

ALTERNATIVES EVALUATION
REPORT

Boggy Creek Road
Alignment Study
from Simpson Road to Narcoossee Road
Osceola County

Osceola County Project Number: PS2011479-DG

Prepared for:



Osceola County Board of County Commissioners
Osceola County, Florida

Prepared by:
Dewberry Engineers Inc.
800 N. Magnolia Avenue, Suite 1000
Orlando, Florida 32803

June 2021

PROFESSIONAL ENGINEERING CERTIFICATE ALTERNATIVES EVALUATION REPORT

Project: Boggy Creek Road Alignment Study

Osceola County Project No.: PS-20-11479-DG

This preliminary engineering report contains engineering information that fulfills the purpose and need for the Boggy Creek Alignment Study from Simpson Road to Narcoossee Road in Osceola County, Florida. I acknowledge that the procedures and references used to develop the results contained in this report are standard to the professional practice of transportation engineering as applied through professional judgement and experience.

I hereby certify that I am a registered professional engineer in the State of Florida practicing with Dewberry Engineers Inc., and that I have prepared or approved the evaluation, findings, opinions, conclusions or technical advice for this project.

**Kevin E. Knudsen, P.E.
FL P.E. No. 41062**

Transportation & Transit Department



Boggy Creek Road Improvement Project Alternatives Technical Report

Tawny Olore, PE
Executive Director

This report contains engineering information that fulfills the purpose and need for the Boggy Creek Road Improvement Project from Simpson Road to Narcoossee Road in Osceola County, Florida. The undersigned acknowledge that the procedures and references used to develop the results contained in this report are standard to the professional practice of transportation engineering as applied through professional judgment and experience. The preferred alternative in the report also is consistent with the preferred alternative approved by the Osceola County Board of County Commissioners. The undersigned therefore certify this report, and approve the evaluation, findings, opinions, conclusions and technical advice prepared for this project.

Joshua DeVries, AICP
Transportation Planning

Kathy Lee, PE
Traffic Engineering

Kevin Knudsen

Kevin Knudsen P.E., Consultant Project Manager, Dewberry

June 4, 2021

Date

Todd Hudson, PE
Transportation Engineering

C. Jacobs

Conroy Jacobs AICP, MPA, Osceola County Part A Project Manager

June 4, 2021

Date

Rene LaPorte
Construction

Gary Yeager
Traffic Operations

Tawny Olore

Digitally signed by Tawny
Olore
Date: 2021.06.07 07:19:24
-04'00'

Tawny Olore P.E., Executive Director, Osceola County Transportation and Transit

Date

TABLE OF CONTENTS

1.0	INTRODUCTION	1-1
1.1	Project Description	1-1
1.1.1	Purpose and Need	1-1
1.1.2	Study Parameters	1-2
2.0	EXISTING CONDITIONS	2-1
2.1	Existing Roadway Characteristics	2-1
2.1.1	Functional and Context Classification	2-1
2.1.2	Access Classification	2-1
2.1.3	Typical Sections	2-1
2.1.4	Existing Posted Speeds	2-1
2.1.5	Right-of-Way	2-1
2.1.6	Multi-Modal Accommodations	2-2
2.1.6.1	Pedestrian Facilities	2-2
2.1.6.2	Bicycle Facilities	2-2
2.1.6.3	Transit Facilities	2-2
2.1.7	Horizontal and Vertical Geometry	2-3
2.1.8	Intersections and Signalization	2-3
2.1.9	Signage	2-3
2.2	Existing Drainage Conditions	2-4
2.2.1	Existing Drainage Basins	2-4
2.2.1.1	Drainage Basin 1	2-5
2.2.1.2	Drainage Basin 2	2-5
2.2.1.3	Drainage Basin 3	2-5
2.2.1.4	Drainage Basin 4	2-6
2.2.1.5	Drainage Basin 5	2-6
2.2.1.6	Drainage Basin 6	2-6
2.2.1.7	Drainage Basin 7	2-6
2.2.1.8	Drainage Basin 8	2-6
2.2.1.9	Drainage Basin 9	2-6
2.2.1.10	Drainage Basin 10	2-7
2.2.1.11	Drainage Basin 11	2-7
2.3	Existing Bridge Conditions	2-7
2.4	Soils	2-7
2.5	Lighting	2-10
2.6	Utilities	2-11
2.7	Environmental Characteristics	2-13
2.7.1	Socio-Economic	2-13
2.7.2	Land Use	2-14
2.7.3	Historic and Archaeological Resources	2-21

TABLE OF CONTENTS

2.7.4	Wetlands and Other Surface Waters	2-25
2.7.5	Threatened and Endangered Species	2-33
2.7.6	Floodplains and Floodway	2-37
2.7.7	Potential Contamination	2-40
3.0	TRAFFIC	3-1
3.1	Existing Traffic Conditions.....	3-1
3.1.1	Traffic Count Information	3-3
3.1.2	Existing Traffic Characteristics	3-3
3.1.3	Year 2019 Turning Movement Counts	3-6
3.1.4	2019 Year LOS Analysis	3-6
3.1.4.1	Year 2019 Roadway Operational Analysis	3-6
3.1.4.2	Year 2019 Intersection LOS Analysis	3-8
3.2	Crash Data Review	3-10
3.2.1	Existing Crash Data Statistics.....	3-10
3.2.2	Existing Crash Data by Crash Type.....	3-11
3.2.3	Existing Crash Data by Intersections	3-12
3.2.4	Crash Frequency & Crash Rate Development.....	3-15
3.3	Development of Design Characteristics	3-15
3.3.1	Standard K Factor	3-15
3.3.2	D Factor	3-15
3.3.3	T & DHT Factors	3-16
3.3.4	Recommended Design Traffic Characteristics.....	3-17
3.4	Future Traffic Conditions.....	3-17
3.4.1	Future Annual Average Daily Traffic (AADT) Projections.....	3-17
3.4.2	Peak Hour Traffic Projections	3-17
3.4.3	Future Operational Analysis	3-17
3.4.3.1	No Build Analysis	3-23
3.4.3.2	Build Analysis.....	3-24
4.0	CONCEPTUAL DESIGN ANALYSIS	4-1
4.1	Access Management	4-1
4.2	Roadway Design Criteria	4-2
4.3	Typical Section Alternatives	4-4
4.3.1	Typical Section No. 1 (No Build, 2-Lane Existing Rural Roadway).....	4-6
4.3.2	Typical Section No. 2 (4-Lane Divided Rural Roadway)	4-7
4.3.3	Typical Section No. 3 (4-Lane Divided Suburban Roadway)	4-8
4.3.4	Typical Section No. 4 (4-Lane Divided Urban Roadway)	4-9
4.3.5	Typical Section No. 5 (4-Lane Divided Urban Roadway)	4-10
4.3.6	Typical Section No. 6 (4-Lane Divided Urban Roadway)	4-11
4.4	Alignment Alternatives	4-15

TABLE OF CONTENTS

4.4.1	No-Build Alternative.....	4-15
4.4.2	Transportation System Management.....	4-15
4.5	Alignment Alternatives Evaluation.....	4-15
4.5.1	Evaluation Matrix.....	4-15
4.5.2	Alternative 1: Typical Section No. 1 – Centered Alignment.....	4-16
4.5.3	Alternative 2 – Typical Section 2 – Center Alignment	4-16
4.5.4	Alternative 3 – Typical Section 3 – Right Alignment.....	4-16
4.5.5	Geotechnical	4-22
4.5.6	Lighting	4-22
4.5.7	Utilities	4-23
4.5.8	Landscaping.....	4-23
4.5.9	Conceptual Maintenance of Traffic	4-243
4.5.10	Ponds.....	4-264
4.5.11	Costs.....	4-26
4.6	Environmental Evaluation	4-26
4.6.1	Community Cohesion	4-26
4.6.2	Potential Parcel Impacts and Relocations.....	4-26
4.6.3	Historical/Archaeological	4-26
4.6.4	Wetlands and Surface Waters	4-26
4.6.5	Threatened and Endangered Species	4-27
4.6.6	Floodplains and Floodway.....	4-27
4.6.7	Contamination	4-27
4.6.8	Construction Impacts.....	4-27
4.7	Preferred Alignment.....	4-28
5.0	PUBLIC INVOLVEMENT.....	5-1
5.1	Project Website.....	5-1
5.2	Flyers.....	5-1
5.3	Hybrid Public Information Meeting	5-1
5.4	Comment Documents	5-4
5.5	Coordination with Stakeholders.....	5-4
5.6	Presentation.....	5-4

LIST OF FIGURES

.....

Figure 1-1: Project Location Map	1-2
Figure 2-1a: Existing Land Use Map	2-15
Figure 2-1b: Existing Land Use Map	2-16
Figure 2-1c: Existing Land Use Map	2-17
Figure 2-1d: Existing Land Use Map	2-18
Figure 2-1e: Existing Land Use Map	2-19
Figure 2-1f: Existing Land Use Map	2-20
Figure 2-2a: Previous Recorded Archaeological Resources.....	2-23
Figure 2-2b: Previous Recorded Historic Resources.....	2-24
Figure 2-3a: Wetland, OSW, and SW Map.....	2-27
Figure 2-3b: Wetland, OSW, and SW Map.....	2-28
Figure 2-3c: Wetland, OSW, and SW Map.....	2-29
Figure 2-3d: Wetland, OSW, and SW Map.....	2-30
Figure 2-3e: Wetland, OSW, and SW Map.....	2-31
Figure 2-3f: Wetland, OSW, and SW Map.....	2-32
Figure 2-4: Floodplains Map.....	2-39
Figure 3-1: Existing and Future No-Build Lane Geometries	3-2
Figure 3-2: Existing Base Year 2019 Annual Average Daily Traffic (AADT)	3-5
Figure 3-3: Year 2019 Turning Movement Counts.....	3-9
Figure 3-4: Intersection Crashes	3-14
Figure 3-5: Future AADT Traffic Projections.....	3-19
Figure 3-6: Future Year 2025 Turning Movement Volumes	3-20
Figure 3-7: Future Year 2035 Turning Movement Volumes	3-21
Figure 3-8: Future Year 2045 Turning Movement Volumes	3-22
Figure 4-1: Typical Section No. 1	4-6
Figure 4-2: Typical Section No. 2	4-7
Figure 4-3: Typical Section No. 3	4-8
Figure 4-4: Typical Section No. 4	4-9
Figure 4-5: Typical Section No. 5	4-10
Figure 4-6: Typical Section No. 6	4-11
Figure 4-7: Typical Section Alternative No. 1	4-12
Figure 4-8: Typical Section Alternative No. 1	4-13
Figure 4-9: Typical Section Alternative No. 1	4-14
Figure 4-10a: Alternative Alignments Plan (Sheet 1 of 4).....	4-18

LIST OF FIGURES

Figure 4-10b: Alternative Alignments Plan (Sheet 2 of 4)	4-19
Figure 4-10c: Alternative Alignments Plan (Sheet 3 of 4)	4-20
Figure 4-10d: Alternative Alignments Plan (Sheet 4 of 4)	4-21
Figure 4-11: Recommended Pond Site Locations	4-25
Figure 4-12: Recommended Typical Section (Refined Typical Section No. 2)	4-29

LIST OF TABLES

.....

Table 2-1: Existing Right-of-Way Widths	2-2
Table 2-2: Existing Horizontal Curves	2-3
Table 2-3: Summary of Existing Cross Drains	2-4
Table 2-4: Summary of Existing Drainage Basins	2-5
Table 2-5: USDA NRCS Soil Survey Information: Osceola County	2-9
Table 2-6: USDA NRCS Soil Survey Information: Orange County	2-10
Table 2-7: Summary of Existing Utilities	2-13
Table 2-8: Osceola County Socio-Economic Data.....	2-14
Table 2-9: Previously Recorded Archaeological Resources	2-21
Table 2-10: Previously Recorded Historic Resources.....	2-21
Table 2-11: Potentially Occurring Protected Species	2-33
Table 2-12: Summary of Medium to High Risk Contamination Sites.....	2-40
Table 3-1: Traffic Volumes & Characteristics Summary	3-4
Table 3-2: Year 2019 Roadway Operational Summary	3-7
Table 3-3: Year 2019 Peak Intersection Analysis Summary	3-8
Table 3-4: Crash Summary by Year and Severity	3-11
Table 3-5: Crash Summary by Year and Condition	3-11
Table 3-6: Cash Summary by Year and Crash Type	3-12
Table 3-7: Intersection Crash Summary by Severity	3-13
Table 3-8: Intersection Summary by Conditions	3-13
Table 3-9: Crash Frequency & Crash Rate Summary	3-15
Table 3-10 Recommended Range of D Values	3-16
Table 3-11: Recommended Design Traffic Characteristics.....	3-17
Table 3-12: Year 2045 No Build Roadway Operational Analysis Summary	3-23
Table 3-13: Year 2045 no Build Peak Intersection Analysis Summary	3-24
Table 3-14: Year 2045 Build Roadway Operational Analysis Summary	3-25
Table 3-15: Year 2045 Peak Intersection Analysis Summary	3-26
Table 4-1: Recommended Median Access Locations.....	4-2
Table 4-2: Roadway Design Criteria.....	4-3
Table 4-3: Typical Section Design Criteria	4-4
Table 4-4: Summary of Typical Section Alternatives Considered	4-5
Table 4-5: Alternatives Evaluation Matrix	4-17
Table 4-6: Preliminary Soils Encountered	4-22
Table 4-7: Recommended Stormwater & Floodplain Compensation Pond Sites	4-24

Appendices

APPENDIX A: Recommended Alignment Concept Plans

1.0 INTRODUCTION

Osceola County commissioned an alignment study for the widening of Boggy Creek Road, a two-lane undivided east-west collector roadway. The study will identify all the environmental, physical, and cultural considerations of the proposed corridor, develop engineering refinements, provide a conceptual design and recommend a preferred alignment that will facilitate and support future growth along Boggy Creek Road and in Osceola County.

1.1 Project Description

Osceola County is conducting a corridor alignment study to evaluate alternative roadway design and alignments for the widening of Boggy Creek Road from Simpson Road to Narcoossee Road, a distance of approximately 6-miles. A Project Location Map is shown in [Figure 1-1](#).

The purpose of the alignment study is to develop alternative conceptual design alignments, considering various typical sections for the widening of Boggy Creek Road from the existing 2-lane roadway to a 4-lane divided roadway with bicycle and pedestrian facilities. The study will assess the need for capacity and operational improvements and identify all the environmental, physical, and cultural considerations of the proposed corridor, develop engineering refinements, and provide a conceptual design that will facilitate and support future development along Boggy Creek Road.

1.1.1 Purpose and Need

The purpose of the project is to address capacity and safety issues along the 6.0 mile segment of Boggy Creek Road.

The need for the project is based on capacity and safety.

Capacity

The 2019 annual average daily traffic (AADT) volumes on Boggy Creek Road range from 16,000 to 20,000 with Level of Services (LOS) between C and F. The 2045 traffic volumes range from 36,500 to 41,500 AADT, resulting in over capacity conditions for the entire corridor. The traffic analysis shows that the roadway network will continue to experience poor LOS, traffic delays and congestion if capacity improvements are not made to the existing Boggy Creek Road. It is recommended that Boggy Creek Road be widened to four travel lanes (two in each direction) to meet the future traffic demands. Additional turn lanes and geometric improvements are needed at major intersections to improve traffic operations and safety.

Safety

A total of 509 crashes were reported for the five-year period (January 1, 2015 to December 31, 2019), including five fatal crashes and 220 injury crashes.

A crash type analysis was conducted and the predominant crash type along the corridor was the rear-end crash (41.3 percent). The next most common crash type was the left-turn crashes at 26.1 percent. A total of 360 crashes (70.7 percent) occurred at intersections. Four of the fatal crashes were head-on collisions. The number of traffic accidents is expected to increase with the projected growth in traffic volumes if improvements are not made to the roadway system.

1.1.2 Study Parameters

This alternatives evaluation study includes an engineering and environmental evaluation, survey and mapping, drainage, geotechnical evaluation and development of alternative alignments. Field observations were conducted to validate survey data, determine ecological characteristics as well as determine impacts to wetlands and endangered species within the project limits. Viable context sensitive roadway typical sections, including urban, suburban, and rural sections were developed. Using these typical sections, left, center, right and composite alignments, within the existing Boggy Creek Road corridor, were evaluated to identify environmental and physical constraints.

Figure 1-1: Project Location Map



2.0 EXISTING CONDITIONS

2.1 Existing Roadway Characteristics

2.1.1 Functional and Context Classification

According to Osceola County, Boggy Creek Road is classified as an Urban Major Collector roadway and has a C3R – Suburban Residential context classification.

2.1.2 Access Classification

Boggy Creek Road is currently an undivided, two-lane roadway and is considered an Access Management Class Seven (unrestricted) facility.

2.1.3 Typical Sections

Boggy Creek Road is an existing 2-lane undivided east-west collector roadway with 12-foot wide travel lanes, flush shoulders and roadside ditches for drainage. There are existing left and right turn lanes at side streets, school entrances and commercial driveways along the corridor. Side slopes along the roadway are typically 1:4 or flatter, are grassed and exhibit no signs of any significant erosion.

2.1.4 Existing Posted Speeds

The posted speed limit along the corridor varies from 45 mph on the western limits to 55 mph on the eastern limits. From the beginning of the project at Simpson Road to just east of Turnberry Road, the speed limit is posted at 45 mph. From east of Turnberry Road to Narcoossee Road, the posted speed limit is 55 mph. There are two school zones located at East Lake Elementary School and the Renaissance Charter School.

2.1.5 Right-of-Way

The existing right-of-way (R/W) width varies along the project corridor from 100-feet to 130-feet wide. The existing R/W widths are summarized in [Table 2-1](#).

Table 2-1: Existing Right-of-Way Widths

Limits		Approx. Distance (feet)	R/W Width (LEFT) (feet)	R/W Width (RIGHT) (feet)	R/W Width (TOTAL) (feet)
From	To				
Simpson Road	E. of Morningside Drive	750	50	65	115
E. of Morningside Drive	E. of Fish Camp Road	7,500	50	50	100
E. of Fish Camp Road	W. of Holiday Woods	1,350	50	65	115
W of Holiday Woods	Elementary School Entrance	2,600	65	65	130
Elementary School Entrance	E. of Turnberry Road	1,200	65	50	115
E. of Turnberry Road	W. of Rustic Drive	10,300	50	50	100
W. of Rustic Drive	W. of Rustic Drive	350	50	55	105
W. of Rustic Drive	E. of Rustic Drive	1,250	50	50	100
E. of Rustic Drive	Fells Lane	3,400	50	65	115
Fells Lane	Narcoossee Road	2,500	65	50	115

2.1.6 Multi-Modal Accommodations

The Osceola County Trail Network Feasibility Analysis identifies the Boggy Creek Road corridor as a future trail facility.

2.1.6.1 Pedestrian Facilities

Existing sidewalks are intermittent throughout the corridor. In general, sidewalks are located adjacent to the schools, Austin-Tindall Sports Complex and the newer subdivisions and developments. A 10-foot wide sidewalk is located adjacent to Tohopekaliga High School and the Renaissance Charter School.

2.1.6.2 Bicycle Facilities

No dedicated bicycle facilities exist along the corridor.

2.1.6.3 Transit Facilities

There are no existing bus routes or facilities located in the study corridor. Based on the latest Osceola County Comprehensive Plan - 2040 Transit System plans, transit-related improvements are not planned on Boggy Creek Road within the project limits.

2.1.7 Horizontal and Vertical Geometry

Boggy Creek Road generally runs in an east-west alignment along the study corridor. There are five (5) existing horizontal curves, as summarized in [Table 2-2](#).

Table 2-2: Existing Horizontal Curves

PC Station	PI Station	PT Station	Deflection Angle	Degree of Curve	Radius (feet)	Length (feet)
109+39.01	117+99.83	125+56.51	48°-31'-10" LT	2°-59'-59"	1,910.08	1,617.50
163+98.41	171+11.99	177+64.24	40°-58'-12" LT	2°-59'-59"	1,910.08	1,365.83
246+33.06	259+45.47	267+58.06	84°-58'-57" LT	3°-59'-57"	1,432.69	2,125.00
286+54.04	294+08.16	300+42.37	55°-31'-48" RT	3°-59'-57"	1,432.69	1,388.33
326+41.47	320+12.91	323+68.35	29°-04'-09" RT	3°-59'-57"	1,432.69	726.88

The topography of Boggy Creek Road between Simpson Road and Fells Cove Boulevard is virtually flat. However, ground elevations range between elevation 80 feet at the intersection with Fells Cove Boulevard and 64 feet at the intersection with Narcoossee Road.

The existing right-of-way is well maintained. Sight distances along the corridor are adequate for the posted speeds with minimal roadside hazards present.

2.1.8 Intersections and Signalization

The existing traffic analysis focused on a total of nine (9) study intersections, of which four (4) are signalized and the remaining five (5) are unsignalized.

- Simpson Road at Boggy Creek Road – Signal Controlled
- East Lake Pointe Drive at Boggy Creek Road – Stop Controlled
- Nele Road/ Tohopekaliga High School at Boggy Creek Road – Signal Controlled
- Springlake Village Boulevard at Boggy Creek Road – Stop Controlled
- Turnberry Boulevard/Austin Tindall Park at Boggy Creek Road – Signal Controlled
- North Pointe Boulevard at Boggy Creek Road – Stop Controlled
- Timber Lane/ Creek Bank Drive at Boggy Creek Road – Stop Controlled
- Fells Cove Boulevard at Boggy Creek Road – Stop Controlled
- Narcoossee Road at Boggy Creek Road – Signal Controlled

2.1.9 Signage

The existing signage consists of ground mounted regulatory and guide signs that are in good condition with adequate reflectivity. The existing signs will be inventoried during the design process and each sign will be recommended for replacement or relocation as appropriate. There are no overhead signs within the project corridor.

2.2 Existing Drainage Conditions

The topography of Boggy Creek Road between Simpson Road and Narcoossee Road is virtually flat. However, ground elevations range between elevation 64 feet at the intersection with Narcoossee Road to 80 feet at the intersection with Fells Cove Boulevard.

There are no Outstanding Florida Water bodies (OFW) within the project limits. The project is located within the Unnamed Run, Kissimmee River, and Jim Branch sub-basins of the Kissimmee River Watershed under the jurisdiction of the SFWMD. The project traverses two (2) Water Body Identification Numbers (WBID's): Jim Branch (WBID 3172A) and East Lake Tohopekaliga Drain (WBID 3172C). WBID 3172C is impaired for nutrients (macrophytes).

There are nine (9) existing cross drains and one (1) bridge culvert (#924036) within the project limits. The bridge culvert allows Jim Branch to flow north beneath the roadway south toward East Lake Tohopekaliga. The existing cross drain locations are summarized in [Table 2-3](#).

Table 2-3: Summary of Existing Cross Drains

Structure No.	Station	Description
CD – 01	123+00	Double 24" RCP
CD – 02	146+25	Double 24" HDPE
CD – 03	151+00	Double 24" HDPE
CD – 04	175+00	Triple 36" RCP
CD – 05	240+00	Triple 36" RCP
CD – 06	268+00	Double 30" RCP
Bridge Culvert-01	303+50	Triple 5'x8' CBC
CD – 07	344+00	Double 30" RCP
CD – 08	364+50	Double 30" RCP
CD – 09	386+40	Double 24" RCP

The size and geometry of all cross drains have been verified during field investigations. During the design phase, a hydraulic analysis will be performed on all cross drains and recommendations will be made to either extend or replace each one based on this analysis, physical condition and remaining design service life.

2.2.1 Existing Drainage Basins

There are eleven (11) existing roadway basins which are described in the following sections. The existing drainage basins are summarized in [Table 2-4](#) and limits shown graphically in shown in [Figure 4-11](#).

Table 2-4: Summary of Existing Drainage Basins

Basin	From Station	To Station	Total Length (ft)	Outfall Location
Basin 1	106+00	135+70	2970	CD-01
Basin 2	135+70	169+00	3330	CD-03
Basin 3	169+00	204+00	3500	CD-04
Basin 4	204+00	240+00	3600	CD-05
Basin 5	240+00	289+50	4950	CD-06
Basin 6	289+50	303+50	1400	Bridge Culvert-01
Basin 7	303+50	334+00	3050	Bridge Culvert-01
Basin 8	334+00	354+00	2000	CD-07
Basin 9	354+00	376+80	2280	CD-08
Basin 10	376+80	396+00	1920	CD-09
Basin 11	396+00	417+00	2100	Lake Ajay Canal

2.2.1.1 Drainage Basin 1

Basin 1 begins at Simpson Road at station 106+00 and continues southeast until a high point in the roadway at station 135+70. Currently stormwater runoff from the roadway is collected and conveyed in a roadside ditch toward CD-01 at station 123+00 and discharged offsite. Runoff from much of the adjacent residential areas drains into the existing roadside ditches where it is then conveyed to CD-01.

2.2.1.2 Drainage Basin 2

Basin 2 begins at a high point in the roadway at station 135+70 and continues southeast until a high point in the roadway at Lake Vista Drive at station 169+00. Stormwater runoff within the basin is collected in roadside ditches and conveyed to CD-03 at station 151+00 and discharged offsite. At approximately stations 146+25 an offsite lateral ditch crosses beneath Boggy Creek Road via CD-02 at station 146+25. The stormwater runoff is then conveyed southeast to CD-03 within the roadside ditch along the southwest side of the roadway.

2.2.1.3 Drainage Basin 3

Basin 3 begins at a high point in the roadway at Lake Vista Drive at station 169+00 and continues east to another high point in the roadway at Holiday Woods Drive at station 204+00. Stormwater runoff within the basin is collected in roadside ditches and conveyed west to CD-04 at station 175+00 and discharged offsite. The existing stormwater management facility that services Tohopekaliga High School discharges to CD-04 via a concrete weir structure.

2.2.1.4 Drainage Basin 4

Basin 4 begins at a high point in the roadway at Holiday Woods Drive at station 204+00 and continues east until CD-05 at station 240+00. Stormwater runoff within the basin is collected in roadside ditches and conveyed east to CD-05 and discharged offsite.

2.2.1.5 Drainage Basin 5

Basin 5 begins at CD-05 at station 240+00 and continues north to a high point in the roadway at Timber Lane at station 289+50. Stormwater runoff within the basin is collected in roadside ditches and conveyed north or south to CD-06 at station 268+00 and discharged offsite toward the east. The existing stormwater management facility located on the west side of the roadway at station 267+00 discharges to CD-06 via a depression in the berm. Another small lateral ditch discharges into the western roadside swale at station 268+50 and conveyed south to CD-06.

2.2.1.6 Drainage Basin 6

Basin 6 begins at a high point in the roadway at Timber Lane at station 289+50 and continues north to the Bridge Culvert at station 303+50. The bridge culvert allows Jim Branch to flow beneath Boggy Creek Road toward the south where it eventually discharges into East Lake Tohopekaliga. Stormwater runoff within the basin is collected in roadside ditches and conveyed north towards the bridge culvert and discharged offsite.

2.2.1.7 Drainage Basin 7

Basin 7 begins at the Bridge Culvert at station 303+50 and continues northeast to a highpoint in the roadway at Osprey Lane at station 334+00. The bridge culvert allows Jim Branch to flow beneath Boggy Creek Road toward the south where it eventually discharges into East Lake Tohopekaliga. Stormwater runoff within the basin is collected in roadside ditches and conveyed southwest towards the bridge culvert and discharged offsite.

2.2.1.8 Drainage Basin 8

Basin 8 begins at a highpoint in the roadway at Osprey Lane at station 334+00 and continues east to another roadway high point at Rustic Drive at station 354+00. Within this Basin stormwater runoff is collected in roadside swales and conveyed to CD-07 at station 344+00 and discharged offsite. The runoff discharges into a lateral ditch which flows through the Rustic Acres subdivision and into East Lake Tohopekaliga.

2.2.1.9 Drainage Basin 9

Basin 9 begins at a highpoint in the roadway at Rustic Drive at station 354+00 and continues east to another high point in the roadway at Fells Cove Boulevard at

station 376+80. Within this basin stormwater runoff is collected in roadside swales and conveyed to CD-08 at station 364+50 and discharged offsite through a closed storm sewer system which conveys the runoff through the Fell's Cove subdivision and into East Lake Tohopekaliga.

2.2.1.10 Drainage Basin 10

Basin 10 begins at a highpoint in the roadway at Fells Cove Boulevard at station 376+80 and continues east to another roadway high point at station 396+00. Stormwater runoff within this basin is collected in roadside swales and conveyed to CD-09 at station 386+40 and discharged offsite through a closed storm sewer system which conveys the runoff through the Fell's Cove subdivision and into East Lake Tohopekaliga.

2.2.1.11 Drainage Basin 11

Basin 11 begins at a highpoint in the roadway at station 396+00 and continues east to the end of the project at Narcoossee Road at station 417+00. Stormwater runoff within this basin is collected in roadside swales and conveyed east toward Narcoossee Road. The stormwater runoff then enters the closed storm sewer system constructed for Basin F of the Narcoossee Road Segment 3 Widening (SFWMD Permit #49-01006-P) and conveyed south along the west side of Narcoossee Road for a distance of approximately 3350 feet and discharged directly into Lake Ajay Canal (SFWMD Canal 29B). According to the existing permit, compensating treatment for Basin F was provided in the adjacent stormwater ponds: Pond D3 Comp and Pond E1 Comp.

2.3 Existing Bridge Conditions

The existing bridge culvert (924036) at Jim Branch Creek is cast-in-place concrete and consists of three cells, 8-feet wide and 5-feet high. The culvert was originally built in 1950 and extended on both sides in 2011. The culvert is in good condition with minor cracking and spalling. The bridge culvert is 71 years old and near the end of its design service life, therefore, replacement of the bridge culvert with the roadway improvements is recommended.

2.4 Soils

The soil survey for Osceola County (dated 2012) and Orange County (dated 2011) published by the USDA NRCS has been reviewed within the project vicinity. USDA Soil Survey Geographic database (SSURGO) data was also obtained from SFWMD to create a soils map for the project limits using GIS ArcMap. SSURGO data was compared to the soil survey by USDA NRCS and found no deviation.

The soils encountered along the project limits are mostly Hydrologic Soil Group (HSG) A/D, with a small area of HSG A near Tohopekaliga High School as well as toward the end of the project between Fells Lane and Narcoossee Road. Group A soils have low runoff potential and high infiltration rates even when thoroughly wetted. They consist chiefly of deep, well to excessively drained sand or gravel and have a high rate of water transmission. Group D soils have high runoff

potential. They have very low infiltration rates when thoroughly wetted and consist chiefly of clay soils with a high swelling potential, soils with a permanent high-water table, soils with a claypan or clay layer at or near the surface, and shallow soils over nearly impervious material. These soils have a very low rate of water transmission. If a soil is assigned to a dual HSG, the first letter is for drained areas and the second is for un-drained areas. Only the soils that in their natural condition are in group D are assigned to dual classes. According to the Soil Survey, there are 17 different soil types located along the project limits within Osceola County and 9 different soil types located along the project limits within Orange County. [Table 2-5](#) and [Table 2-6](#) provide data from the USDA NRCS Soil Survey for each of the soil types that the Boggy Creek Road alignment crosses.

Table 2-5: USDA NRCS Soil Survey Information: Osceola County

Soil No.	USDA Soil Name	Seasonal High Ground Water		HSG	Total Required Right-of-Way (ac)		
		Depth* (feet)	Duration (months)		Depth (inches)	Unified	AASHTO
1	Adamsville Sand	2.0-3.5	Jun-Nov	A	0-4	SP-SM	A-3, A-2-4
					4-80	SP-SM, SP	A-3, A-2-4
5 & 6	Basinger Fine Sand	+2.0-1.0	Jun-Feb	A/D	0-80	SP, SP-SM	A-3, A-2-4
9	Cassia Fine Sand	1.5-3.5	Jul-Jan	A/D	0-20	SP, SP-SM	A-3
					20-28	SP-SM, SM	A-3, A-2-4
					28-88	SP, SP-SM	A-3
10	Delray Loamy Fine Sand	+2.0-1.0	Jun-Mar	A/D	0-14	SP-SM, SM	A-3, A-2-4
					14-44	SP-SM	A-3, A-2-4
					44-62	SM, SM-SC, SC	A-2-4, A-2-6
					62-80	SM	A-2-4
22	Myakka Fine Sand	0-1.0	Jun-Feb	A/D	0-27	SP, SP-SM	A-3
					27-37	SM, SP-SM	A-3, A-2-4
					37-82	SP, SP-SM	A-3
24	Narcoossee Fine Sand	2.0-3.5	Jun-Nov	A	0-5	SP-SM	A-3
					5-22	SP, SP-SM	A-3
					22-26	SP-SM	A-3, A-2-4
					26-80	SP, SP-SM	A-3
27	Ona Fine Sand	0-1.0	Jun-Nov	B/D	0-6	SP-SM, SP	A-3
					6-15	SP-SM, SM	A-3, A-2-4
					15-80	SP-SM, SP	A-3
31	Pits	---	---	---	---	---	---
32	Placid Find Sand	+2.0-1.0	Jun-Mar	A/D	0-24	SP, SP-SM, SM	A-3, A-2-4
					24-80	SP, SP-SM, SM	A-3, A-2-4
33	Placid Variant Sand	1.5-3.0	Jul-Dec	A/D	0-17	SP-SM	A-3, A-2-4
					17-80	SP-SM	A-3, A-2-4
34	Pomello Fine Sand	2.0-3.5	Jul-Nov	A	0-47	SP, SP-SM	A-3
					47-58	SP-SM, SM	A-3, A-2-4
					58-60	SP, SP-SM	A-3
.39	Riviera Fine Sand	+2.0-1.0	Jun-Feb	C/D	0-24	SP, SP-SM	A-3, A-2-4
					24-38	SM, SM-SC, SC	A-2-4
					38-61	SM-SC, SC	A-2-4, A-2-6
					61-80	SP, SP-SM	A-3, A-1
40	Samsula Muck	+2.0-1.0	Jan-Dec	A/D	0-22	PT	---
					22-65	SP-SM, SM, SP	A-3, A-2-4
42	Smyrna Fine Sand	0-1.0	Jan-Dec	A/D	0-14	SP, SP-SM	A-3
					14-25	SM, SP-SM	A-3, A-2-4
					25-56	SP, SP-SM	A-3

Soil No.	USDA Soil Name	Seasonal High Ground Water		HSG	Total Required Right-of-Way (ac)		
		Depth* (feet)	Duration (months)		Depth (inches)	Unified	AASHTO
					56-80	SM, SP-SM	A-3, A-2-4
43	St. Lucie Fine Sand	>6.0	---	A	0-80	SP	A-3
44	Tavares Fine Sand	3.5-6.0	Jun-Dec	A	0-80	SP, SP-SM	A-3

Table 2-6: USDA NRCS Soil Survey Information: Orange County

Soil No.	USDA Soil Name	Seasonal High Ground Water		HSG	Total Required Right-of-Way (ac)		
		Depth* (feet)	Duration (months)		Depth (inches)	Unified	AASHTO
2	Archbold Fine Sand	3.5-6.0	Jun-Nov	A	0-80	SP	A-3
4	Basinger Fine Sand	>6.0	---	A/D	0-7	SP	A-3
					7-32	SP, SP-SM	A-3, A-2-4
					32-47	SP, SP-SM	A-3, A-2-4
					47-80	SP, SP-SM	A-3, A-2-4
26	Ona Fine Sand	0-1.0	Jun-Nov	B/D	0-5	SP-SM, SP	A-3
					5-18	SP-SM, SM	A-3, A-2-4
					18-80	SP-SM, SP	A-3
34	Pomello Fine Sand	2.0-3.5	Jul-Nov	A	0-42	SP, SP-SM	A-3
					42-54	SP-SM, SM	A-3, A-2-4
					54-80	SP, SP-SM	A-3
37	St. John's Fine Sand	0-1.0	Jun-Nov	B/D	0-12	SP, SP-SM	A-3
					12-24	SP, SP-SM	A-3
					24-44	SP-SM, SM	A-3, A-2-4
					44-80	SP, SP-SM	A-3
40	Samsula Muck	+2.0-1.0	Jan-Dec	A/D	0-40	PT	---
					40-80	SP-SM, SM, SP	A-3, A-2-4
42	Sanibel Muck	+1.0-1.0	Jun-Feb	A/D	0-11	PT	---
					11-15	SP, SP-SM	A-3
					15-80	SP, SP-SM	A-3
44	Smyrna Fine Sand	0-1.0	Jul-Oct	A/D	0-17	SP, SP-SM	A-3, A-2-4
					17-27	SM, SP-SM	A-3, A-2-4
					27-80	SP, SP-SM	A-3
54	Zolfo Fine Sand	2.0-3.5	Jun-Nov	A	0-6	SP-SM	A-3, A-2-4
					6-64	SP-SM, SM	A-3, A-2-4
					64-80	SP-SM, SM	A-3, A-2-4

2.5 Lighting

Currently, Boggy Creek Road has no roadway lighting except at the following signalized intersections:

- Nele Road/Tohopekaliga High School and Boggy Creek Road
- Turnberry Boulevard/Austin Tindall Park and Boggy Creek Road
- Narcoossee Road and Boggy Creek Road

The intersection lighting consists of light fixtures mounted on the signal poles.

2.6 Utilities

Eighteen (18) Utility/Agency Owners (UAO's) were identified within the study corridor through Sunshine 811 One Call.

