

**FINAL  
WETLAND EVALUATION REPORT**

**PROJECT DEVELOPMENT AND ENVIRONMENT STUDY  
US 19 (SR 55)  
FROM SOUTH OF US 98 TO CR 488  
CITRUS COUNTY, FLORIDA**

**Work Program Item Segment No: 405822 1  
Federal-Aid Program No: 1852 007 P**



**Prepared for:**

Florida Department of Transportation  
District Seven  
11201 North McKinley Drive  
Tampa, Florida 33612-6456

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Prepared by:

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**May 2004**

## EXECUTIVE SUMMARY

The Florida Department of Transportation (FDOT) has conducted a Project Development and Environment (PD&E) Study for improvement alternatives along US 19 (SR55) from south of US 98 (mile post 1.730) to North Dunnellon Road (CR 488)(mile post 20.742) in Citrus County, Florida. The project location map (Figure 1-1) illustrates the location and limits of the Study. This study complies with the requirements of the National Environmental Policy Act (NEPA) to qualify the proposed project for Federal-aid funding. The total project length for this study is approximately 18.8 miles (mi). For the purposes of evaluating improvement alternatives, the project was divided into six segments for this Study. The proposed improvements to US 19 include widening the existing four-lane divided facility. This widening is consistent with the Citrus County Comprehensive Plan 1995-2020<sup>1</sup> which designates US 19 as a six-lane principal arterial. The proposed improvements are also consistent with the City of Crystal River Comprehensive Plan<sup>2</sup>. The improvements are considered necessary due to the current and future projected traffic operations, to improve safety features, and to provide adequate infrastructure for the projected socio-economic growth within the corridor.

The purpose of the Wetland Evaluation Report (WER) is to document potential impacts to jurisdictional wetlands and efforts to avoid, minimize, and mitigate these impacts. The WER includes literature and field reviews, mapping, and assessment of functional values of all existing wetland habitats within the study area.

The existing land uses adjacent to the US 19 study corridor consist of residential, commercial, public/semi-public, conservation, and open areas containing upland forests and wetlands in both rural and urban settings. Field surveys were conducted in 2001 and 2002 to determine the types and quality of wetlands and vegetation species, hydrologic conditions, and the possible occurrence of state or federally listed species within or adjacent to the existing right-of-way (ROW). For the purposes of this evaluation, the immediate ROW and areas approximately 300 feet (ft) on either side of the ROW were reviewed.

A total of 66 wetland systems, 54 wetland ditches, and 5 open water areas represented by 8 different Florida Land Use, Cover and Forms Classification System (FLUCFCS) categories were identified in

the study corridor. This represents a total of 155.58 acres (ac) of wetlands, 8.51 ac of ditches, and 2.82 ac of ponds/open water within the study corridor. Wetlands include freshwater emergent, scrub, and forested wetland habitats. The wetland systems in the study area are classified as palustrine, the ditches as riverine, and the small adjacent water bodies as either palustrine or riverine. The existing wetland habitats in the study corridor range from small, isolated fragments bordered by roadways, commercial and/or residential developments to mixed hardwood forested wetlands bordered by large natural areas. The historical hydrologic conditions in the study area have been significantly altered by ditching and dredge and fill activities. Nuisance and exotic species are located primarily in the understory with a minimal presence in the canopy of most of the wetland systems. The majority of the forested wetlands within the project corridor are generally of moderate to high quality in terms of function and species composition. Emergent (non-forested) wetlands are generally of low to moderate quality.

Of the wetland, ditch, and open water systems identified, it is anticipated that 27 wetlands and 31 ditches have the potential to be impacted. The Recommended Alternative is anticipated to impact 18 wetlands and 30 ditches. Impacts from roadway improvements will be confined to the roadside edges of the wetlands and surface waters. Acres of potential impact for the project range from 5.12 ac to 6.00 ac, with the Recommended Alternative estimated at 5.64 ac. If the ditch impacts are not considered, the impacts to wetlands range from 4.56 ac to 5.26 ac (4.9 ac for the Recommended Alternative). The proposed improvements to Segment 6 are not anticipated to result in any impacts to wetlands, ditches, or open water systems. The Wetland Rapid Assessment Procedure (WRAP) scores for the representative wetlands range from 0.49 to 0.83 with an average score of 0.61. No stormwater management facilities have been identified or evaluated for wetland impacts.

The proposed improvements to the existing corridor are confined primarily within the existing ROW. Additional ROW for stormwater management facilities and floodplain compensation sites are not identified in this study. Because wetland habitats are within that ROW, impacts to wetlands are unavoidable if the needs of the project are to be met. The Recommended Alternative has 5.64 ac of wetland impact. During design every effort will be made to further minimize wetland impacts. Moreover, during construction of all phases, Best Management Practices will be implemented to minimize wetland impacts and to protect water quality in the project vicinity.

Unavoidable wetland impacts that will result from the construction of the proposed project will be mitigated pursuant to Senate Bill (SB) 1986 (373.4137 Florida Statutes [FS]) to satisfy all mitigation requirements of Part IV Chapter 373, FS and 33 United States Code (USC) 1344.

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# SECTION 1

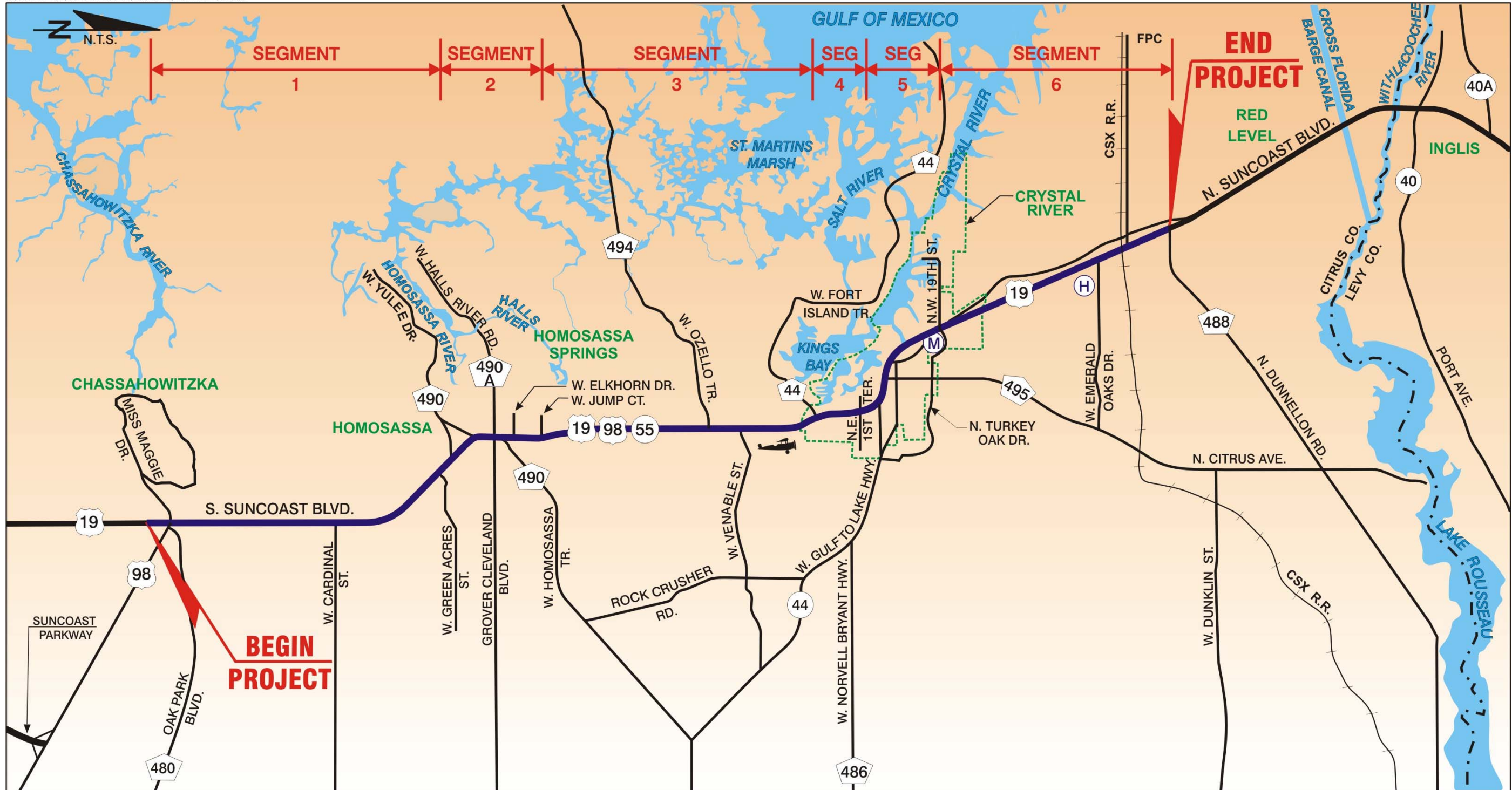
## INTRODUCTION

The FDOT conducted a PD&E Study for improvement alternatives along US 19 (SR 55) from south of US 98 (milepost 1.730) to North Dunnellon Road (CR 488) (milepost 20.742) in Citrus County, Florida. The project location map (Figure 1-1) illustrates the location and limits of the PD&E Study.

### 1.1 PURPOSE

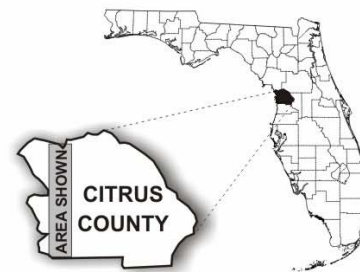
The purpose of the PD&E Study was to provide documented environmental and engineering analyses to assist the FDOT and the Federal Highway Administration (FHWA) in reaching a decision on the type, location and conceptual design of the necessary improvements, in order to accommodate future traffic demand in a safe and efficient manner. The PD&E Study also satisfied the requirements of the National Environmental Policy Act (NEPA) and other Federal requirements in order to qualify the project for federal-aid funding of future development phases of the project.

This Study documents the need for the improvements, and presents the procedures utilized to develop and evaluate various improvement alternatives. Information relating to the engineering and environmental characteristics essential for alternatives and analytical decisions were collected. Design criteria have been established and preliminary alternatives have been developed. The comparison of alternatives was based on a variety of parameters utilizing a matrix format. This process identified the alternative that would have minimal impacts, while providing the necessary improvements. **The design year for the analysis is 2025**



**LEGEND**

-  US 19 Project Limits
-  Crystal River Airport
-  Crystal River City Limits
-  Seven Rivers Community Hospital
-  Crystal River Mall



**US 19 (SR 55)  
PD&E STUDY**  
From South of US 98 to CR 488  
Citrus County, Florida



**PROJECT LOCATION MAP**

WPI SEG NO: 405822 1  
FAP: 1852 007 P

FIGURE 1-1

## **1.2 PROJECT DESCRIPTION**

The PD&E Study limits encompass the portion of US 19 from south of US 98 to North Dunnellon Road (CR 488) in western Citrus County (Sections 1, 12, 13, 24, and 25 of Township 20 South, Range 17 East; Sections 3, 10, 15, 22, 26, 27, 34, and 35 of Township 19 South, Range 17 East; Sections 5, 6, 8, 17, 20, 21, 22, 27, 28, and 34 of Township 18 South, Range 17 East; Sections 30 and 31 of Township 17 South, Range 17 East; and Section 25 of Township 17 South, Range 16 East). The total length of the Study is approximately 18.8 miles (mi). US 19 is primarily a north/south rural principal arterial which follows the West Coast of Florida. Within the project limits, US 19 is part of the National Highway System (NHS) and the Florida Intrastate Highway System (FIHS). The facility serves as a major evacuation route for residents in Citrus County.

For the purposes of evaluating improvement alternatives, the project was divided into six segments based on the existing and future land use, projected traffic volumes for the design year 2025, existing typical sections and available existing ROW. The project segments are as follows:

Segment 1: South of US 98 to West Green Acres Street; 4.86 mi

Segment 2: West Green Acres Street to West Jump Court; 2.07 mi

Segment 3: West Jump Court to West Fort Island Trail (CR 44); 4.65 mi

Segment 4: West Fort Island Trail (CR 44) to NE 1st Terrace; 0.86 mi

Segment 5: NE 1st Terrace to Turkey Oak Drive; 2.05 mi

Segment 6: Turkey Oak Drive to North Dunnellon Road (CR 488); 4.31 mi

## **1.3 EXISTING ROADWAY CONDITIONS**

### **1.3.1 Functional Classification**

US 19 is functionally classified as a rural principal arterial from south of US 98 to North Dunnellon Road (CR 488). US 19 travels through Homosassa, Homosassa Springs, the City

of Crystal River, and unincorporated areas of Citrus County. The US 19 corridor contains seven different typical sections within the project limits. The six project segments organize the following discussion of existing typical sections. Existing land use of the surrounding area is provided for each segment.

### **1.3.2 Existing Typical Sections**

#### **1.3.2.1 Segment 1: South of US 98 to West Green Acres Street**

The existing land use in this segment is residential, commercial, public/semi-public, conservation, and open areas with upland forests. The two conservation uses in the segment are the Homosassa Tract (Homosassa Wildlife Management Area) of the Withlacoochee State Forest and the Chassahowitzka National Wildlife Refuge Maintenance Facility.

The existing typical section along US 19 within Segment 1 is a divided four-lane rural roadway with a 54-foot (ft) depressed grass median. This section contains two 12-ft travel lanes in each direction with 8-ft grassed shoulders on the inside and 10-ft outside shoulders of which 4-ft is paved. Open drainage ditches parallel both sides of the roadway. The existing ROW width for this section is 246 feet (ft).

#### **1.3.2.2 Segment 2: West Green Acres Street to West Jump Court**

The existing land use in this segment is mostly commercial with some residential, public/semi-public, conservation, and open areas containing wetlands or upland forests, with intensive development expected in the future. Conservation uses include the Homosassa Springs State Wildlife Park Welcome Center.

There are three different existing typical sections within Segment 2 along US 19. The first typical section is from West Green Acres Street to West Yulee Drive (CR 490). This typical section is the same as that described for Segment 1.

The second existing typical section along US 19 is from West Yulee Drive (CR 490) to West Elkhorn Drive and is a five-lane undivided urban roadway with Type F curb and gutter on both sides of the roadway. This section contains one 12-ft travel lane and one 13.5-ft travel lane in each direction separated by a 14-ft two-way left turn lane. A 5-ft sidewalk is provided in each direction separated from the curb by an open drainage ditch. The existing ROW width is 120 ft.

The third existing typical section along US 19 is from West Elkhorn Drive to West Jump Court and is a divided four-lane rural roadway with a 30-ft grass median. This section contains two 12-ft travel lanes in each direction with 8-ft grassed shoulders on the inside and 10-ft outside shoulders of which 4-ft is paved. The existing ROW width is 160 ft.

#### **1.3.2.3 Segment 3: West Jump Court to West Fort Island Trail (CR 44)**

The existing land use in this section includes residential, commercial, public/semi-public, transportation (the Crystal River Airport), and isolated industrial uses, with intensive development expected in the future.

The existing typical section along US 19 in Segment 3 is a divided four-lane rural roadway with a 30-ft grass median. This section contains two 12-ft travel lanes in each direction with 8-ft grassed shoulders on the inside and 10-ft outside shoulders of which 4-ft is paved. The existing ROW width is 200 ft.

#### **1.3.2.4 Segment 4: West Fort Island Trail (CR 44) to NE First Terrace**

The existing land use in this section is comprised mostly of commercial land use with limited residential and public/semi-public uses, with intensive development expected in the future.

The existing typical section along US 19 in Segment 4 is a seven-lane undivided urban roadway with Type F curb and gutter on both sides of the roadway. This section contains two 12-ft travel lanes and one 14-ft travel lane in each direction separated by a 13-ft two-

way left turn lane. A 5-ft sidewalk is provided on both sides of the roadway, separated from the curb by a grass buffer strip. The existing ROW width for this section is 200 ft.

#### **1.3.2.5 Segment 5: NE 1st Terrace to Turkey Oak Drive**

The existing land use in this segment includes commercial, public/semi-public, utility, conservation, wetlands or low intensity coastal lakes and limited residential, with intensive development expected in the future. Conservation uses include the Crystal River State Buffer Preserve Property.

There are three different existing typical sections within Segment 5 along US 19. The first typical section is from NE 1st Terrace to SR 44 and is a seven-lane undivided urban roadway with Type F curb and gutter on both sides of the roadway. This section contains two 11-ft travel lanes and one 13-ft travel lane in each direction separated by a 14-ft two-way left turn lane. A 6-ft sidewalk is provided adjacent to the curb intermittently on both sides of the roadway. The existing ROW width for this section is 100 ft.

The second existing typical section along US 19 from SR 44 to the Crystal River Mall (Station 865+00) is a five-lane undivided urban roadway with Type F curb and gutter on both sides of the roadway. This section contains two travel lanes in each direction that vary in width from 11-ft to 12-ft each separated by a 13-ft, two-way left turn lane. No sidewalk is provided in this area. The existing ROW width is 100 ft. The third existing typical section along US 19 from Crystal River Mall (Station 865+00) to Turkey Oak Drive is a divided four-lane rural roadway with a 40-ft depressed grass median. This section contains two 12-ft travel lanes in each direction with 8-ft grassed shoulders on the inside and 10-ft outside shoulders of which 4-ft is paved. This section also contains open drainage ditches that parallel both sides of the roadway. No sidewalk is provided in this area. The existing ROW width is 200 ft.



### **1.3.2.6 Segment 6: Turkey Oak Drive to North Dunnellon Road (CR 488)**

The existing land use in this section includes residential, public/semi-public, commercial, industrial, transportation, utility, extractive, agricultural, and open land containing upland, wetland or low intensity coastal lakes, with intensive development expected in the future.

The existing typical section along US 19 in Segment 6 is a divided four-lane rural roadway with a 40-ft depressed grass median. This section contains two 12-ft travel lanes in each direction with 8-ft grassed shoulders on the inside and 10-ft outside shoulders of which 4-ft is paved. This section also contains open drainage ditches that parallel both sides of the roadway. No sidewalk is provided in this area. The existing ROW width is 200 ft.

## **SECTION 2**

### **NEED FOR IMPROVEMENT**

The need for improvement along the US 19 corridor was established based on the evaluation of the following:

- Current quality of traffic operations in the study area;
- The expected future quality of traffic operations along US 19 under the No-Build Alternative;
- Traffic safety statistics for the period between 1995 and 1999;
- Consistency with local comprehensive plans; and
- The projected socio-economic growth within the study corridor.

#### **2.1 CONSISTENCY WITH TRANSPORTATION PLANS**

The Citrus County Comprehensive Plan 1995-2020<sup>1</sup> designates US 19 as a six-lane principal arterial. The alternatives under consideration for the US 19 corridor are consistent with this plan. The proposed improvements are also consistent with the Traffic Circulation Element of the City of Crystal River Comprehensive Plan<sup>2</sup>.

## **SECTION 3**

### **ALTERNATIVE ALIGNMENT ANALYSIS**

Included in the following sections are descriptions of the alternative improvement concepts developed for this project and the evaluation methods used to compare the alternatives. These descriptions are preceded by a presentation of the advantages and disadvantages of the No-Build Alternative.

#### **3.1 NO-BUILD ALTERNATIVE**

The No-Build Alternative assumed that the existing mainline laneage is present in the year 2025. The years 2005 and 2025 were analyzed for the Final Traffic Report: Volume 2 - Future Conditions<sup>3</sup> assuming that no additional through lanes would be constructed on US 19 and that cross-street improvements would be constructed as scheduled in local work program plans. US 19 would be maintained in good condition during this period of time and minor traffic systems management projects could be constructed as justified. Certain advantages would be associated with the implementation of the No-Build Alternative, including the following:

- No new construction costs;
- No disruption of traffic or, due to the existing land uses along the corridor, to construction activities;
- No environmental degradation or disruption of natural resources;
- No ROW acquisitions or relocations;

The disadvantages of the No-Build Alternative include:

- Substandard level of service (LOS) for the existing roadway network;
- Increased traffic congestion causing increased road user cost due to travel delay;

- Deterioration of air quality caused by traffic congestion and delays;
- Deterioration of the existing safety deficiencies due to the increase in traffic;
- Potential Deterioration in the emergency service response time;
- Increased roadway maintenance costs; and
- No stormwater management facilities (SMF) via stormwater attenuation and treatment.

The No-Build Alternative remained under consideration throughout the PD&E Study process.

## **3.2 TRANSPORTATION SYSTEM MANAGEMENT**

The Transportation System Management (TSM) Alternative, which consists of minor capital improvements that maximize the efficiency of the present system, was also considered for this project. The TSM amenities for the proposed project are described as follows:

### **3.2.1 TSM Alternative 1: Segment 4**

A proposed widening typical section was evaluated for Segment 4 under a TSM Alternative. This proposed typical section widens the existing seven-lane roadway 2.5 ft along both sides. Widening of the existing pavement allows for three 12-ft travel lanes and a 4-ft bicycle lane in each direction separated by a 14-ft two-way left turn lane. Sidewalks, 5-ft in width, are provided adjacent to the ROW lines on both sides of the roadway. This typical section can be accommodated within the existing 200 ft of ROW. The proposed design speed for this typical section is 40 miles per hour (mph). Current FIHS standards require that all urban FIHS facilities ultimately provide a raised median. Since this typical section does not provide a raised median and the design speed is below the FIHS required urban design speed of 50 mph, a design variation or exception must be prepared and have the concurrence of the State Highway Engineer.

A centered alignment was evaluated for the TSM Alternative since the widening of US 19 can generally be accommodated within existing ROW for most of this segment. Minimal

ROW acquisition of approximately three ft is required along the east side for a small portion of this segment. ROW acquisition is also necessary for SMF.

### **3.2.2 TSM Alternative 2: Segment 4**

TSM Alternative 2 was developed as a refinement of TSM Alternative 1. This alternative includes reconstructing the existing median from a two-way left-turn lane to a 17 ft raised median. In areas where left-turn lanes are proposed, the raised median will be reduced to a 4-ft traffic separator with a single 12-ft exclusive left-turn lane. This alternative also includes milling and resurfacing of the existing roadway to allow for three 12-ft travel lanes in each direction. Multi-use paths, 12 ft in width, are proposed along both sides of the roadway, adjacent to the ROW line to accommodate pedestrians and bicyclists. At SE Kings Bay Drive, bicyclists using the multi-use paths will exit US 19 since no provisions for bicyclists were developed within Segment 5 due to significant ROW impacts that would result. However, alternative bike routes can be accommodated with minor upgrades to SE Kings Bay Drive and SE Cutler Spur, incorporating the proposed pedestrian overpass at the Crystal River bike path. Due to the heavily commercialized land use in this segment and the addition of a narrow raised median, a design speed of 40 mph is proposed for this alternative. Since the reduced design speed does not meet current FIHS standards, a design variation is required for this alternative.

Unlike TSM Alternative 1, TSM Alternative 2 provides a restrictive median, which is consistent with FIHS requirements. Since TSM Alternative 2 introduces a restrictive median into a segment currently classified as Access Class 6, reclassification to Class 3 is required. A Public Hearing for reclassification was held concurrently with the PD&E Study Public Hearing.

### **3.2.3 TSM Alternative: Segment 5**

Results of the Final Traffic Report: Volume 2 - Future Conditions<sup>3</sup> indicate the need for six lanes on US 19 from US 98 to the Turkey Oak Drive in the design year 2025. However, since the downtown Crystal River area, NE 1st Terrace to Turkey Oaks Drive, is heavily developed and contains no available ROW for widening, a TSM Alternative is being considered. The following TSM improvements will not require any additional ROW and may help alleviate congestion:

- Restripe the existing roadway in the downtown Crystal River area, NE 1st Terrace to the Turkey Oak Drive, to include bike lanes;
- Improve sidewalk along US 19 from NE 1st Terrace to the Turkey Oak Drive; and
- Upgrade existing traffic signals to mast arm at Turkey Oak Drive, SR 44, NE 3<sup>rd</sup> Avenue, North Citrus Avenue (CR 495), and NW 6<sup>th</sup> Avenue.

The proposed TSM improvements will help meet current FDOT standards for pedestrian and bicycle facilities but will not meet the established FDOT standard LOS C required through downtown Crystal River. Therefore, to accommodate future travel demand along the US 19 corridor, TSM activities alone are not considered a viable alternative to roadway improvements along that portion of US 19.

### **3.2.4 TSM Alternative: Segment 6**

In the Final Traffic Report: Volume 2 - Future Conditions<sup>3</sup>, the 2025 No-Build Intersection Analyses (with Suncoast Parkway Phase 2) indicate that only minor operational improvements in Segment 6 are justified from Turkey Oak Drive to CR 488 (assuming Suncoast Parkway Phase 2 is in place) to meet an acceptable LOS; therefore, a TSM Alternative is being considered for this segment. The TSM improvements described below can be accommodated within the existing 200 ft of ROW.

- Extend the northbound left and right turn lanes at North Dunnellon Road (CR 488).
- Extend southbound left turn lane at North Dunnellon Road (CR 488).
- Add an exclusive right turn lane along westbound North Dunnellon Road (CR 488).
- The intersection at Seven Rivers Community Hospital is currently controlled by a flashing signal. The TSM Alternative includes replacement of the flashing signal with a full signal, if warranted.
- Signalize the intersection of US 19 and North Dunnellon Road (CR 488) if warranted. Upgrade existing traffic signals to mast arms at Seven Rivers Community Hospital and West Powerline Street. Pedestrian signals and crosswalks will also be included at each signalized intersection.

Crash data was obtained for US 19 within Segment 6. The safety ratios are less than 1.0 for the five year period from 1995 to 1999, indicating a below average crash rate; therefore, there are no safety issues associated with this segment of US 19.

### **3.3 BUILD ALTERNATIVE ALIGNMENTS EVALUATION**

To effectively develop and evaluate all viable improvement alternatives for the project, the following three-step process was applied:

- In Step One, the project was divided into six segments based on the existing typical sections, land use patterns, location of crossover streets, and available ROW width.
- In Step Two, alternative typical cross sections were generated based on roadway design criteria and the results of the traffic analysis. The selection of the type and dimensions of the typical section for each segment also considered socio economic and environmental impacts.
- In Step Three, alternative improvement alignments were generated for each segment based on the typical cross sections (developed in Step Two) and the assumption that the additional ROW can be acquired where necessary along the existing facility.

### **3.3.1 Proposed Alternatives**

The following subsections describe the proposed typical sections and alignments developed for this study. The Final Traffic Report: Volume 2 - Future Conditions<sup>3</sup> indicates the need for six lanes on US 19 from US 98 to the Crystal River Mall in the design year 2025. Since each project segment was unique and required the analysis of different typical sections, the project segments were used to define the proposed alternatives for the corridor analysis. The Recommended Alternative is presented in section 3.4. The proposed typical sections are presented graphically in Appendix A.

#### **3.3.1.1 Segment 1: South of US 98 to West Green Acres Street**

##### **Alternative 1**

The proposed typical section for Segment 1, Alternative 1, includes the widening of the existing four-lane roadway to a six-lane divided rural roadway with a 42-ft depressed grass median. Since the existing roadway is offset to the east within the ROW, both northbound and southbound roadways are widened to the west. This typical section includes the widening of southbound US 19 to the outside to accommodate an additional 12-ft travel lane and an 8-ft shoulder of which 5 ft is paved. An 8-ft paved shoulder will also be added within the median.

This typical section also includes inside widening of northbound US 19 to allow for an additional 12-ft travel lane and an 8-ft paved shoulder. The existing 4-ft paved shoulder on the outside of northbound US 19 will be widened to 5 ft to accommodate bicyclists. A multi-use path, 12 ft in width, is also provided along the existing western ROW line. A 5-ft sidewalk is also proposed on the east side of the northbound roadway. The proposed pavement widening for this segment allows the typical section to remain within existing ROW while meeting all current design criteria.



### **3.3.1.2 Segment 2: West Green Acres Street to West Jump Court**

#### **Alternative 1**

The proposed typical section for Segment 2, Alternative 1, is a six-lane divided urban roadway with a 30-ft raised median. This typical section contains three 12-ft travel lanes and a 4-ft bicycle lane in each direction. Typically, sidewalks 5-ft in width are provided within a 12-ft border along both sides of the roadway and are separated from the curb by a grass buffer strip. However, a 12-ft multi-use path is provided along the existing western ROW line in place of the 5-ft sidewalk for a portion of this segment from West Green Acres Street to West Yulee Drive (CR 490). This typical section requires 134 ft of ROW. ROW acquisition is necessary to accommodate the proposed typical section from West Yulee Drive (CR 490) to West Elkhorn Drive. However, the proposed typical section can be accommodated within the existing 246 ft of ROW from West Green Acres Street to West Yulee Drive (CR 490) and within the existing 160 ft of ROW from West Elkhorn Drive to West Jump Court.

A centered alignment was evaluated from West Green Acres Street to West Yulee Drive (CR 490). This alignment allows for the reconstruction of US 19 to fit within existing ROW. From West Yulee Drive (CR 490) to West Elkhorn Drive, the alignment shifts to the east to avoid impacts to the businesses and the Homosassa Springs State Wildlife Park located along the west side of US 19. The shift in the alignment results in ROW acquisition of approximately 14 ft primarily from the east side of US 19. At West Elkhorn Drive, the alignment transitions back to the center, generally fitting within existing ROW. Additional ROW acquisition is required for exclusive right turn lanes, corner clips, side road tie-ins, and SMF.

#### **Alternative 2**

The proposed typical section previously described in Alternative 1, was evaluated for part of Segment 2. In an effort to minimize impacts, a minimized typical section was evaluated for a portion of this segment from West Yulee Drive (CR 490) to West Elkhorn Drive where the

existing ROW is reduced. This typical section is a six-lane divided urban roadway with a 20-ft raised median. This typical section contains two 11-ft travel lanes and one 12-ft outside travel lane with a 4-ft bicycle lane in each direction. This typical section can be accommodated within the existing 120 ft of ROW. Design variations are required for the reduced lane and median widths since the standard widths are 12 ft and 22 ft respectively. A centered alignment was evaluated for this segment of US 19. ROW acquisition is required for dual left turn lanes, exclusive right turn lanes, corner clips, side road tie-ins, and SMF.

### **Alternative 3**

The proposed typical section previously described in Alternative 1 was evaluated for part of Segment 2. In an effort to further reduce impacts, a minimized typical section was evaluated for a portion of this segment from West Yulee Drive (CR 490) to West Elkhorn Drive where the existing ROW width is reduced. This typical section is a seven-lane undivided urban roadway with a 14-ft two-way left turn lane. This typical section contains three 12-ft travel lanes and a 4-ft bicycle lane in each direction. This typical section can be accommodated within the existing 120 ft of ROW. Current (Federal Intrastate Highway System) standards require that all urban FIHS facilities ultimately provide a raised median and have a design speed of 50 mph or greater. This typical section does not provide a raised median and the design speed is below the FIHS required design speed. Therefore, according to the FDOT procedure Development of the Florida Intrastate Highway System<sup>4</sup>, a design variation must be prepared and have the concurrence of the State Highway Engineer.

A centered alignment was evaluated for this segment of US 19. ROW acquisition is required for any additional turn lanes, corner clips, side road tie-ins, and SMF.

