR 50, the alignment continues east to Sta. 170+00 where it will again utilize the railroad corridor. From Sta. 170+00 until the end of Segment 1, the corridor will utilize the old railroad corridor, which is an elevated berm section.

The existing drainage structures that were discovered in Segment 1 and that are shown in Appendix B on Quad Map 3 are included below in Table 4.1-4.

Table 4.1-4 – FIRM / FEMA Maps

Structure Number	***Station***	***Size***	***Type***
S-1	0+00	24”	RCP – side drain
S-2	52+50	48”	RCP – cross drain
S-3	75+00	48”	RCP – cross drain
S-4*	94+00	24”	RCP – cross drain
S-4A	149+01	24”	RCP – cross drain
S-4B	153+97	48”	RCP – cross drain
S-4C	153+97	48”	RCP – cross drain
S-4D	168+60	48”	RCP – cross drain
S-5	232+50	48”	RCP – cross drain
S-6	232+50	48”	RCP – cross drain

*Structure S-4 was ¾ buried and the size is only an approximation.

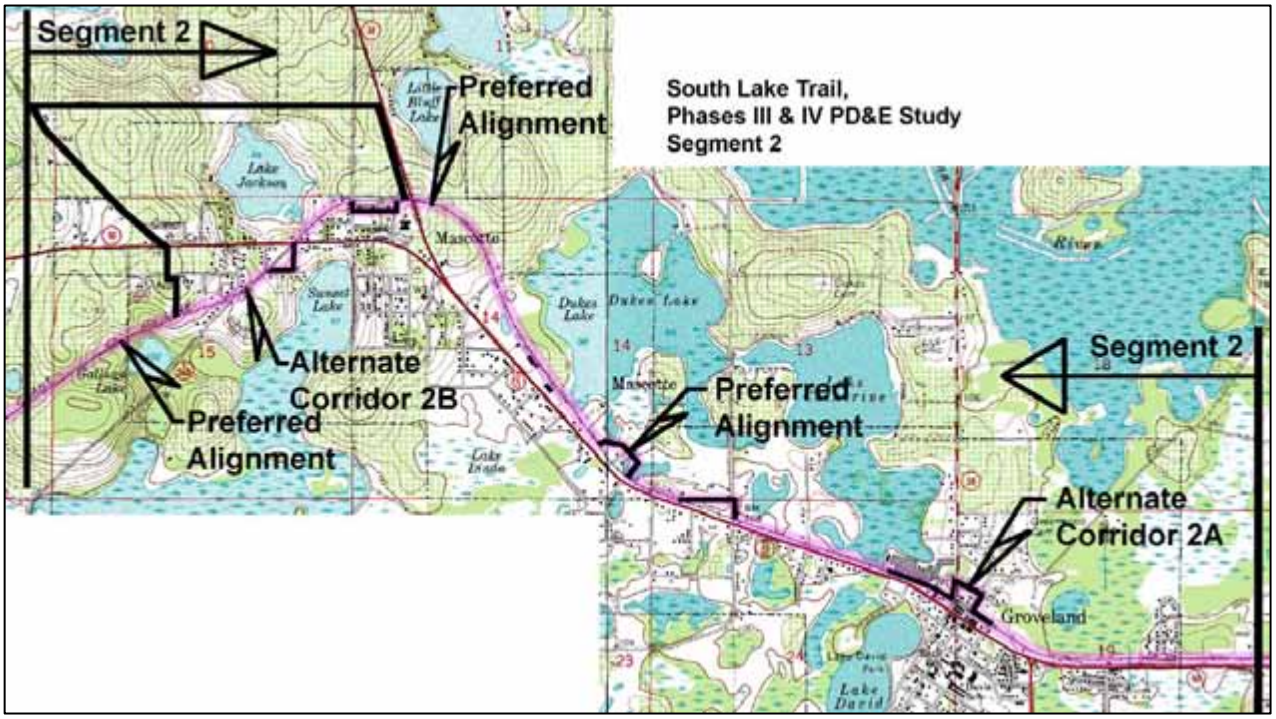
Structure S-1 is actually under the Van Fleet trail. Structures S-2 through S-6 are existing cross drains under the old railroad embankment. None of the existing structures has end treatments on them such as headwalls or mitered end sections. In addition, at structures S-5 and S-6 (double 48” RCP) the embankment width has been eroding away and one end of the pipe sections has separated and will need to be repaired.

4.1.6.1.b. Existing Floodplains

A review of the FEMA maps (see Appendix C) show that the majority of the project alignment for Segment 1 is within the 100-year floodplain. However, the majority of the project will be constructed on the old railroad grade, which is elevated throughout most of this segment. The only noted overtopping was directly east of the State Forest limits at the first private dirt road as noted previously. When the alignment deviates from the railroad embankment there will be minor encroachment into the 100-year floodplain. Impacts will be minimal and all flow patterns will be maintained.

4.1.6.2. Segment 2: Western Edge of Mascotte to east of Groveland

FIGURE 4.1F - SEGMENT 2 (STA. 265+00 TO 535+50):



4.1.6.2.a. Description

The majority of this segment utilizes the old railroad corridor and embankment which traverses through the City of Mascotte with a proposed grade separated crossing at SR 50. South of SR 50 the natural drainage patterns flow to Gallows Lake and Sunset Lake. On the north side of SR 50 the project will drain to Lake Jackson and Little Bluff Lake.

The alignment utilizes the railroad corridor through Mascotte except for two locations. At Howard Avenue, the alignment will follow Knight Street east and then north where it will cross SR 50 and connect to the railroad corridor (Sta. 311+50 to Sta. 321+50). From this point to Sunset Avenue (Sta. 333+00) the alignment follows the railroad corridor. At Sunset Avenue, the alignment will move south of the railroad corridor to Hickory Street where it will again follow the railroad corridor. To the end of Segment 2, the alignment will follow the railroad corridor except from Sta. 398+80 to Sta. 414+50, from Sta. 425+80 to 436+20 and Sta. 477+00 to 503+00. Directly east of Groveland, the project corridor drains to the north and eventually the Palatlakaha River. This portion of the project is primarily within developed areas. The majority of the railroad embankment remains but short segments have been purchased by adjacent property owners and regarded and used as part of their operation. With minor regrading and installation of small culverts, established drainage patterns would not be affected by utilizing this corridor.

The existing drainage structures that were found in Segment 2 and that are shown in Appendix B on Quad Maps 3 and 4 included in Table 4.1-5.

Table 4.1-5 – Existing drainage structures found per Quad Maps 3 & 4

Structure Number	*Station*	*Size*	*Type*
S-6A	376+00	48”	RCP – cross drain
S-7	520+80	buried	CMP – side drain
S-8	520+80	buried	CMP – cross drain
S-9	538+50	8”	PVC – outfall from parking lot

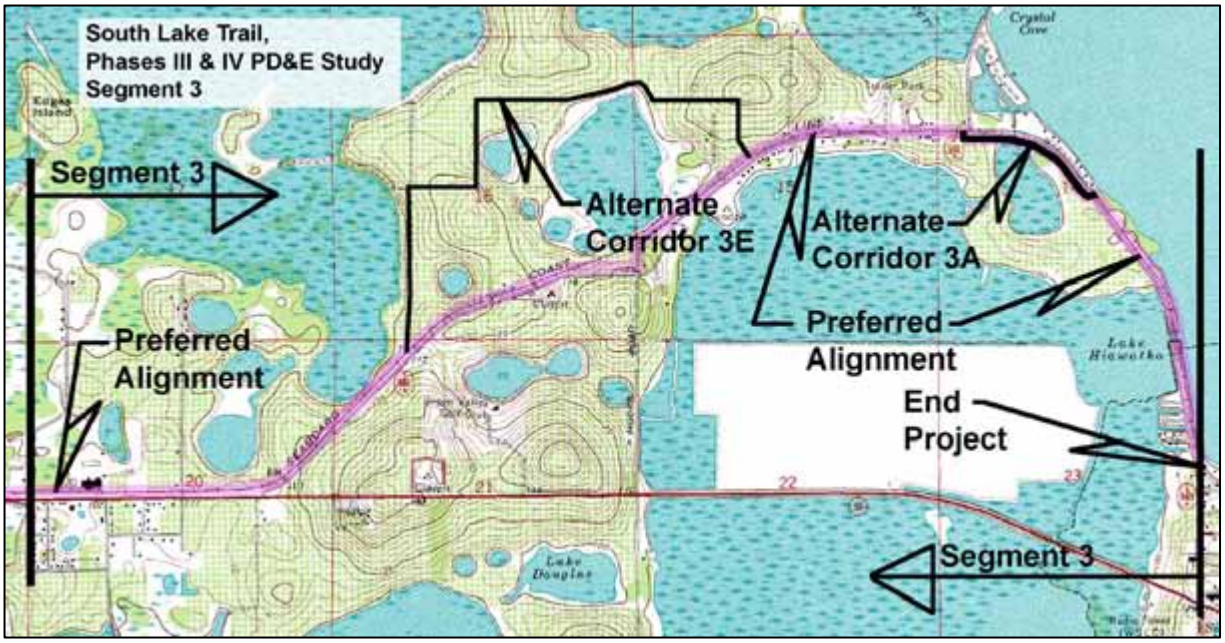
4.1.6.2.b. Existing Floodplains

Existing Floodplains:

This portion of the project is not anticipated to affect any floodplains due to the corridor following the old railroad alignment. In downtown Mascotte the project alignment will pass near Lake Jackson which has a designated floodplain but the alignment will not impact the floodplain. The FEMA maps show that the 100 year floodplain from Dukes Lake and Lake Catherine extend up to the old railroad corridor, however, this project will utilize the existing embankment in these areas therefore no impacts to the floodplains are anticipated. Directly east of Groveland, a 100-year flood plain is shown extending from the Palatlakaha River, however, no impacts are anticipated since the project will utilize the old railroad embankment.

4.1.6.3. Segment 3: East of Groveland to South Lake Trail, Phase I in Clermont

FIGURE 4.1G - SEGMENT 3 (STA. 535+50 TO 840+20):



4.1.6.3.a. Description

The old railroad corridor will be utilized for a portion of this segment. The project corridor is on the north side of SR 50 from the beginning of Segment 3 to CR 565A. The alignment will follow the railroad corridor along the north side of CR 565A to Sta. 647+00 where a subdivision has been constructed on the old railroad corridor. The project alignment will be adjacent to CR 565A until the intersection with Jack Underwood Road where the alignment will turn North and reconnect with the old railroad corridor at Sta 665+00. The alignment will follow the railroad corridor until the intersection of CR 565A and 561A, where the alignment will switch to the south side of the road to avoid impacts to residential homes and will pass north of an unnamed low area before again crossing CR 565A and rejoining the old railroad corridor. This route is typically in undeveloped areas where natural drainage patterns can be maintained or adjacent to existing roads where the roadside drainage systems would be used. The project will utilize the existing bridge crossing at Sta. 785+00 to traverse the connection between Lake Hiawatha and Lake Minneola. Directly south of the existing bridge the project corridor will drain to Lake Minneola, however, it was noted during field reviews that the area between CR 565A and the old railroad corridor (approx. Sta. 794+00) is currently a low spot that has to stage up a few feet before discharging to Lake Minneola. A small culvert would be needed to drain this area.

4.1.6.3.b. Existing Floodplains

This portion of the project is not anticipated to impact any floodplains due to the corridor following the old railroad alignment. In areas where the project alignment deviates from the railroad corridor, the alignment has been routed to avoid floodplain impacts.

The existing drainage structures that were found in Segment 3 and that are shown in Appendix B on Quad Map 4 included in Table 4.1-6 below.

Table 4.1-6 – Existing drainage structures found per Quad Maps 3 & 4

Structure Number	***Station***	***Size***	***Type***
S-10	580+50	24”	RCP – side drain
S-11	580+50	24”	RCP – side drain
S-12	585+50	18”	RCP – side drain
S-13	607+50	24”	PVC – outfall from Pond
S-14	785+00	Bridge	Bridge between Lake Hiawatha and Lake Minneola

4.1.7 Geotechnical Data

The South Lake Trail project includes parts of Lake and Sumter County. The project is separated into three segments, with Segment 1 beginning at the western end of the project. Segment 1 is included in Lake and Sumter Counties, while Segments 2 and 3 are located only in Lake County. The entire project spans predominantly rural lands, but the trail does traverse through downtown Mascotte and Groveland. According to the Soil Conservation Service Soil Mapping for Lake County, Segment 1 soils are comprised of Placid sand, Pompano sand, Myakka sand, Astatula sand, Tavares sand, Eau Gallie fine sand, and Delray fine sand. Segment 2 contains a multitude of soil types as well, including Astatula sand, Apopka sand, Lochloosa sand, Kendrick sand, Tavares sand, Ellzey sand, Wauchula sand, Sparr sand, loamy fill soil, and swampy type soil. Segment 3 contains Astatula sand, Myakka sand, Tavares sand, Apopka sand, Kendrick sand, loamy fill soil, Lake sand, Pompano sand, and Orlando fine sand. The engineering characteristics of the soils described above, is shown in Table 4.1-7 below.

Table 4.1-7: Engineering Characteristics of Existing Soils

Soil Series	Hydrologic Soil Group	Consistency	Depth to Seasonal High Water Table (Ft.)	Drainage	Permeability	AASHTO Classification
Apopka	A	Sandy w/ loam	>6.0	Well drained	Rapid	**A-3, A-2-4**
Astatula	A	Sandy	>6.0	Excessively drained	Rapid	**A-3**
Delray	B/D	Sandy w/ loam	0.5-1.0	Poor	Moderate	**A-3, A-2-4**
EauGallie	B/D	Sandy w/ clay	0.0-1.0	Poor	Slow	**A-3, A-2-4**
Ellzey	B/D	Fine sand	0.5-1.5	Fair	Moderate	A-3
Kendrick	A	Sand w/ clay loam	>6.0	Well drained	Moderate	A-3, A-2-4, A-2-
Lake	A	Sandy	>6.0	Well drained	Rapid	A-3, A-2-4
Lochloosa	C	Sandy loam	2.5-5.0	Well drained	Moderate	A-2-4, A-2, A-4
Myakka	B/D	Sandy	0.0-1.0	Poor	Rapid	A-3, A-2-4
Orlando	A	Fine sand	>6.0	Well drained	Rapid	**A-3, A-2-4**
Placid	D	Fine sand	0	Poor	Rapid	**A-3**
Pompano	B/D	Fine Sand	0.0-1.0	Poor	Rapid	**A-3, A-2-4**
Sparr	C	Fine sand	1.5-3.5	Well drained	Rapid	A-3, A-2-4
Tavares	A	Sandy	3.5-6.0	Well drained	Rapid	**A-3**
Wauchula	**B/D**	**Fine Sand**	**0.0-1.0**	**Very Poor**	**Slow**	**A-3, A-2-4**

4.1.8 Accident Data

The accident data from Lake County and FDOT from 1998 to 2002 was reviewed along the South Lake Trail preferred alignment. Table 4.1-8 shows the locations of accidents that occurred where the South Lake Trail would cross a roadway.

Table 4.1-8: Location of accidents

Accident Area	*Main Road*	*Side Road*	*No. of Accidents*
1	SR 50	CR 50 (Sunset Ave)	14
2	CR 33	Underpass Rd	4
3	Atlantic Ave	SR 50	2
4	US 19	SR 50, Crittenden St	20
5	Silver Eagle Rd	CR 565A	33
6	CR 565A	Jack Underwood Rd	4
7	CR 561A	CR 565A	8

A review of the crash data revealed a few locations / intersections in areas near potential trail crossings that are a concern due to the high number of accidents. A summary of this information is provided below:

Accident Area #1 (SR 50 & CR 50) is located in downtown Mascotte and shows 14 accidents. This intersection is currently un-signalized. The proposed grade-separated crossing for SR 50 is located two blocks east of this intersection.

Accident Area #2 (CR 33 & Underpass Road) is an un-signalized intersection and shows 4 accidents. With the addition of a tunnel crossing for the proposed trail, no conflicts are anticipated.

Accident Area #3 (Atlantic Avenue and SR 50) shows 2 accidents. This intersection is currently un-signalized. The proposed trail alignment is several blocks north of this intersection.

Accident Area # 4 (US 19 & SR 50, Crittenden Street) located in downtown Groveland shows 20 accidents. Based upon our field reviews, this intersection is a very busy signalized intersection and has a lot of heavy truck traffic. The trail alignment is propsed one block north of this intersection to minimize potential conflicts.

Accident Area #5 (Silver Eagle Rd & CR 565A) shows the most accidents of any location along the proposed South Lake Trail alignment with 33 accidents. This intersection is currently un-signalized and serves South Lake High School. The trail is proposed to cross Silver Eagle Road near this intersection.

Accident Area #6 (CR 565A & Jack Underwood Road) shows 4 accidents at this location. Jack Underwood Road is a dirt road that serves a small number of single family residential homes. This intersection is currently un-signalized. The trail is proposed to cross Jack Underwood Road at this intersection.

Accident Area #7 (CR 561A & CR 565A) shows a total of 8 accidents. The intersection is currently an un-signalized T-intersection. The trail is proposed to cross CR 565A at this intersection on the west side of the intersection to avoid the heavy right turn movement.

4.1.9 Intersections and Signalization

Only 32 roadway crossings are anticipated along the preferred alignment of the 14 mile

proposed trail. This is comparatively low for a trail through an urbanized area. This averages only one crossing every half of a mile. Table 4.1-9 provides a listing of the proposed crossings.

Table 4.1-9: Roads crossed with the South Lake Trail preferred alignment

Road Name	***Lanes***	***Road Type***	***Type of Facility***
Sloan's Ridge Road	2	Asphalt	Local Road
Lee Road	2	Asphalt	Local Road
Stucky Road	2	Asphalt	Subdivision Road
CR 565 (Bay Lake Road)	2	Asphalt	County Road
Knight Street	2	Asphalt	Subdivision Road
SR 50 (West Meyers Boulevard)	2	Asphalt	State Road
West Mohawk Boulevard	2	Asphalt	Subdivision Road
Barry Avenue	2	Asphalt	Subdivision Road
CR 50 (Sunset Avenue)	2	Asphalt	County Road
Hickory Avenue	2	Asphalt	Local Road
CR 33 (Bluff Lake Road)	2	Asphalt	County Road
American Legion Road	2	Asphalt	Local Road
Atlantic Avenue	2	Asphalt	Local Road
Villa City Road	2	Asphalt	Local Road
Catherine Lane	2	Asphalt	Local Road
US 19 (Howey Road)	2	Asphalt	State Road
North Main Avenue	2	Asphalt	Local Road
Rice Court	2	Asphalt	Local Road
3rd Avenue	2	Asphalt	Subdivision Road
2nd Avenue	2	Asphalt	Subdivision Road
1st Avenue	2	Asphalt	Subdivision Road
Beverly Drive	2	Asphalt	Local Road
Sampey Road	2	Asphalt	Local Road
Hidden View Drive	2	Asphalt	Local Road
Timber Village Road	2	Asphalt	Local Road
Hidden View Drive	2	Asphalt	Subdivision Road
Silver Eagle Road	2	Asphalt	Local Road
Battle Ground Lake Road	2	Asphalt	Local Road
Jack Underwood Road	2	Asphalt	Local Road
7 Oaks Drive	2	Asphalt	Local Road
CR 565A	2	Asphalt	County Road
CR 565	2	Asphalt	County Road

The preferred alignment of the South Lake Trail has the potential to cross near one existing signalized intersection in Groveland. The intersection that is currently signalized is SR 50 and US 19. The preferred alignment in this area will depend on the redevelopment that is occurring on the northwest corner of this intersection. The developer of this parcel has conceptually agreed to allow the trail to pass through the development but the exact alignment has not been established.

4.1.10 Lighting

Lighting does not currently exist along the proposed length of the trail, except for some street lighting where the proposed trail crosses S.R. 50 in downtown Mascotte. A lighting justification study was not performed during the current PD&E study.

4.1.11 Traffic Conditions

Based on traffic count information provided by FDOT and Lake County, the Annual Average Daily Traffic (AADT) for the Years 1999 through 2003 was compiled for the roadways crossing the preferred trail alignment. A summary of this information is provided in Table 4.1-10 below.

Table 4.1-10: South Lake Trail preferred alignment traffic conditions for the roadways

Road Name	1999 AADT	2000 AADT	2001 AADT	2002 AADT	2003 AADT	Growth Rate	Posted Speed (MPH)**
CR 565 (Bay Lake Rd)	895	851	861	*	*	*	55
SR 50	12300	12000	15500	13100	13600	3.52%	35-55
CR 33	3020	3546	3271	3861	3830	4.87%	55
US 19	5700	5100	6500	6700	7000	4.17%	55
CR 565A	2814	3399	4442	3868	3804	6.22%	45
CR 561	*	2369	2648	2774	2630	2.64%	35

Only the roadways shown in the table above have traffic data available.

*Indicates that the data was not available.

** Speed limits are for the section of roadway where South Lake Trail will cross.

4.2 Existing Environmental Characteristics

4.2.1 Land Use Data (Existing and Future)

The PD&E Guidelines stipulate that the proposed facility be evaluated in terms of its impacts and compatibility with jurisdictional Comprehensive Plans and designated land uses. The proposed South Lake Trail Phases III and IV lies in five jurisdictions. They include Sumter and Lake Counties and the Cities of Clermont, Groveland, and Mascotte. The following outlines both the existing and future land use designations as they are essentially the same, and specific property operations. The following maps shown in Figures 4.2.1 through 4.2.5 reflect the future land use designations for the five jurisdictions.

A. Segment 1

From the Van Fleet Trail Head in Sumter County across the county line into Lake County, the future land uses are conservation and agricultural. These land uses are compatible with a multi-use trail and the existing land uses provide no conflict with the trail or can easily be coordinated. There is one existing land use, the Hillary property that appears to have a

compatibility conflict. The original CSX rail corridor traveled through the Hillary property. However, the land has been purchased by the Hillary family and has been incorporated into their nursery business Marion Gardens. After meeting with the owners, it was determined a trail may be incompatible with the nursery operations, and most specifically to pesticide and fertilization spraying. To avoid this incompatibility, the trail has been rerouted north along a nearby vacant property to the SR 50 right of way. As an interim solution, the trail will utilize the SR 50 right of way heading east until it can rejoin the CSX alignment just west of Lee Road. The Hillary's indicated, in looking at their twenty-year horizon, they anticipate rezoning the land to residential, in which case, the trail would be incorporated into the development. In Stuckey, the trail will follow the trail corridor through low density residential areas.

B. Segment 2

From the terminus of Segment 1 the trail will travel through two Cities, Mascotte and Groveland. Through the length of this Segment, the future land uses are low density residential, commercial, institutional, and recreational. The multi-modal trail is compatible with these land uses and will enhance the areas with improved access and as a community enhancement for both jurisdictions. Likewise, the proposed trail location poses no conflicts with the existing activities and land uses in Segment 2.

C. Segment 3

Segment 3 extends from the eastern areas of the City of Groveland, through Lake County and terminates in the northwestern sections of the City of Clermont. In Groveland, the trail route travels along the existing rail corridor through commercial land uses along SR 50. Where the trail heads north along CR 565, it will traverse through Lake County's *Urban Development* land use until it reaches the north edge of Clermont. In Clermont, the trail passes through the City's conservation and recreation areas along Lake Minneola. In Segment 3 there are no conflicts anticipated with land uses.

The multi-use trail will be compatible with the land uses in the corridor. Where there have been potential conflicts, the trail has been rerouted. The proposed trail will not require any land use changes or Comprehensive Land Use Plan amendments.