AT&T Florida
 Mr. Alan Reynolds
 Manager OSP Plng & Eng Design
 5100 Steyr Street
 Orlando, FL 32819
 (407) 351-8180
ar2916@att.com

City of St. Cloud
 Mr. Corey Clough
 Engineering Assistant
 1300 9th Street
 St. Cloud, FL 34769
 (407) 957-7222
cclough@stcloud.org

Bright House Networks
 Mr. Marvin Usry
 Construction Supervisor
 3767 All American Boulevard
 Orlando, FL 32810
 (407) 532-8509
Marvin.Usryjr@charter.com

Comcast Communications
 Mr. Joe Von Schmidt
 Senior Wireless Network Engineer
 8130 CR LEG A
 Leesburg, FL 34788
 (407) 957-7222
 Joseph_VonSchmidt

CenturyLink Local
 Mr. Marlon Brown
 UAO Project Representative
 925 1st Street Room 103
 Altamonte Springs, FL 32701
 (863) 452-3132
marlon.n.brown@centrulylink.com

Duke Energy LLC Distribution
 Ms. Lindsay Olivieri
 Land Representative
 3300 Exchange Place
 Lake Mary, Florida 32746
 (407)-942-9657
lindsay.olivieri@duke-energy.com

CenturyLink National (Level 3)
 Ms. Xan Rypkema
 Project Business Analyst
 1025 Eldorado Boulevard
 Broomfield, CO 80021
 (720) 888-1089
NationalRelo@centurylink.com

Duke Energy LLC Transmission
 Ms. Jennifer Williams
 Designer I
 4427 Pet Lane, Suite 101
 Lutz, FL 33559
 (813) 909-1210
JEWilliams@pike.com

Hotwire Communications
Mr. Eddie Miranda
UAO Project Representative
2100 West Cypress Creek Road
Fort Lauderdale, FL 33309
(321) 710-1733
EMiranda@Hotwiremail.com

Sprint
Mr. Jon Baker
Network Engineer II
360 S. Lake Destiny Dr, Suite A.
Orlando, FL 32810
(321) 280-9596
Jon.Baker@sprint.com

Kissimmee Utility Authority
Mr. Felix Escobar
UAO Project Representative
1701 West Carroll Street
Kissimmee, FL 34741
(407) 933-7777 x6600
fescobar@kua.com

Summit Broadband
Ms. Michelle Daniel
Network Documentation Specialist
4558 SW 35th Street, Suite 100
Orlando, FL 32811
(407) 996-1183
mdaniel@summit-broadband.com

Orange County Utilities
Mr. Jose Hernandez
UAO Project Representative
9150 Curry Ford Road
Orlando, FL 32825
(407) 254-9718
jose.hernandez2@ocfl.net

TOHO Water Authority
Mr. Robert Pelham
UAO Project Representative
951 Martin Luther King Blvd
Kissimmee, FL 34741
(407) 944-5132
jose.hernandez2@ocfl.net

Orlando Utilities Commission Electric
Mr. Rick Parker
UAO Representative
100 W. Anderson Street
Orlando, FL 32802
(407) 434-2159
rparker@ouc.com

Uniti Fiber
Mr. Michel-Lee Chapuseaux
UAO Representative
107 St. Francis St. STE. 1800
Mobile, AL 36602
(352) 256-1524
michel-lee.chapuseaux@uniti.com

Orlando Utilities Commission Water
Ms. Steve Grubbs
Sr. Engineering Associate
6003 Pershing Ave.
Orlando, FL 32822
(407) 434-2560
Sgrubbs@ouc.com

TECO Peoples Gas
Mr. Shawn Winsor
Gas Design / Project Manager
600 West Robinson Street
Orlando, FL 32801
(407) 420-6663
swinsor@tecoenergy.com

Six of these utility companies, CenturyLink National, Duke Energy LLC Distribution, Duke Energy LLC Transmission, Hotwire Communications, Orange County Utilities, and Orlando Utilities Commission (OUC) - Water, indicated they do not have facilities within the limits of the study. Of the remaining twelve, ten have potential conflicts between their facilities and the proposed project, depending on what improvements are being made. Potential conflicts include buried fiber, buried copper, water mains, wastewater mains, and power poles. If Kissimmee Utility Authority or OUC is in conflict then the joint users on the poles will be in conflict as well. The UAO's are summarized

in [Table 2-7](#). A detailed description of the existing utilities and easements and their influence on the alignment alternatives are documented in the *Utility Assessment Package*, dated April 2021.

Table 2-7: Summary of Existing Utilities

Utility Agency Owner (UAO)	Existing Facilities
AT&T Florida	Direct buried fiber optic cable along the south and north side of Boggy Creek Road OR Direct buried fiber optic cable throughout the project limits
Bright House Networks (Spectrum)	Underground facilities and aerial facilities on the south and north side of Boggy Creek Road
CenturyLink Local	Underground copper and fiber lines on the south and north side of Boggy Creek Road
City of St. Cloud	2" water line at the south east corner of Majestic Oak Drive and Boggy Creek Road
Comcast Communications	Underground and aerial, copper and fiber lines on the south and north side of Boggy Creek Road
Kissimmee Utility Authority	Unresponsive to date
OUC Electric	Unresponsive to date
Sprint	Unresponsive to date
Summit Broadband	Underground 144-count fiber and vault/handhold at the SE corner of Boggy Creek Road & Simpson Road.
TECO Peoples Gas	Gas line running along the east side of Narcoossee Road
TOHO Water Authority	Wastewater: 6" to 20" wastewater force mains throughout the project limits Water: 10" to 30" water mains throughout the project limits
Uniti Fiber	Underground line running along the west side of Narcoossee Road

All the existing utilities appear to have the capacity to adjust and/or relocate their services within the corridor without causing major inconvenience to their customers. The potential utility impacts will not have an effect on the recommendation of a build alternative.

2.7 Environmental Characteristics

2.7.1 Socio-Economic

Osceola County has a total area of 1,506 square miles, of which 1,327 square miles is land. A review of the 2010 Census data from the Florida Statistical Abstract prepared by the Bureau of Economic and Business Research (BEBR) estimated that the population for Osceola County was 370,552 in 2019, which represents a 37.8 percent increase in nine years since 2010. This is the highest percent population change for a Florida County during that time frame. The population per square mile from 2010 to 2019 jumped to 279 from 202. Osceola County has a considerable amount of people under the age of 44 (61.1%)

and children ages 17 and younger make up about one fourth of the population. The United States Census estimates that the median value of owner-occupied housing units from 2014 to 2018 to be \$179,800. [Table 2-8](#) summarizes the socio-economic data for Osceola County and the study area.

Table 2-8: Osceola County Socio-Economic Data

Statistic	Osceola County
Population - 2010	268,685
Population - 2019	370,552
% increase in population (2010 – 2019)	37.8%
Projected population – 2020	380,700
Median age	35.7
% 65 and older – 2018	13.2%
Total households - 2019	123,464
Average persons per household	2.97
Per capita income	\$21,331
Median household income (in 2018 dollars), 2014 – 2018	\$50,063
Percent Hispanic – 2018	53.1%
Percent Minority, Non-Hispanic (estimate) – 2018	14.4%

2.7.2 Land Use

The existing land use along the project corridor is mainly residential, with a mix of commercial and agricultural lands. Established commercial businesses along the corridor include Circle K, Family Dollar, Wawa, McDonalds and 7-11. Learning institutions include Tohopekaliga High School, East Lake Elementary School and the Renaissance Charter School. The Austin-Tindall Sports Complex is also located along the corridor. Access to the East Lake Fish Camp and The Floridian RV Resort are directly from Boggy Creek Road. A map showing the existing land-use in the vicinity of the study corridor is shown in [Figures 2-1a thru 2-1f](#).

Figure 2-1a: Existing Land Use Map



Figure 2-1b: Existing Land Use Map



Boggy Creek Road (CR 530) Widening
 Simpson Road to Narcoossee Road
 Osceola County, FL
 FLUCCS

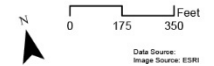
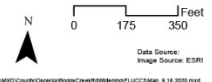


Figure 2-1c: Existing Land Use Map



Boggy Creek Road (CR 530) Widening
 Simpson Road to Narcoossee Road
 Osceola County, FL
 FLUCCS



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Figure 2-1d: Existing Land Use Map



Legend

Study Area

FLUCCS

- 1180, Rural Residential
- 1210, Fixed Single Family Units
- 1710, Educational Facilities
- 2110, Improved Pastures
- 3210, Palmetto Prairies
- 4340, Upland Mixed Coniferous / Hardwood
- 5100, Streams and Waterways
- 5300, Reservoirs
- 8140, Roads and Highways

Bogy Creek Road (CR 530) Widening
 Simpson Road to Narcoossee Road
 Osceola County, FL
 FLUCCS

0 175 350 Feet

North Arrow

Data Source: ESRI
 Image Source: ESRI

Document Path: G:\2022\County\Osceola\BogyCreekWidening\FLUCCSMap_3_16_2022.mxd

Figure 2-1e: Existing Land Use Map



Legend

Study Area

FLUCCS

- 1180, Rural Residential
- 1210, Fixed Single Family Units
- 1710, Educational Facilities
- 4340, Upland Mixed Coniferous / Hardwood
- 5300, Reservoirs
- 8140, Roads and Highways

Boggy Creek Road (CR 530) Widening
 Simpson Road to Narcoossee Road
 Osceola County, FL
 FLUCCS

0 175 350 Feet

North Arrow

Data Source: ESRI
 Image Source: ESRI

Source File: G:\2020\County\Osceola\BoggyCreek\Widening\FLUCCS_Map_3_16_2020.mxd

Figure 2-1f: Existing Land Use Map



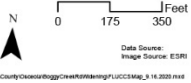
Legend

Study Area

FLUCCS

- 1210, Fixed Single Family Units
- 1320, Mobile Home Units
- 1400, Commercial and Services
- 4210, Xeric Oak
- 4340, Upland Mixed Coniferous / Hardwood
- 5300, Reservoirs
- 6300, Wetland Forested Mixed
- 8140, Roads and Highways

Boggy Creek Road (CR 530) Widening
 Simpson Road to Narcoossee Road
 Osceola County, FL
 FLUCCS



Data Source: ESRI
 Image Source: ESRI
 Source File: G:\2020\County\Osceola\BoggyCreek\Widening\FLUCCS\Map_3_16_2020.mxd

2.7.3 Historic and Archaeological Resources

A **Cultural Resource Assessment Survey**, dated January 2021, was prepared to determine if any significant or potentially significant cultural resources, including archaeological sites and historic resources, will be impacted by the construction of any of the proposed corridor alternatives. To encompass all potential improvements, the Area of Potential Effects (APE) was defined to include the existing and proposed Boggy Creek Road right-of-way from Simpson Road to Narcoossee Road. This APE was extended to the back or side property lines of parcels adjacent to the right-of-way, or a distance of no more than 328 feet (100 meters) from the right-of-way line

The background research indicated that two archaeological sites have been recorded within the APE, shown in [Figure 2-2a](#) and summarized in [Table 2-9](#). Both archaeological sites included have been determined not eligible for listing in the NRHP by the SHPO.

Table 2-9: Previously Recorded Archaeological Resources

Previously Recorded FMSF No.	Site Name	Time Period	Site Type	SHPO Evaluation
8OS02365	Northshore 2	19 th -20 th Century American, 1821-present	Historic dump site	Ineligible
8PO06855	Grassy Lake	Late Archaic, St. Johns 700 BC- AD 1500, 20 th Century American, 1900-present		Ineligible

Historic/architectural background research included a review of the Florida Master Site File (FMSF) and the NRHP resulted in the identification and evaluation of three previously recorded historic resources within the Boggy Creek Road APE. Three previously recorded resources (8OS01933, 8OS02666, and 8OS02667) were determined to have been demolished within the Boggy Creek Road APE. These sites are shown in [Figure-2-2b](#) and summarized in [Table 2-10](#).

Table 2-10: Previously Recorded Historic Resources

Previously Recorded FMSF No.	Address/Site Name	Build Date	Use	SHPO Evaluation
8OS01933	SR 530 N	c.1953		Ineligible
8OS02666	3699 Boggy Creek Road	c.1955		Not Evaluated by SHPO
8OS02667	3675 Boggy Creek Road	c.1930		Ineligible
8OS02823	4492 Boggy Creek Road	c.1961	Single Family	Ineligible
8OS02921	4520 Boggy Creek Road	c.1973	Single Family	Ineligible
8OS02922	4558 Boggy Creek Road	c.1971	Single Family	Ineligible

These historic resources include two Frame Vernacular (c. 1961 and 1971) and one Ranch style building (c. 1973) constructed between circa 1914 and 1966. All three buildings were determined ineligible for listing in the NRHP by the State Historic Preservation Officer (SHPO). No further architectural work is recommended.

Figure 2-2a: Previous Recorded Archaeological Resources

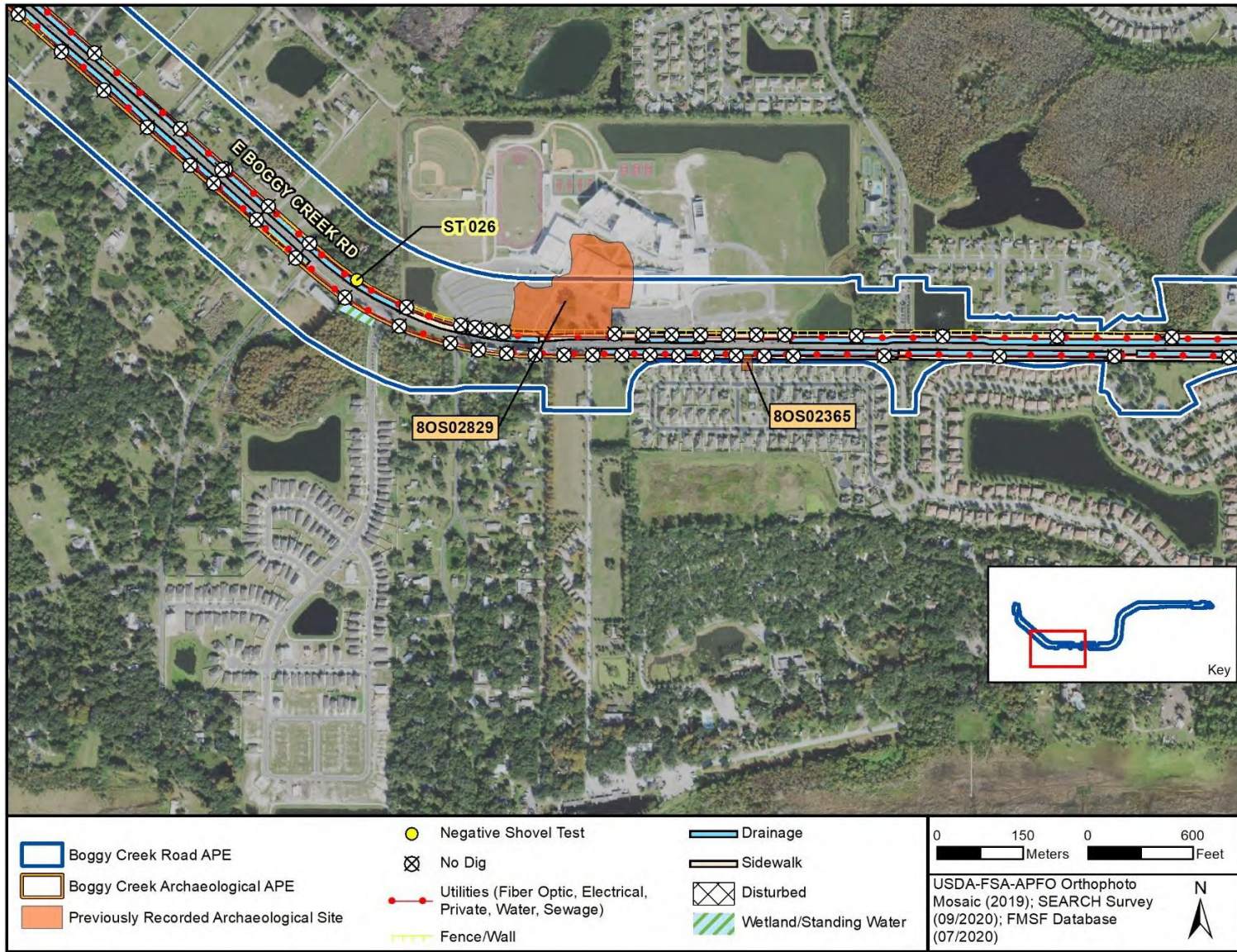
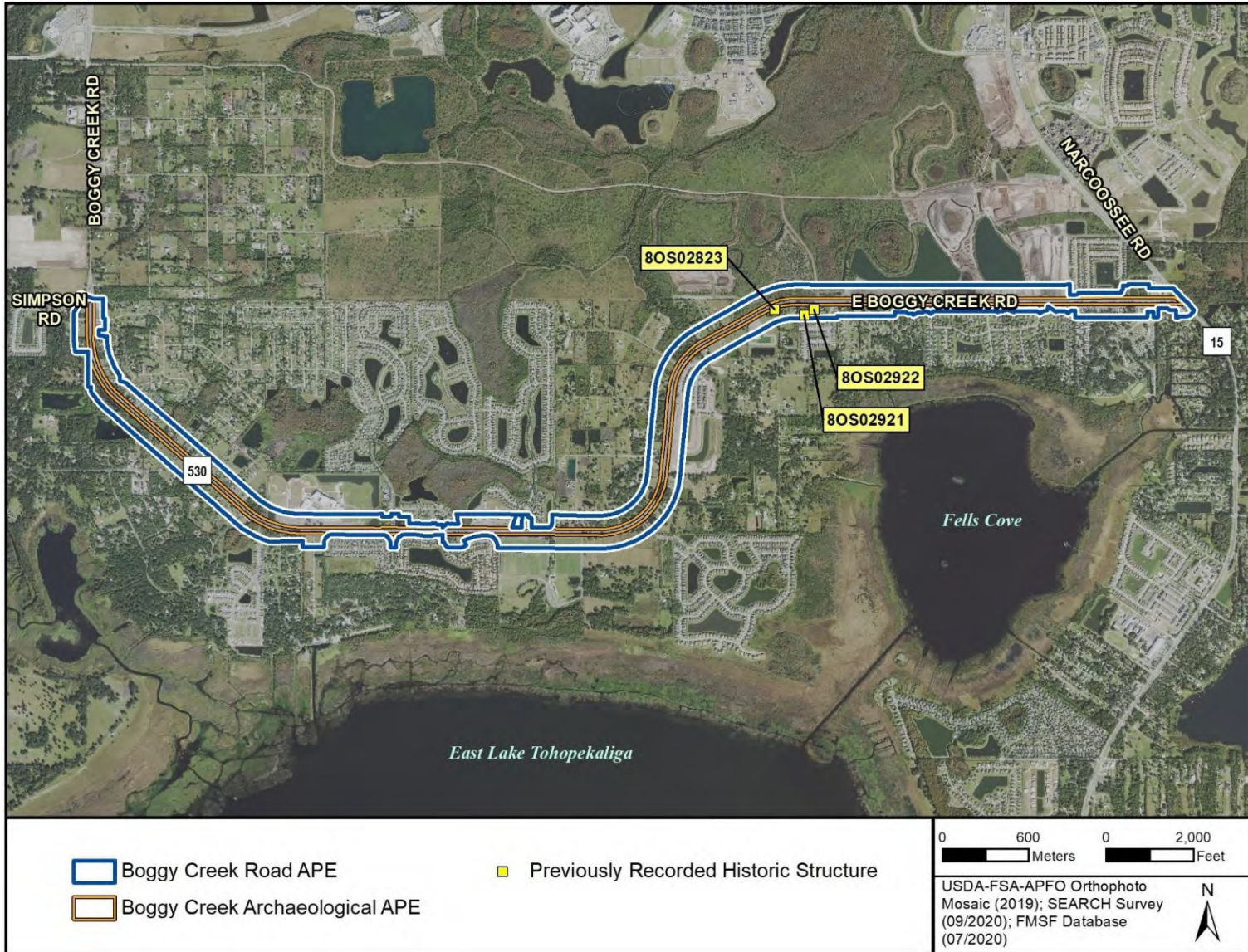


Figure 2-2b: Previous Recorded Historic Resources



2.7.4 Wetlands and Other Surface Waters

A detailed evaluation of the existing wetlands and surface waters was documented in the *Final Natural Environmental Evaluation Memorandum*, dated September 2020. The wetlands in the vicinity of the study corridor are shown in [Figures 2-3a thru 2-3f](#). An inventory of wetlands was accomplished using the United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) database, United States Geological Survey (USGS) Quadrangle Maps, National Resources Conservation Service (NRCS) Polk County Soil Survey, SWFWMD Land Use and Cover Forms data, aerial photography and ground-truthing. The field reviews were conducted in April 2019.

Using the above information, an analysis was performed to identify wetland areas. These areas were mapped on aeriels and labeled using the Florida Land Use Cover and Forms Classification System (FLUCFCS) and corresponding NWI code, where applicable. The full detailed analysis of the wetland areas and corresponding aeriels can be found in the *Natural Environmental Evaluation Memorandum*.

FLUCFCS 510 - Streams and Waterways

This land use class includes small tributaries and streams that are located within the road the existing roadway corridor. One named tributary is located within the existing Boggy Creek Road ROW limits, identified as Jim Branch. A triple box culvert is currently located at the Jim Branch Creek crossing. Within the immediate project limits the creek is lined with riprap, roadside bahiagrass (*Paspalum notatum*) and forested hardwood communities.

FLUCFCS 530 – Reservoirs (Upland-Cut) Other Surface Waters (OSWs)

Within the study area, OSW features associated with the existing roadway and surrounding development are located throughout the project. These include roadside ditches that were historically dredged from uplands during the original construction of the roadway, and large borrow areas, created historically to transport upland fill material offsite.

Along the existing ROW corridor, ditch systems are dominated by bahiagrass with some presence of opportunistic and hydric vegetation such as sedges (*Cyperus* spp. and *Carex* spp.), marsh pennywort (*Hydrocotyle* sp.), and beggartick (*Bidens alba*). Other upland-cut OSWs include a large borrow area within the study boundary. Once an abandoned citrusgrove, the area is overgrown with thick vegetation including Florida elderberry (*Sambucus nigra* subsp. *Canadensis*), Brazilian pepper (*Schinus terebinthifolia*), Peruvian primerosewillow (*Ludwigia peruviana*), cattail (*Typha* spp.), red maple (*Acer rubrum*), and other occasional canopy species surrounding the edges including oaks (*Quercus* spp.) and native pines (*Pinus* spp.).

The large borrow areas are part of a permitted borrow site, approved by SWFWMD in 2000, concurrent with SWFWMD Permit # 49-01043-P. These borrow areas are extremely overgrown with nuisance and exotic vegetation similar to species listed above.

FLUCFCS 617- Mixed Wetland Hardwoods

Within the study limits, there are remnants of mixed wetland hardwood systems that extend beyond the study boundary. These systems are of moderate ecological value and have some exotic/nuisance species encroachment. Canopy species include red maple and various oaks, with encroachment of Brazilian pepper midstory. Groundcover is comprised of cinnamon fern (*Osmundastrum cinnamomeum*) and other opportunistic species such as dogfennel (*Eupatorium capillifolium*) and pennywort.

FLUCFCS 621 - Cypress

These wetlands are dominated by both bald and pond cypress (*Taxodium* sp.). Within the project study area, these cypress domes have a scattered understory of wax myrtle (*Myrica cerifera*), red maple, Carolina willow (*Salix caroliniana*), and loblolly bay (*Persea borbonia*). The shrub and ground cover near the edge of these systems consist of a mixture of native, exotic, and opportunistic species. Some prevalent vegetation observed include common buttonbush (*Cephalanthus occidentalis*), Peruvian primrose-willow, swamp fern (*Telmatoblechnum serrulatum*), dogfennel, Florida elderberry, wild taro (*Xanthosoma sagittifolium*), lizard's tail (*Saururus cernuus*), Brazilian pepper, and Cinnamon fern.

FLUCFCS 630 – Wetland Forested Mixed

There is one wetland system within the study area. Primary canopy species include oaks, pines, cypress, and red maple. Understory composition contains some opportunistic species, with similar species observed in nearby Mixed Wetland Hardwoods.

Figure 2-3a: Wetland, OSW, and SW Map



Boggy Creek Road (CR 530) Widening
Simpson Road to Narcoossee Road
Osceola County, FL
Wetland, OSW, and SW Map

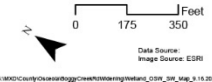


Figure 2-3b: Wetland, OSW, and SW Map



Boggy Creek Road (CR 530) Widening
 Simpson Road to Narcoossee Road
 Osceola County, FL
 Wetland, OSW, and SW Map

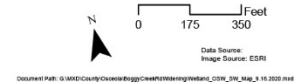


Figure 2-3c: Wetland, OSW, and SW Map



Bogy Creek Road (CR 530) Widening
 Simpson Road to Narcoossee Road
 Osceola County, FL
 Wetland, OSW, and SW Map

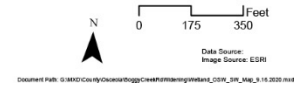
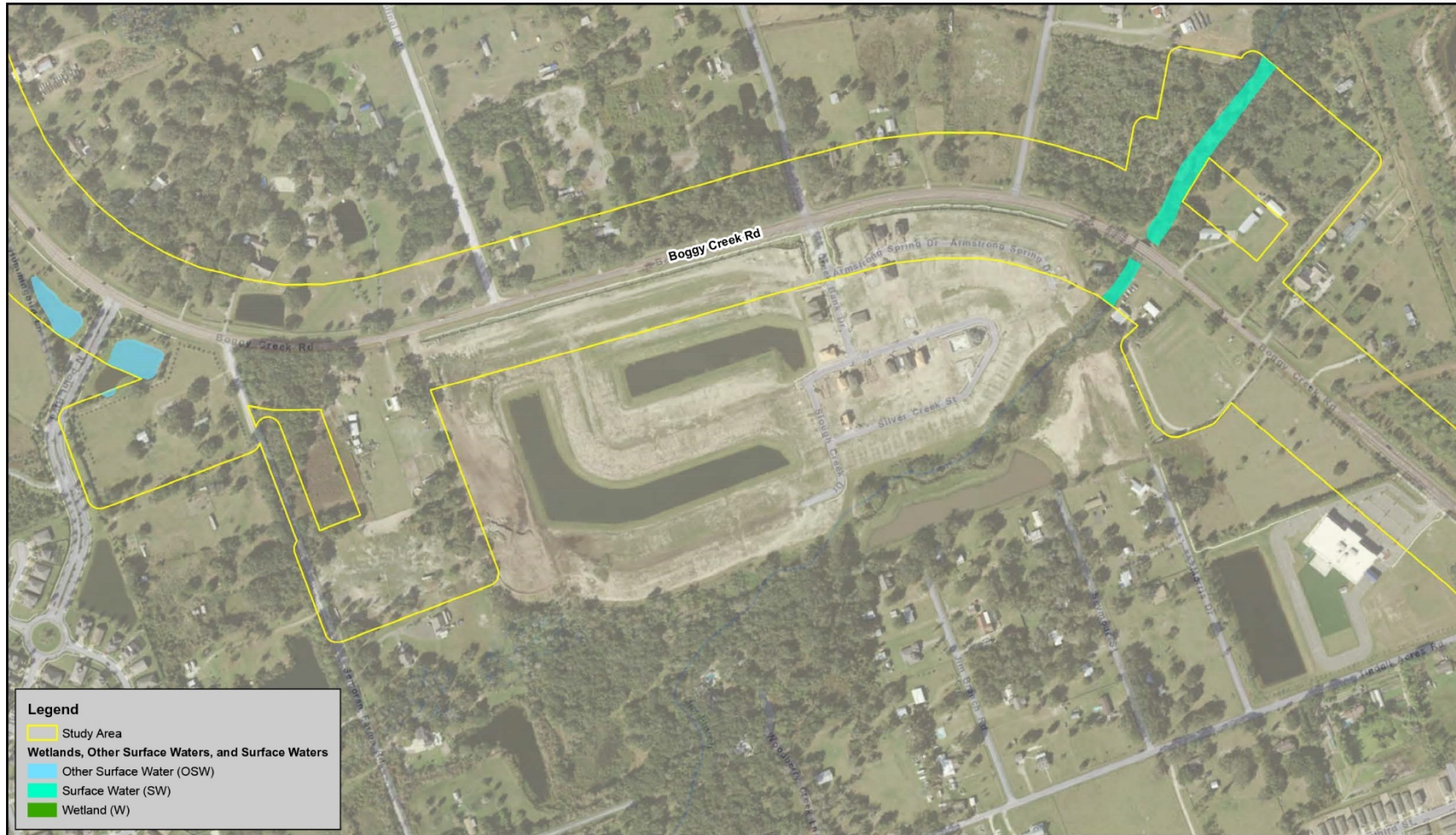


Figure 2-3d: Wetland, OSW, and SW Map



Boggy Creek Road (CR 530) Widening
Simpson Road to Narcoossee Road
Osceola County, FL
Wetland, OSW, and SW Map

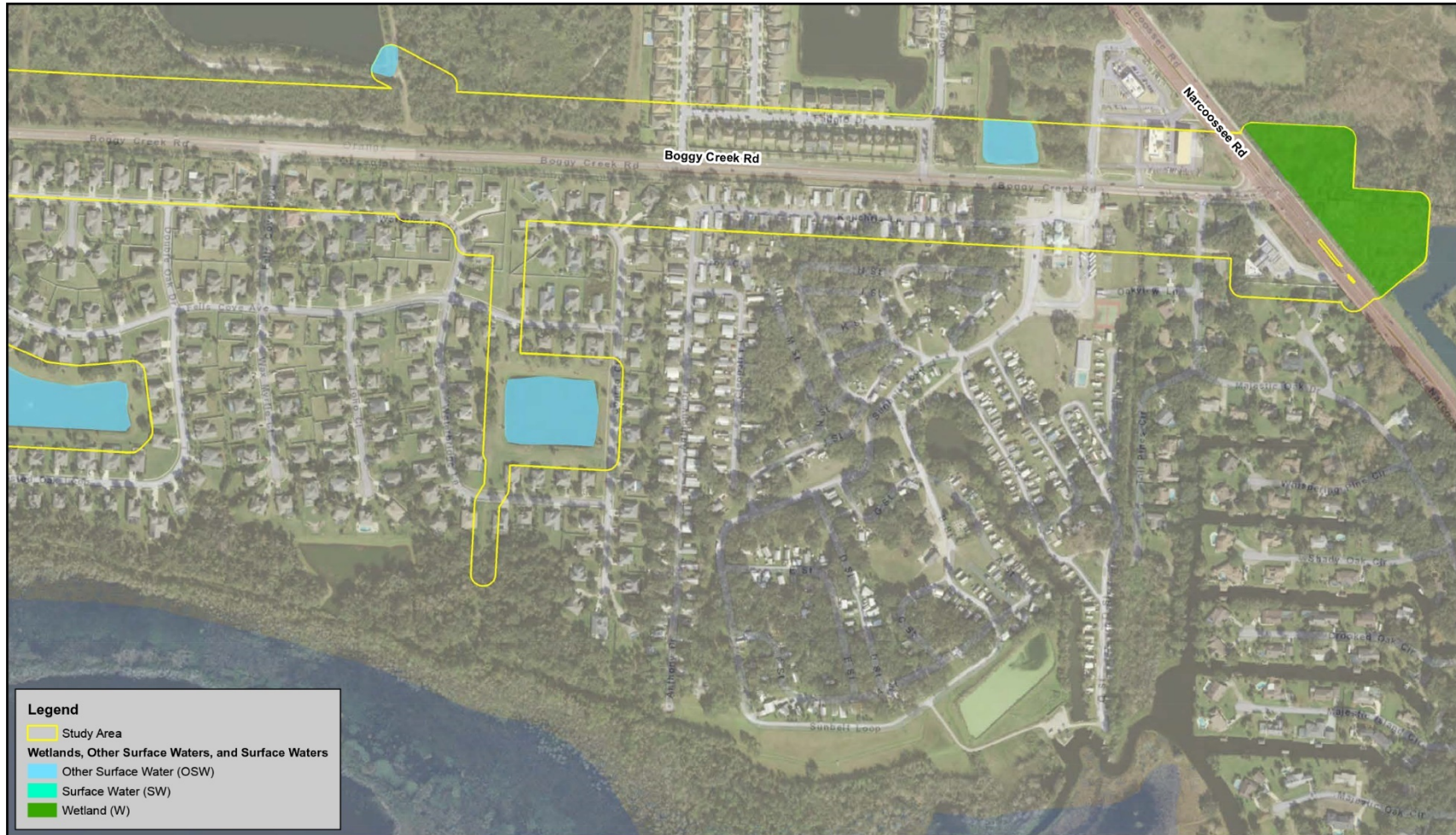


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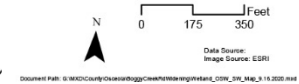
Figure 2-3e: Wetland, OSW, and SW Map



Figure 2-3f: Wetland, OSW, and SW Map



Bogy Creek Road (CR 530) Widening
 Simpson Road to Narcoossee Road
 Osceola County, FL
 Wetland, OSW, and SW Map



2.7.5 Threatened and Endangered Species

Protected species have been evaluated and documented in the *Natural Environmental Evaluation Memorandum*, dated February 2021, in order to determine the potential impacts to threatened and endangered species within the study corridor. Federal listed species are protected under the Endangered Species Act of 1973 under the jurisdiction of the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS). Within the state of Florida, federal and state listed species are protected under Chapter 68A-27, F.A.C, which also states that all species listed by the USFWS and the NMFS that occur within Florida are also included on the Florida Endangered and Threatened Species List as Federally-designated Endangered, Federally-designated Threatened, Federally-designated due to Similarity of Appearance, or Federally-designated Non-Essential Experimental Population Species. In Florida, state protected animal species are under the jurisdiction of the Florida Fish and Wildlife Conservation Commission (FWC), while state protected plant species are under the jurisdiction of the Florida Department of Agriculture & Consumer Services (FDACS) by *Rule 5B-40 Florida Administrative Code*. [Table 2-11](#) lists the protected species potentially occurring within the study area based on the habitat available on site, and whether the species was observed.