### **Alternative 4**

The proposed typical section previously described in Alternative 1 was again evaluated for all of Segment 2. This typical section maintains a centered alignment from West Green Acres Street to West Yulee Drive (CR 490), which will allow for the reconstruction of US 19 to fit within existing ROW. Unlike Alternative 1, the Alternative 4 alignment shifts to the

west from West Yulee Drive (CR 490) to West Elkhorn Drive to avoid impacts to the established businesses located along the east side of US 19. The shift in the alignment results in ROW acquisition of approximately 14 ft primarily from the west side of US 19. At West Elkhorn Drive, the alignment transitions back to the center, generally fitting within existing ROW. Additional ROW acquisition is required for exclusive right turn lanes, corner clips, side road tie-ins, and SMF.

### **Alternative 5**

In an effort to further reduce impacts to the established businesses, Alternative 5 was developed as a refinement of Alternative 2. This alternative utilizes the six-lane divided urban typical section with a 30-ft raised median from West Green Acres Street to West Yulee Drive (CR 490) and from West Elkhorn Drive to West Jump Court as described previously in Section 8.3.1.2. Alternative 5 also maintains the same minimized typical section with a 20-ft raised median as described in Alternative 2 from West Yulee Drive (CR 490) to West Elkhorn Drive. However, unlike Alternative 2, a western alignment was utilized for this portion of US 19 to lessen the amount of impacts and costs associated with the established businesses located along the east side of US 19. As a result, the shift in the alignment directly impacts the Homosassa Springs State Wildlife Park located along the west side. The exclusive northbound right-turn lanes at West Grover Cleveland Boulevard/West Halls River Road (CR 490A) and West Homosassa Trail will be accommodated within existing ROW, with exception to corner clips.

The western alignment results in ROW acquisition on average of 16 ft from the west side of US 19. Additional ROW acquisition is required for stormwater management facilities. The ROW cost for Alternative 5 is estimated at \$26.15 million. Refined Alternative 5 would substantially reduce the number of impacts to nearby businesses and the costs associated with these impacts. However, Design Variations are required for the reduced lane and median widths from West Yulee Drive (CR 490) to West Elkhorn Drive since the standard widths are 12 ft and 22 ft, respectively. The proposed design speed for Alternative 5 is 50 mph.

## **Alternative 6**

In an effort to eliminate impacts to the Homosassa Springs Wildlife State Park, Alternative 6 was developed as a refinement of Alternative 2. This alternative utilizes the same typical sections described in Alternative 2; a six-lane divided urban typical section with a 30-ft raised median from West Green Acres Street to West Yulee Drive (CR 490) and from West Elkhorn Drive to West Jump Court, and a six-lane divided urban typical section with a 20-ft raised median from West Yulee Drive (CR 490) to West Elkhorn Drive. However, the proposed typical section was modified immediately to the south of West Grover Cleveland Boulevard/West Halls River Road (CR 490A) to accommodate northbound dual left-turn lanes and an exclusive right-turn lane without impacting the Section 4(f) facility. The modifications include:

- Reducing the outside travel lanes in both directions from 12 ft to 11 ft,
- Reducing the bike lanes from 4 ft to 3 ft,
- Replacing the outside Type F curb and gutter with Type D curb, and
- Reducing the 4-ft traffic separator to 1-ft.

Alternative 6 reduces ROW acquisition south of West Grover Cleveland Boulevard/West Halls River Road (CR 490A) from an average of 16 ft in Alternative 5 to an average of 6 ft along the west side of US 19. Additional ROW acquisition is required for stormwater management facilities. The ROW cost for Alternative 6 is estimated at \$25.70 million. Alternative 6 would eliminate impacts to the Homosassa Springs Wildlife State Park and the costs associated with these impacts. However, design variations are required for the reduced lane and median widths from West Yulee Drive (CR 490) to West Elkhorn Drive since the standard widths are 12 ft and 22 ft, respectively. The proposed design speed for Alternative 6 is 50 mph.

## **Alternative 7**

Alternative 7 was also developed as a refinement of Alternative 2 to eliminate impacts to the Homosassa Springs Wildlife State Park located along the west side. This alternative utilizes

the same typical sections described in Alternative 2; a six-lane divided urban typical section with a 30-ft raised median from West Green Acres Street to West Yulee Drive (CR 490) and from West Elkhorn Drive to West Jump Court, and a six-lane divided urban typical section with a 20-ft raised median from West Yulee Drive (CR 490) to West Elkhorn Drive. This typical section contains two 11-ft travel lanes and one 12-ft outside travel lane in each direction. Alternative 7 also maintains a centered alignment for most of Segment 2. However, unlike Alternative 2, a western alignment was utilized from West Grover Cleveland Boulevard/West Halls River Road (CR 490A) to West Homosassa Trail to accommodate an exclusive northbound right-turn lane at West Homosassa Trail. The alignment begins to shift to the west at the northern end of the Homosassa Springs Wildlife State Park property, avoiding ROW acquisition from the park. Alternative 7 continues with a western alignment until reaching West Homosassa Trail intersection, where it begins to shift back to a centered alignment.

Alternative 7 reduces ROW acquisition south of West Grover Cleveland Boulevard/West Halls River Road (CR 490A) from an average of 16 ft in Alternative 5 to an average of 10 ft along the west side of US 19. Additional ROW acquisition is required for stormwater management facilities. The ROW cost for Alternative 7 is estimated at \$25.72 million. Alternative 7 would eliminate impacts to the Homosassa Springs Wildlife State Park and the costs associated with these impacts. However, design variations are required for the reduced lane and median widths from West Yulee Drive (CR 490) to West Elkhorn Drive since the standard widths are 12 ft and 22 ft, respectively. The proposed design speed for Alternative 7 is 50 mph.

### **3.3.1.3. Segment 3: West Jump Court to West Fort Island Trail (CR 44)**

#### **Alternative 1**

The proposed typical section for Segment 3 is a six-lane divided urban roadway with a 30-ft raised median. This typical section contains three 12-ft travel lanes and a 4-ft bicycle lane in each direction. Sidewalks 5-ft in width are provided within a 12-ft border along both sides of the roadway and are separated from the curb by a grass buffer strip. This typical section can be accommodated within the existing 200 ft of ROW. This typical section is consistent with Alternatives 1 and 4 in Segment 2.

A centered alignment was evaluated for Alternative 1 since the reconstruction of US 19 can generally be accommodated within existing ROW. However, ROW acquisition is required for SMF.

#### **Alternative 2**

The proposed typical section for Segment 3, Alternative 2 is a six-lane divided rural roadway with a 40-ft depressed median. This typical section contains three 12-ft travel lanes in each direction with 8-ft inside and outside shoulders. The inside shoulders are paved full width while the outside shoulders contain 5 ft of pavement. Open drainage ditches parallel both sides of the roadway to allow for conveyance of stormwater runoff. Sidewalks 5-ft in width are provided within a 12-ft border along both sides of the roadway and are separated from the curb by a grass buffer strip. This typical section normally would require 208 ft of ROW. However, in an effort to fit within the existing 200 ft of ROW, the back slopes of the drainage ditches were increased from the standard 1:4 slopes to 1:2 slopes. Upon review of the existing cross sections in the as-built plans, it appears the topography is relatively flat such that 1:2 back slopes will be adequate to tie back to existing ground. The substandard border width of 36 ft will allow the proposed roadway to be accommodated within the existing ROW. However, a design variation will be required for the border width since the standard border width is 40 ft. A design variation is also required for the increased side slopes.

A centered alignment was evaluated for Alternative 2 since the reconstruction of US 19 can generally be accommodated within existing ROW. However, ROW acquisition is required for SMF.

#### **3.3.1.4 Segment 4: West Fort Island Trail (CR 44) to NE 1st Terrace**

##### **Alternative 1**

The proposed typical section for Segment 4, Alternative 1 is a six-lane divided urban roadway with a 30-ft raised median. This typical section contains three 12-ft travel lanes and a 4-ft bicycle lane in each direction. Sidewalks, 5-ft in width, are provided within a 12-ft border along both sides of the roadway and are separated from the curb by a grass buffer strip. This typical section can be accommodated within the existing 200 ft of ROW. This typical section is consistent with Alternatives 1 and 4 in Segment 2 and Alternative 1 in Segment 3.

A centered alignment was evaluated for Alternative 1 since the reconstruction of US 19 can generally be accommodated within existing ROW. However, ROW acquisition is required for SMF.

#### **3.3.1.5 Segment 5: NE 1st Terrace to Turkey Oak Drive (Station 865+00)**

The Final Traffic Report: Volume 2 - Future Conditions<sup>3</sup> indicated that improvements were needed by the design year 2025 for the intersection of US 19 and SR 44. Three alternatives were evaluated in Segment 5. Alternatives 1 and 2 both include the same at-grade intersection at SR 44, but have differing alignments farther north. Alternative 3 includes a center turning overpass, which accommodates all left turn movements on the elevated portion of the interchange. Alternatives 1, 2, and 3 of Segment 5 are described in the following sections.

##### **Alternative 1**

A proposed typical section with an at-grade intersection at SR 44 was evaluated for Alternative 1. This typical section contains three 12-ft travel lanes and a 4-ft bicycle lane in each direction separated by a 22-ft raised median. However, the raised median widens to 26 ft to accommodate dual southbound left-turn lanes and a traffic separator at SR 44. Sidewalks, 5-ft in width, are also provided within a 12-ft border along both sides of the roadway and are separated from the curb by a grass buffer strip. This typical section requires 126 ft of ROW.

Improvements along US 19 alone would not be adequate for the facility to operate at an acceptable LOS in the design year 2025. Therefore, minor improvements to the side streets, such as extending existing turn lanes and adding new turn lanes are necessary. The Final Traffic Report: Volume 2 - Future Conditions<sup>3</sup> indicates the need for an additional exclusive right turn lane and the extension of the existing dual left turn lanes along westbound SR 44. Also, Alternative 1 evaluated the intersection of US 19 and SR44/NE 4<sup>th</sup> Street assuming NE 4<sup>th</sup> Street would be limited to right-in and right-out movements only; therefore, eliminating the eastbound left turn movements. The two intersections to the north NE 3<sup>rd</sup> Avenue and North Citrus Avenue (CR 495) can accommodate the additional left turn and through volumes that were diverted from NE 4<sup>th</sup> Street. This results in avoidance of significant ROW impacts along NE 4<sup>th</sup> Street. The proposed improvements along SR 44/NE 4<sup>th</sup> Street are shown in the Alternative Design Concept Plans in Appendix B.

A western alignment was evaluated for a portion of this segment from NE 1st Terrace to NW Snug Harbor Road. This alignment requires ROW acquisition (typically 26 ft) primarily from the west side of US 19. At NW Snug Harbor Road, the alignment transitions to the east to minimize impacts to the Crystal River State Buffer Preserve located on both sides of US 19. The shift in the alignment results in ROW acquisition of approximately 26 ft, primarily from the east side of US 19. Additional ROW acquisition is required for exclusive right turn lanes, corner clips, side road tie-ins, and SMF. ROW acquisition of approximately 15 ft is also required along the north side of SR 44 to accommodate the proposed improvements.

## **Alternative 2**



Alternative 2 also utilizes the proposed typical section with an at-grade intersection at SR 44, as described in Alternative 1. However, in an effort to reduce ROW costs, the proposed alignment transitions from the west to the east at North Citrus Avenue (CR 495), approximately 3,000 ft south of where Alternative 1 transitions to the east. Shifting the alignment at North Citrus Avenue (CR 495) minimizes the overall business damages for this segment. Additional ROW acquisition is still required for exclusive right turn lanes, corner clips, side road tie-ins, and SMF.

As described in Alternative 1, additional improvements are necessary along SR 44 and NE 4<sup>th</sup> Street to allow the intersection to operate at an acceptable LOS in the design year 2025. The proposed improvements are illustrated in the Alternative Design Concept Plans in Appendix B.

### **Alternative 3**

Alternative 3 also utilizes the proposed typical section as described in Alternatives 1 and 2. However, unlike Alternatives 1 and 2, Alternative 3 includes a center turning overpass at SR 44. The center turning overpass separates the left turn movements from the through movements by placing the left turning vehicles on a separate, independently signalized structure above the intersection. The through movements and right turn movements occur at-grade.

The southbound left turning vehicles exit US 19 onto a single-lane ramp in the median, south of NE 3<sup>rd</sup> Avenue. The ramp typical section contains one 15-ft travel lane with 6-ft paved shoulders on each side. The ramp is constructed on embankment with retaining walls and Type F barrier walls on each side. The proposed design speed for this ramp typical section is 35 mph.

The vehicles continue along the upward sloping ramp until reaching the raised signalized intersection. At the raised intersection, the vehicles turn eastbound over a proposed bridge that spans northbound US 19. The proposed bridge typical section contains one 15-ft travel

lane in each direction separated by a 14-ft paved median. Paved shoulders, 6-ft in width, are provided on the outside. The vehicles then continue eastbound onto a single-lane, downward sloping ramp. The ramp contains one 15-ft travel lane with 6-ft paved shoulders on each side. The ramp enters eastbound SR 44 on the inside, matching the existing inside travel lane west of NE 7<sup>th</sup> Avenue.

The left turning vehicles traveling along westbound SR 44 exit onto a single-lane ramp in the median, west of NE 7<sup>th</sup> Avenue. The ramp contains one 15-ft travel lane with 6-ft paved shoulders on each side. The ramp is constructed on embankment with an upward sloping grade. The westbound off-ramp and the eastbound on-ramp form a variation of the proposed bridge typical section. However, unlike the bridge typical section, the ramps are separated by a double-sided Type F barrier wall in the median. Retaining walls and Type F barrier walls are provided on the outside of each ramp.

The vehicles continue along the upward sloping ramp until reaching the raised signalized intersection. At the raised intersection, the vehicles turn southbound over the proposed bridge that spans northbound US 19. The vehicles then continue southbound onto a single-lane, downward sloping ramp. The ramp enters southbound US 19 on the inside, north of NE 1st Terrace.

Although the Final US 19 Action Plan Update<sup>5</sup> includes a cul-de-sac on NE 4<sup>th</sup> Street (west leg of SR 44 intersection), Alternative 3 evaluated the intersection assuming NE 4<sup>th</sup> Street would be limited to right-in and right-out movements only; therefore, eliminating the left turn movements eastbound and northbound. The right-in and right-out movements occur at-grade. The two signalized intersections to the north, NE 3<sup>rd</sup> Avenue and North Citrus Avenue (CR 495), can accommodate the additional left turn and through volumes that were diverted from NE 4<sup>th</sup> Street. This results in avoidance of significant ROW impacts along NE 4<sup>th</sup> Street.

Since only right turns occur at-grade within the SR44 intersection, the number of through lanes on US 19 can be reduced. Only two travel lanes along US 19 are required through the intersection to meet an acceptable LOS. This will result in reduced impacts to the businesses

near the intersection. However, the left turn movements on the center overpass fail to meet the acceptable LOS, which causes the overall intersection to operate at an undefined LOS. An undefined LOS means that the intersection is so overly saturated with vehicles that the software cannot adequately define a LOS.

Alternative 3 utilizes the same alignment along US 19 as described in Alternative 1. However, ROW acquisition is required along the south side of SR 44, typically 18 ft in width. ROW acquisition of approximately 24 ft is also required along the north side of SR 44 to accommodate the exclusive right turn movement.

#### **Alternative 4**

In an effort to reduce impacts to the established businesses, Alternative 4 was developed as a refinement of Alternative 2. The proposed typical section is a six-lane divided urban roadway with a 16-ft raised median from NE 1st Terrace to the Crystal River Mall. North of the mall, the 16-ft median transitions to match the 40-ft median north of Turkey Oak Drive. This typical section contains two 11-ft travel lanes and one 12-ft travel lane in each direction. Sidewalks, 6 ft in width, are provided along both sides of the roadway adjacent to the back of curb. This typical section utilizes a best-fit alignment and is contained within the existing 100 ft of ROW for a portion of this segment.

The Crystal River State Buffer Preserve occupies a small parcel on the east side of US 19 approximately 400 ft north of NW 7th Avenue. The proposed alignment is centered within the existing ROW through this area in order to avoid impacting this parcel. However, due to the curved geometry in this area, tying into existing ground on the west side may not be feasible without acquiring additional ROW. Therefore, a gravity wall may be necessary on the west side through the curved geometry section. In order to accommodate the gravity wall, the median width may need to be reduced to 15 ft.

No provisions for bicyclists were developed with this alternative due to significant ROW impacts that would result. However, alternative bike routes can be accommodated with minor upgrades to existing side streets, incorporating the proposed pedestrian overpass at the

Crystal River bike path. Due to the heavily commercialized land use in this segment and the addition of a narrow raised median, a design speed of 40 mph is proposed for this alternative. Since the reduced design speed does not meet current FIHS standards, a design variation is required for this alternative. Also, design variations are needed for the substandard lane widths (11 ft), border width (8 ft), median width (15 ft), and lack of bicycle facilities.

Alternative 4 is consistent with FIHS requirements of a restrictive median, however it does not meet the FIHS requirement of a 50 mph design speed. The ROW cost for Alternative 4 is estimated at \$29.28 million, including stormwater management facilities. Alternative 4 would substantially reduce the number of impacts to nearby businesses and the costs associated with these impacts.

### **3.4 RECOMMENDED ALTERNATIVE**

The selection of a Recommended Alternative, a No-Build, TSM, or Build Alternative was based upon the impact evaluation matrix and consideration of the non-quantifiable factors. The following sections explain the rationale behind the selection of the Recommended Alternative for each Segment. Recommended Alternative Typical Sections are included in Appendix A.

### **3.4.1 Segment 1 (Alternative 1)**

Alternative 1 has been selected as the Recommended Alternative in Segment 1. The proposed typical section is illustrated in Appendix A. This proposed typical section widens the existing 4-lane rural roadway to a 6-lane divided rural roadway with 12-ft travel lanes and 5-ft paved shoulders. A 12-ft multi-use path and 5-ft sidewalk are provided along the existing western and eastern ROW lines, respectively. Additional features include guardrail in the median and a pedestrian overpass over US 19 just south of US 98. The proposed design speed is 70 mph. With the exception of stormwater management facilities, the improvements fit within existing ROW.

### **3.4.2 Segment 2 (Alternative 7)**

Alternative 7 has been selected as the Recommended Alternative in Segment 2. The proposed typical sections are illustrated in Appendix A. The proposed roadway includes three travel lanes, which vary in width from 11-ft to 12-ft, and a 4-ft bicycle lane in each direction. The raised median varies in width from 20-ft to 30-ft. Sidewalks, 5-ft in width are included in each direction; however, a 12-ft multi-use path is included on the west side south of West Yulee Drive. A best-fit alignment was selected to allow the improvements to fit within the existing ROW, with the exception of stormwater management facilities, corner clips, and turn lanes. The proposed design speed is 50 mph.

### **3.4.3 Segment 3 (Alternative 1)**

Alternative 1 has been selected as the Recommended Alternative in Segment 3. The proposed typical section is illustrated in Appendix A. This proposed typical section is a 6-lane divided urban roadway with a 30-ft raised median on a centered alignment. This typical section contains three 12-ft travel lanes, a 4-ft bicycle lane, and 5-ft sidewalks in each direction. With the exception of stormwater management facilities, the improvements fit within existing ROW. The proposed design speed is 50 mph.

#### **3.4.4 Segment 4 (TSM Alternative 2)**

TSM Alternative 2 has been selected as the Recommended Alternative in Segment 4. The proposed typical section is illustrated in Appendix A. This proposed improvement consists of reconstructing the existing two-way left-turn lane to a 17-ft raised median. This alternative also includes milling and resurfacing of the existing roadway to allow for three 12-ft travel lanes in each direction. A multi-use path, 12 ft in width, is proposed in each direction to accommodate pedestrians and bicyclists. At SE Kings Bay Drive, bicyclists using the multi-use path on the east side of US 19 will cross over to the west side. The multi-use path on the west side of US 19 will continue to NE 1st Terrace since it can be accommodated within the existing ROW. The proposed improvements fit within existing ROW. The proposed design speed is 40 mph.

#### **3.4.5 Segment 5 (Alternative 4)**

Alternative 4 has been selected as the Recommended Alternative in Segment 5. The proposed typical section is illustrated in Appendix A. This proposed typical section is a 6-lane divided urban roadway with a 16-ft raised median from NE 1st Terrace to Turkey Oak Drive, which utilizes a best-fit alignment. The median width may be reduced to 15 ft to accommodate a gravity wall where needed. This typical section contains two 11-ft travel lanes and one 12-ft outside travel lane, as well as 6-ft sidewalks in each direction. No provisions for bicyclists were developed in this segment due to significant ROW impacts that would result. The proposed design speed is 40 mph. Additional ROW will be required for roadway improvements for a portion of this segment, as well as stormwater management facilities.

### **3.4.6 Segment 6 (TSM Alternative)**

The TSM Alternative has been selected as the Recommended Alternative in Segment 6. The TSM improvements include turn lane improvements at the North Dunnellon Road (CR 488) intersection, including adding a signal, if warranted. Signal upgrades are also proposed at Seven Rivers Community Hospital and West Powerline Street.

## **SECTION 4**

### **WETLAND INVENTORY**

#### **4.1 WETLAND EVALUATION**

Pursuant to Presidential Executive Order 11990 entitled “Protection of Wetlands,” the United States Department of Transportation (USDOT) developed a policy (USDOT Order 5660.1A), Preservation of the Nations Wetlands, dated August 24, 1978, which “is to assure the protection, preservation and enhancement of the Nation’s wetlands to the fullest extent practicable during the planning, construction and operation of transportation facilities and projects.” In accordance with this policy, the US 19 Study corridor was evaluated for the presence of any wetlands that have potential involvement with the proposed improvements. This assessment documents potential impacts of the roadway alternatives studied and efforts to avoid, minimize, or mitigate those impacts to the greatest extent practicable.

The following section presents the study methodology used for identification and mapping of wetlands, analysis of wetland functions and values, and an evaluation of impacts which will result from the proposed project. The US 19 Study corridor was based on the existing four-lane divided facility with proposed widening improvements within the existing ROW. To assess potential impacts to adjacent wetland systems, wetland evaluations were extended an additional 300 ft on either side of the ROW.

#### **4.2 METHODOLOGY**

In order to determine the approximate locations and boundaries of existing wetland communities within the project study area, available site-specific data were collected and reviewed. The following information was collected and analyzed.

- US Department of Agriculture, Natural Resources Conservation Service (NRCS), Citrus County Soil Survey, 1984<sup>5</sup>



- US Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) Maps<sup>6</sup>
- US Geological Survey (USGS), Topographic Quadrangle maps, 7.5 minute series<sup>7</sup>
- Southwest Florida Water Management District (SWFWMD) Land Use Maps (1995) based on the FDOT Florida Land Use, Cover and Forms Classification System (FLUCFCS) (third ed.) 1999<sup>8</sup>
- USFWS Classification of Wetlands and Deepwater Habitats of the United States, 1979<sup>9</sup>
- Aerial Photographs of the project area at a 1-inch (in) to 100 ft scale.

Using the above information, the approximate boundaries of wetland communities were mapped on black and white aerials. Since both the SWFWMD and NWI mapping are conducted at a relatively coarse level of spatial accuracy (1:24,000 scale), more accurate wetland maps were created based on field verification (groundtruthing) and aerial photointerpretation using the 1:100 scale photography. Each wetland community was then labeled using the FLUCFCS and NWI classification systems. The State of Florida wetland delineation methodology (F.A.C. 62-340) and the U.S. Army Corps of Engineers (USACOE) methodology (*Corps of Engineers Wetlands Delineation Manual*<sup>10</sup>) were used to groundtruth boundaries.

In January, February, and May 2002, field reviews of the study area were conducted by a team of environmental scientists familiar with southwest Florida wetland communities. The purpose of the review was to verify and/or refine preliminary wetland boundaries and classification codes established through literature reviews, existing maps, and photo-interpretation. During field investigations each wetland within the project study corridor was visually inspected and representative wetlands photographed. A range of freshwater wetland systems were found within the corridor and attention was given to identifying plant species composition for each wetland and adjacent upland habitats.

A comprehensive and detailed list utilizing the FDOT FLUCFCS codes was developed during the field mapping process to distinguish the various wetland types (Table 4-1). Nuisance and/or invasive exotic plants, hydrologic conditions, and disturbances (canals,

power lines, etc.) were noted. Attention was also given to identifying wildlife and signs of wildlife usage at each wetland and adjacent upland habitat.

### **4.3 EXISTING WETLAND COMMUNITIES**

The study corridor is characterized by a wide range of both developed land uses and natural systems. Natural wetland systems include palustrine freshwater emergent, scrub, and forested systems. Adjacent streams and waterways (500 /510) consist of ditches, classified as riverine, and adjacent ponds or canals, which are classified as riverine or palustrine. There are no bridge crossings.

Based on photointerpreted aerials and field reviews, 66 wetland areas, 54 wetland ditches, and 5 open water areas represented by 8 individual FLUCFCS categories were identified in the study corridor. This represents a total of 155.58 ac of wetlands, 8.51 ac of ditches, and 2.82 ac of ponds/open water within the study area. The eight FLUCFCS categories fell under five broad wetland community types including water (FLUCFCS 500/510), wetland hardwood forests (FLUCFCS 610), wetland coniferous forests (FLUCFCS 620), wetland forested mixed (FLUCFCS 630), and vegetated non-forested wetlands (FLUCFCS 640) as detailed below in Table 4-1.

**TABLE 4-1  
FLUCFCS CATEGORIES AND CORRESPONDING USFWS CODES FOR WETLANDS  
IDENTIFIED IN THE US 19 CITRUS COUNTY STUDY CORRIDOR**

| FLUCFCS* | Description                         | USFWS Code**   | Description  |
|----------|-------------------------------------|----------------|--|
| 500      | Open Water                          | R1UBV<br>PUBHx | Riverine, Unconsolidated Bottom, Permanent-Tidal<br>Palustrine, Unconsolidated Bottom, Permanently<br>Flooded, Excavated |
| 510      | Streams and Waterways               | R2UBHx         | Riverine, Unconsolidated Bottom, Permanently<br>Flooded, Excavated   |
| 617      | Mixed Wetland Hardwoods             | PFO1C          | Palustrine, Forested, Broad-Leaved Deciduous,<br>Seasonally Flooded  |
| 621      | Cypress                             | PFO2C/PFO2Cd   | Palustrine, Forested, Needle-Leaved Deciduous,<br>Seasonally Flooded (ditched)   |
| 630      | Pine, Oak, Cabbage Palm, Hydric     | PFO4/1/3C      | Palustrine, Forested, Needle-Leaved<br>Evergreen/Broad-Leaved Deciduous/Broad-Leaved<br>Evergreen, Seasonally Flooded    |
| 631      | Hydric Shrub and Brush              | PSS3/1C        | Palustrine, Scrub-Shrub, Broad-Leaved<br>Evergreen/Broad-Leaved Deciduous, Seasonally<br>Flooded                         |
| 640      | Vegetated, Non-forested<br>Wetlands | PSS3F          | Palustrine, Scrub-Shrub, Broad-Leaved Evergreen,<br>Semi-Permanently Flooded   |
| 641      | Freshwater Marsh                    | PEM1F          | Palustrine, Emergent, Persistent, Semi-<br>Permanently Flooded   |

\*FLUCFCS = Based on Florida Land Use Cover Forms Classification System, third ed. 1999<sup>8</sup>.

\*\*USFWS = Based on US Fish and Wildlife Service Classification of Wetlands and Deepwater Habitats of the United States, 1979<sup>9</sup>.

The five wetland community categories identified in the study corridor are described on the following pages. Table 4-2 provides the identification number of the specific wetlands that comprise each category. Note that some of the 66 wetland systems identified are composed of several wetland types. Therefore, the number given for each wetland type within a category will exceed 66 when totaled across categories. Specific locations and approximate boundaries of each wetland type within the study corridor are presented in Appendix B. Photographs of representative wetlands are provided in Appendix C.

**TABLE 4-2  
WETLANDS FOUND IN EACH OF THE FIVE FLUCFCS CATEGORIES IN THE US 19 CITRUS  
COUNTY PROJECT**

| FLUCFCS Category | Wetlands Included in this Category   |
|------------------|--|
| <b>500/510</b>   | Individual ditches were not given ID numbers   |
| <b>610</b>       | 1-R8, 2-R1, 2-R3, 2-L3, 2-L2, 2-L4, 2-R4, 3-L1, 3-L2, 3-R1, 3-L3, 3-L5, 3-R2, 4-L1, 4-R1, 5-R1, 5-R2, 5-R3, 5-R5, 5-L2, 5-L3, 5-L4, 5-R6, 6-R1, 6-L1, 6-L4, 6-R2, 6-R3, 6-R4, 6-R5, 6-L5 |
| <b>620</b>       | 1R1, 1-L2, 1-R3, 1-R7, 1-L3, 1-R6, 1-R9, 2-R2, 3-R3, 3-R4, 3-R5, 3L6   |
| <b>630</b>       | 1-L1, 1-R1, 1-R2, 1-R10, 1-R11, 1-L5, 1-L6, 1-L7, 2-L1, 3-R1, 3-L6, 6-L2, 6-L3, 6-R3, 6-L5, 6-L6, 6-R6   |
| <b>640</b>       | 1-R4, 1-R5, 1-L1, 1-L4, 1-L5, 1-R12, 3-L3, 3-L4, 3-R6, 3-L7, 5-R4, 5-L1, 5-R1, 5-L5, 5-R7  |

**4.3.1 Water (500/510)**

FLUCFCS – 500 and 510 (Streams and Waterways)  
 USFWS – R2UBHx (Riverine, Unconsolidated Bottom, Permanently Flooded, Excavated),  
 RIUBV(Riverine, Unconsolidated Bottom, Permanent-Tidal), PUBHx (Palustrine,  
 Unconsolidated Bottom, Excavated)

The Water category includes excavated ditches/canals (510) and adjacent ponds or canals (500). These water bodies may also be considered as wetlands or as surface waters by state and federal permitting agencies. Streams and waterways make up approximately 6 percent of the wetland/surface water area within the study area and cover approximately 11.3 ac within the project.

**4.3.2 Wetland Hardwood Forests (610)**

FLUCFCS –617 (Mixed wetland hardwoods), USFWS - PFO1C (Palustrine, Forested, Broad-Leaved Deciduous, Seasonally Flooded)

Wetland hardwood forests are the most common type of wetland found along the corridor and are present in all segments of the proposed roadway. Wetland hardwood forests are those wetland areas that have a minimum of 10 percent crown closure of which 66 percent or more is dominated by wetland hardwoods. No single species dominates this community

type. In general, typical species found in the upper canopy of a mixed hardwood forest may include red maple (*Acer rubrum*), cabbage palm (*Sabal palmetto*), cypress (*Taxodium* spp.), laurel oak (*Quercus laurifolia*), swamp bay (*Persea palustris*), pop ash (*Fraxinus caroliniana*), and slash pine (*Pinus elliottii*). Wax myrtle (*Myrica cerifera*) is generally the dominant mid-canopy species. White beakrush (*Rhynchospora alba*), blue-joint panicum (*Panicum tenerum*), and broomsedge (*Andropogon* spp.) are representative of typical ground cover. Wetland hardwood forest is the most common wetland type in the study area, totaling 82.49 ac. Of the 66 wetlands identified in the project corridor, 31 have a freshwater wetland hardwood forest component. Wetlands included in this category are listed in Table 4-2. Although this habitat is found in all segments, the majority (83 percent) of wetland hardwood forests within the study corridor are found in Segments 3, 5, and 6. The condition of these wetlands is generally good although the stand age is young, indicating previous harvesting. Species noted within the mixed wetland hardwood systems of the corridor included sweet bay (*Magnolia virginiana*), bay (*Persea* sp.), red maple (*Acer rubrum*), sweetgum (*Liquidambar styraciflua*), and laurel oak with minor cover by slash pine.