FIGURE 4.2.A SUMTER COUNTY

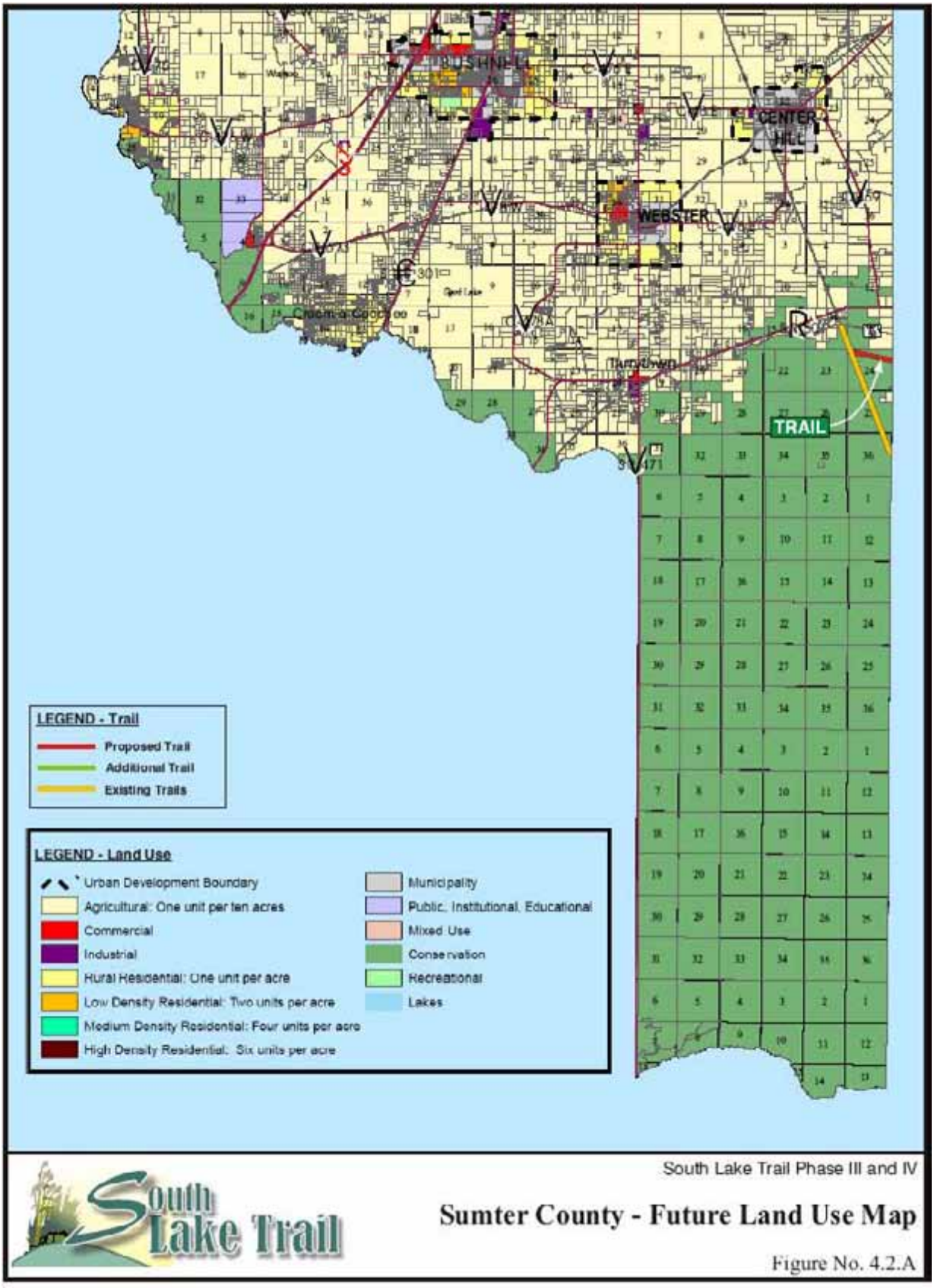


FIGURE 4.2.B LAKE COUNTY

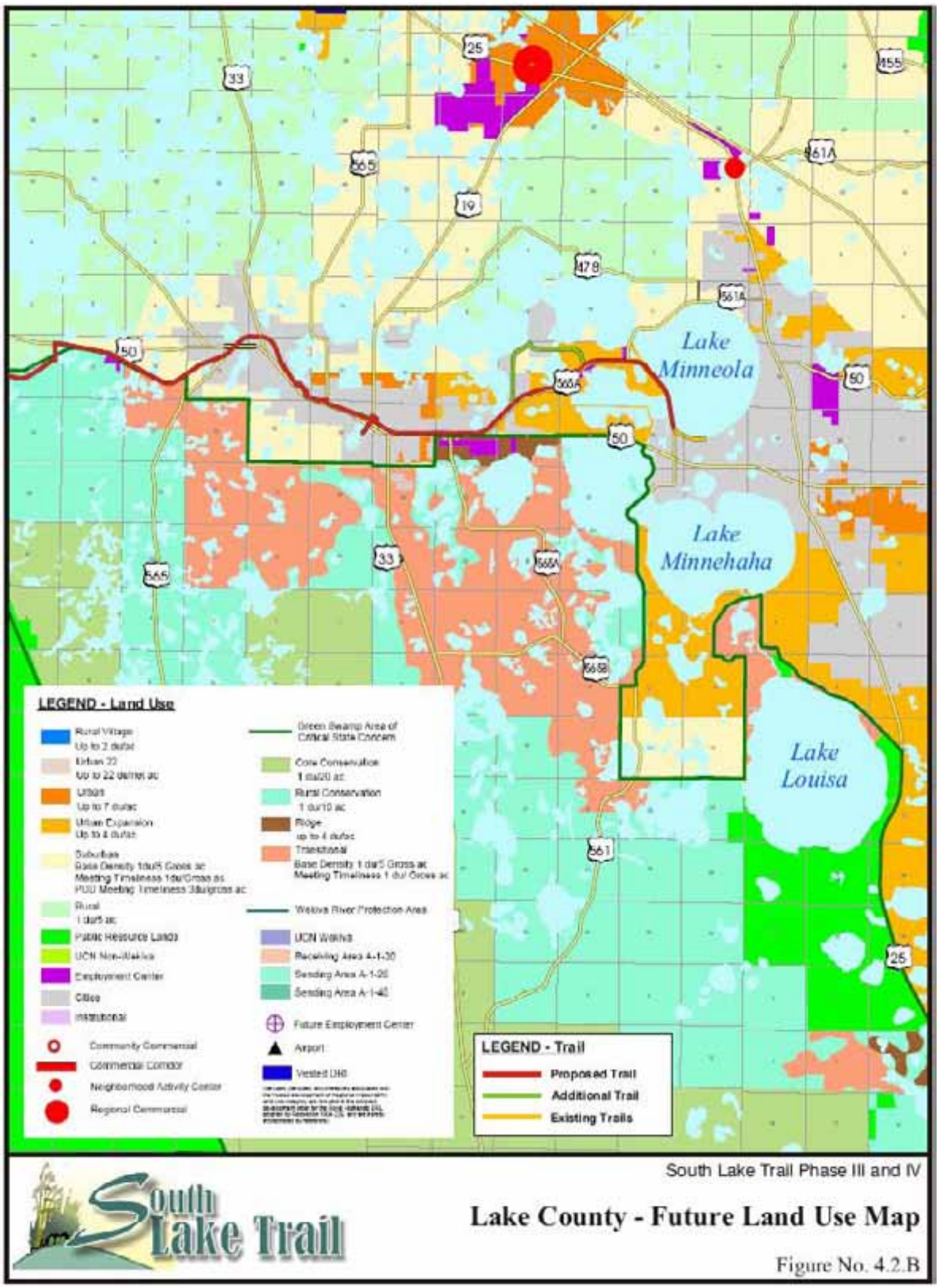


FIGURE 4.2.C MASCOTTE

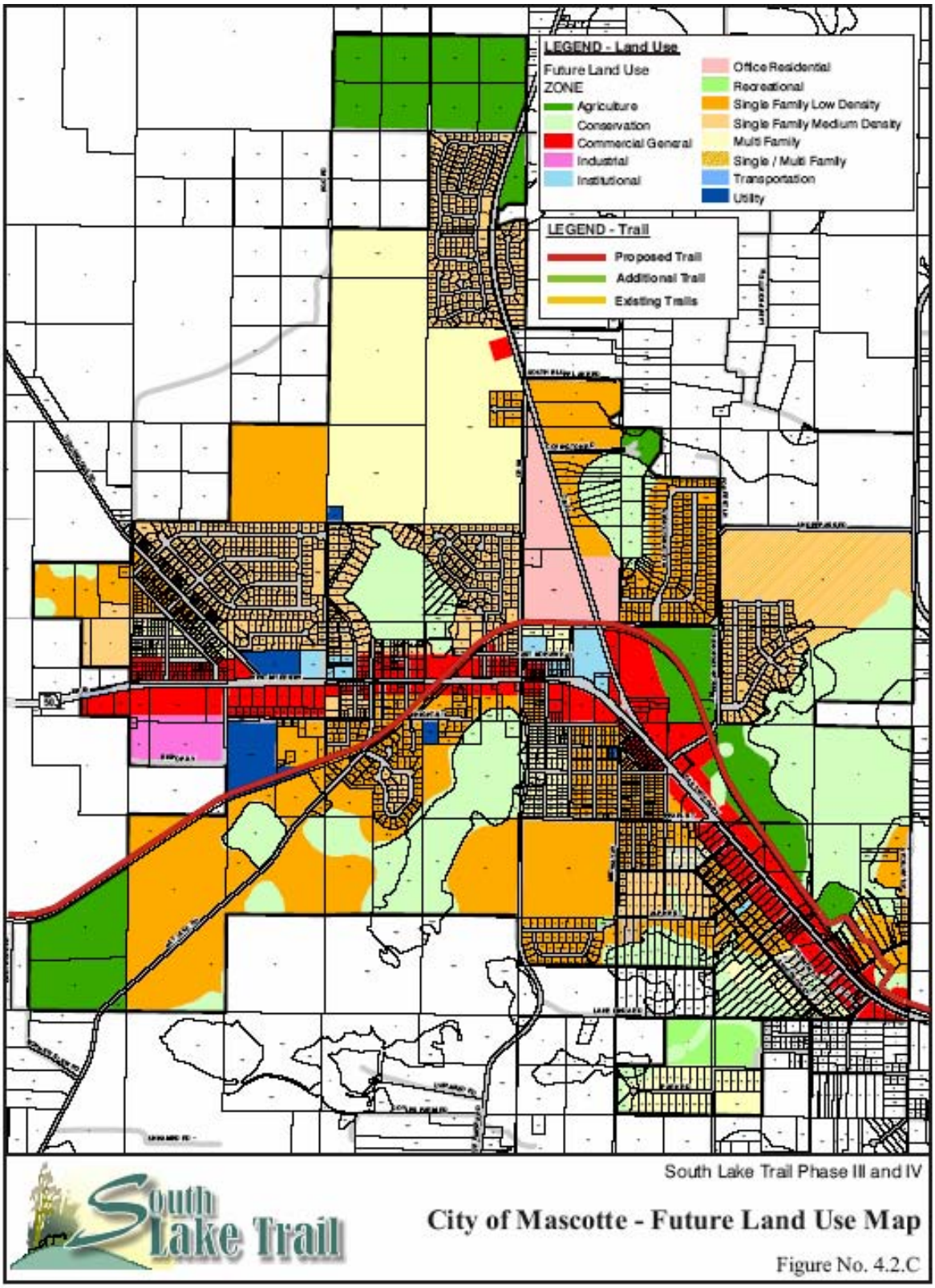


FIGURE 4.2.D GROVELAND

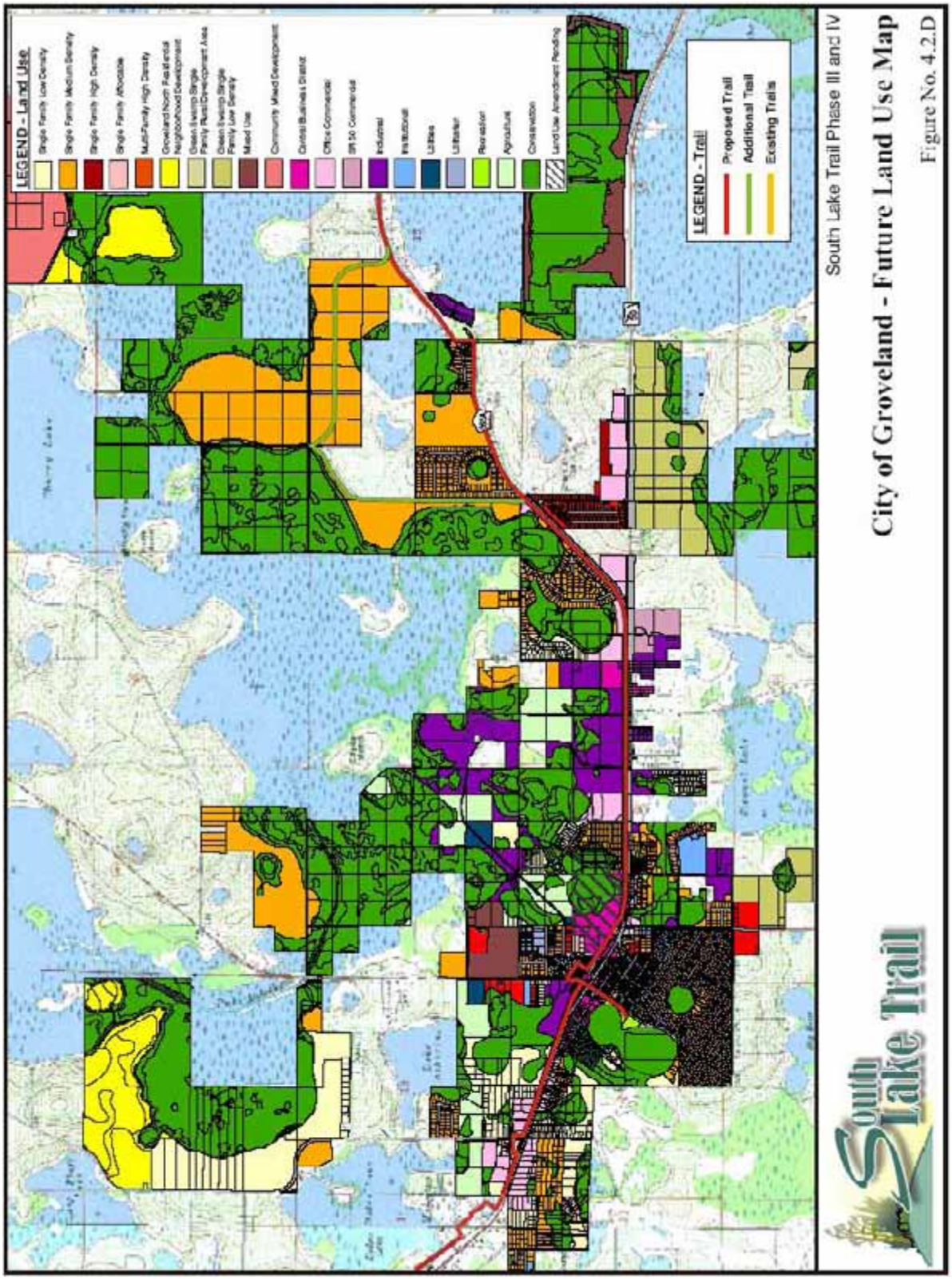
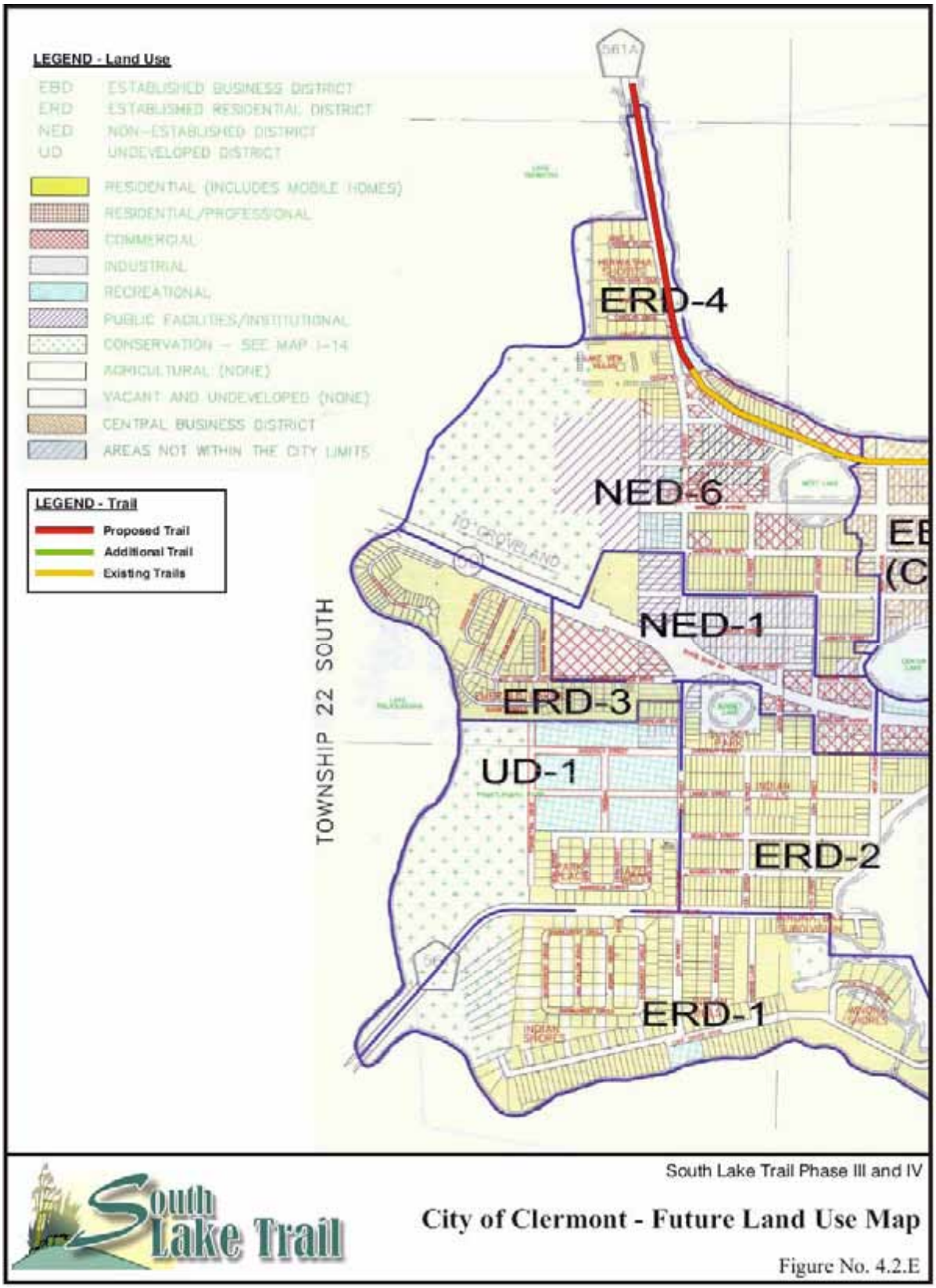


FIGURE 4.2.E CLERMONT



4.2.2 Cultural Features and Community Services

A. Archeological

Background research, which included a review of data at the Florida Master Site File (FMSF) and the NRHP, indicated that six archaeological sites have been recorded previously within approximately one mile of the project corridor. A review of relevant site locational information for environmentally similar areas within Lake and Sumter Counties indicated that portions of the project APE had a moderate to high probability for the occurrence of pre-contact period sites. The background research also indicated that archaeological sites, if present, would most likely be small lithic and/or artifact scatter type sites. As a result of field survey, one archaeological site (8LA2820) was identified and evaluated. This lithic scatter type site is not considered potentially NRHP eligible. In addition, three archaeological occurrences were found.

B. Historical

Background research, including a review of the FMSF and NRHP, indicated that no historic resources (50 years of age or older) are recorded in the project area. Field survey resulted in the identification and evaluation of three historic resources, including the Arnold-Whiteley House (8LA2871), the Mascotte Elementary School (8LA2872), and the Groveland Train Depot (8LA2873). Both the residence and depot have suffered a loss of integrity, and therefore, are considered ineligible for listing in the NRHP. The Mascotte Elementary School (8LA2872) is considered potentially eligible for listing in the NRHP under Criterion A in the areas of Education and Community Planning and Development, and under Criterion C in the area of Architecture. At its closest point, the historic school boundary is approximately 275 ft south of the proposed trail corridor.

C. Community Services

In terms of the impacts to Community Services within the corridor, the trail will provide a positive contribution. This type of trail project compliments community services such as schools, libraries, civic facilities, churches, and parks by improving access to more patrons. As a potential recreation facility, trails expand the services of parks and provide links to other parks and recreational complexes. Likewise, it makes the parks and recreational facilities more accessible to children and adults by providing safe access opportunities. Similarly, all community facilities such as libraries, civic centers, etc., provide access to children who can ride their bikes or walk safely to locations that may not otherwise be safely accessible. The following list reflects community facilities that directly benefit this project:

- The west Lake Minneola, Waterfront recreation area
- South Lake High School
- Downtown Groveland
- The future Crittenden Street Park
- Groveland City Hall
- The Puryear Civic Building
- Lake David Park

- Downtown Mascotte
- Mascotte Civic Center
- Future Mascotte Parks
- Sunset Lake Park
- The Withlachoochee State Forest

4.2.3 Natural and Biological Features

4.2.3.1. Wetlands

Wetlands occur within the project corridor at various locations. Classification of wetlands was based on the Florida Land Use, Cover, and Forms Classification System (FDOT 1985) (FLUCCS). The presence of wetlands was determined based on application of the 1994 State (St. Johns River Water Management District) Unified Wetlands Methodology and the 1987 US Army Corps of Engineers (ACOE) Wetland Delineation Methodology.

The initial development of the alignment for the trail emphasized minimizing any impacts to wetlands with the goal of maintaining impacts to wetlands below ½ acre for the total project. However, a few areas along the proposed alignment will impact wetlands and collectively will exceed the ½-acre threshold. Each of these locations are minimal and will be reduced as much as possible.

4.2.3.2. Threatened or Endangered Species

The corridor was reviewed for potential occurrence of species listed as threatened or endangered (T&E) by the US Fish and Wildlife Service (USFWS) and the Florida Fish and Wildlife Conservation Commission (FFWCC). A search of the Florida Natural Areas Inventory (FNAI) reveals numerous species with potential for occurrence within the habitats of the corridor. A detailed listing of these species is provided in the South Lake Trail PD&E Ecological Assessment, August 2004. No species protected by the USFWS was observed. Where the project maintains its alignment with the existing rail bed the potential for occurrence of the majority of the listed plant species is relatively low. Creation of the rail bed disturbed the natural habitats through the placement of rock fill material for the actual bed and the creation of swales on either side. This disturbance resulted in the majority of the corridor containing the more common colonizing species rather than T&E species, which require more natural habitat. Similarly, due to the disturbance of the natural areas, the potential for occurrence of protected animal species is also somewhat reduced within these areas.

However, protected plant as well as animal species could occur in the areas where the alignment deviates from the existing rail bed. Areas where the alignment leaves the rail bed include:

- Hillary Property and properties east
- Atlantic Avenue in Groveland
- The Town Center Redevelopment Project in Groveland
- Northern stretch along Lake Minneola

- Alternative 2A in Mascotte
- Alternative 1E around South Lake High School

In addition, animals with far ranging territories have a greater potential for occurrence. The following is a list of those species with highest potential for occurrence within the corridor:

- Gopher tortoise (*Gopherus polyphemus*)
- Gopher frog (*Rana capito*)
- Florida Mouse (*Podomys floridanus*)
- Eastern Indigo snake (*Drymarchon couperi*)
- Bald eagle (*Haliaeetus leucocephalus*)

Other species with potential for occurrence include many of the wading birds that occur on the list, such as snowy egret, wood stork, and little blue heron. It is not anticipated that activities for the construction of the recreational trail or post construction usage of the trail would adversely affect these species. Similarly, the Florida black bear could occur within the area of the project, particularly in the Withlacoochee State Forest section. The construction or use of the recreation trail should not adversely affect bear movement or habitat.

A closer review of the potential presence of protected plant and animal species will need to be conducted during the final design permitting phase prior to construction. Specific attention should be placed on the areas that deviate from the rail bed, as those are the areas of highest potential for occurrence and potential impact.

Adverse impact to protected species is not anticipated. The one species that has been documented to occur within the corridor is the state listed gopher tortoise, a species of special concern. Further quantitative survey will be required at the time of exact alignment of the trail to determine if burrows will be impacted. If the trail cannot be shifted or re-aligned to avoid burrows, a relocation permit should be pursued to move the tortoises out of the path of the construction and into adjacent areas suitable for tortoise. No other adverse impact to protected species is anticipated from this project.

4.2.3.3. Floodplains

The existing floodplains have been described in Section 4.1.6 Drainage.

4.2.3.4. Water Quality

Florida Statutes, Section 403.061, Subsection (27) granted powers to the Department of Environmental Protection (DEP) to establish rules which provide for a special category of water bodies within the State, to be referred to as Outstanding Florida Waters, which shall be specially protected because of their natural attributes. In general, DEP cannot issue permits for direct pollutant discharges to Outstanding Florida Waters, which would lower ambient (existing) water quality or for indirect discharges which would significantly degrade Outstanding Florida Waters.

The Clermont Chain of Lakes was designated as Outstanding Florida Waters in 1986.

Lakes and their associated wetlands which are part of the Chain of Lakes and lie in proximity to the trail corridor include:

- Lake Minneola
- Lake Hiawatha
- Cherry Lake, Lake Lucy and waterways interconnecting

No direct impact from the trail improvements to these lakes is anticipated. However, several wetland areas that are contiguous with these lakes are within the corridor and a detailed discussion is outlined for the areas in the South Lake Trail PD&E Biological Assessment prepared August 2004.