Table 2-11: Potentially Occurring Protected Species

Common Name	Scientific Name	Federal Status	State Status	Likelihood of Occurrence	Preliminary Project Effects
Plants					
Ashe's calamint	Calamintha ashei	Not Listed	Threatened	None	No adverse effect anticipated
Beautiful paw-paw	Deeringothamnus pulchellus	Endangered	Endangered	None	No adverse effect anticipated
Britton's beargrass	Nolina brittoniana	Endangered	Endangered	None	No adverse effect anticipated
Carter's warea	Warea carteri	Endangered	Endangered	None	No adverse effect anticipated
Celestial lily	Nemastylis floridana	Not Listed	Endangered	None	No adverse effect anticipated
Chapman's sedge	Carex chapmanni	Not Listed	Threatened	None	No adverse effect anticipated
Clasping warea	Warea amplexifolia	Endangered	Endangered	None	No adverse effect anticipated

Common Name	Scientific Name	Federal Status	State Status	Likelihood of Occurrence	Preliminary Project Effects
Comb polypody	<i>Pecluma ptilota</i> var. <i>bourgeauana</i>	Not Listed	Endangered	None	No adverse effect anticipated
Cutthroatgrass	<i>Coleataenia abscissa</i>	Not Listed	Endangered	None	No adverse effect anticipated
Florida beargrass	<i>Nolina atopocarpa</i>	Not Listed	Threatened	None	No adverse effect anticipated
Florida blazing star	<i>Liatris ohlingerae</i>	Endangered	Endangered	None	No adverse effect anticipated
Florida bonamia	<i>Bonamia grandiflora</i>	Threatened	Endangered	None	No adverse effect anticipated
Florida spiny pod	<i>Matelea floridana</i>	Not Listed	Endangered	None	No adverse effect anticipated
Florida willow	<i>Salix floridana</i>	Not Listed	Endangered	None	No adverse effect anticipated
Giant orchid	<i>Pteroglossis ecristata</i>	Not Listed	Threatened	None	No adverse effect anticipated
Hand fern	<i>Ophioglossum palmatum</i>	Not Listed	Endangered	None	No adverse effect anticipated
Hartwrightia	<i>Hartwrightia floridana</i>	Not Listed	Threatened	None	No adverse effect anticipated
Large-flowered rosemary	<i>Conradina grandiflora</i>	Not Listed	Threatened	None	No adverse effect anticipated
Lewton's polygala	<i>Polygala lewtonii</i>	Endangered	Endangered	None	No adverse effect anticipated
Lowland loosestrife	<i>Lythrum flagellare</i>	Not Listed	Endangered	None	No adverse effect anticipated
Many-flowered grass-pink	<i>Calopogon multiflorus</i>	Not Listed	Threatened	None	No adverse effect anticipated
Narrowleaf naiad	<i>Najas filifolia</i>	Not Listed	Threatened	None	No adverse effect anticipated

Common Name	Scientific Name	Federal Status	State Status	Likelihood of Occurrence	Preliminary Project Effects
Nodding pinweed	<i>Lechea cernua</i>	Not Listed	Threatened	None	No adverse effect anticipated
Paper-like nailwort	<i>Paronychia chartacea</i>	Threatened	Endangered	None	No adverse effect anticipated
Pine pinweed	<i>Lechea divaricata</i>	Not Listed	Endangered	None	No adverse effect anticipated
Pinewoods bluestem	<i>Andropogon acrtatus</i>	Not Listed	Threatened	None	No adverse effect anticipated
Plume polypody	<i>Pecluma plumula</i>	Not Listed	Endangered	None	No adverse effect anticipated
Pygmy fringe tree	<i>Chionanthus pygmaeus</i>	Endangered	Endangered	None	No adverse effect anticipated
Redmargin zephyrlily	<i>Zephyranthes simpsonii</i>	Not Listed	Threatened	None	No adverse effect anticipated
Sand Butterfly Pea	<i>Centrosema arenicola</i>	Not Listed	Endangered	None	No adverse effect anticipated
Scrub bluestem	<i>Schizachyrium niveum</i>	Not Listed	Endangered	None	No adverse effect anticipated
Scrub buckwheat	<i>Eriogonum longifolium</i> var. <i>gnaphalifolium</i>	Threatened	Endangered	None	No adverse effect anticipated
Scrub lupine	<i>Lupinus aridorum</i>	Endangered	Endangered	None	No adverse effect anticipated
Scrub plum	<i>Prunus geniculata</i>	Endangered	Endangered	None	No adverse effect anticipated
Short-leaved rosemary	<i>Conradina brevifolia</i>	Endangered	Endangered	None	No adverse effect anticipated
Small's jointweed	<i>Polygonella myriophylla</i>	Endangered	Endangered	None	No adverse effect anticipated
Star Anise	<i>Illicium parviflorum</i>	Not Listed	Endangered	None	No adverse effect anticipated

Common Name	Scientific Name	Federal Status	State Status	Likelihood of Occurrence	Preliminary Project Effects
Toothed maiden fern	<i>Thelypteris serrata</i>	Not Listed	Endangered	None	No adverse effect anticipated
Yellow fringeless orchid	<i>Platanthera integra</i>	Not Listed	Endangered	None	No adverse effect anticipated
Reptiles					
Blue-tailed mole skink	<i>Plestiodon egregious lividus</i>	Threatened	Threatened	Low	Potential for adverse effect
Eastern indigo snake	<i>Drymarchon corais couperi</i>	Threatened	Threatened	Moderate	May affect, but is not likely to adversely affect
Florida pine snake	<i>Pituophis melanoleucus mugitus</i>	Not Listed	Threatened	Low	No adverse effect anticipated
Gopher tortoise	<i>Gopherus polyphemus</i>	Not Listed	Threatened	High (Observed)	No adverse effect anticipated
Sand Skink	<i>Neoseps reynoldsi</i>	Threatened	Threatened	Low	Potential for adverse effect
Birds					
Bald eagle	<i>Haliaeetus leucocephalus</i>	Not Listed	Not Listed	High	May affect, but is not likely to adversely affect
Crested caracara	<i>Polyborus plancus audubonii</i>	Threatened	Threatened	Low	May affect, but is not likely to adversely affect
Everglade snail kite	<i>Rostrhamus sociabilis plumbeus</i>	Endangered	Endangered	None	No adverse effect anticipated
Florida burrowing owl	<i>Athene cunicularia floridana</i>	Not Listed	Threatened	Low	No adverse effect anticipated
Florida grasshopper sparrow	<i>Ammodramus savannarum floridanaus</i>	Endangered	Endangered	Low	No adverse effect anticipated

Common Name	Scientific Name	Federal Status	State Status	Likelihood of Occurrence	Preliminary Project Effects
Florida sandhill crane	<i>Grus canadensis pratensis</i>	Not Listed	Threatened	High	No adverse effect anticipated
Florida scrub-jay	<i>Aphelocoma coerulescens</i>	Threatened	Threatened	Low	No adverse effect anticipated
Little blue heron	<i>Egretta caerulea</i>	Not Listed	Threatened	Moderate	No adverse effect anticipated
Osprey	<i>Pandion haliaetus</i>	Not Listed	Not Listed	Moderate	No effect
Red-cockaded woodpecker	<i>Picoides borealis</i>	Endangered	Endangered	Low	May affect, but is not likely to adversely affect
Southeastern American kestrel	<i>Falco sparverius paulus</i>	Not Listed	Threatened	Moderate	No adverse effect anticipated
Tricolored heron	<i>Egretta tricolor</i>	Not Listed	Threatened	Moderate	No adverse effect anticipated
Wood stork	<i>Haliaeetus leucocephalus</i>	Threatened	Threatened	Moderate	May affect, but is not likely to adversely affect
Mammals					
Florida black bear	<i>Ursus americanus floridanus</i>	Not Listed	Not Listed	Low	No adverse effect anticipated
Florida bonneted bat	<i>Eumops floridanus</i>	Endangered	Endangered	None	No adverse effect anticipated
Florida panther	<i>Puma [=Felis] concolor coryi</i>	Endangered	Endangered	None	No adverse effect anticipated

2.7.6 Floodplains and Floodway

According to the Federal Emergency Management Agency (FEMA), the relevant Flood Insurance Rate Map (FIRM) panel numbers are 12097C0085G and 12097C0105G dated June 18, 2013. The FEMA FIRM indicates that the roadway is located within Zone X of the FEMA 100-year floodplain with the exception of the area adjacent to Jim Branch, which is designated as Zone A of the FEMA 100-year floodplain. These areas have a 1% probability of flooding every year and where predicted flood water elevations have not been established. Additionally, there are some pockets of Floodplain designated as Zone

AE of the FEMA 100-year floodplain located north of Boggy Creek Road between Tindall Access Road and Fells Lane. Zone AE are areas that have a 1% probability of flooding every year and Base Flood Elevations are shown. There are no federally regulated floodways within the project limits. The FEMA FIRM Map is shown in [Figure 2-4](#).

Figure 2-4: Floodplains Map



2.7.7 Potential Contamination

A preliminary contamination assessment was conducted and documented in the ***Contamination Screening Evaluation Report***, dated February 2021. The screening evaluated properties located in or adjacent to the study corridor along with the preferred pond sites and categorized them based on a level of risk, which expresses the degree of concern for the potential for contamination issues. Based on the screening, there are fifteen (15) sites that were identified as Medium to High Risk in the study corridor, and is summarized in [Table 2-12](#).

Table 2-12: Summary of Medium to High Risk Contamination Sites

Site ID	Name / Description	Site Address	Risk Potential
1	7-Eleven Food Store #32659	3290 North Narcoossee Road	Medium
3	Boggy Creek Food & Gas	5160 Boggy Creek Road	Medium
5	Unnamed Nursery	Approx. 4480 Boggy Creek Road	Medium
8	Florida Sterling Investments/Kelly Property	3600 Boggy Creek Road	High
9	Boggy Creek Bromeliads	3615 Boggy Creek Road	Medium
15	Circle K #7466	3280 Boggy Creek Road	Medium
16	Former Auto Salvage Lot	14857 Boggy Creek Road	High
17	Historical Agricultural Use (Citrus)	Study Area	Medium
18	Uncle Jutty's Nursery	3415 Boggy Creek Road	Medium
19, Pond 2C	Former Plant Nursery and Site Debris	3470 Boggy Creek Road	Medium
20	Former Plant Nursery	3530 Boggy Creek Road	Medium
21	Historical Cattle Pen	South Side of Boggy Creek Road	Medium
22	Former Plant Nursery	4324 Semoran Farms Road	Medium
23	Former Nursery and Trailer Parking Site	4370 Boggy Creek Road	Medium
Pond 3D	Imported Fill	2904 Lake Vista Drive	Medium

3.0 TRAFFIC

This section provides a summary of the detailed information contained in the *Final Project Traffic Analysis Report (PTAR)*, dated January 2021, prepared as part of this alignment study.

3.1 Existing Traffic Conditions

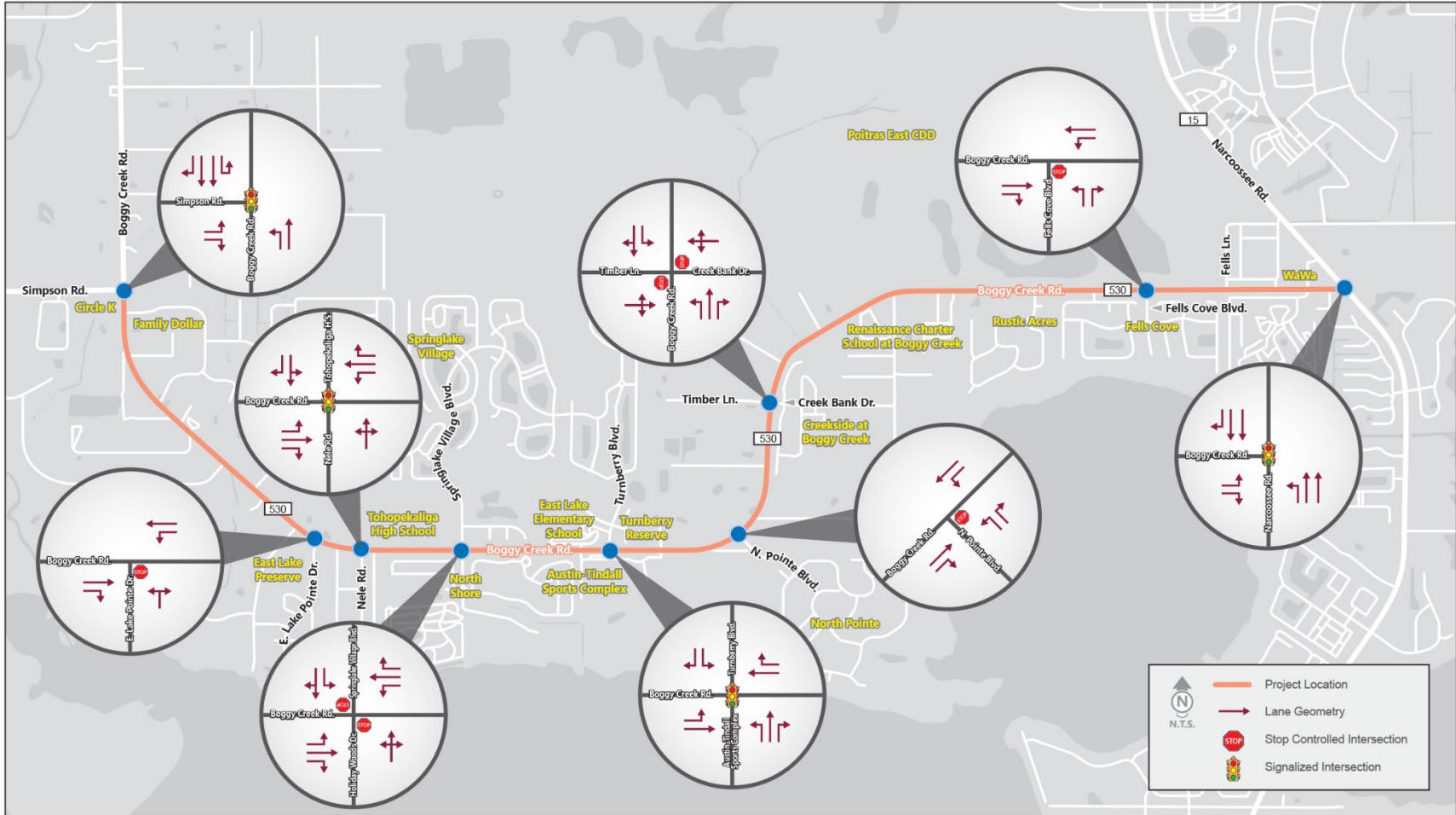
Boggy Creek Road is classified as an urban major collector that is primarily a north/south facility that extends from Narcoossee Road on the south in Osceola County and terminates to the north at the SR 528 / Beachline Expressway in Orange County. Within the study corridor, Boggy Creek Road from Simpson Road to Narcoossee Road, is mostly a two (2) lane undivided west/east roadway that serves the travel demands of various residential developments, schools, and related businesses.

The project study corridor includes a total of nine (9) study intersections, of which four (4) are signalized and the remaining five (5) are unsignalized. The study intersections evaluated are listed below:

- Simpson Road at Boggy Creek Road – Signal Controlled
- East Lake Pointe Drive at Boggy Creek Road – Stop Controlled
- Nele Road/ Tohopekaliga High School at Boggy Creek Road – Signal Controlled
- Springlake Village Boulevard at Boggy Creek Road – Stop Controlled
- Turnberry Boulevard/Austin Tindall Park at Boggy Creek Road – Signal Controlled
- North Pointe Boulevard at Boggy Creek Road – Stop Controlled
- Timber Lane/ Creek Bank Drive at Boggy Creek Road – Stop Controlled
- Fells Cove Boulevard at Boggy Creek Road – Stop Controlled
- Narcoossee Road at Boggy Creek Road – Signal Controlled

The existing (2019) and future no-build intersection lane geometries for the study area roadways are shown in [Figure 3-1](#).

Figure 3-1: Existing and Future No-Build Lane Geometries



3.1.1 Traffic Count Information

Due to the COVID-19 pandemic, it was determined that traffic counts collected in the field would be skewed. In analyzing the year 2019 operating conditions of the intersections and roadway segments, traffic counts collected and obtained from StreetLight data for the year 2019 (pre COVID-19) were used along with the existing roadway and intersection geometry. The turning movement volumes collected were compared with previous studies, seasonally adjusted, balanced when required and used for the existing year 2019 LOS analysis for the intersections and roadway segments.

Traffic volumes for the Boggy Creek Road study corridor for year 2019 were obtained from FDOT, Osceola County, Orange County, and StreetLight data. StreetLight data was used to collect turning movement counts for pre-COVID traffic conditions at study intersections. Year 2019 FDOT axle and seasonal adjustment factors for Orange County were obtained from FDOT 2019 Florida Traffic Online.

3.1.2 Existing Traffic Characteristics

The available traffic count information from the 2019 Orange County annual counts and 2019 Osceola County annual counts were used to develop existing traffic characteristics for the Boggy Creek Road study corridor and the intersecting side streets.

Based on the volume counts obtained, peak hour traffic flow (K measured) and, directional split (D measured) for the roadways in the study area were derived. These field-measured adjustment factors provide an indication of existing traffic flow characteristics (i.e., constrained or unconstrained flow) which will be compared against the recommended ranges that are acceptable to the FDOT's Project Traffic Forecasting Handbook.

The existing year 2019 Annual Average Daily Traffic (AADT) volumes for the individual roadway segments are provided in [Table 3-1](#). In addition, the table summarizes the field measured roadway characteristics based on the actual peak hour obtained from the roadway traffic counts from Osceola County and Orange County.

Utilizing the turning movement volumes at each intersection and the existing measured characteristics based on the roadway traffic counts, the base year AADT volumes were adjusted to be consistent with the turning movement volumes at each study intersection. [Figure 3-2](#) provides the adjusted existing base year AADT's for the study corridor. Note that the AADT volumes for the existing base year 2019 conditions were derived by applying the K measured factor from traffic volume counts obtained from Osceola County and Orange County, to the adjusted existing turning movement volumes that were collected as part of this study.

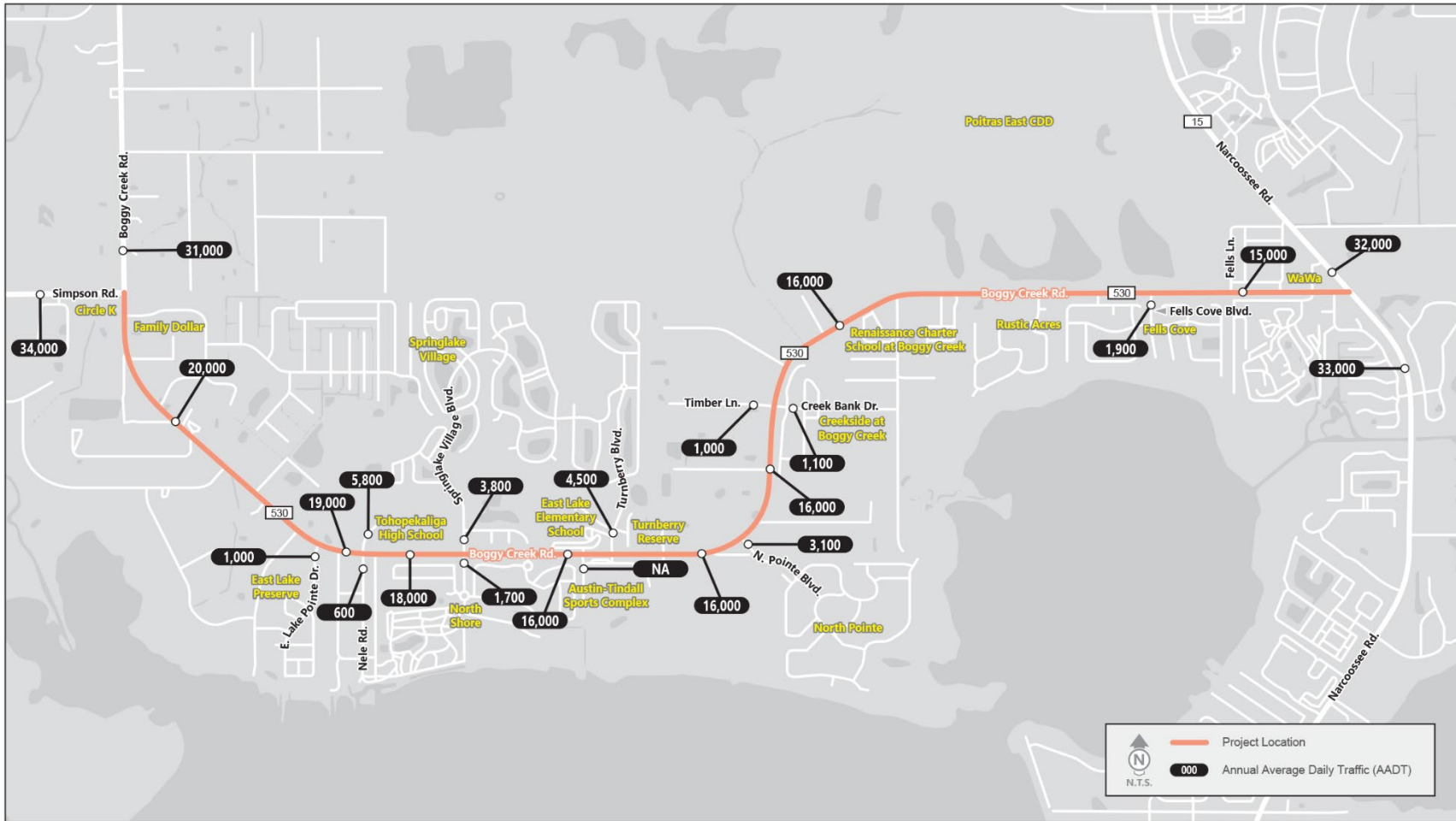
Table 3-1: Traffic Volumes & Characteristics Summary

Roadway Segment	Measured Characteristic						Seasonal Adj ¹	Axle Adj 2	Adjusted AADT ³
	ADT	Peak Hour	NB/EB	SB/WB	K Factor	D Factor			
Boggy Creek Road									
North of Simpson Road	31,712	1,941	1,225	716	6.1%	63.1%	0.96	0.99	30,000
		2,041	892	1,149	6.4%	56.3%			
Simpson Road to Austin Tindall Park	18,581	1,489	620	869	8.0%	58.4%	0.96	0.99	18,000
		1,409	787	622	7.6%	55.9%			
Austin Tindall Park to Narcoossee Road	15,334	1,138	737	401	7.4%	64.8%	0.96	0.99	15,000
		1,169	458	711	7.6%	60.8%			
Narcoossee Road									
North of Boggy Creek Road	31,742	2,375	1,832	543	7.5%	77.1%	1.03	0.99	32,000
		2,537	922	1,615	8.0%	63.7%			
South of Boggy Creek Road	35,090	2,959	2,142	817	8.4%	72.4%	0.96	0.99	33,000
		2,739	728	2,011	7.8%	73.4%			
Simpson Road									
West of Boggy Creek Road	27,868	1,582	819	763	5.7%	51.8%	0.95	0.99	26,000
		1,528	673	855	5.5%	56.0%			

Notes:

1. Most Recent Seasonal Adjustment Factors were obtained from FDOT 2019 Florida Traffic Online
2. Most Recent Axle Factors were obtained from FDOT 2019 Florida Traffic Online
3. Adjusted Average Annual Daily Traffic (AADT) = Measured ADT * Seasonal Adjustment * Axle Adjustment

Figure 3-2: Existing Base Year 2019 Annual Average Daily Traffic (AADT)



3.1.3 Year 2019 Turning Movement Counts

Turning movement counts were obtained for the AM and PM peak hour conditions for the nine (9) study intersections from StreetLight data, checked for reasonableness (with previous traffic studies) and balanced for upstream and downstream flows. The turning movement counts from the side streets were adjusted based on the previous projects and then through movements on Boggy Creek Road were adjusted for reasonableness based on engineering judgement. The adjusted base year AM and PM peak hour turning movement volumes for the study corridor are shown in [Figure 3-3](#).

3.1.4 2019 Year LOS Analysis

An analysis of the LOS performance based on existing geometry serves as one of the factors in identifying roadway and intersection improvements needed to accommodate existing and future travel demand. Intersection levels of service were determined utilizing Highway Capacity Manual (HCM) 6th edition methodologies within Synchro 10.0 software.

3.1.4.1 Year 2019 Roadway Operational Analysis

The existing base year roadway segment LOS analysis was performed for the base year traffic conditions for AM and PM peak hours based on Osceola County's roadway classification standards. Osceola County currently classifies Boggy Creek Road as an urban minor arterial. Utilizing this appropriate roadway classification, the roadway segment LOS analysis was performed using the most current Osceola County Roadway Network Capacity Report Tables.

As shown in [Table 3-2](#), all roadway segments along Boggy Creek Road were found to operate with an acceptable level of service (LOS) C or better condition, except for the roadway segments from north of Simpson Road to Nele Road that were found to operate at LOS F conditions during year 2019 AM peak hours. During 2019 PM peak hour conditions, all roadway segments along Boggy Creek Road were found currently operating at LOS C condition or better except the roadway segments from north of Simpson Road to Springlake Village Boulevard that were found operating at LOS F condition.

Table 3-2: Year 2019 Roadway Operational Analysis Summary

Roadway Segment	Lanes	Capacity	AM Peak Design Hour			PM Peak Design Hour		
			Volume	V/C Ratio	LOS	Volume	V/C Ratio	LOS
North of Simpson Road	2	880	1,195	1.36	F	980	1.11	F
Simpson Road to East Lake Point Drive	2	880	1,043	1.19	F	898	1.02	F
East Lake Point Drive to Nele Road	2	880	829	0.94	E	861	0.98	E
Nele Road to Springlake Village Boulevard	2	880	724	0.82	C	832	0.95	E
Springlake Village Boulevard to Turnberry Boulevard	2	880	575	0.65	C	714	0.81	C
Turnberry Boulevard to North Pointe Boulevard	2	1,660	549	0.34	C	665	0.41	C
North Pointe Boulevard to Timber Lane	2	1,660	572	0.36	C	616	0.38	C
Timber Lane to Fells Cove Boulevard	2	1,660	583	0.36	C	647	0.40	C
Fells Cove Boulevard to Narcoossee Road	2	1,660	616	0.38	C	602	0.37	C

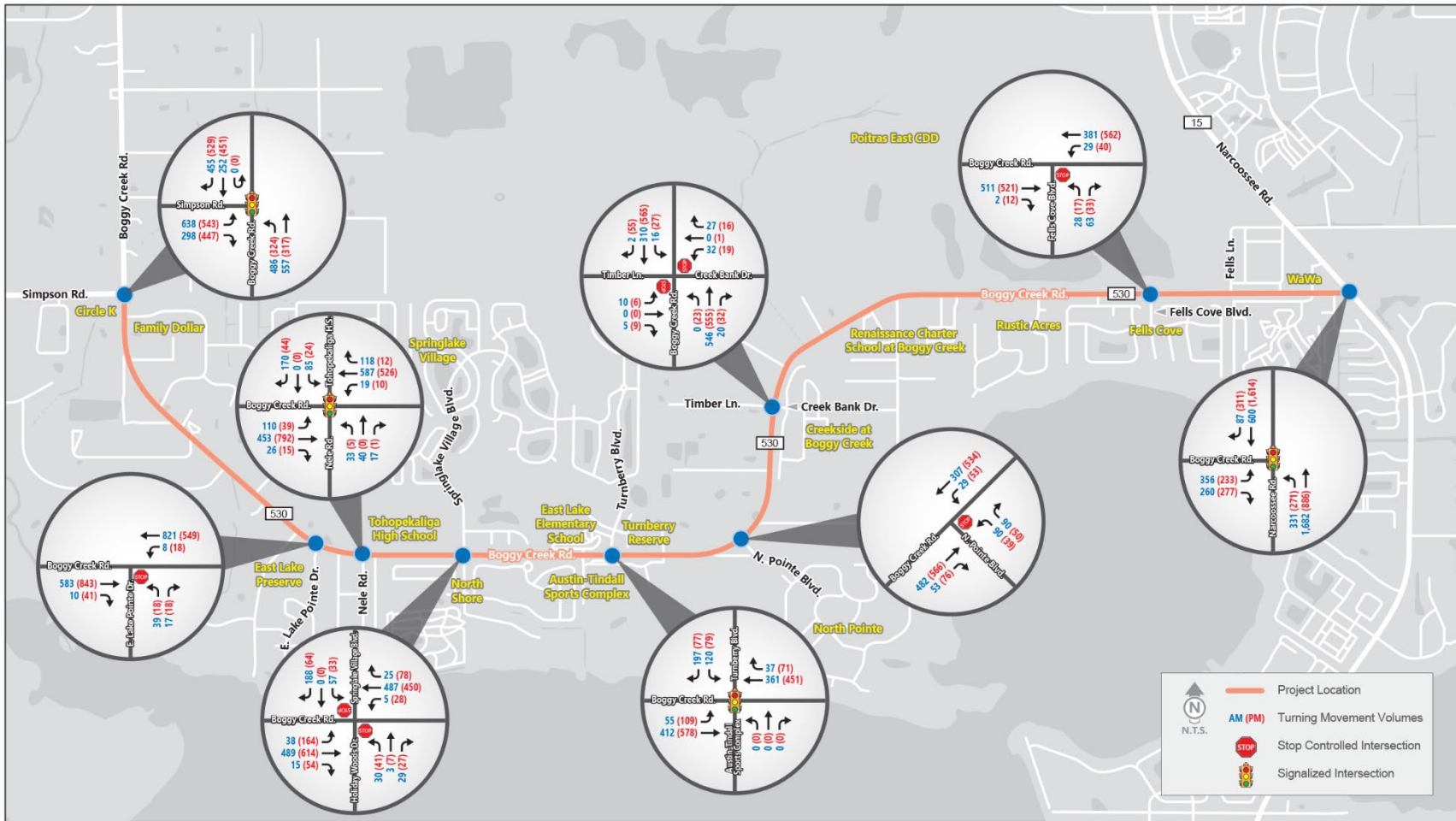
3.1.4.2 Year 2019 Intersection LOS Analysis

The year 2019 AM and PM peak hour turning movement volumes along with existing intersection geometry and signal timings were used in the intersection LOS analysis. A summary of the traffic operations LOS analysis for the study intersections are included in [Table 3-3](#). All of the signalized intersections were found to operate at LOS D or better except Boggy Creek Road at Simpson Road intersection. For all the unsignalized intersections where the minor street movements operate under stop control, were found to operate at a LOS C or better except for the minor streets of Springlake Village Boulevard and East Lake Point Drive that were found to operate at LOS E (or LOS F).

Table 3-3: Year 2019 Peak Intersection Analysis Summary

Intersection Location	Control	2019 AM		2019 PM	
		Delay	LOS	Delay	LOS
Simpson Road	Signal	135.7	F	73.5	E
E. Lake Point Drive	Stop	8.8 / 36.2	A/E	10.1 / 28.6	A/D
Nele Road/ Tohopekaliga High School	Signal	35.9	D	10.4	B
Springlake Village Boulevard	Stop	8.7 / 41.1	A/E	9.2 / 124.1	A/F
Turnberry Boulevard	Signal	1.3	A	1.5	A
North Point Boulevard	Stop	8.7 / 22.3	A/C	9.2 / 32.0	A/D
Timber Lane/Creek Bank Drive	Stop	8.8 / 19.1	A/C	9.0 / 28.6	A/D
Fells Cove Boulevard	Stop	8.6 / 20.5	A/C	8.8 / 25.9	A/D
Narcoossee Road	Signal	40.7	D	40.3	D

Figure 3-3: Year 2019 Turning Movement Counts



3.2 Crash Data Review

A safety analysis was conducted based on the approved Traffic Analysis Methodology that follows the criteria contained in the Highway Safety Manual (HSM). The safety analysis is based on the latest available five (5) years of crash data from (January 1, 2015 to December 31, 2019). The safety analysis will be based on the following methodology:

- Identifying the Crash Severity & Conditions
- Identifying the Crash Type
- Identifying the Number of Crashes by Study Intersections
- Overview of Fatal crashes
- Development of Roadway Segment Crash Frequency and Crash Rates
- Conduct Comparison of Crash Rate to FDOT Districtwide and Statewide Statistics

3.2.1 Existing Crash Data Statistics

Crash data for nine (9) intersections on Boggy Creek Road, from Simpson Road to Narcoossee Road, were collected from Signal Four Analytics. The data covers crashes occurring between the dates of January 1, 2015 to December 31, 2019 (latest available five (5) years of data). A total of 509 crashes occurred within the study corridor during the five (5) year analysis period.

As shown in [Table 3-4](#), out of the 509 total crashes that occurred over the five (5) year period, there were a total of 5 fatal crashes (0.98%), 220 injury crashes (43.22%), and 284 (55.80%) property damage only crashes. In addition, a total of 7 crashes (1.38%) occurred during the five (5) year study period that involved being under the influence of Alcohol and Drugs.

Based on [Table 3-5](#), out of the 509 total crashes that occurred, there were a total of 313 (61.5%) crashes occurred during the daylight hours, 156 crashes (30.7%) during dark conditions, 25 crashes (4.9%) during dawn conditions, and 15 (2.9%) crashes were reported to have occurred during dusk conditions. In addition, a total of 455 (89.4%) crashes occurred during dry roadway conditions with the remaining 54 (10.6%) occurring during wet and slippery roadway conditions.

Table 3-4: Crash Summary by Year and Severity

Year	Total Number of Crashes	Fatal Crashes	Injury Crashes	Property Damage Only Crashes	Under the Influence of Alcohol	Under the Influence of Drugs
2015	70	0	35	35	0	0
2016	75	2	30	43	1	1
2017	88	1	36	51	2	0
2018	151	0	67	84	3	0
2019	125	2	52	71	0	0
2015-2019	509	5	220	284	6	1
Average / Year	101.8	1.0	44.0	56.8	1.2	0.2
Percent	N/A	0.98%	43.22%	55.80%	1.17%	0.20%

Table 3-5: Crash Summary by Year and Conditions

Year	Total Number of Crashes	Dry Conditions	Wet Conditions	Daylight Conditions	Dawn Conditions	Dusk Conditions	Dark Conditions
2015	70	66	8	33	3	2	32
2016	75	66	9	40	5	2	28
2017	88	78	10	59	3	2	24
2018	151	136	15	105	6	5	35
2019	125	113	12	76	8	4	37
2015-2019	509	455	54	313	25	15	156
Average / Year	101.8	91.0	10.8	62.6	5.0	3.0	31.2
Percent	N/A	89.4%	10.6%	61.5%	4.9%	2.9%	30.7%

3.2.2 Existing Crash Data by Crash Type

[Table 3-6](#) shows the summary of the crashes by crash types. Per the summary, Rear End crashes accounted for most crashes (41.26% of total) within the study corridor followed by Left Turn crashes (26.13% of total), Off Road crashes (7.86% of total), and Other crashes (11.00% of total). There were a total of 4 crashes (0.79% of total) that involved pedestrian and bicycles that were reported in the last five (5) years.

Table 3-6: Crash Summary by Year and Crash Type

Crash Type	2015	2016	2017	2018	2019	Total	Average / Year	Percent
Rear End	19	28	41	64	58	210	42.0	41.26%
Head On	1	1	1	1	2	6	1.2	1.18%
Side Swipe	1	4	8	2	9	24	4.8	4.72%
Roll-Over	4	1	3	2	0	10	2.0	1.96%
Angle	1	0	3	4	1	9	1.8	1.77%
Left Turn	23	22	21	37	30	133	26.6	26.13%
Right Turn	4	2	3	3	0	12	2.4	2.36%
Off Road	8	6	2	14	10	40	8.0	7.86%
Ped & Bicycle	1	1	0	1	1	4	0.8	0.79%
Animal	1	1	1	1	1	5	1.0	0.98%
Other	7	9	5	22	13	56	11.2	11.00%
Total	70	75	88	151	125	509	101.8	100.00%

3.2.3 Existing Crash Data by Intersections

A review was performed for the crash data over the five (5) year study period at the study intersections. [Table 3-7](#) and [Table 3-8](#) summarizes the crash severity and conditions at the study intersections along the Boggy Creek Road study corridor for each year from January 2015 to December 2019.

Out of the 360 total intersections crashes that occurred over the five (5) year period at the study intersections, there was a total of 1 fatal crash (0.28%), 159 injury crashes (44.12%), and 200 (55.60%) property damage only crashes.

Out of the 360 total intersection crashes that occurred, there were a total of 212 (58.9%) crashes occurred during the daylight hours, 120 crashes (33.4%) during dark conditions, 16 crashes (4.4%) during dawn conditions, and 12 (3.3%) crashes were reported to have occurred during dusk conditions. In addition, a total of 320 (88.9%) crashes occurred during dry roadway conditions with the remaining 40 (11.1%) occurring during wet and slippery roadway conditions.

The signalized intersection of Simpson Road had the highest number of crashes, with a total of 172 followed by the signalized intersection of Narcoossee Road with 123 crashes. The third highest number of crashes was found to occur at the signalized intersection of Turnberry Boulevard/Austin Tindall Park at 23 crashes. The remaining study intersections were found to have less than 15 crashes that occurred over the five (5) year study period.

Table 3-7: Intersection Crash Summary by Severity

No.	Intersection Location	Control	Total Number of Crashes	Fatal Crashes	Injury Crashes	Property Damage Only Crashes
1	Simpson Road	Signal	172	0	82	90
2	E. Lake Point Drive	Stop	2	0	1	1
3	Nele Road/Tohopekaliga High School	Signal	8	0	1	7
4	Springlake Village Boulevard	Stop	15	0	6	9
5	Turnberry Boulevard	Signal	23	1	9	13
6	North Point Boulevard	Stop	7	0	3	4
7	Timber Lane/Creek Bank Drive	Stop	5	0	1	4
8	Fells Cove Boulevard	Stop	5	0	3	2
9	Narcoossee Road	Signal	123	0	53	70
Total			360	1	159	200

Table 3-8: Intersection Crash Summary by Conditions

No.	Intersection Location	Total Number of Crashes	Roadway Conditions		Lighting Conditions			
			Dry	Wet	Daylight	Dawn	Dusk	Dark
1	Simpson Road	172	156	16	89	8	6	69
2	East Lake Point Drive	2	2	0	1	0	0	1
3	Nele Road/Tohopekaliga High School	8	7	1	4	3	0	1
4	Springlake Village Boulevard	15	12	3	9	0	0	6
5	Turnberry Boulevard	23	22	1	17	2	0	4
6	North Point Boulevard	7	6	1	6	0	0	1
7	Timber Lane/Creek Bank Drive	5	5	0	3	0	0	2
8	Fells Cove Boulevard	5	5	0	3	0	0	2
9	Narcoossee Road	123	105	18	80	3	6	34
Total		360	320	40	212	16	12	120

Figure 3-4: Intersection Crashes



3.2.4 Crash Frequency & Crash Rate Development

Crash rates and frequencies along the study corridor were developed based on the five (5) year crash information obtained from Signal Four Analytics. [Table 3-9](#) summarizes the crash frequency and crash rate for the corridor.

It is to be noted that FDOT District Five and FDOT statewide crash rates for a similar facility is 3.10 and 3.65, respectively. Based on this information, Boggy Creek Road from Simpson Road to East Lake Point Drive and from Fells Cove Boulevard to Narcoossee Road can be categorized as high crash segments.

Table 3-9: Crash Frequency & Crash Rate Summary

Roadway Segment	AADT	Number of Crashes	Segment Length	Crash Frequency	Crash Rate
Simpson Road to East Lake Point Drive	20,000	239	1.29	47.8	5.08
East Lake Point Drive to Springlake Village Boulevard	19,000	50	0.57	10	2.53
Springlake Village Boulevard to Fells Cove Boulevard	16,000	83	3.28	16.6	0.87
Fells Cove Boulevard to Narcoossee Road Percent	15,000	137	0.76	27.4	6.58

3.3 Development of Design Characteristics

The design traffic characteristics established in this section will be used in developing the Annual Average Daily Traffic (AADT) projections for the roadway segments in the future year conditions. These characteristics are determined based on the procedures outlined in the FDOT’s Project Traffic Forecasting Handbook, dated January 2019.

3.3.1 Standard K Factor

The existing measured traffic characteristics for the study corridor are shown in [Table 3-1](#) for the mainline segments and major minor streets based on existing base year traffic counts. Based on the evaluation of the existing measured characteristics and the FDOT recommended Standard K value of 9.0%, a standard K Factor of 9.0% is recommended to be used for Boggy Creek Road.

3.3.2 D Factor

The peak hour directional percent factor (D) represents the percentage of traffic during the peak hour that travels in the roadway’s peak direction. This directional distribution factor, D factor, is based on the median value of the directional factors for the highest 200 hours of volumes for each continuous count station. In determining this factor for the study

corridor and side streets, statewide guidelines obtained from the 2019 FDOT Project Traffic Forecasting Handbook for D factor were compared to D factors obtained from the field collected traffic counts.