### **4.3.3 Wetland Coniferous Forests (620)**

FLUCFCS – 621 (Cypress) USFWS – PFO2C (Palustrine, Forested, Needle-Leaved Deciduous, Seasonally Flooded), PFO2Cd (Palustrine, Forested, Needle-Leaved Deciduous, Seasonally Flooded, ditched)

This category represents wetlands that have 10 percent crown closure and are the result of natural generation (vs. pine plantations). In general, dominant plant species in this category include slash pine, cypress, and cabbage palm. Mid-canopy species present may include wax myrtle, dahoon holly (*Ilex cassine*), and swamp bay. Representative hydrophytic groundcover species typically include beakrush (*Rhynchospora* spp.), yellow-eyed grass (*Xyris* spp.), blue maidencane (*Amphicarpum muhlenbergianum*), Gulf dune paspalum (*Paspalum monostachyum*), and muhly grass (*Muhlenbergia capillaris*). A total of 12 cypress wetlands were identified in the study corridor, totaling approximately 39.20 ac. Wetlands included in this category are listed in Table 4-2. A portion of the cypress wetlands showed signs of disturbance, particularly from hydrology alterations such as ditching. However, a number of the cypress wetlands were of good quality, showing no obvious signs of stress. Desirable ground cover species such as royal fern (*Osmunda*

*regalis*), cinnamon fern (*O. cinnamomea*), fetterbush lyonia (*Lyonia lucida*), and dwarf palmetto (*Sabal minor*) occurred in these wetlands. Wetland coniferous forests occurred only in Segments 1, 2, and 3 of the study corridor with more than 50 percent of the acreage represented in Segment 1.

#### **4.3.4 Wetland Forested Mixed (630)**

FLUCFCS – 630 (Pine, oak & cabbage palm, hydric), 631 (Hydric shrub and brush)  
USFWS – PFO4/1/3C (Palustrine, Forested, Needle-Leaved Evergreen/Broad-Leaved Deciduous/Broad-Leaved Evergreen, Seasonally Flooded), PSS3/1C (Palustrine, Scrub-Shrub, Broad-Leaved Evergreen/Broad-Leaved Deciduous, Seasonally Flooded)

The wetland forested mixed classification represents a combination of coniferous and hardwood species in which neither achieves more than a 66 percent dominance of the crown canopy composition. Dominant plant species in this category include slash pine, laurel oak, and cabbage palm. In general, mid-story species were typically comprised of wax myrtle and groundsel tree (*Baccharis halimifolia*). A total of 15 mixed forested wetlands were identified in the study area, totaling approximately 24.63 ac in coverage. Only one wetland system (1-L7) was identified under FLUCFCS code 630; the remainder were hydric shrub and brush (631). Wetlands included in this category are listed in Table 4-2. Ninety-two percent of the forested mixed wetlands occur within Segment 1 and Segment 6, with less than 1 ac occurring in Segments 2 and 3. Species noted within the hydric shrub and brush systems included groundsel tree, red maple, coastal plain willow (*Salix caroliniana*), laurel oak, and peelbark St. Johns wort (*Hypericum fasciculatum*).

#### **4.3.5 Vegetated Non-forested Wetlands (640)**

FLUCFCS – 640 (Vegetated Non-forested wetlands), 641 (Freshwater marsh)  
USFWS – PSS3F (Palustrine, Scrub-Shrub, Broad-Leaved Evergreen, Semi-Permanently Flooded) PEM1F (Palustrine, Emergent, Persistent, Semi-Permanently Flooded),

Vegetated non-forested wetlands include marshes and seasonally flooded basins and meadows. These systems are usually found in low-lying areas or depressions and typically include species such as sawgrass (*Cladium jamaicense*) and cattail (*Typha* sp.) in freshwater marshes. A total of 15 non-forested freshwater wetlands were identified in the study corridor

in Segments 1, 3 and 5, totaling 9.26 ac. Wetlands included in this category are listed in Table 4-2. Approximately 67 percent of the wetlands were located in Segment 1. Typical native species observed in the project corridor include maidencane (*Panicum hemitomon*), sugarcane plumegrass (*Saccharum giganteum*), dahoon holly, inkberry (*I. glabra*), wax myrtle, and bay. Nuisance/exotic species include cattails, primrose willow (*Ludwigia peruviana*), and dogfennel.

#### **4.4 WETLAND RAPID ASSESSMENT PROCEDURE (WRAP)<sup>11</sup>**

The WRAP is a method developed to assist in the regulatory evaluation of wetland areas. It establishes a numerical ranking for individual ecological and anthropogenic factors that affect wetlands and is used to evaluate wetland conditions and functional value. The following variables are measured by WRAP:

- Wildlife Utilization
- Wetland Overstory/Shrub Canopy
- Wetland Vegetative Ground Cover
- Adjacent Upland Support Buffer
- Field Indicators of Wetland Hydrology
- Water Quality Input and Treatment Systems

To perform the WRAP analysis, each wetland area is evaluated by assigning a value to each of the criteria above for the existing condition. The final score for a wetland will produce a range between 0 and 1.

##### **4.4.1 WRAP Results – Existing Conditions**

A WRAP analysis was performed for nine representative wetlands within the study corridor. Individual WRAP score sheets are presented in Appendix D and a summary of these WRAP scores is presented in Appendix E. To further summarize this information, WRAP scores

were averaged by FLUCFCS category and are presented in Table 4-3 below. For the wetlands evaluated, the WRAP scores ranged from 0.46 for Wetland 1-R12, an isolated cypress wetland with a ground cover dominated by cattail, to 0.83 for Wetland 1-L7, a large natural area within the Withlacoochee State Forest. No WRAP analyses were performed on the open water or ditch habitats since evaluation criteria have not been developed for these habitat types.

The average WRAP score for all FLUCFCS categories combined is 0.60. The lower WRAP scores are primarily resulting from a lack of buffer due to residential, commercial areas and/or existing roadways, ground covers dominated by nuisance species, and altered hydrology (primarily by ditching). The majority of wetlands within the study corridor are of moderate quality with many being small, isolated systems. As stated above, the highest WRAP score was for a large natural wetland in the Homosassa Tract of the Withlacoochee State Forest located in Segment 1 (1-L7).

**TABLE 4-3  
AVERAGE WRAP SCORES BY FLUCFCS CATEGORY FOR REPRESENTATIVE WETLANDS  
IDENTIFIED IN THE US 19 CITRUS COUNTY STUDY CORRIDOR**

| FLUCFCS | Average WRAP Score |
|---------|--------------------|
| 617     | 0.71               |
| 621     | 0.63               |
| 630     | 0.83               |
| 631     | 0.49               |
| 640     | 0.58               |
| 641     | 0.53               |

**4.4.1.1 Wildlife Utilization**

Wildlife utilization scores for each of the nine wetlands ranged from 1.5 to 3.0. Five of the wetlands scored at 2.0 with adequate cover for wildlife or adjacent upland food sources. Migratory songbirds were observed in several of the wetlands. In wetlands in which direct observation of wildlife were not made, the score was based on the presence of adequate cover, upland food sources, continuity with other natural areas, and extent of disturbance. Wildlife Utilization in Wetland 1-L7 was scored at 3.0. This wetland is within the Withlacoochee State Forest (Homosassa Tract) and could potentially support large



mammals. Wetland 2-R1 also received a high score of 2.5 as it had abundant upland food sources and healthy vegetation within the wetland.

#### **4.4.1.2 Wetland Canopy**

The wetland canopy scores ranged from 1.5 to 2.5. An NA designation for this category indicates wetlands that by definition do not support canopy cover. The two wetlands scored at 1.5 had canopies which showed signs of stress due to altered hydrology from ditching. Two wetlands received a score of 2.0. These wetlands were in good condition but the trees and shrubs had some nuisance/exotic cover or appeared to be young trees, indicating previous harvesting. Two cypress wetlands (1-R1 and 1-L7) received the highest score of 2.5 with no obvious signs of stress or nuisance/exotic species present in the canopy.

#### **4.4.1.3 Wetland Groundcover**

Wetland groundcover ranged from 1.0 to 2.5. Lower scores were influenced by the presence of nuisance vegetation or the lack of desirable vegetation within the wetland limits. Undesirable species included dogfennel, cattail, and cogon grass (*Imperata cylindrica*).

#### **4.4.1.4 Habitat Support Buffer**

Habitat support buffer scores ranged between 1.40 and 2.48. The highest score was again in Wetland 1-L7 in the Withlacoochee State Forest (Homosassa Tract) where large adjacent tracts of natural areas extend westward from the wetland. Lower scores were typically observed where 50 percent or more of the wetland was bordered by US 19, US 98 or adjacent minor roadways, by residential subdivisions, and/or by light commercial developments.

#### **4.4.1.5 Field Hydrology**

Field hydrology scores ranged from 1.0 to 2.0. The hydrology for most of the wetlands within the project area has been altered to some degree through the construction of ditches or culverts. Field hydrology values evaluated for wetlands within the project study corridor

were low for highly altered systems and high for less altered wetland systems connected to existing sloughs or creeks.

#### **4.4.1.6 Water Quality Input and Treatment**

Water quality input and treatment scores ranged from 0.80 to 2.44 within the project area. The lower scores were due primarily to a lack of treatment of runoff from adjacent roadways or residential and commercial areas. The highest score of 2.44 was assigned to Wetland 1-L7 which is surrounded by natural wetlands.

### **4.5 ESSENTIAL FISH HABITAT**

Under the requirements of the Magnuson-Stevens Fishery Conservation and Management Act (ACT) of 1976 as amended through 1998, Essential Fish Habitat (EFH) Assessment is required for proposed projects with potential impacts to the habitat of marine fish or other marine organisms. The Act established standards for fishery conservation and management, and created eight regional Fishery Management Councils (FMC) to apply those national standards in fishery management plans (FMP). The ACT requires federal agencies to provide consultation on activities that may adversely affect EFH designated in the FMP. The National Marine Fisheries Service (NMFS), a service of the U.S. Department of Commerce, National Oceanic and Atmospheric Administration (NOAA), is responsible for implementing this mandate.

The US 19 Citrus County corridor has no coastal, estuarine, or marine wetlands or water bodies. Impacts are restricted to freshwater marshes, freshwater forested wetlands, and ditches. None of the species of concern or their habitats as listed under the ACT are within the project area. Therefore, an EFH consultation will not be necessary for this project.

## SECTION 5

### AFFECTED WETLANDS

#### 5.1 ANALYSIS OF POTENTIAL WETLAND IMPACTS

The proposed limits for the roadway improvements are US 19 from south of US 98 to CR 488 in western Citrus County. The total length of the corridor is 18.8 mi. For the purpose of evaluating the improvement alternatives, the study corridor was divided into six segments based on existing and future land use, projected traffic volumes for the design year 2025, existing typical sections, and available ROW. Because the project is the modification of an existing corridor and wetlands exist immediately adjacent to that corridor, complete avoidance of wetland impacts is not feasible if the needs of the project are to be met. Table 5-1 provides the list of wetlands that could potentially be impacted by the proposed improvements by FLUCFCS code.

**TABLE 5-1  
AFFECTED WETLANDS FOUND IN EACH OF THE FIVE FLUCFCS CATEGORIES IN THE  
US 19 CITRUS COUNTY PROJECT**

| FLUCFCS Category | Wetlands Included in this Category   |
|------------------|--|
| <b>500/510</b>   | Individual ditches were not given ID numbers                                 |
| <b>610</b>       | <b>2-R1, 2-R3, 2-L3, 2-R4, 3-L2, 3-R1, 3-L3, 4-R1, 5-L3, 5-L4, 5-R6</b>      |
| <b>620</b>       | 1-R1, <b>1-R3</b> , 1-R7, <b>1-L3</b> , 1-R6, <b>2-R2, 3-R4, 3-R5</b> , 3-L6 |
| <b>630</b>       | <b>1-L1, 1-R10, 1-L7, 2-L1</b>   |
| <b>640</b>       | <b>1-L5, 3-L3, 5-L5, 5-R7</b>  |

\*\*Wetlands indicated in bold are those affected by the Recommended Alternative.

Potential direct impacts to existing wetlands in the US 19 study corridor would result from the removal of vegetation, placement of fill for roadway widening, and excavation for

drainage improvements. Depending on the combination of alternatives chosen for each segment, direct wetland and ditch impacts for the entire proposed corridor are estimated to range from 5.12 ac and 6.00 ac, with the Recommended Alternative estimated at 5.64 ac. If the ditch impacts are not considered, the impacts to wetlands range from 4.56 ac to 5.26 ac (4.9 ac for the Recommended Alternative). Table 5-2 provides the potential wetland impacts which would result from each proposed alternative within the six segments being analyzed. Note that there are no anticipated impacts within Segment 6 due to the minimal reconstruction and widening proposed within that segment.

TABLE 5-2

WETLAND AND SURFACE WATER IMPACT ACREAGE BY SEGMENT AND ALTERNATIVE

| SEGMENT<br>NUMBER | ALT<br>NO. | WETLAND FLUCFCS CODE |      |      |      |      |       |      |       | TOTAL<br>ACRES | ACREAGE W/O<br>500 OR 510 |
|-------------------|------------|----------------------|------|------|------|------|-------|------|-------|----------------|---------------------------|
|                   |            | 500                  | 510  | 617  | 621  | 630  | 631   | 640  | 641   |                |                           |
| 1 (RA)            | 1          | 0.00                 | 0.43 | 0.00 | 0.59 | 0.97 | 0.001 | 0.00 | 0.003 | 1.99           | 1.56                      |
| 2                 | 1          | 0.00                 | 0.02 | 0.19 | 0.01 | 0.00 | 0.00  | 0.00 | 0.00  | 0.23           | 0.20                      |
| 2                 | 2          | 0.00                 | 0.02 | 0.20 | 0.01 | 0.00 | 0.00  | 0.00 | 0.00  | 0.24           | 0.22                      |
| 2                 | 3          | 0.00                 | 0.02 | 0.19 | 0.01 | 0.00 | 0.00  | 0.00 | 0.00  | 0.22           | 0.20                      |
| 2                 | 4          | 0.00                 | 0.02 | 0.22 | 0.01 | 0.00 | 0.00  | 0.00 | 0.00  | 0.25           | 0.23                      |
| 2 (RA)            | 5          | 0.01                 | 0.02 | 0.20 | 0.01 | 0.00 | 0.00  | 0.00 | 0.00  | 0.24           | 0.21                      |
| 3 (RA)            | 1          | 0.00                 | 0.03 | 0.96 | 1.45 | 0.00 | 0.00  | 0.00 | 0.28  | 2.72           | 2.69                      |
| 3                 | 2          | 0.00                 | 0.03 | 0.96 | 1.45 | 0.00 | 0.00  | 0.00 | 0.28  | 2.72           | 2.69                      |
| 4                 | 1          | 0.00                 | 0.08 | 0.11 | 0.00 | 0.00 | 0.00  | 0.00 | 0.00  | 0.19           | 0.11                      |
| 4                 | TSM1       | 0.00                 | 0.08 | 0.11 | 0.00 | 0.00 | 0.00  | 0.00 | 0.00  | 0.19           | 0.11                      |
| 4 (RA)            | TSM2       | 0.00                 | 0.08 | 0.11 | 0.00 | 0.00 | 0.00  | 0.00 | 0.00  | 0.19           | 0.11                      |
| 5                 | 1          | 0.00                 | 0.18 | 0.41 | 0.00 | 0.00 | 0.00  | 0.00 | 0.06  | 0.64           | 0.47                      |
| 5                 | 2          | 0.00                 | 0.18 | 0.62 | 0.00 | 0.00 | 0.00  | 0.00 | 0.06  | 0.85           | 0.67                      |
| 5                 | 3          | 0.00                 | 0.18 | 0.42 | 0.00 | 0.00 | 0.00  | 0.00 | 0.08  | 0.67           | 0.49                      |
| 5 (RA)            | 4          | 0.01                 | 0.16 | 0.33 | 0.00 | 0.00 | 0.00  | 0.00 | 0.00  | 0.50           | 0.33                      |
| 5                 | TSM        | 0.00                 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00 | 0.00  | 0.00           | 0.00                      |
| 6 (RA)            | TSM        | 0.00                 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00  | 0.00 | 0.00  | 0.00           | 0.00                      |

RA=Recommended Alternative

Within the proposed roadway improvements, Segments 1 and 3 have the greatest amount of affected wetlands (1.99ac and 2.72 ac respectively). It is noted that Segment 1 has only one alternative. The alignments proposed for Segment 2 had between 0.22 and 0.25 ac of wetland impacts, the majority of which are to forested wetlands (617). The Recommended Alternative for Segment 2 has 0.23 ac of wetland impact. The two alternatives proposed for Segment 3 both had wetland impacts totaling 2.72 ac. The majority of impacts to Segment 3 are to forested wetlands (617 and 621) with the remainder (0.28 ac) attributed to freshwater marsh (641) and ditches. The three alternatives proposed for Segment 4 both had 0.19 ac of wetland impact, with 0.08 ac attributable to ditches and the remainder to forested wetland (617). Four alternatives proposed for Segment 5 has between 0.50 ac and 0.85 ac of impact, with impacts to ditches, open water, forested wetlands (0.41 ac to 0.62 ac) and marsh wetlands (0.00 ac to 0.08 ac). Segment 5 also had a TSM alternative that had no wetland impacts. The Recommended Alternative for Segment 5 has 0.50 ac of impact. Segment 6, with only a TSM alternative proposed, has no impacts.

The majority of cypress wetland (621) impact resulting from the project are within Segments 1 (0.59 ac) and 3 (1.45ac). The majority of freshwater hardwood forest (617) impacts are concentrated in Segments 3 (0.96 ac) and 5 (0.33 ac to 0.62 ac). Freshwater marsh impacts (641) are concentrated in Segments 3 (0.28 ac). Impacts to wetland forested mixed systems (630) are confined to Segment 1 (0.97 ac).

The proposed improvements are to an existing corridor and are primarily confined within the existing ROW. Because wetland habitats are within that ROW, impacts to wetlands are unavoidable. The Recommended Alternative has 5.64 ac of impact. Of the 5.64 ac, approximately 4.9 ac of impact from the Recommended Alternative will be to ditches.

## **5.2 AFFECTED WETLANDS WRAP ANALYSIS**

A WRAP analysis was performed on representative wetlands within the US 19 Citrus County Study Corridor. The results of the WRAP analysis are presented in Appendices D and E.

### **5.3 WETLAND MITIGATION**

In accordance with FHWA policy as contained in 23 CFR 777.11, the full range of mitigation options were considered in developing this project to avoid long-term and short-term adverse impacts to wetland resources and to avoid new construction in wetlands wherever there is a practicable alternative. Mitigation policies have been established by the USACOE, the Florida Department of Environmental Protection (FDEP), and the water management districts. Options for mitigating the loss of wetlands include mitigation banking, upland and/or wetland preservation, and wetland restoration, enhancement, and creation.

Mitigation in the form of a transfer of funds per acre of impact to the SWFWMD is also an option available through Senate Bill 1986 (Florida Statutes [FS] Chapter 373.4137 Mitigation Requirements). These funds are used to finance mitigation programs. This Chapter states in part that "... mitigation for the impact of transportation projects proposed by the Department of Transportation can be more effectively achieved by regional, long-range mitigation planning rather than on a project-by-project basis. It is the intent of the Legislature that mitigation to offset the adverse effects of these transportation projects be funded by the Department of Transportation and be carried out by the Department of Environmental Protection and the water management districts..."

Wetland impacts which will result from the construction of this project will be mitigated pursuant to Section 373.4137 FS to satisfy all mitigation requirements of Part IV Chapter 373, FS and 33 United States Code 1344. Under Section 373.4137 FS, mitigation of FDOT wetland impacts will be implemented by the appropriate water management district where the impacts occur. Each water management district has developed a regional wetland mitigation plan to address the estimated mitigation needs of FDOT. This plan is updated on an annual basis and approved by the Florida State Legislature. The water management district then provides wetland mitigation for specific FDOT project impacts through a corresponding mitigation project within the overall approved regional mitigation plan. It is anticipated that FDOT will provide funding to the SWFWMD for implementation of wetland mitigation required for this project.

## **SECTION 6**

### **PERMITTING AND REVIEW AGENCIES**

USACOE and the SWFWMD regulate wetlands within the project area. The USFWS, US Environmental Protection Agency (USEPA), NMFS, and the Florida Fish and Wildlife Conservation Commission (FFWCC) review and comment on wetland permit applications. It is currently anticipated that the following permits will be required for this project:

| <b><u>Permit</u></b>                                   | <b><u>Issuing Agency</u></b> |
|--|------------------------------|
| Individual Environmental Resource Permit (ERP)         | SWFWMD                       |
| Individual Section 404 Dredge and Fill Permit          | USACOE                       |
| National Pollutant Discharge Elimination System Permit | USEPA, FDEP                  |

Impacts to wetlands due to the construction of the Recommended Alternative are estimated at 5.64 ac. The SWFWMD requires an ERP when construction of any project results in the creation of a water management system or in impacts to waters of the state or isolated wetlands. Because the impacts associated with the project are greater than one acre, an Individual ERP will be required with mitigation for unavoidable wetland impacts.

For the USACOE, an Individual Permit for wetland impacts will also be required. An Individual Permit requires compliance with Section 404(b)(1) guidelines, including verification that all impacts have first been avoided to the greatest extent possible, that unavoidable impacts have been minimized to the greatest extent possible, and that unavoidable impacts have been mitigated in the form of wetlands creation, restoration, and/or enhancement.

Any project that results in the clearing of one or more acres of land will require a National Pollution Discharge Elimination System (NPDES) Permit from USEPA, pursuant to 40 CFR Parts 122 and 124. In association with this permit, a Stormwater Pollution Prevention Plan (SWPPP), which will be implemented during the construction of the project, will also be



required. The primary function of the NPDES requirements is to insure that sediment and erosion is controlled during construction of the project. These permits typically utilize Best Management Practices to ensure compliance.

Because Individual Permits will be required by both the SWFWMD and the USACOE, the permitting process is anticipated to require between 180 to 270 days.

## **SECTION 7**

### **CONCLUSIONS AND COMMITMENTS**

#### **7.1 CONCLUSIONS**

A total of 66 wetlands, 54 wetland ditches, and 5 open water areas represented by 8 individual FLUCFCS categories were identified in the study corridor. This represents a total of 155.58 ac of wetlands, 8.51 ac of ditches, and 2.82 ac of ponds/open water in the study area. A significant portion of these wetlands is isolated and/or fragmented along the roadway and has varying degrees of hydrologic alteration (dredging, filling or ditching), clearing of native vegetation, nuisance and/or exotic species in the understory, and water quality degradation due to historical and existing land use. However, there are also a number of larger forested wetland systems which are adjacent to large natural areas. Of the 66 wetland areas in the study corridor, 18 have the potential to be impacted by the Recommended Alternative. The impacts to these systems will be confined to the fringe of the wetland. Potential wetland impact acreage for the various alternatives studied ranged from 5.12 ac to 6.00 ac with the Recommended Alternative having 5.64 ac of wetland impact. No impacts are anticipated within Segment 6. The WRAP scores for the representative wetlands range from 0.49 to 0.83 with an average score of 0.61.

The proposed improvements are to an existing corridor and are confined primarily within the existing ROW. Because wetland habitats are within that ROW, impacts to wetlands are unavoidable if the needs of the project are to be met. The Recommended Alternative has 5.64 ac of wetland impact. During design every effort will be made to further minimize wetland impacts. Moreover, during construction of all phases, Best Management Practices will be implemented to minimize wetland impacts and to protect water quality in the project vicinity. However, during design every effort will be made to minimize wetland impacts. Moreover, during construction of all phases, Best Management Practices will be implemented to minimize wetland impacts and to protect water quality in the project vicinity.

Wetland impacts which will result from the construction of this project will be mitigated pursuant to Section 373.4137 FS to satisfy all mitigation requirements of Part IV Chapter 373, FS and 33 United States Code 1344.

## **7.2 COMMITMENTS**

The FDOT is committed to the following measures to address wetland impacts for the proposed project.

- The FDOT will continue coordination with the appropriate regulatory agencies throughout the PD&E Study. This Wetland Evaluation Report will be distributed to the appropriate regulatory agencies for review and comment.
- Best Management Practices will be incorporated during construction to minimize wetland impacts.
- Wetland impacts that will result from the construction of this project will be mitigated through the transfer of funds to the SWFWMD pursuant to Section 373.4137 FS to satisfy all mitigation requirements of Part IV, Chapter 373, FS and 33 United States Code 1344.

Based on the above considerations, it is determined that there is no practicable alternative to the proposed construction in wetlands and that the proposed action includes all practicable measures to minimize harm to wetlands which may result from such use.

## REFERENCES

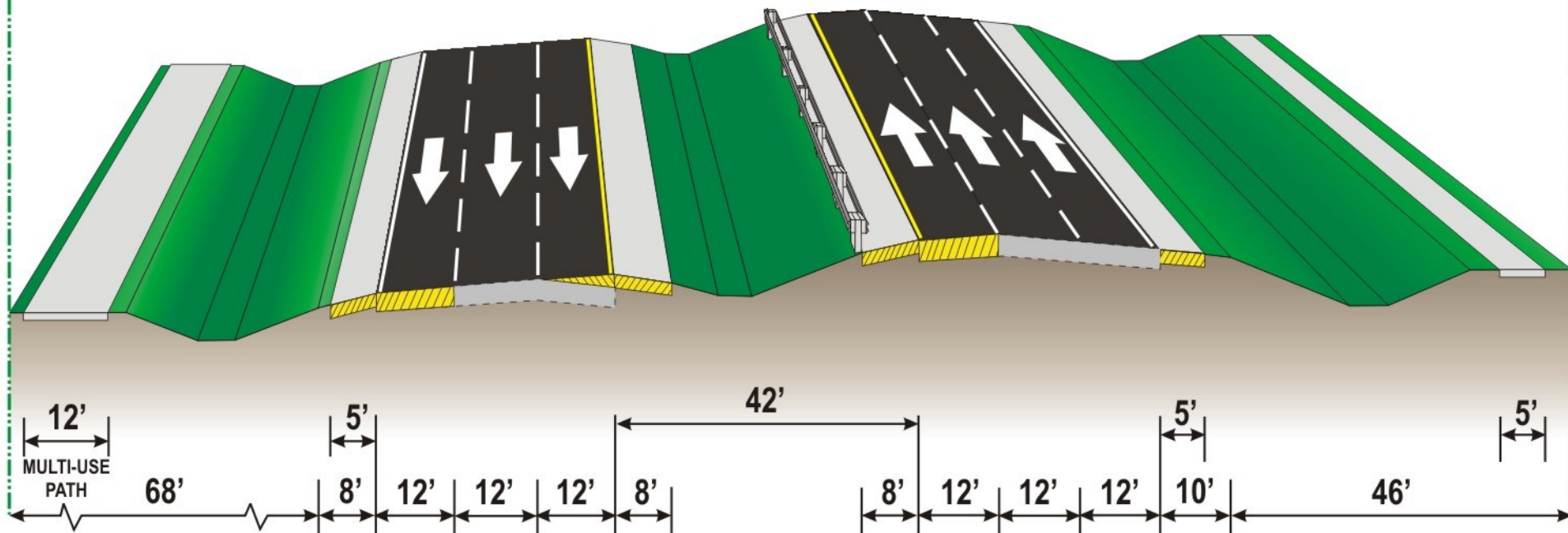
1. Citrus County Comprehensive Plan 1995-2020; Citrus County Department of Development Services; Lecanto, Florida, with revisions through December 14, 1999.
2. City of Crystal River Comprehensive Plan; Crystal River, Florida; adopted March 1998.
3. Final Traffic Report: Volume 2 - Future Conditions; From South of US 98 to CR 488; PBS&J; May 2004.
4. Final US 19 Action Plan Update; FDOT; URS Greiner Woodward Clyde; Citrus County; July 2000.
5. Citrus County Soil Survey, US Department of Agricultural, Natural Resources Conservation Service (NRCS) 1984
6. National Wetlands Inventory (NWI) Maps, US Fish and Wildlife Service (USFWS)
7. Topographic Quadrangle Maps, 7.5 minute series, US Geological Survey (USGS)
8. Florida Land Use, Cover and Forms Classification System. Florida Department of Transportation. (third ed.) 1999
9. Classification of Wetlands and Deepwater Habitats of the United States. Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. US Department of the Interior, Fish and Wildlife Service, Office of Biological Services. Technical Publication FWS/OBS-79/31. 131 pp.
10. Corps of Engineers Wetlands Delineation Manual. Environmental Laboratory. 1987. US Army Engineers Waterways Experiment Station, Vicksburg, MS. Technical Report Y-87-1. 169 pp.
11. Miller, Jr, R.E. and B.E. Gunsalus. 1997. *Wetland Rapid Assessment Procedure (WRAP)*. South Florida Water Management District. Technical Publication REG-001. 57 pp.