The Withlacoochee River and Lake System is also among the Outstanding Florida Waters. None of the wetlands along the corridor that are located within the Withlacoochee State Forest appears to have any direct connections to any of the designated areas of the Withlacoochee River.

4.2.4 Preliminary Contamination Screening

4.2.4.1. Methodology

A preliminary evaluation of the project corridor was conducted on August 11, 12, and 13, 2004 to determine potential contamination impacts within the proposed South Lake Trail project limits from properties or operations located within the vicinity of the corridor. The evaluation included a review and interpretation of databases maintained by federal (USEPA) and state agencies (FDEP), which include the following:

United States Environmental Protection Agency

- Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS),
- Emergency Response and Notification System (ERNS),
- National Priority List (NPL),
- Resource Conservation and Recovery System (RCRIS),
- Hazardous Materials Information Reporting System (HMIRS),
- Toxic Chemical Release Inventory System (TRIS),
- Toxic Control Substances Act Test Submissions (TSCATS),
- Biennial Reporting System (BRS),
- DOCKET,
- Accidental Release Information Program (ARIP),
- Permit Compliance System (PCS),
- Enforcement and Compliance History Online (ECHO),

- Facility Index System (FINDS),

Florida Department of Environmental Protection

- Petroleum Contamination Tracking System (PCT),
- FDEP Storage Tank and Contamination Monitoring Database (STCM),
- Historic Contamination List for Lake/Sumter County,
- Contaminated Facilities List for Lake/Sumter County,
- Contaminated Media Sites List for Lake/Sumter County,
- Tank Discharge List for Lake/Sumter County,
- Regulated Above Ground Storage Tank List for Lake/Sumter County
- Regulated Underground Storage Tank List for Lake/Sumter County.

4.2.4.2. Findings

The preliminary evaluation of environmental databases revealed the presence of known/potential environmental concern properties located within the South Lakes Trail project corridor and/or vicinity of the project corridor. Presented in Appendix E is a listing of these known/potential environmental concern properties identified during this process. The investigation revealed that located within 0.25 miles of the project corridor there are at least 46 properties that pose a known and/or potential environmental concern. Located between 0.25 and 0.50 miles of the project corridor there are 11 known and/or potential environmental concerns and located between 0.50 and 1 mile of the project corridor there are 4 known and/or potential environmental concerns. Further investigation is necessary to determine the degree and extent of contamination present at each of the facilities listed below. Field investigation and additional file reviews may result in additional sites being identified within the project corridor.

5.0 DESIGN CRITERIA

MULTI-USE TRAIL DESIGN CRITERIA:

The following is the Multi-Use Trail Design Criteria listed from the FDOT PPM Volume 1, Chapter 8.

Width	14’ Preferred, 12’ Minimum
Cross Slope	2% Maximum
Design Speed	20 MPH, 30 MPH when grades exceed 5%
Minimum Radii Shoulder	95’ for 20 MPH with e=2%, 250’ for 30 MPH with e=2% 2’ Minimum, preferred slope of 6% with a maximum 1:6 slope
Vertical Clearance	8’ Minimum, 10’ Preferred.
Horizontal Clearance	4’ Clear Distance from edge of Trail
Vertical Grades	ADA Maximum = 5% Ramps: 8.33% for 30” Rise Then 5’ Level
Drop-Off Hazards	Shielding required when drop-off is >10” and within 2’ of Trail Shielding required when side slope is > 1:2 for 30” height and within 2’ of the Trail

6.0 CORRIDOR AND ALIGNMENT ANALYSIS

6.1 No-Project Alternative

The No-Build alternative would be applicable only if there was a fatal flaw identified with the project. Initial evaluations reflect this alternative will prove to be unlikely. This project is part of a much larger network of trails and it is the desire of the communities, trail enthusiasts, transportation planners, and the public that it is constructed to provide the missing link for a series of trail systems that reach multiple counties throughout the Central Florida region as well as the 200 mile Central Florida Loop. Likewise, the project will provide for increased mobility of the corridor and enhances the transportation alternatives for the corridor.

6.2 Evaluation of Alternative Corridors

The primary objective in exploring reasonable corridor alternatives was to evaluate potential routes that would reduce social and environmental impacts while maintaining reasonable costs; affecting the fewest number of property owners; possibly enhancing the scenic value of the trail; provide linkage to existing and proposed public facilities; and identifying a viable SR 50 crossing. At the same time, the objectives of the alternatives were to maintain the most reasonably direct path from the project's beginning and end points.

6.2.1 Basis for Evaluation

In general, since this project has a Programmatic Categorical Exclusion Class of Action, it is the intent of the study to have minimal impacts to the natural, physical, and social environments. Of these issues, it was determined in the initial phases of the study that two issues, wetlands and archaeological/historical sites, posed a higher potential for existence in the project study area and were identified as areas to avoid if possible. For wetlands, it is the intent of any of the corridors evaluated to collectively maintain less than one half acre of wetland impact within each water management jurisdiction. For archaeological/historic concerns, initial research of the State Master File of Archaeological and Historic Sites indicates there are no such sites within any of the corridors evaluated.

Likewise, in typical PD&E projects, care is given to avoid impacts to public facilities, parks and recreation area. However, due to the inherent nature of a trail project as an amenity to the area, it can be noted that the impacts of the trail project to these facilities is a positive impact, not negative. In most cases, it is the objective of trails to serve these kinds of properties such as parks. The South Lake Trail project will enhance and improve access to *community facilities* such as municipal facilities, churches, libraries, etc.

The first tier of alternative evaluation and selection included a number of evaluation criteria. The criteria were based on factors that would influence the feasibility of the project. They included the following:

- Total number of private properties affected
- Total number of public properties affected
- The number of property types, such as, residential; business; agricultural; or vacant land

- The total length of the alternative
- Connections Provided to amenities such as:
  - Parks
  - Schools, and
  - Activity Centers
- The number of roadway crossings involved, and
- The level of impacts to wetlands

Using the above criteria, 11 potential *build* alternative corridors were identified.

6.3 Selection of Viable Alternatives

The selection of alternative corridors involved a two-phase process.

Phase 1: The first phase of the evaluation and selection process involved field reconnaissance; aerial map reviews; wetland map reviews; meetings with jurisdiction officials; a public workshop; and discussions with property owners. From this collection of data, the initial alignments were identified and a first draft comparison matrix was developed for each alternative corridor.

Phase 2: The second phase of evaluation and selection was conducted through meetings with the FDOT Project Manager and Department representatives. This phase involved site visits with the FDOT representatives to evaluate the physical conditions of each corridor that had been identified in the first draft comparison matrix. Consistent with the **Project Development and Environmental Guidelines, Part 1, Chapter 9** and **Part 2, Chapter 6**, a ***Corridor Report*** was prepared to assist in the selection process. Reference: ***South Lake Trail Phases III and IV Corridor Report, August 2004***.

The analysis and evaluations of the various alternatives resulted in narrowing the alternative options down to two alternatives to be carried further for additional evaluation. Table 6.3-1 is the final Evaluation Matrix for the alternatives. For more detail on the alternatives selection, please reference *August 2004 Corridor Report.*

Table 6.3-1 - Evaluation Matrix

South Lake Trail Phases III and IV FM No. 410825-1-22-01 FAP No. 777 105 A						
Alternative Corridor Comparison Matrix						
		Segment 2			Segment 3	
		Corridor 2B	Corridor 2C		CSX	Corridor 3E
Social Impacts						
Private						
	Residential Properties	10	2		5	4
	Commercial Properties	1	3		0	0
	Vacant/ Agricultural	0	3		1	1
	Total	**11**	**8**		**6**	**5**
Total Non CSX ROW Area (acres.)		(1) 6.68	10.47		3.19	8.10
Public						
	County/City ROW	0	1		1	1
	City Property	0	2		0	0
	County Property	0	0		0	0
	School Board Property	0	0		0	1
Connections/Access						
	Parks	1	0		0	0
	Schools	1	0		0	1
	Other	1	0			
Environmental Impacts						
Wetland Impacts		0	0		0	0
Contamination Sites		0	0		0	0
Archaeological/Historic		0	0		0	0
Corridor Length (Miles)		0.98	2.25		1.37	1.74
Trail-Head		New/Y	N		N	Y
Number of Structures		1	2		0	0
Estimated Construction Costs (Not including Right of Way)		$2.0 million	$1.5 million		$0.5 million	$0.6 million

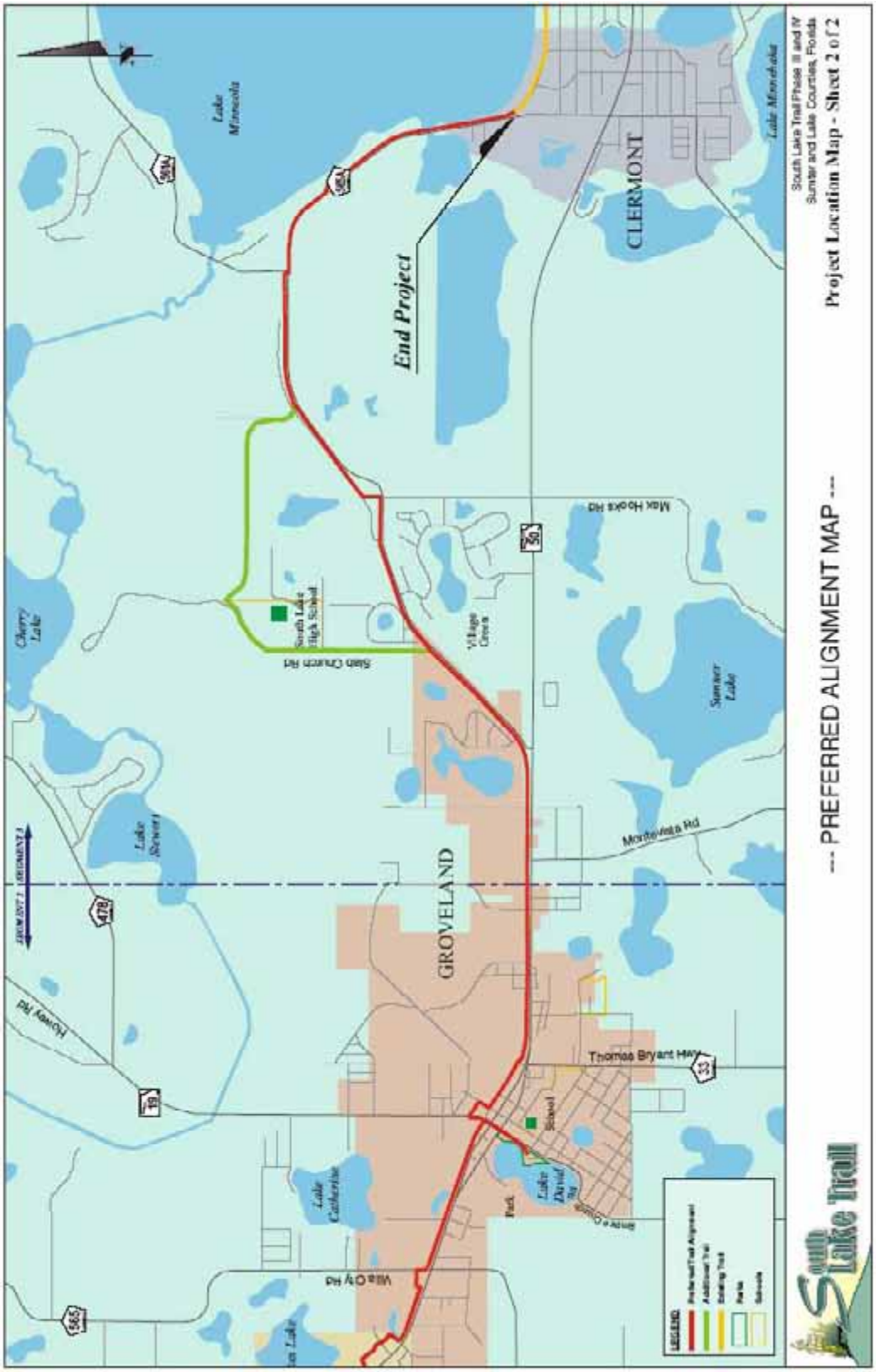
Notes:
(1) Includes 4.19 acres. for new Trail Head/Park
(2) Does not include cost for Trail Head Amenities

6.4 Preferred Alternative

Through further analysis, a preferred alternative has been identified. The preferred alternative utilizes Corridor 2B and Corridor 3E as outlined in the Comparison Matrix in **Section 6.3**. Due to right of way costs, the complications with the ramps to the tunnel on the north side of SR 50, and the City of Mascotte's preference to have the corridor come through town, Corridor 2C, though a viable alignment, was eliminated from further study. In Segment 3 when comparing alternative 3D (CSX) to Corridor 3E, it was determined that the direct connection of Corridor 3E to South Lake High School as well as to new neighborhood areas, provides many benefits. Alternative 3D (CSX), however, provides the most direct route. Since both of the alternatives serve as viable solutions and reflect their own set of benefits, both alternatives are being recommended. Corridor 3E will be recommended to be built by others, such as Lake County, the City of Groveland, and the developers of the new neighborhoods. Lake County has already committed to funding the section from CR 565A north along Silver Eagle Road to the South Lake High School. Figure 6.5A on the following page reflects the preferred alternative.

FIGURE 6.5A - PREFERRED ALIGNMENT MAP

FIGURE 6.5B - PREFERRED ALTERNATIVE



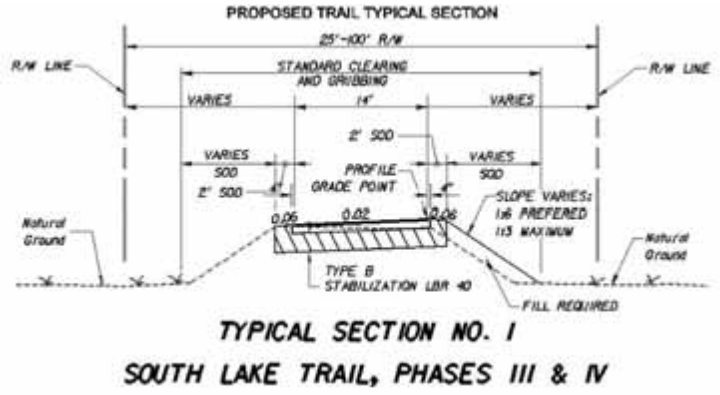
7.0 PRELIMINARY DESIGN ANALYSIS

7.1 Typical Sections

As described previously the majority of the South Lake Trail will utilize the abandoned CSX railroad corridor. Section 4.1.1 shows the existing berm width varies from 11 feet to17 feet', which will require a modification of the existing embankment. A total of six different typical sections have been prepared for Phases III and IV of the South Lake Trail. They include:

South Lake Trail,
Typical Section No. 1

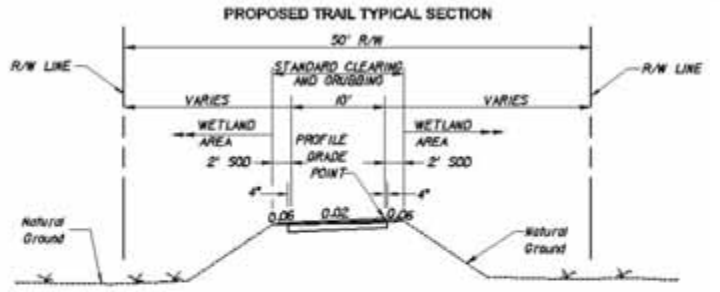
This section utilizes the abandoned CSX corridor and has a berm that measures approximately 16feet in width. A 14-foot multi-use paved trail is proposed with 2-foot shoulders. It is recommended that the trail be constructed so that fill is only required on one side of the existing embankment.



TYPICAL SECTION NO. 1
SOUTH LAKE TRAIL, PHASES III & IV

South Lake Trail,
Typical Section No. 2

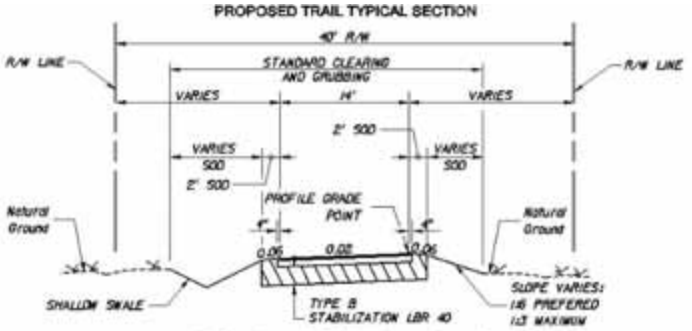
This section utilizes the abandoned CSX corridor that traverses through the Green Swamp and has a berm that measures approximately 14 foot in width. In order to minimize the wetland impacts the trail paved width has been reduced to 10 feet.



TYPICAL SECTION NO. 2
SOUTH LAKE TRAIL, PHASES III & IV

South Lake Trail,
Typical Section No. 3

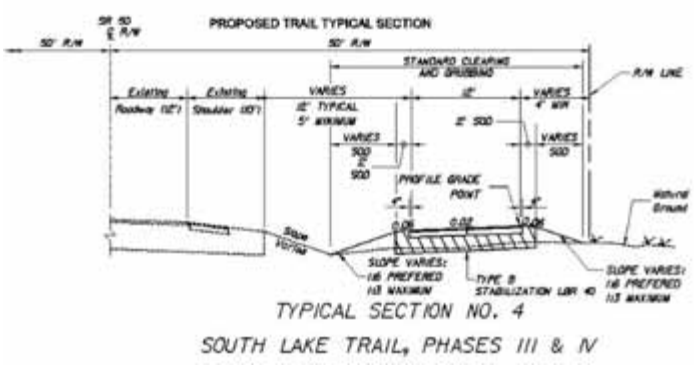
This section applies where the trail leaves the abandoned CSX railroad corridor and traverses across undeveloped land. The proposed section includes a 14-foot multi-use paved trail and 2-foot shoulders.



TYPICAL SECTION NO. 3
SOUTH LAKE TRAIL, PHASES III & IV

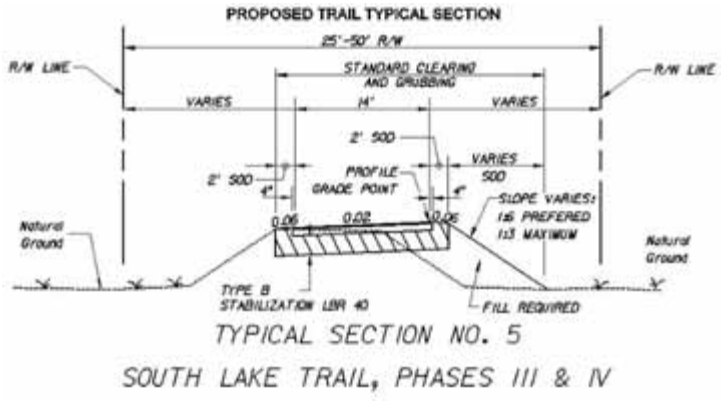
South Lake Trail,
Typical Section No. 4

This section will utilize the SR 50 100' R/W. A 12' multi-use paved Trail is proposed with 2' shoulders. It is recommended that the trail be constructed as far away as possible from the roadway to provide for a safe trail and maintain the existing drainage system of SR 50.



South Lake Trail,
Typical Section No. 5

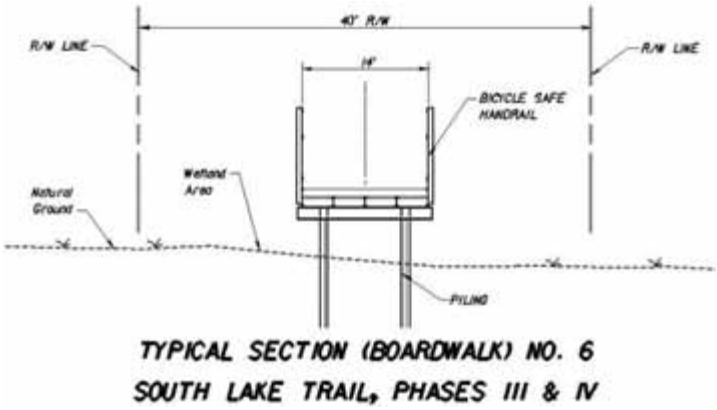
This section utilizes the abandoned CSX corridor and has a berm that measures approximately 11' in width. A 14' multi-use paved Trail is proposed with 2' shoulders. It is recommended that the trail be constructed so that fill is only required on one side of the existing embankment.



South Lake Trail,
Typical Section No. 6

This section is required when the trail leaves the abandoned CSX corridor and crosses a wetland. In order to minimize wetland impacts a boardwalk section is proposed. This section includes a 14-foot multi-use trail.

For the limits of each section please see Appendix D for a copy of the typical section package.



7.1.1 Pavement Design Concepts

Discussions were held with Don Barnhouse, FDOT District 5 Pavement Design Engineer concerning this project and the overall pavement design for the project. The pavement design will be completed during the final design phase, however for the Department's Long Range Estimate (LRE) it was necessary to utilize the following recommendations.

The general pavement design includes:

1. Type SP Structural Course (Traffic B) (1 ½")
2. Optional Base Group 4
3. Type B Stabilization (LBR 40) (8")

One area of concern for the pavement design is the section through the Green Swamp. This section (see Typical Section No. 2) traverses through an area where the base may be subjected to a seasonal high water table. In this area it is recommended that B-12.5 (Black Base) be the only option allowed for this section and no stabilization will be required.

7.2 Intersection Concepts and Signal/Signage Analysis

Intersection Concepts:
Intersections involving trails and roadways represent areas of conflict points and require proper signing and pavement markings to warn trail users of the upcoming intersections and inform motor vehicles of the pedestrian movement. Three different intersection concepts have been developed for this project that will be utilized along the preferred alignment. Please see Appendix A for a copy of the 'Intersection Concept Detail Sheet'.

Case I – Mid Block Crossing:
These crossings occur where the trail crosses an existing roadway and there is not an existing intersection with another roadway. Proposed design features include the following:

a. Installation of a median and landscaping. Installation of a median and landscaping at the intersection of a trail and a roadway alerts motor vehicles that this intersection is not a roadway and should not be used by motor vehicles. Palm trees on the side provide a further deterrent to motor vehicle access. Type D curb is used in the photo above which can be straddled by emergency and maintenance vehicles if they need to access the trail. When the trail crosses a high-speed roadway, ribbon curb should be used instead of the Type D so the clear zone criteria for that roadway is maintained. Similarly, the landscape trees may have to be located further back from the roadway as well.

b. Use of Concrete approach. A concrete approach pad will help prevent the destruction of asphalt pavement by the movement of heavy emergency and maintenance vehicles since they will be accessing the trail from the roadway. Concrete is normally used for sidewalks, and if used on a trail, it will help motorists understand that this is a pedestrian facility.

c. Handrails at intersections. Handrails at intersections allow trail users to remain on their bicycles while they are waiting for motor vehicles to clear the roadway.

d. Signing and pavement markings. Proper signing and pavement markings are required as shown on the 'Intersection Concept Detail Sheet'.

Case II – Typical Side Street Crossing

These crossings include T- intersections and 4-way intersections and align the trail crossing near an existing intersection. Proposed design features include the following:

a. All the design features listed in Case I.

b. Signing and pavement markings. Additional signage is required on the Main Road as shown on the 'Intersection Concept Detail Sheet' that alerts motor vehicles of the upcoming trail crossing on the side street.

c. Modifications to existing signing and pavement markings. The alignment of the proposed trail and location of the existing stop bar and stop sign for the side street should be reviewed carefully to ensure a safe passage for the trail users, proper sight lines for the motor vehicles and that the trail will not be blocked by queuing vehicles on a normal basis.

Case III – Typical Driveway Crossing

These crossings include driveways to businesses and residences. Proposed design features that include the following:

a. Use of Yield signs instead of Stop signs. For a driveway that has a low volume, trail users generally will not stop even if a stop sign is installed. Therefore, Yield signs warn the trail user of the intersection and to yield when vehicles are present.

b. Use of concrete ramps. Concrete ramps should be constructed in accordance with the latest ADA requirement and to help motor vehicles associate the trail as a pedestrian facility since concrete is typically only used for sidewalks.

Case III – Typical Driveway

c. Modifications to existing signing and pavement markings. The alignment of the trail and the location of the existing stop bar and stop sign for the driveway should be reviewed carefully to ensure a safe passage for the trail users, the proper sight lines for the motor vehicles, and that the trail will not be blocked by queuing vehicles on a normal basis.

d. Signing and pavement markings. Proper signing and pavement markings are required as shown on the 'Intersection Concept Detail Sheet' in Appendix A.

Optional Feature:

Another feature that can be used to warn motorists of the upcoming trail crossings include the use of a video detection unit. As shown in the photo to the right, the video detection unit senses trail users then activates a flashing light on the warning sign along the roadway. This warns motor vehicles that a trail crossing is ahead and when trail users are near the intersection. These are typically used for high volume roads and locations with poor sight distances.

