



*Draft Preliminary Engineering Report*

**CR 501 PRELIMINARY  
ENGINEERING STUDY**

From C-470 to C-468

*Prepared for:*

**Board of County Commissioners of Sumter County, Florida**

*Prepared by:*

**Kimley-Horn and Associates, Inc.**

142109058  
October 2015  
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THIS PRELIMINARY ENGINEERING REPORT  
CONTAINS DETAILED ENGINEERING  
INFORMATION THAT FULFILLS THE PURPOSE  
AND NEED FOR THE CR 501 PRELIMINARY  
ENGINEERING STUDY FROM C-470 TO C-468.

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## **EXECUTIVE SUMMARY**

Kimley-Horn and Associates, Inc. was retained by Sumter County to perform a Preliminary Engineering Study (PES) for CR 501, from C-470 to C-468. The purpose of the PES is to identify any necessary roadway improvements to accommodate the projected future travel demands and to perform social, environmental, and engineering studies for the identified roadway improvements. This Preliminary Engineering Report (PER) contains engineering information that fulfills the purpose and need for the evaluation of widening CR 501, from C-470 to C-468.

CR 501 is a two-lane undivided county collector roadway that runs in the north-south direction from C-470 to C-468, for a total length of approximately 3.2 miles. The existing geometry includes a single 12-foot travel lane in each direction and a 4-foot paved shoulder in each direction that also serves as a bicycle lane. The existing roadway right-of-way is 130 feet.

On June 3, 2015, a Public Alternatives Meeting was held to inform the public about the PES and to solicit their input about the proposed improvements. The No-Build Alternative and four-lane Build Alternative were presented. Following the Public Alternatives Meeting comment period, the Build Alternative was selected as the Recommended Alternative.

The Build Alternative includes widening the existing two-lane undivided roadway to a four-lane divided roadway section. The Build Alternative roadway section contains two 11-foot travel lanes and a 7-foot bicycle lane in each direction of travel. The proposed typical section includes rural open swale drainage and a 22-foot wide median. The Build Alternative will follow the existing roadway alignment and includes utilizing the existing roadway structure for the proposed southbound travel lanes. The proposed typical section can be constructed within the existing 130-foot roadway right-of-way. The Build Alternative also includes additional turn lanes and traffic signals at the intersections of CR 501 with C-470 and C-468.

The Build Alternative is the Recommended Alternative of the study. A Public Hearing is tentatively scheduled for October 27, 2015 at the Sumter County Board of County Commissioners meeting to review the Recommended Alternative, allow public input on the study and Recommended Alternative, and provide an official record of the public comments. Following the public comment period, a Preferred Alternative will be identified and documented in the Final PER. The Final PER and Preferred Alternative will be presented at a regularly scheduled Board of County Commissioners meeting for consideration of adoption.

The PES has been performed as a local study led by the Sumter County Board of County Commissioners. The PES followed applicable procedures of the Florida Department of Transportation (FDOT) Project Development and Environment (PD&E) Manual to allow future phases of the project to be eligible for FDOT funding sources if they become available. Funding for the design, right-of-way, and construction phases of the project has not been allocated in the next five years of Sumter County's Five-Year Capital Improvement Plan. Future phases of the project will be identified within the current Long Range Transportation Plan update, which will be adopted in the last quarter of 2015.

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## 1. PROJECT NEED

### 1.1 Introduction

Kimley-Horn and Associates, Inc. (Kimley-Horn) was retained by Sumter County to perform a PES for CR 501 from C-470 to C-468. The purpose of the PES was to determine the future roadway geometry needs based on projected traffic volumes within a 2040 planning horizon. The PES includes public involvement outreach, engineering analysis, and environmental evaluations to support the decision making process for the proposed roadway improvements. This Preliminary Engineering Report contains engineering information that fulfills the purpose and need for the evaluation of widening CR 501, from C-470 to C-468.

CR 501 is a rural collector roadway located in unincorporated Sumter County, just outside the city limits of Coleman and adjacent to the city limits of Wildwood. CR 501 is a north-south roadway located directly west of Florida's Turnpike. The project limits are from C-470 to the south to C-468 to the north, for a total project length of approximately 3.2 miles. The Project Location Map (**Figure 1**) illustrates the study limits.