**APPENDIX A**

**Proposed Typical Sections**

# RECOMMENDED WIDENING TYPICAL SECTION

Existing 246' Right-of-Way



## SEGMENT 1 NORTH OF US 98 TO WEST GREEN ACRES STREET DESIGN SPEED 70 MPH

Notes: Widen Northbound to Median  
Widen Southbound to Outside

### LEGEND

- Proposed Widening
- Asphalt Overbuild
- Existing Pavement



## US 19 (SR 55) PD&E STUDY

From South of US 98 to CR 488  
Citrus County, Florida



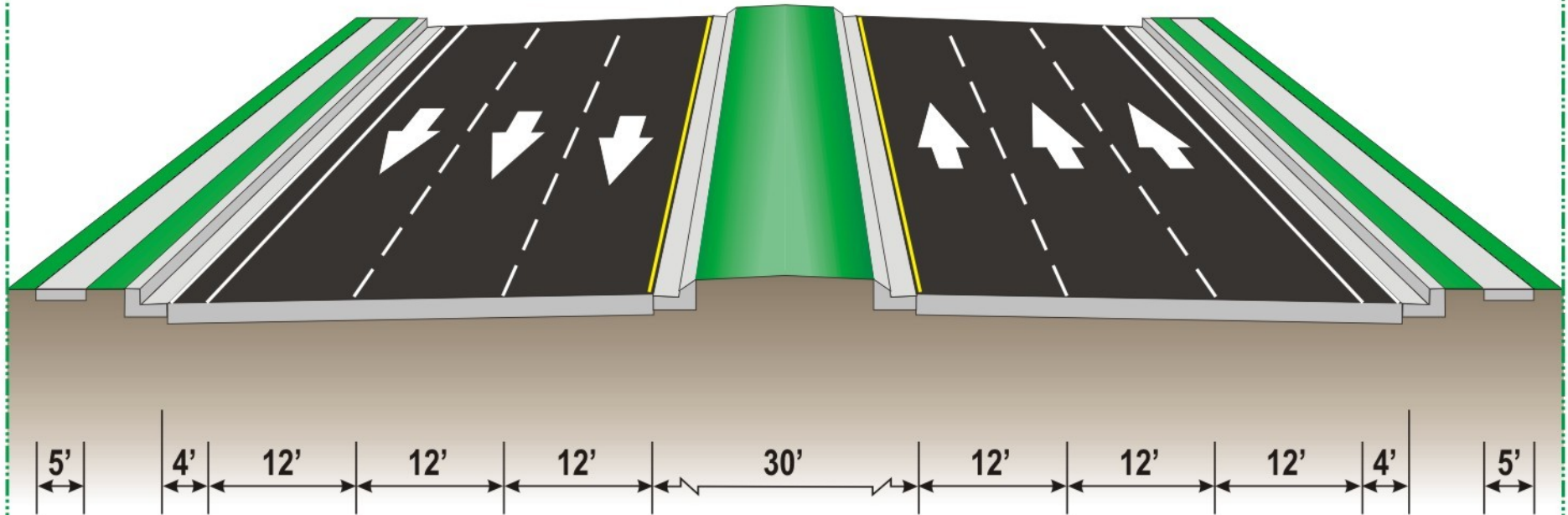
## RECOMMENDED WIDENING TYPICAL SECTION



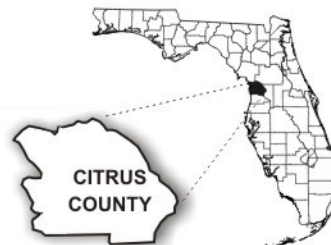
# RECOMMENDED TYPICAL SECTION

Existing 246' Right-of-Way (West Green Acres Street to West Yulee Drive)

Existing 160' Right-of-Way (West Elkhorn Drive to West Jump Court)



**SEGMENT 2**  
**WEST GREEN ACRES STREET TO WEST YULEE DRIVE (CR 490)**  
**AND WEST ELKHORN DRIVE TO WEST JUMP COURT**  
**DESIGN SPEED 50 MPH**



**US 19 (SR 55)**  
**PD&E STUDY**  
 From South of US 98 to CR 488  
 Citrus County, Florida

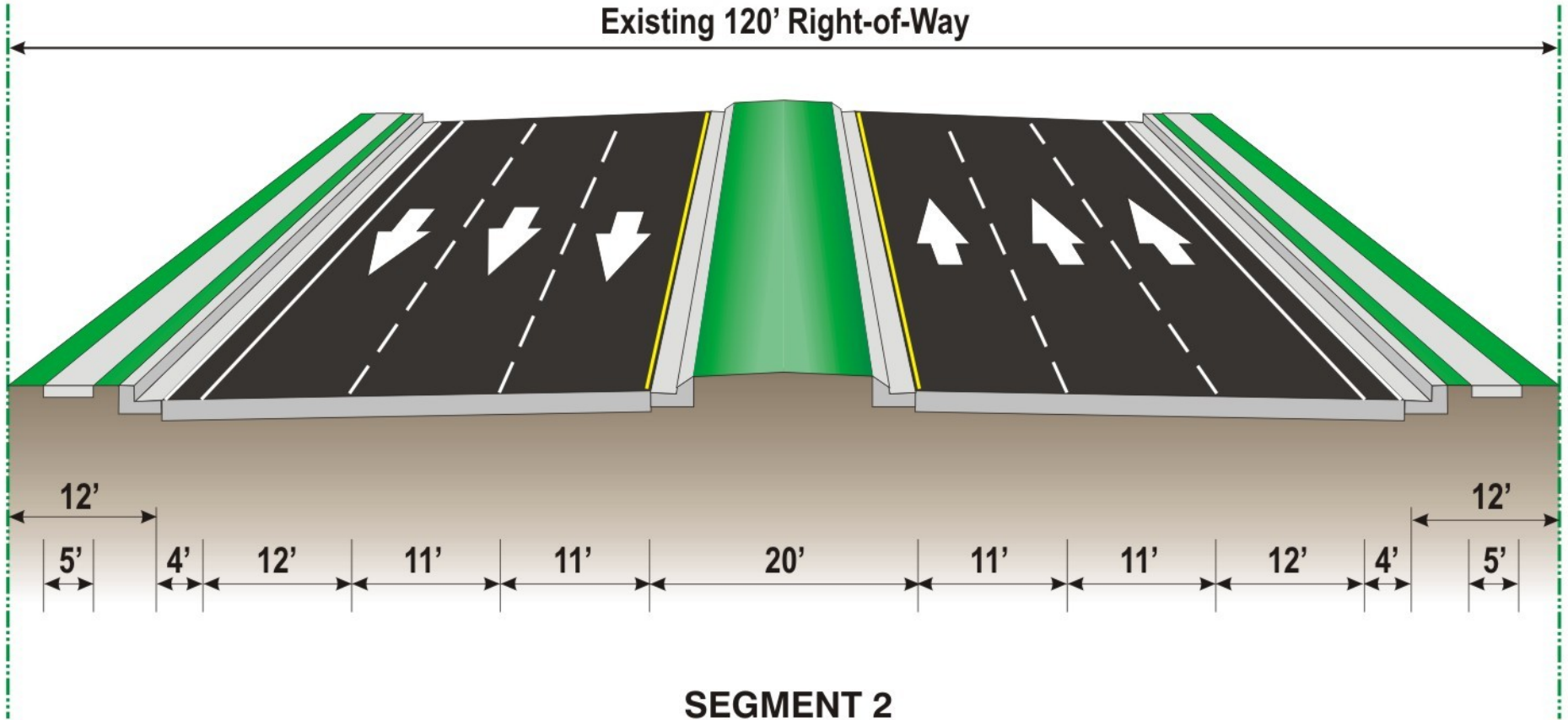


**RECOMMENDED TYPICAL SECTION**

WPI SEG NO: 405822 1  
 FAP: 1852 007 P

# RECOMMENDED TYPICAL SECTION

Existing 120' Right-of-Way



**SEGMENT 2**  
**WEST YULEE DRIVE (CR 490) TO WEST ELKHORN DRIVE (PORTION OF SEGMENT 2)**  
**DESIGN SPEED 50 MPH**

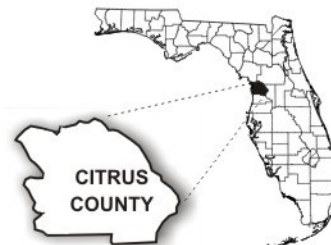
## US 19 (SR 55)

### PD&E STUDY

From South of US 98 to CR 488  
 Citrus County, Florida

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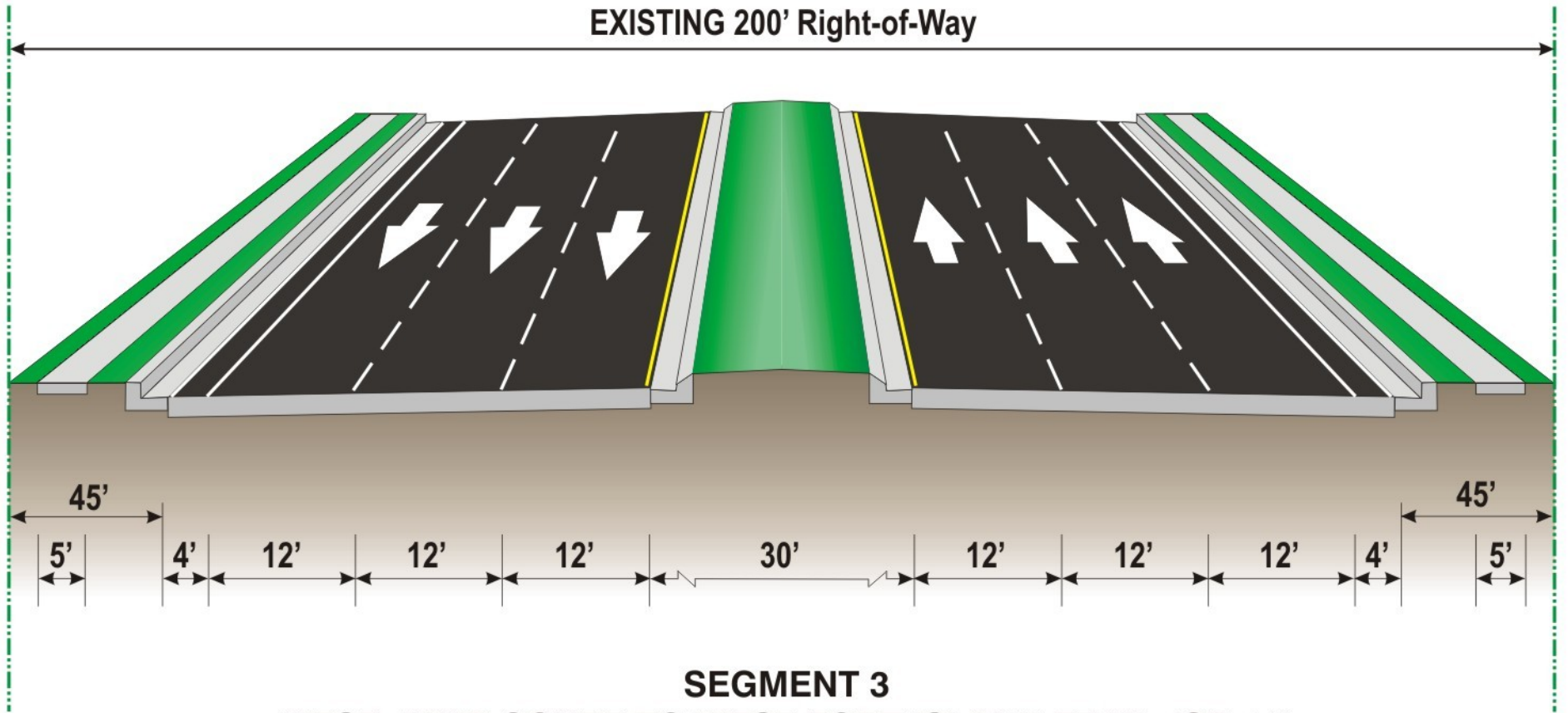
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# RECOMMENDED TYPICAL SECTION

EXISTING 200' Right-of-Way



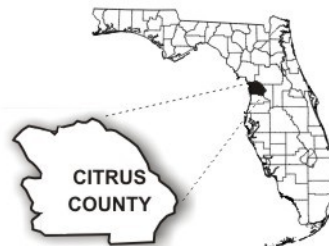
**SEGMENT 3**  
**WEST JUMP COURT TO WEST FORT ISLAND TRAIL (CR 44)**  
**DESIGN SPEED 50 MPH**

**US 19 (SR 55)**  
**PD&E STUDY**

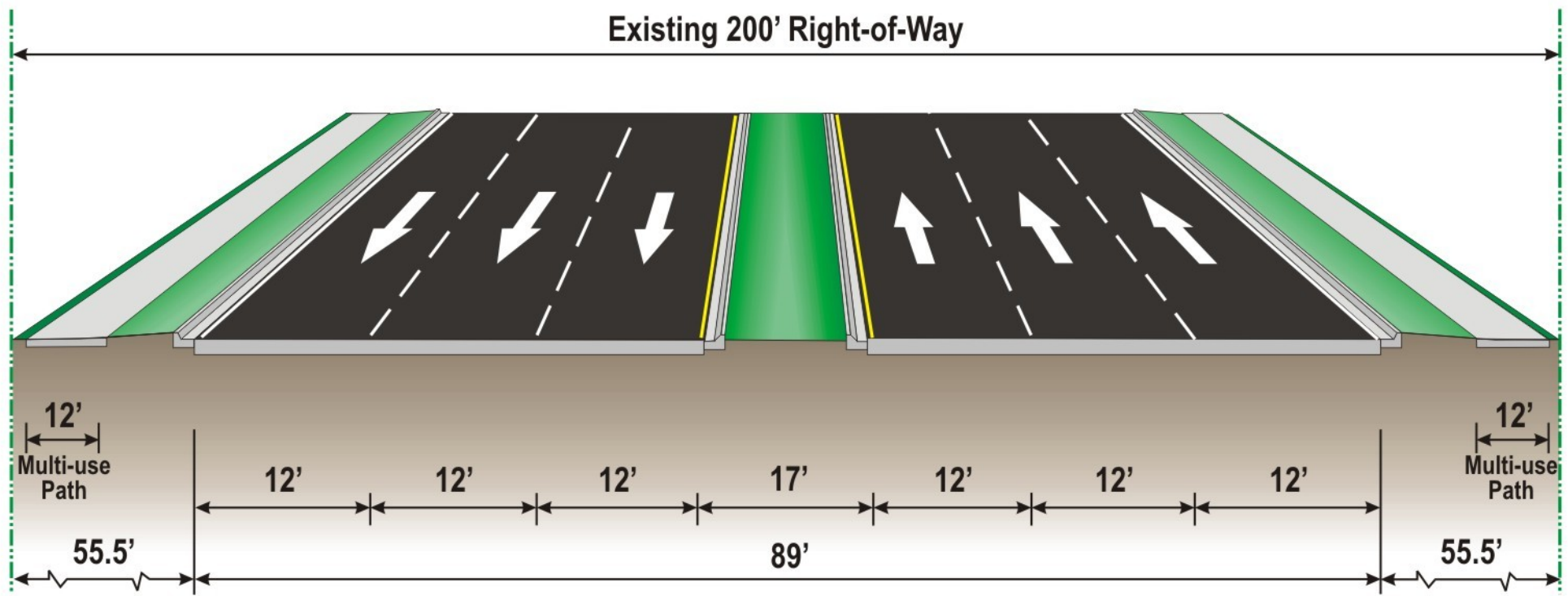
**From South of US 98 to CR 488**  
**Citrus County, Florida**

**RECOMMENDED TYPICAL SECTION**

WPI SEG NO: 405822 1  
 FAP: 1852 007 P



# RECOMMENDED TYPICAL SECTION



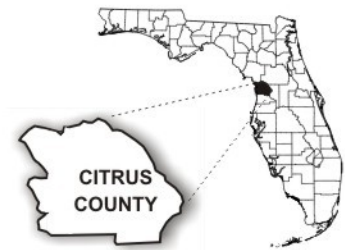
**SEGMENT 4**  
**WEST FORT ISLAND TRAIL (CR 44) TO NE 1ST TERRACE**  
**DESIGN SPEED 40 MPH**

**US 19 (SR 55)**  
**PD&E STUDY**

**From South of US 98 to CR 488**  
**Citrus County, Florida**

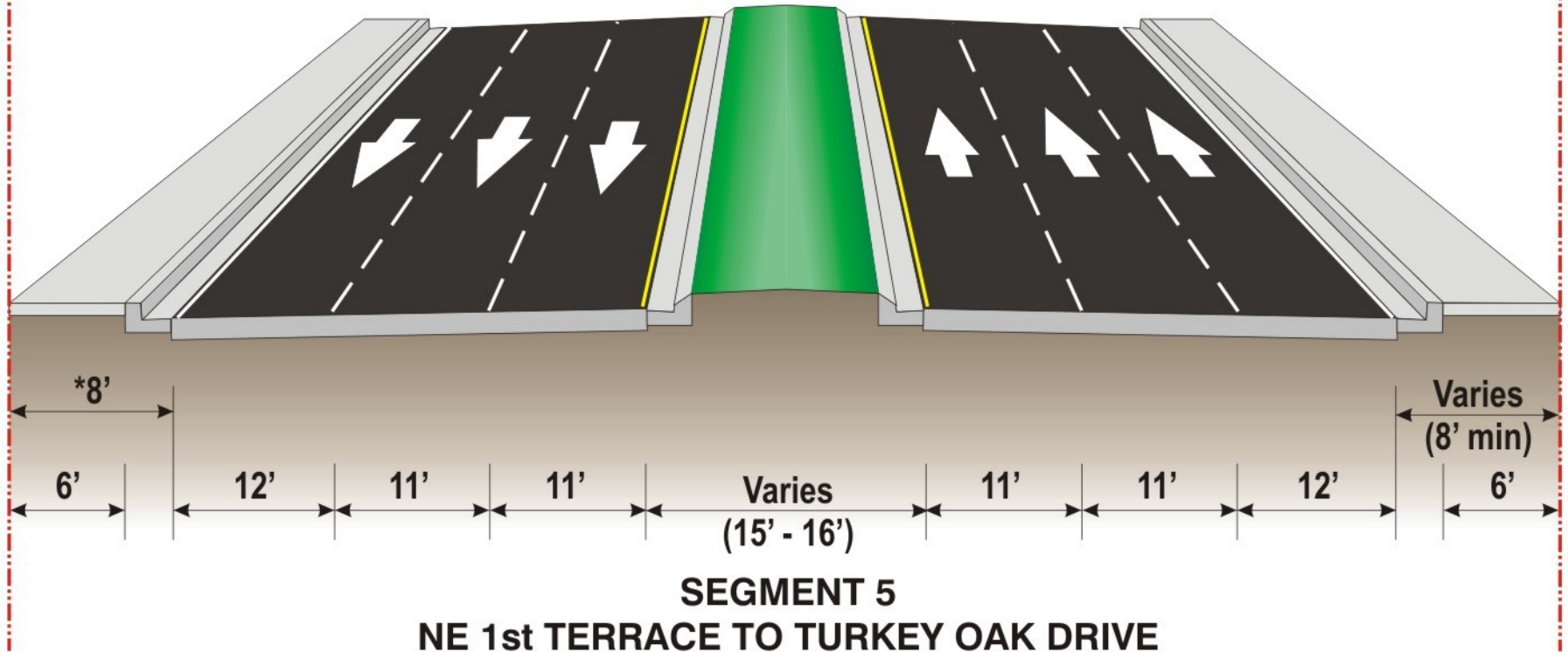
**RECOMMENDED TYPICAL SECTION**

WPI SEG NO: 405822 1  
 FAP: 1852 007 P



# RECOMMENDED TYPICAL SECTION

Right-of-Way Varies (100' min)



**SEGMENT 5**  
**NE 1st TERRACE TO TURKEY OAK DRIVE**  
**DESIGN SPEED 40 MPH**

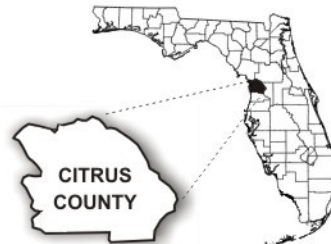
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**US 19 (SR 55)**  
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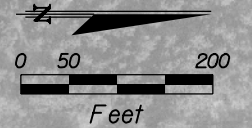
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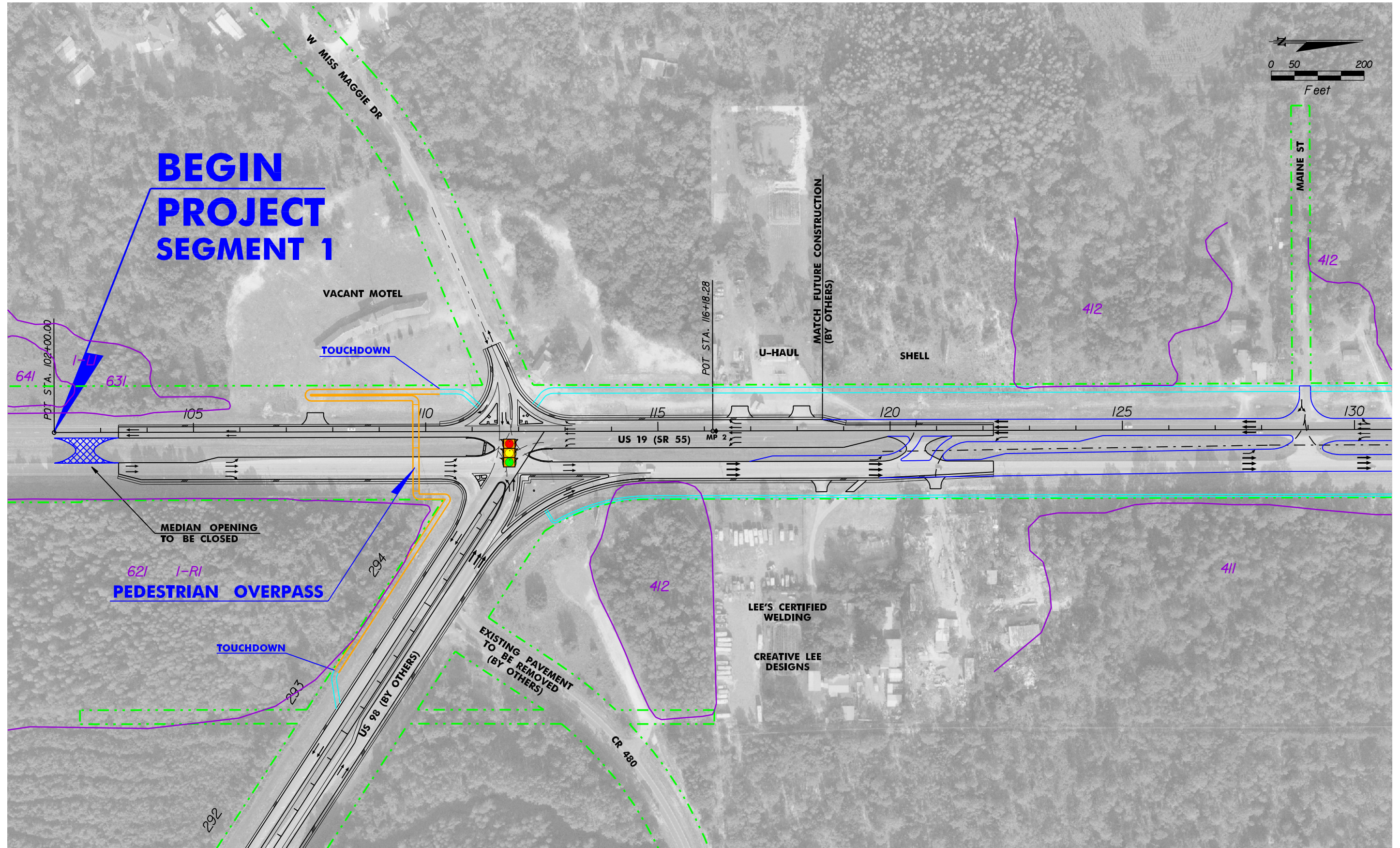


**APPENDIX B**

**Recommended Alternative Concept Plans**



# BEGIN PROJECT SEGMENT 1



## SEGMENT 1 RECOMMENDED ALTERNATIVE

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| PROPOSED PAVEMENT / CURB          | PROPOSED SIDEWALK OR MULTI-USE PATH |                       |                            |

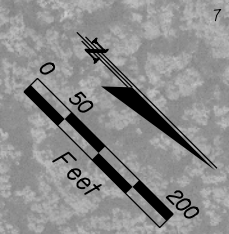


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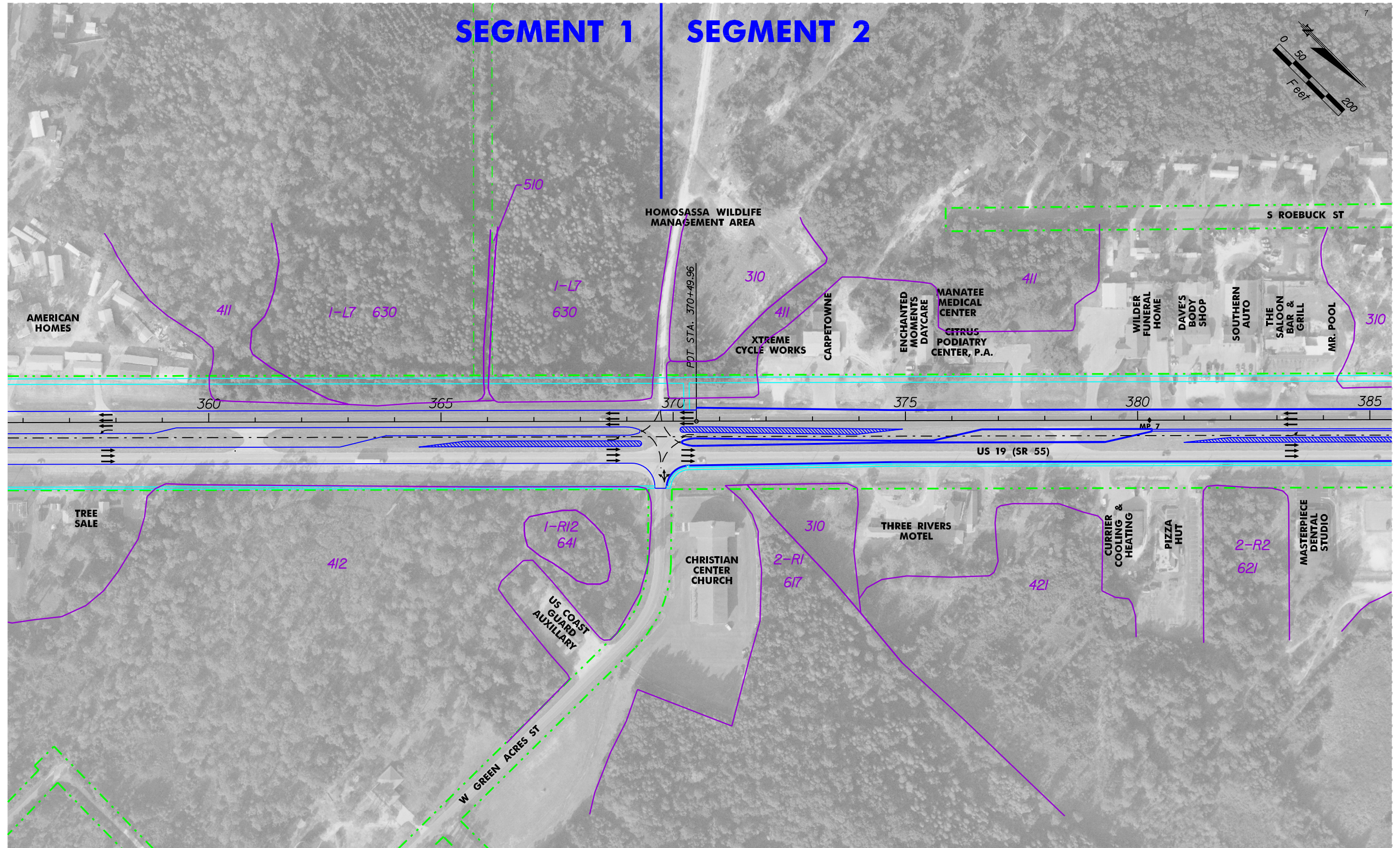
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**SEGMENT 1**      **SEGMENT 2**



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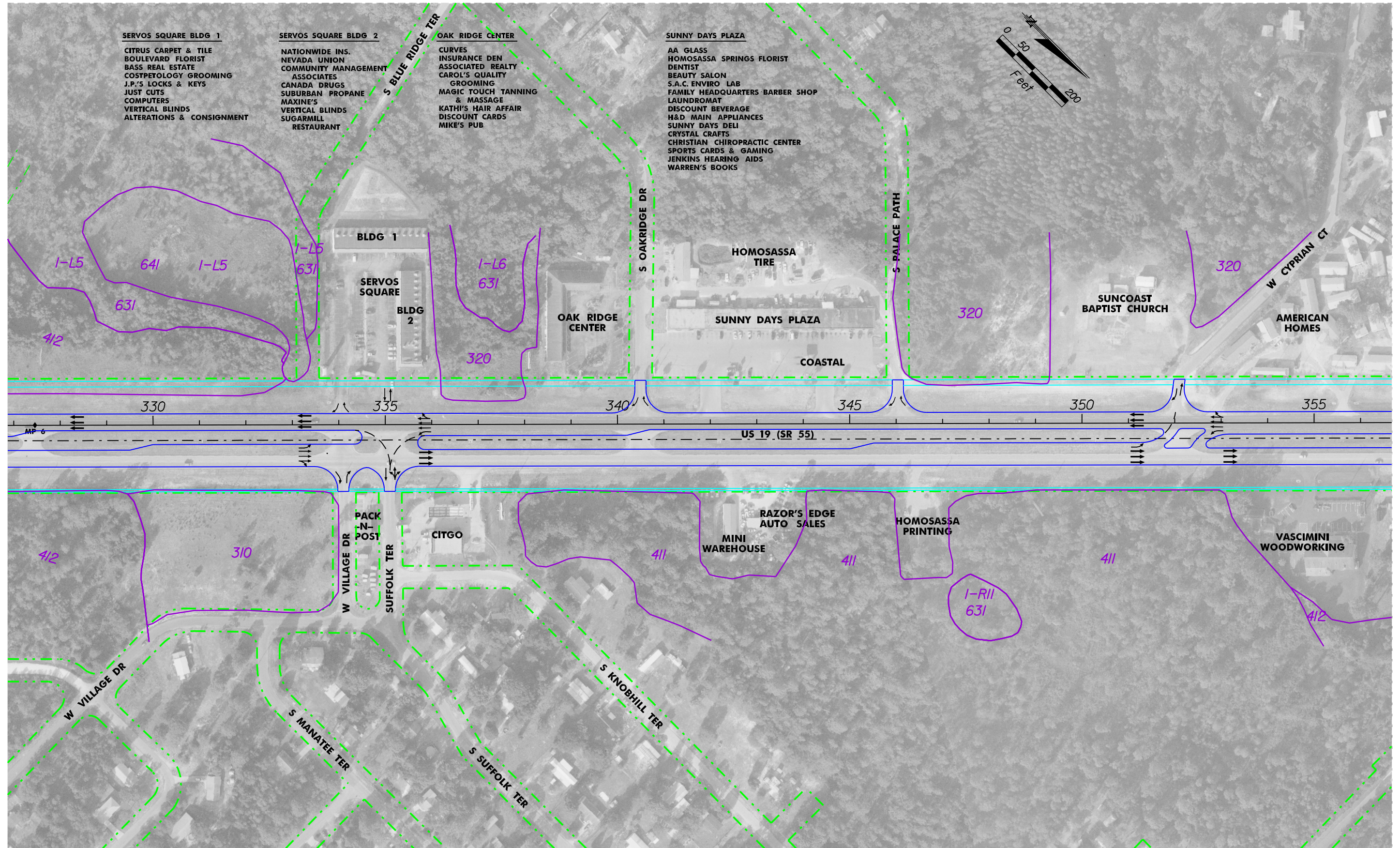
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| PROPOSED PAVEMENT / CURB          | BASELINE SURVEY MILEPOST   | PROPOSED SIDEWALK OR MULTI-USE PATH |                            |