Signal Analysis:

After reviewing the crash data from Lake County and FDOT and reviewing the project in the field it is recommended that four intersections be investigated further for additional signing and signals during the design phase of this project. Those intersections include the following:

1) CR 565 (Bay Lake Road) & South Lake Trail – CR 565A is not listed as having a high volume, however, the trail crossing at CR 565A is in a horizontal curve which creates some blind spots for potential trail users. Therefore it is recommended that a signal analysis be performed at this intersection to see if a Pedestrian Only signal is warranted or if additional warning devices are warranted.

2) US 19 & SR 50 – This intersection is currently signalized, however, due to the high truck traffic and number of accidents near this intersection the addition of a pedestrian detector should be reviewed.

3) CR 565A & Silver Eagle Road – This intersection is currently un-signalized and the crash data shows 33 accidents. Silver Eagle Road is currently serving South Lake High School and the intersection is located near an existing curve along CR 565A. If the final alignment of the trail requires a crossing at this intersection, a signal would be the most feasible way to provide a safe at-grade crossing.

4) CR 565A and CR 561A – This intersection is currently un-signalized and the crash data

shows 8 accidents near this intersection. A signal at this intersection would help to provide a safe at-grade crossing of this intersection.

One of the newer features that pedestrian signals can include is the use of a countdown timer. As shown in the photo in this section, the count-down timer shows the pedestrian exactly how much time they have to cross the intersection. Since trails can generate heavy usage it is recommended to install these new pedestrian heads at the signalized intersections.

7.3 Alignment and Right of way Needs

As discussed in earlier sections the project alignment follows the abandoned railroad corridor for the majority of the project. The alignment leaves the abandoned railroad corridor when the railroad R/W has been purchased by local land owners. For more information on these corridors, please see Section 6.0.

The existing railroad R/W width varies from 50' to 100' and in areas where the railroad R/W is still owned by CSX the entire R/W width will be purchased from CSX. In areas, where the railroad R/W has been purchased by local landowners or where the preferred alignment leaves the old railroad R/W it is recommended that 40' of R/W be purchased.

The Typical Section No. 3 shows a 14' trail with a shallow swale (1' deep). In addition, it is recommended that the trail be constructed 10' from the R/W line to allow for the placement of fencing or landscape buffers (if needed). A R/W width of 40' is required to allow the trail, swale and side slopes be constructed and maintained without additional temporary construction easements.

In some areas the R/W width has been reduced to minimize the impact to adjacent property owners. In these areas, additional retaining walls may be required to keep the fill slopes within the R/W.

7.4 Right of way Costs

LRE – To be finalized at the FDOT.

7.5 Construction Costs

Since the overall project length is approximately 15.1 miles, the project has been divided into three sections.

The three sections are as follows:

Section 1: Clermont Trail to Downtown Groveland

The length of this section is approximately 6.1 miles and should be the first section of this trail constructed. The development in Lake County is increasing and this section of the trail will require right of way acquisitions along SR 50. Depending on the timing of the future park in Downtown Groveland the logical termination point should be at the proposed Groveland Park.

Based on the LRE the estimated construction cost for this Section is: $3,962,231

Section 2: Downtown Groveland to Downtown Mascotte

The length of this section is approximately 3.3 miles and includes the construction of the

Pedestrian Underpass at CR 33 and the Pedestrian Overpass at SR 50. It is recommended that this section be constructed second. The logical termination point for this section will be on the South side of SR 50 at the proposed downtown Mascotte Trailhead.

Based on the LRE the estimated construction cost for this Section is: $ 5,806,170

Section 3: Downtown Mascotte to Van Fleet Trail

This section is approximately 5.7 miles and should be the last section of this project constructed.

Based on the LRE the estimated construction cost for this Section is: $ 2,669,115

7.6 Design Costs

Based on past Trail design projects throughout Central Florida the Preliminary Engineering Costs typically run $100,000 per mile of trail. This per mile cost includes Survey, Environmental Geotechnical, Landscape and Engineering but does not include major structures.

Section 1: Clermont Trail to Downtown Groveland

6.1 miles * $100,000 / mile = $610,000

Section 2: Downtown Groveland to Downtown Mascotte

3.3 miles * $100,000 / mile = $330,000

Major Trailhead =	$80,000
Structures =	$300,000
Total =	$710,000

Section 3: Downtown Mascotte to Van Fleet Trail

5.7 miles * $100,000 / mile = $570,000

7.7 Total Project Costs

Section 1: Clermont Trail to Downtown Groveland

LRE Construction Costs:	$3,962,231
Preliminary Engineering Costs:	$610,000
Total Section Costs:	$4,572,23

Section 2: Downtown Groveland to Downtown Mascotte

LRE Construction Costs:	$5,806,170
Preliminary Engineering Costs:	$710,000
Total Section Costs:	$6,516,170

Section 3: Downtown Mascotte to Van Fleet Trail

LRE Construction Costs:	$2,669,115
Preliminary Engineering Costs:	$570,000
Total Section Costs:	$3,239,115
Total Project Costs:	***$14,327,516***

7.8 User Benefits

7.8.1 Alternative Transportation

By completing vital links in the regional trail system, Phases III and IV will encourage the use of non-polluting transportation alternatives to the automobile for those short trips to work, school, or the local convenient store. Nearly half of all trips people make within their communities can be made easily on foot or bicycle. In addition, many of the area residents along this corridor are agricultural workers who are economically challenged. Not having funds available for costly expenditures associated with automobiles, these individuals will benefit tremendously having a more economical and efficient transportation alternative available.

7.8.2 Social and Recreational Benefits

Like in most trails, South Lake Trail will enhance the quality of life for many individuals. Multi-use trails, such as Phases III and IV, are great places for recreation. They offer opportunity for hiking, cycling, roller-blading, birding, and photography. Most of all, the trail will provide great opportunities for communities to get to know one another.

In general, there are a multitude of user benefits that can range from having a better way to get to work or school to overall health benefits and the simplicity of being able to enjoy the landscape. In bringing these kinds of recreational resources to the community it successfully serves the community and area users.

7.9 Safety

Providing a Multi-use trail facility through Lake County and into Sumter County will allow trail users a safe corridor for recreation and transportation. The main safety concerns are at the intersections; please see section 7.2 for the safety features proposed at intersections.

Additional safety considerations arise due to the underpass structure proposed at SR 50 and CR 33. A report entitled 'A Study of 78 tunnels on 36 trails in the United States' produced by the Rails-to-Trails Conservancy identified the main issues with underpasses include crime, graffiti, litter, occupation by homeless and a general feeling of being unsafe.

The design elements that can be incorporated into the Underpass include providing a clear line of sight from one end of the underpass to the other. This not only increases the actual safety of the users but also the perceived safety the users feel. Providing an underpass with adequate lighting provides a connection that is warm and inviting. Incorporating murals or artwork painting on the walls by local elementary school children will also help attract users.

Other elements that should be added include a clearly marked halfway point along the underpass to alert users when they have reached the middle of the structure. Attractive landscaping, benches,

and / or water fountains at the entrance / exit signal to users that the structure is well maintained and frequently used. For additional safety measures, security cameras could be installed to monitor the users and emergency phones could be provided at both entrances.

The other safety concerns for the South Lake Trail include the trail alignment through rural areas. Providing a marker system along the trail at ½-mile intervals will allow users a way to communicate with the local authorities if an emergency arises. Since there are, numerous trails constructed throughout the Central Florida area in rural areas without criminal activity the proposed South Lake Trail in rural areas is not a safety concern.

The location of the South Lake Trail through the Withlacoochee State Forest and a designated hunting area is a concern. However, the South Lake Trail connects to the existing Van Fleet Trail, which is also in the same hunting area. There are no known problems involving hunters and trail users on the Van Fleet trail, therefore, none are expected on the South Lake Trail.

7.10 Economic and Community Development

7.10.1 Economic Development

The South Lake Trail will offer enhanced economic growth in a variety of ways. Local and nationwide surveys show that homes located near trails commonly sell for more than homes in other areas. Likewise, trails have proven to stimulate economic growth through increased tourism and most importantly local citizen expenditures of leisure-time dollars. This often results in new business opportunities such as lodging, food, and recreational sales and services. In terms of promoting tourism to stimulate the economies of Sumter and Lake Counties and the local towns, the trail will increase economic benefits to local businesses as well as increase awareness about the unique landscapes the areas offer ranging from rural pasturelands and rolling hills to the wetland flats of the Green Swamp backwaters. As documented by the ***Rail to Trails Conservancy*** *"The body of academic work regarding the economic benefits of trails and greenways is quite substantial. The methodology of such studies varies greatly, just as different trails vary in characteristics such as length, populations served, and the nature of adjacent residential and commercial areas. Therefore, it is difficult to apply the conclusions of one or two studies to every trail or greenway and predict what impact a new greenway might have on a given community. The fact that most greenways are multi-objective and can be viewed at different scales also makes economic evaluation more complex and difficult. However, the evidence supporting the conclusion that trails and greenways improve local economies grows greater by the day. Across the United States, trails and greenways are stimulating tourism and recreation related spending. Trail and greenway systems have become the central focus of tourist activities in some communities and the impetus for kick-starting a stagnating economy."*

7.10.2 Community Development

The preferred alternative is strategic in its route to encourage economic and community development both in the Cities of Mascotte and Groveland. Each City through their own identity has been developed in the tradition of American town building. These types of Cities lend themselves to establishing walkable communities that are further enhanced by trail facilities. Any of the re-development that will be occurring in these two Cities will benefit from the increase in clientele the trail will bring. It will also expand the retailing opportunities as outlined above in the economic benefits section. One of the greatest benefits to community development is the fact that with trails comes an enhanced quality of life. Trails promote civic identity while creating a sense of place for citizen interactions.

7.11 Environmental Impacts

7.11.1 Ecological Impacts

South Lake Trail Phases III and IV is a transportation facility/recreational facility generally following an abandoned rail bed through western Lake County and a portion of eastern Sumter County. In that it is an established rail corridor and the trail proposes little change to the existing profile, the environmental impacts are extremely limited. Ecological constraints including the wetlands and protected species were identified through background research and qualitative field review. The development of the alignment for the trail emphasized reduction of impact to wetlands with the goal to maintain impacts to ½ acre or less.

Most wetland impacts are limited to adjacent wetland areas where the existing rail bed has eroded over time. Impacts do occur in other areas, where the trail alignment occasionally deviates from the rail bed. In most locations where wetlands have been identified, minor shifts in the alignment can be done to prevent any impacts. However, there are locations where impacts are unavoidable which will result in overall wetland impacts exceeding the ½-acre threshold requiring associated mitigation.

Adverse impact to protected species is not anticipated. The one species that has been documented to occur within the corridor is the state listed gopher tortoise, a species of special concern. Further quantitative survey will be required when the exact alignment placement has been determined to assess if burrows will be impacted. If the trail cannot be shifted or re-aligned to avoid burrows, a relocation permit will be an option to move the tortoises out of the path of the construction and into adjacent areas suitable for tortoise. No other adverse impacts to protected species are anticipated for this project.

7.11.2 Contamination Impacts

Summary to be provided by Randy Stafford.

7.12 Utility Impacts

Throughout the limits of the proposed trail segment, utilities are of little concern except in four key areas. The areas of concern occur where the trail must cross a road or canal, possibly requiring the installation of an overpass or underpass. Another area of concern occurs where the trail traverses an existing utility easement. These areas invoke special concern because the proposed trail may affect existing water mains, buried fiber optic cable, buried telecommunication lines, buried gas lines, overhead power lines, or other similar utilities. The effects of the trail on these utilities will be mitigated by relocation, realignment, avoidance, or other necessary measures. The specific locations of concern are listed below.

7.12.1 SR 50 Crossing

At the location where the old railroad corridor crosses, SR 50 in downtown Mascotte, there is a buried 12” water main. The water main is approximately 36” underground, and runs parallel to SR 50 on the north side of the road. Fiber optic cable lines also run under the road at this location. In addition, Sprint has underground lines on south side of SR 50. Overhead power lines and streetlight poles are located above ground. Since the buried utilities are parallel to the roadway, they will create a point of conflict in the event that an underpass is proposed. The overhead lines are a point of conflict for any proposed overpass in this area. Impacted utilities will have to be relocated or rerouted.

7.12.2 SR 33 Crossing

At the location where the old railroad corridor crosses, SR 33 in downtown Mascotte, there is a buried 8" water main that runs parallel to Underpass Road on the north side of the road. This water main is approximately 36" underground. There are no above ground utilities in this area. Since the buried water main run east west along Underpass Road, it will not create a point of conflict in the event that an underpass is proposed. Fiber optic cable also runs underground near this location, and may have to be relocated. An overpass may be proposed without any conflict with existing utilities.

7.12.3 Silver Eagle Road

Adjacent to Silver Eagle Road, between SR 565 and Hillcrest Drive, is a drainage/utility easement on the east side of the road. A water main is buried approximately 40" underground at this location. Buried fiber optic cable and a buried gas line are also located in this area. Aerial transmission lines and street light poles also run along this easement. In the event that grading for the trail creates a conflict with utilities, the utilities may have to be buried deeper or even relocated.

7.12.4 Palatlakaha River Canal

At the bridge location along SR 565 between SR 561A and Dianna Place, there are no underground or overhead utilities on the east side of the road. Just beyond the bridge, there are some power line support poles on the east side of the road. The support poles appear to be out of the ROW, but if necessary, they can be relocated or another method of bracing the existing power poles can be implemented.

Existing utilities were located by on site inspection, existing plans, or through local offices in charge of overseeing operations. The contact phone numbers for the relevant public works offices are listed in Table 7.1 below.

Table 7.1 – Summary of Utility Contacts

Department	Telephone
Mascotte Public Works Information	352-429-3341
Groveland Public Works Information	352-429-0227
Clermont Public Works Information	352-394-7178
Buried Gas Lines	407-656-2734
Buried Fiber Optic Cable	352-728-9830

7.13 Results of Public Involvement Program

7.13.1. Public Involvement Program

The public involvement program was developed at the beginning of the study process with the purpose of providing a method of forming a cooperative working relationship between the FDOT, Lake County, Sumter County, towns in the corridor, property owners, the public, interested groups, and regulatory agencies. This proactive public involvement approach focuses on public awareness and community interaction throughout the entire study process. Public input is vital in both the decision making process and in consensus building. Therefore,

a major objective of the program has been to educate the public, provide project information, and to facilitate successful interaction and public input.

7.13.2. Public Involvement Plan

Approved by the Florida Department of Transportation, the Public Involvement Plan (PIP) was created to guide the project team in ensuring adequate input by various means of communicating and interacting with all interested parties regarding the development of the project. The plan describes specific methods and techniques regarding the public involvement approach for the project and ensures a free flow of information between the FDOT, Lake County, property owners, agencies, stakeholder, business owners, and other interested parties. One important aspect of the plan was the creation of a project logo that presents, in an image, the vision of the project outcome.

7.13.3. Information Access

Interested parties were given access to the project study team through the following methods:

- Kick Off Meeting for Elected/Appointed Officials and Regulatory Agencies
- Public Kick-Off Meeting
- Power Point Presentations
- A toll free Project Hotline (1-888-797-1616)
- Project Information Flyers
- Written responses to request forms for information

7.13.3.1 Elected/Appointed Officials and Agency Kickoff Meeting

Early coordination with elected officials was undertaken and focused on providing an outline of the PD&E study process and schedule of activities. The Elected/Appointed Officials and Agency Kickoff meeting for the South Lake Trail PD&E Study was held on February 26, 2004 at the Puryear Building in the City of Groveland. This meeting introduced the project. It was strategically conducted at the beginning of the data collection process and prior to initiating any design alternatives. This approach served to help identify and obtain a more complete understanding of the issues prior to preparation of design alternatives.

The method of invitation for the kickoff meeting included a formal invitation and information flyer mailing to Lake County officials, Sumter County officials, and city officials for the towns that encompass the study area. Attendees benefited from project information, which included aerial photography of the project corridor and preliminary data. Many meeting participants openly expressed support for the project.

7.13.3.2 Public Kickoff Meeting/Workshop

A public meeting was held for property owners and interested parties on May 25, 2004 and December 7th, 2004. The method of invitation for this public meeting included invitations to local officials, property owners within 300 feet of the right of way for proposed trail

alignments, and a news release. A project information flyer was included with each invitation letter. The invitation package was sent to some 1000 property owners and to approximately 100 public officials. Conducted in an open house format and attended by approximately 75 property owners and interested parties, this meeting was held at South Lake High School and afforded attendees the opportunity to speak directly with key project team members and obtain a full understanding of the proposed project and any potential impacts the project may have in their respective areas. A variety of information about the study was on display at the kick-off meeting and the public meeting. This information included:

- Aerial Display Boards with proposed trail alignments
- Preliminary plan sets with aerial backgrounds and parcel information
- Preliminary plan sets with parcel information
- PowerPoint presentation

A formal presentation and a public comment period were included in this meeting as was the opportunity to complete written comment forms. Individuals completing written comment forms received a written reply addressing each individual's specific comments. A completion of 16 written comment forms was received at the meeting. Generally, the most common written and verbal comments concerns expressed were in regard to possible impacts to specific properties, trail maintenance costs, right of way issues, property acquisition, property value impacts, trail crossing safety, and area economic benefits.

7.13.3.3 Summary of Meetings and Written Comments

A number of meetings were held with various officials, agencies, and property owners and special interest groups at various times throughout the study process with the purpose ensuring continuous community involvement throughout the duration of the study. PowerPoint presentations were used extensively as a means of providing clarity regarding project information and progress. Below in Table 7.13A through 7.13C the information summarizes the meetings and written public comments that have occurred.

Table 7.13A – Public Involvement; Summary of Meetings

Date	Organization/Meeting Type	Purpose	Issues
February 2, 2004	Kickoff Meeting	Provide project information to elected officials, appointed officials, and regulatory agencies	Access for trail maintenance; Need for follow-up meetings; Funding for statewide trails Trail width Maintenance of trail signs; Right of way impacts Impacts to utilities along SR 50 Property Acquisition Per mile cost of trail
March 8, 2004	St. Johns River Water Management District	Review South Lake Trail Phases III and IV with SJRWMD staff to identify potential permitting issues and requirements.	Impacts to specific properties Conservation easements Mitigation Permitting requirements
April 6, 2004	Lake County BOCC	Provide Lake County project overview and scope information; Provide an initial review of issues and the project schedule.	Right of way Impacts Trail crossing of Highway SR 50 Design Aesthetics
April 12, 2004	Mascotte City Council	Provide Lake County project overview and scope information; Provide an initial review of issues and the project schedule.	Crossing of SR 50 Project Timeframe
April 15, 2004	Groveland Committees	Present project information to individual committees to receive input prior to presenting to Groveland CRA Board	Trail alignment through Groveland; Right of way impacts; Use of Railroad Depot as a trailhead; Connectivity of trail to schools; Tie in of trail along SR 19; Trail crossing at SR 19 (safety) Lake County sidewalk program plans;
May 3, 2004	Groveland CRA	Present project information to CRA Board Members	Construction timeline; Safety and security of the trail; Eminent Domain/Property Acquisition;
May 25, 2004	Public Kickoff Meeting	Provide project information to property owners, interested parties, elected officials, etc.	Equestrian access; Trail maintenance; Local jurisdiction involvement; Construction sequence; ROW impacts; Project timeline; Economic impacts; Property Acquisition; Impacts to property values.
June 30, 2004	Southwest Florida Water Management District	Discuss possible impacts to wetlands and the delineation of wetlands	Location of wetlands; Wetland impacts.
July 28, 2004	Lake County School Board Staff	Explore use of South Lake High School property for the trail.	Safety; accessibility; trail crossings.
August 10, 2004	Sumter County	Present project information to Sumter County Board members and interested parties.	Safety and security of trail; Construction time frame; Location and safety of underpass; Who will maintain the trail; Wetlands concerns;

Date	Organization/Meeting Type	Purpose	Issues
Sept. 14, 2004	South Lake High School	Discuss possible location of the trail on school property, possible trailhead provisions at the school, and trail parking at the school.	Limitation of Trail use of school property to the perimeter of the school; Possibility of unsupervised persons on school property.
October 13, 2004	FDOT Staff Team Meeting	Discuss project status, summarize collected data, and describe engineering alternatives and recommendations.	Existing rail bed and CSX ownership;, SR 50 crossing location and type; Trail stability in low lying areas; realignment at SR50/SR19/SR33; Stream crossings; wetlands impacts; construction cost estimates
October 27, 2004	Withlacoochee State Forest Representatives	Provide project information of particular interest to Withlacoochee State Forest administrators.	Forest Operations Access/Vehicular Usage; Trail Crossings; Fencing; Sod Material Constraints; Hunting, Land Lease/Easement Requirements; Trail Maintenance Responsibility; Construction Constraints
November 3, 2004	City of Groveland City Manager and Planning Staff	Discuss issues of concern to The City of Groveland.	Secondary trail routes in the CR 565A area; Joint development at the northwest corner of SR 50 and SR 19
December 7, 2004	Final Public Meeting	Share the findings and recommendations that are a result of the Project Development and Environment (PD&E) Study Approximately 75 property owners and interested parties attended the meeting. (67 individuals actually signed the sign-in sheet for the meeting).	Affect of trailheads on zoning; Full service trailheads; Design alternatives; Access management (driveways); Safety/Security

Table 7.13B– Public Involvement; Written Public Comments Summary May 25th 2004

COMMENT	QTY. of same comments
Please provide a copy of the project timeline	3
Wishes to sell property (1)	1
Connect trail to elementary and middle schools, not just South Lake High School	1
Access to property (abandoned railway corridor used for 25 years)	1
Send plan sheet number 25 with aerial background (2)	2
Opposed to the project – property owner purchased railway property	1
Do not use the west side of Silver Eagle Road for the trail (3)	3
Send information regarding updates and final alignment selection	1
How will funding for maintenance of the trail be handled?	1
When will Sumter County involvement be confirmed?	1
Will the Forestry Department be involved in the project?	1

What is the estimated cost of maintenance per mile per year?	1
Will additional FDOT funding be available for acquisition and development in Sumter County?	1
Please provide a copy of the power point presentation shown during the public kick-off meeting	1
In favor of the project (for Sumter County in particular)	1
In favor of the project	1
How far will property lines be from the trail?	1
Make sure that roadways are identified correctly on your maps	1
Please call (number provided on the comment sheet.)	1

Table 7.13C - Public Involvement; Written Public Comments Summary
December 7th 2004

COMMENT	QTY. of same comments
Would like to make a property exchange	1
In favor of the project	2
Trail should not be parallel to SR 50 as a matter of safety	1
Concerned with accessibility to property	2
Concerned with impact to property values	1
Concerned with impact to zoning	1
Opposed to preferred alternative; Request go around property	1
Concerned with potential drainage impacts	1
Concerned with potential for crime and trail cleanliness/maintenance issues	1
Relocate (northward) the proposed trail crossing at CR565A near the bridge	1
Proximity of property to trail could result in trail users using yard to access trail; (Privacy concerns)	1
Opposed to the trail: It would impact daily business operations	1

7.13.3.4 Toll Free Public Involvement Hotline

The need for a project hotline was identified as a service to create the opportunity for the general public and interested parties to have direct access to project information and to provide responses to their questions and concerns. Consequently, a toll free hotline was introduced early in the project. Manned by a public involvement specialist, the project hotline quickly became an easily accessible method of public involvement in which callers were able to receive detailed information regarding their questions and concerns.

7.13.3.5 Informational Flyers

Project informational flyers were utilized to educate and inform the public during the study phase of the project. Flyers were published and distributed in concert with the elected officials and regulatory agency kick-off meeting in February 2004 and the public meeting in May and December 2004. Distribution was through a continuously updated project mailing list. The flyers contained project specifics such as the purpose of the project and the project location map.

7.14 Drainage

The South Lake Trail project will utilize the abandoned Seaboard Coastal Railroad corridor throughout most of its 15-mile length. The existing embankment will be utilized with slight modifications to accommodate the trail. The railroad embankment has drainage features that include swales and culverts. These will be utilized as part of the trail project where appropriate. Drainage patterns and floodplain impacts will be minimal because of this.

Several portions of the alignment deviate from the railroad corridor. These portions of the alignment are typically within the cities of Mascotte and Groveland or in undeveloped upland areas. In developed areas, the proposed trail is typically adjacent to streets or roads where existing drainage patterns can be maintained. In undeveloped areas, the trail will incorporate swales and small culverts to connect the swales to natural drainage features in low areas. This will maintain natural flow patterns. In the portions of the alignment not on the railroad corridor, wetlands will be avoided in order to minimize impacts.