The measured D for the study area roadways is shown in [Table 3-1](#), respectively. The average of the measured D factors for the major streets of Boggy Creek Road, Narcoossee Road, and Simpson Road were found to be at 59.9%, 71.7%, and 53.2%, respectively.

[Table 3-10](#) provides the current recommended range of D values from the FDOT Project Traffic Forecasting Handbook (2019) for an urbanized and rural arterial roadway.

Table 3-10: Recommended Range of D Values

Area and Highway Type	Value	FDOT Recommendation
Urban Arterial	Low	50.8%
	Medium	57.9%
	High	67.1%
Rural Arterial	Low	51.1%
	Medium	58.1%
	High	79.6%

A D factor of 58.9% is recommended for Boggy Creek Road based on the average of the FDOT medium recommended and measured characteristics. Similarly, for Simpson Road a D factor of 55.6% is recommended based on the average of the existing measured characteristics and FDOT medium recommended D factor. For Narcoossee Road the existing measured D Factor was found to be an average value of 71.7%. However, as growth in this area is anticipated and based on engineering judgement a D factor of 57.9% is recommended for Narcoossee Road based on the FDOT recommended medium value.

3.3.3 T & DHT Factors

The daily truck factor, T factor represents the percentage composition of medium sized and heavy trucks occurring in the traffic stream for a 24-hour period. The design hour truck, DHT, is the percentage of truck traffic during the peak hour and is recommended as one-half of the T factor in the Project Traffic Forecasting Handbook.

For this study, a T factor of 7.5% and DHT factor of 4.0% is recommended along the Boggy Creek Road (CoSite 927050) study corridor based on the Florida Traffic Online information and various other studies conducted along or in the vicinity of the study corridor. For Simpson Road (CoSite 927049) and Narcoossee Road (CoSite 927045) a T factor of 8.7% and 6.9% and DHT factor of 4.5% and 3.5% are recommended respectively. For the remaining minor side streets due based on the land uses being more residential, it is recommended to use a T factor of 2.0%.

3.3.4 Recommended Design Traffic Characteristics

[Table 3-11](#) provides a summary of the recommended design traffic characteristics within the study corridor.

Table 3-11: Recommended Design Traffic Characteristics

Roadway	Recommended Design Characteristics			
	K Factor	D Factor	T Factor	DHT Factor
Boggy Creek Road	9.0%	58.9%	7.5%	4.0%
Narcoossee Road	9.0%	57.9%	6.9%	3.5%
Simpson Road	9.0%	55.6%	8.7%	4.5%
Other Side Streets	Existing	Existing	2.0%	Existing

3.4 Future Traffic Conditions

Traffic projections were developed for the opening year (2025), mid-year (2035) and design year (2045). The analyses considered improvements along the Boggy Creek Road corridor, including intersection improvements.

3.4.1 Future Annual Average Daily Traffic (AADT) Projections

Future AADT volumes for the corridor utilizing population and historical traffic growth trends were developed for the opening year (2025), mid-year (2035) and design year (2045). The future AADT volumes are presented in [Figure 3-5](#).

3.4.2 Peak Hour Traffic Projections

The existing AADT counts, future year AADT forecasts, existing turning movement counts and recommended traffic characteristics (K and D factors) were used to develop the Design Hour Volumes (DHVs) for both the AM and PM design hours of the intersections for the opening (2025), mid (2035) and design (2045) years as shown in [Figures 3-6 thru Figure 3-8](#).

3.4.3 Future Operational Analysis

The analyses of future traffic conditions within the Boggy Creek Road study area was conducted for both the No Build and Build alternatives. The future operational analyses included evaluation of the roadway segments and major signalized and unsignalized intersections along the corridor. The analyses were conducted using the latest release of the Synchro software with HCM 6th Edition reports for the signalized and stop-controlled intersection analyses and tables from the FDOT 2020 Generalized Service Volume Tables for the roadway segment analyses.

The following alternatives were proposed for analysis:

- No-Build Alternative: This alternative assumes no improvements to the corridor. The analysis applied future traffic volumes to the existing roadway network.
- Build Alternative: This alternative widens Boggy Creek Road from two-lanes to four-lanes from Simpson Road to Narcoossee Road. Intersection improvements were recommended and analyzed to obtain an acceptable Level of Service for the design year. Analyses were completed for the implementation of traffic signals.

Figure 3-5: Future AADT Traffic Projections



Figure 3-6: Future Year 2025 Turning Movement Volumes

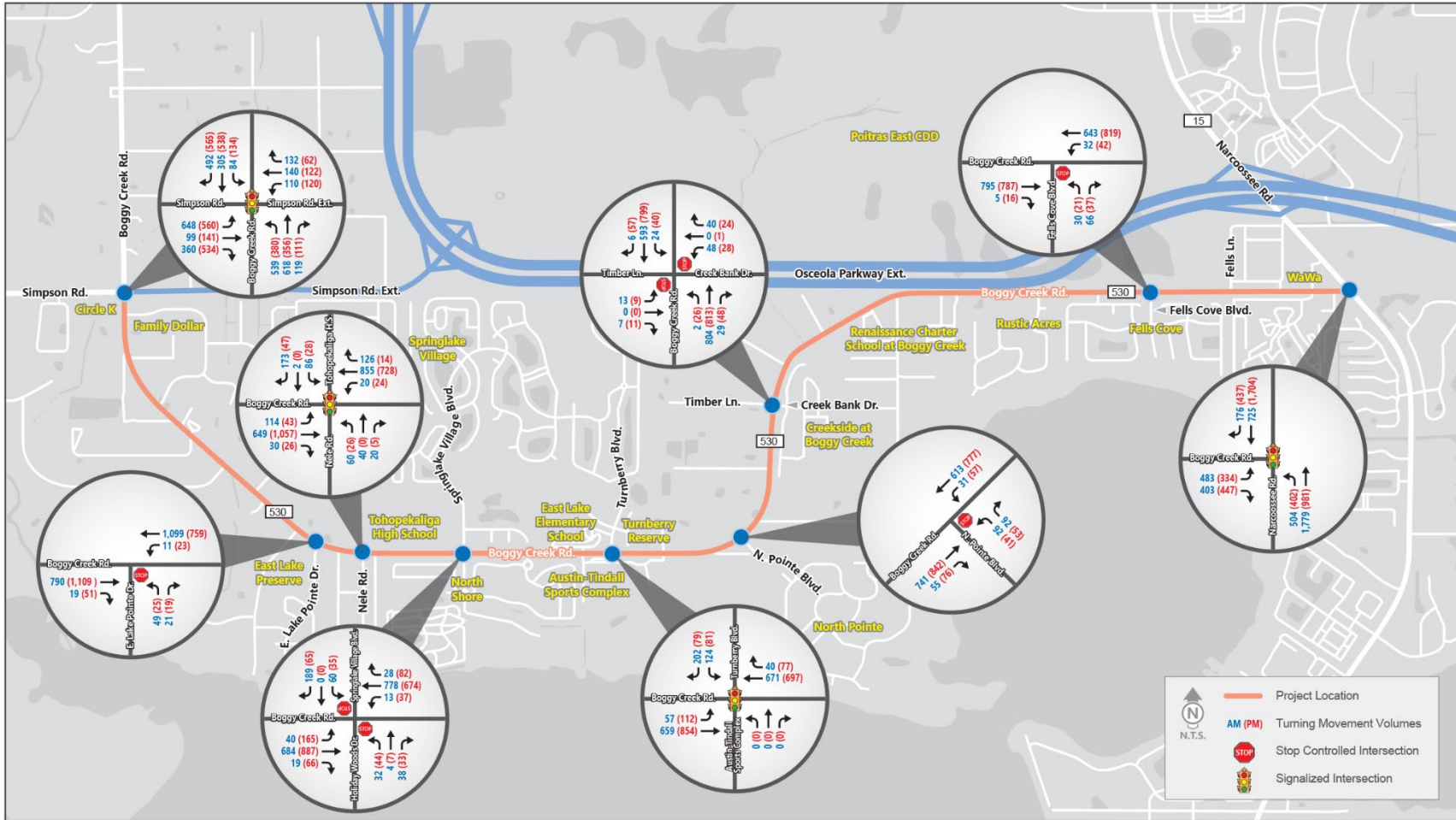


Figure 3-7: Future Year 2035 Turning Movement Volumes

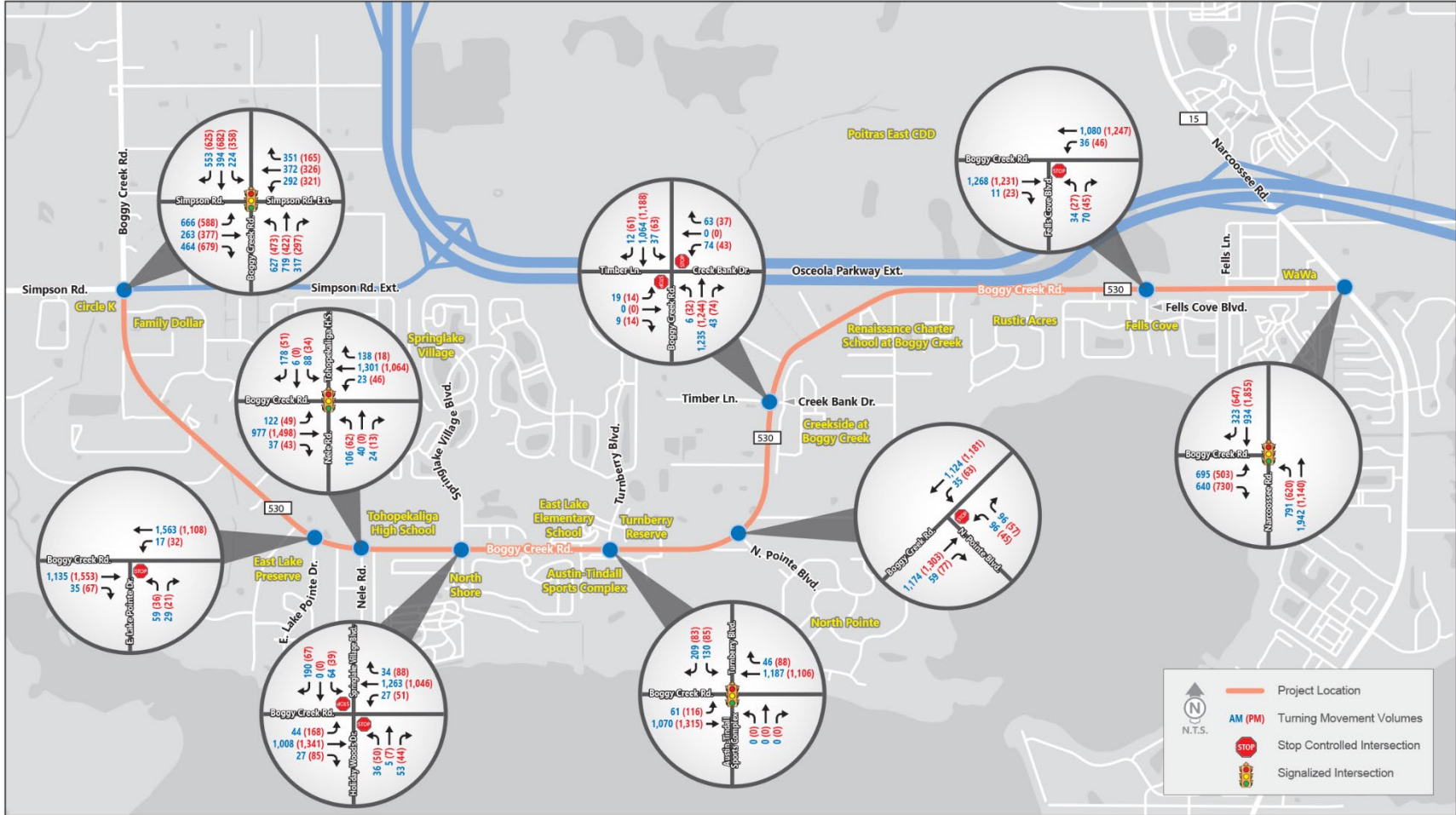
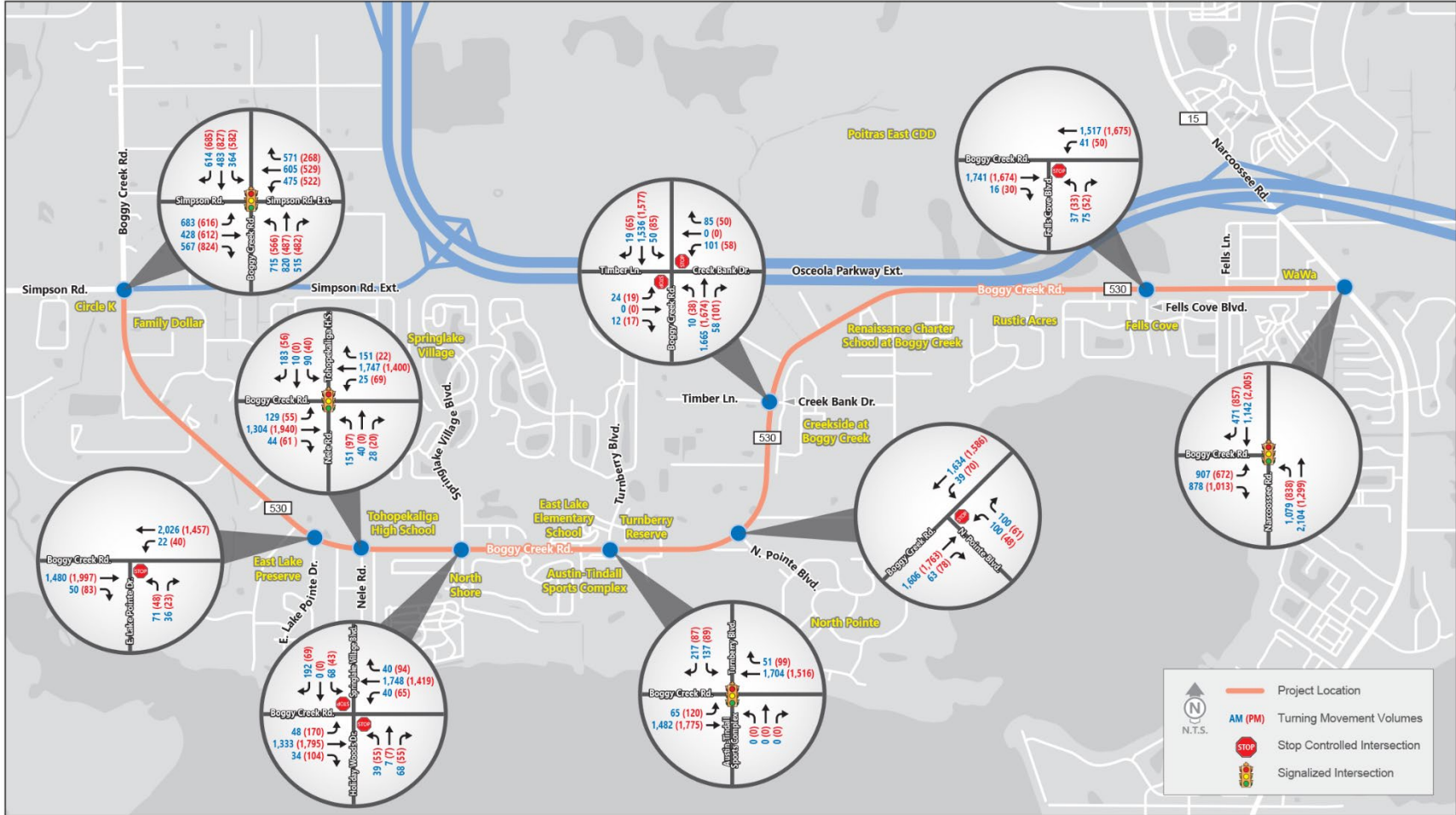


Figure 3-8: Future Year 2045 Turning Movement Volumes



3.4.3.1 No Build Analysis

Under the design year 2045 No Build condition, the roadway segment of Boggy Creek Road from Simpson Road to Turnberry Boulevard is projected to operate at LOS F during both the AM and PM peak hours as shown in [Table 3-12](#). The signalized intersections at Simpson Road, Nele Road and Narcoossee Road will experience long delays under LOS F conditions during both the AM and PM peak hours. At the unsignalized intersections, the minor street stop controlled movements will also operate at LOS F during the peak hours as shown in [Table 3-13](#). Based on the roadway and intersection analysis for the No Build alternative, it can be clearly seen that existing Boggy Creek Road needs to be improved to meet traffic demands and operate safely.

Table 3-12: Year 2045 No Build Roadway Operational Analysis Summary

Roadway Segment	Lanes	Capacity	AM Peak Design Hour			PM Peak Design Hour		
			Volume	V/C Ratio	LOS	Volume	V/C Ratio	LOS
North of Simpson Road	2	880	1,862	2.12	F	1,752	1.99	F
Simpson Road to East Lake Point Drive	2	880	1,637	1.86	F	1,572	1.79	F
East Lake Point Drive to Nele Road	2	880	1,521	1.73	F	1,512	1.72	F
Nele Road to Springlake Village Boulevard	2	880	1,363	1.55	F	1,426	1.62	F
Springlake Village Boulevard to Turnberry Boulevard	2	880	1,253	1.42	F	1,239	1.41	F
Turnberry Boulevard to North Pointe Boulevard	2	1,660	1,095	0.68	D	1,206	0.75	E
North Pointe Boulevard to Timber Lane	2	1,660	1,113	0.69	D	1,174	0.73	D
Timber Lane to Fells Cove Boulevard	2	1,660	1,154	0.72	D	1,104	0.69	D
Fells Cove Boulevard to Narcoossee Road	2	1,660	1,179	0.73	D	1,062	0.66	D

Table 3-13: Year 2045 No Build Peak Intersection Analysis Summary

Intersection Location	Control	2019 AM		2019 PM	
		Delay (Sec)	LOS	Delay (Sec)	LOS
Simpson Road	Signal	198.1	F	127.6	F
E. Lake Point Drive	Stop	11.2 / 1506.1	B/F	15.5 / 1052.7	C/F
Nele Road/Tohopekaliga High School	Signal	111.6	F	48.7	D
Springlake Village Boulevard	Stop	12.1 / 6358.1	B/F	12.9 / 5030.0	B/F
Turnberry Boulevard	Signal	32.3	A	15.5	B
North Point Boulevard	Stop	11.2 / 730.6	B/F	12.5 / 388.0	B/F
Timber Lane/Creek Bank Drive	Stop	11.6 / 1518.3	B/F	12.4 / 1251.0	B/F
Fells Cove Boulevard	Stop	11.6 / 224.9	B/F	11.2 / 216.4	B/F
Narcoossee Road	Signal	83.1	F	127.6	F

3.4.3.2 Build Analysis

The Build operational analysis represents the evaluation of the operational performance along the corridor with the proposed improvements. For the Build scenario, it is assumed the roadway is improved to a four-lane divided facility with turn lanes and signal phasing improvements at signalized intersections. The Build scenario also includes improvements at unsignalized intersections that experience high levels of delay.

Under the Build scenario, all roadway segments are anticipated to meet or exceed the Level of Service standard € during the AM and PM peak hours for the design year (2045) as shown in [Table 3-14](#). Most roadway segments will operate at LOS D or better. All the signalized intersections are anticipated to operate at LOS E or better in the design year as shown in [Table 3-15](#). The unsignalized intersections will operate with acceptable delays except for the Springlake Village Boulevard and Timber Lane intersections. Signalization of these intersections may be warranted by the design year 2045.

Table 3-14: Year 2045 Build Roadway Operational Analysis Summary

Roadway Segment	Lanes	Capacity	AM Peak Design Hour			PM Peak Design Hour		
			Volume	V/C ratio	LOS	Volume	V/C Ratio	LOS
North of Simpson Road	4	2,100	2,074	0.99	D	2,094	0.99	D
Simpson Road to East Lake Point Drive	4	2,100	2,097	1.00	E	2,080	0.99	D
East Lake Point Drive to Nele Road	4	2,100	2,081	0.99	D	2,056	0.98	D
Nele Road to Springlake Village Boulevard	4	2,100	1,979	0.94	D	2,069	0.99	D
Springlake Village Boulevard to Turnberry Boulevard	4	2,100	1,921	0.91	C	1,895	0.90	C
Turnberry Boulevard to North Pointe Boulevard	4	2,100	1,755	0.84	C	1,864	0.89	C
North Pointe Boulevard to Timber Lane	4	2,100	1,733	0.83	C	1,824	0.87	C
Timber Lane to Fells Cove Boulevard	4	2,100	1,774	0.84	C	1,743	0.83	C
Fells Cove Boulevard to Narcoossee Road	4	2,100	1,816	0.86	C	1,726	0.82	C

Table 3-15: Year 2045 Build Peak Intersection Analysis Summary

Intersection Location	Control	2019 AM		2019 PM	
		Delay (Sec)	LOS	Delay (Sec)	LOS
Simpson Road	Signal	76.6	E	54.2	D
E. Lake Point Drive	Stop	14.8 / 115.0	B/F	23.9 / 173.5	C/F
Nele Road/Tohopekaliga High School	Signal	52.9	D	36.8	D
Springlake Village Boulevard	Stop	19.0 / 2126.2	C/F	22.3 / 7382.6	C/F
Turnberry Boulevard	Signal	21.7	C	11.5	B
North Point Boulevard	Stop	16.9 / 222.2	C/F	21.4 / 130.3	C/F
Timber Lane/Creek Bank Drive	Stop	18.2 / 606.3	C/F	21.2 / 414.4	C/F
Fells Cove Boulevard	Stop	18.2 / 85.2	C/F	17.9 / 77.9	C/F
Narcoossee Road	Signal	49.1	D	56.5	E

4.0 CONCEPTUAL DESIGN ANALYSIS

4.1 Access Management

Access management is the coordinated planning, regulation, and design of access between roadways and adjoining land uses and side streets in such a way as to enhance the safety and operations of the highway system. It promotes the efficient and safe movement of people and goods by reducing conflicts on the roadway system and its interface with other modes of travel. Access management improves safety by reducing conflicts, thereby reducing the potential for crashes. At the same time, access management provides vehicular access to land parcels that promote economic growth and livable communities.

Any addition of a divided median will restrict full vehicular access to Boggy Creek Road. Full median access openings will be provided at all of the proposed signalized intersection locations, at Simpson Road, Nele Road, Turnberry Boulevard and Narcoossee Road, as well as the major side street and school entrances along the project corridor. Boggy Creek Road is proposed to be an Access Class 5 facility, with recommended guidelines of 1,320 feet between signalized intersections, 1,320 feet between full median openings and 660 feet between directional median openings. Other full and direction median openings will be further evaluated during the final design phase of the project. **Table 4-1** below identifies the recommended median access locations along the study corridor based on Access Management Classification Standards, pursuant to *Rule Chapter 14-97 of the Florida Administrative Code (F.A.C.)*.

Table 4-1: Recommended Median Access Locations

Location	Approx. Median Spacing (Feet)	Median Access Type
Simpson Road	N/A	Full Access (Signalized)
Luke Road	1,350	Full Access
Morningside Drive.	1,170	Full Access
Uncle Jutty's Nursery.	870	Full Access
Great Oaks Boulevard	960	Full Access
E. Lake Pointe Drive	2,450	Full Access
Nele Road	960	Full Access (Signalized)
Tohopekaliga High School Bus Loop	940	Full Access
Holiday Woods Dr./Springlake Village Blvd.	1,100	Full Access
Coastal Breeze Drive	1,300	Full Access
East Lake Elementary School	1,100	Full Access
Turnberry Boulevard	610	Full Access (Signalized)
Austin-Tindall Sports Complex	1,040	Full Access
North Pointe Boulevard	1,670	Full Access
Cardinal Lane	1,580	Full Access
Creek Bank Drive/Timber Lane	1,290	Full Access
High Plains Lane	840	Full Access
Renaissance Charter School	2,100	Full Access
Grouse Lane	1,810	Full Access
Rustic Drive	1,670	Full Access
Fells Cove Boulevard	2,290	Full Access
Golden Sunburst Avenue	2,610	Full Access
Narcoossee Road	1,360	Full Access (Signalized)

4.2 Roadway Design Criteria

Design criteria for the widening of Boggy Creek Road has been established for a C3R Suburban Residential (40-45 mph) context classification roadway typical section. The criteria will comply with the recommended standard practices set forth in the following documents:

- *FDOT Design Manual (FDM)*; Florida Department of Transportation (January 1, 2020)
- *Manual of Uniform Minimum Standards for Design, Construction, and Maintenance for Streets and Highways (Florida Greenbook)*; Florida Department of Transportation (April 2016)
- *A Policy on Geometric Design of Streets and Highways*; The American Association of State Highway and Transportation Officials (AAHSTO) (2018), 7th Edition The Design Criteria [Table 4-2](#) lists the roadway design criteria and the criteria for the typical section elements is shown in [Table 4-3](#).

Table 4-2: Roadway Design Criteria

Design Element	Design Standard	Design Sources
FDOT Context Classification	C3R-Suburban Residential	FDM, Part 2, Table 200.4.1
Osceola County Classification	Urban Major Collector	Osceola County
Design Speed	40-45 mph	FDM, Part 2, Chapter 240
Posted Speed	40-45 mph	Osceola County
Design Vehicle	WB-50	FDM Section 201.5.2
Design Year	2045	FDM Section 201.2
Horizontal Alignment		
Max. Degree of Curvature (Dc)	8°-15'-00"	FDM, Part 2, Table 210.9.2 "Florida Greenbook" Table 3-5
Max. Deflection w/o Horizontal Curve	1°-00'-00"	FDM, Part 2, 210.8.1
Max. Horizontal Deflection for Lanes Through an Intersection	1°-00'-00"	FDM, Part 2, Table 212.7.1
Length of Horizontal Curve	675' desirable, 400' min.	FDM, Part 2, Table 210.8.1
Minimum Stopping Sight Distance	360 ft	FDM, Part 2, Table 210.11.1 "Florida Greenbook" Table 3-3
Lane Drop Taper	L=WS (S=design speed) 1:50 210' minimum (Deceleration) 180' minimum (Acceleration)	FDM, Part 2, Chapter 210.2.5 "Florida Greenbook" Chapter 3 C.9.c.1 "Florida Greenbook" Table 3-18
Lane Add Taper	50' (+/- 1:4) 85 ft	FDM Part 2, Exhibit 212-2 "Florida Greenbook" Figure 3-16
Vertical Alignment		
Max. Profile Grade	6% 8% recommended 10% maximum only under extreme conditions	FDM Table 210.10.1 "Florida Greenbook" Table 3-7
Max. Change in Grade w/o Vertical Curve	0.70%	FDM Table 210.10.2 "Florida Greenbook" Table 3-8
Min. Profile Grade	0.30%	FDM Section 210.10.1.1
Min. PVI Distance	250	FDM Section 210.10.1.1
Crest Vertical Curve	K=98, Min. Length 135 ft K=61	FDM, Part 2, Table 210.10.3 FDM, Part 2, Table 210.10.4 "Florida Greenbook" Table 3-9
Sag Vertical Curve	K=79, Min. Length 135 ft K=79	FDM, Part 2, Table 210.10.3 FDM, Part 2, Table 210.10.4 "Florida Greenbook" Table 3-9
Minimum Vertical Clearance	Roadways – 16.5 ft Overhead Sign Structures and Signals – 17.5 ft	FDM, Part 2, Table 260.6.1 "Florida Greenbook" Section C.7.j.4(b) FDM, Part 2, 210.10.3

Table 4-3: Typical Section Design Criteria

Design Element	Design Standard	Design Sources
FDOT Context Classification	C3R-Suburban Residential	FDM, Part 2, Table 200.4.1
Osceola County Classification	Urban Major Collector	Osceola County
Design Speed	40-45 mph	FDM, Part 2, Chapter 240
Posted Speed	40-45 mph	Osceola County
Number of Travel Lanes	4	Per Scope
Minimum Travel Lane Width	11'	FDM, Part 2, Table 210.2.1
Travel Lane Cross Slope	0.02/0.03	FDM, Part 2, Figure 210.2.1
Minimum Median Width	15.5' – 40 mph 22' – 45 mph	FDM, Part 2, Table 210.3.1
Bike Lane Width	4' Min, 7' Max	FDM, Part 2, Sect. 223.2.1.1
Min. Sidewalk Width	6'	FDM, Part 2, Table 222.1.1
Multi-Use Path Width	10' Min, 14' Max	FDM, Part 2, Sect. 224.4
Max Sidewalk Cross Slope	0.02	FDM, Part 2, Sect 222.2.1.3
Max Multi-Use Path Cross Slope	0.02	FDM, Part 2, Sect 224.5
Outside Curb and Gutter	Type F	FDM, Part 2, Sect 210.5
Median Curb and Gutter	Type E	FDM, Part 2, Sect 210.5
Roadside Frontslope	1:2 Max, 1:6 Min	FDM, Part 2, Table 215.2.3
Roadside Backslope	1:2 Max, 1:6 Min	FDM, Part 2, Table 215.2.3
Clear Zone Width	18'-40 mph, 24'-45 mph	FDM, Part 2, Table 215.2.1
Min Lateral Offset	4' from Face of Curb	FDM, Part 2, Table 215.2.2
Minimum Border Width	14'	FDM, Part 2, Table 210.7.1

4.3 Typical Section Alternatives

Various 4-lane divided typical roadway sections were considered for the widening of Boggy Creek Road based on the traffic analysis, context classification and available right-of-way. The proposed typical section alternatives, except the no-build alternative, will accommodate the projected traffic growth and provide an acceptable level-of-service (LOS) for the design year. A summary of the viable typical section alternatives considered is shown in [Table 4-4](#).

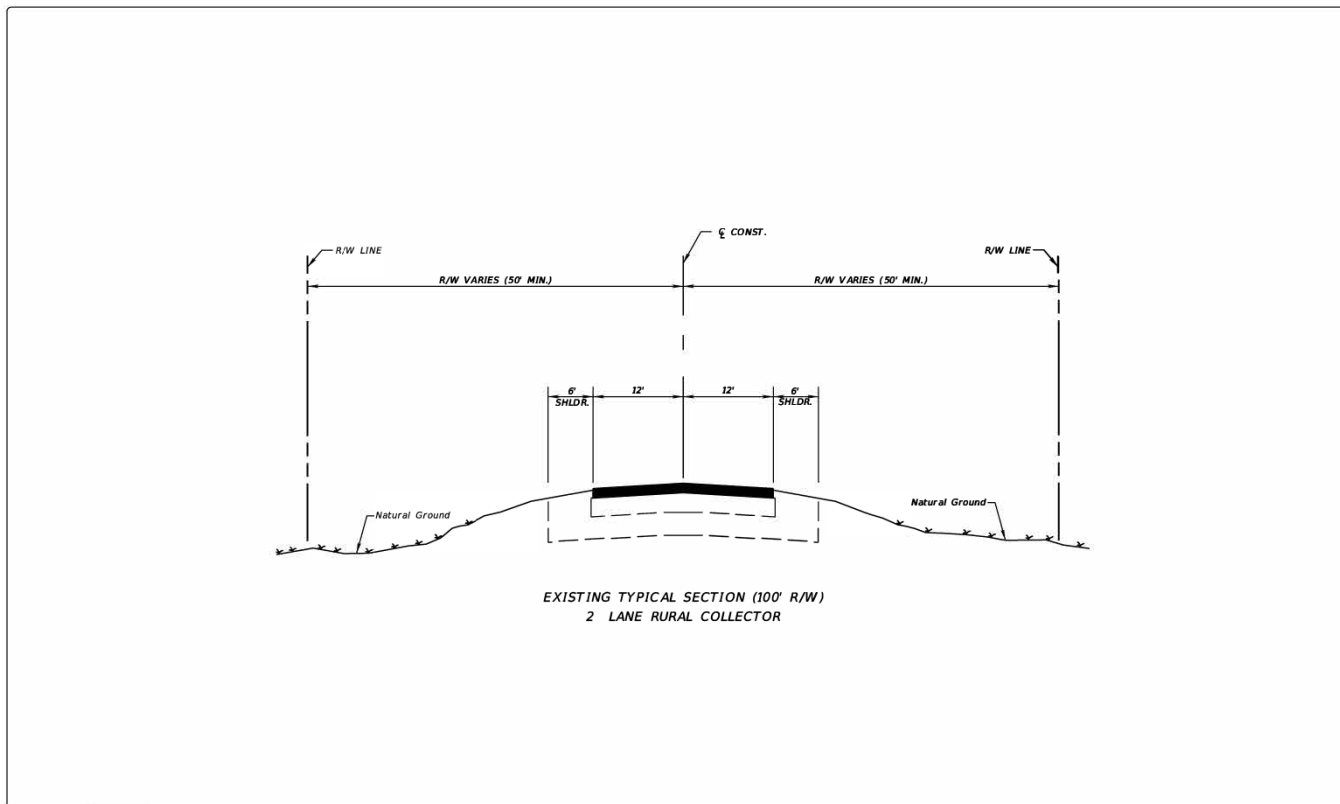
Table 4-4: Summary of Typical Section Alternatives Considered

No.	Context	Description	Design Speed	Min. R/W
1	Rural	No-Build, Existing 2 Lane Typical	45 mph	100'
2	Rural	40' Median, Paved Shoulders, Multi-Use Path South Side	65 mph	210'
3	Suburban	30' Median, Paved Shoulders, Multi-Use Path South Side	55 mph	160'
4	Suburban	15.5-22' Median, No Bike Lanes, 6' Sidewalk North Side, 10' Multi-Use Path South Side	40-45 mph	100'
5	Suburban	15.5-22' Median, No Bike Lanes, 8' Sidewalk Adjacent to Curb North Side, 10' Multi-Use Path South Side	40-45 mph	100'
6	Suburban	15.5-22' Median, 4' Bike Lanes, 10' Multi-Use Path Both Sides	45 mph	115'

4.3.1 Typical Section No. 1 (No Build, 2-Lane Existing Rural Roadway)

Typical Section No. 1 is the No-Build alternative and would maintain the existing 2-lane undivided roadway with a 45 mph design speed, as shown in [Figure 4-1](#), with a 12-ft. wide travel lane and 6-ft. unpaved shoulder in each direction. This typical section would maintain the existing roadside swales for drainage, have intermittent pedestrian facilities and require a minimum of 100-ft. of right-of-way (R/W).

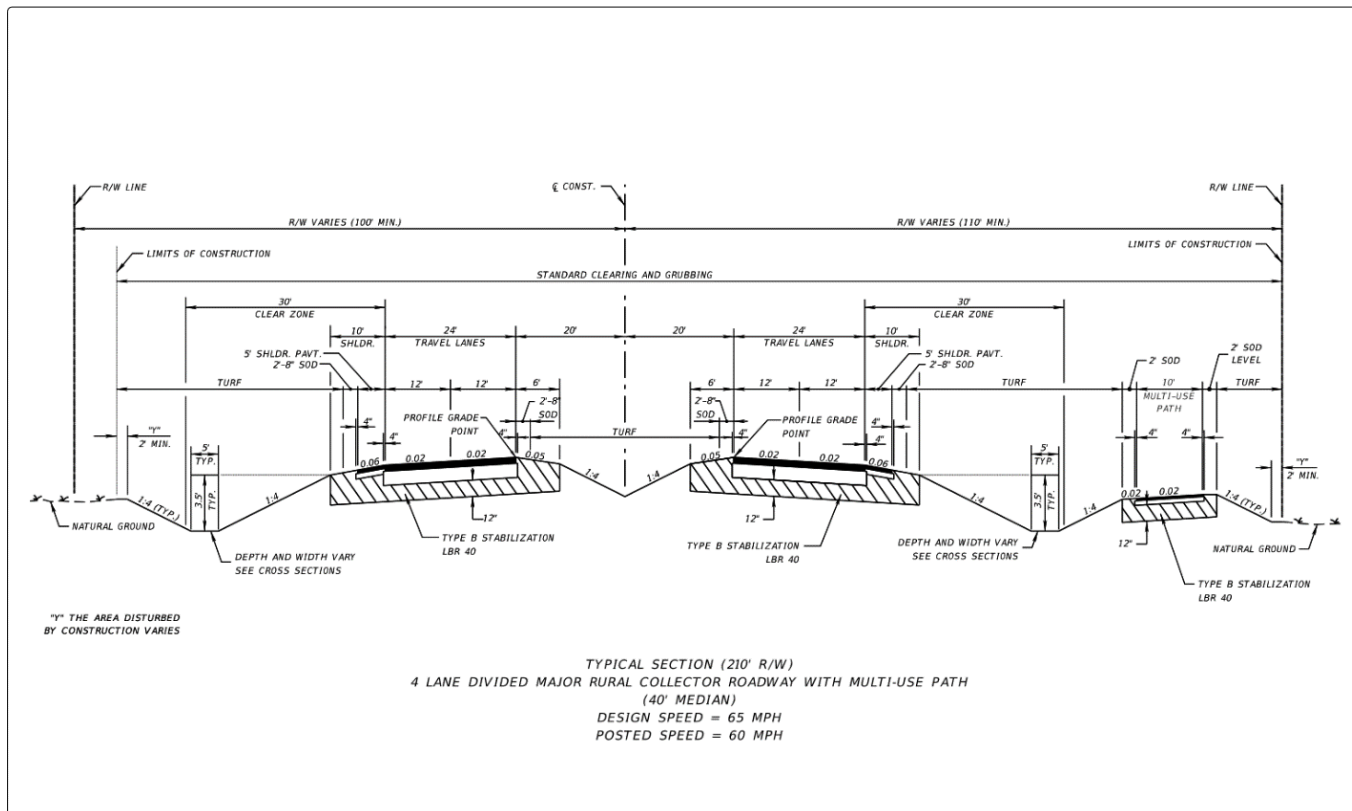
Figure 4-1: Typical Section No. 1



4.3.2 Typical Section No. 2 (4-Lane Divided Rural Roadway)

Typical Section No. 2 is a 4-lane divided rural roadway with a 65 mph design speed, as shown in [Figure 4-2](#), with two 12-ft. wide travel lanes and a 10-ft. wide (5-ft' paved) outside shoulder in each direction, separated by a 40-ft. depressed grass median. A 10-ft. multi-use path is provided along the south side. Open drainage ditches are provided along both sides of the roadway to convey stormwater runoff to offsite ponds. This typical section would require 210-ft. of R/W. This typical section was eliminated from further consideration due to the impacts associated with the required right-of-way width.