### 1.2 Project Need

An increase in travel demand is anticipated on CR 501 due to planned developments and other infrastructure improvements anticipated to occur within the 2040 planning horizon. There are approved Developments of Regional Impact (DRI) and other planned large developments within the influence area of the corridor that will increase travel demand on CR 501 and the surrounding roadway network. The Villages of Sumter DRI is located to the north of the corridor, and is anticipated to be built out within the next few years. Southern Oaks, Wildwood Springs, and Landstone are residential DRIs located adjacent to the corridor. The Landstone development is located directly south of C-470, with the intersection of C-470 & CR 501 planned as the main entrance. Monarch Ranch is a large planned industrial development located east of I-75, north of CR 514. Construction of a new interchange connection at CR 514 and I-75 is a required improvement to support the Monarch Ranch development. In total, over 15,000 residential dwelling units, 600,000 square feet of commercial and office, and over 16 million square feet of industrial are entitled within these planned developments.

C-468 on the northern boundary of the project is under construction for widening to a four-lane facility from CR 505 to SR 44, with construction to be complete in the second quarter of 2016. C-468 from CR 505 to US 301 is currently in the design phase to be widened to four lanes, with construction anticipated between years 2020 and 2025. A full interchange connection on C-468 at Florida's Turnpike is planned before the year 2025, with the southbound off and on ramps to make up the northern leg of the intersection of C-468 and CR 501. A PD&E Study is currently being conducted by the FDOT to widen C-470 on the southern boundary of the project. **Figure 2** illustrates these planned developments and roadway improvements.

The forecasted travel demand on the corridor is anticipated to exceed the adopted service volume of the roadway in year 2040. Capacity improvement on CR 501 is needed for the roadway to operate within the level of service (LOS) "D" standard with projected 2040 traffic conditions.