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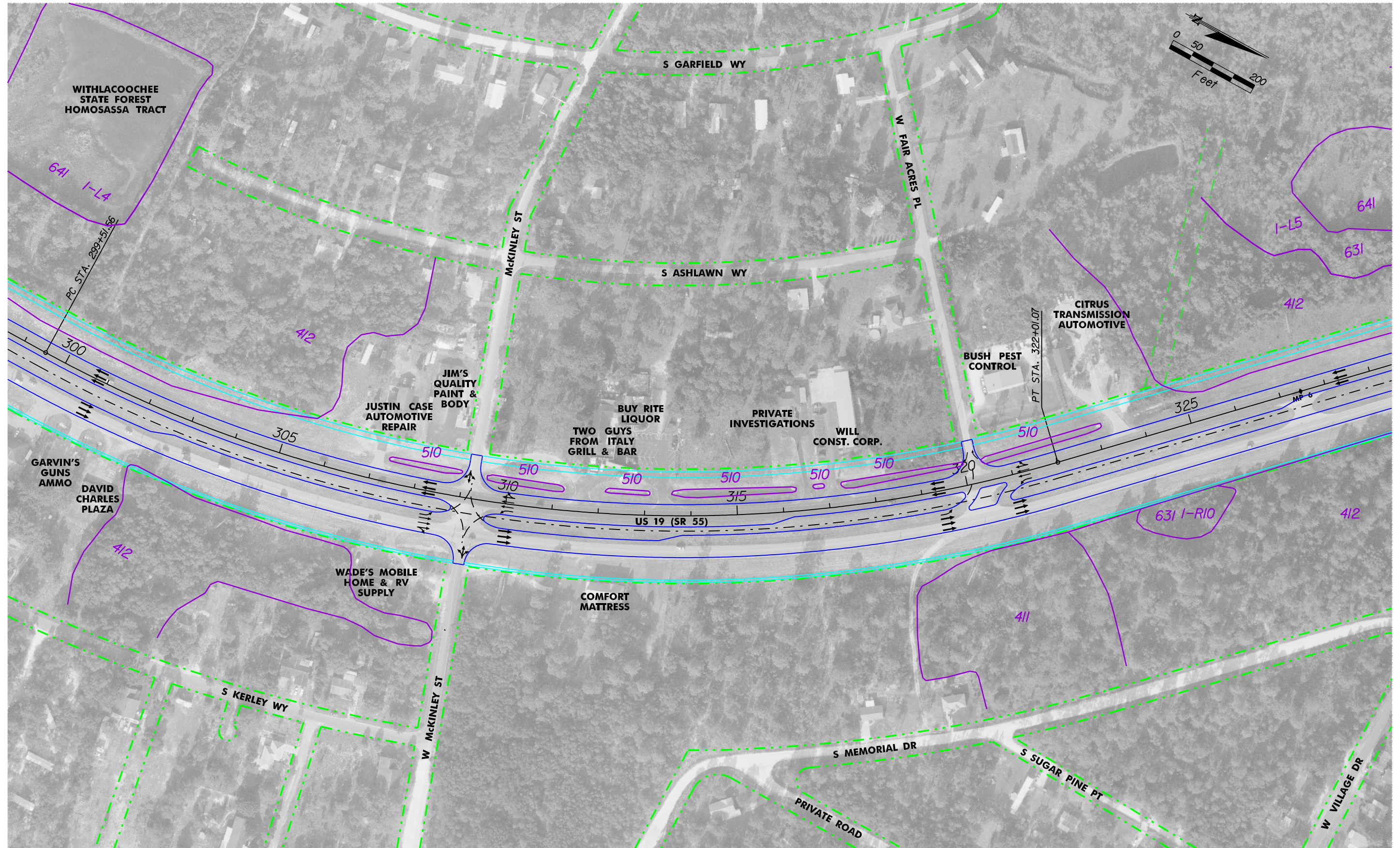
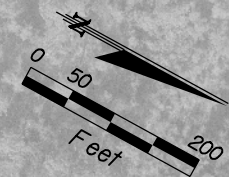
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| PROPOSED PAVEMENT / CURB          | BASELINE SURVEY MILEPOST   | PROPOSED SIDEWALK OR MULTI-USE PATH |                            |

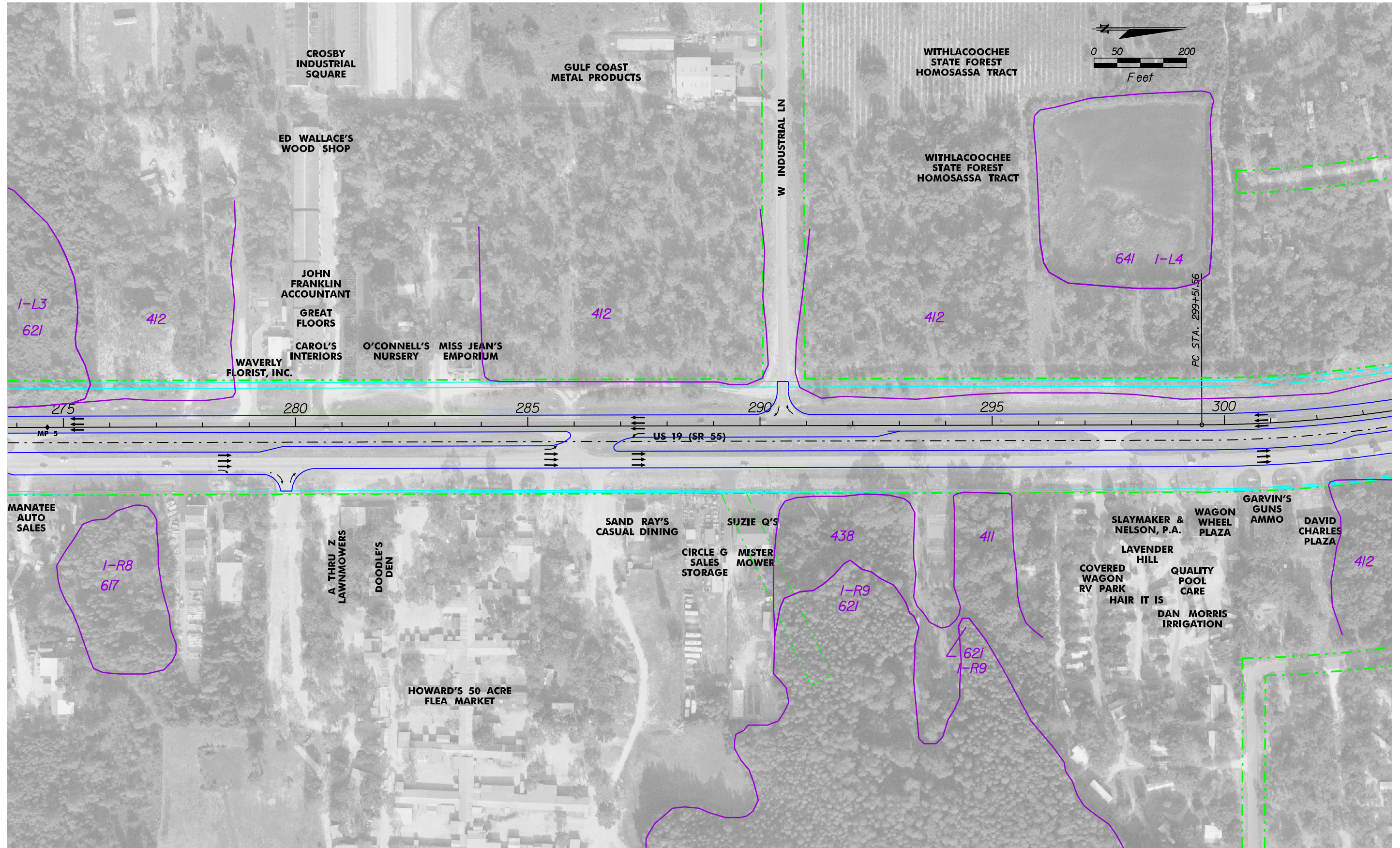
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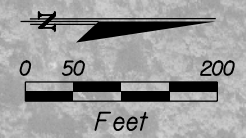
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| PROPOSED PAVEMENT / CURB          | PROPOSED SIDEWALK OR MULTI-USE PATH |                       |                            |

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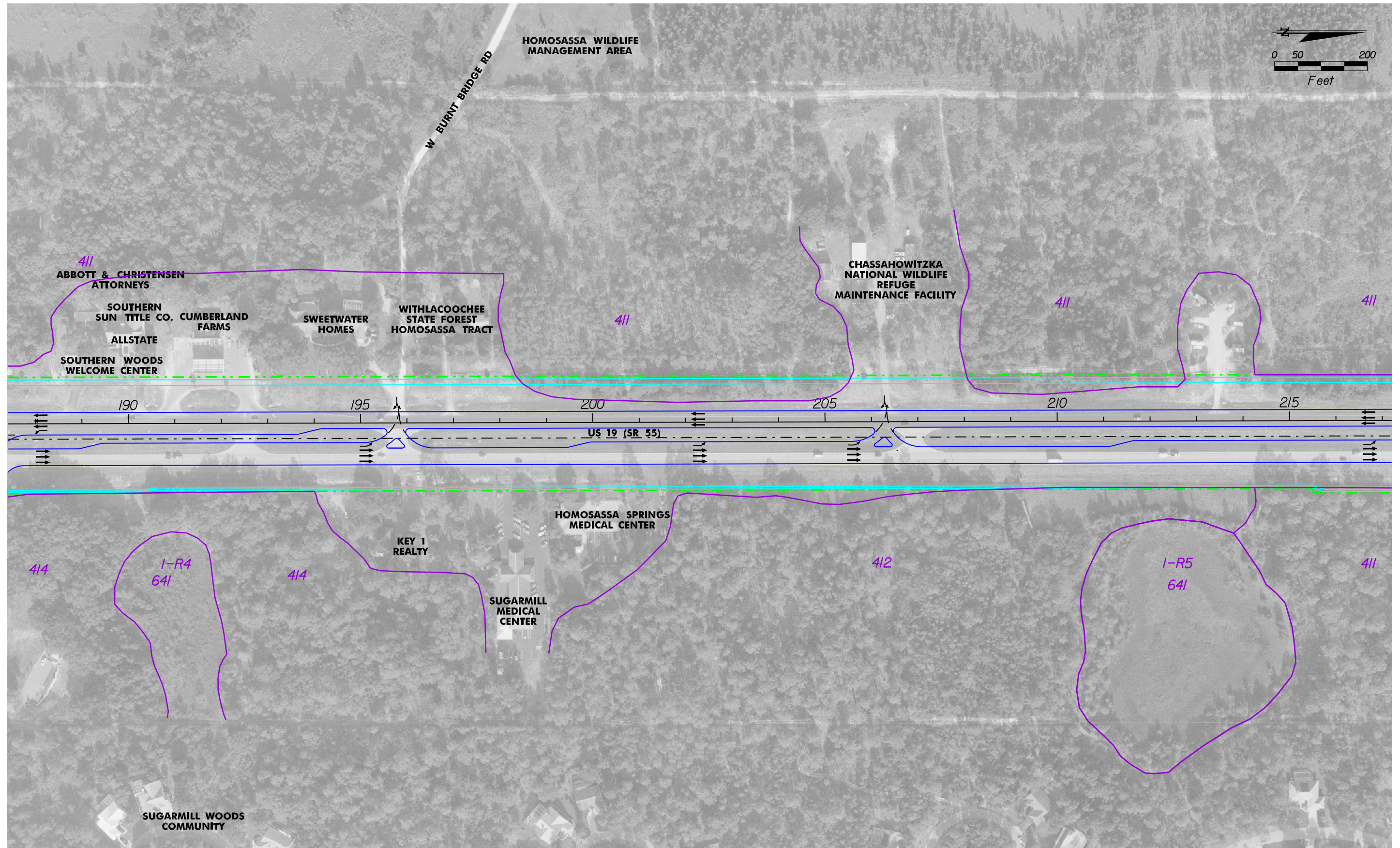
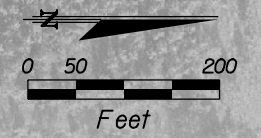


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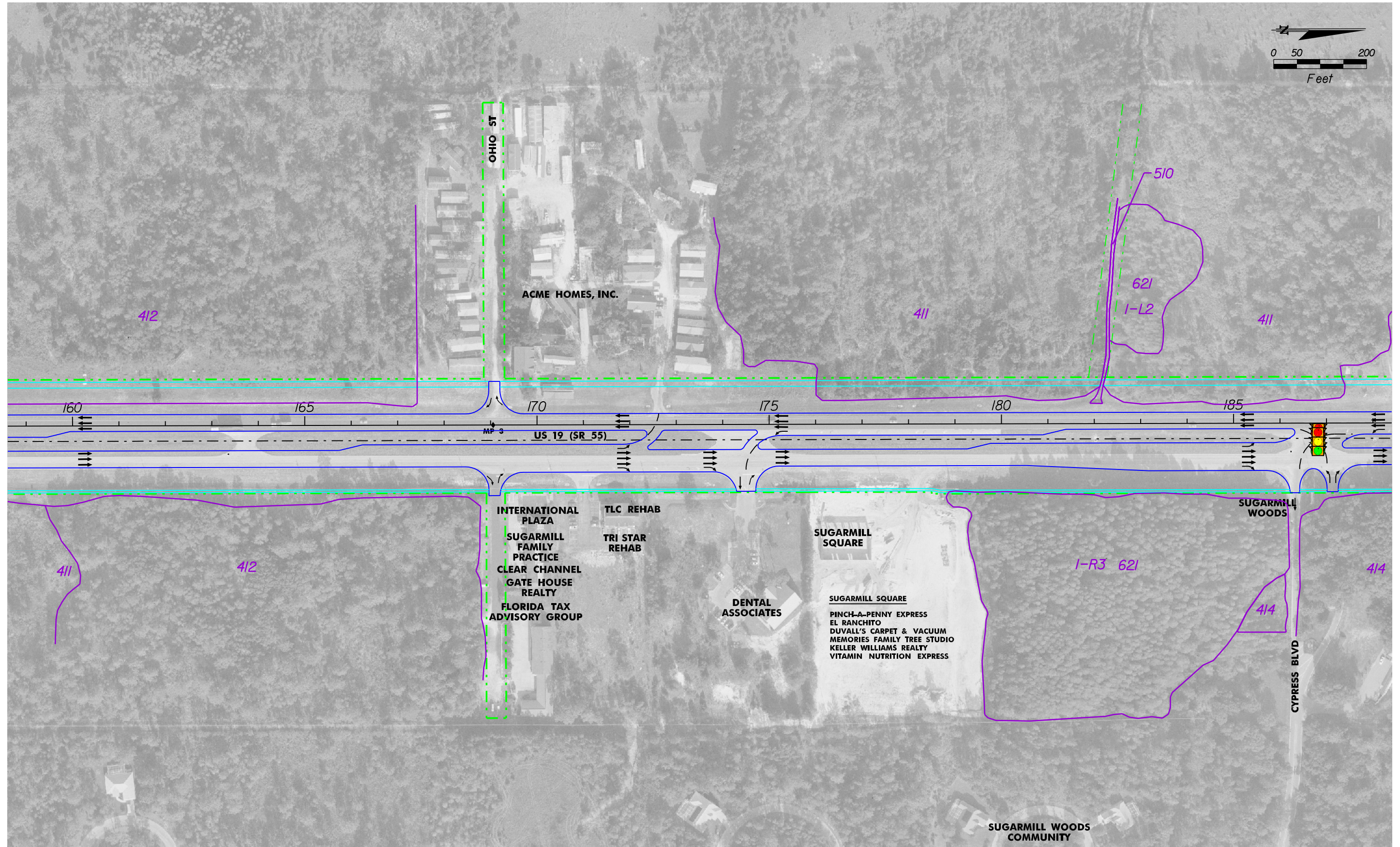
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- 120 BASELINE SURVEY MILEPOST
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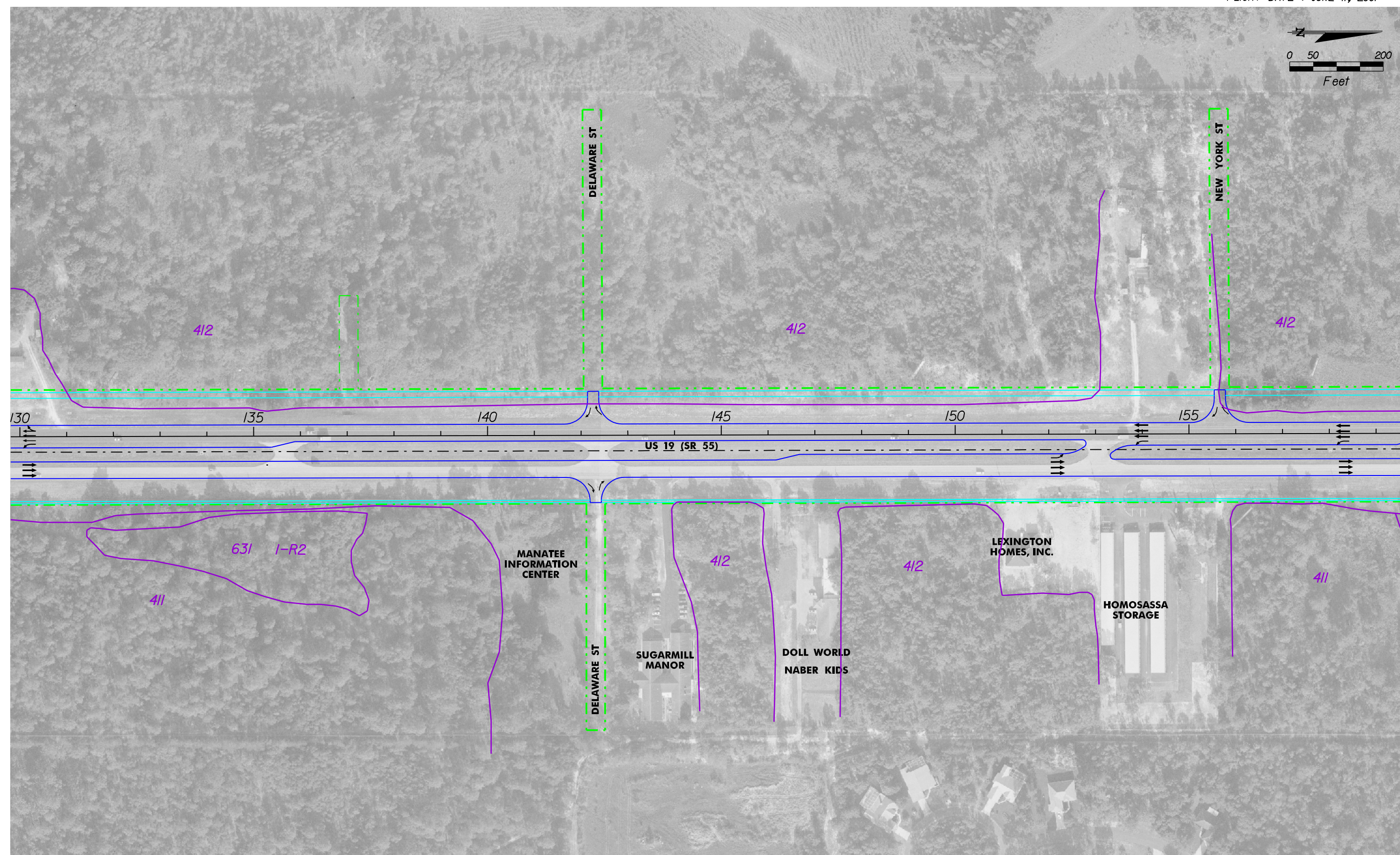
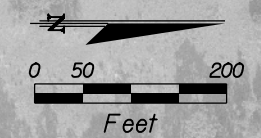


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- CENTERLINE OF CONSTRUCTION
- PROPOSED RIGHT OF WAY
- WETLANDS WITHIN STUDY AREA
- PROPOSED PAVEMENT / CURB
- PROPOSED SIDEWALK OR MULTI-USE PATH
- BASELINE SURVEY MILEPOST

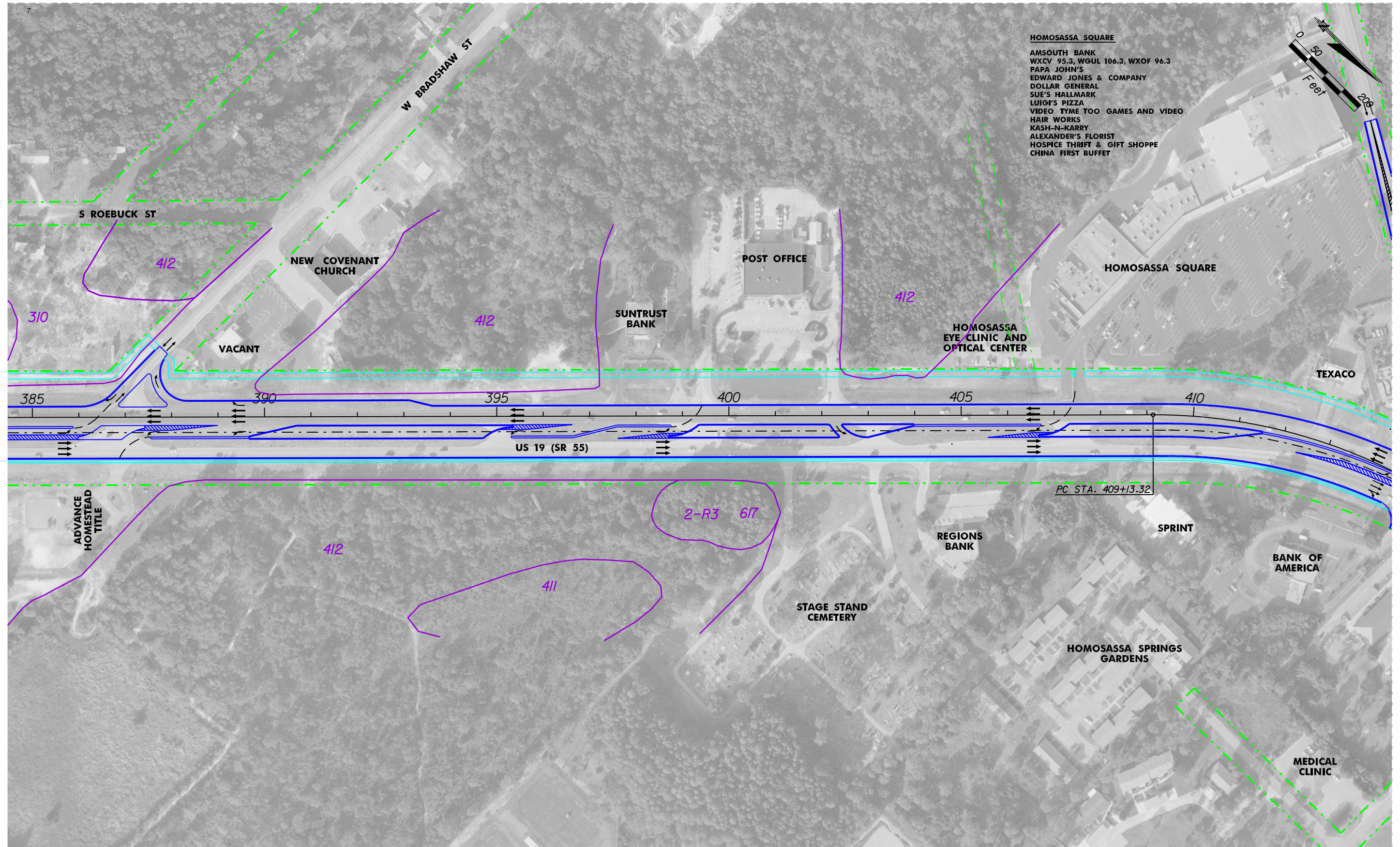
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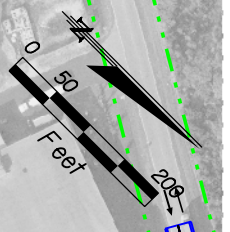
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  - WXCV 95.3, WGUL 106.3, WXOF 96.3
  - PAPA JOHN'S
  - EDWARD JONES & COMPANY
  - DOLLAR GENERAL
  - SUE'S HALLMARK
  - LUIGI'S PIZZA
  - VIDEO T/ME TOO GAMES AND VIDEO
  - HAIR WORKS
  - KASH-N-KARRY
  - ALEXANDER'S FLORIST
  - HOSPICE THRIFT & GIFT SHOPPE
  - CHINA FIRST BUFFET



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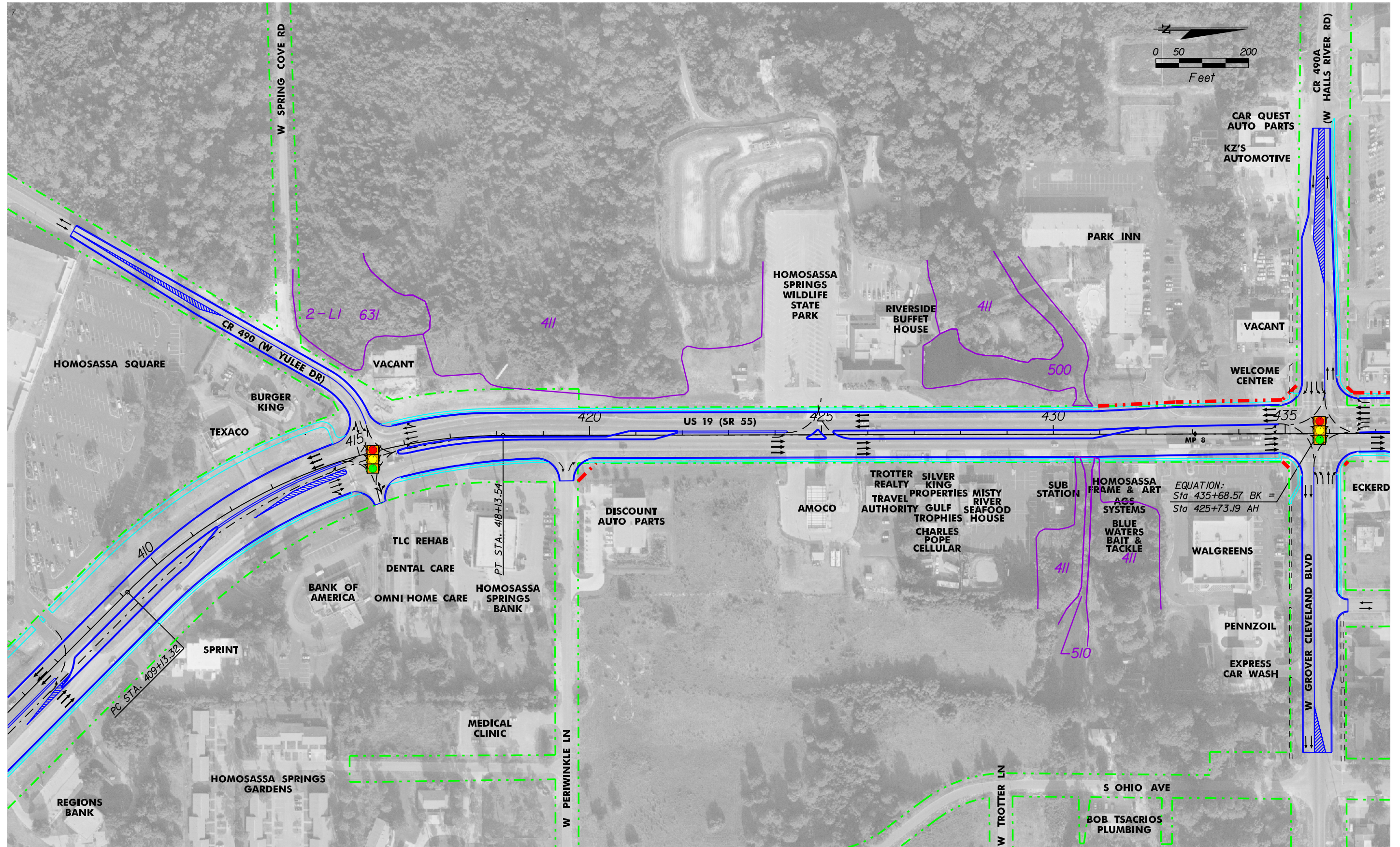
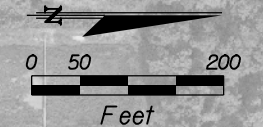
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| EXISTING RIGHT OF WAY OR EASEMENT | CENTERLINE OF CONSTRUCTION | PROPOSED RIGHT OF WAY               | WETLANDS WITHIN STUDY AREA |
| PROPOSED PAVEMENT / CURB          | BASELINE SURVEY MILEPOST   | PROPOSED SIDEWALK OR MULTI-USE PATH |                            |

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| ROAD NO.   | COUNTY | FINANCIAL PROJECT ID |
| SR 55  | CITRUS | 405822-1-22-01       |

**US 19 (SR 55) PD&E STUDY  
 FROM SOUTH OF US 98 TO CR 488  
 CITRUS COUNTY, FLORIDA**

|           |    |
|-----------|----|
| SHEET NO. | 11 |
|-----------|----|



**SEGMENT 2 RECOMMENDED ALTERNATIVE**

23-DEC-2004 11:08  
 P:\P10\leis\US19\Draw\_VDE\CADD\PlanSheets\Recommended\Plan02.dgn

- EXISTING RIGHT OF WAY OR EASEMENT
- CENTERLINE OF CONSTRUCTION
- PROPOSED RIGHT OF WAY
- WETLANDS WITHIN STUDY AREA
- PROPOSED PAVEMENT / CURB
- PROPOSED SIDEWALK OR MULTI-USE PATH
- BASELINE SURVEY MILEPOST

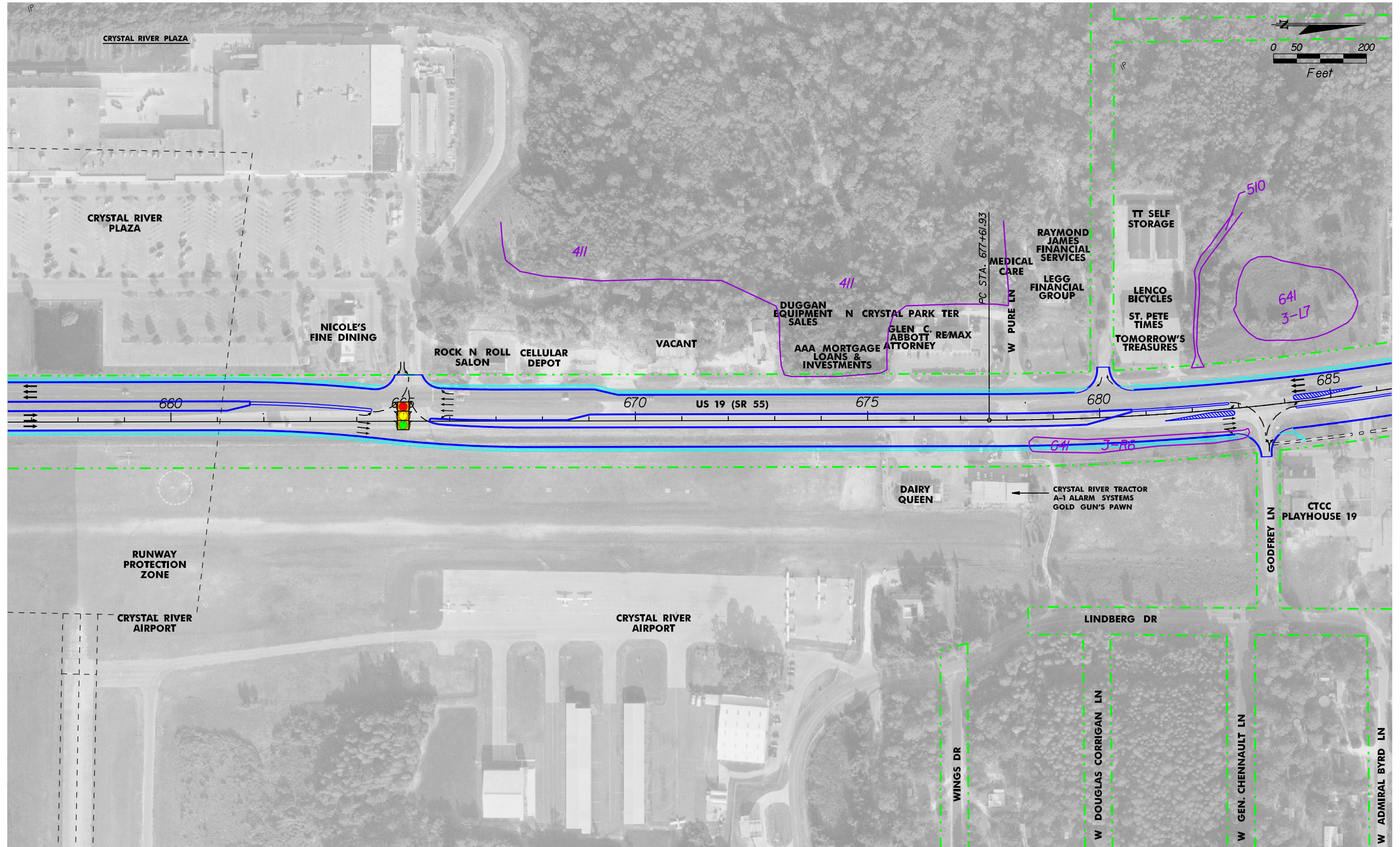
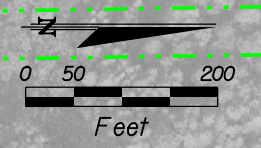
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**US 19 (SR 55) PD&E STUDY  
 FROM SOUTH OF US 98 TO CR 488  
 CITRUS COUNTY, FLORIDA**