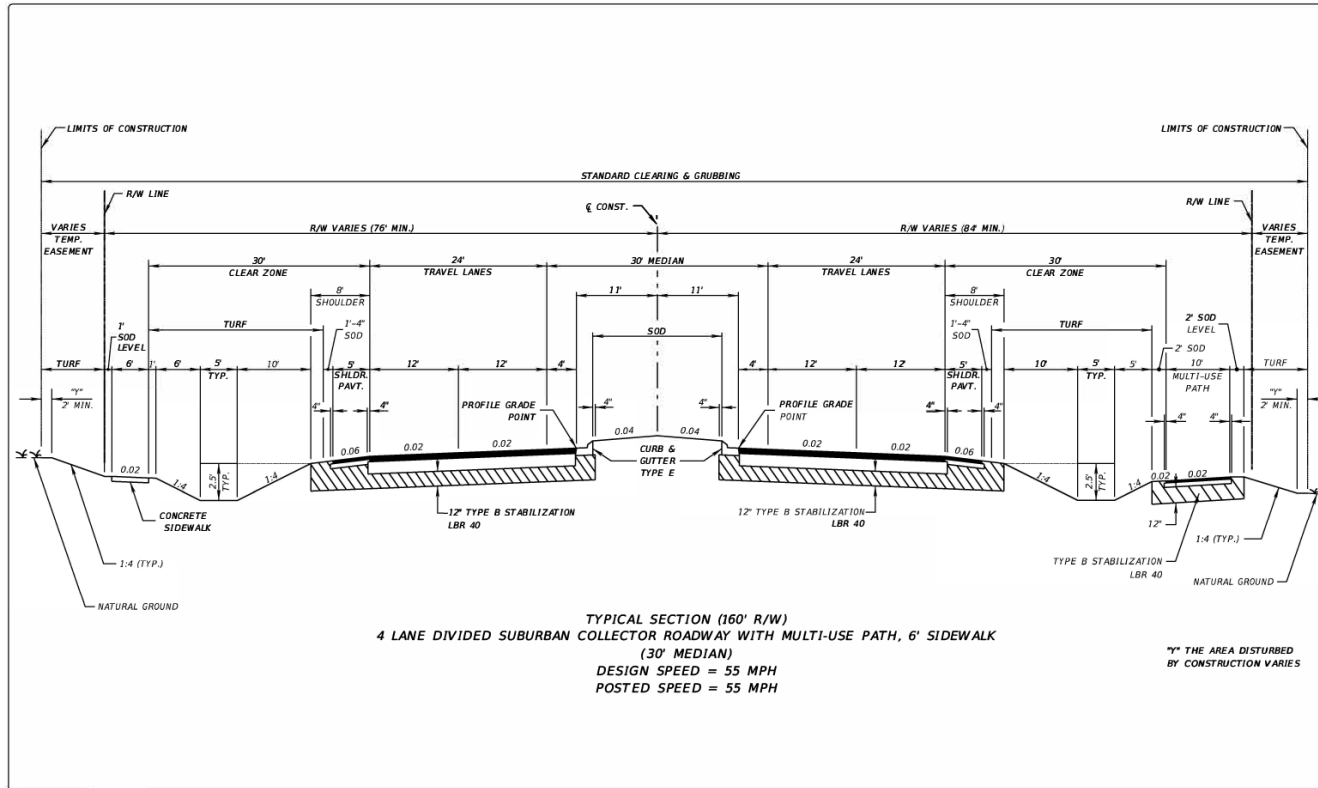
Figure 4-2: Typical Section No. 2



4.3.3 Typical Section No. 3 (4-Lane Divided Suburban Roadway)

Typical Section No. 3 is a 4-lane divided suburban roadway with a 55 mph design speed, as shown in [Figure 4-3](#), with two 12-ft. wide travel lanes and an 8-ft. wide (5-ft. paved) outside shoulder in each direction, separated by 30-ft. wide raised grass median with Type E curb and gutter, inclusive of 4-ft. wide paved inside shoulders. A 10-ft. wide multi-use path is proposed along the south side and a 6-ft. wide concrete sidewalk is proposed along the north side. Shallow drainage ditches are provided along both sides of the roadway to convey stormwater runoff to offsite ponds. This typical section requires 160-ft. of R/W. This typical section was eliminated from further consideration due to the impacts associated with the required right-of-way width.

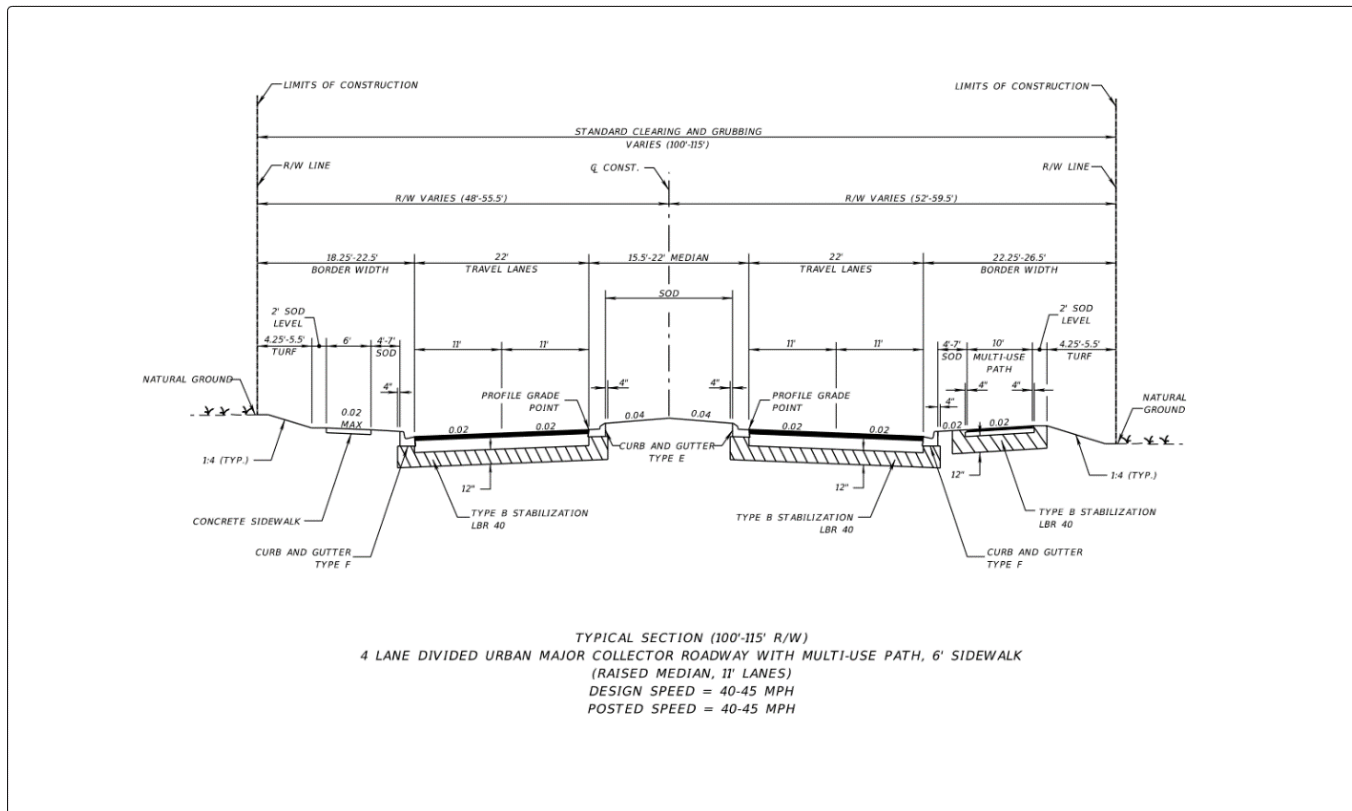
Figure 4-3: Typical Section No 3



4.3.4 Typical Section No. 4 (4-Lane Divided Urban Roadway)

Typical Section No. 4 is a 4-lane divided urban roadway with a 40-45 mph design speed, as shown in [Figure 4-4](#), with two 11-ft. wide travel lanes in each direction separated by a raised 15.5 to 22-ft. wide grassed median with Type E curb and gutter. There are no on-road bicycle lanes. A 10-ft. wide multi-use path is provided along the south side of the roadway and a 6-ft. wide concrete sidewalk is proposed along the north side. This typical section requires 100 to 115-ft. of R/W. This typical section will have a closed drainage system to convey stormwater runoff to offsite ponds.

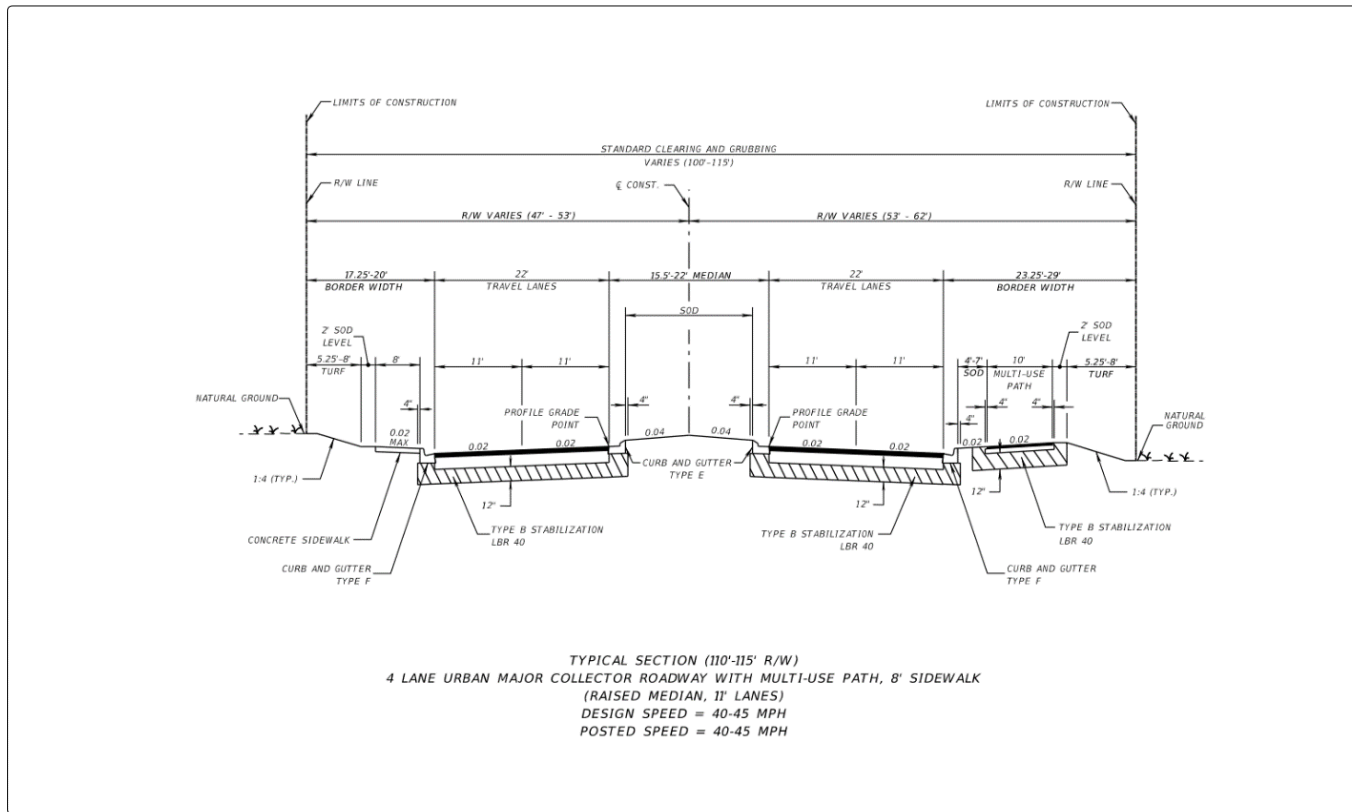
Figure 4-4: Typical Section No. 4



4.3.5 Typical Section No. 5 (4-Lane Divided Urban Roadway)

Typical Section No. 5, as shown in [Figure 4-5](#), is similar to Typical Section No. 4 except that it has an 8-ft. wide sidewalk located adjacent to the curb on the north side of the roadway. This typical section requires 100 to 115-ft. of R/W and will have a closed drainage system to convey stormwater runoff to offsite ponds.

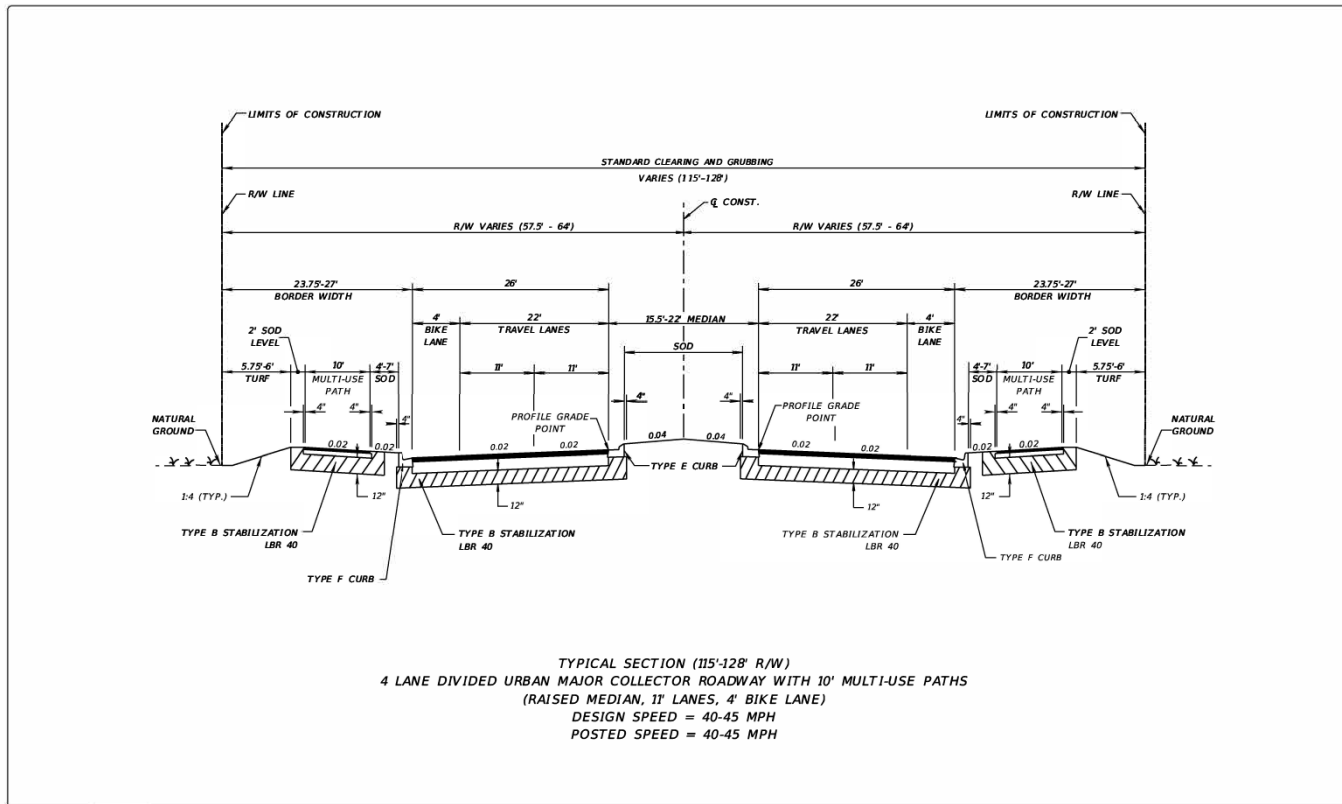
Figure 4-5: Typical Section No. 5



4.3.6 Typical Section No. 6 (4-Lane Divided Urban Roadway)

Typical Section No. 6 is a 4-lane divided urban roadway with a 40-45 mph design speed, as shown in [Figure 4-6](#), with two 11-ft. wide travel lanes and a 4-ft. wide undesignated on-road bicycle lane in each direction, separated by a raised 15.5 to 22-ft. wide grassed median with Type E curb and gutter. A 10-ft. wide multi-use path is proposed along both sides of the roadway and requires 115 to 128-ft. of R/W. This typical section will have a closed drainage system to convey stormwater runoff to offsite ponds.

Figure 4-6: Typical Section No. 6



Typical Sections No. 2 and No. 3 were eliminated from further consideration due to the impacts associated with the extensive right-of-way acquisition required. Typical Sections No. 4, No. 5 and No. 6 were carried forward into the Alignment Alternatives with minor refinements and were renumbered as Typical Sections No. 1 ([Figure 4-7](#)), No. 2 ([Figure 4-8](#)) and No. 3 ([Figure 4-9](#)).

Figure 4-7: Typical Section Alternative No. 1

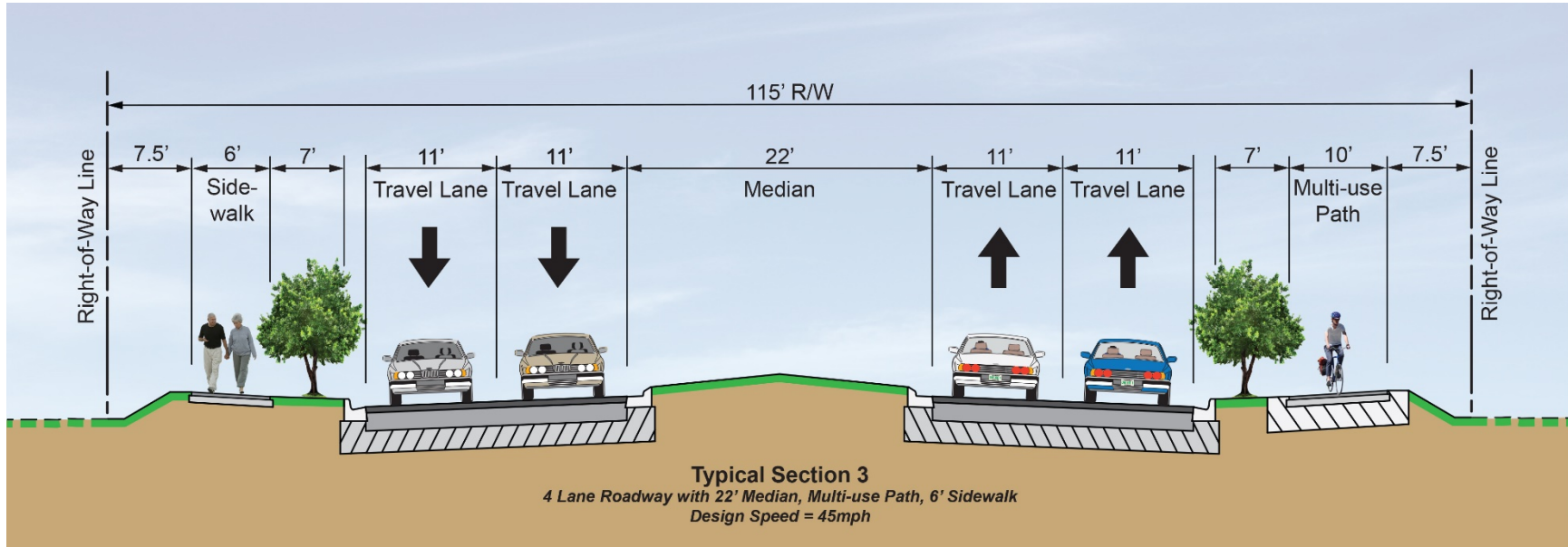


Figure 4-8: Typical Section Alternative No. 1

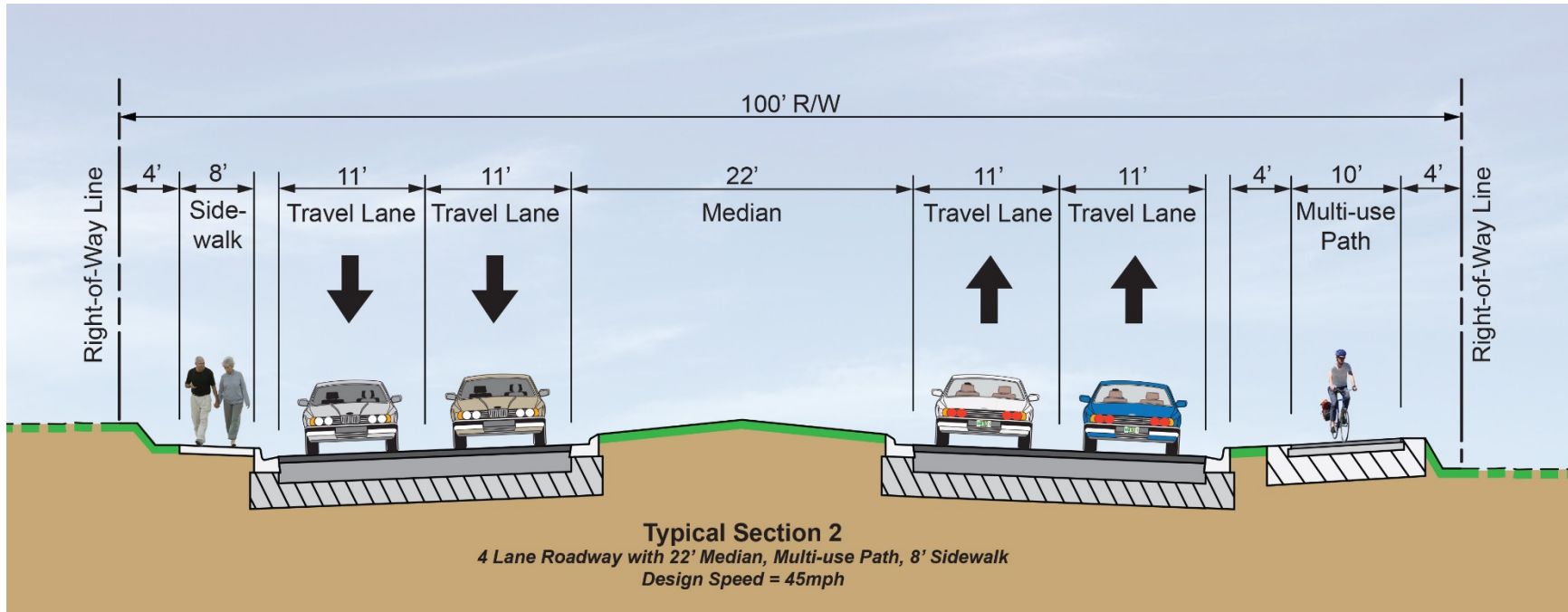
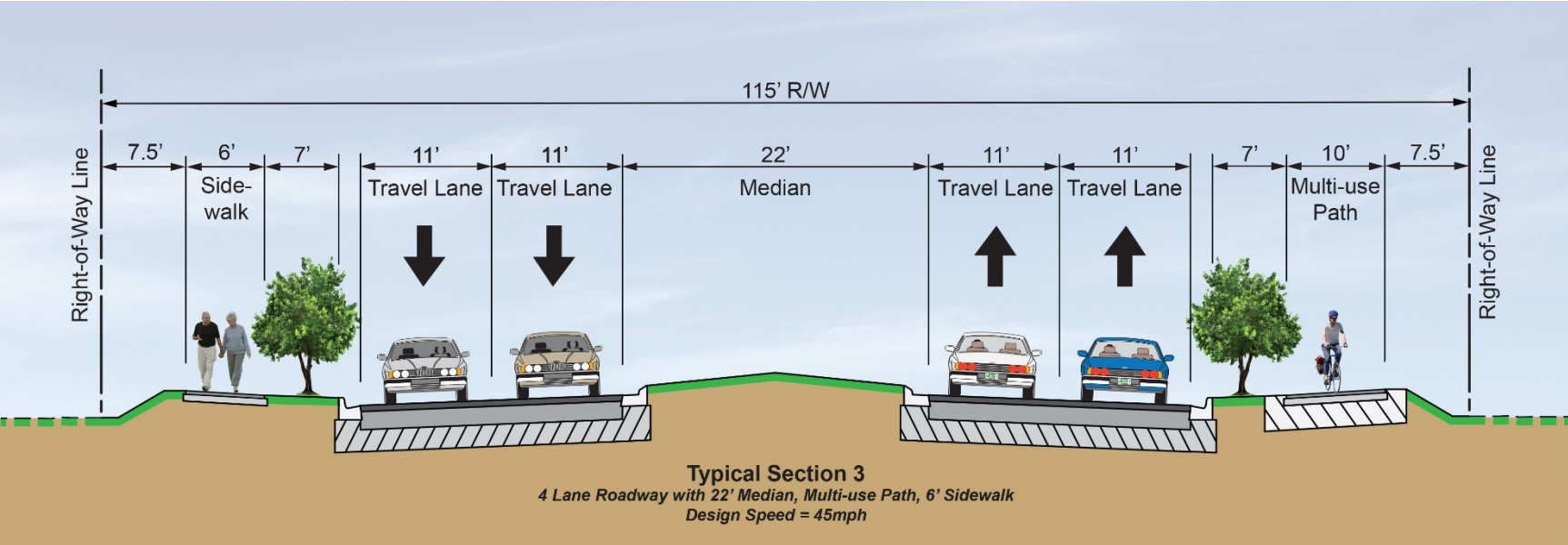


Figure 4-9: Typical Section Alternative No. 1



4.4 Alignment Alternatives

The typical sections form one component of the study alternative. The second component which is equally as important in evaluating the study alternatives is the horizontal alignment, or the location of the typical section within the study corridor. The No-Build Alternative and Typical Sections No. 1 and No. 2 can be typically accommodate within the existing right-of-way except at intersection locations, therefore, only a centered alignment that follows the horizontal alignment of the existing roadway was evaluated. For Typical Section No. 3, a composite alignment that meanders through the corridor to maximize the use of available existing right-of-way was evaluated to determine the impacts resulting from the widening of Boggy Creek Road.

4.4.1 No-Build Alternative

The No-Build alternative was retained throughout the study process. This alternative considers the effect on capacity and level-of-service (LOS) of the existing roadway network if no alignment alternative is selected and no improvements are made to Boggy Creek Road. If Boggy Creek Road remains as a two-lane roadway, segments of the roadway will fail along with the failure of numerous intersections by the design year 2045.

4.4.2 Transportation System Management

The Transportation System Management (TSM) alternative includes low capital cost transportation improvements designed to maximize the utilization and efficiency of the existing transportation system through improvements such as intersection improvements, revising traffic signal timings, and enhancing pavement markings along roadways within the area. Any TSM improvement will not improve the existing capacity to an acceptable LOS based on future traffic volumes. Since TSM improvements will not meet the Purpose and Need for this project, this alternative was dropped from further consideration.

4.5 Alignment Alternatives Evaluation

Three alignment alternatives, along with the No Build alternative, were evaluated and the impacts identified.

4.5.1 Evaluation Matrix

Three (3) viable typical section and alignment combinations, along with the No-Build alternative, were evaluated in a matrix consisting of a number of evaluation factors including segment length and impacts to right-of-way, residential and business relocations, wetlands, floodplains, threatened and endangered species, archaeological and historic resources, public lands, and potential contamination sites. The matrix evaluation also includes estimated project costs for right-of-way acquisition, environmental mitigation, construction, construction engineering and inspection (CEI), and engineering design. The alternatives evaluation matrix is shown in [Table 4-5](#).

4.5.2 Alternative 1: Typical Section No. 1 – Centered Alignment

This alignment alternative consists of a 4-lane divided urban roadway with a 40 mph design speed, as shown in [Figure 4-7](#), with a centered alignment. This typical section will have two 11-ft. wide travel lanes in each direction separated by a raised 16-ft. wide grassed median with Type E curb and gutter. There are no on-road bicycle lanes. A 10-ft. wide multi-use path is provided along the south side of the roadway and a 6-ft. wide concrete sidewalk is proposed along the north side. This typical section can be accommodated within the existing minimum 100-foot right-of-way, except at intersections requiring right turn lanes. Therefore, minimal right-of-way acquisition is required. This alignment also minimizes impacts to adjacent properties, wetlands and subdivisions. It is estimated that 21 parcels (18.6 acres of land) will be impacted by the roadway widening and stormwater ponds. No residential or business relocations will be required.

4.5.3 Alternative 2 – Typical Section 2 – Center Alignment

This alignment alternative consists of a 4-lane divided urban roadway with a 45 mph design speed, as shown in [Figure 4-8](#), with a centered alignment. This typical section will have two 11-ft. wide travel lanes in each direction separated by a raised 22-ft. wide grassed median with Type E curb and gutter. There are no on-road bicycle lanes. A 10-ft. wide multi-use path is provided along the south side of the roadway and an 8-ft. wide concrete sidewalk located adjacent to the curb is proposed along the north side. This typical section can be accommodated within the existing minimum 100-foot right-of-way, except at intersections requiring right turn lanes. Therefore, minimal right-of-way acquisition is required. This alignment also minimizes impacts to adjacent properties, wetlands and subdivisions. It is estimated that 21 parcels (18.6 acres of land) will be impacted by the roadway widening and stormwater ponds. No residential or business relocations will be required.

4.5.4 Alternative 3 – Typical Section 3 – Right Alignment

This alignment alternative consists of a 4-lane divided urban roadway with a 45 mph design speed, as shown in [Figure 4-9](#), with a meandered alignment that best utilizes the existing right-of-way. This typical section will have two 11-ft. wide travel lanes in each direction separated by a raised 22-ft. wide grassed median with Type E curb and gutter. There are no on-road bicycle lanes. A 10-ft. wide multi-use path is provided along the south side of the roadway and a 6-ft. wide concrete sidewalk located along the north side. The trail and sidewalk are separated from the roadway with wider grassed buffers. This typical section requires a minimum of 115-feet of right-of-way. The majority of the existing corridor has 100-foot of existing right-of-way. An additional 15-feet of right-of-way would need to be acquired along the majority of the roadway length. This alignment has minimal impacts to the adjacent properties, wetlands and subdivisions. It is estimated that 84 parcels (24.9 acres of land) will be impacted by the roadway widening and stormwater ponds. No residential or business relocations will be required.

Table 4-5: Alternatives Evaluation Matrix

	Units	No Build	Build Alternative 1	Build Alternative 2	Build Alternative 3
Right-of-Way Needs					
Right-of-Way Acreage Impacts	Acres	0	18.6	18.6	24.9
Parcel Impacts	Each	0	21	21	84
Environmental Impacts					
Floodplains	Acre-Feet	0	0.2	0.2	0.4
Wetland Impacts	Acres	0	2.1	2.1	2.2
Bald Eagle Nests	Each	0	0	0	0
Potential Contamination Sites	Each	0	2	2	6
Traffic Projections					
Level of Service	-	F	D	D	D
Preliminary Cost Estimates					
Preliminary Environmental Mitigation Cost	\$	\$0	\$264,000	\$264,000	\$336,000
Preliminary Construction and CEI Costs	\$	\$0	\$62,691,000	\$62,907,800	\$64,596,800
Preliminary Right-of-Way Costs	\$	\$0	\$4,332,000	\$4,332,000	\$8,557,000
Total Preliminary Project Cost Estimate	\$	\$0	\$67,287,000	\$67,503,800	\$73,489,800

LEGEND	Little/No Impacts	Medium Impacts	High Impacts
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Figure 4-10a: Alternative Alignments Plan (Sheet 1 of 4)

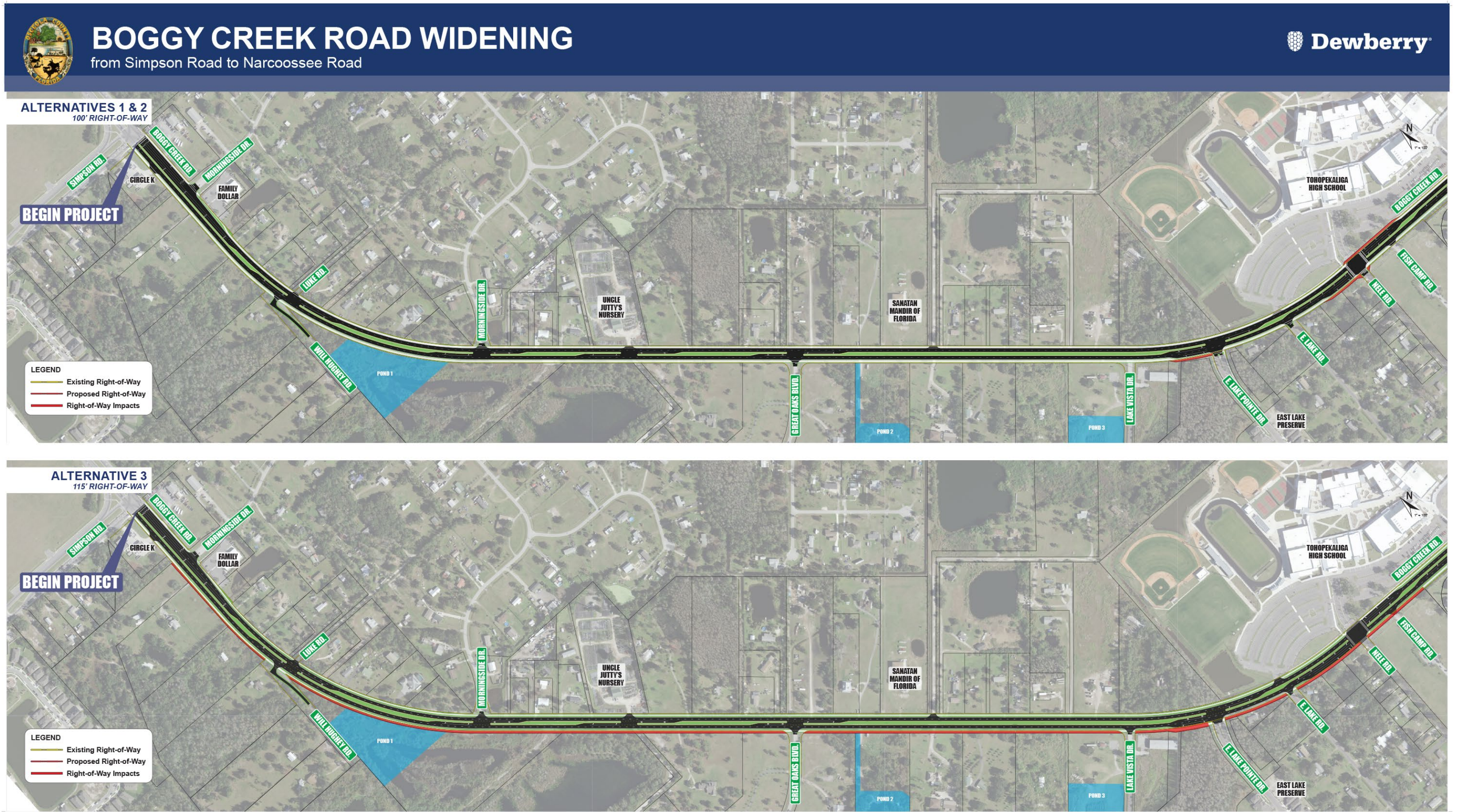


Figure 4-10b: Alternative Alignments Plan (Sheet 2 of 4)