Figure 1 – Project Location Map

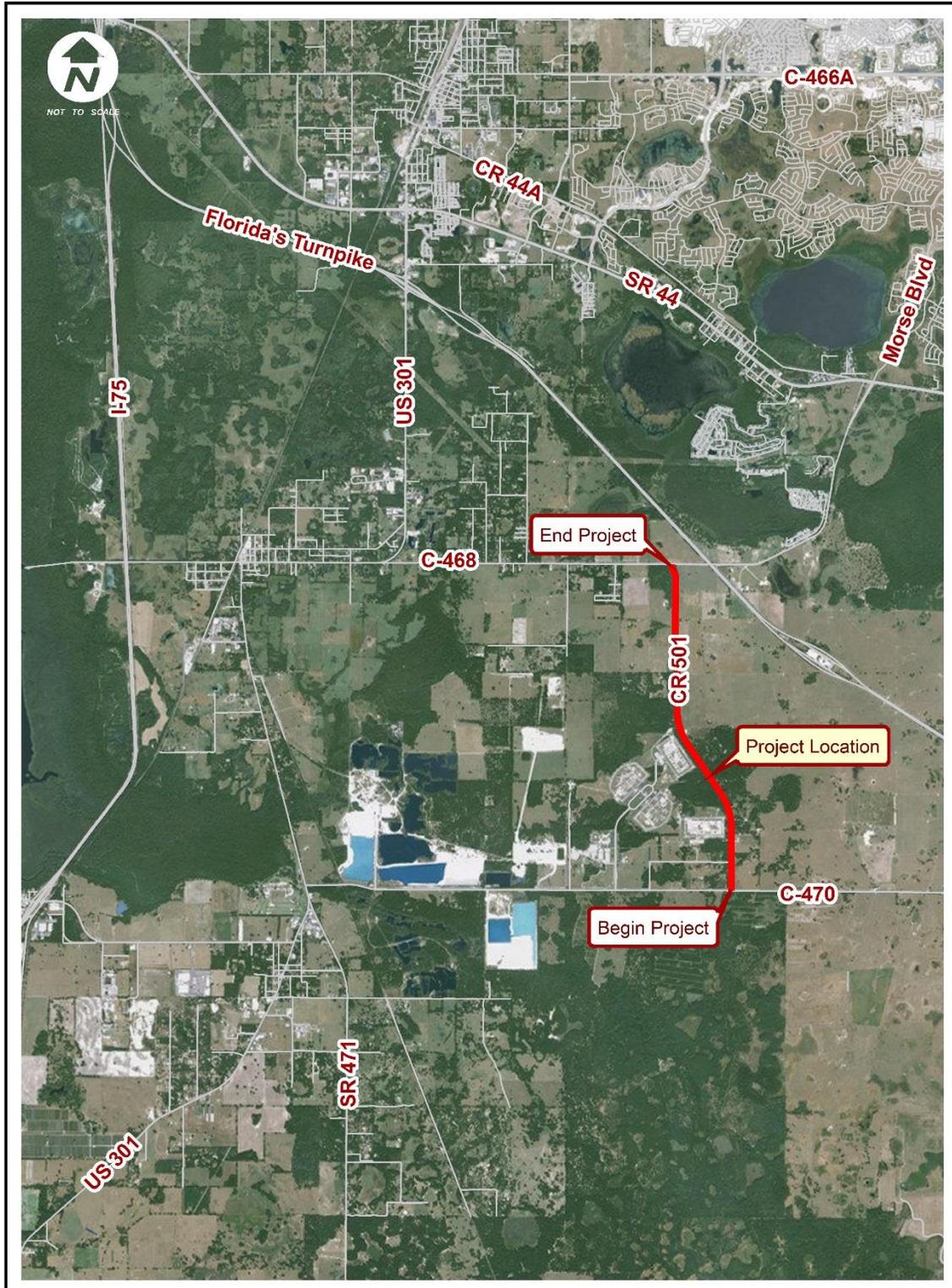