SHEET NO.  
 12





**SEGMENT 3 RECOMMENDED ALTERNATIVE**

23-DEC-2004 11:40 P:\P10\leis\US19\Draw\_VDE\_CADD\PlanSheets\Recommendations\plan021.dgn

- EXISTING RIGHT OF WAY OR EASEMENT
- CENTERLINE OF CONSTRUCTION
- PROPOSED RIGHT OF WAY
- WETLANDS WITHIN STUDY AREA
- PROPOSED PAVEMENT / CURB
- PROPOSED SIDEWALK OR MULTI-USE PATH
- BASELINE SURVEY MILEPOST

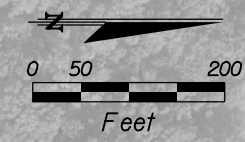


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**US 19 (SR 55) PD&E STUDY  
FROM SOUTH OF US 98 TO CR 488  
CITRUS COUNTY, FLORIDA**

SHEET NO.  
21



- CRYSTAL RIVER PLAZA
- BEALLS OUTLET
- TEMPORARY JOBS, INC.
- DOMINO'S
- MANATEE OFFICE SUPPLIES
- SPORTSTERS
- TLC REHAB
- GOODWILL
- ALL ABOUT YOU HAIR
- CHILD SUPPORT ENFORCEMENT
- STITCHING PLACE

**SEGMENT 3 RECOMMENDED ALTERNATIVE**

23-DEC-2004 11:47  
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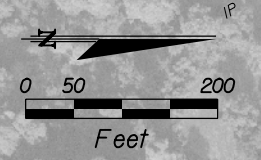
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|-----------------------------------|-------------------------------------|-----------------------|----------------------------|
| EXISTING RIGHT OF WAY OR EASEMENT | CENTERLINE OF CONSTRUCTION          | PROPOSED RIGHT OF WAY | WETLANDS WITHIN STUDY AREA |
| PROPOSED PAVEMENT / CURB          | PROPOSED SIDEWALK OR MULTI-USE PATH |                       |                            |

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**US 19 (SR 55) PD&E STUDY  
 FROM SOUTH OF US 98 TO CR 488  
 CITRUS COUNTY, FLORIDA**

|           |
|-----------|
| SHEET NO. |
| 20        |



**SEGMENT 3 RECOMMENDED ALTERNATIVE**

23-DEC-2004 11:40  
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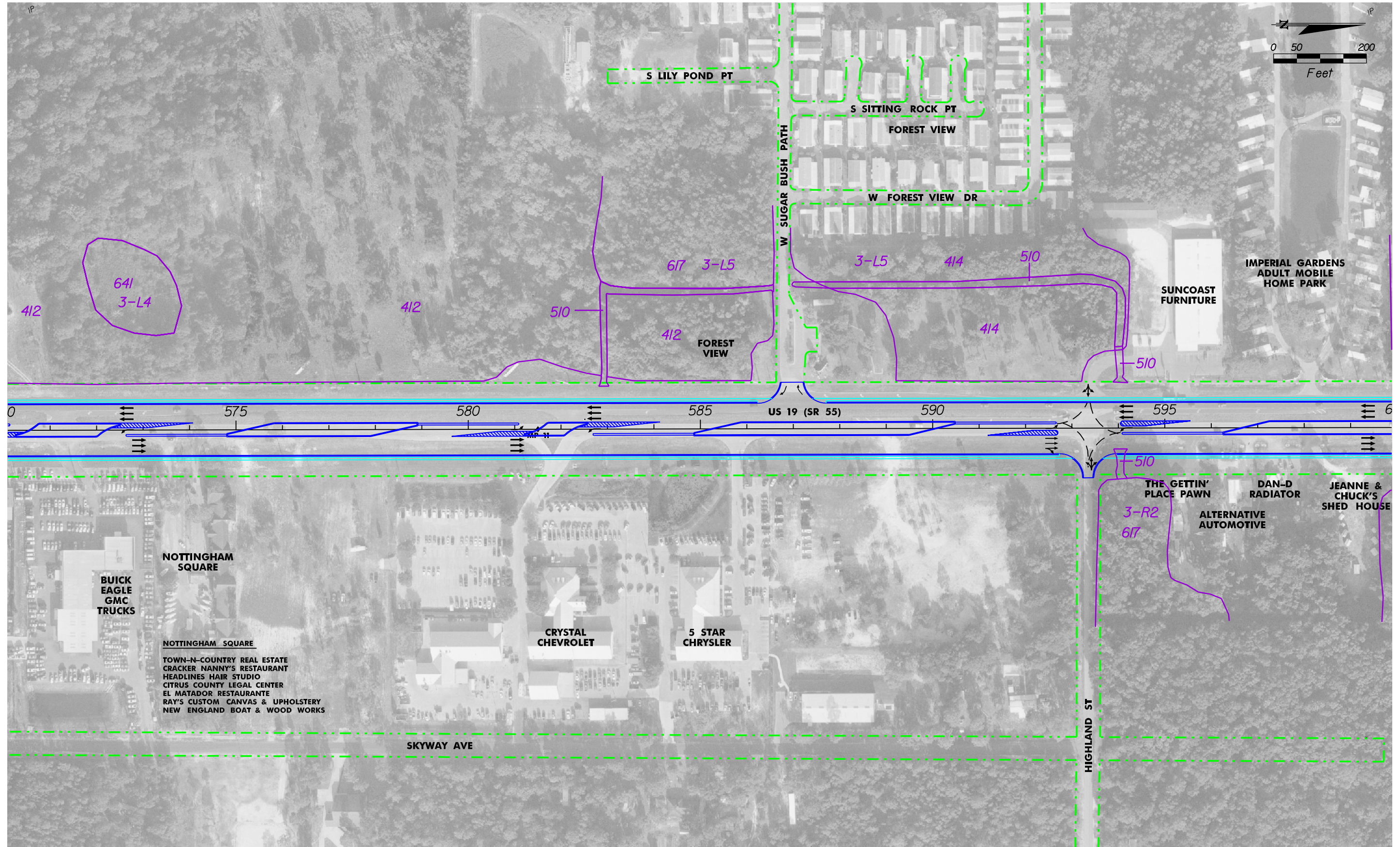
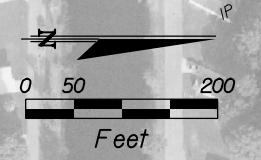
- EXISTING RIGHT OF WAY OR EASEMENT
- CENTERLINE OF CONSTRUCTION
- PROPOSED RIGHT OF WAY
- WETLANDS WITHIN STUDY AREA
- PROPOSED PAVEMENT / CURB
- PROPOSED SIDEWALK OR MULTI-USE PATH
- BASELINE SURVEY MILEPOST

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**US 19 (SR 55) PD&E STUDY  
 FROM SOUTH OF US 98 TO CR 488  
 CITRUS COUNTY, FLORIDA**

SHEET NO.  
 19



23-DEC-2004 11:40  
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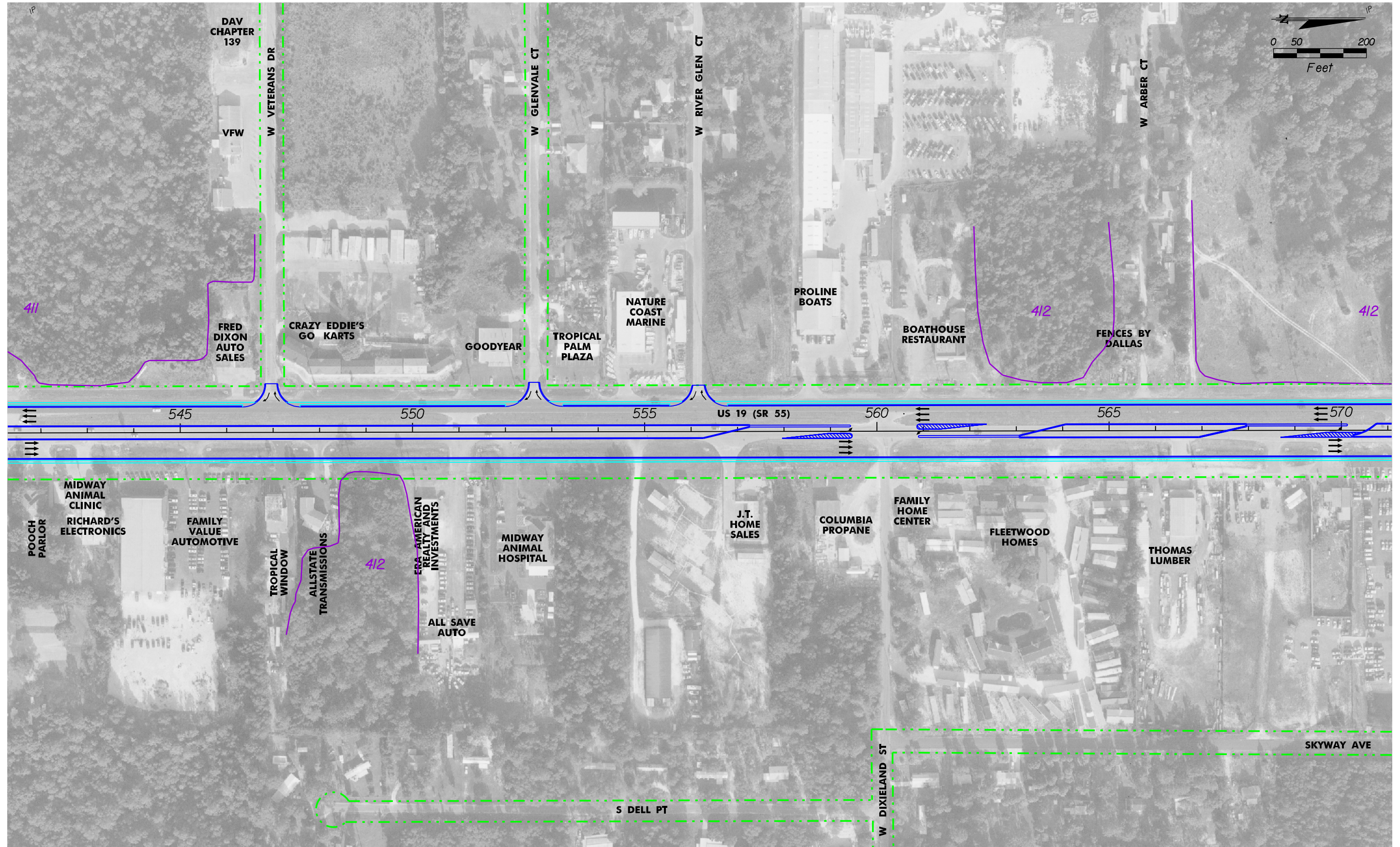
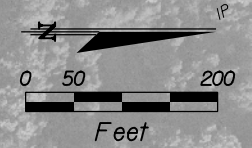
|                                   |                                     |                       |                            |
|-----------------------------------|-------------------------------------|-----------------------|----------------------------|
| EXISTING RIGHT OF WAY OR EASEMENT | CENTERLINE OF CONSTRUCTION          | PROPOSED RIGHT OF WAY | WETLANDS WITHIN STUDY AREA |
| PROPOSED PAVEMENT / CURB          | PROPOSED SIDEWALK OR MULTI-USE PATH |                       |                            |

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**US 19 (SR 55) PD&E STUDY  
 FROM SOUTH OF US 98 TO CR 488  
 CITRUS COUNTY, FLORIDA**

SHEET NO.  
 18



**SEGMENT 3 RECOMMENDED ALTERNATIVE**

23-DEC-2004 11:40 P:\P10\GIS\US19\17a\_VDE\_CADD\PlanSheets\Recommended\17a\plan17a.dgn

- EXISTING RIGHT OF WAY OR EASEMENT
- CENTERLINE OF CONSTRUCTION
- PROPOSED RIGHT OF WAY
- WETLANDS WITHIN STUDY AREA
- PROPOSED PAVEMENT / CURB
- PROPOSED SIDEWALK OR MULTI-USE PATH
- 120 BASELINE SURVEY MILEPOST
- MP 3

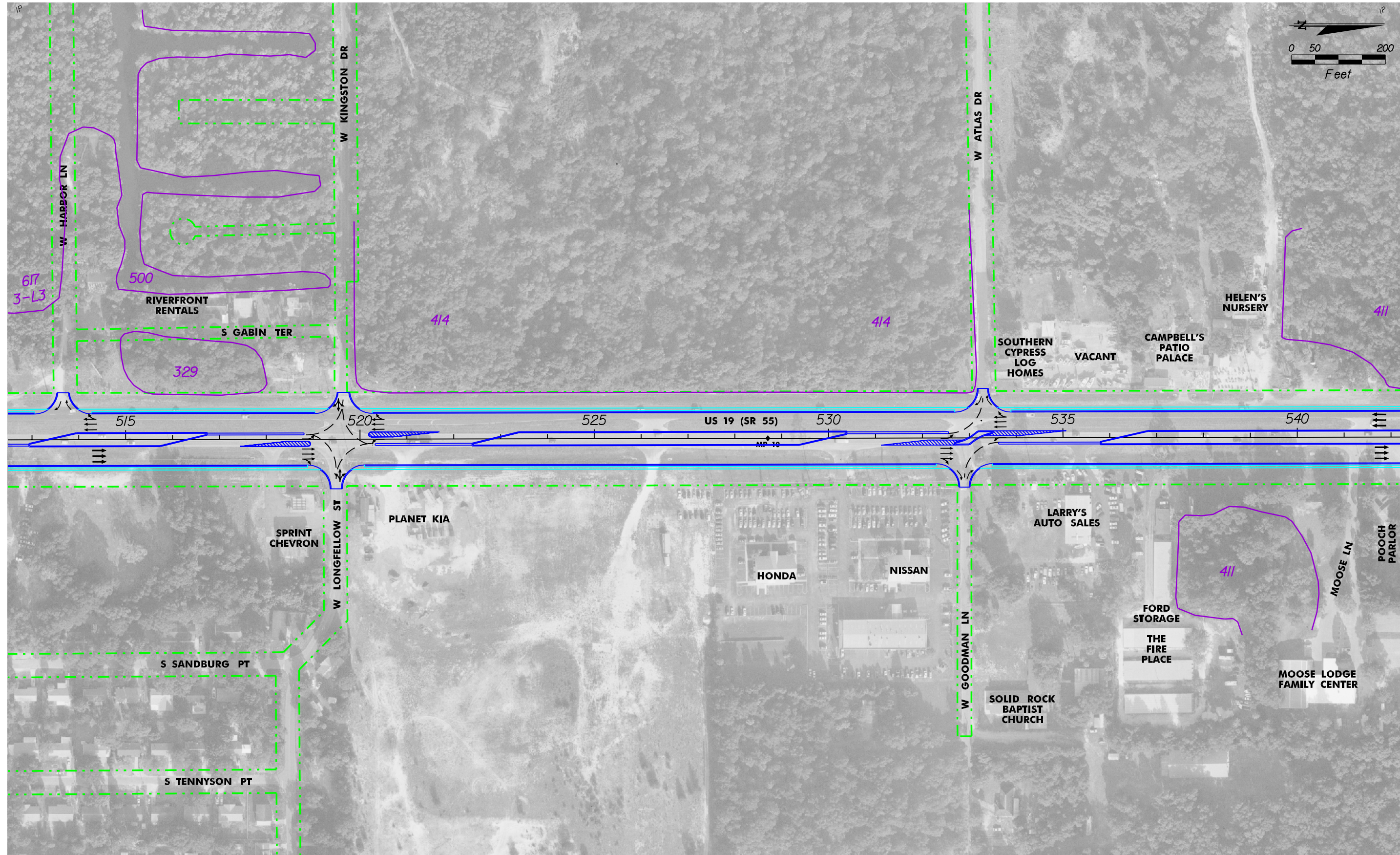
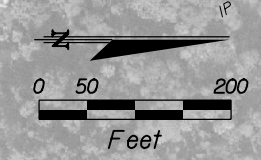


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**US 19 (SR 55) PD&E STUDY  
FROM SOUTH OF US 98 TO CR 488  
CITRUS COUNTY, FLORIDA**

SHEET NO.  
17



23-DEC-2004 11:09  
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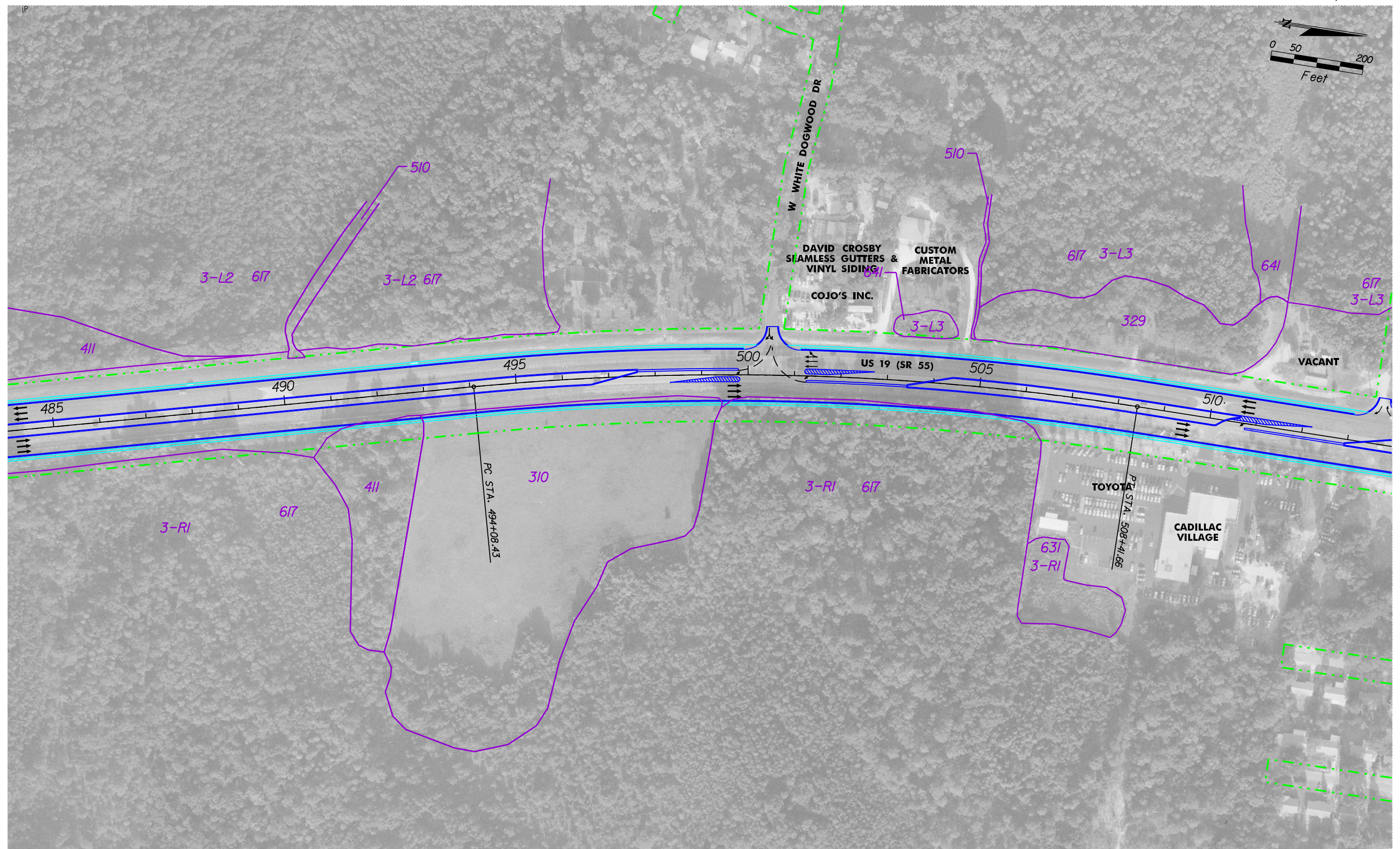
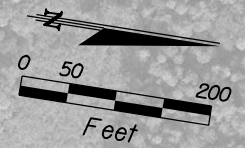
|                                   |                                     |                       |                            |
|-----------------------------------|-------------------------------------|-----------------------|----------------------------|
| EXISTING RIGHT OF WAY OR EASEMENT | CENTERLINE OF CONSTRUCTION          | PROPOSED RIGHT OF WAY | WETLANDS WITHIN STUDY AREA |
| PROPOSED PAVEMENT / CURB          | PROPOSED SIDEWALK OR MULTI-USE PATH |                       |                            |

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**US 19 (SR 55) PD&E STUDY  
 FROM SOUTH OF US 98 TO CR 488  
 CITRUS COUNTY, FLORIDA**

SHEET NO.  
 16



**SEGMENT 3 RECOMMENDED ALTERNATIVE**

23-DEC-2004 11:09  
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|                                   |                                     |                       |                            |
|-----------------------------------|-------------------------------------|-----------------------|----------------------------|
| EXISTING RIGHT OF WAY OR EASEMENT | CENTERLINE OF CONSTRUCTION          | PROPOSED RIGHT OF WAY | WETLANDS WITHIN STUDY AREA |
| PROPOSED PAVEMENT / CURB          | PROPOSED SIDEWALK OR MULTI-USE PATH |                       |                            |

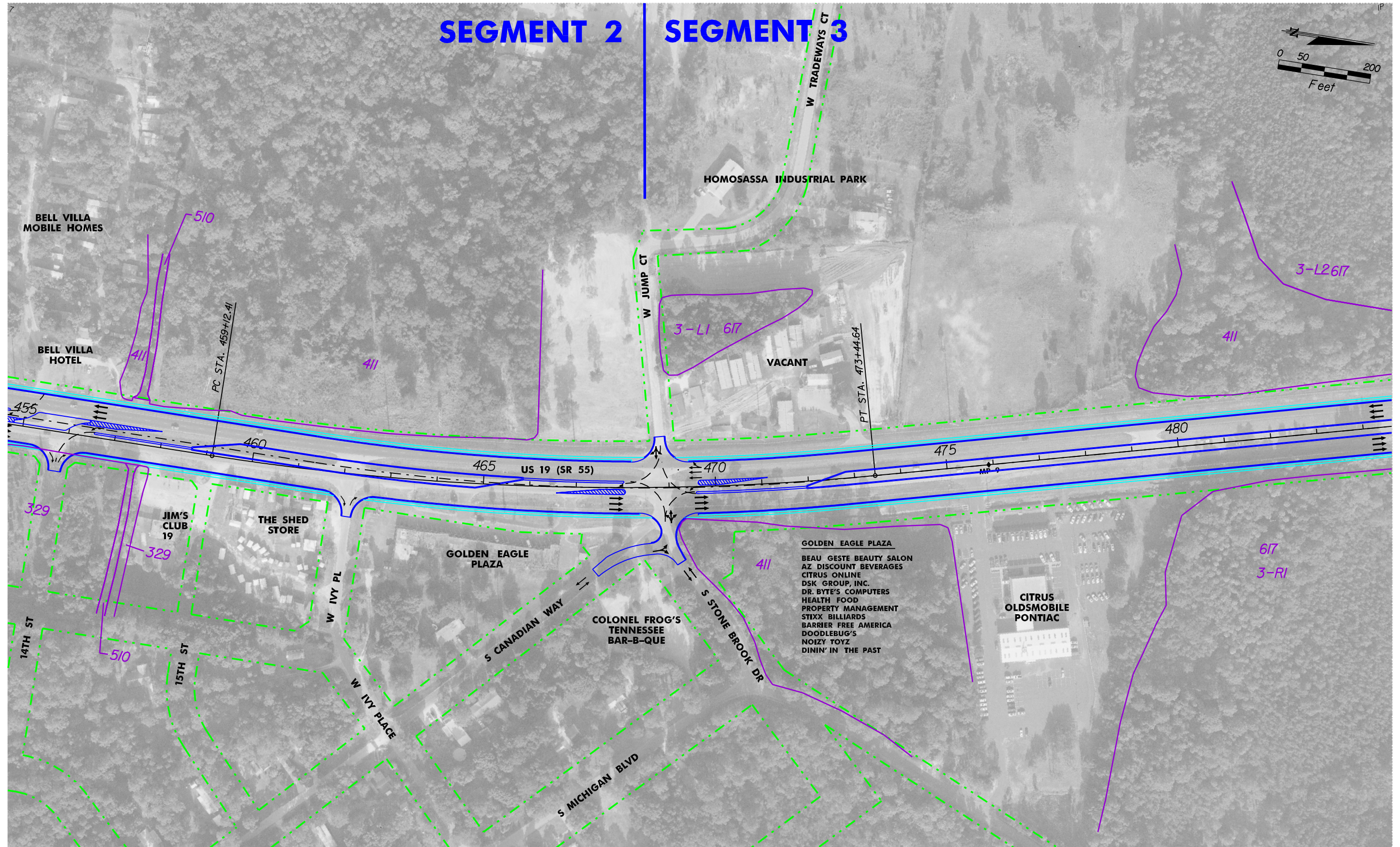
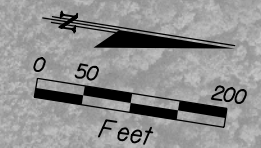
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**US 19 (SR 55) PD&E STUDY  
 FROM SOUTH OF US 98 TO CR 488  
 CITRUS COUNTY, FLORIDA**

|           |
|-----------|
| SHEET NO. |
| 15        |

**SEGMENT 2      SEGMENT 3**



**SEGMENT 2 RECOMMENDED ALTERNATIVE**

23-DEC-2004 11:09 P:\P\1015\US19\SR55\CD\PlanSheets\Recommended\Wetlands\planr014.dgn

|                                   |                                     |                       |                            |
|-----------------------------------|-------------------------------------|-----------------------|----------------------------|
| EXISTING RIGHT OF WAY OR EASEMENT | CENTERLINE OF CONSTRUCTION          | PROPOSED RIGHT OF WAY | WETLANDS WITHIN STUDY AREA |
| PROPOSED PAVEMENT / CURB          | PROPOSED SIDEWALK OR MULTI-USE PATH |                       |                            |

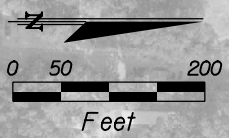
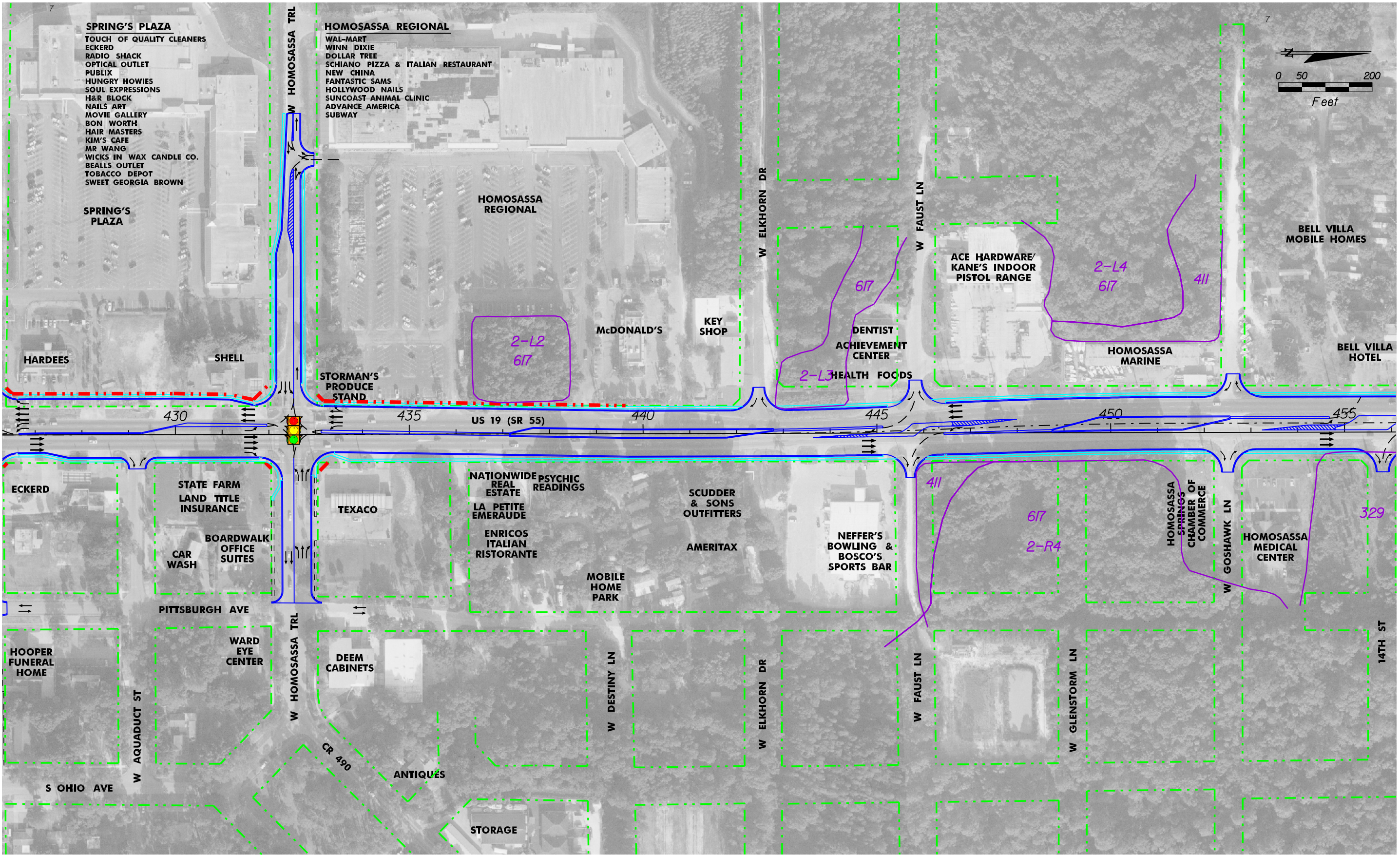
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**US 19 (SR 55) PD&E STUDY  
 FROM SOUTH OF US 98 TO CR 488  
 CITRUS COUNTY, FLORIDA**