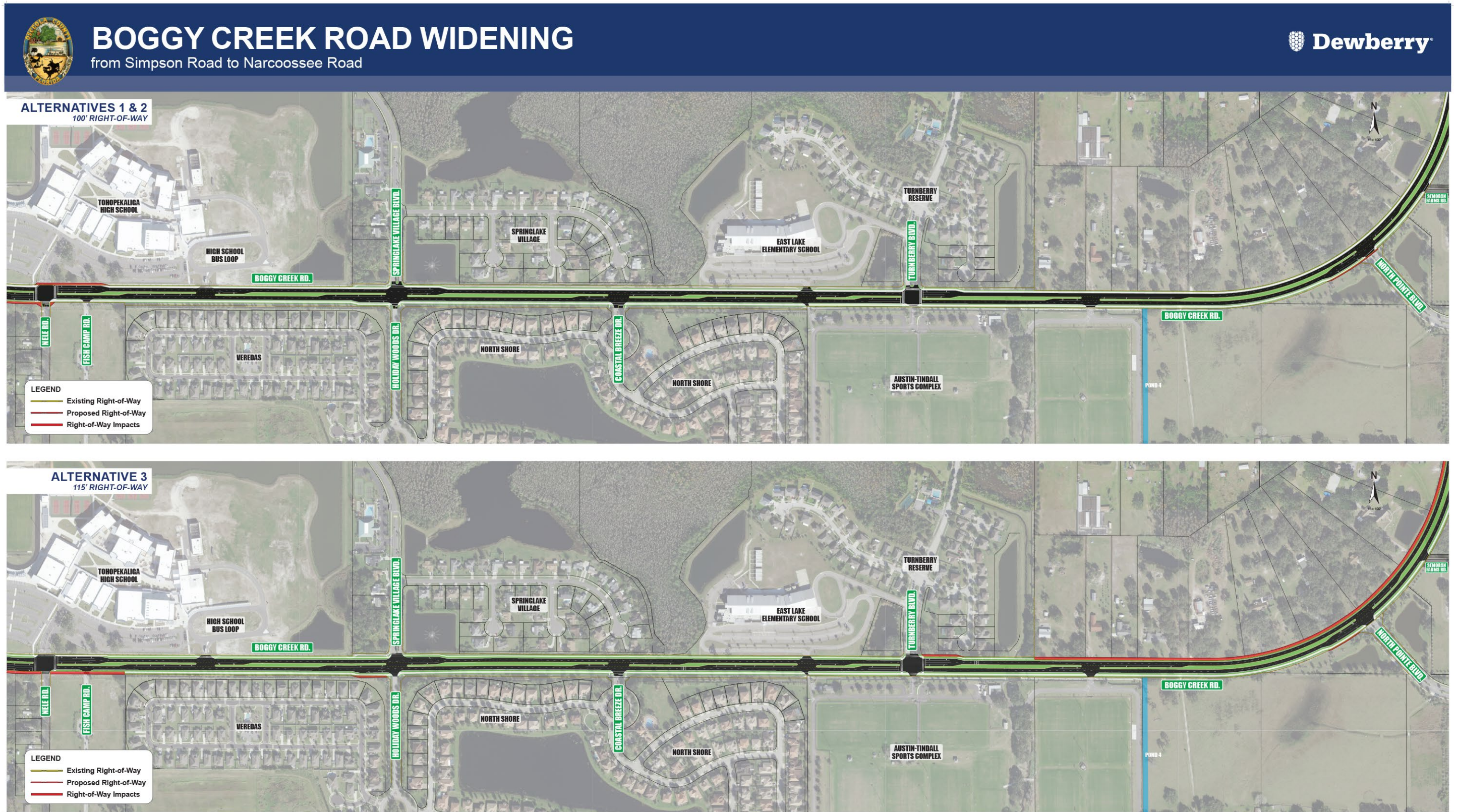


Figure 4-10c: Alternative Alignments Plan (Sheet 3 of 4)

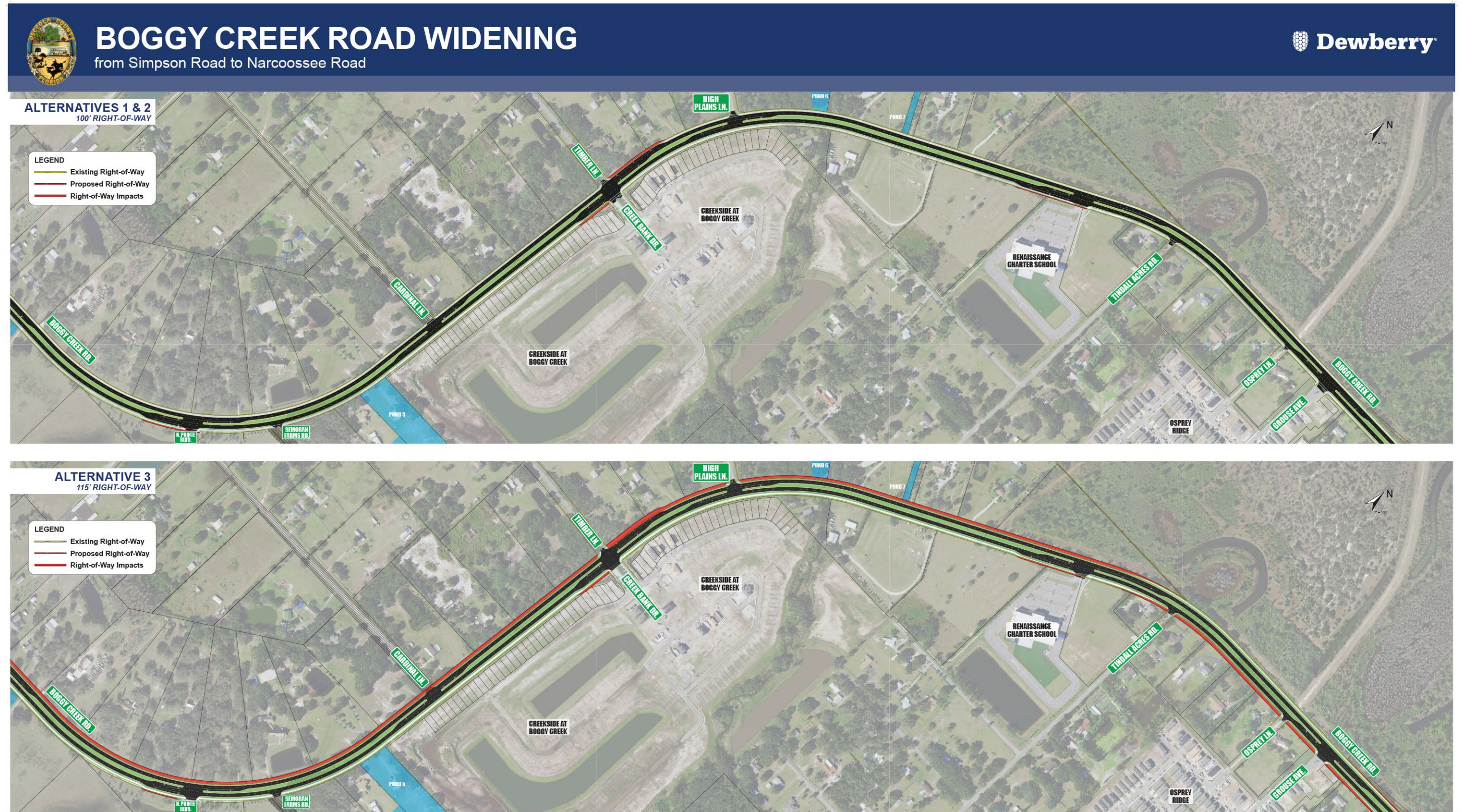
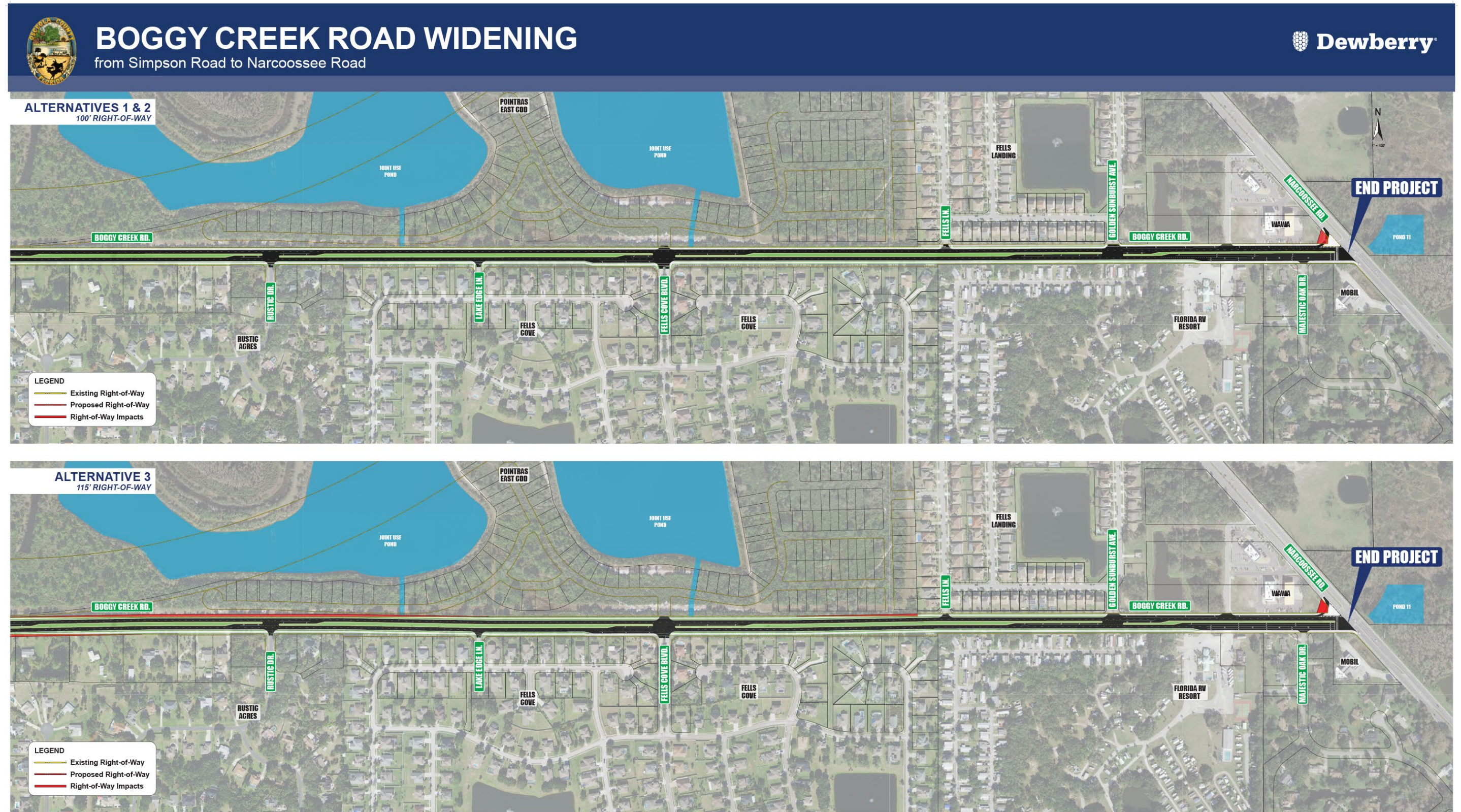


Figure 4-10d: Alternative Alignments Plan (Sheet 4 of 4)



4.5.5 Geotechnical

In order to evaluate the subsurface conditions and groundwater table levels along the roadway, auger borings were advanced to depths ranging from approximately 3 to 5 feet below the existing ground surface along the roadway alignment. The boring locations were staggered on the left and right side of the alignment with two borings performed for each 100-foot station. Generally, the soil profiles consisted of fine sands with varying amounts of silt. The soil types encountered during this exploration have been assigned a stratum number. The stratum numbers and soil types associated with this project are listed in [Table 4-6](#).

Table 4-6: Preliminary Soils Encountered

Stratum Number	Soil Description	AASHTO Classification
1	Light Brown to Dark Brown to Light Gray to Gray Fine Sand to Fine Sand with Silt, Occasional Trace Organic Material, Asphalt, Trace to Some Cemented Sand, Limerock, and Roots	A-3
2	Light Brown to Brown to Dark Brown Fine Sand with Silt to Silty Fine Sand, Occasional Trace Limerock, Organic Material, Roots, and Few Cemented Sand	A-2-4
3	Brown to Dark Brown Mucky Fine Sand	A-8
4	Gravel with Sand	A-1-a

Strata 1, 2 and 4 are Select Soils and are suitable for embankment construction. Organic soils/muck (Strata 3) were encountered during our preliminary study along the alignment and should not be used in embankment construction and should be excavated in accordance with Indices 120-1 and 120-2 of the Standard Plans.

The groundwater table, when encountered, was measured at each of the boring locations during the field exploration. The encountered groundwater table along the project alignment was found to range from at the existing ground surface to a depth of approximately 9.6 feet below the existing ground surface. Preliminary estimated seasonal high groundwater levels generally range from 0 to 6 feet below the existing ground surface. None of the alignment alternatives are expected to be impacted by the geotechnical investigation.

4.5.6 Lighting

A **Lighting Justification Report** has been prepared to evaluate the need for roadway lighting along Boggy Creek Road. The need for lighting was evaluated using the alternative urban typical sections and FDOT's Manual of Uniform Traffic Studies (MUTS), Chapter 14 Roadway Lighting Justification Procedure. The results of this analysis

indicates that lighting is justified along the corridor. In addition, Osceola County has determined that lighting will be provided for urban roadway corridors that include sidewalks or trails.

4.5.7 Utilities

A *Utility Technical Memorandum* has been prepared to identify the location and ownership of all existing and future utilities and easements within the study area and evaluate how these facilities will influence the alternative alignments. The existing utilities within the study corridor are summarized in [Table 2-7](#).

All the existing utilities appear to have the capacity to adjust and/or relocate their services within the corridor without causing major inconvenience to their customers. The potential utility impacts will not influence the recommendation of a build alternative.

During the final design phase, it is recommended that accepted utility coordination procedures be implemented to minimize impacts to those utilities that cannot be avoided by the proposed design. This coordination will include confirmation of existing utility locations at conclusion of 30% plans, determination of unavoidable conflicts at 60% plans and coordination with utility agencies/owners (UAO's) to develop proposed disposition of conflicts, confirmation of utility conflict resolution at 90% plans and final utility conflict clearance at 100% plans.

4.5.8 Landscaping

Landscape design is not included in the scope of the project. However, green areas will be provided in the median, between the curb and sidewalk/multi-use path and along the roadway borders for future landscaping opportunities. Sleeves will be incorporated into the design for potential future irrigation.

4.5.9 Conceptual Maintenance of Traffic

The Traffic Control Plan (TCP) shall be based upon procedures outlined in the current edition of the Federal Highway Administration (FHWA) *Manual on Uniform Traffic Control Devices (MUTCD)* and shall be in accordance with FDOT's *Design Standards and Standard Specifications for Road and Bridge Construction*.

Two travel lanes, one in each direction, will be maintained along Boggy Creek Road, during the construction of the project. Access to adjacent residences, businesses, schools, and side-street connections will always also be maintained during construction. Stormwater runoff will be collected and conveyed through the work zone. Construction signage, temporary pavement markings and traffic control devices will be provided to facilitate safe travel through the construction area. It is anticipated that there will be three main temporary traffic control phases. Phase 1 - Two new travel lanes, offsite stormwater and floodplain compensation ponds will be constructed while traffic is maintained on the existing roadway. Temporary pavement may be needed to shift traffic away from the active work zone. Phase 2 - Traffic will be shifted to the two new travel lanes so that the existing

roadway can be removed, and the additional travel lanes can be completed. Phase 3 – Temporary pavement will be removed and the median constructed. When all the roadway improvements are complete, the final signing and pavement markings will be applied and four lanes of traffic will be opened. Detailed Temporary Traffic Control Plans (TTCP) will be developed during the design phase of the project.

4.5.9.1 Ponds

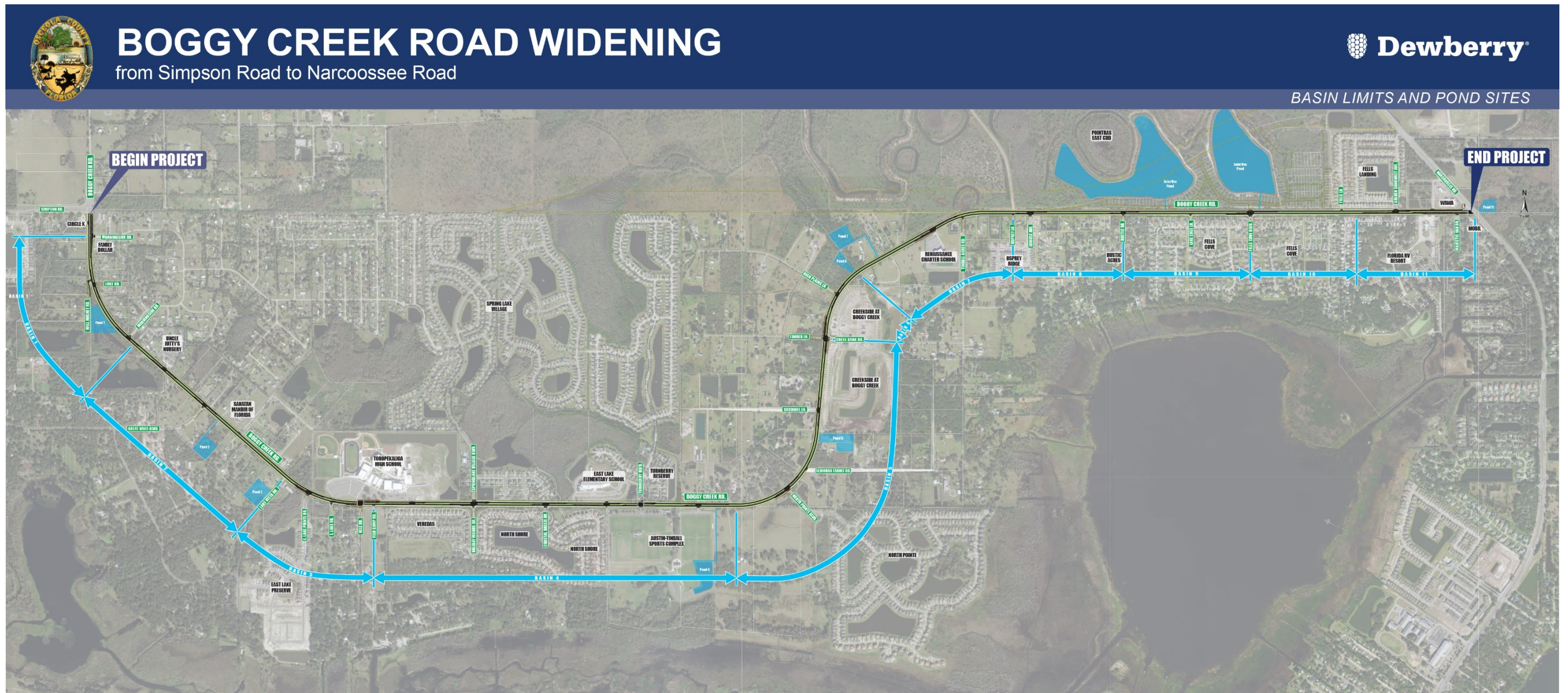
A *Pond Siting Technical Memorandum* has been prepared to identify potential alternatives for stormwater management ponds and floodplain compensation sites that satisfy the hydraulic requirements for each major drainage basin along the CR 557 project corridor. Stormwater management for water quality treatment and runoff attenuation will be provided using dry retention and wet detention ponds.

The analysis estimates right-of-way needs using a volumetric analysis, which accounts for water quality treatment and water quantity for runoff attenuation. Pond sites and configurations may change during final design, as more detailed information, such as the seasonal high-water table (SHWT), wetland hydrologic information, and final roadway profile become available. Please refer to [Table 4-7](#) for a Summary of Recommended Stormwater & Floodplain Compensation Pond Sites and the Concept Plans, for the alternative pond locations.

Table 4-7: Recommended Stormwater & Floodplain Compensation Pond Sites

Basin	Preferred Pond Alternative	Pond Access Easement Area (ac)	Pond Right-of-Way Area (ac)	Total Required Right-of-Way (ac)	Cost (\$)
Basin 1	1D	0.00	3.37	3.37	\$450,040
Basin 2	2C	0.24	2.43	2.67	\$357,670
Basin 3	3D	0.00	2.98	2.98	\$425,471
Basin 4	4C	0.71	2.95	3.66	\$321,420
Basin 5	5A	0.00	3.72	3.72	\$647,374
Basin 6	6A	0.00	1.52	1.52	\$191,249
Basin 7	7A	0.53	2.73	3.26	\$453,859
Basin 8	Joint-Use Pond	0.45	0.00	0.45	\$625,442
Basin 9					
Basin 10					
Basin 11	11A	0.00	1.79	1.79	\$414,625
Totals:				23.42	\$3,887,151

Figure 4-11: Recommended Basin Limits and Pond Site Locations



4.5.10 Costs

The total estimated project cost for each alternative is shown on the Alternatives Evaluation Matrix in [Table 4-5](#). The projected cost for Alternative 1 is approximately \$67,287,000, which includes \$284,000 for Environmental Mitigation, \$62,691,000 for Construction and \$4,332,000 for Right-of-Way acquisition. The total cost for Alternative 2 is \$67,503,800, which includes the same environmental and right-of-way costs as Alternative 1, but construction costs are slightly higher at \$62,907,800. Alternative 3 is the most costly alternative due mainly to the higher right-of-way and costs. Alternative 3 costs are estimated at \$73,489,800, including \$336,000 for Environmental Mitigation, \$64,596,800 for Construction and \$8,557,000 for Right-of-Way.

4.6 Environmental Evaluation

4.6.1 Community Cohesion

Since this project primarily consists of widening Boggy Creek Road within the existing roadway that acts as a boundary for neighborhoods along the project limits, the project alternative alignments evaluated will not split or isolate any existing neighborhoods. The proposed project is not anticipated to harm elderly persons, handicapped individuals, non-drivers and transit-dependent individuals, or minorities. It is anticipated that the project improvements will not affect community cohesiveness. The addition of sidewalks and a multi-use trail will enhance the multi-modal connectivity along the project corridor.

4.6.2 Potential Parcel Impacts and Relocations

Alternatives 1 and 2 would require right-of-way from 21 parcels and would not require any relocations. Alternative 3 would require right-of-way from 84 parcels, but also does not require any relocations.

4.6.3 Historical/Archaeological

A **Cultural Resource Assessment Survey** was prepared to determine if any significant or potentially significant cultural resources, including archaeological sites and historic resources, will be impacted by the construction of any of the proposed corridor alternatives. None of the proposed alternatives will impact any archaeological or historic resources along the corridor.

4.6.4 Wetlands and Surface Waters

A **Natural Environmental Assessment Technical Memorandum** was prepared for this project to evaluate and document potential impacts to wetlands along the project corridor. The wetland evaluation relied on literature reviews and field surveys to identify the location, extent, and approximate functional value of wetlands in the project area. Alternatives 1 and 2 will impact approximately 2.1 acres of wetlands and surface waters. Alternative 3 will impact approximately 2.2 acres of wetlands and surface waters.

4.6.5 Threatened and Endangered Species

A *Natural Environmental Assessment Technical Memorandum* was prepared as part of this alignment study in order to determine the potential impacts to threatened and endangered species within the study corridor. All the alternatives are within the 660-foot buffer of a bald eagles nest. However, none of the alternatives are expected to have adverse effects on wildlife or habitat.

4.6.6 Floodplains and Floodway

Additional information regarding floodplains and mitigation for impacts can be found in the *Final Pond Siting Memorandum* prepared for this project. Alternatives 1 and 2 will impact approximately 0.2 acre-feet of floodplain, while Alternative 3 will have slightly more impacts at 0.4 acre-feet.

4.6.7 Contamination

A *Contamination Summary Evaluation Report* was prepared for Boggy Creek Road which identified potential contamination sites within the corridor. Both Alternatives 1 and 2 impact two potential contamination sites while Alternative 3 impacts six potential contamination sites.

4.6.8 Construction Impacts

Construction activities for the project may have short-term air, noise, vibration, water quality, traffic flow, and visual effects for those residents and travelers within the immediate vicinity of the project.

The air quality effect will be temporary and will primarily be in the form of emissions from diesel-powered construction equipment and dust from earthwork operations for roadway and pond construction. Air pollution associated with the creation of airborne particles will be effectively controlled through the use of watering or the application of other controlled materials in accordance with FDOT's *Standard Specifications for Road and Bridge Construction*.

Noise and vibrations effects will be from the heavy equipment movement and construction activities such as pile driving and vibratory compaction of embankments. Noise control measures will include those contained in FDOT's *Standard Specifications for Road and Bridge Construction*. Specific noise level problems that may arise during construction of the project will be addressed by the Polk County Project Manager in cooperation with the appropriate Environmental Specialist.

Short term construction related wetland impacts will be minimized by adherence to FDOT's *Standard Specifications for Road and Bridge Construction*. These specifications include measures known as Best Management Practices (BMPs), which include the use of siltation barriers, turbidity barriers, dewatering structures, and containment devices that will be implemented for controlling turbid water discharges outside of construction limits.

Water quality effects resulting from erosion and sedimentation will be controlled in accordance with FDOT's Standard Specifications for Road and Bridge Construction and through the use of BMPs.

Maintenance of traffic (MOT) and sequence of construction will be planned and scheduled so as to minimize traffic delays throughout the project. Signs will be used as appropriate to provide notice of road closures and other pertinent information to the traveling public. The local news media will be notified in advance of road closings and other construction-related activities, which could excessively inconvenience the community so that motorists, residents, and business persons can plan travel routes in advance. All provisions of the FDOT's *Standard Specifications for Road and Bridge Construction* will be followed.

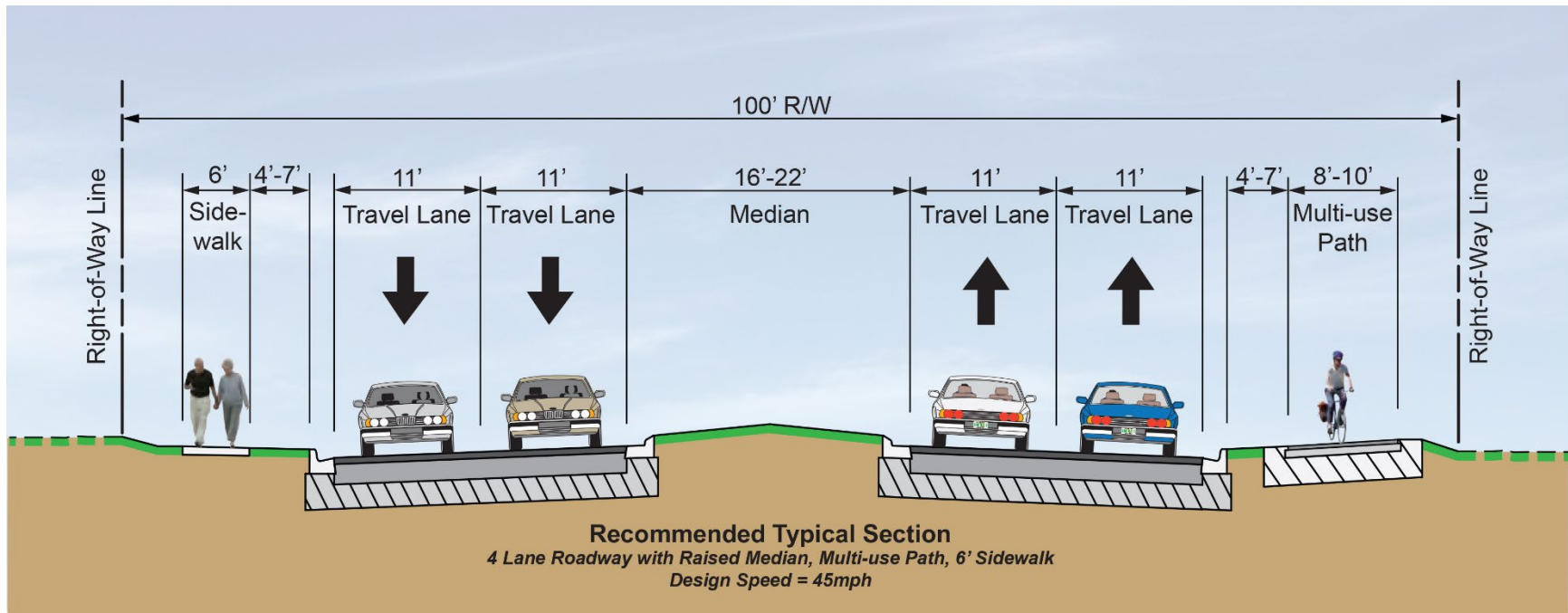
Construction of the roadway may require excavation of unsuitable material (muck), placement of materials such as embankment, limerock, asphalt and Portland cement products. Demucking, removal of structures and debris will follow the provisions in Section 120 of the FDOT's *Standard Specifications for Road and Bridge Construction* and in accordance with local and state regulatory agencies permitting this project. The Contractor is responsible for his methods of controlling pollution on haul roads, in borrow pits and other materials pits, and in areas used for the disposal of waste materials from the project.

Temporary erosion control features as specified in the FDOT's *Standard Specifications for Road and Bridge Construction*, Section 104, will consist of temporary grassing, sodding, mulching, sandbagging, slope drains, sediment basins, sediment checks, artificial coverings, and berms.

4.7 Preferred Alignment

Based on the results of the engineering and environmental evaluations conducted as part of this study, input received from the community, and consultation with Osceola County, the preferred alignment is a refined Alternative 2. Subsequent to the public meeting, the proposed Typical Section was refined to incorporate more flexibility in order to maximize the use of the existing right-of-way. Variations in the median width and buffers were incorporated to allow construction within the existing right-of-way for the majority of the corridor. The refined Typical Section No. 2 is shown in [Figure 4-12](#). The Osceola County Board of County Commissioners has approved the refined Alternative 2 as the Preferred Alternative.

Figure 4-12: Recommended Typical Section (Refined Typical Section No. 2)



5.0 PUBLIC INVOLVEMENT

A *Public Involvement Summary Report* was prepared documenting the public involvement activities that occurred during the Alternatives Evaluation phase of the project. Osceola County and the project team developed a detailed Public Involvement Plan to guide outreach during the evaluation phase. The public involvement efforts included:

- Project Website
- Hybrid Public Information Meeting
- Public Meeting Notification Flyers
- Comment Documentation
- Coordination with Stakeholders
- Presentation to the Osceola County Board of County Commissioners

5.1 Project Website

Osceola County hosted a project website (www.osceola.org/go/boggycreek) to provide updated information about the project. The website includes a map of the project location and a description of the project, as well as a link to provide comments or ask questions. Information about the public information meeting and how to participate was also posted and included the meeting presentation and exhibits.

5.2 Flyers

Public meeting notification flyers were prepared in English and Spanish and mailed to property owners and current residents/tenants (if different from property owners) along the corridor. The mailing list included properties within 300 feet of the project, as well as entire neighborhoods where their only access is from Boggy Creek Road. The flyers were also attached to the electronic meeting invitations for elected officials and government partners..

5.3 Hybrid Public Information Meeting

A hybrid public information meeting was held on March 4, 2021, with 74 individuals participating online and 20 people attending in-person. The meeting was offered as an in-person open house and virtually using GoToWebinar to allow interested persons to join from their computer, tablet or telephone. There was one newspaper ad published in the *Osceola News-Gazette* on February 25, 2021. A media release was sent out by the Osceola County project manager. Meeting invitations were sent out on February 12, 2021, by email, to 18 elected officials and 60 government partners. An additional 3,195 meeting invitation flyers were mailed to property owners and current residents/tenants on February 16, 2021. The invitation flyer was also posted on the project website.

Comments from 54 citizens were made on a variety of topics. The majority of respondents preferred Alternative 3, with four inquiries and Alternative 2 garnered 3 inquiries. The most numerous comments and the corresponding responses are as follows:

- Eleven people asked if new traffic lights would be added during this project.
Response: An extensive traffic study was performed to analyze the traffic conditions between now and the design year 2045. That analysis found no need to warrant any additional traffic signals at this time. There will be enhancements made at the existing four signalized intersections along the corridor, and Osceola County will continue to monitor traffic in the future.
- Five people asked if a fire station was planned for Boggy Creek Road.
Response: Osceola County Fire Rescue is planning to build a new Austin Tindall Fire Station. The project team will coordinate with Fire Rescue throughout the project to ensure appropriate accommodations.
- Four people asked about the timing of the project and if it could be accelerated.
Response: The County is following a schedule that is as aggressive as possible. Funding is in place to proceed all the way through construction, which is anticipated to begin in fall 2023.
- Four people inquired about noise walls.
Response: A noise study was not performed as part of this project as the proposed improvements on Boggy Creek Road are not anticipated to increase noise levels enough to warrant construction of noise walls. As a result, there are no plans to construct noise walls as part of this project.
- Three people had speed limit concerns.
Response: The proposed speed limit for this project will be lowered to 40 or 45 miles per hour to enhance safety along the corridor. The speed limit is determined by surrounding land uses and the nature of the corridor.
- Three people asked about pond sites.
Response: A pond siting analysis was performed and three potential pond sites per basin were identified and analyzed. These potential pond sites will be evaluated further in the final design phase. The stormwater runoff will be routed in underground pipes to each of these potential pond sites.
- Three people inquired about right-of-way acquisition.
Response: Right of way needs will be determined during the final design phase of this project after a preferred alternative is selected. Once the properties are identified, the County will contact any affected property owners directly to begin discussions. We anticipate the right of way phase to begin in late 2021 or early 2022. In the meantime, for any right of way questions, please contact Osceola County Right of Way and Asset Manager Sally Myers at 407-742-0502 or email at sally.myers@osceola.org.
- Three people wondered about traffic control during construction.
Response: During the upcoming design phase, a detailed traffic control plan will be developed that outlines the construction phases. In general, every effort is made to maintain traffic flow on the roadway during construction.

For a project like this, a typical plan might include widening the existing roadway with temporary pavement, then shifting the traffic off to one side while the two new lanes are constructed on the other side. When those two new lanes are complete, traffic would then be shifted over to the new lanes while crews finish constructing the final two lanes and the center median. The engineers will look at this during design to see if that is the best method to use for this project to help maintain traffic and minimize added congestion and delays as much as possible. If any detours are needed, they will also be determined during the design phase.

- Two people wanted to know about the timing of the construction (day or night).
Response: The schedule for construction activities will be refined during the design phase, including times of day for work to occur.
- Two people asked about median access.
Response: Median openings have been identified and are located at most side streets based on allowable spacing. Median opening locations will be further examined and determined during the final design phase.
- Two people commented on traffic congestion concerns by the school.
Response: Turn lanes at the schools will be determined during the design phase; however, we are proposing both left and right turn lanes into most of the school entrances to facilitate traffic. Creating four lanes of the roadway will also help with the traffic flow through the school zones and school areas.
- Two people asked about crosswalks.
Response: The four existing signalized intersections will all be improved, along with most of the minor intersections. Intersection enhancements may include adding turn lanes, improving the signals and adding crosswalks.
- Two people asked about the new Tavistock development.
Response: There is a planned entrance from Boggy Creek Road into the new Tavistock development, which is being coordinated between Orange and Osceola counties. Tavistock is contributing to the improvements of Boggy Creek Road to ensure that the impacts of that development are taken into account for the roadway improvements. The Tavistock entrance from Boggy Creek Road is expected to be constructed before this project begins. The County will continue to coordinate with the developer.
- Two people inquired about the Boggy Creek Road improvements from Simpson Road to S.R. 417.
Response: The planned improvements for the stretch of Boggy Creek Road from Simpson Road to SR 417 are being completed by Orange County and the project is expected to begin construction in summer 2021. Information on that project can be found on the Orange County website at www.orangefl.net/traffictransportation/transportation
- Two people wanted to know if roundabouts were considered.
Response: Roundabouts were not considered as part of this project. Roundabouts typically require more right-of-way than currently exists and

right-of-way acquisition could result in significant impacts to adjacent property owners.

- Two people asked about the Simpson Road project timeline.
Response: Phase I of the Simpson Road improvements from Boggy Creek Road to Myers Road is expected to begin in late 2021. Improvements on Simpson Road south of Myers Road are currently expected to begin in summer or fall 2023, so work may be occurring on the two roadways at the same time. However, project teams will coordinate to minimize negative traffic impacts.
- Two; people asked about the Osceola Parkway Extension project.
Response: The Osceola Parkway Extension is in no way associated with the Boggy Creek Road project. It is being developed by the Central Florida Expressway Authority. For more information on that project, log on to www.CFXway.com. Also, the proposed Osceola Parkway Extension is a limited access tolled roadway. Boggy Creek Road is a non-tolled roadway owned by Osceola County.

Other topics included: limitations needed for future development; offer of land for storing construction equipment; adding turn lanes; congestion; storm drainage; height of the road; traffic counts; noise study; other projects; replacing trees; signal reconstruction; detours and roadway safety during construction; air braking; concerns with cut through traffic on side roads; cost; street lighting; property taxes; walking path; and not liking the idea of having to make U-turns.

5.4 Comment Documentation

A matrix was developed and maintained documenting all questions and comments received during the project study and the responses that were provided. A copy of the matrix is included in the **Public Involvement Summary Report**. A total of 104 comments and questions from 54 residents were received during the hybrid public meeting comment period, which ended on March 15, 2021.