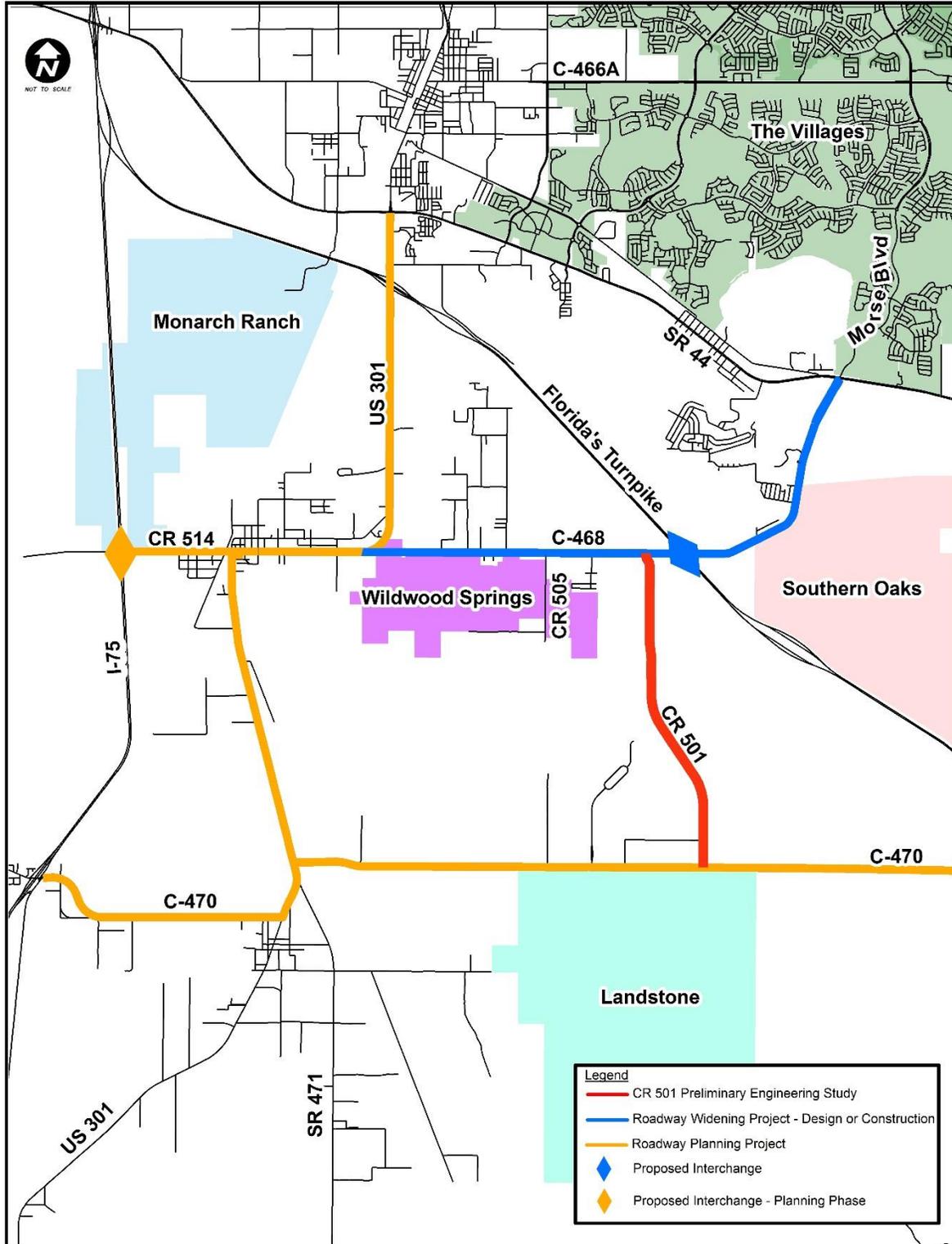