SHEET NO.  
14





**SEGMENT 2 RECOMMENDED ALTERNATIVE**

23-DEC-2004 11:09  
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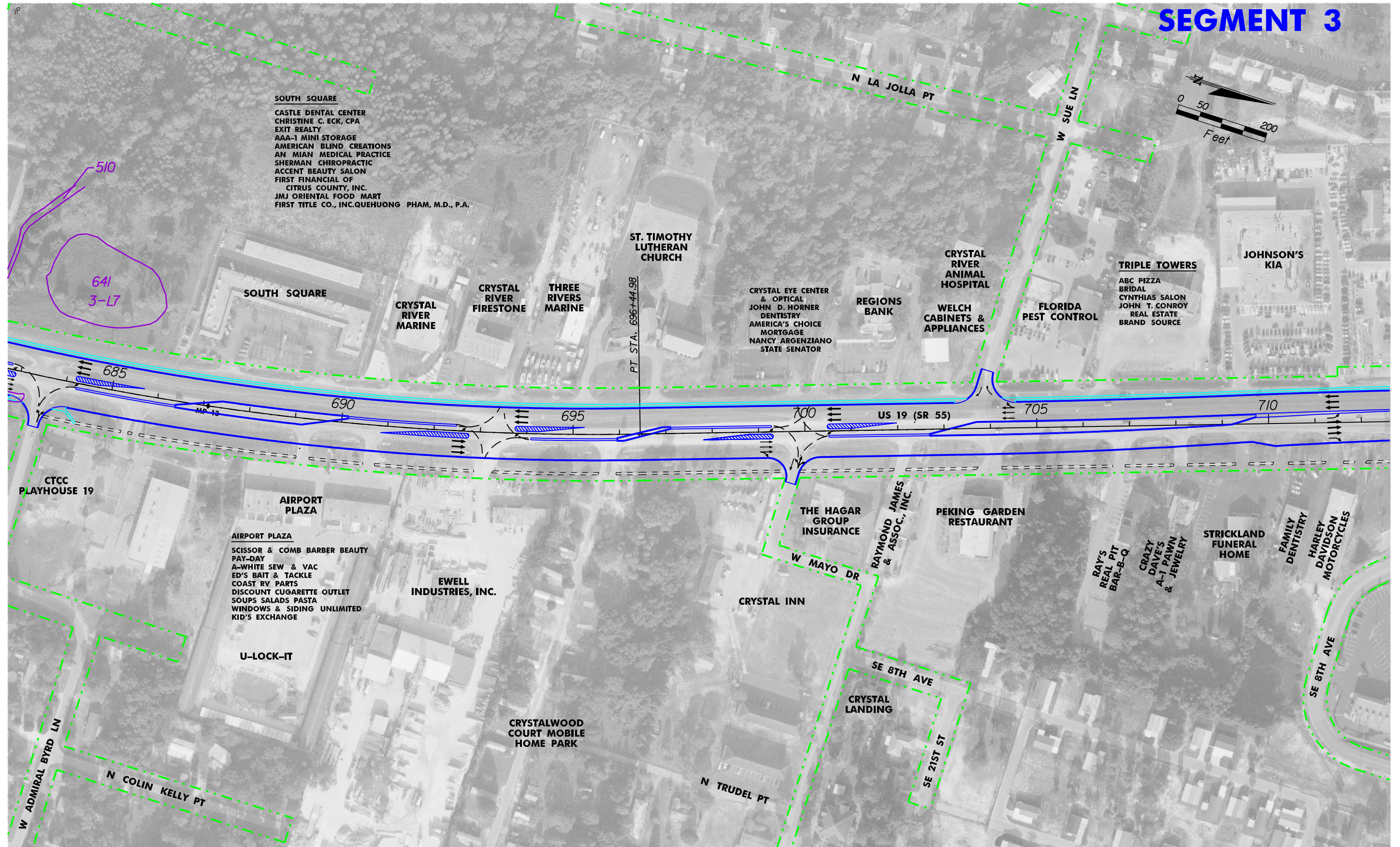
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|-----------------------------------|-------------------------------------|-----------------------|----------------------------|
| EXISTING RIGHT OF WAY OR EASEMENT | CENTERLINE OF CONSTRUCTION          | PROPOSED RIGHT OF WAY | WETLANDS WITHIN STUDY AREA |
| PROPOSED PAVEMENT / CURB          | PROPOSED SIDEWALK OR MULTI-USE PATH |                       |                            |

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| SR 55  | CITRUS | 405822-1-22-01       |

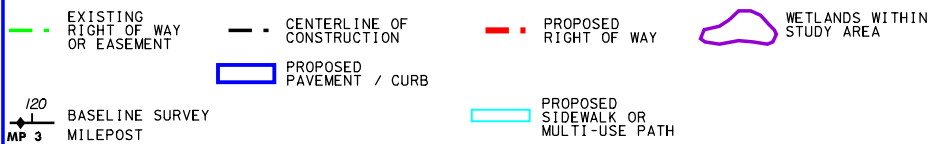
**US 19 (SR 55) PD&E STUDY  
 FROM SOUTH OF US 98 TO CR 488  
 CITRUS COUNTY, FLORIDA**

# SEGMENT 3



## SEGMENT 3 RECOMMENDED ALTERNATIVE

23-DEC-2004 11:11  
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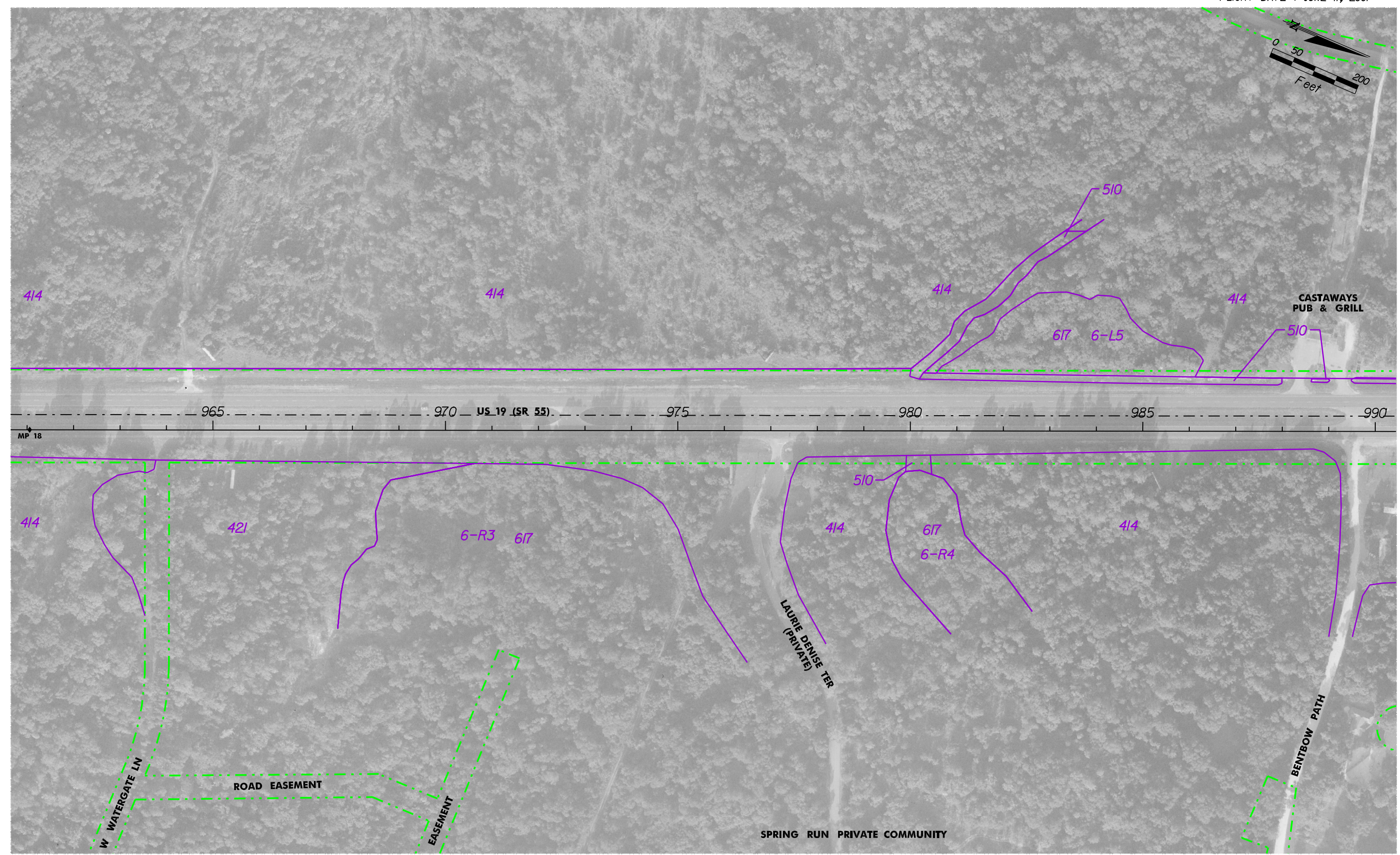
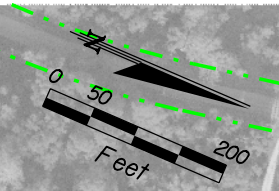
| ROAD NO. | COUNTY | FINANCIAL PROJECT ID |
|----------|--------|----------------------|
| SR 55    | CITRUS | 405822-1-22-01       |

**US 19 (SR 55) PD&E STUDY  
 FROM SOUTH OF US 98 TO CR 488  
 CITRUS COUNTY, FLORIDA**

SHEET NO.

22





**SEGMENT 6 RECOMMENDED ALTERNATIVE**

23-DEC-2004 11:3 P:\P\101\GIS\US19\True VDE\CADD\PlanSheets\Recommended\Plan032.dgn

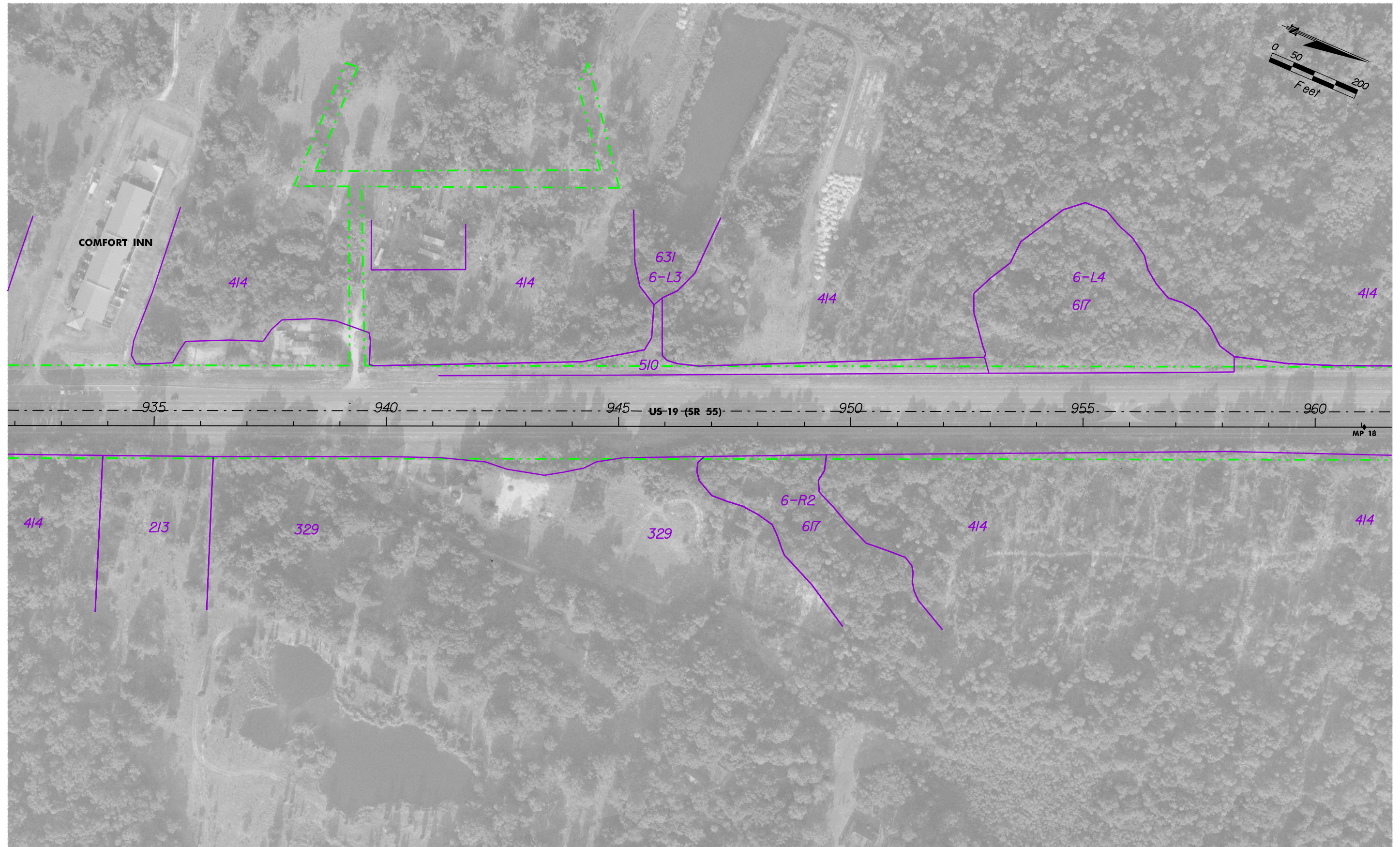
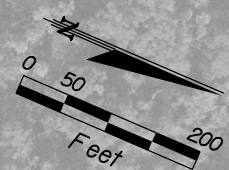
|                                   |                                     |                       |                            |
|-----------------------------------|-------------------------------------|-----------------------|----------------------------|
| EXISTING RIGHT OF WAY OR EASEMENT | CENTERLINE OF CONSTRUCTION          | PROPOSED RIGHT OF WAY | WETLANDS WITHIN STUDY AREA |
| PROPOSED PAVEMENT / CURB          | PROPOSED SIDEWALK OR MULTI-USE PATH |                       |                            |

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**US 19 (SR 55) PD&E STUDY  
 FROM SOUTH OF US 98 TO CR 488  
 CITRUS COUNTY, FLORIDA**

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|-----------|
| SHEET NO. |
| 32        |



**SEGMENT 6 RECOMMENDED ALTERNATIVE**

23-DEC-2004 11:53  
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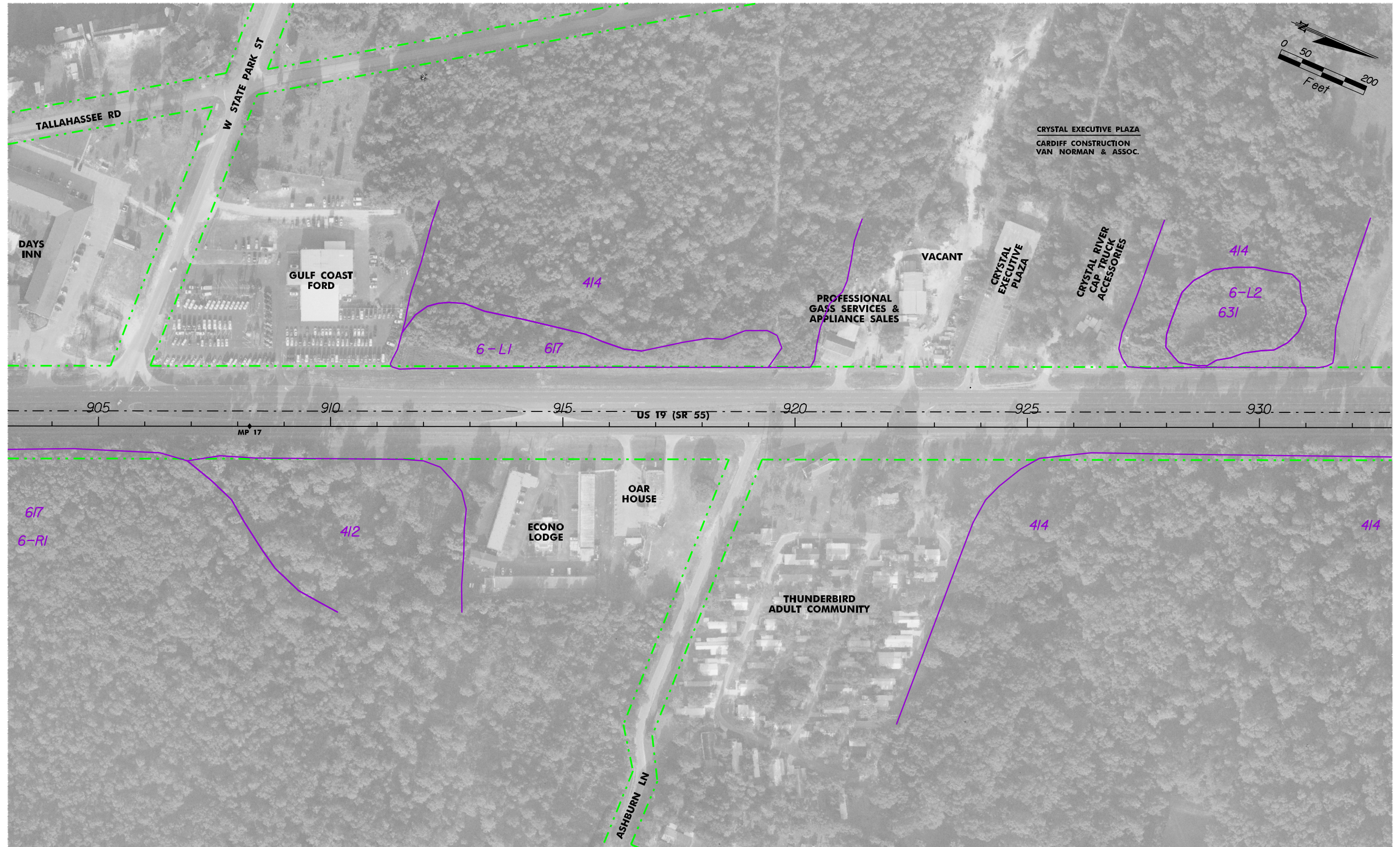
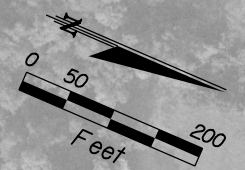
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|-----------------------------------|-------------------------------------|-----------------------|----------------------------|
| EXISTING RIGHT OF WAY OR EASEMENT | CENTERLINE OF CONSTRUCTION          | PROPOSED RIGHT OF WAY | WETLANDS WITHIN STUDY AREA |
| PROPOSED PAVEMENT / CURB          | PROPOSED SIDEWALK OR MULTI-USE PATH |                       |                            |

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**US 19 (SR 55) PD&E STUDY  
 FROM SOUTH OF US 98 TO CR 488  
 CITRUS COUNTY, FLORIDA**

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 31



**SEGMENT 6 RECOMMENDED ALTERNATIVE**

23-DEC-2004 11:3  
 P:\Proj\GIS\US19\Map\_VDE\_CADD\PlanSheets\Recommended\PlanSheets\planr30.dgn

|                                   |                                     |                       |                            |
|-----------------------------------|-------------------------------------|-----------------------|----------------------------|
| EXISTING RIGHT OF WAY OR EASEMENT | CENTERLINE OF CONSTRUCTION          | PROPOSED RIGHT OF WAY | WETLANDS WITHIN STUDY AREA |
| PROPOSED PAVEMENT / CURB          | PROPOSED SIDEWALK OR MULTI-USE PATH |                       |                            |

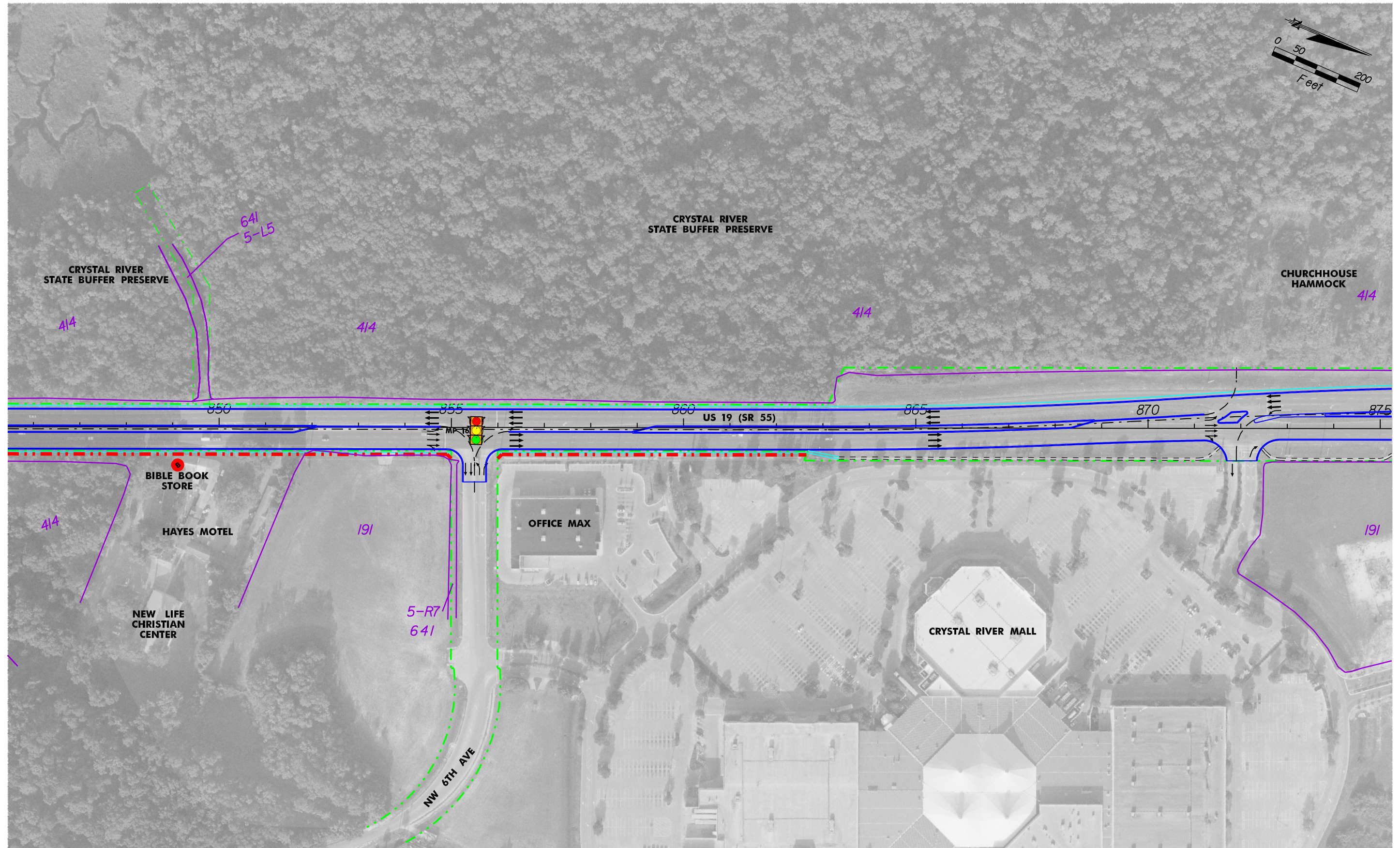
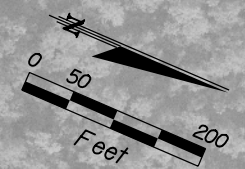
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**US 19 (SR 55) PD&E STUDY  
 FROM SOUTH OF US 98 TO CR 488  
 CITRUS COUNTY, FLORIDA**

|           |
|-----------|
| SHEET NO. |
| 30        |





**SEGMENT 5 RECOMMENDED ALTERNATIVE**

23-DEC-2004 11:42  
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- EXISTING RIGHT OF WAY OR EASEMENT
- CENTERLINE OF CONSTRUCTION
- PROPOSED RIGHT OF WAY
- WETLANDS WITHIN STUDY AREA
- PROPOSED PAVEMENT / CURB
- PROPOSED SIDEWALK OR MULTI-USE PATH
- BASELINE SURVEY MILEPOST



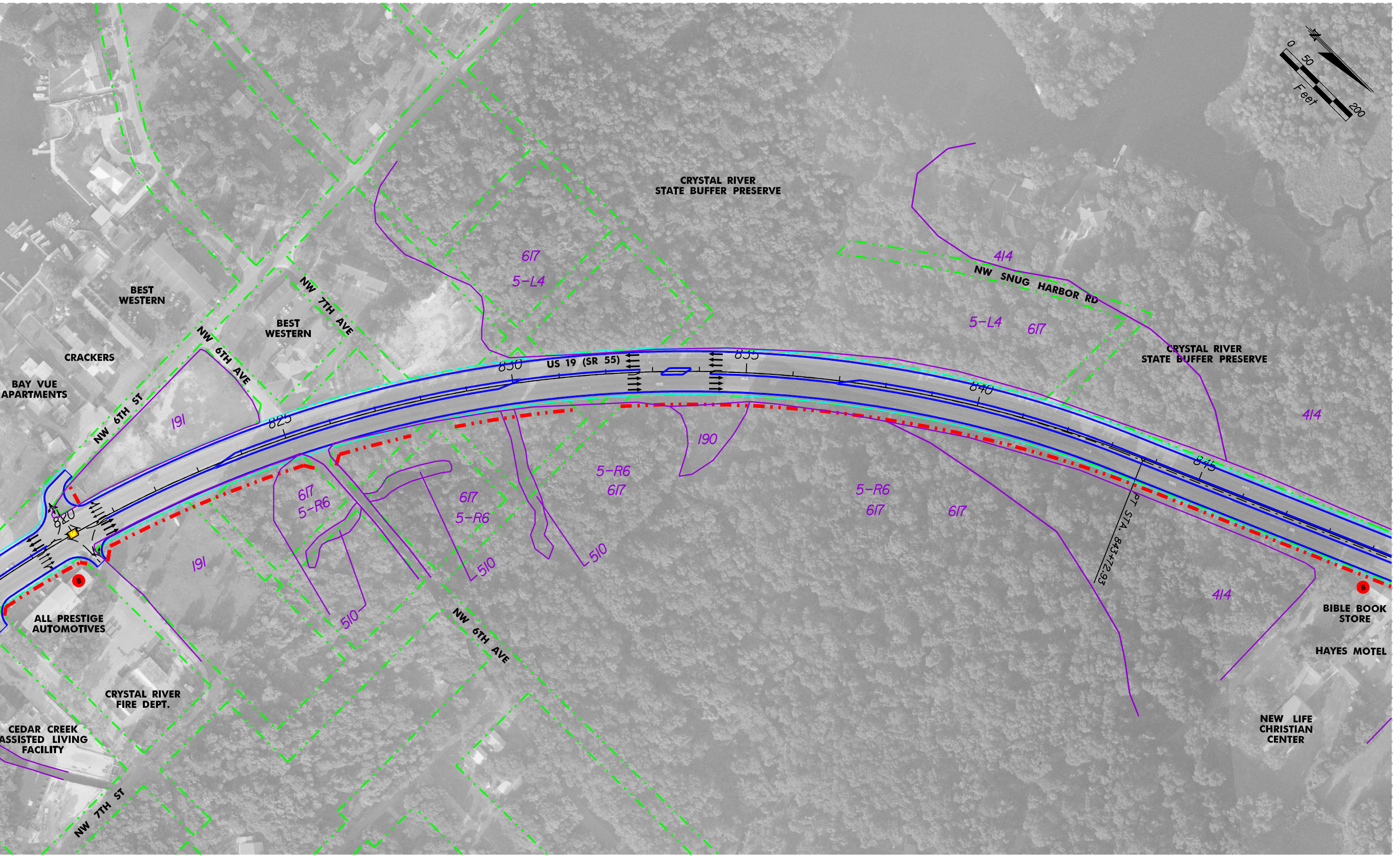
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**US 19 (SR 55) PD&E STUDY  
 FROM SOUTH OF US 98 TO CR 488  
 CITRUS COUNTY, FLORIDA**

SHEET NO.  
 28





**SEGMENT 5 RECOMMENDED ALTERNATIVE**

23-DEC-2004 11:42  
 P:\P10\GIS\US19\Map\_VDE\CADD\PlanSheets\Recommendation\plan027.dgn

|                                   |                                     |                       |                            |
|-----------------------------------|-------------------------------------|-----------------------|----------------------------|
| EXISTING RIGHT OF WAY OR EASEMENT | CENTERLINE OF CONSTRUCTION          | PROPOSED RIGHT OF WAY | WETLANDS WITHIN STUDY AREA |
| PROPOSED PAVEMENT / CURB          | PROPOSED SIDEWALK OR MULTI-USE PATH |                       |                            |

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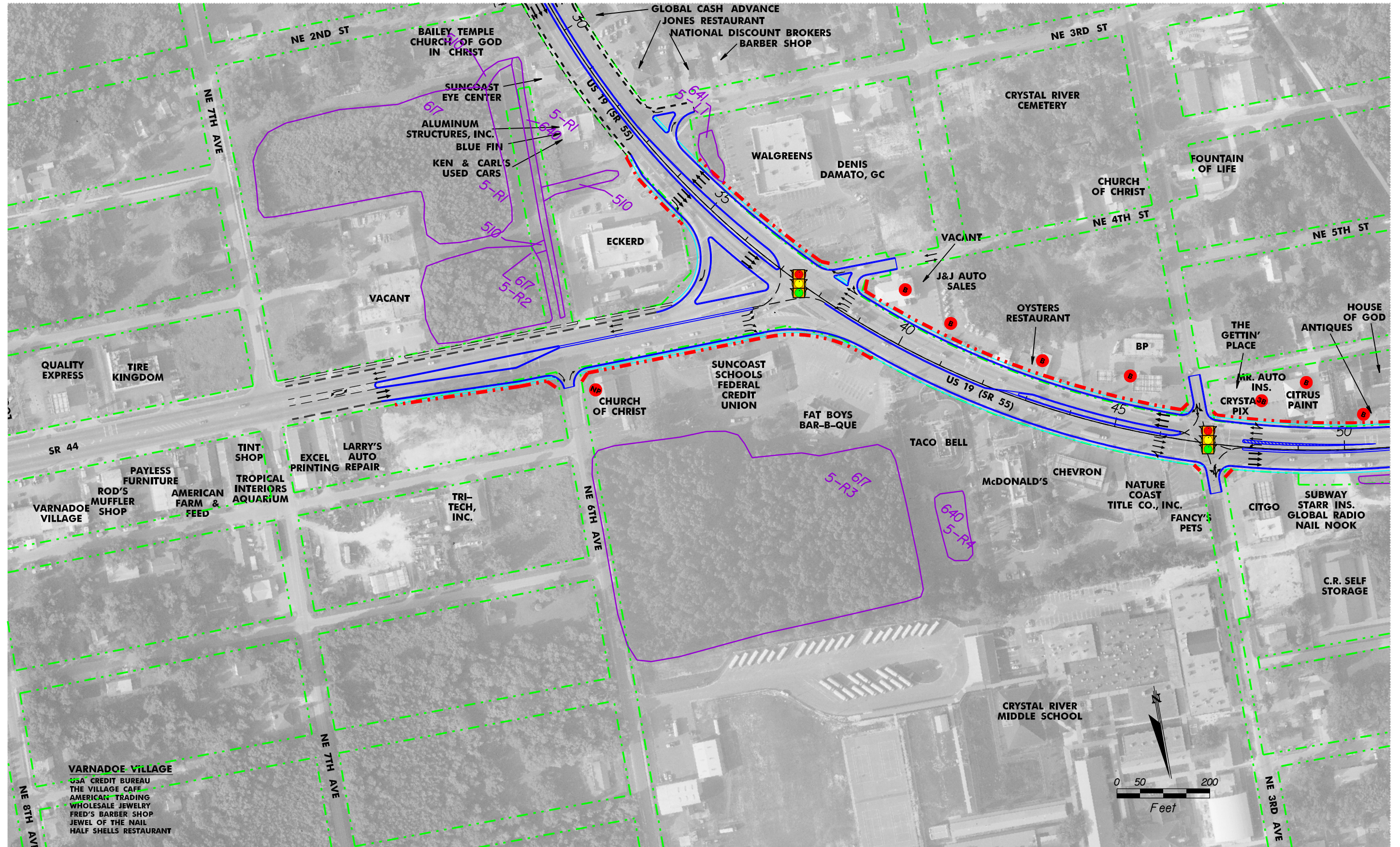
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**US 19 (SR 55) PD&E STUDY  
 FROM SOUTH OF US 98 TO CR 488  
 CITRUS COUNTY, FLORIDA**

|           |
|-----------|
| SHEET NO. |
| 27        |





**SEGMENT 5 RECOMMENDED ALTERNATIVE**

23-DEC-2004 11:42  
 P:\PFD\leis\US98\Task\_VDE\CADD\PlanSheets\Recommended\Plan5\_Vdmr.dwg