5.5 Coordination with Stakeholders

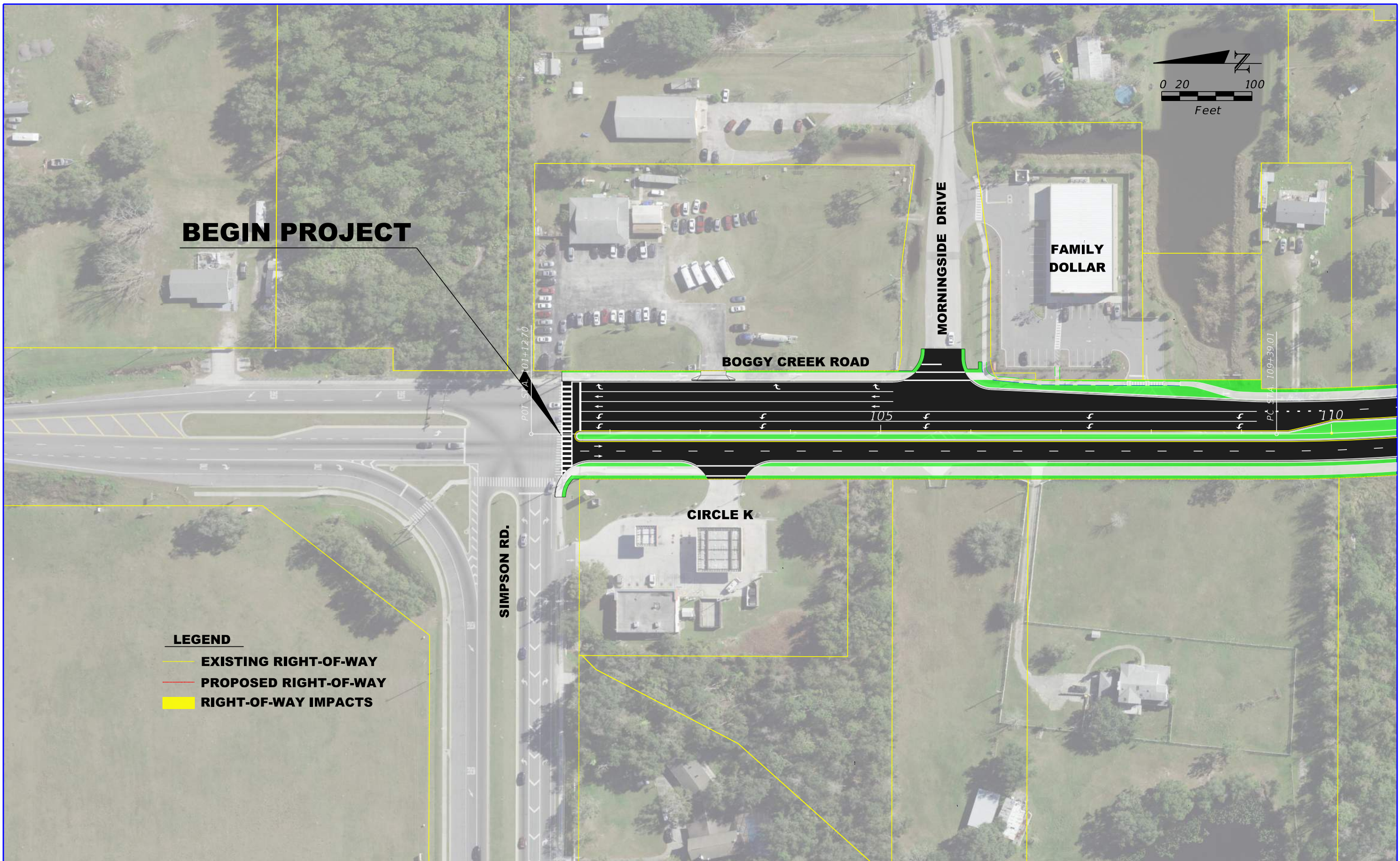
The project team coordinated with local, regional, state and federal agencies and organizations throughout the study to receive information and input .

5.6 Board of County Commissioners Presentation

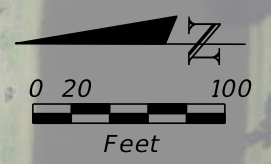
Following the public meeting, the project team refined the alternatives to develop the preferred alternative. The project team developed a presentation explaining the alternatives that were evaluated and the reasons for the recommended alternative. Based on this information, the preferred alternative was Alternative 2 with refinements as shown in **Figure 4-12**. The Board of County Commissioners reviewed the information and voted to authorize advancement of the preferred alternative to the Final Design phase. Additional public involvement is planned during Final Design.



**Appendix A: Recommended Alternative
Concept plans**



BEGIN PROJECT



- LEGEND**
- EXISTING RIGHT-OF-WAY
 - PROPOSED RIGHT-OF-WAY
 - RIGHT-OF-WAY IMPACTS

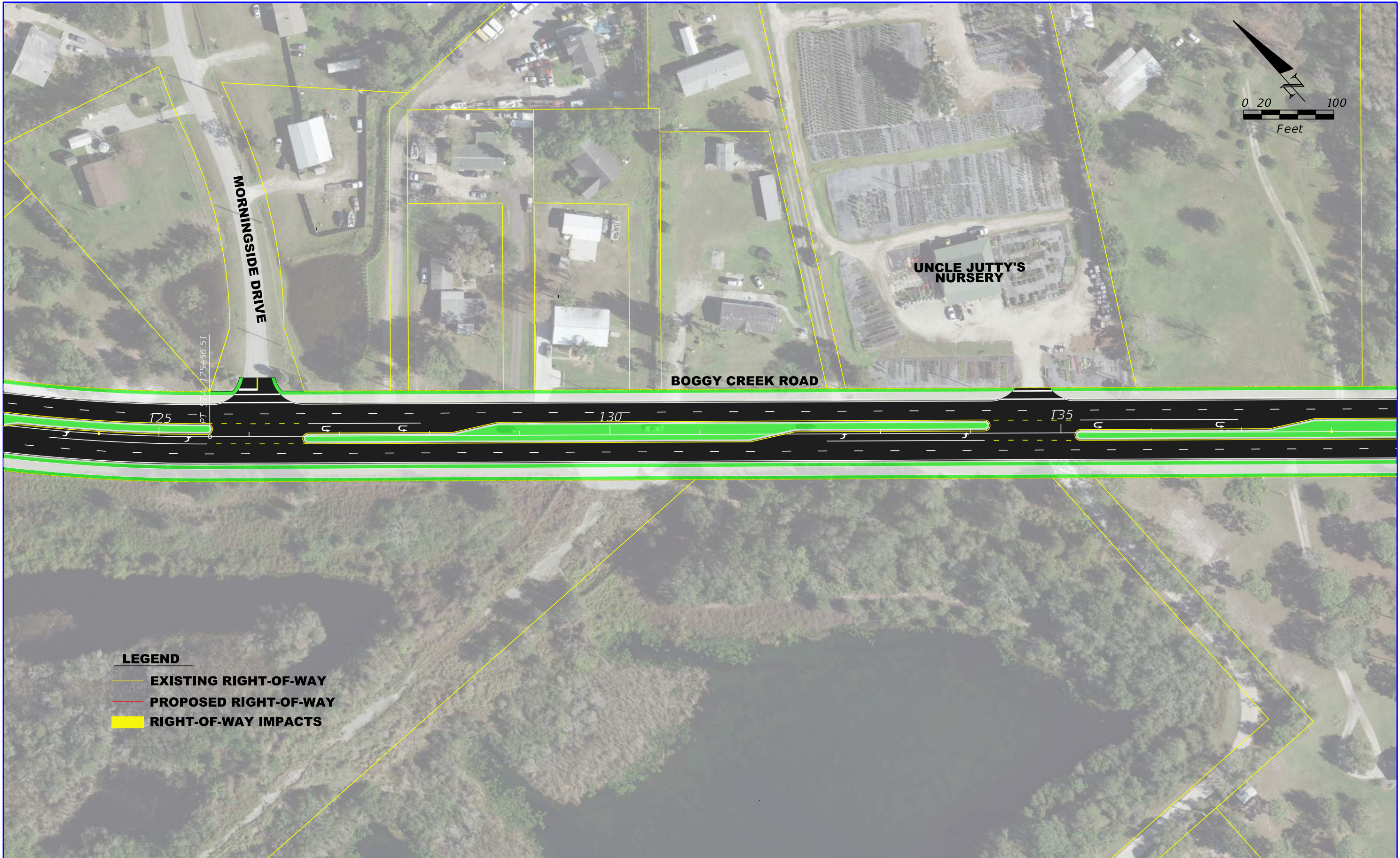
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		DATE	DESCRIPTION		ROAD NO.	COUNTY	PROJECT NO.		
					RECOMMENDED ATERNATIVE		OSCEOLA		



LEGEND

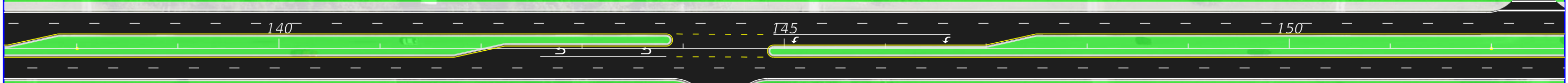
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- PROPOSED RIGHT-OF-WAY
- RIGHT-OF-WAY IMPACTS

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DATE	DESCRIPTION	DATE	DESCRIPTION			ROAD NO.	COUNTY	PROJECT NO.			OSCEOLA
				RECOMMENDED ATERNATIVE							



- LEGEND**
- EXISTING RIGHT-OF-WAY
 - PROPOSED RIGHT-OF-WAY
 - RIGHT-OF-WAY IMPACTS

REVISIONS				BOGGY CREEK ROAD ALTERNATIVES EVALUATION STUDY	OSCEOLA COUNTY PUBLIC WORKS DEPARTMENT			PLAN SHEET (3) BOGGY CREEK ROAD	SHEET NO.
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LEGEND

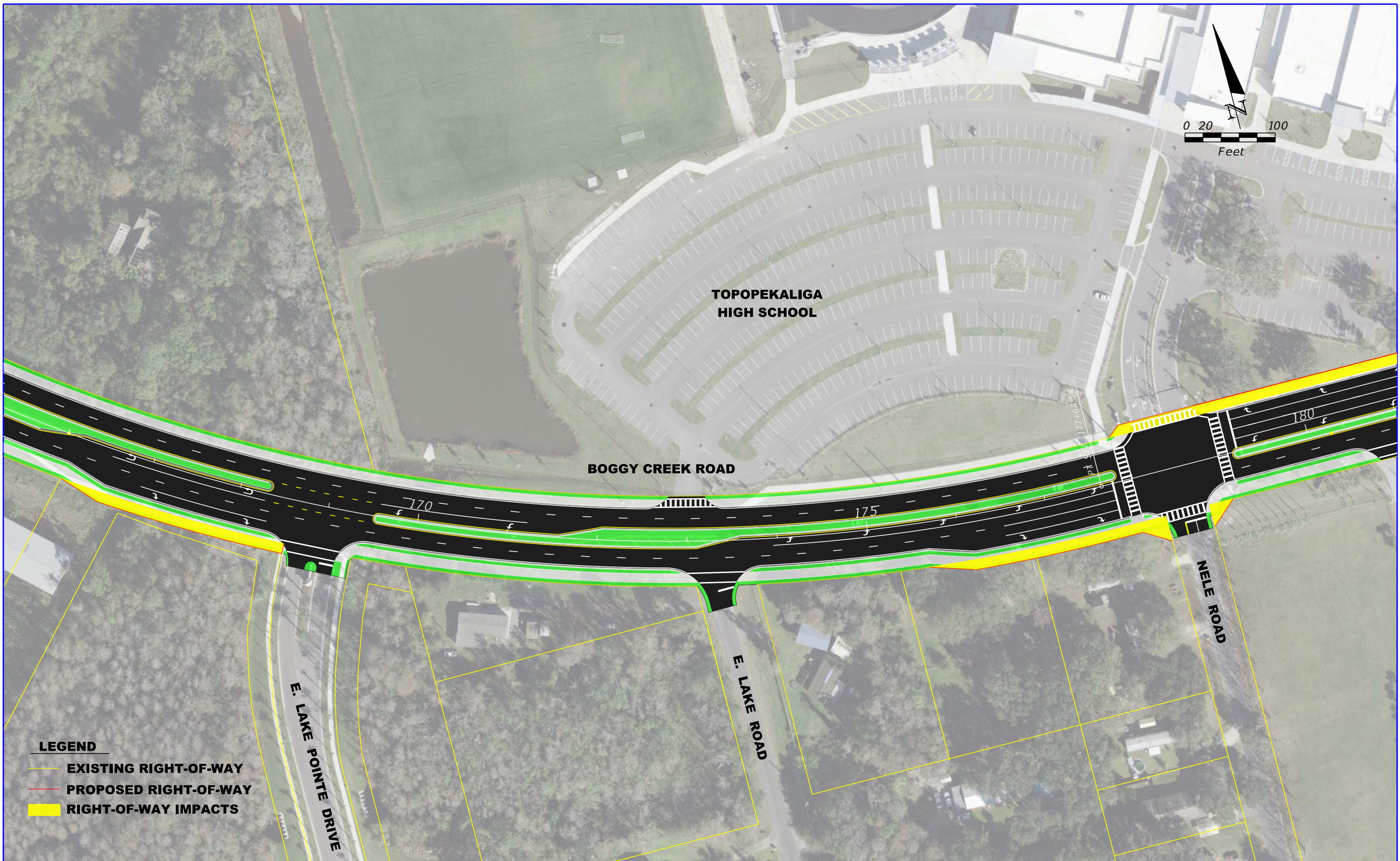
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- PROPOSED RIGHT-OF-WAY
- RIGHT-OF-WAY IMPACTS

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							OSCEOLA				



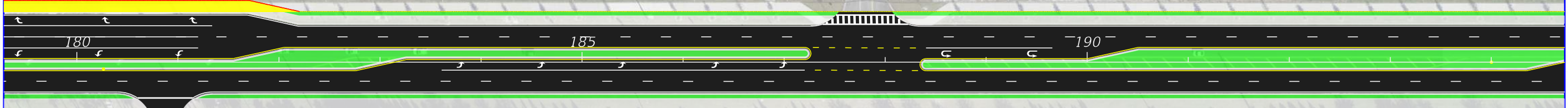
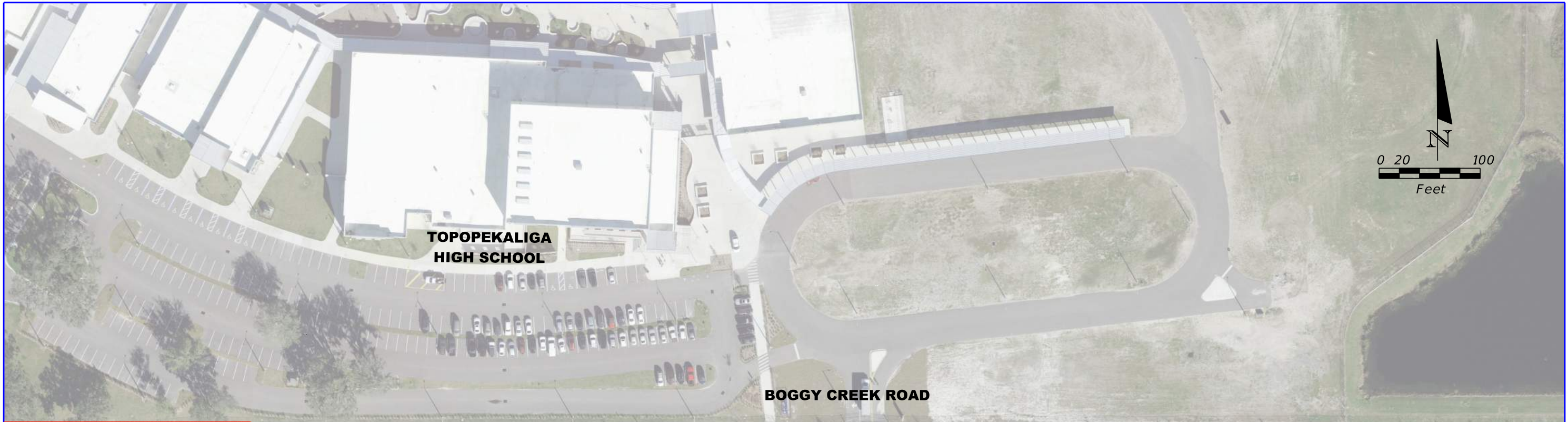
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 - PROPOSED RIGHT-OF-WAY
 - RIGHT-OF-WAY IMPACTS

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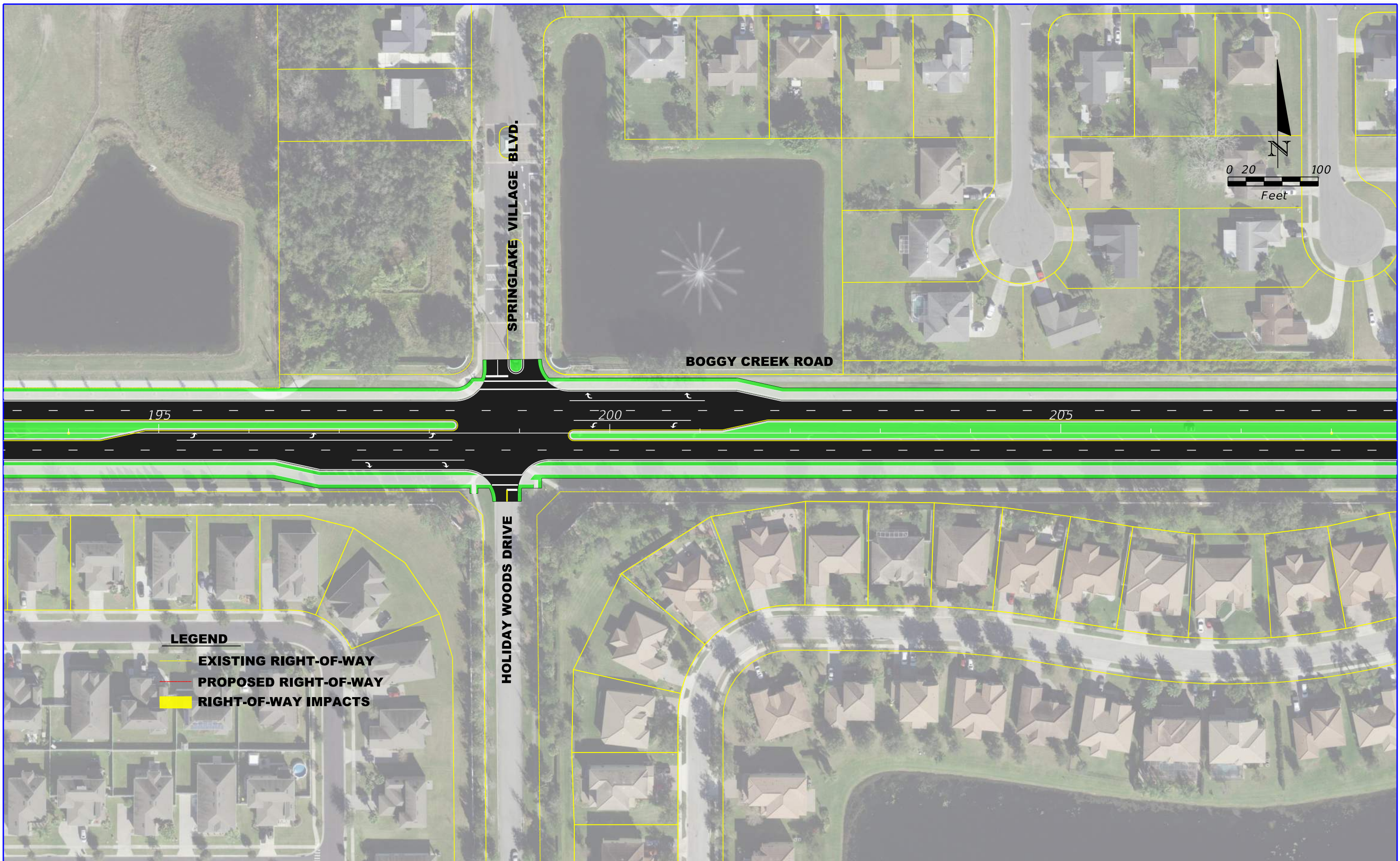
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- EXISTING RIGHT-OF-WAY
 - PROPOSED RIGHT-OF-WAY
 - RIGHT-OF-WAY IMPACTS

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DATE	DESCRIPTION	DATE	DESCRIPTION		OSCEOLA			
			RECOMMENDED ATERNATIVE					



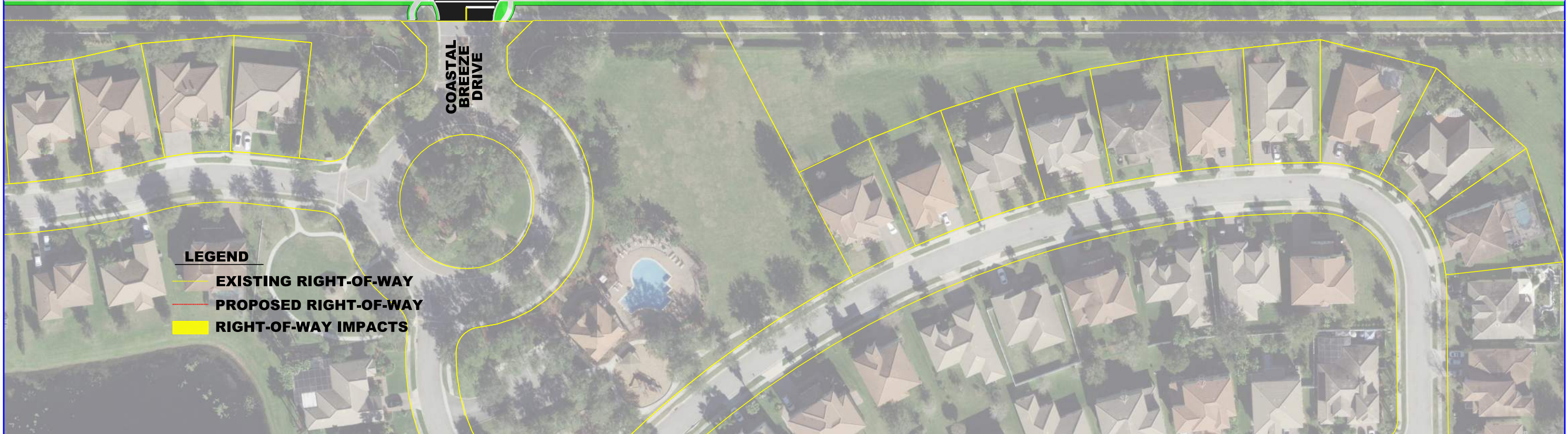
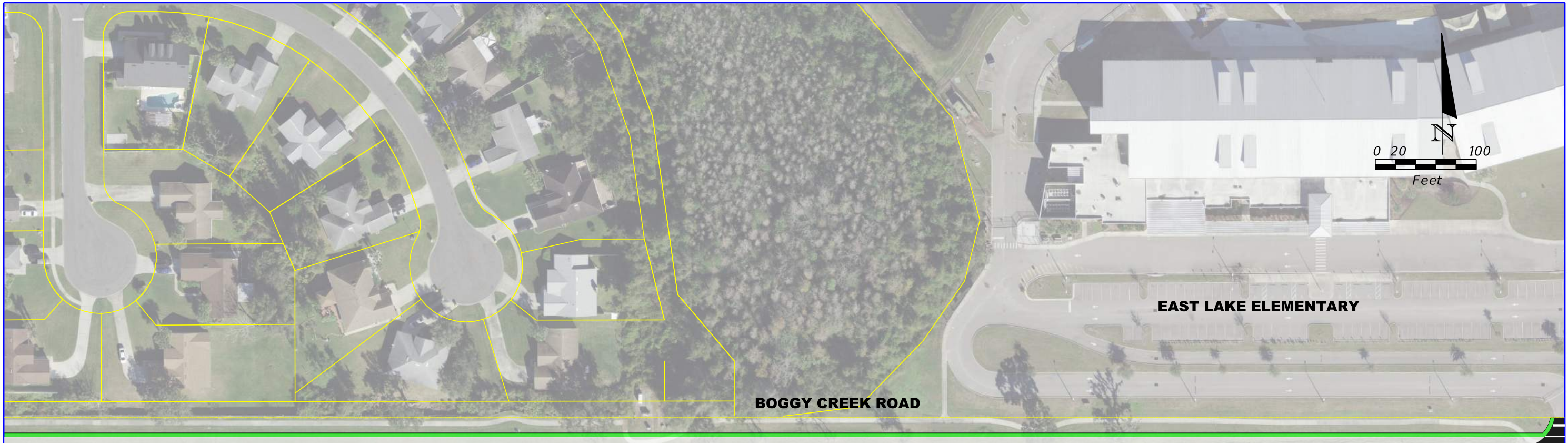
- LEGEND**
- EXISTING RIGHT-OF-WAY
 - PROPOSED RIGHT-OF-WAY
 - RIGHT-OF-WAY IMPACTS

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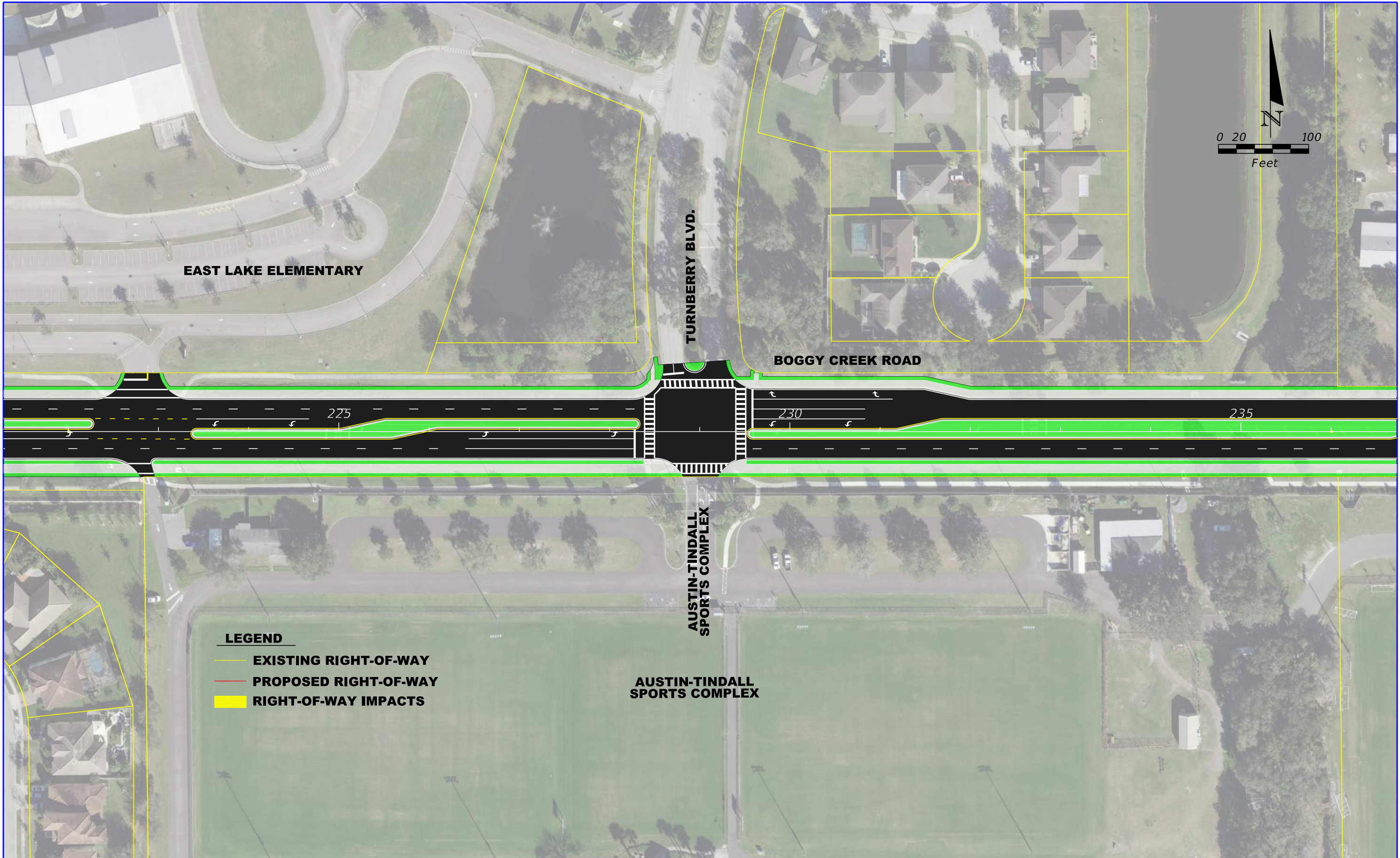
LEGEND
 — EXISTING RIGHT-OF-WAY
 — PROPOSED RIGHT-OF-WAY
 ■ RIGHT-OF-WAY IMPACTS

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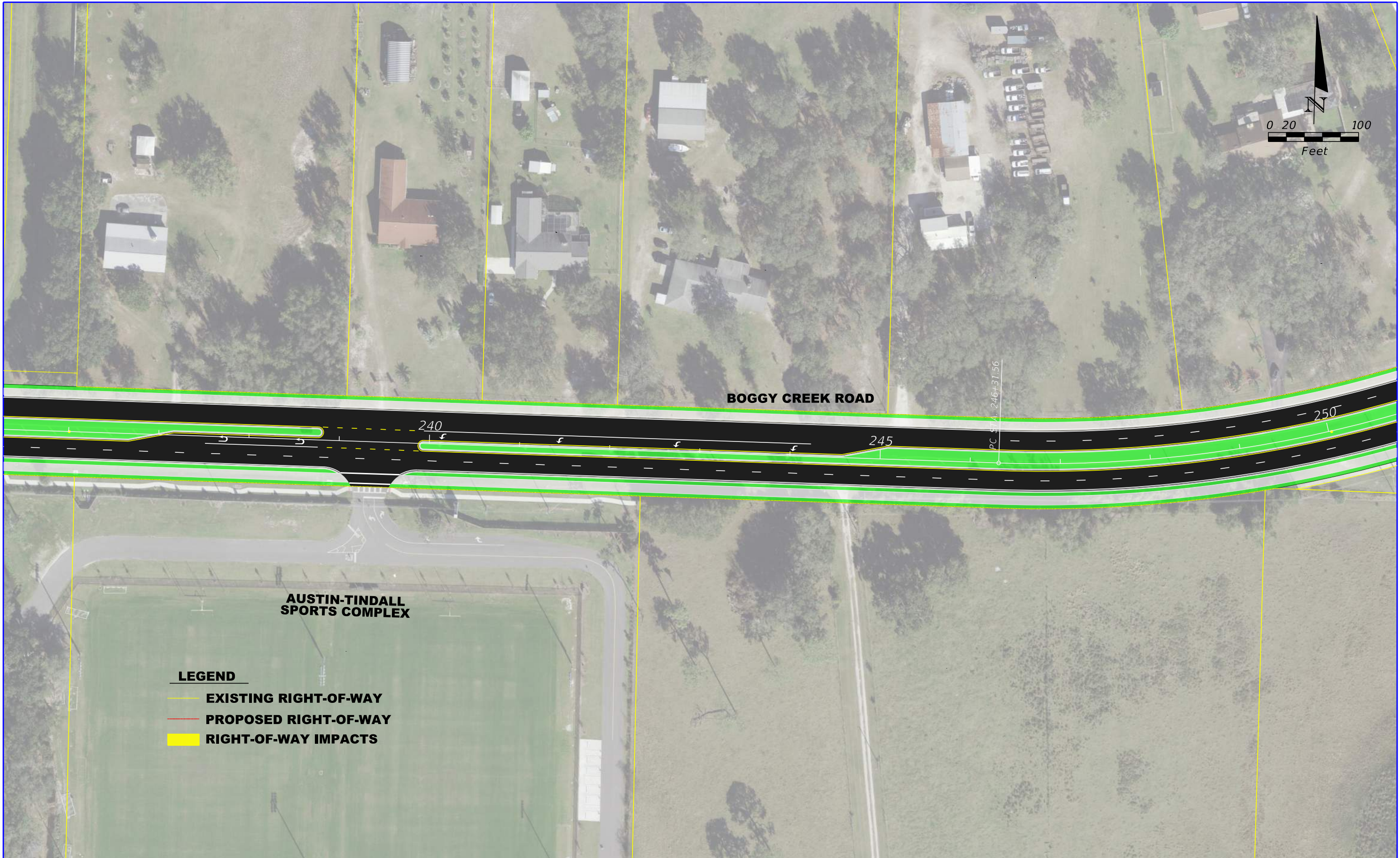
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 - PROPOSED RIGHT-OF-WAY
 - RIGHT-OF-WAY IMPACTS

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		DATE	DESCRIPTION		ROAD NO.	COUNTY	PROJECT NO.		
					RECOMMENDED ATERNATIVE		OSCEOLA		



- LEGEND**
- EXISTING RIGHT-OF-WAY
 - PROPOSED RIGHT-OF-WAY
 - RIGHT-OF-WAY IMPACTS

REVISIONS				BOGGY CREEK ROAD ALTERNATIVES EVALUATION STUDY	OSCEOLA COUNTY PUBLIC WORKS DEPARTMENT			PLAN SHEET (10) BOGGY CREEK ROAD	SHEET NO.
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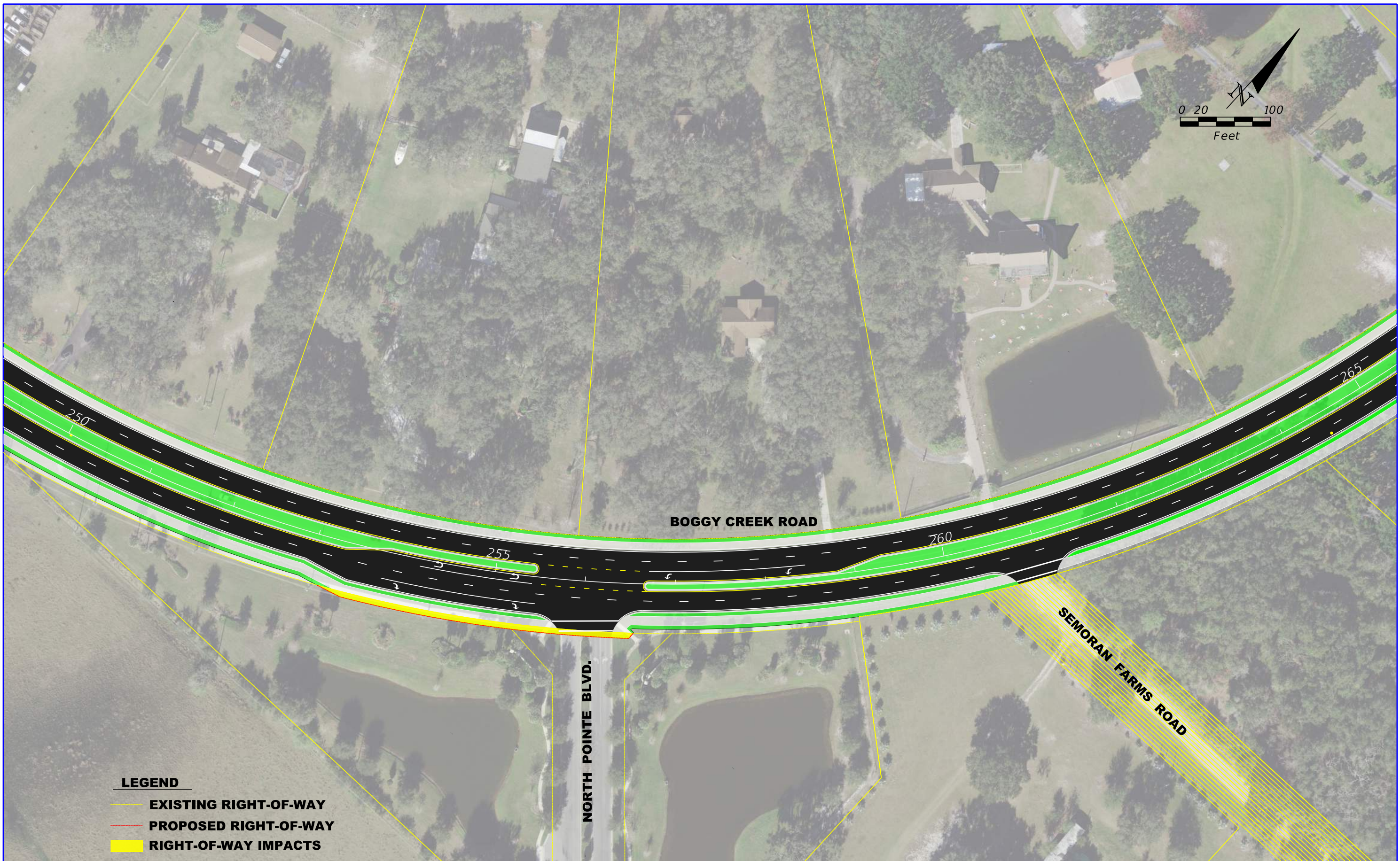


BOGGY CREEK ROAD

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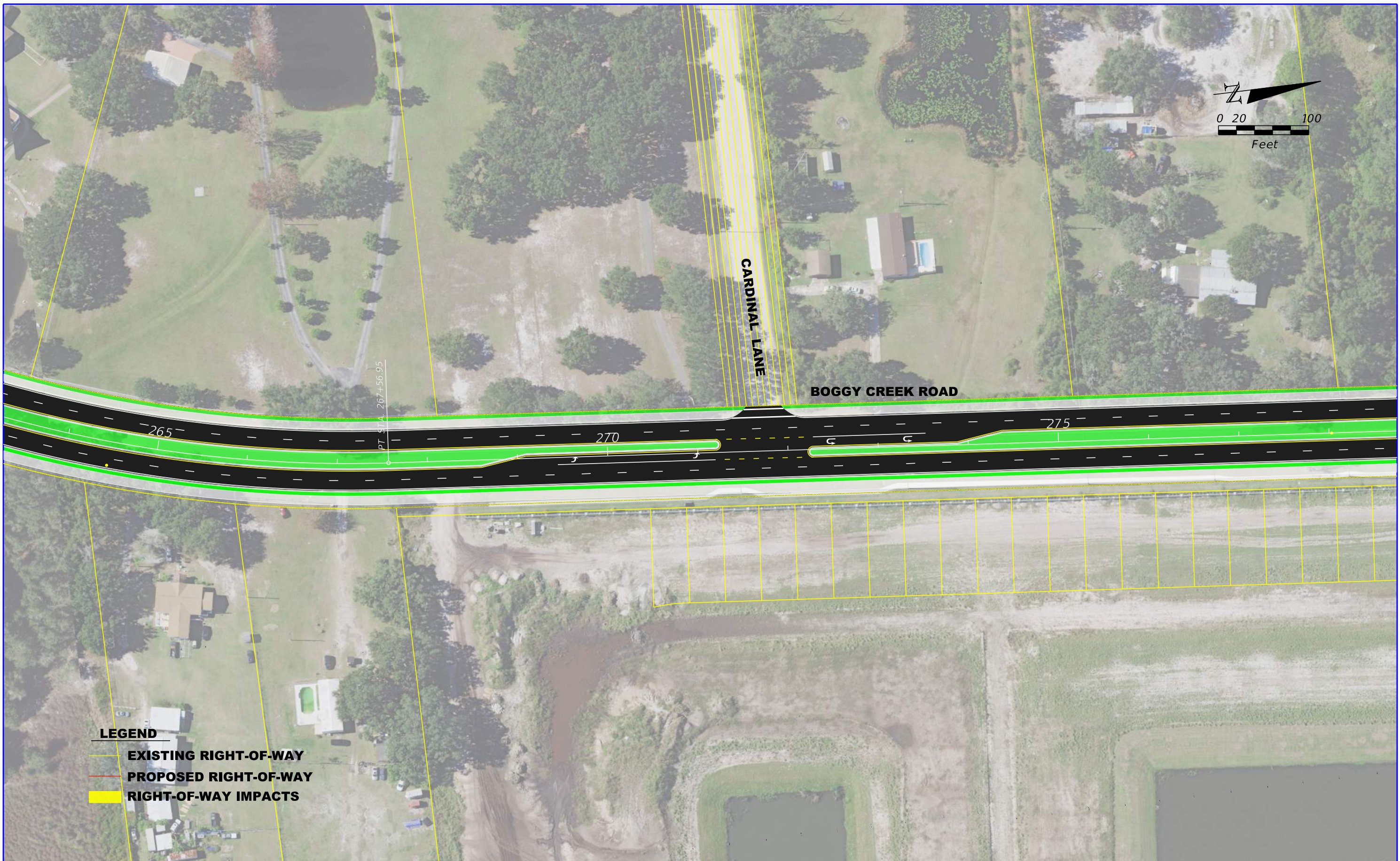
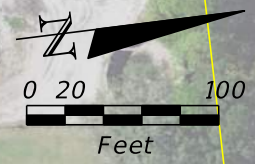
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- EXISTING RIGHT-OF-WAY
 - PROPOSED RIGHT-OF-WAY
 - RIGHT-OF-WAY IMPACTS