Figure 2 – Planned Developments and Roadway Improvements



## **2. EXISTING CONDITIONS**

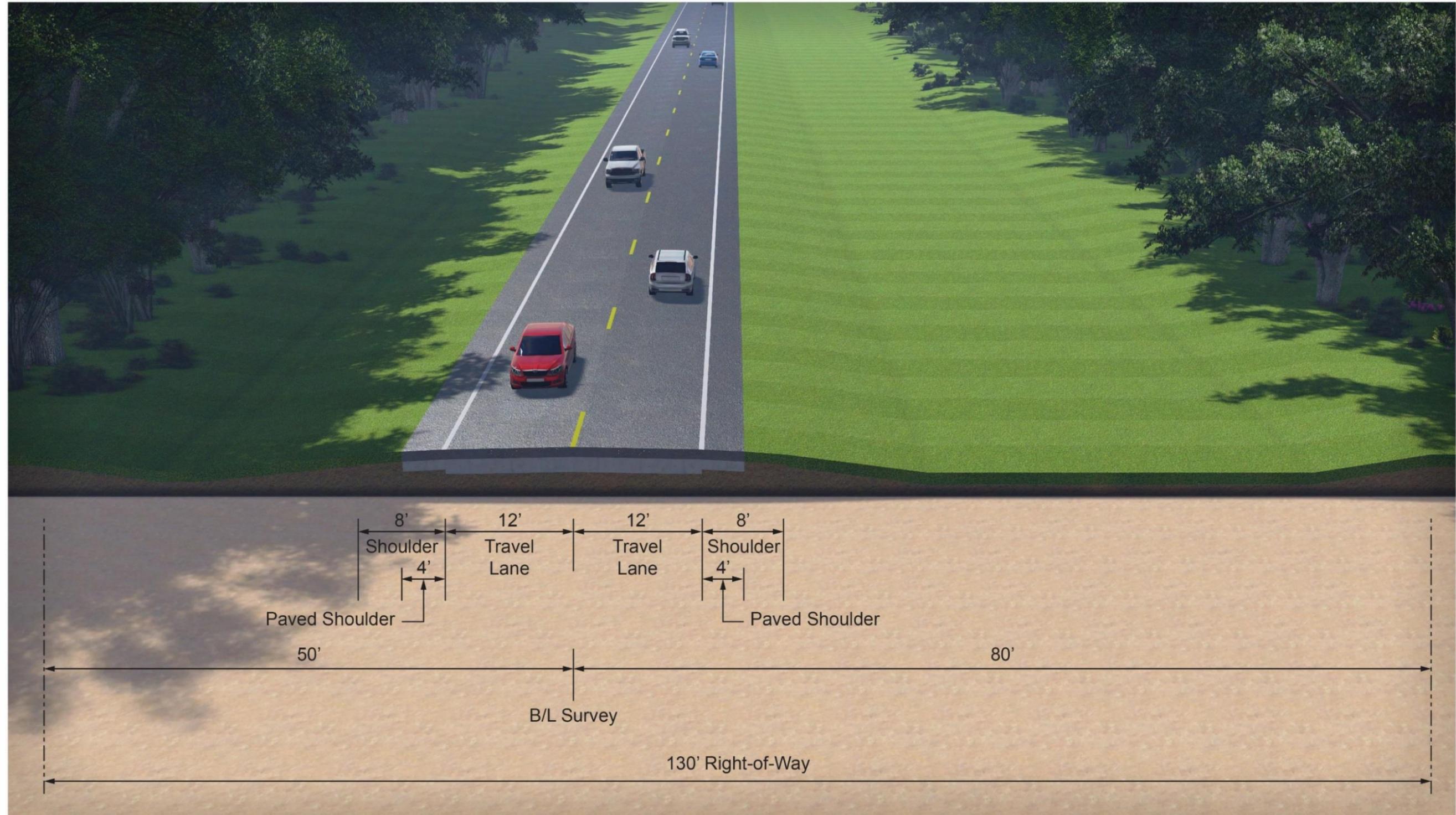
### **2.1 Roadway Conditions**

CR 501 is currently a two-lane undivided county collector roadway, located in a transitioning area of the county outside of the city limits of Coleman and adjacent to the city limits of Wildwood. The roadway is located in the urban area one-mile buffer. The existing lane widths are approximately 12 feet, with a 4-foot paved shoulder in both directions of travel. The roadway has open swale drainage, with a ditch block system on the west side of the roadway. The existing right-of-way is 130 feet for the entire length of the corridor. The roadway is located within the western portion of the right-of-way.

CR 501 predominantly serves through traffic between C-468 and C-470 in existing conditions. The roadway is surrounded by large rural lands. The Coleman Federal Correctional Facility is located on the western side of the roadway near the intersection with C-470. The posted speed limit along CR 501 is predominantly 55 mph, slowing to 45 mph and 35 mph in the vicinity of the stop-controlled intersections at C-468 and C-470.

The existing typical section is shown in **Figure 3** on the following page. The existing roadway conditions are shown in Photographs 1 through 3 on pages 6 and 7.

Figure 3 – Existing Roadway Typical Section



Photograph 1 – CR 501 looking north from south (approximately Station 34)



Photograph 2 – CR 501 looking north from south at the SECO Federal Substation (approximately station 93)



Photograph 3 – CR 501 looking south at the intersection with C-470 (approximately station 12)



## 2.2 Existing Traffic Conditions

CR 501 has an existing (2014) Annual Average Daily Traffic (AADT) volume of between 1,500 vehicles per day (vpd) and 2,300 vpd. There is approximately 14% heavy vehicles on the roadway. The roadway operates within the LOS “D” standard for daily and PM peak hour, peak direction conditions. **Table 1** shows the existing conditions roadway segment analysis.

**Table 1 – Existing 2014 Roadway Level of Service**

<i>CR 501</i>	<i>LOS Standard</i>	<i>2014 Daily Volume</i>	<i>2014 Daily LOS<sup>1</sup></i>	<i>2014 PM Peak Hour Volume</i>	<i>2014 Peak Hour LOS</i>
<i>C-470 to CR 500</i>	D	1,500	C	73	C
<i>CR 500 to C-468</i>	D	1,500	C	73	C

Note 1: The reported LOS is based on FDOT Generalized Service Volume Tables. The existing volume on the roadway is characteristic of LOS A or LOS B; however, the Generalized Service Volume Tables do not provide a service volume for LOS A or LOS B.

The intersection of CR 501 and C-470 operates with an existing (2014) LOS B for the southbound stop-controlled approach during the AM and PM peak hours. The intersection of CR 501 and C-468 operates with an existing (year 2014) LOS A during the AM peak hour and LOS B during the PM peak hour for the northbound stop-controlled approach and existing intersection geometry.

Historic crash data for the corridor was obtained for a five-year period from January 1, 2009 to December 31, 2013 from the Lake-Sumter Metropolitan Planning Organization (MPO). The crash data was evaluated to determine any significant trends in the circumstances surrounding each crash.