- EXISTING RIGHT OF WAY OR EASEMENT
- CENTERLINE OF CONSTRUCTION
- PROPOSED RIGHT OF WAY
- WETLANDS WITHIN STUDY AREA
- PROPOSED PAVEMENT / CURB
- PROPOSED SIDEWALK OR MULTI-USE PATH

120  
 BASELINE SURVEY  
 MP 3 MILEPOST



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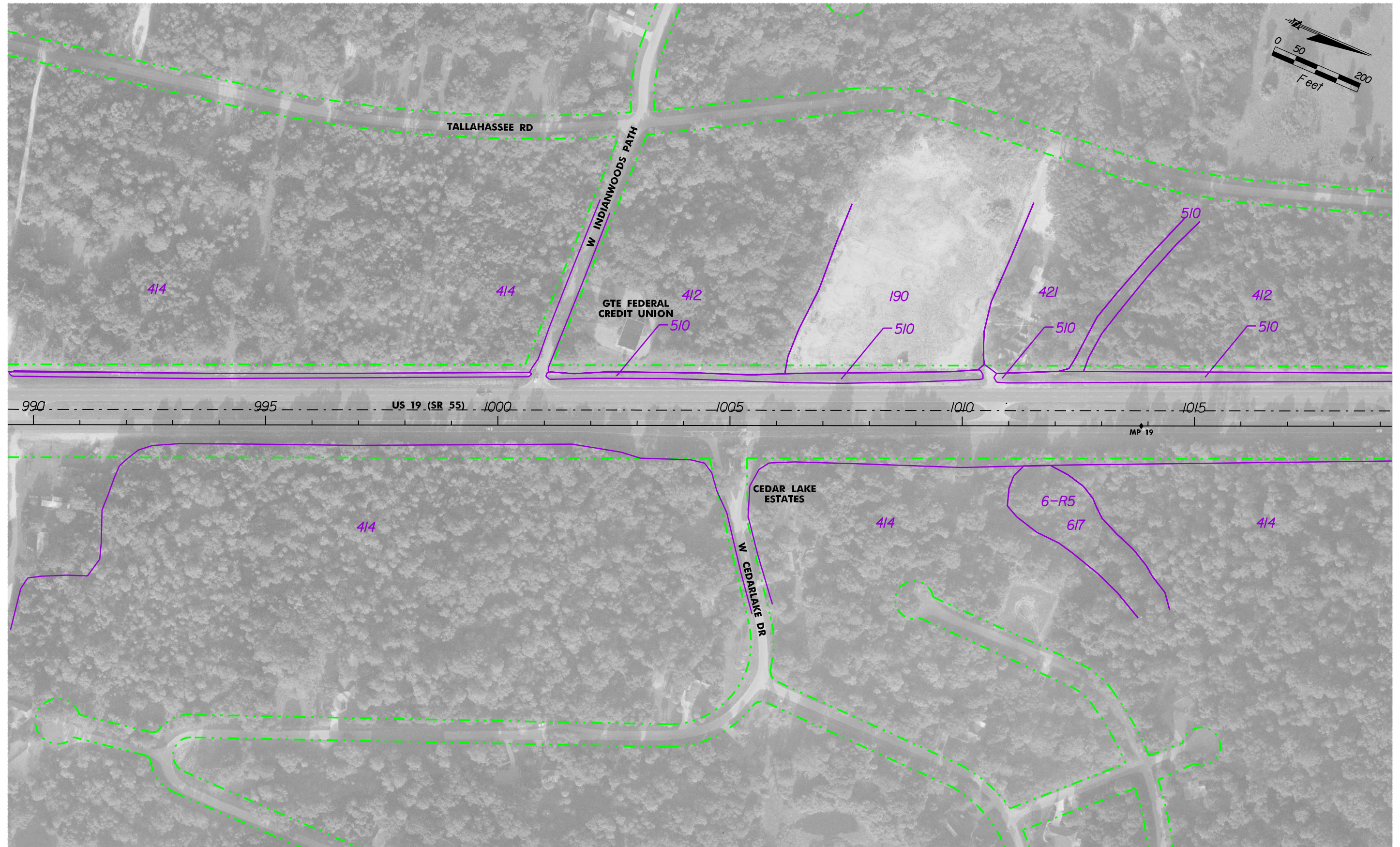
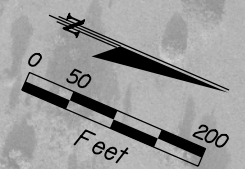
| ROAD NO. | COUNTY | FINANCIAL PROJECT ID |
|----------|--------|----------------------|
| SR 55    | CITRUS | 405822-1-22-01       |

**US 19 (SR 55) PD&E STUDY  
 FROM SOUTH OF US 98 TO CR 488  
 CITRUS COUNTY, FLORIDA**

SHEET NO.

25





**SEGMENT 6 RECOMMENDED ALTERNATIVE**

23-DEC-2004 11:41  
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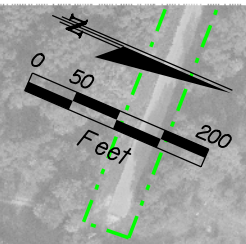
- EXISTING RIGHT OF WAY OR EASEMENT
- CENTERLINE OF CONSTRUCTION
- PROPOSED RIGHT OF WAY
- WETLANDS WITHIN STUDY AREA
- PROPOSED PAVEMENT / CURB
- PROPOSED SIDEWALK OR MULTI-USE PATH
- BASELINE SURVEY MILEPOST

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**US 19 (SR 55) PD&E STUDY  
 FROM SOUTH OF US 98 TO CR 488  
 CITRUS COUNTY, FLORIDA**

SHEET NO.  
 33



**SEGMENT 6 RECOMMENDED ALTERNATIVE**

23-DEC-2004 11:41  
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|                                   |                                     |                       |                            |
|-----------------------------------|-------------------------------------|-----------------------|----------------------------|
| EXISTING RIGHT OF WAY OR EASEMENT | CENTERLINE OF CONSTRUCTION          | PROPOSED RIGHT OF WAY | WETLANDS WITHIN STUDY AREA |
| PROPOSED PAVEMENT / CURB          | PROPOSED SIDEWALK OR MULTI-USE PATH |                       |                            |

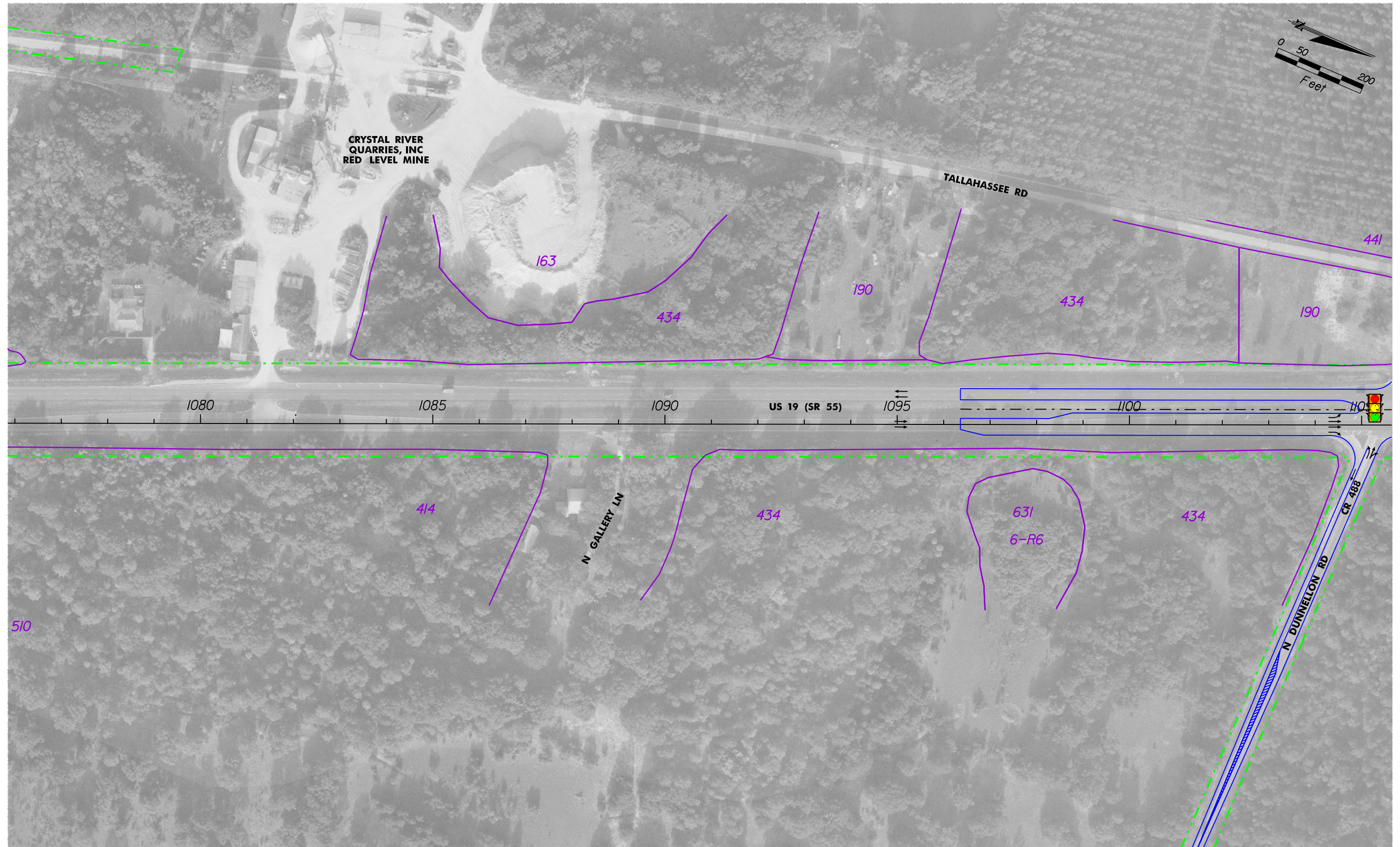
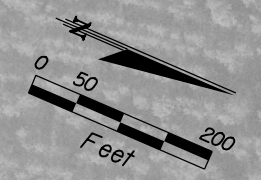


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**US 19 (SR 55) PD&E STUDY  
 FROM SOUTH OF US 98 TO CR 488  
 CITRUS COUNTY, FLORIDA**

|           |
|-----------|
| SHEET NO. |
| 34        |



**SEGMENT 6 RECOMMENDED ALTERNATIVE**

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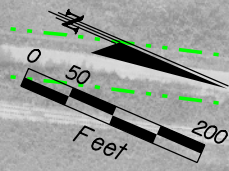
- EXISTING RIGHT OF WAY OR EASEMENT
- PROPOSED RIGHT OF WAY
- CENTERLINE OF CONSTRUCTION
- PROPOSED PAVEMENT / CURB
- PROPOSED SIDEWALK OR MULTI-USE PATH
- WETLANDS WITHIN STUDY AREA

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|--|--------|----------------------|
| ROAD NO.   | COUNTY | FINANCIAL PROJECT ID |
| SR 55  | CITRUS | 405822-1-22-01       |

**US 19 (SR 55) PD&E STUDY  
 FROM SOUTH OF US 98 TO CR 488  
 CITRUS COUNTY, FLORIDA**

SHEET NO.  
 36



**SEGMENT 6 RECOMMENDED ALTERNATIVE**

23-DEC-2004 11:41 P:\P\101\GIS\US19\Map\MapSheets\Recommended\Plan\cr35.dgn

|                                   |                                     |                       |                            |
|-----------------------------------|-------------------------------------|-----------------------|----------------------------|
| EXISTING RIGHT OF WAY OR EASEMENT | CENTERLINE OF CONSTRUCTION          | PROPOSED RIGHT OF WAY | WETLANDS WITHIN STUDY AREA |
| PROPOSED PAVEMENT / CURB          | PROPOSED SIDEWALK OR MULTI-USE PATH |                       |                            |



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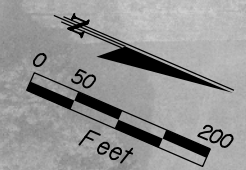
| STATE OF FLORIDA<br>DEPARTMENT OF TRANSPORTATION |        |                      |
|--|--------|----------------------|
| ROAD NO.   | COUNTY | FINANCIAL PROJECT ID |
| SR 55  | CITRUS | 405822-1-22-01       |

**US 19 (SR 55) PD&E STUDY  
FROM SOUTH OF US 98 TO CR 488  
CITRUS COUNTY, FLORIDA**

SHEET NO.

35





# END PROJECT SEGMENT 6



## SEGMENT 6 RECOMMENDED ALTERNATIVE

23-DEC-2004 11:45 P:\P10\GIS\US19\CR488\MapSheets\Recommendations\plan\cr37.dgn

|                                   |                                     |                       |                            |
|-----------------------------------|-------------------------------------|-----------------------|----------------------------|
| EXISTING RIGHT OF WAY OR EASEMENT | CENTERLINE OF CONSTRUCTION          | PROPOSED RIGHT OF WAY | WETLANDS WITHIN STUDY AREA |
| PROPOSED PAVEMENT / CURB          | PROPOSED SIDEWALK OR MULTI-USE PATH |                       |                            |

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| ROAD NO.   | COUNTY | FINANCIAL PROJECT ID |
| SR 55  | CITRUS | 405822-1-22-01       |

**US 19 (SR 55) PD&E STUDY  
 FROM SOUTH OF US 98 TO CR 488  
 CITRUS COUNTY, FLORIDA**

|           |
|-----------|
| SHEET NO. |
| 37        |

**APPENDIX C**

**Wetland Photographs**



**Wetland 1 - L3**



**Wetland 1 - R1**



**Wetland 1 - L7**



**Wetland 2 - R1**



**Wetland 1 - R12**



**Wetland 1 - R2**



**Wetland 1 - R5**



**Wetland 1 - R1**



**Wetland 1 - R4**

**APPENDIX D**

**Wrap Score Sheets**

WETLAND RAPID ASSESSMENT PROCEDURE  
FIELD DATA SHEET

|                      |  |                |                 |                               |
|----------------------|--|----------------|-----------------|-------------------------------|
| Permit Number<br>N/A | Project<br>U.S. 19 Citrus County<br>PD&E | Date<br>5/3/02 | Evaluator<br>TD | Wetland Type<br>621<br>PFO2Cd |
|----------------------|--|----------------|-----------------|-------------------------------|

|                     |                                   |                              |                             |
|---------------------|-----------------------------------|------------------------------|-----------------------------|
| Land Use<br>Roadway | Wildlife Utilization (WU)<br>2.00 | Wetland Canopy (O/S)<br>1.50 | WL Groundcover (GC)<br>1.50 |
|---------------------|-----------------------------------|------------------------------|-----------------------------|

|                                |                               |                                   |
|--------------------------------|-------------------------------|-----------------------------------|
| Habitat Support/Buffer<br>2.25 | Field Hydrology (HYD)<br>1.00 | WQ Input & Treatment (WQ)<br>2.25 |
|--------------------------------|-------------------------------|-----------------------------------|

|                    |
|--------------------|
| WRAP Score<br>0.58 |
|--------------------|

Comments

WU – Moderate use due to disturbed vegetation. But contiguous with other natural areas

O/S – Stressed trees present. Some shrubs covered by vines

GC – Cogon grass (*Imperata cylindrica*) present in one area

BUFFER – Natural areas provide suitable buffer

HYD – Large ditch transects wetland. Likely causing stressed trees

WQ –



**WETLAND RAPID ASSESSMENT PROCEDURE  
FIELD DATA SHEET**

|                                |  |                                   |                             |                                |
|--------------------------------|--|-----------------------------------|-----------------------------|--------------------------------|
| Permit Number<br>N/A           | Project<br>U.S. 19 Citrus County<br>PD&E | Date<br>5/3/02                    | Evaluator<br>TD             | Wetland Type<br>630<br>PFO1/3C |
| Land Use<br>Roadway            | Wildlife Utilization (WU)<br>3.00        | Wetland Canopy (O/S)<br>2.50      | WL Groundcover (GC)<br>2.50 |                                |
| Habitat Support/Buffer<br>2.48 | Field Hydrology (HYD)<br>2.00            | WQ Input & Treatment (WQ)<br>2.44 |                             |                                |
| WRAP Score<br>0.83             |  |                                   |                             |                                |

Comments

WU – Large natural area within Withlacoochee State Forest (Homosassa Tract). Likely occurrence of large mammals (e.g. bear and deer).

O/S – Overall tree stand is young, suggesting previous harvesting especially considering young planted pine within and adjacent to area. Healthy system.

GC – Good native cover, but disturbed/nuisance vegetation occurs along roadways.

BUFFER – Excellent. Natural areas extend westward of wetland, possibly to the coast.

HYD – One ditch, approximately 15'-20' wide dissects wetland.

WQ – Natural areas surround most of wetland

WETLAND RAPID ASSESSMENT PROCEDURE  
FIELD DATA SHEET

|                      |  |                 |                    |                              |
|----------------------|--|-----------------|--------------------|------------------------------|
| Permit Number<br>N/A | Project<br>U.S. 19 Citrus County<br>PD&E | Date<br>1/24/02 | Evaluator<br>TD/TM | Wetland Type<br>621<br>PFO2C |
|----------------------|--|-----------------|--------------------|------------------------------|

|                     |                                      |                                 |                                |
|---------------------|--------------------------------------|---------------------------------|--------------------------------|
| Land Use<br>Roadway | Wildlife Utilization<br>(WU)<br>2.00 | Wetland Canopy<br>(O/S)<br>2.50 | WL Groundcover<br>(GC)<br>2.50 |
|---------------------|--------------------------------------|---------------------------------|--------------------------------|

|                                |                                  |                                      |
|--------------------------------|----------------------------------|--------------------------------------|
| Habitat Support/Buffer<br>1.67 | Field Hydrology<br>(HYD)<br>2.00 | WQ Input & Treatment<br>(WQ)<br>1.35 |
|--------------------------------|----------------------------------|--------------------------------------|

|                    |
|--------------------|
| WRAP Score<br>0.67 |
|--------------------|

Comments

WU – Adequate cover for wildlife

O/S – No exotic species. No obvious signs of stress. Cypress with *Magnolia virginiana*, *Ilex cassine* and *Persea sp.*

GC – Dominated by desirable cover, which included *Osmunda regalis* and *O. cinnamomea*, *Lyonia lucida*, *Woodwardia sp.* and *Sabal minor*.

BUFFER – Sixty-six percent bordered by roadway (both US 98 and US 19). No wildlife corridor.

HYD – Altered due to roadways. Little sign of plant stress.

WQ – No treatment due to existing roadways.

WETLAND RAPID ASSESSMENT PROCEDURE  
FIELD DATA SHEET

|                      |  |                 |                    |                              |
|----------------------|--|-----------------|--------------------|------------------------------|
| Permit Number<br>N/A | Project<br>U.S. 19 Citrus County<br>PD&E | Date<br>1/24/02 | Evaluator<br>TD/TM | Wetland Type<br>640<br>PSS3F |
|----------------------|--|-----------------|--------------------|------------------------------|

|                     |                                      |                                 |                                |
|---------------------|--------------------------------------|---------------------------------|--------------------------------|
| Land Use<br>Roadway | Wildlife Utilization<br>(WU)<br>1.50 | Wetland Canopy<br>(O/S)<br>2.00 | WL Groundcover<br>(GC)<br>2.00 |
|---------------------|--------------------------------------|---------------------------------|--------------------------------|

|                                |                                  |                                      |
|--------------------------------|----------------------------------|--------------------------------------|
| Habitat Support/Buffer<br>1.67 | Field Hydrology<br>(HYD)<br>2.00 | WQ Input & Treatment<br>(WQ)<br>1.35 |
|--------------------------------|----------------------------------|--------------------------------------|

|                    |
|--------------------|
| WRAP Score<br>0.58 |
|--------------------|

Comments

WU – No structure from trees, but good cover and forage.

O/S – *Ilex cassine* and *I. glabra*, *Myrica cerifera*, *Persea sp.* Shrub system good w/some exotic cover (<5% *Ludwigia peruviana*).

GC – *Smilax laurifolia* and shrub spp. seedlings. Some disturbance, likely from historical harvesting of trees.

BUFFER – See comments on 1-R1 forested sheet

HYD – See comments on 1-R1 forested sheet

WQ –

WETLAND RAPID ASSESSMENT PROCEDURE  
FIELD DATA SHEET

|                      |  |                 |                 |                              |
|----------------------|--|-----------------|-----------------|------------------------------|
| Permit Number<br>N/A | Project<br>U.S. 19 Citrus County<br>PD&E | Date<br>1/25/02 | Evaluator<br>TD | Wetland Type<br>641<br>PEM1F |
|----------------------|--|-----------------|-----------------|------------------------------|

|                     |                                      |                                |                                |
|---------------------|--------------------------------------|--------------------------------|--------------------------------|
| Land Use<br>Roadway | Wildlife Utilization<br>(WU)<br>2.00 | Wetland Canopy<br>(O/S)<br>N/A | WL Groundcover<br>(GC)<br>1.00 |
|---------------------|--------------------------------------|--------------------------------|--------------------------------|

|                                |                                  |                                      |
|--------------------------------|----------------------------------|--------------------------------------|
| Habitat Support/Buffer<br>1.40 | Field Hydrology<br>(HYD)<br>1.50 | WQ Input & Treatment<br>(WQ)<br>1.00 |
|--------------------------------|----------------------------------|--------------------------------------|

|                    |
|--------------------|
| WRAP Score<br>0.46 |
|--------------------|

Comments

WU – Songbird throughout. Adjacent to upland food sources.

O/S – N/A

GC – Dominated by *Typha* sp., but some *Sagittaria* sp. present.

BUFFER – US 19 and secondary road borders much of wetlands, but upland area extends southward.

HYD – Isolated system, previously excavated.

WQ – Upland, undeveloped and untreated roadway run-off.

WETLAND RAPID ASSESSMENT PROCEDURE  
FIELD DATA SHEET

|                                |  |                                      |                                |                                |
|--------------------------------|--|--------------------------------------|--------------------------------|--------------------------------|
| Permit Number<br>N/A           | Project<br>U.S. 19 Citrus County<br>PD&E | Date<br>2/25/02                      | Evaluator<br>TD/TM             | Wetland Type<br>631<br>PSS3/1C |
| Land Use<br>Roadway            | Wildlife Utilization<br>(WU)<br>1.50     | Wetland Canopy<br>(O/S)<br>1.50      | WL Groundcover<br>(GC)<br>1.00 |                                |
| Habitat Support/Buffer<br>2.00 | Field Hydrology<br>(HYD)<br>1.00         | WQ Input & Treatment<br>(WQ)<br>1.75 |                                |                                |
| WRAP Score<br>0.49             |  |                                      |                                |                                |

Comments

WU – Disturbed but suitable habitat for small mammals and birds.

O/S – *Baccharis halimifolia*, *Acer rubrum*, *Salix caroliniana* and *Quercus laurifolia*

GC – Dominated by *Eupatorium capillifolium*. Other species present include *Hypericum fasciculatum* and *Andropogon* sp.

BUFFER – US 19 and a secondary road border 50% of wetland. Natural area borders remainder.

HYD – No standing water. Culvert connection to ditch on west side of US 19. Hydrology altered as indicated by predominance of *E. capillifolium*.

WQ – Untreated water from road runs directly into wetland (no pretreatment)

WETLAND RAPID ASSESSMENT PROCEDURE  
FIELD DATA SHEET

|                      |  |                 |                    |                              |
|----------------------|--|-----------------|--------------------|------------------------------|
| Permit Number<br>N/A | Project<br>U.S. 19 Citrus County<br>PD&E | Date<br>1/24/02 | Evaluator<br>TD/TM | Wetland Type<br>641<br>PEM1F |
|----------------------|--|-----------------|--------------------|------------------------------|

|                     |                                   |                             |                             |
|---------------------|-----------------------------------|-----------------------------|-----------------------------|
| Land Use<br>Roadway | Wildlife Utilization (WU)<br>2.00 | Wetland Canopy (O/S)<br>N/A | WL Groundcover (GC)<br>1.50 |
|---------------------|-----------------------------------|-----------------------------|-----------------------------|

|                                |                               |                                   |
|--------------------------------|-------------------------------|-----------------------------------|
| Habitat Support/Buffer<br>1.60 | Field Hydrology (HYD)<br>2.00 | WQ Input & Treatment (WQ)<br>0.80 |
|--------------------------------|-------------------------------|-----------------------------------|

|                    |
|--------------------|
| WRAP Score<br>0.53 |
|--------------------|

Comments

WU – Armadillo burrow observed and migratory songbirds present.

O/S – N/A

GC – Nuisance/exotic species common throughout which include *Eupatorium capillifolium*, and *Typha*. Native species of *Saccharum* sp. present throughout.

BUFFER – Residential area in proximity to wetland. US 19 within 50 feet.

HYD – Altered severely due to drainage pop-off to roadside ditch. Predominance of *Eupatorium capillifolium*.

WQ –

WETLAND RAPID ASSESSMENT PROCEDURE  
FIELD DATA SHEET

|                      |  |                 |                 |                              |
|----------------------|--|-----------------|-----------------|------------------------------|
| Permit Number<br>N/A | Project<br>U.S. 19 Citrus County<br>PD&E | Date<br>1/24/02 | Evaluator<br>TD | Wetland Type<br>641<br>PEM1F |
|----------------------|--|-----------------|-----------------|------------------------------|

|                     |                                   |                             |                             |
|---------------------|-----------------------------------|-----------------------------|-----------------------------|
| Land Use<br>Roadway | Wildlife Utilization (WU)<br>2.00 | Wetland Canopy (O/S)<br>N/A | WL Groundcover (GC)<br>2.50 |
|---------------------|-----------------------------------|-----------------------------|-----------------------------|

|                                |                               |                                   |
|--------------------------------|-------------------------------|-----------------------------------|
| Habitat Support/Buffer<br>1.60 | Field Hydrology (HYD)<br>2.00 | WQ Input & Treatment (WQ)<br>1.10 |
|--------------------------------|-------------------------------|-----------------------------------|

|                    |
|--------------------|
| WRAP Score<br>0.61 |
|--------------------|

Comments

WU – Good habitat with adjacent upland food sources.

O/S – N/A. No canopy of shrub stratum.

GC – *Panicum hemitomom* dominated with *Lachnanthes caroliniana*.

BUFFER – Some natural habitat to the south. Light commercial and single family surround much of wetland.

HYD – Plants healthy, no extensive cover by non-desirable species and no evidence of soil subsidence. No ditching evident.

WQ – No direct input of stormwater into wetland. Water input appears to be from rainfall exclusively.

WETLAND RAPID ASSESSMENT PROCEDURE  
FIELD DATA SHEET

|                      |  |                 |                 |                              |
|----------------------|--|-----------------|-----------------|------------------------------|
| Permit Number<br>N/A | Project<br>U.S. 19 Citrus County<br>PD&E | Date<br>2/25/02 | Evaluator<br>TD | Wetland Type<br>617<br>PFO1C |
|----------------------|--|-----------------|-----------------|------------------------------|

|                     |                                      |                                 |                                |
|---------------------|--------------------------------------|---------------------------------|--------------------------------|
| Land Use<br>Roadway | Wildlife Utilization<br>(WU)<br>2.50 | Wetland Canopy<br>(O/S)<br>2.00 | WL Groundcover<br>(GC)<br>2.00 |
|---------------------|--------------------------------------|---------------------------------|--------------------------------|

|                                |                                  |                                      |
|--------------------------------|----------------------------------|--------------------------------------|
| Habitat Support/Buffer<br>2.30 | Field Hydrology<br>(HYD)<br>2.00 | WQ Input & Treatment<br>(WQ)<br>2.05 |
|--------------------------------|----------------------------------|--------------------------------------|

|                    |
|--------------------|
| WRAP Score<br>0.71 |
|--------------------|

Comments

WU – Adjacent to abundant upland food sources. Adjacent upland support small, medium and large mammals. Songbirds abundant throughout.

O/S – Good health but overall stand age is young (previously harvested ?). Includes *Magnolia virginiana*, *Persea* sp., *Acer rubrum*, *Liquidambar styraciflua* and *Quercus laurifolia*, with minor cover by *Pinus elliotii*.

GC – Good, ferns present with seedling trees.

BUFFER – Buffer of upland to the north end, with some roadway (US 19 and minor roads).

HYD – Evidence of ditching.

WQ –



**APPENDIX E**

**Wrap Score Summary Table**

**FLUCFCS CATEGORIES AND CORRESPONDING USFWS CODES FOR WETLANDS  
IDENTIFIED IN THE US 19 CITRUS COUNTY STUDY CORRIDOR**

| <b>FLUCFCS*</b> | <b>Acres within Study Area</b>    | <b>Description</b>               | <b>USFWS Code**</b> | <b>Description</b>  |
|-----------------|-----------------------------------|----------------------------------|---------------------|---|
| <b>500</b>      | 11.3 ac<br>(combined for 500/510) | Open Water                       | L1OWHx              | Lacustrine, Open Water, Permanently Flooded, Excavated                              |
| <b>510</b>      |                                   | Streams and Waterways            | R2OWHx              | Riverine, Open Water, Permanently Flooded, Excavated                                |
| <b>617</b>      | 82.5                              | Mixed Wetland Hardwoods          | PFO1C               | Palustrine, Forested, Broad-Leaved, Deciduous, Seasonally Flooded                   |
| <b>621</b>      | 39.2                              | Cypress                          | PFOxx               | Palustrine, Forested (needle-leaved, broad-leaved), Seasonally, Temporarily Flooded |
| <b>630</b>      | 6.7                               | Pine, Oak & Cabbage Palm, Hydric |                     |   |
| <b>631</b>      | 17.9                              | Hydric Shrub and Brush           |                     |   |
| <b>640</b>      | 7.1                               | Vegetated, Non-forested Wetlands | PEMxx               | Palustrine, Emergent  |
| <b>641</b>      | 8.9                               | Freshwater Marsh                 | PEMxx               | Palustrine, Emergent  |

*\*FLUCFCS =Based on Florida Land Use Cover Forms Classification System, third ed. 1999<sup>8</sup>.*

*\*\*USFWS = Based on US Fish and Wildlife Service Classification of Wetlands and Deepwater Habitats of the United States, 1979<sup>9</sup>.*