Portions of the railroad corridor have been sold to adjacent landowners and the embankment has been removed, regraded and made part of the development. These areas are typically in the developed areas around Mascotte and Groveland. Drainage in these areas has been incorporated into the developments system and the trail would have little or no impact on these systems. The USGS quad maps in Appendix B shows the project alignment.

7.14.1 Segment 1 (Sta. 10+00 to 265+00)

The western portion of Segment 1 is within the Withlacoochee State Forest **(Sta. 10+00 to 79+00)** and will utilize the existing railroad embankment. The railroad corridor in this area is elevated between two to four feet above the existing ground. In the upland areas there are swales on each side of the embankment that collect and convey storm water to adjacent wetlands. The railroad embankment has severed most of the wetlands it crosses. Because the railroad embankment will be utilized for the trail, no additional wetland or flood plain impacts are anticipated in this section. There are two existing culverts, S-2 and S-3, within this section that will need modification. Both culverts have end treatments that have failed and these will need to be replaced. The only identified location where stormwater overtops the railroad embankment is near Sta. 64+00. This overtopping appears to be the result of man-made modifications to local roads to the south that has redirected flow to this point. This is also the location of an existing cattle crossing that must be maintained to allow the property owner access to both sides of the trail. The fill required for the cattle crossing would aggravate the flooding problem by further blocking the existing drainage path to the north. The addition of a culvert, S-100, under the railroad embankment at this location would alleviate this problem. Indications are the overtopping flow is not great but has a long duration. It is estimated a 24" culvert would accommodate this flow.

From **Sta. 79+00 to 120+00,** the alignment will utilize the railroad corridor. The original railroad embankment is in place up to Sta. 120+00. There is one existing culvert in this section, S-4, at Sta. 94+00. This culvert is almost completely silted in and will need the end treatments replaced. Through this section, it is not anticipated there will be any additional wetland or flood plain impacts.

From **Sta**. **120+00 to 180+00** the alignment will deviate from the railroad corridor. At Sta. 120+00 the trail alignment will turn north to SR 50. The trail will be elevated approximately

two feet above natural ground in this area. There are two wetlands along this section of the alignment but it appears they will be avoided. However, the flood plains associated with these wetlands will be impacted by the trail. From Sta. 140+00 to 180+00 the trail will be constructed within the SR 50 right of way near the right of way line. Structures S-4A, S-4B, S-4C and S-4D are along this segment and will need to be extended to the R/W line. At St. 180+00 the trail will tie into the existing railroad corridor. It does not appear there will need to be any additional structures within this section of the trail alignment however existing cross drains along SR 50 will need to be extended as described above.

From **Sta. 180+00 to 265+00**, the end of Segment 1, the trail alignment will utilize the existing railroad corridor and embankment. Because of this, there are not anticipated to be any additional wetland or flood plain impacts within this section. There are two culverts within this section, both at Sta. 232+50. These culverts will remain, with only modification/replacement of the damaged end treatments of each. It is anticipated that no additional structures are needed within this section of the trail alignment.

7.14.2 Segment 2 (Sta. 265+00 to 535+50)

The majority of this segment utilizes the old railroad corridor and embankment that traverses through the City of Mascotte with a proposed grade separated crossing of SR 50. South of SR 50, the natural drainage patterns flow to Gallows Lake and Sunset Lake. On the northern side of SR 50 the project will drain to Lake Jackson and Little Bluff Lake.

From **Sta. 265+00 to 311+50,** the trail alignment will use the existing railroad corridor. There are no existing structures within this section and no new structures are proposed.

From **Sta. 311+50 to 321+50,** the trail alignment will leave the railroad alignment to provide a more economical pedestrian overpass at SR 50. The trail will be constructed slightly above grade in this area and utilize swales to convey stormwater runoff to existing drainage systems.

From **Sta. 321+50 to 333+00,** the alignment will use the existing railroad corridor. There are no existing structures within this section and no new structures are proposed.

From **Sta. 333+00 to 341+50,** the trail alignment will leave the existing railroad corridor. It will travel behind several homes in this area. Swales adjacent to the trail will convey storm water to the roadside ditches along Sunset Avenue and Hickory Street.

From **Sta. 341+50 to 398+70,** the alignment will use the existing railroad corridor. Structure S-6A is along this section and no impacts are anticipated to this structure.

From **Sta. 398+70 to 414+50,** the trail will leave the existing railroad corridor. The trail will pass behind several businesses along SR 50 that have purchased the railroad corridor and are utilizing it as part of their development. The trail will pass adjacent to two wetland areas but will not impact them. The swales adjacent to the trail will convey storm water to the two wetland areas along this section. No additional structures are anticipated within this section.

From **Sta. 414+50 to 426+00,** the alignment will use the existing railroad corridor. There are no existing structures within this section and no new structures are proposed.

From **Sta. 426+00 to 436+20,** the trail will leave the existing railroad corridor. The trail will pass behind businesses along SR 50 that have purchased the railroad corridor and are utilizing it as part of their development. The swales adjacent to the trail will convey storm water to the

roadside ditch along Villa City Road. No new structures are anticipated in this section.

From **Sta. 436+20 to 477+00,** the alignment will use the existing railroad corridor. This section of the trail is adjacent to SR 50. The swales adjacent to the existing railroad embankment will be used for the trail. This portion of the trail will pass along the edge of the wetlands associated with Lake Catherine but no new impacts to the wetlands or flood plain are anticipated. There are no existing structures in this section and no new structures are proposed.

From **Sta. 477+00 to 503+00,** the trail will leave the existing railroad corridor. Between Sta. 477+00 and Lake Avenue, the alignment travels north to line up with available R/W on the east side of Lake Avenue. From Lake Avenue to Sta. 503+00, the trail alignment will be adjacent to existing streets. The existing drainage along the streets will be maintained and trail drainage will be incorporated into it. No new structures are anticipated in this area.

From **Sta. 503+00 to 535+50,** the alignment will use the existing railroad corridor. This section will be adjacent to SR 50. The original railroad embankment is largely intact and will be used for the trail. There are two side drains (structure S-7 and S-8) at Sta. 520+80. These side drains are 90% silted and the ends have been crushed. As part of the trail construction, end treatments will be added to these side drains. At Sta. 538+50, an offsite drainage pipe discharges into the railroad swale. This discharge point will be maintained after the trail is constructed. No new structures are anticipated in this section.

7.14.3 Segment 3 (Sta. 535+50 to 840+20)

From **Sta. 535+50 to 647+00** the alignment will use the existing railroad corridor. The alignment is adjacent to SR 50 up to Sta. 580+00. At this point, the railroad corridor parallels CR 565A. There is an existing side drain at Sta. 585+50, the entrance to housing development. This side drain will be maintained and no modifications are anticipated. At Sta. 607+50, an outfall from a detention pond on the south side of CR 565A discharges into the railroad swale. Construction of the trail is not anticipated to affect this discharge point. No new structures are anticipated in this section.

From **Sta. 647+00 to 665+00** the alignment will leave the railroad corridor, where a subdivision has been constructed on the old railroad corridor. The project alignment will be adjacent to CR 565A until the intersection with Jack Underwood Road where the alignment will turn North and reconnect with the old railroad corridor at Sta 665+00.There are no existing structures in this section and no new structures are proposed.

From **Sta. 665+00 to 729+50 (the intersection of CR 565A and 561A),** the alignment will use the existing railroad corridor. This section is adjacent to CR 565A. At Sta. 729+50 the alignment will cross from the north side of CR 565A to the south side of CR 565A. There are no existing structures in this section and no new structures are proposed.

From **Sta. 729+50 to 753+50** the alignment will parallel CR 565A on the south side. It will pass near a wetland at Sta. 740+00 but is not anticipated to have any wetland or flood plain impacts. At Sta. 753+50 the trail will again cross CR 565A and utilized the railroad corridor. This alignment is not anticipated to need any additional drainage structures.

From **Sta. 753+50 to 808+13** (the end of the project) the trail will use the railroad corridor. There is a bridge on CR 565A connecting Lake Hiawatha and Lake Minneola at Sta. 785+00. At the bridge, the trail will deviate from the railroad corridor and use the existing sidewalk on

the bridge for crossing the lake connection. This alignment will require the installation of a culvert (S-101) at Sta. 782+50 in order to maintain the conveyance in the railroad ditch. It is anticipated a 36 inch RCP will be required for this structure. From south of the bridge to the end of the project the alignment will follow the railroad corridor. Directly south of the existing bridge the project corridor will drain to Lake Minneola, however it was noted during field reviews that the area between CR 565A and the old railroad corridor (approx. Sta. 794+00) is currently a low spot that has to stage up a few feet before discharging to Lake Minneola. A culvert (S-102) would be needed to drain this area. It is anticipated an 18 inch RCP will be required for this structure.

7.15 Conceptual Structure Analysis

7.15.1 SR 50 Grade Separated Crossing

7.15.1.1 Environmental and Site Considerations

The proposed grade separated crossing of SR 50 is considered an integral portion of this project. The proposed crossing location is downtown Mascotte. There currently are no signals located near the proposed crossing to allow trail users to cross SR 50. In addition, SR 50 currently has a AADT of 13,600 vpd and based on our field reviews there is large percentage of truck traffic that utilizes this portion of SR 50.

Currently the abandoned CSX railroad corridor is still undeveloped in the area of the proposed crossing of SR 50. The south side of SR 50 remains a cleared parcel of land as seen in the photos below. On the north side of SR 50, there is a frame house that has been set on top of where the railroad once existed. The house is currently unoccupied and is for sale. Behind the house, the rail bed is overgrown with trees and underbrush.

Based on our field reviews and based on the USGS quad map the existing elevations on the south side of SR 50 are relativity flat and are favorable to an overpass or underpass. On the north side of SR 50, the existing ground gradually slopes towards Lake Jackson. The preferred alignment has been angled so that crossing of SR 50 is at a right angle and is as short as possible. The falling grades on the north side of SR 50 will require longer ramp

sections to match existing ground.

Lake Jackson on the north side of SR 50 is the outfall for this area and a concern for the underpass option. A review of the FEMA maps and USGS Quad Maps show that the approximate 100-foot flood elevation for Lake Jackson is between 105 ft. and 110 ft. This elevation is based on overlaying the existing quad maps and the FEMA maps. The FEMA maps list Lake Jackson as Zone A and do not list a specific elevation. The approximate elevation of SR 50 at the proposed crossing location is elevation 118 feet.

There are no known environmental concerns with the site on either side of SR 50.

7.15.1.2 Design Criteria

The proposed multi-use trail overpass or underpass at SR 50 and the associated ramp approaches will be designed in accordance with the latest revisions of the AASHTO LRFD Bridge Design Specifications, the FDOT Plans Preparation Manual (PPM), the FDOT Structures Design Guidelines and the FDOT Detailing Manual. The following is a partial list of the criteria that will be used for contract document preparation and was used for the analysis of various structures evaluated in this report.

1.) Specifications

Construction:
- Florida Department of Transportation Standard Specifications for Road and Bridge Construction

Design:
- AASHTO LRFD Bridge Design Specifications with all applicable interims
- Florida Department of Transportation Structures Design Guidelines
- Florida Department of Transportation Structures Detailing Manual
- Florida Department of Transportation Plans Preparation Manual
- Florida Department of Transportation Design Standards

ADA:
- Florida Building Code (Chapter 11 – Florida Accessibility Code for Building Construction)

2.) Hydraulic Evaluation

Deck Drainage:
- In accordance with the FDOT Drainage Manual

3.) Trail Geometry

Horizontal and Vertical:
- In accordance with the FDOT PPM, see Section 5.0 of this report
- Maximum grade of 5% without landings for ADA compliance
- Maximum grade of 1:12 with 5’-0” landings no further apart than 30’-0” for ADA compliance

4.) Clearance Requirements

Horizontal Clearance
- In accordance with the FDOT PPM

Vertical Clearance

- 17'-6" minimum per the FDOT PPM (Overpass)
  10' preferred (8' minimum) clearance for an underpass per the FDOT PPM.

7.15.1.3 Conceptual Layouts (Vertical and Horizontal)

Conceptual layouts for the overpass and underpass have been prepared and can be found in Appendix A of this report. The existing profile grade line that is shown on the conceptual layout plan and profile sheets is based on the USGS Quad Maps and not on actual surveyed data.

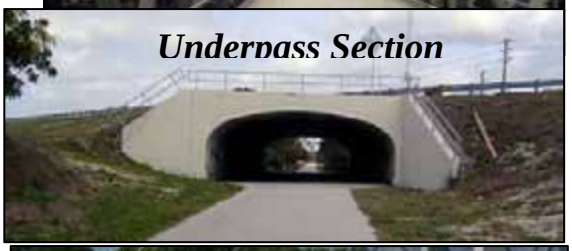
SR 50 Overpass – An overpass is required to have a minimum vertical clearance of 17'-6" which will require eight ramp sections on the south of SR 50 and ten ramp sections on the north of SR 50. Each ramp section will have a grade of 1:12 (8.333%) for a rise of 30 inches, and then a 5 foot level area is required. It is desirable to have the ramp and structure on a straight alignment; changes in alignment will increase the cost of the design, construction and pose hazards to trail users negotiating their way down gradient. Handrails will be required on the ramp sections.

SR 50 Underpass – The vertical clearance for an underpass relates to the inside height of the structure which is 10 feet. In addition, there is a minimum of 12 inches needed between the bottom of the roadway base and the top of the underpass structure, which is required by the manufacturer of the pre-cast structures.

This criteria requires the structure be approximately 14 feet below the natural ground. For the SR 50 underpass, there would be six ramp sections required south of SR 50 and five ramp sections required on the north side of SR 50. Since the topography slopes towards Lake Jackson north of SR 50 the number of ramps are less on the north side of SR 50.

7.15.1.4 Typical Sections

Typical Sections have been prepared for the Overpass section and the Underpass section and can be found in Appendix D.



The typical section prepared for the Overpass is for a Steel Truss system. An example of this system is shown in the photo to the right. Other types of bridges can be used which include a box girder or plate girder however both of these systems would require the overpass to be raised an additional 4 to 6 feet' and consequently require two more ramp sections on both sides of SR 50 resulting in an increase in the construction costs.

The typical section for the underpass is similar to the photo to the right; however, the width of the proposed underpass for this

project will be 14 feet with a 10-foot minimum vertical clearance. The photo to the right shows a typical ramp section.

7.15.1.5 Phased Construction

The Overpass alternative proposed for this project will require night-time road closures to allow for placement of the bridge components spanning the roadway. It is anticipated that SR 50 will have to be closed periodically for several hours during night construction operations to allow for lifting and placement of bridge components over the roadway. Traffic on SR 50 would be detoured around the construction zone during nighttime closures. The detour route, shown in the graphic, is highlighted in green and would consist of Bay Lake Road to Carter Jones Road and S. Sunset Ave.

Placement of the concrete deck slab for the overpass will require lane shifts to ensure concrete placement does not occur over active travel lanes. Lane shifts would be set up and would impact traffic for several days during concrete placement and other similar overhead work.

The Underpass will have to be constructed using an open-cut. Depending on the particular phase of construction, lane shifts on SR 50 would be set up in accordance with FDOT Standards to route traffic around the work zone. Underpass construction for each phase would consist of installing a barrier wall around the work zone between which excavations would be performed to construct the underpass. Upon completing the excavation, the footing and drainage system would be constructed. The underpass would then be completed by setting precast underpass sections and reconstructing the roadway over the completed underpass.

7.15.1.6 Utilities

As shown in the photos for SR 50 in Section 7.15.1.1, the south side of SR 50 has overhead power lines and street lighting. In addition, Sprint has underground lines on south side of SR 50.

With an overpass structure the overhead utilities will require relocation while the underground utilities should not be impacted because the construction will be outside the SR 50 right of way.

With an underpass structure the overhead utilities should not be impacted, however depending on the exact location of the poles they may be impacted. The construction of the underpass will require a crane to lift the pre-cast underpass section into place and the overhead lines may be impacted during the construction activities. The underground

utilities will be impacted and will need to be relocated.

7.15.1.7 Lighting

SR 50 Overpass – Multi-use trails generally open the same time as parks which is from sunrise to sunset, therefore pedestrian overpasses are not generally open at night and do not require lighting.

SR 50 Underpass – The underpass will require lighting to ensure trail users can negotiate through the structure and ensure safety will utilizing the underpass. Due to safety concerns, the underpass should be designed with security gates at both sides of the structure so that the structure can be closed during nighttime.

7.15.1.8 Conclusions and Recommendations

For the crossing of SR 50 a grade separated crossing is the recommended alternative. When evaluating the SR 50 underpass, the major concerns are the drainage issues regarding the proximity of the underpass to Lake Jackson and the associated 100 year flood elevation. As stated above, the 100 year elevation is approximately 108 while the elevation of SR 50 is approximately 118. The underpass would reach an elevation of 104 at the top of the bottom slab. It is recommended to keep the bottom slab 1'foot above the 100 year flood elevation. Therefore, the bottom elevation of the underpass would need to be at elevation 110. This would require SR 50 to be raised approximately 6 feet through downtown Mascotte. Assuming a 3% grade would be used for both approaches, SR 50 would require the reconstruction of approximately 500 feet on both side of the underpass. The other concern with raising SR 50 to accommodate the underpass is the driveway connections to the local businesses in the area and the potential negative impacts on the future development in the area.

Based on the concern with the drainage for the underpass option it is recommended that a pedestrian overpass be constructed at this location.

7.15.2 CR 33 Underpass

7.15.2.1 Environmental and Site Considerations

Looking West at CR 33 and Underpass Road

CR 33 currently has an AADT of 3,830 vpd with a posted speed of 55 mph. A review of the crash data found in Section 4.1.8 shows that there have been 4 accidents at this intersection.


Looking South on CR 33

The abandoned CSX corridor and preferred trail crossing location is at the intersection of CR 33 and Underpass Road / Palmetto Drive. The trail crossing will be on the south side of Underpass road and the trail will be crossing CR 33.

As seen in the photos to the right and specifically the photo looking west the abandoned CSX

corridor is approximately 10 feet lower than CR 33 on both the east and west sides of CR 33. If an at-grade crossing is proposed at this intersection, additional fill would be required to bring the preferred alignment up to the grade of CR 33.

The existing topography as described above makes this intersection an ideal location for a proposed underpass since the existing grade on both sides of CR 33 are approximately 10 feet lower than CR 33.

There are no known environmental concerns for this site.

7.15.2.2 Design Criteria

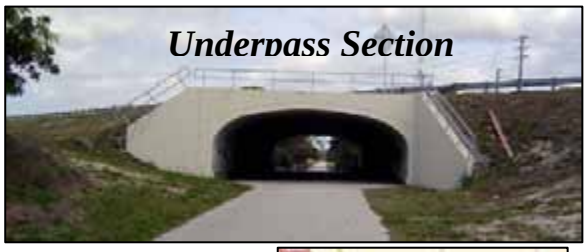
The design criteria for this underpass will include the design criteria as listed in Section 5.0 and Section 7.15.1 b.

7.15.2.3 Conceptual Layouts (Vertical and Horizontal)

The conceptual underpass would be 80 feet in length and only require two ramp sections on both the east and west side of CR 33. The pedestrian underpass would provide 10 feet of vertical clearance and maintain a 14 foot trail width through the structure. There would be a straight clear line of sight for the underpass. The conceptual plans for the Pedestrian Underpass are provided in Appendix A.

7.15.2.4 Typical Sections

The typical section for this underpass would be similar to the photo to the right except 10 feet of vertical clearance will be provided with 14 feet horizontal width.



7.15.2.5 Phased Construction

Open-cut method of construction is proposed for the Underpass. As shown in the map to the right, detours are available around the construction area, which is on the south side of the intersection of CR 33 (Bluff Lake Road) and Underpass Road / Palmetto Drive. Therefore, one option for construction sequencing would be to detour the traffic around the work zone and allow the contractor to complete the construction in one phase.

Another option would be to phase the construction and provide temporary pavement and lane shifts in accordance with FDOT Standards.

7.15.2.6 Utilities

As shown in the photos there are overhead utilities on the north side of Underpass Road that run east-west therefore they should not be impacted by the construction of the pedestrian underpass. A watermain runs on the north side of Underpass Road and should not be impacted either.

Time Warner Cable markers were found on both the southwest and southeast side of the intersection and the proposed construction may require relocation of these facilities.

7.15.2.7 Lighting

The underpass will require lighting to ensure trail users can negotiate through the structure and ensure safety while utilizing the underpass. Due to safety concerns, the underpass should be designed with security gates at both sides of the structure so that the structure can be closed during nighttime.

7.15.2.8 Conclusions and Recommendations

Due to the topography of the site, little impact to existing utilities, available detour routes during construction and the need to minimize at grade crossings of roadways it is recommended that the pedestrian underpass be constructed as part of this project.

Since this site is close to the SR 50 crossing it is recommended that notes be added to the plans that restrict the contractor to only having the SR 50 detour operating or the CR 33 detour operating and not allowing both detours to operate at the same time. This will minimize the confusion to the traveling motorists.

7.16 Special Features

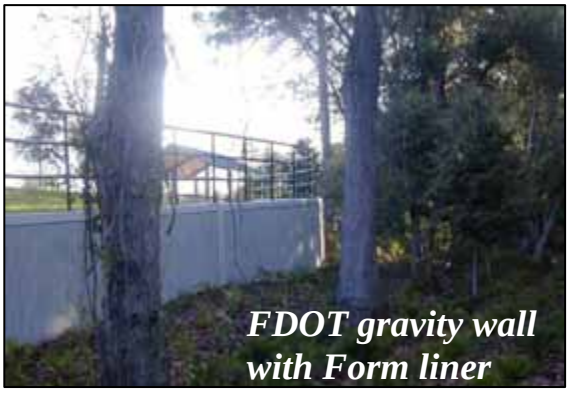
7.16.1 Retaining walls

Based on our field reviews the following locations in Table 7.16-1 may require retaining walls:

Table 7.16-1– Locations may requiring retaining wall

Location	Side	Length	Reason
Sta 145+00 to Sta 158+50	Rt.	1350’	Potential Wetland Impact
Sta 165+00 to Sta 171+00	Rt.	600’	Potential Wetland Impact
Sta 230+00 to Sta 240+00	Both	2000’	High fill Section
Sta 391+50 to Sta 395+00	Lt.	350’	Potential Flood Impacts
Sta 456+00 to Sta 460+00	Lt.	400’	Potential Flood Impacts
Sta 458+00 to Sta 460+00	Rt.	200’	Potential Flood Impacts
Sta 782+00 to Sta 784+50	Both	500’	High Fill Section

The photos below show two different wall types used on other trail projects:


FDOT gravity wall with Form liner


Keystone Wall System

7.16.2 Boardwalks

Based on our field reviews the following locations in Table 7.16-2 may require boardwalk sections:

Table 7.16-2– Locations may requiring retaining wall

Location	Length	Reason
Sta 400+80 to Sta 401+20	140’	Wetlands
Sta 735+15 to Sta 746+15	1100’	Wetlands

As shown in the photo to the right the majority of the boardwalks on existing trails are constructed using pressure treated wood. The problems that have occurred with these wood structures include nail withdrawal due to the continuing use from bicyclists, in-line skaters and pedestrians; warping of the wood; splintering of the wood; and replacement of wood decking.


Typical Boardwalk Section

In addition, in-line skaters find wooden boardwalks rough to use because of the number of joints, the uneven surface of the wood and roughness caused by wood warping and nail withdrawal.

Other materials that have become available in recent years include the following:

Material	**Warranty**
- Trex (Composite)	10 years
- Geodeck (Composite)	10 years
- Fiberforce (Reinforced Plastic)	50 years
- Nexwood (Composite)	10 years
- TimberTech (Composite)	10 years

Most of the products above have a warranty of 10 years and will generally start showing signs of wear prior to 10 years of use. The Fiberforce (Reinforced Plastic Lumber), which has a 50

year warrenty, is a structurally reinforced plastic lumber that is made of high density polyethylene plastic combined with fiberglass for increased structural ability. The finished non-toxic plastic lumber has been laboratory tested for consistency and is free from splinters, will not rot, resists oil and chemicals and has ultraviolet protection to guard against color fading.

Another design concept for boardwalks includes using steel piling with a concrete deck. The use of concrete and steel will allow for longer piling spacing, a longer design life and a lower maintenance cost. The concrete deck will allow a smooth riding surface and will not warp. Typical Section No. 6 shows the boardwalk section.

It is recommended that boardwalk sections be constructed using either the Fiberforce or concrete with steel tube pilings. Both of these options have long life cycle costs and will minimize maintenance costs in the future.