A total of 18 crashes were reported on short and long forms for the five-year period, including 9 injury crashes (with 12 injuries) and no fatal crashes. Five of the reported crashes occurred on C-470 or C-468 within one mile of the intersection with CR 501. There were no reported bicycle or pedestrian crashes.

**Table 2** on the following page depicts the number of crashes that occurred in the study area by crash type and year the crash occurred. The predominant crash type for the study area was an overturned crash, accounting for nearly 39% of all crashes within the study area. Two of the overturned crashes occurred on C-468 near the intersection with CR 501. The collision with fixed object crash and two hit sign/sign post crashes were due to a southbound vehicle on CR 501 failing to stop at the stop sign at C-470 and striking the object markers on the south side of C-470.

The low number of historic crashes along the roadway do not indicate a crash trend associated with deficiencies in the existing roadway conditions. However, the crash history and type should be taken into consideration when developing design concepts for future improvements to the roadway.

**Table 2 – Summary of Crashes by Year**

Harmful Event	2009	2010	2011	2012	2013	Total
Overtuned	0	2	2	0	3	7
Rear-End	1	1	0	0	1	3
Hit Sign/Sign Post	2	0	0	0	0	2
Other	1	0	0	1	0	2
Collision with Fixed Object	0	0	0	1	0	1
Collision with Non-Fixed Object	0	0	0	0	1	1
Angle	0	0	1	0	0	1
Run off Roadway	0	0	0	0	1	1
<b>Total</b>	<b>4</b>	<b>3</b>	<b>3</b>	<b>2</b>	<b>6</b>	<b>18</b>

K:\OCA\_Civil\142 109058 - CR 501\Traffic\Calcs\Analysis Tables\CR501Traffic Analysis Tables\_04 16 15.xlsx\DDHV

More details about the existing conditions traffic analysis can be found in the Design Traffic Technical Memorandum located in **Appendix B**.

### 2.3 Geotechnical Evaluation

A geotechnical evaluation was performed to assess the current condition of the roadway asphalt surface and structural materials. The evaluation consisted of a visual reconnaissance of the existing pavement condition and evaluation of 10 pavement cores.

In general, the pavement was observed to be in fair to poor condition. The existing pavement surface exhibits slippage and delamination between asphalt layers. The average asphalt thickness is 2.75 inches and average base thickness is 7.5 inches. The geotechnical evaluation recommended milling to a minimum depth of 1.75 inches to remove the entire first structural layer, which exhibits delamination from the second structural layer.

The complete geotechnical evaluation is located in **Appendix C**.

### 3. PROJECT DESIGN STANDARDS

#### 3.1 Roadway Design Criteria

**Table 3** summarizes the major design criteria for the project. All criteria are subject to change and only the current criteria will be used during the final design phase.

Design and construction criteria for the proposed improvements will adhere to Sumter County and FDOT Standards for the design of such roadways. They will comply with (but may not be limited to) the recommended standard practices as set forth in the following documents:

- Florida Statutes
- Florida Administrative Codes
- FDOT *Manual of Uniform Minimum Standards for Design, Construction, and Maintenance for Streets and Highways* (Florida Greenbook), (2011)
- FDOT *Plans Preparation Manual, Volumes I and II, English*, (2015)
- FDOT *Design Standards* (2015)
- FDOT *Standard Specifications for Road and Bridge Construction* (2015)
- Transportation Research Board *Highway Capacity Manual* (2010)
- Federal Highway Administration *Manual on Uniform Traffic Control Devices* (MUTCD) (2009)
- AASHTO *Guide for the Development of Bicycle Facilities* (1999)
- FDOT *Right-of-Way Mapping Handbook* (2003)
- FDOT *Right-of-Way Procedures Manual* (2008)
- FDOT *Drainage Manual* (2015)
- FDOT *Drainage Handbook Storm Drains* (2014)
- FDOT *Project Traffic Forecasting Handbook* (2014)
- FDOT *Quality/Level of Service Handbook* (2013)
- Sumter County Land Development Code
- Sumter County Engineering Standards Manual