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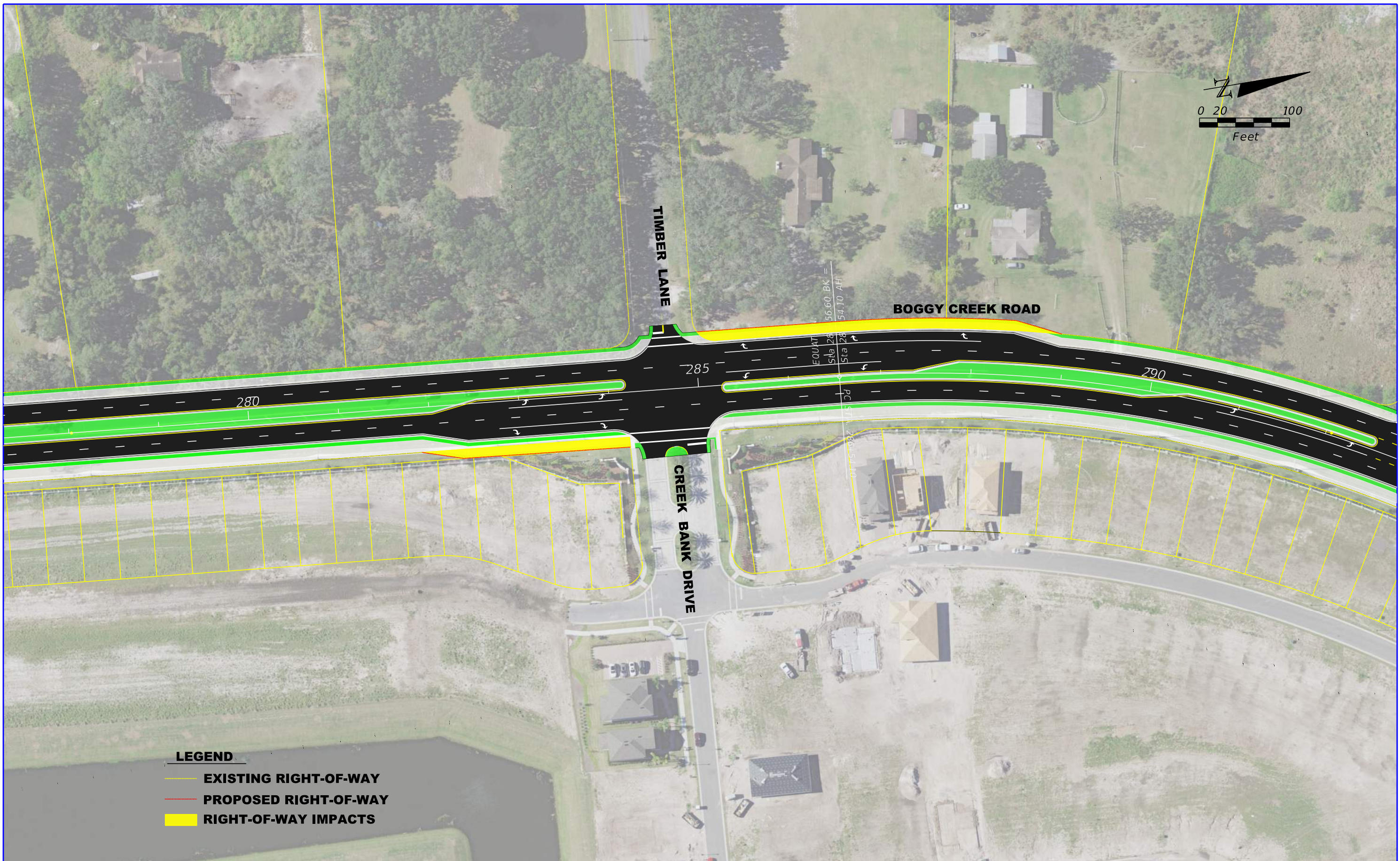
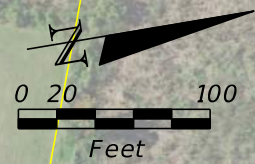
- LEGEND**
- EXISTING RIGHT-OF-WAY
 - PROPOSED RIGHT-OF-WAY
 - RIGHT-OF-WAY IMPACTS

REVISIONS				BOGGY CREEK ROAD ALTERNATIVES EVALUATION STUDY	OSCEOLA COUNTY PUBLIC WORKS DEPARTMENT			<i>PLAN SHEET (12)</i> BOGGY CREEK ROAD	SHEET NO.
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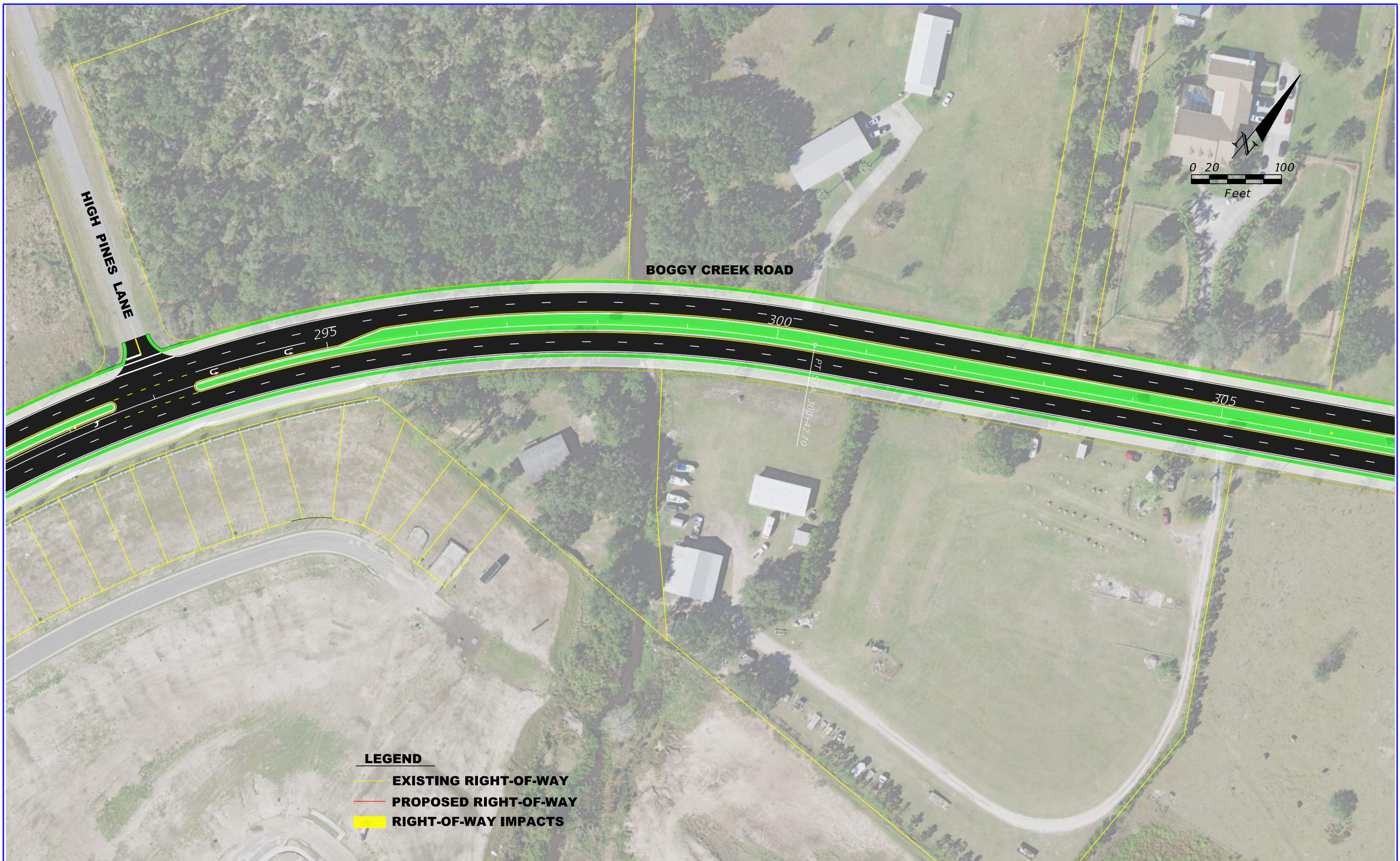
- LEGEND**
- EXISTING RIGHT-OF-WAY
 - PROPOSED RIGHT-OF-WAY
 - RIGHT-OF-WAY IMPACTS

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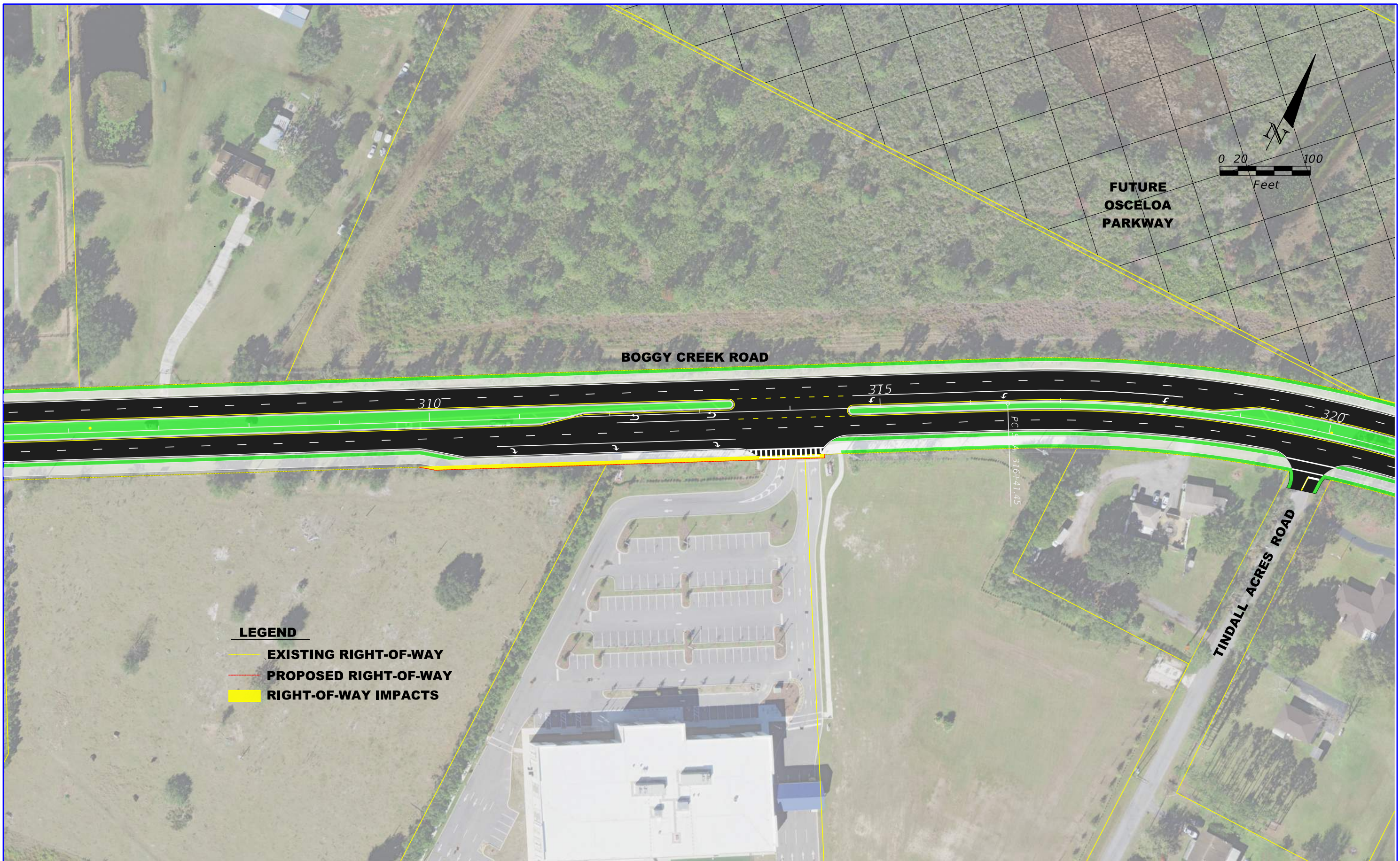
- LEGEND**
- EXISTING RIGHT-OF-WAY
 - PROPOSED RIGHT-OF-WAY
 - RIGHT-OF-WAY IMPACTS

REVISIONS				BOGGY CREEK ROAD ALTERNATIVES EVALUATION STUDY		OSCEOLA COUNTY PUBLIC WORKS DEPARTMENT		<i>PLAN SHEET (14)</i> <i>BOGGY CREEK ROAD</i>		SHEET NO.
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				RECOMMENDED ATERNATIVE						



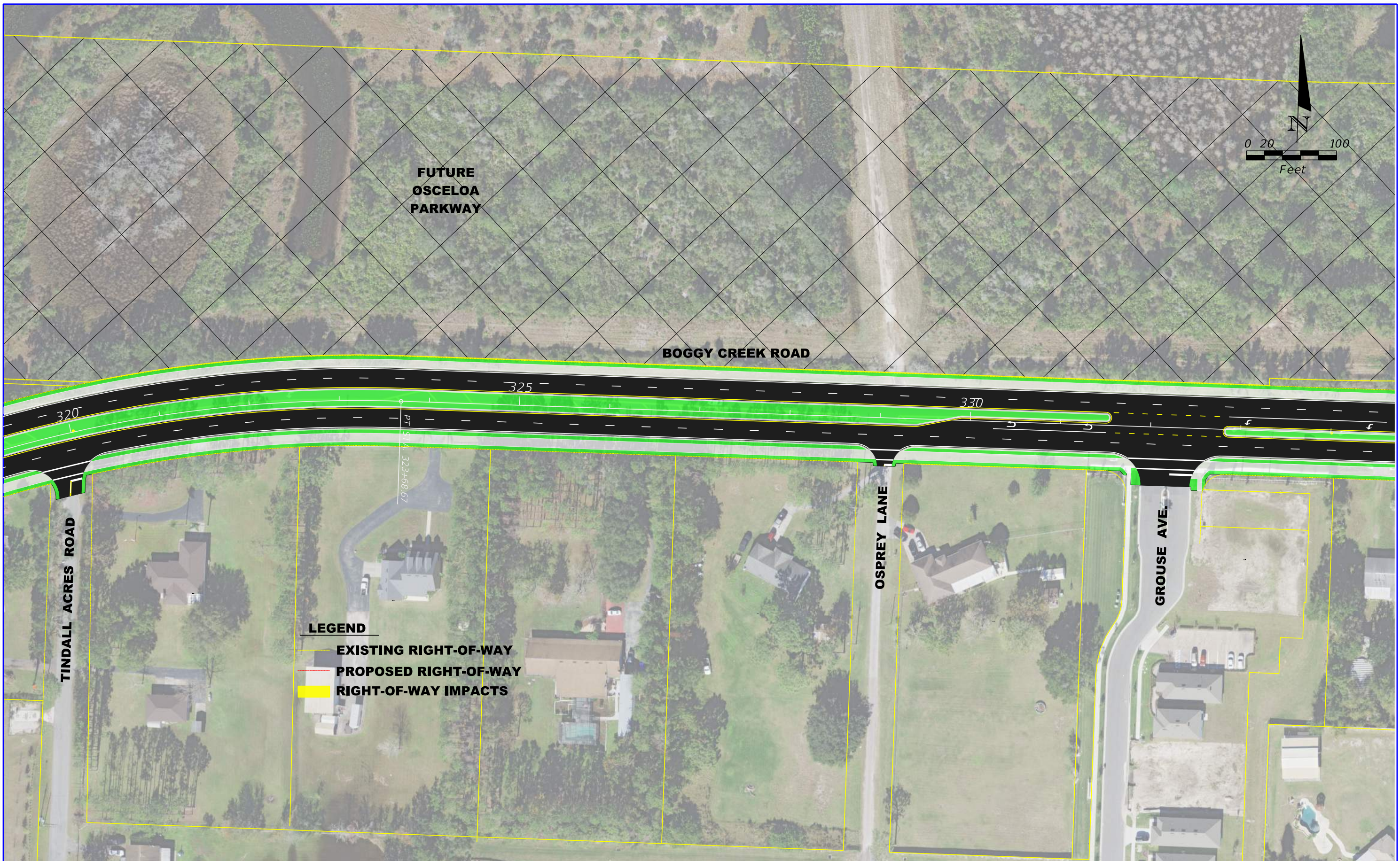
- LEGEND**
- EXISTING RIGHT-OF-WAY
 - PROPOSED RIGHT-OF-WAY
 - RIGHT-OF-WAY IMPACTS

REVISIONS				BOGGY CREEK ROAD ALTERNATIVES EVALUATION STUDY	OSCEOLA COUNTY PUBLIC WORKS DEPARTMENT			<i>PLAN SHEET (15)</i> <i>BOGGY CREEK ROAD</i>	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	PROJECT NO.		
				RECOMMENDED ATERNATIVE		OSCEOLA			



- LEGEND**
- EXISTING RIGHT-OF-WAY
 - PROPOSED RIGHT-OF-WAY
 - RIGHT-OF-WAY IMPACTS

REVISIONS				BOGGY CREEK ROAD ALTERNATIVES EVALUATION STUDY	OSCEOLA COUNTY PUBLIC WORKS DEPARTMENT			PLAN SHEET (16) BOGGY CREEK ROAD	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	PROJECT NO.		
				RECOMMENDED ATERNATIVE		OSCEOLA			



LEGEND
 — EXISTING RIGHT-OF-WAY
 — PROPOSED RIGHT-OF-WAY
 — RIGHT-OF-WAY IMPACTS

REVISIONS	
DATE	DESCRIPTION

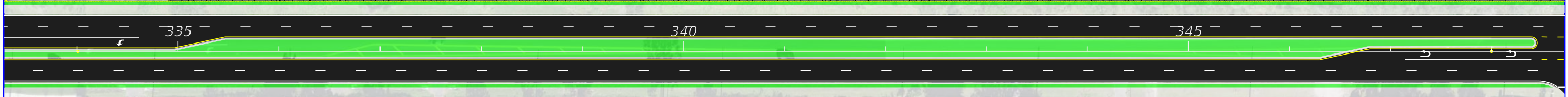
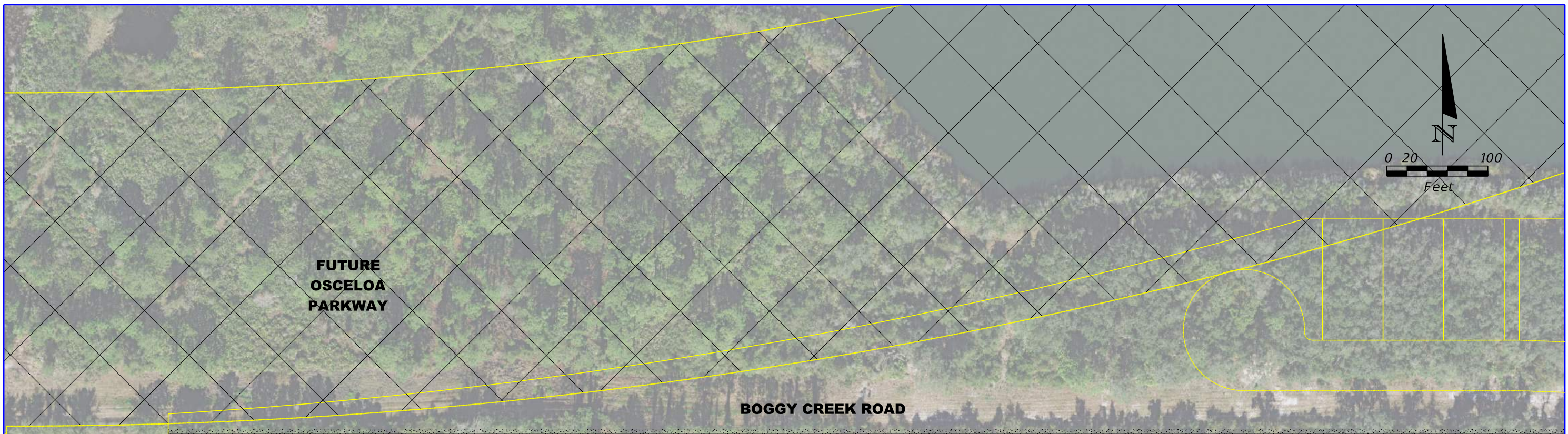
**BOGGY CREEK ROAD ALTERNATIVES
 EVALUATION STUDY**

RECOMMENDED ATERNATIVE

OSCEOLA COUNTY PUBLIC WORKS DEPARTMENT		
ROAD NO.	COUNTY	PROJECT NO.
	OSCEOLA	

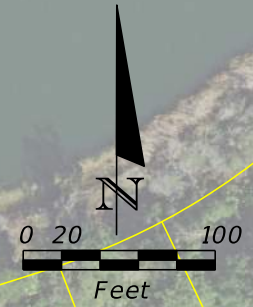
**PLAN SHEET (17)
 BOGGY CREEK ROAD**

SHEET NO.



REVISIONS				BOGGY CREEK ROAD ALTERNATIVES EVALUATION STUDY	OSCEOLA COUNTY PUBLIC WORKS DEPARTMENT		PLAN SHEET (18) BOGGY CREEK ROAD	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY		
				RECOMMENDED ATERNATIVE		OSCEOLA		

**FUTURE
OSCEOLA
PARKWAY**



BOGGY CREEK ROAD

350

355

360

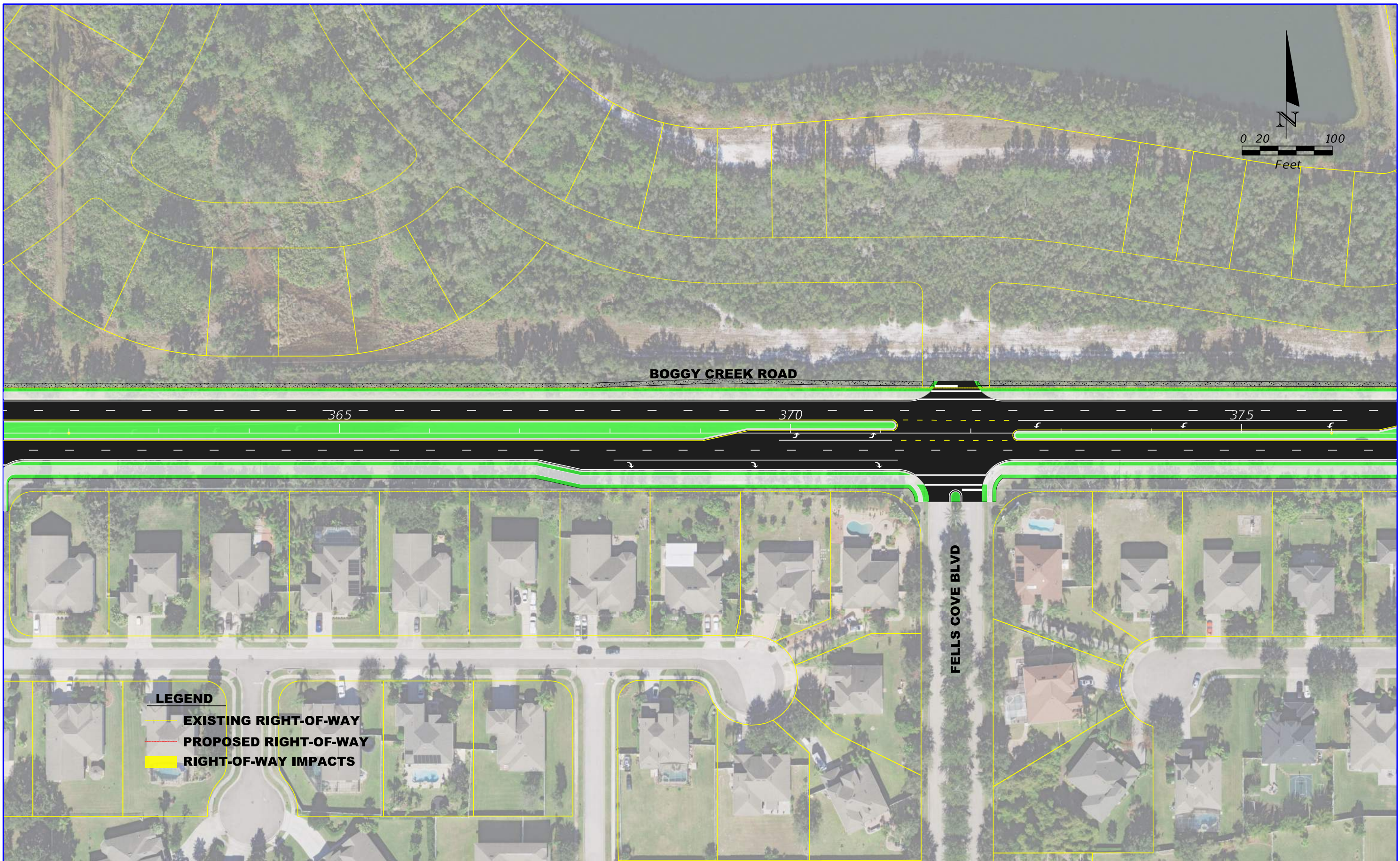
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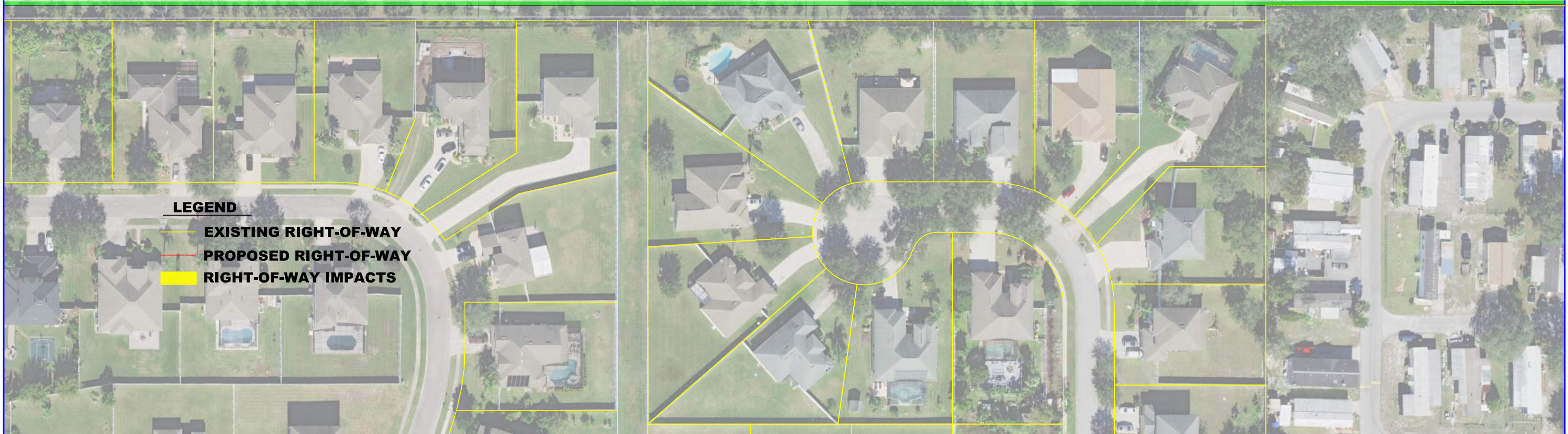
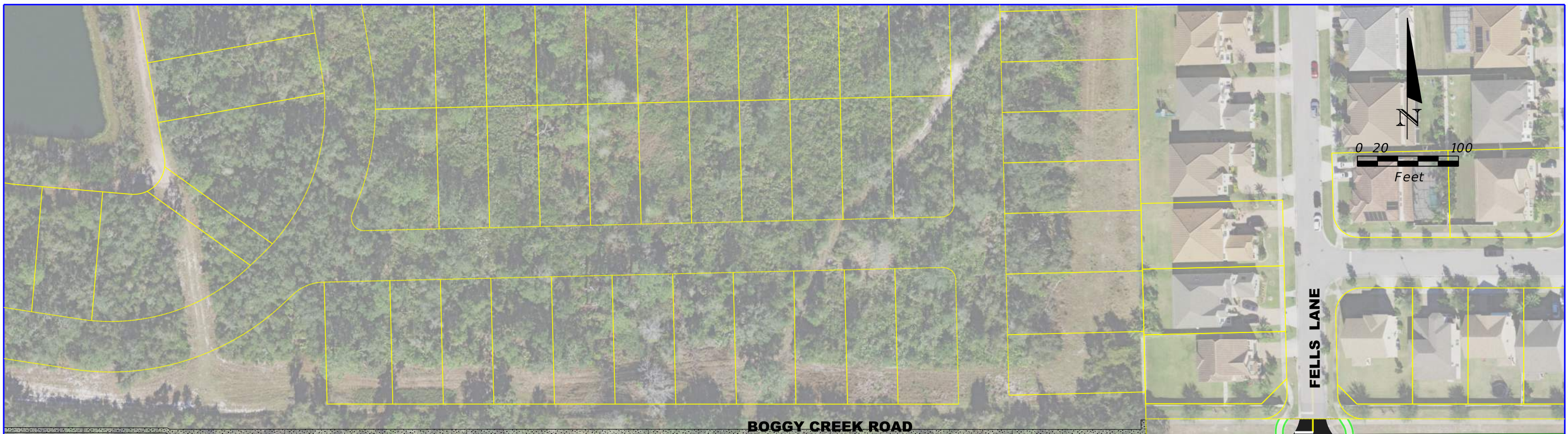
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-  **PROPOSED RIGHT-OF-WAY**
-  **RIGHT-OF-WAY IMPACTS**

REVISIONS				BOGGY CREEK ROAD ALTERNATIVES EVALUATION STUDY	OSCEOLA COUNTY PUBLIC WORKS DEPARTMENT			PLAN SHEET (19) BOGGY CREEK ROAD	SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION		ROAD NO.	COUNTY	PROJECT NO.		
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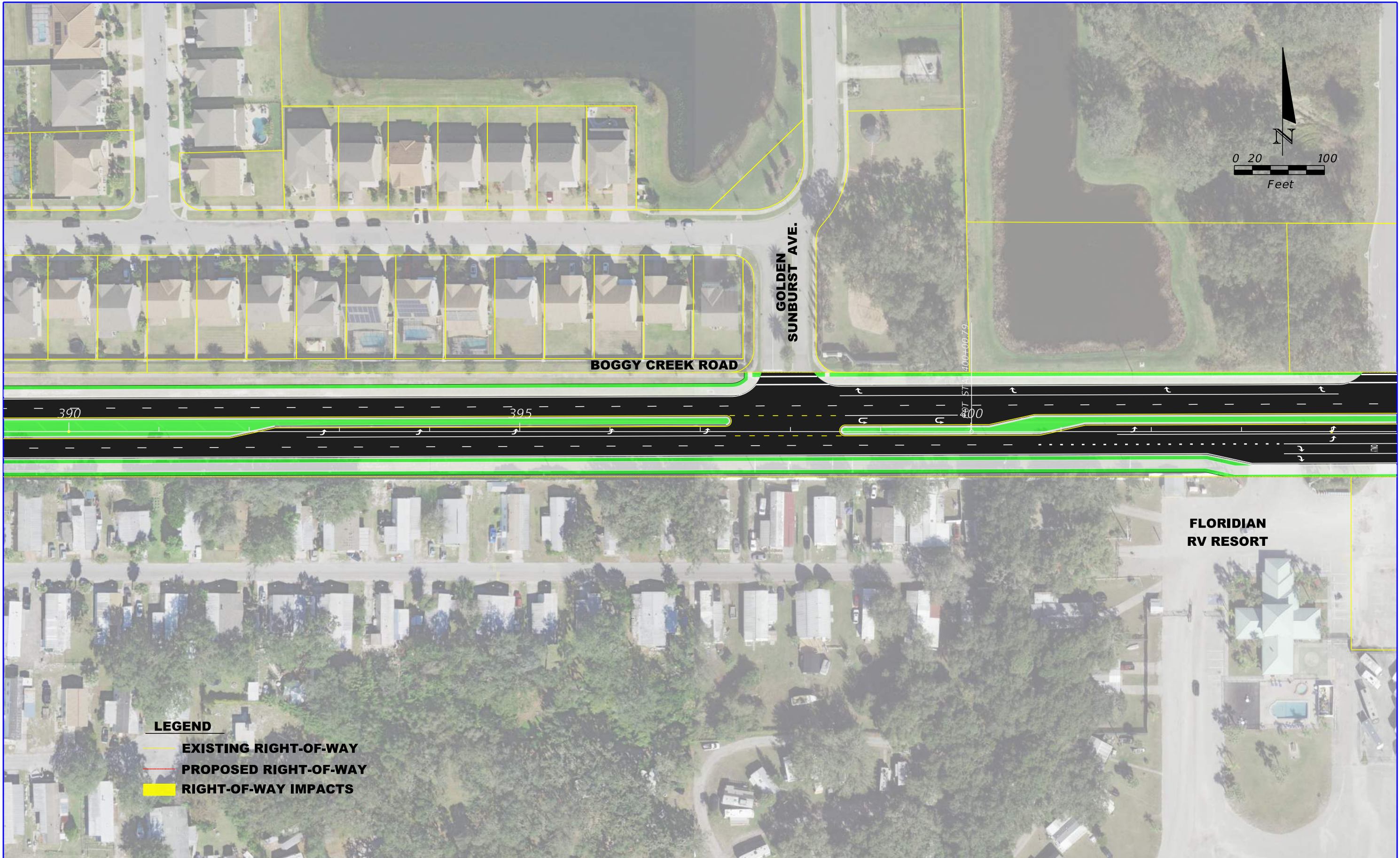


- LEGEND**
- EXISTING RIGHT-OF-WAY
 - PROPOSED RIGHT-OF-WAY
 - RIGHT-OF-WAY IMPACTS

DATE		REVISIONS		BOGGY CREEK ROAD ALTERNATIVES EVALUATION STUDY	OSCEOLA COUNTY PUBLIC WORKS DEPARTMENT			PLAN SHEET (20) BOGGY CREEK ROAD	SHEET NO.
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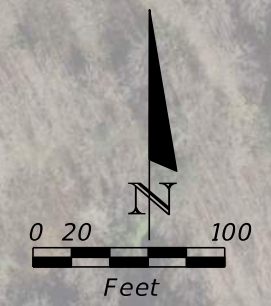


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DATE	DESCRIPTION	DATE	DESCRIPTION	ROAD NO.	COUNTY		
					OSCEOLA		
RECOMMENDED ATERNATIVE					PROJECT NO.		



- LEGEND**
- EXISTING RIGHT-OF-WAY
 - PROPOSED RIGHT-OF-WAY
 - RIGHT-OF-WAY IMPACTS

DATE		REVISIONS		BOGGY CREEK ROAD ALTERNATIVES EVALUATION STUDY	OSCEOLA COUNTY PUBLIC WORKS DEPARTMENT			PLAN SHEET (22) BOGGY CREEK ROAD	SHEET NO.
		DATE	DESCRIPTION		ROAD NO.	COUNTY	PROJECT NO.		
					RECOMMENDED ATERNATIVE	OSCEOLA			



- LEGEND**
- EXISTING RIGHT-OF-WAY
 - PROPOSED RIGHT-OF-WAY
 - RIGHT-OF-WAY IMPACTS

REVISIONS				BOGGY CREEK ROAD ALTERNATIVES EVALUATION STUDY		OSCEOLA COUNTY PUBLIC WORKS DEPARTMENT		PLAN SHEET (23) BOGGY CREEK ROAD		SHEET NO.
DATE	DESCRIPTION	DATE	DESCRIPTION			ROAD NO.	COUNTY			
				RECOMMENDED ATERNATIVE			OSCEOLA			