7.16.3 Maintenance / Property Owner Access / Cattle Crossing

There are six locations along the South Lake Trail project where the preferred alignment may create conflict with the existing operations of the property owner. A meeting was held with George Lovett (FDOT right of way) on September 21, 2004 and the recommendations presented below were discussed and generally agreed upon in that meeting. These locations include the following:

1) Lee property,
Sta 64+00. Mr. Lee owns property south and north of abandoned railroad corridor and has also purchased the rail corridor property from CSX. Mr. Lee's cattle are free to roam on his property and currently cross the corridor without any restrictions. The proposed trail would split Mr. Lee's property and not allow Mr. Lee to operate as he does today.

Possible solutions to this item include installing fencing and gates that would temporarily close the trail and allow the property owner to move the cattle. Another solution would be to provide a grade separated crossing that would allow the trail users to traverse over the cattle crossing, thereby maintaining continual access for the property owner.

2) Odom property,
Sta 85+00 to 106+00. Mr. Odom currently uses the trail corridor and berm to access his

property and to move farming equipment and cattle between various parcels of land. Mr. Odom has stated that he pays CSX $50.00/year to use this land to access his property.

On the west edge of the Odom property, cattle are currently free to roam across the abandoned CSX corridor. With the proposed trail, a cattle crossing will be required along with fencing to prevent the cattle from mixing with the trail users. Potential access solutions include:

a) Provide a gate system to allow the property owner to move cattle across the trail.

b) Provide a grade separated crossing.

The other issue with the Odom property is that Mr. Odom owns property on the west side of Sloan's Ridge Road in addition to the parcels owned on the east side. Mr. Odom has stated that he pays CSX $50.00/year for the right to access his property via the old railroad berm and utilizes this berm to move his farm equipment and cattle from his property on the west to the east.

Possible solutions include:

a) Construct the trail on the railroad grade and allow the property owner to utilize the trail section to access his property and provide a path for the cattle to be moved from one property to the other.

b) Allow the property owner to keep utilizing the old railroad berm for access to his property and to move his cattle and construct the trail adjacent to the existing berm and construct a fence to separate the different user groups.

3) Near Lee Road.

A property owner is currently using the abandoned railroad corridor as a driveway to access his property. The property owner is entering the abandoned railroad corridor off of Lee road instead of utilizing the driveway cut located off of SR 50.

In this case it appears that the property owner has access to his property and should be accessing the property off of SR 50 and not off Lee Road.

4) Lazy Acre Road.

A property owner currently utilizes the abandoned railroad corridor to access his property. The property owner does not have any other access to his property. CSX still owns the right of way and it is not known if the property owner has any right to use the corridor to access his property.

It is recommended in the design phase to determine if the property owner has any rights to utilize the corridor and whether joint use of the corridor should be maintained.

5) E. of Bay Lake Road. The railroad corridor has been purchased by individual property owners and is currently being used as a driveway. The preferred alignment of the trail will require the relocation of the existing driveway and will probably impact the adjacent property owner's driveway.

It is recommended during the design phase that the use of privacy fencing and landscaping be used to buffer the trail from the residential homes and negotiations will be required concerning the driveway relocations.

6) American Legion Road.
A property owner currently utilizes the abandoned railroad corridor to access his property. It is not known whether the property owner has any rights to utilize the corridor, which is owned by CSX. In addition, it is not known if there is alternate access to the property.

It is recommend in the design phase to determine if the property owner has any rights to utilize the corridor and whether joint use of the corridor should be maintained.

7.16.4 Fencing

Based on our field reviews the following locations shown in Table 7.16-3 may require fencing.

Table 7.16-3 – Locations of fencing needs

Location	Side	Length	Reason
Sta 61+50 to Sta 86+50	Both	5000'	Roaming Cattle nearby
Sta 87+00 to Sta 105+00	Right	1800'	Roaming Cattle nearby
Sta 105+00 to Sta 121+00	Both	3200'	Roaming Cattle nearby
Sta 308+00 to Sta 311+00	Both	600'	Near Residential Homes
Sta 729+50 to Sta 753+50	Right	2400'	Replace Existing Fence

FDOT Type A fence (Index No. 451), farm fence is recommended for locations with cattle nearby and to replace existing fence in rural locations.

FDOT Type B fence (Index No. 452), chain link fence is recommended on the school property.

For locations where the fence provides privacy other fence types that would provide a visual barrier would be recommended.

7.16.5 Landscaping

Based on our field reviews the following locations listed in Table 7.16-4 may require landscape buffering.

Table 7.16-4 – Locations of landscape buffering

Location	Side	Length	Reason
Sta 74+00 to Sta 77+00	Right	300’	Near Residential Homes
Sta 301+50 to Sta 304+00	Left	250’	Near Residential Homes
Sta 325+50 to Sta 332+00	Right	650’	Near Residential Homes
Sta 337+00 to Sta 342+50	Left	550’	Near Residential Homes

These landscaping areas are recommended to help provided a visual barrier between the proposed trail and nearby residential homes.

7.17 Trail Access

7.17.1 Trailheads

To enhance trail access and to provide trail users amenities, there are a number of trailheads proposed as part of this project. As a continuation of South Lake Trail Phases I and II, as well as, the West Orange Trail, similar trailhead facilities are to be placed at similar intervals. Both at the start of the project in Mabel, and the end of the project in Clermont there are existing trailheads that can service Phases III and IV. In general, trailheads will be placed every 2 .5 to 3 miles.

Trailhead at Mabel

Lake Minneola West End Trailhead

Heading east from the trailhead at Mabel, the first potential trailhead facility location is at the intersection of Lee Road and SR 50. The proposed trailhead is centrally located between the Mabel Trailhead and the trailhead in downtown Mascotte. This would be a limited use facility primarily for parking. The rail right of way is approximately 50 feet wide at this location. An additional 25 feet may be needed to accommodate adjacent parking and landscaping.

Historic Groveland Depot

From Lee Road, trail users would have approximately 2.5 miles to the trailhead location proposed in downtown Mascotte immediately adjacent to SR 50. The trail head is proposed on the 5-acre vacant site will be where the SR 50 crossing will be located. The site is proposed as a full amenity site and can serve as Mascotte’s focal point and community gathering place. The site is also adjacent to the proposed Sunset

Park and boat launch on the north shore of Sunset Lake. The trails alignment in Mascotte will also benefit from other access points such as the Mascotte Civic Center and a possible future park on the north side of SR 50 on the old Lake County School Board Property.

The trailhead will be co-located with the new Downtown Groveland Park on Crittenden Street. This City Park will have full amenities and will be designed to have a dual use of trailhead and City Park. There may also be an opportunity to utilize the historic Groveland Depot as a park facility to enhance this trailhead.

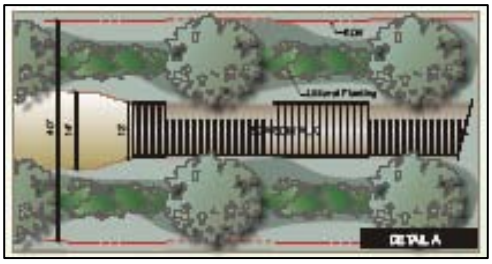
An additional trail access facility will be Lake David Park just south of SR 50. The trail will be linked to David Park via downtown sidewalks. Since downtown Groveland is built to a walkable scale, with sidewalk infrastructure improvements, links and access opportunities can be provided from a number of community facilities such as the library, the Puryear Community Center, the Garden Club, and others.

East of Groveland, the next trailhead will be approximately 3 miles away and its proposed location will be at the South Lake High School. This trailhead will most likely be limited to parking and water fountains. From South Lake High School, it will be approximately 3 miles to the West Lake Minneola Trailhead in Clermont.

7.17.2 General Access

As in most trail projects, trail access will be established from a variety of locations ranging from businesses to neighborhoods. Depending on the type of business, businesses will frequently improve access to the trail from their sites to capture the economic advantages trails bring with them.

7.18 Aesthetics and Landscaping



The proposed aesthetics and landscaping concepts will vary by location. In more urban areas such as the downtown areas of Groveland and Mascotte, a higher level of aesthetic and landscape treatments should be used. The treatments can range from various hardscape amenities such as pavers, bricks, or stamped concrete in sidewalks and crosswalks to street furnishings such as benches, water fountains, bike racks, lighting, etc. that are unique to each community. Likewise, landscaping would be more detailed to include trail trees, special screen vegetation, shrubs, accent plants, and ground covers.

In more rural areas, landscaping can be minimized to simply trail trees and sod. In thriving canopied areas, additional trail trees may not be needed.

Landscaping improvement not only enhances the aesthetics of the trail corridor, it also is a tool in providing operational safety for trail users. Using landscape and hardscape treatments, it can alert trail users to changes in the trail, such as intersections, turns places where you need to slow down, etc.

8.0 APPENDICES (INCLUDING CONCEPTUAL DESIGN PLANS)

Appendix A – Conceptual Design Plans & Intersection/CrossingConcepts

Appendix B – USGS Quad Maps

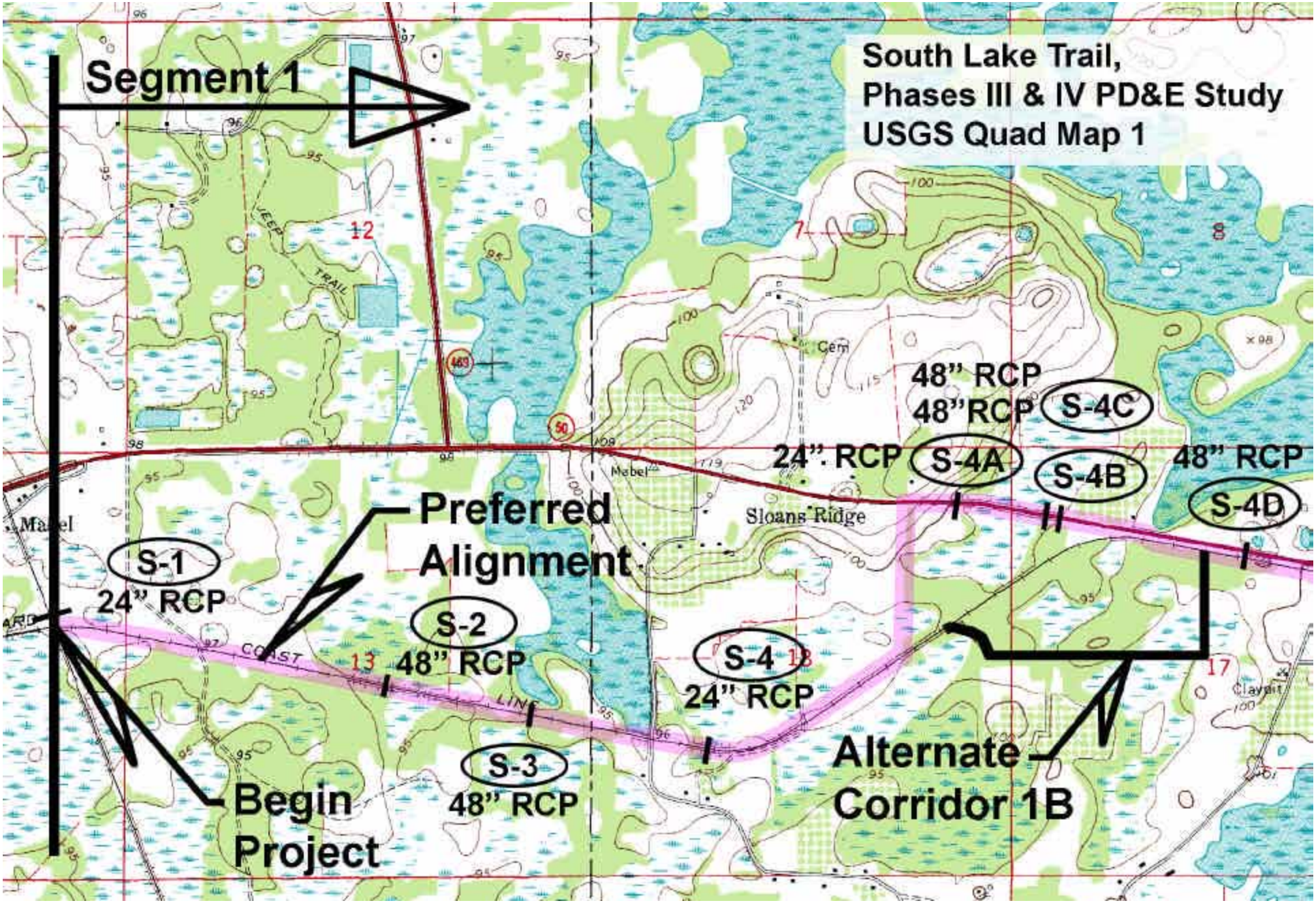
Appendix C – FEMA Maps

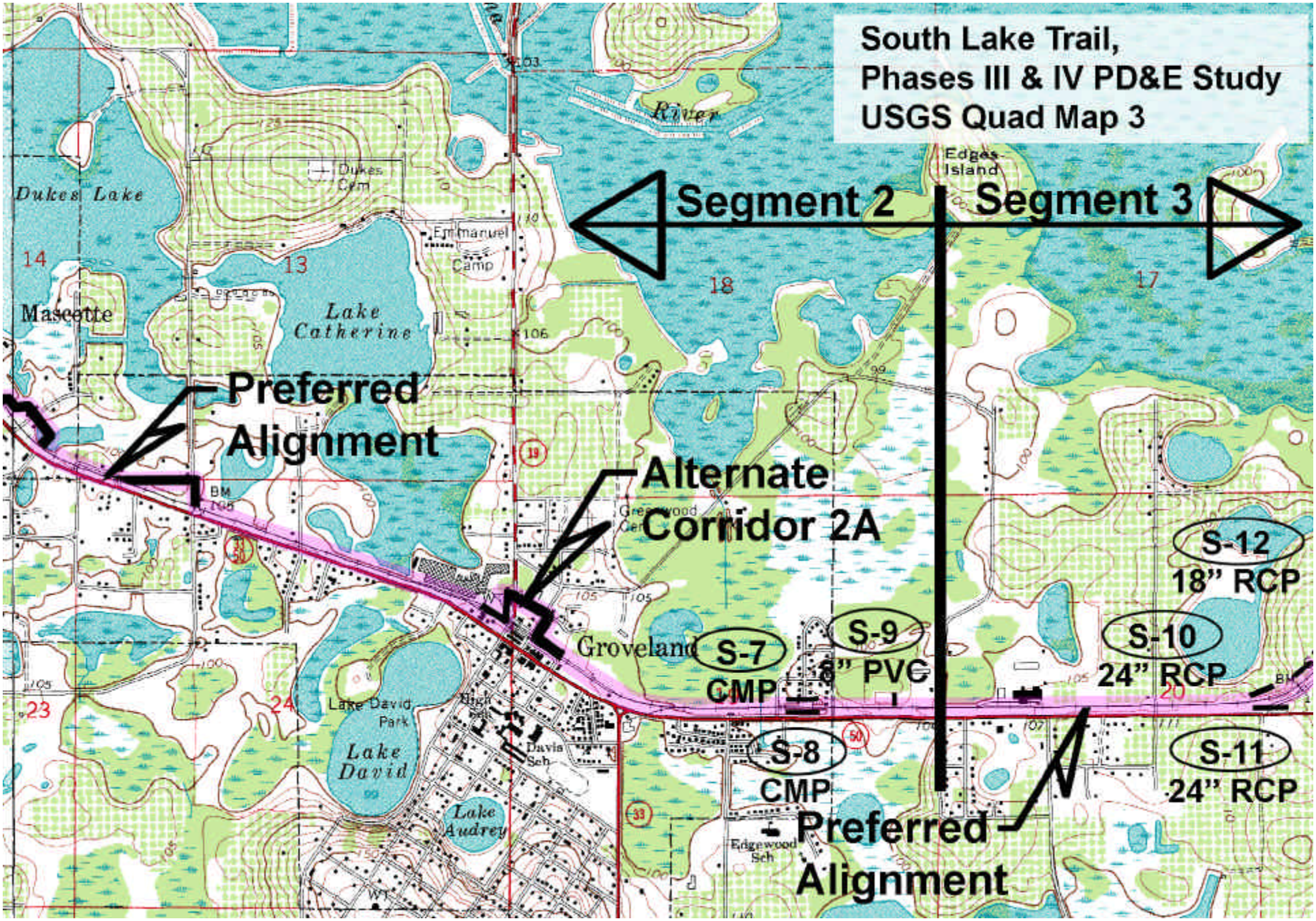
Appendix D – Typical Section Package

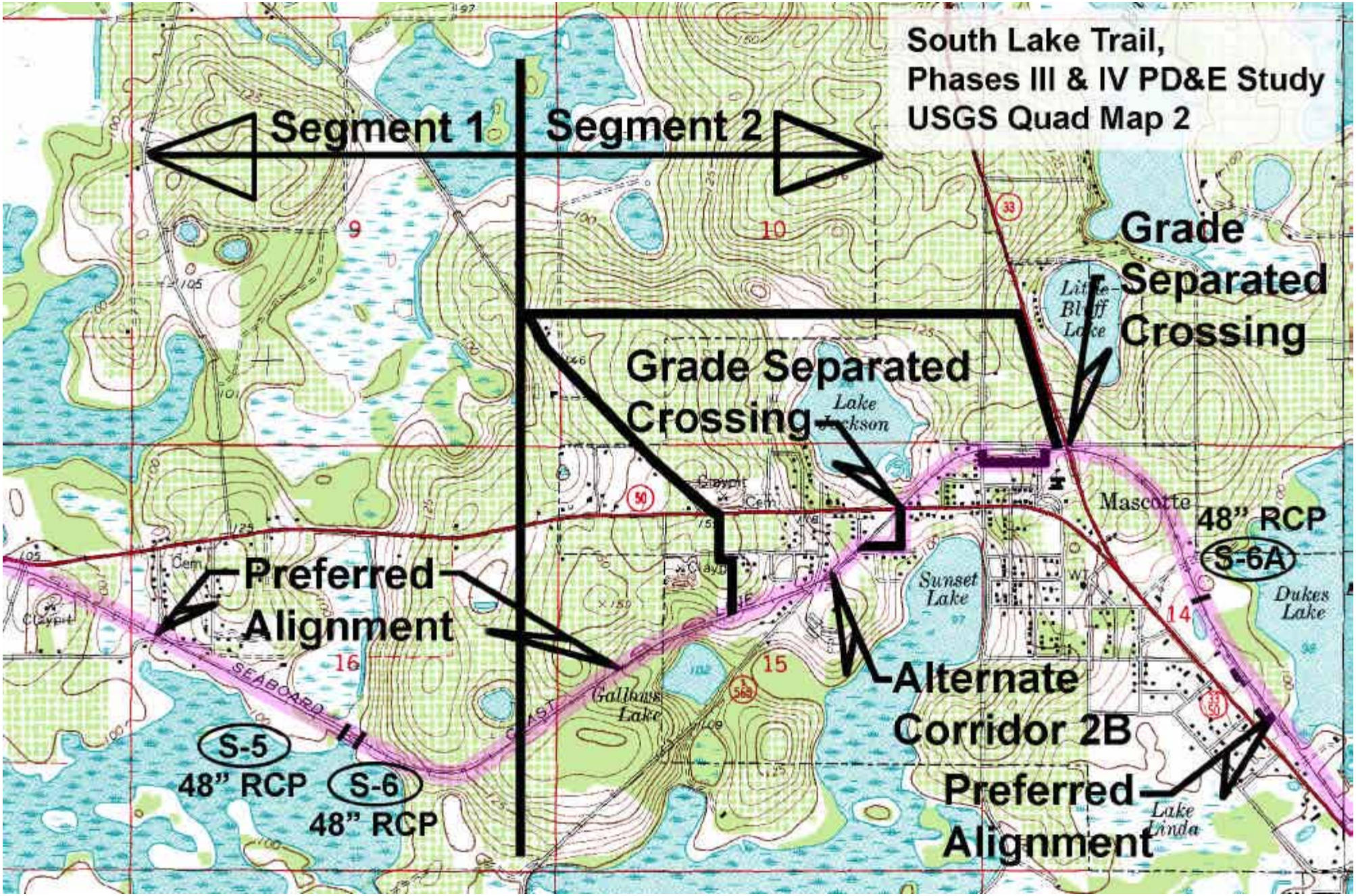
Appendix E – Contamination Sites

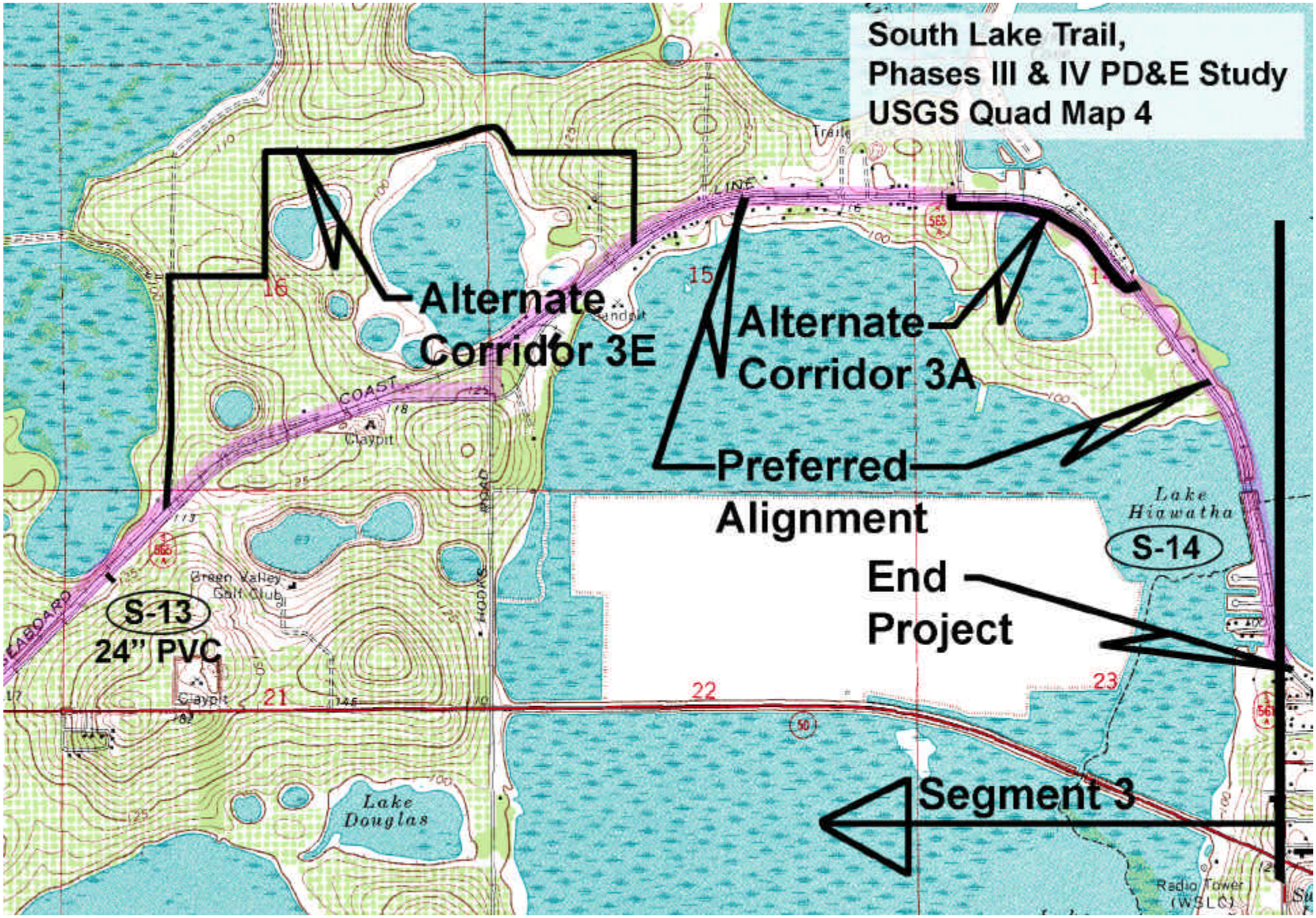
Appendix A: Conceptual Design Plans and Intersection/Crossing Concepts