**Table 3 – Roadway Design Criteria**

SUBJECT		CRITERIA	REF.	SECTION
Roadway Classification		Rural Collector		
Design Vehicle				
		WB-62FL	PPM	Sec. 1.12
Design Speed/Posted Speed				
	Mainline	50 mph / 45 mph		
	Approaching C-468	35 mph / 35 mph		
Lane Widths				
	Mainline	11 ft. min 12 ft. min	FLGB PPM	Table 3-7 Table 2.1.1
	Auxiliary Lane (LT/RT Turn Lane)	10 ft. min 11 ft. min	FLGB PPM	Table 3-7 Table 2.1.1
	Bicycle Lanes	7 ft. min (within one mile of urban area)	PPM	Table 2.1.2
Tapers				
	taper (auxiliary lane LT/RT Turn Lane)	50' Single Turn Lane 100' Double Turn Lane	STD	Index 301
Lane Shift				
	Mainline	L=WS (45 mph or Greater) L=WS <sup>2</sup> /60 (40 mph or Less)	STD	Index 17346
Cross Slopes				
	Travel Lane (w/o Super elevation)	2% - 3% DES. 1.5% min., 4% max.	FLGB	Sec. C.7.b.2
	Max. algebraic difference in cross slope between through lanes	4%	FLGB	Sec. C.7.b.2
	Max No. lanes sloped in one direction	5	PPM	Sec. 2.1.5
Median Widths				
	Rural	22 ft (under 55 mph design speed)	FLGB	Table 3-11
	Urban	15.5 ft (35 mph design speed)		
Shoulders				
		6 ft. median / 10 ft. outside	FLGB	Table 3-9
Friction Course				
	Mainline	FC-5 full width of pavement	FPDM	Table 4.1
Clear Zone Width				
	Flush Shoulder	18 ft (50 mph) from travel lane 14 ft (50 mph) from auxiliary lane	FLGB PPM	Table 3-12 Table 2.11.11
	Raised Curb	4 ft from face of curb	FLGB	Table 3-12
Roadside Slopes (20 yr AADT > 1500)				
	front slope	1:6 within clear zone	PPM	Table 2.4.1
	back slope	1:4 or 1:3 with trapezoidal ditch	PPM	Table 2.4.1
	transverse slopes	1:4	PPM	Table 2.4.1
Grades				
	Collectors (Rural)	6%(Flat Terrain) (50 mph) 7%(Rolling Terrain) (50 mph)	FLGB	Table 3-4
	Max change w/o VC	0.60% (50 mph)	FLGB	Table 3-5
Grade Datum				
	Min clearance above DHW elev. All Other Facilities including Urban	1 ft	PPM	Table 2.6.3

**Table 3 – Roadway Design Criteria (continued)**

SUBJECT	CRITERIA	REF.	SECTION
<b>Sight Distance</b>			
Min. stopping sight distance (grades ≤ 2%)	425 ft (50 mph)	FLGB	Table 3-14
	250 ft (35 mph)	FLGB	Table 3-14
grades > 2%	see: PPM Table 2.7.1 for adjustment factors	PPM	Table 2.7.1
<b>Horizontal Curves</b>			
max. deflection without curve without curb & gutter	0° 45' 00" (50 mph)	PPM	Table 2.8.1a
min. curve length (50 mph)	15V or maximum attainable (min. 400 ft., full super of not less than 200 ft)	PPM	Table 2.8.2a
max. curvature using 2% cross slopes	8337' Radius (50 mph)	PPM	Table 2.9.1
max. curvature using reverse crown for curbed section (35 mph)	Per FDOT Standard Index 511	STD	Index 511
max. superelevation curvature (e <sub>max</sub> = 0.10 for rural, 0.05 for urban)	d <sub>max</sub> =8° 15' (695' Radius) (50 mph rural) d <sub>max</sub> =14° 15' (400' Radius) (35 mph urban)	FLGB	Table 3-3
Superelevation transition length (rural) (urban)	Per FDOT Standard Index 510 (min 100 ft) Per FDOT Standard Index 511	STD STD	Index 510 Index 511
Superelevation transition slope rate	1:200 (50 mph) 100 ft min. length of transition	PPM	Table 2.9.3
	1:125 (35 mph), 50 ft min. length of transition	PPM	Table 2.9.4
<b>Vertical Curves</b>			
K value crest curve: Min. length crest curve	136 (50 mph)	FLGB	Table 3-6
	L=KA (minimum length 300 ft)		
K value sag curve: min length crest curve	96 (50 mph)	FLGB	Table 3-6
	L=KA (minimum length 200 ft)		
<b>Vertical Clearance</b>			
Over travel lanes and shoulder	16 ft	FLGB	Sec. C.7.j.4(b)

NOTE: Design criteria applicable to both design speeds unless noted otherwise.