Appendix B: USGS Quad Maps

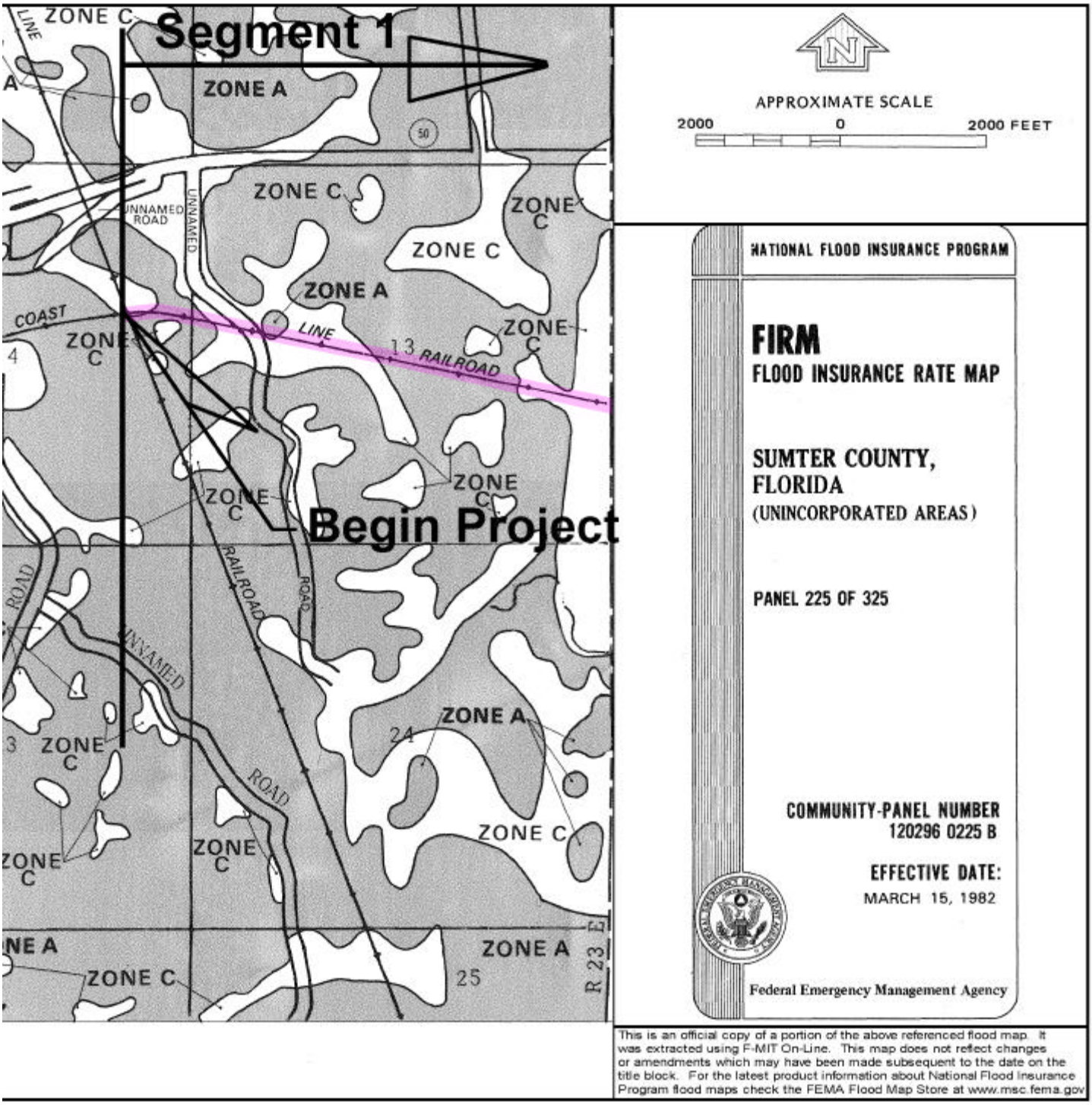

South Lake Trail,
Phases III & IV PD&E Study
USGS Quad Map 1
Segment 1
Preferred
Alignment
Alternate
Corridor 1B
Begin
Project
S-1
24" RCP
S-2
48" RCP
S-3
48" RCP
S-4
24" RCP
48" RCP
48"RCP
S-4C
24". RCP
S-4A
S-4B
48" RCP
S-4D
Mabel
Sloans Ridge
Claysit
JEEP
TRAIL
COAST
LINE
Cem


South Lake Trail,
Phases III & IV PD&E Study
USGS Quad Map 3
Segment 2
Segment 3
Preferred Alignment
Alternate Corridor 2A
Preferred Alignment
S-7 CMP
S-8 CMP
S-9 18" PVC
S-10 24" RCP
S-11 24" RCP
S-12 18" RCP
Dukes Lake
Lake Catherine
Lake David
Lake Audrey
Groveland
Mascotte
Edgewood Sch
Davis Sch
Lake David Park
Emmanuel Camp
Dukes Cem
Edges Island

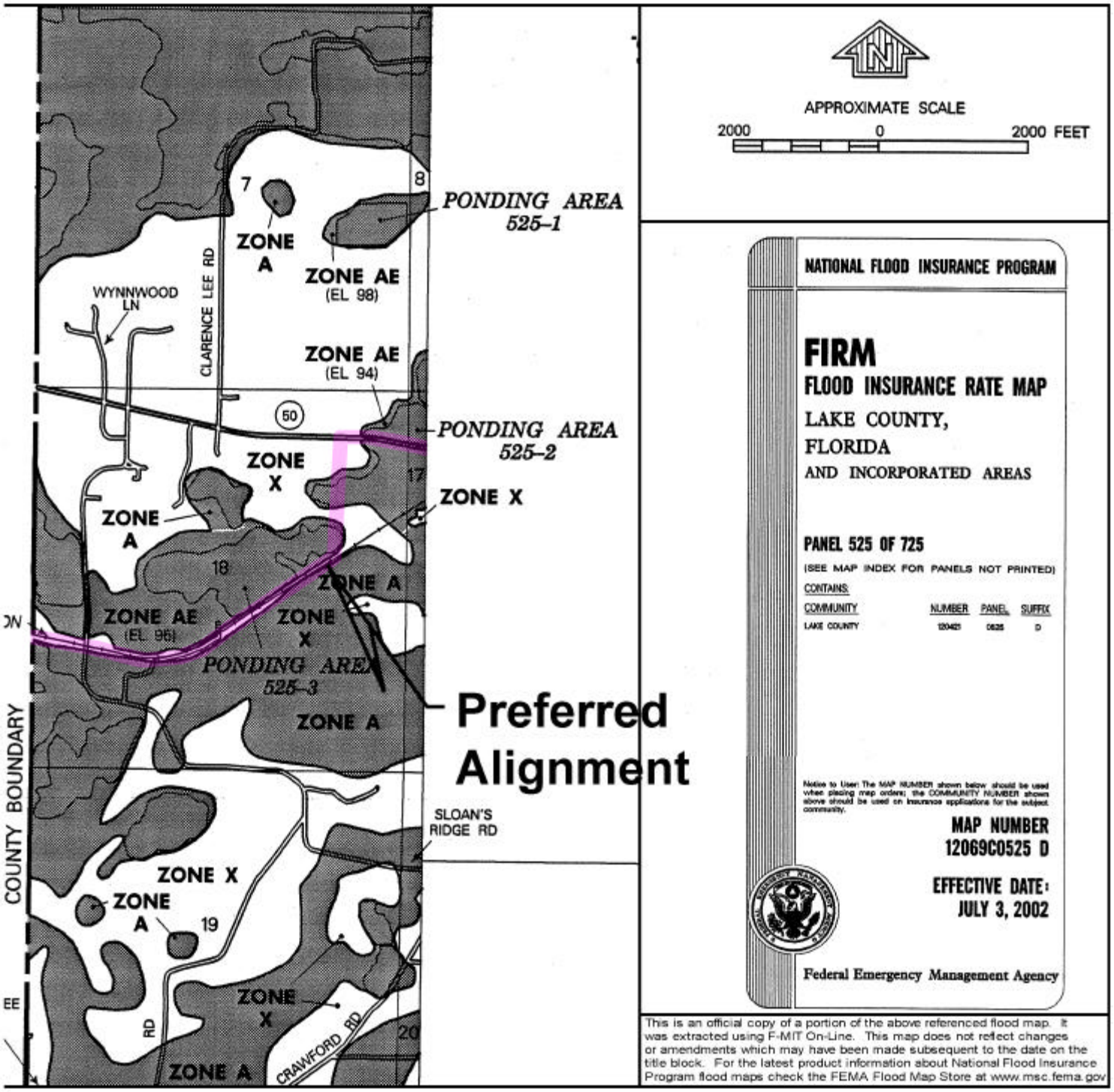

South Lake Trail,
Phases III & IV PD&E Study
USGS Quad Map 2
Segment 1
Segment 2
Grade Separated Crossing
Grade Separated Crossing
Preferred Alignment
Alternate Corridor 2B
Preferred Alignment
48" RCP
S-6A
S-5
48" RCP
S-6
48" RCP
Mascotte
Sunset Lake
Dukes Lake
Lake Linda
Gallbaus Lake
SEABOARD COAST
Cem
9
10
14
15
16


South Lake Trail,
Phases III & IV PD&E Study
USGS Quad Map 4
Alternate
Corridor 3E
Alternate
Corridor 3A
Preferred
Alignment
End
Project
Segment 3
S-13
24" PVC
S-14
Lake
Douglas
Lake
Hiawatha
Green Valley
Golf Club
Claypit
Claypit
Radio Tower
(WSLC)
COAST
LINE
ROAD
HOOKS
16
15
21
22
23

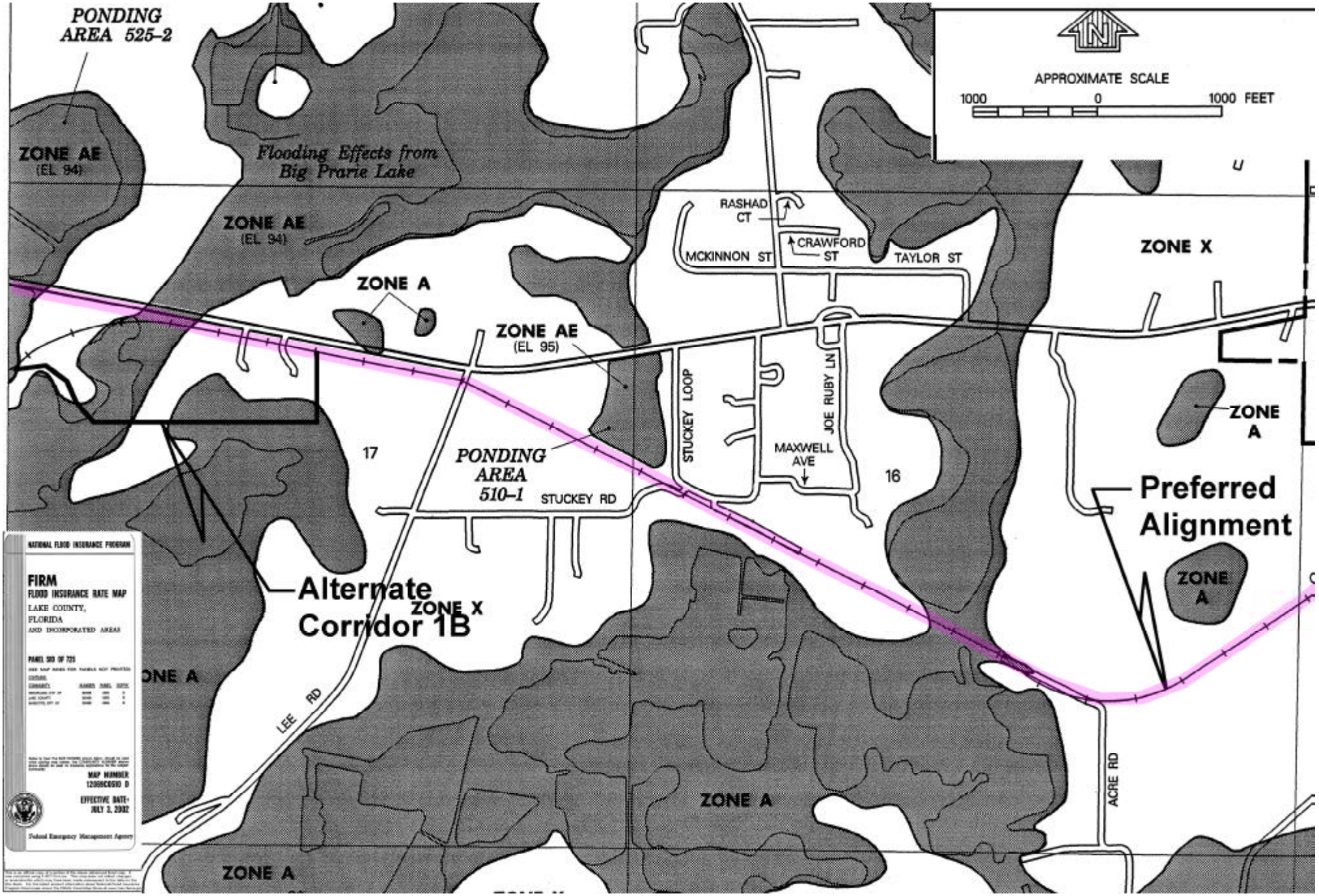
Appendix C: FEMA Maps



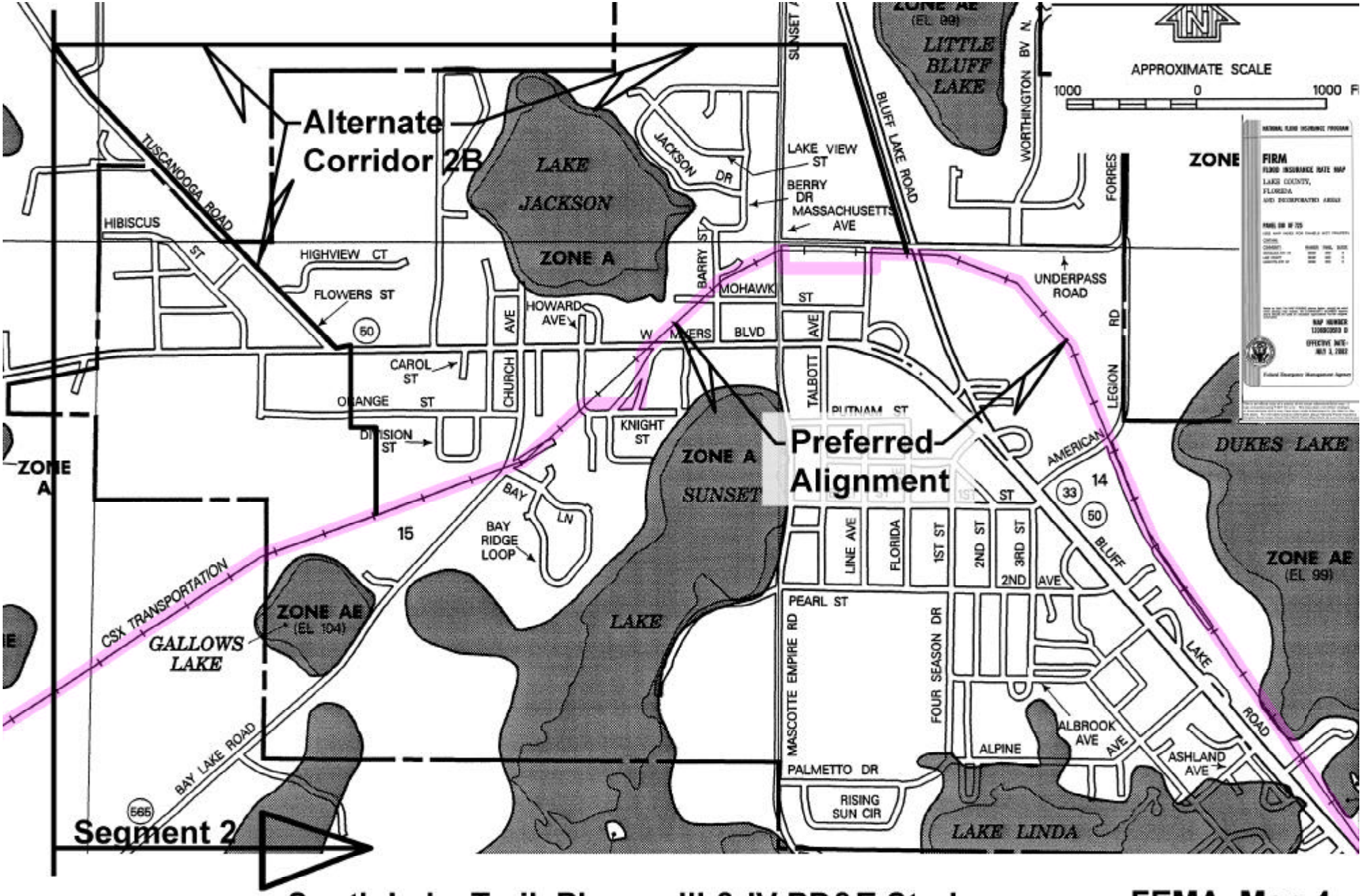
South Lake Trail, Phases III & IV PD&E Study FEMA Map 1



South Lake Trail, Phases III & IV PD&E Study FEMA Map 2

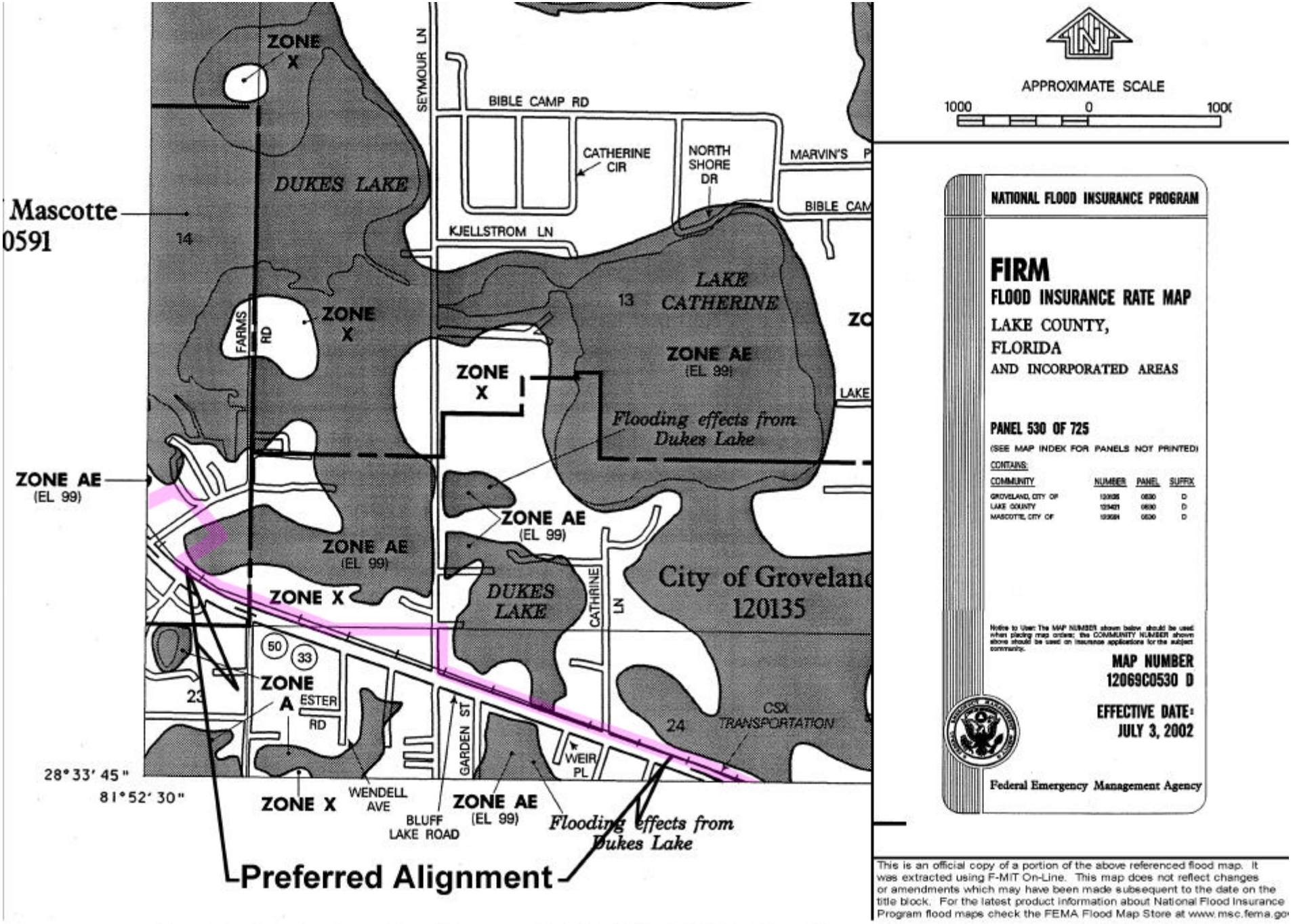


South Lake Trail, Phases III & IV PD&E Study FEMA Map 3



South Lake Trail, Phases III & IV PD&E Study

FEMA Map 4



NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

LAKE COUNTY,
FLORIDA
AND INCORPORATED AREAS

PANEL 530 OF 725

(SEE MAP INDEX FOR PANELS NOT PRINTED)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
GROVELAND, CITY OF	120135	0530	D
LAKE COUNTY	120401	0530	D
MASCOTTE, CITY OF	120591	0530	D

Notice to User: The MAP NUMBER shown below should be used when placing map orders; the COMMUNITY NUMBER shown above should be used on insurance applications for the subject community.

MAP NUMBER
12069C0530 D

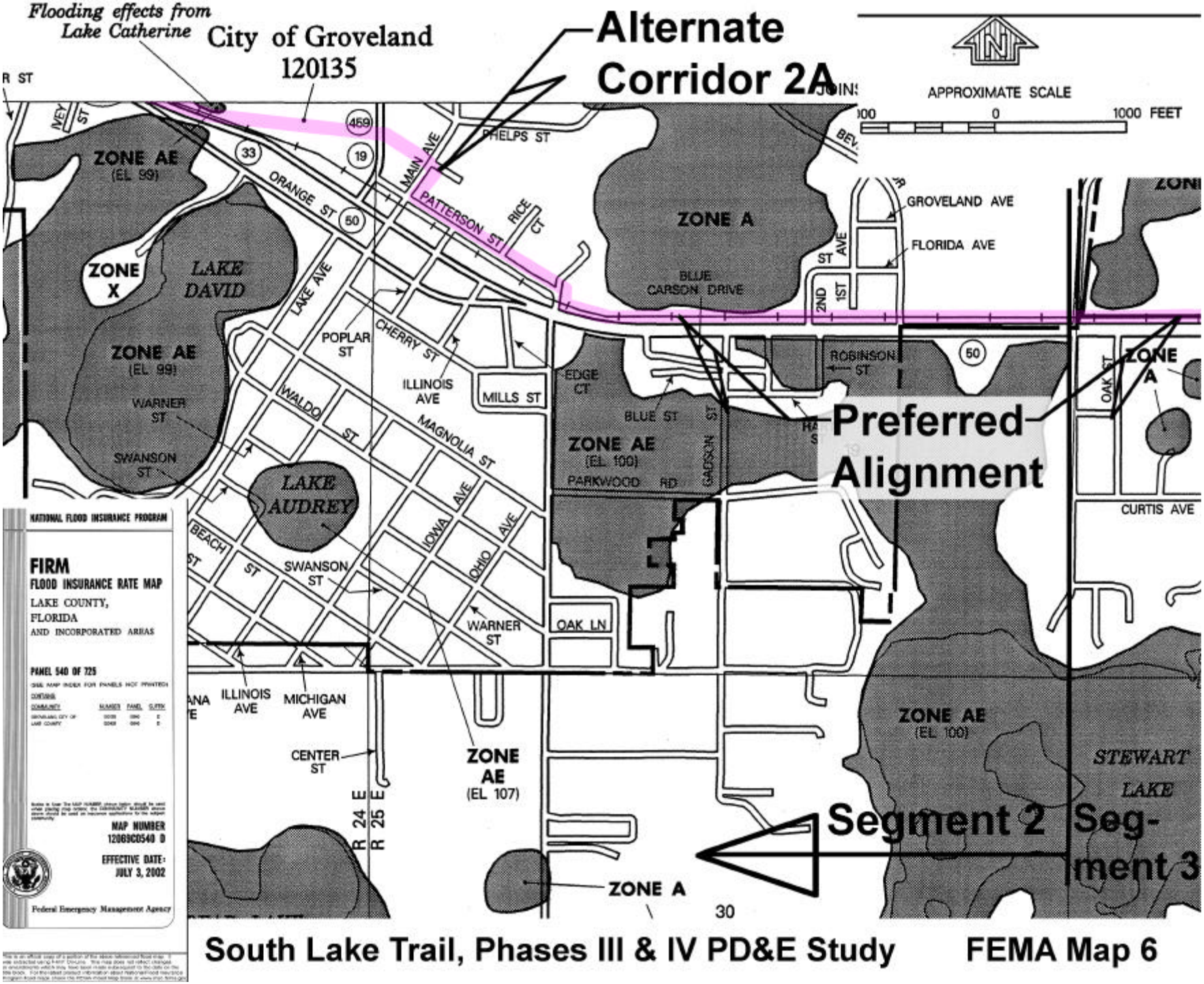
EFFECTIVE DATE:
JULY 3, 2002

Federal Emergency Management Agency

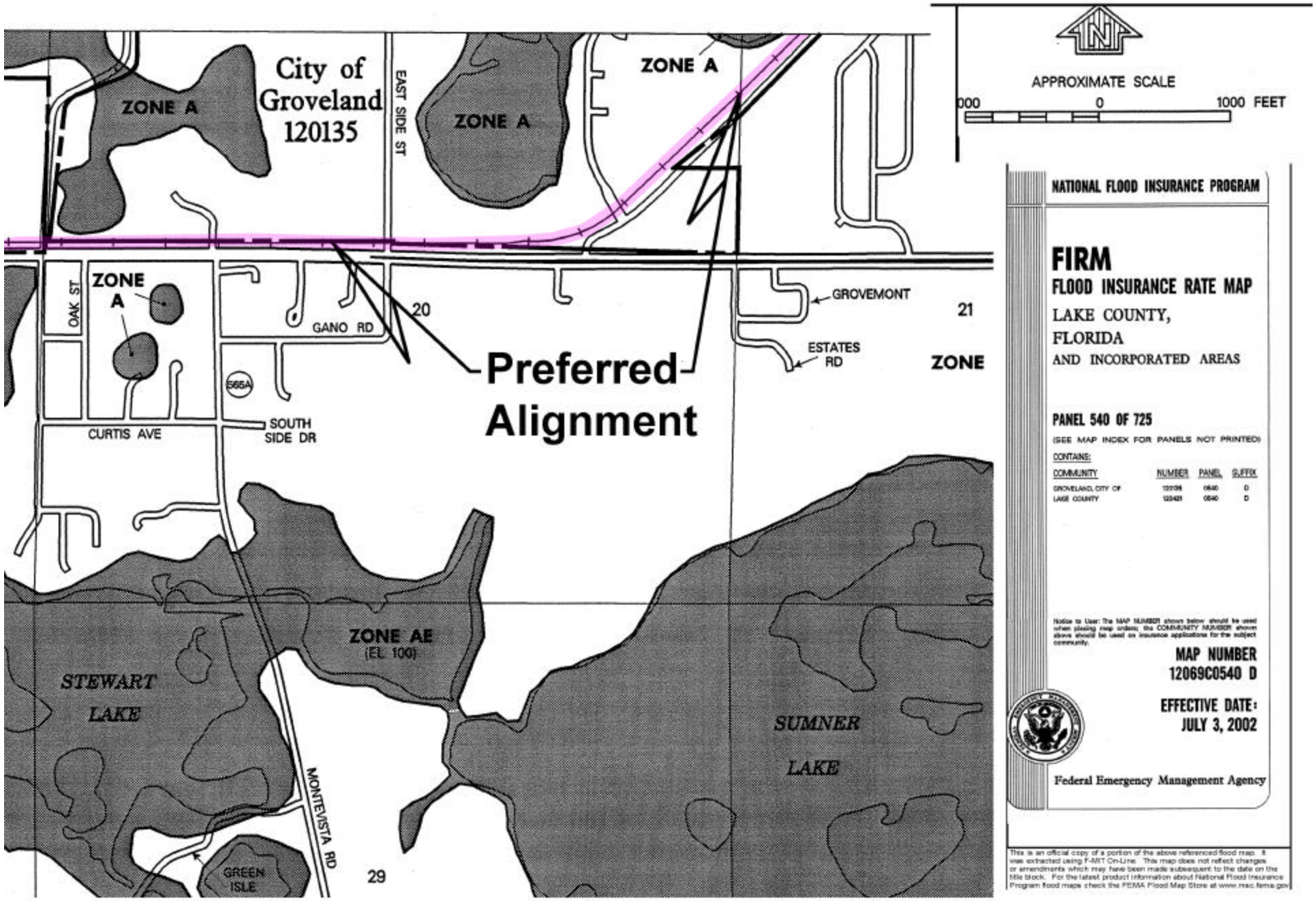
This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.go

South Lake Trail, Phases III & IV PD&E Study

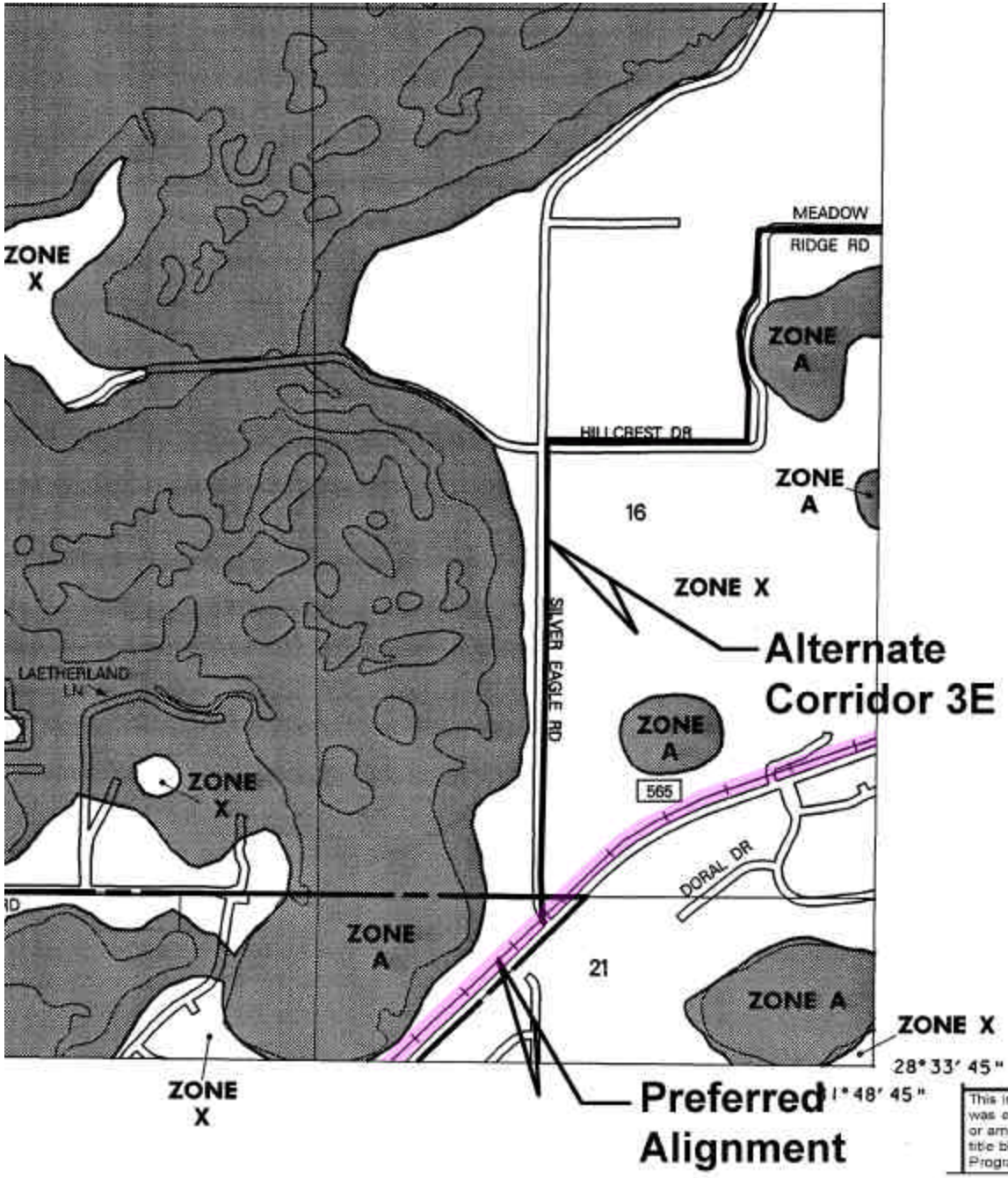
FEMA Map 5



South Lake Trail, Phases III & IV PD&E Study FEMA Map 6



South Lake Trail, Phases III & IV PD&E Study **FEMA Map 7**



APPROXIMATE SCALE

1000 0 1000

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

LAKE COUNTY, FLORIDA AND INCORPORATED AREAS

PANEL 530 OF 725

(SEE MAP INDEX FOR PANELS NOT PRINTED)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
GROVELAND, CITY OF	120606	0530	D
LAKE COUNTY	125401	0530	D
MASCOTTE, CITY OF	120609	0530	D

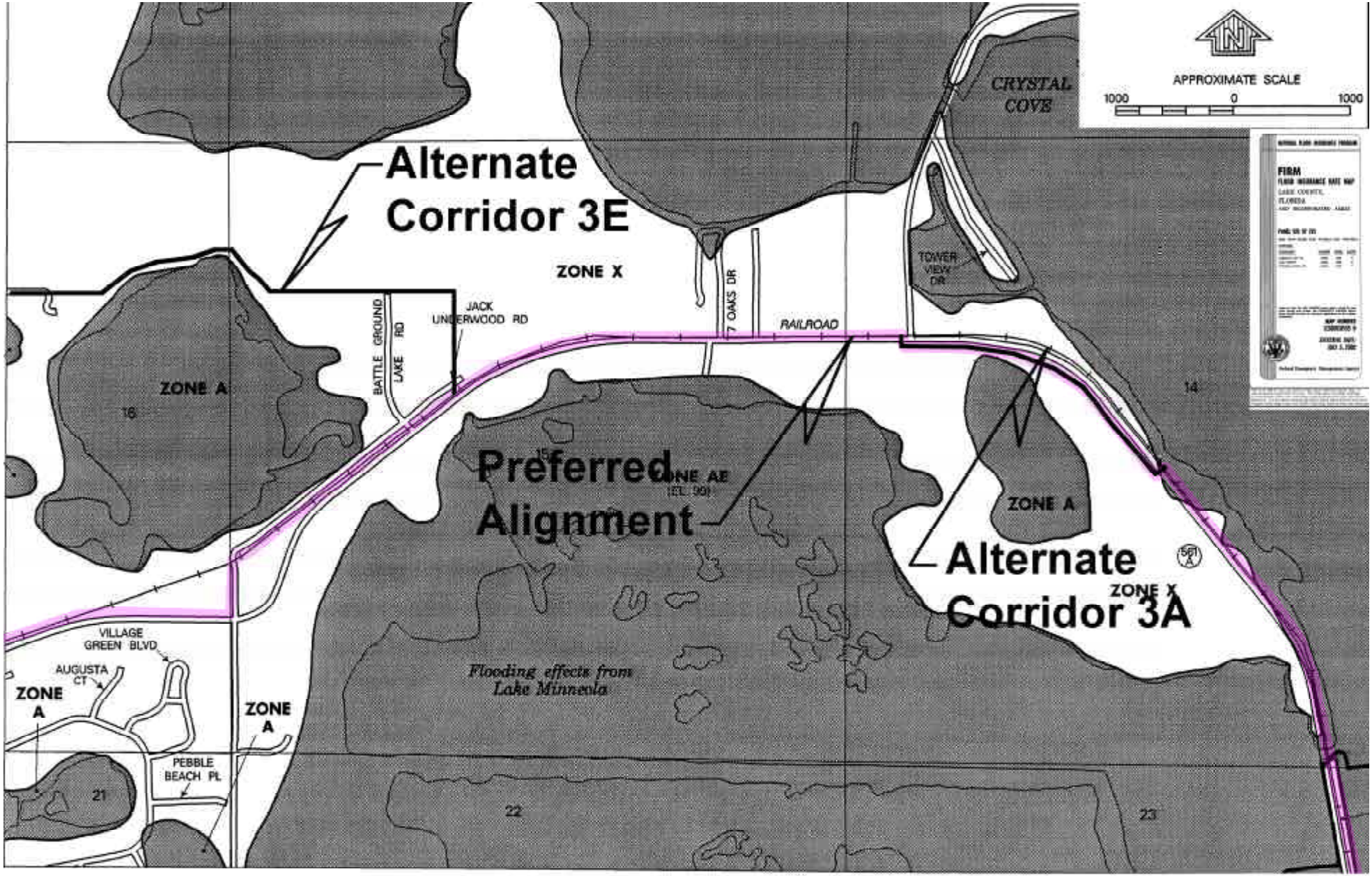
Notice to User: The MAP NUMBER shown below should be used when placing map orders; the COMMUNITY NUMBER shown above should be used on insurance applications for the subject community.

MAP NUMBER
12069C0530 D

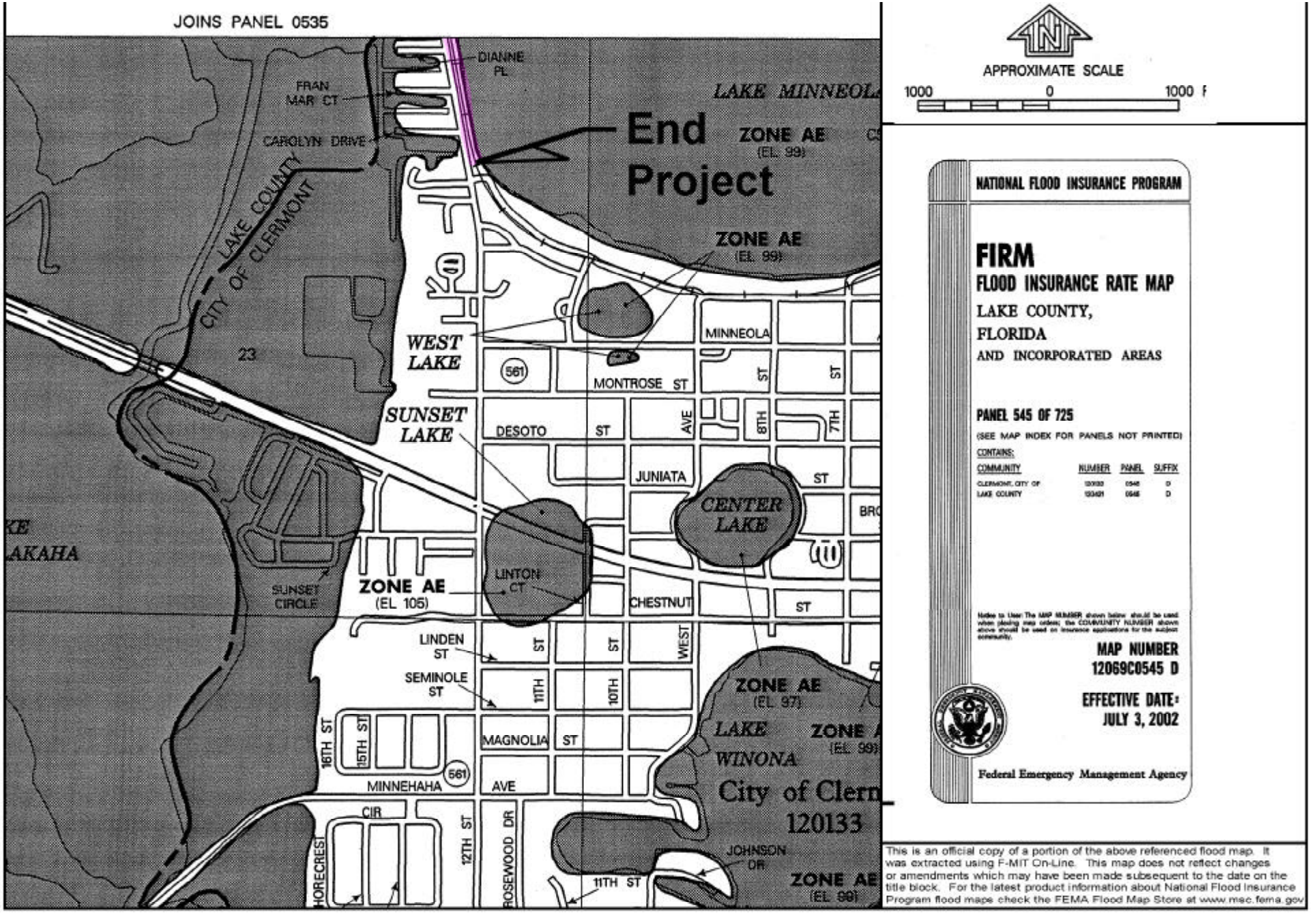
EFFECTIVE DATE:
JULY 3, 2002

Federal Emergency Management Agency

South Lake Trail, Phases III & IV PD&E Study **FEMA Map 8**



South Lake Trail, Phases III & IV PD&E Study FEMA Map 9



South Lake Trail, Phases III & IV PD&E Study **FEMA Map 10**

Appendix D: Typical Section Package

Appendix E: Contamination Sites

Within .25 mile of corridor

Knight Wells 2 & 3
143 Knight St.
Mascotte, FL 34753
From Florida Geographic Data-
Library (FGDL) Hazardous Materials Shapefile
Facility ID# 9202565

B&T Auto Parts
940 SR 50
Mascotte, FL 34753
Permitted Discharges to Water
From EPA Envirofacts

RC Dunn Oil Co
1150 W Broad St
Groveland, FL 34736
Hazardous Materials (HM) Handler
From EPA Envirofacts
Facility ID# 8509940

Homeboys Batteries
912 W Broad St
Groveland, FL 34736
HM Handler
From EPA Envirofacts
Facility ID# FLD984171538

Island Food Store #313
580 W Broad St
Groveland, FL 34736
Permitted Discharges to Water
From EPA Envirofacts
Known contaminated facility/Storage Tank (ST) facility
Facility ID# 8841322

B&W Canning Co. Inc/ Florida Select Citrus
305 W. Broad St
Groveland, FL 34736
Discharges to water, Toxic releases reported,-
HM handler, Air releases reported
From EPA Envirofacts
ST facility
Facility ID# 8622924

Amoco #179
112 SR 33
Groveland, FL 32736
Known contaminated facility
Facility ID# 8509922

Classic ERA Watercraft Inc./Toyota Marine Sports
300 E. Crittenden Blvd
Groveland, FL 34736
HM handler, Toxic releases reported, ST facility
From EPA Envirofacts
Facility ID# 8623002

Cross Country Station
620 SR 50
Mascotte, FL 34753
ST facility
Facility ID# 8509869

Hillary & Sons Inc.
619 SR 50
Groveland, FL 34736
ST facility
Facility ID# 8737075

Within .25 mile of corridor, *continued*

Khans Market
1102 W Broad St
Groveland, FL 34736
ST facility
Facility ID# 8510087

Hi Acres Fertilizer
502 SR 50
Groveland, FL 34736
Toxic releases reported
From EPA Envirofacts
Facility ID# 8944203

Star Enterprise/Texaco Food Mart
477 SR 50
Groveland, FL 34736
HM handler
From EPA Envirofacts
Facility ID# 8509958

Sea Vic. Oil Co.
720 W Broad St
Groveland, FL 34736
ST facility
Facility ID# 8510068

Sprint Florida
133 W Orange
Groveland, FL 34736
ST facility
Facility ID# 9300912

Groveland City-Police and Fire Dept
408 W Orange Ave
Groveland, FL 34736
ST facility
Facility ID# 9201481

Lake County School Board-Groveland M.S.
205 E. Magnolia St
Groveland, FL 34736
ST facility
Facility ID# 8841733

FINA-MC's
207 E Broad St
Groveland, FL 34736
Known Contaminated facility
ST facility
Facility ID# 8510014

Citgo Martin #61
351 E Broad St
Groveland, FL 34736
Historically contaminated
ST facility
Facility ID# 8510011

Clermont Conveyors Inc.
411 South Highway 33
Groveland, FL 34736
Historically contaminated
ST facility
Facility ID# 9045844

United 500 #509
268 E. Myers BLvd
Mascotte, FL 32753
ST facility
Facility ID# 8510137

Combustion SVC Company Inc
140 W. Meyers Blvd
Mascotte, FL 34753
HM Handler
From EPA Envirofacts
206 W. Meyers Blvd
Mascotte, FL 34753

Within .25 mile of corridor, *continued*

Lake County School Board/South Lake Educational
232 E. Meyers Blvd
Mascotte, FL 34753
ST facility
Facility ID# 8841729

Postal Colony Co. Inc.
622 Meyers Blvd
Mascotte, FL 34753
HM Handler
From EPA Envirofacts

Rubios Mexican Food Store
906 E Meyers Blvd
Mascotte, FL 34753
Known contaminated facility
ST facility
Facility ID# 8623005

Lil Champ Food Store #6298
451 E Meyers Blvd
Mascotte, FL 32753
Known contaminated facility
ST facility
Facility ID# 8629454

Express Mart #281
1071 E. Meyers Blvd
Groveland, FL 34736
HM handler
From EPA Envirofacts
ST facility
Facility ID# 8509961

Advanced Auto Inc.
731 E. Meyers Blvd
Mascotte, FL 34753

HM handler
From EPA Envirofacts
327 Sampey Road
Groveland, FL 34736

International Sterilization Laboratory
217 Sampey Road
Groveland, FL 34736
Air releases reported
From EPA Envirofacts

South Lake Refuse Service
109 Sampey Road
Groveland, FL 34736
ST facility
Facility ID# 8510094

Fiber World
Sampey Road
Groveland, FL 34736
HM handler
From EPA Envirofacts

Howard Fertilizer Co. Inc.
7205 SR 50
Groveland, FL 34736
Toxic releases reported
From EPA Envirofacts
Facility ID# 86228696

Revis Towing
7130 E SR 50
Groveland, FL 34736
ST facility
Facility ID# 9700457

Lee, Calvin
7330 SR 50
Groveland, FL 34736
ST facility
Facility ID# 9202616

B Lyon Construction
14642 CR 565A
Groveland, FL 34736
ST facility
Facility ID# 9103470

Within .25 mile of corridor, *continued*

Hi Acres Fertilizer
7502 SR 50
Groveland, FL 34736-0638

Hart Property
1151 Florida Street
Groveland, FL
Historically contaminated
ST facility
Facility ID# 9804632

Clermont Aluminum Installations
333 12th St
Clermont, FL 34711
Known contaminated facility
ST facility
Facility ID# 9200054

Pollution Control Facility
400 12th St
Clermont, FL 34711
ST facility
Facility ID# 9101997

CBS Industries
1000 Carroll St
Clermont, FL 34711
HM handler
From EPA Envirofacts
ST facility
Facility ID# 9801092

SML Southdown Inc./CEMEX Inc.
1111 Carroll St
Clermont, FL 34711
HM handler
From EPA Envirofacts
ST facility
Facility ID# 9802782/8509863

Bees Auto Repair
899 W Montroose St
Clermont, FL 34711
HM handler
From EPA Envirofacts

A&S Auto Center
898 Montrose St
Clermont, FL 34711
HM handler
From EPA Envirofacts

Sprint Florida Clermont Central Office
819 Desoto Street
Clermont, FL 34711
ST facility
Facility ID# 9101203

0.25 to 0.50 mile of corridor

North Sampey WWTP
1198 North Sampey Road
Groveland, FL 34736
From Florida Geographic Data-
Library (FGDL) Hazardous Materials Shapefile

North Sampey Wells 3A & 5
1153 North Sampey Road
Groveland, FL 34736
From Florida Geographic Data Library-
(FGDL) Hazardous Materials Shapefile

Midway Well
Midway Ave
Mascotte, FL 34753
From Florida Geographic Data Library-
(FGDL) Hazardous Materials Shapefile

Derrick Rose
829 Oak Dr
Groveland, FL 34736
HM handler
Facility ID# FL0002094118

Exceletech LLC
901 12th St
Clermont, FL 34711
HM handler
From EPA Envirofacts
ST facility
Facility ID# 8629298

Sumter Electric Cooperative Inc.
850 Howey Rd
Groveland, FL 34736
ST facility
Facility ID# 8622921

Peterson & Sons Nursery
154 E Anderson Rd
Groveland, FL 34736
ST facility
Facility ID# 8737064

Phillips 66-J R
511 SR 50
Clermont, FL 34711
Historically contaminated
Facility ID# 8509969

Pelican Oil Co.
677 W Highway 50
Clermont, FL 34711
Historically contaminated
ST facility
Facility ID# 8510045

Texaco Food Mart
477 HWY 50
Clermont, FL 34711
ST facility
Facility ID# 8509958

Chevron #262
997 HWY 50 W
Clermont, FL 34711
ST facility
Facility ID# 8521927

0.50 to 1 mile of corridor

Timber Village Mobile Home Park-
WTP and WWTP
15130 Timber Village Rd
Groveland, FL 34736

Seminole Well
1205 Seminole St
Clermont, FL 34711

Toole & Williams Groves Inc.
114 Sunset St
Groveland, FL 34736
ST facility
Facility ID# 8510127

Producers Supply & Chemical Co.
500 W. Ave
Clermont, FL 34711
Toxic releases reported, HM handler
From EPA Envirofacts

Selected proximal sites located >1 mile of corridor

Kmart Store #9168
684 SR 50
Clermont, FL 34711
HM handler
From EPA Envirofacts
ST facility
Facility ID# 8629327

Lennon Grove and Spreader Service Inc.
16104 SR 19
Groveland, FL 34736
ST facility
Facility ID# 8944531

Cumberland Farms #0997
100 W HWY 50
Clermont, FL 34711
ST Facility
Facility ID# 8509876