**ABBREVIATIONS:**

PPM	Plans Preparation Manual, Vol. I - FDOT (2015)
AASHTO	A Policy on Geometric Design of Highways and Streets - American Association of State Highway and Transportation Officials (2011)
STD	State of Florida Department of Transportation Design Standards (2015)
FLGB	Manual of Uniform Minimum Standards for Design, Construction, and Maintenance for Streets and Highways (Florida Green Book) (2011)
FPDM	FDOT Flexible Pavement Design Manual (2008)

### **3.2 Design Variance**

A design variance will be needed for the minimum curve length requirement provided in the FDOT Plans Preparation Manual (PPM) to maintain the existing right-of-way and alignment of CR 501 on the approach to C-468. The minimum curve length provided in the FDOT PPM, Table 2.8.2a is 400 feet. The existing curve on the approach to the intersection of C-468 is less than the required 400 feet. A design variance for the minimum curve length will be needed to maintain the existing roadway alignment and right-of-way with a 35 mph design speed. CR 501 has an existing posted speed limit of 35 mph within the curve. The design variance would be reviewed and approved by Sumter County during the design phase of the project according to the requirements of the FDOT Greenbook Chapter 14.

Although a design variance will be required for the minimum curve length on the approach to C-468, the minimum radius and transition length requirements within the FDOT Greenbook can be achieved with the existing roadway alignment and right-of-way for a design speed of 35 mph.

### **3.3 Drainage Design Criteria**

Design and construction criteria for the proposed improvements will adhere to Southwest Florida Water Management District, Sumter County, and FDOT Standards for the design of such roadways and will comply with the recommended standard practices as set forth in **Table 4**.

**Table 4 – Drainage Design Criteria**

SUBJECT		CRITERIA	REF.	SECTION
<b>Design Frequency</b>				
	Roadside swales	10-year storm frequency	DM	2.2
	Storm sewer	10-year storm frequency	DM	3.3
	Cross drains	50-year storm frequency	DM	4.3.1
<b>Hydrologic Analysis</b>				
		Rational method	SD	2.0
<b>Velocity</b>				
	Roadside swales	Allowable velocity varies (DM Table 2.3)	DM	2.4.3
	Storm sewer	2.5 ft/sec minimum velocity, pipes flowing full	DM	3.6.1
<b>Pipe Material</b>				
		Reinforced concrete pipe, or other approved material based on size (unless soils analysis indicates otherwise).	DM	6.5
<b>Mannings "n" Coefficient</b>				
	Concrete Pipes	0.012 (all pipe sizes)	DM	3.6.4
	Asphalt (smooth finish)	0.016	DM	Table 2.2
<b>Design Tailwater Storm Sewer System</b>				
		10 year, 24 hour storm event	DM	3.3
<b>Pipe Size and Length</b>				
	Trunk Line	18" dia. (min.)	DM	3.10.1
	Length Between Structures	18" pipe = 300 ft. 24" to 36" pipe = 400 ft. 42" and up = 500 ft.	DM	3.10.1
<b>Time Of Concentration (TOC)</b>				
	Minimum TOC to first inlet	10 minutes	DM	3.5.1
<b>Slopes</b>				
	Road swales	Physical slope minimum of 0.0005 ft/ft	DM	2.42
	Storm sewer	Physical slope to produce 2.5 ft/sec velocity when flowing full	SD	4.2.1
<b>Pond Design</b>				
	Quantity	100 year, 24 hour storm event, post-development minus pre-development retainage	ERP	3.1.d
	Quality	One inch of rainfall or one-half inch of run-off, volume recovery in 72 hours	ERP	4.1.c

**ABBREVIATIONS:**

DM	FDOT Drainage Manual (2015)
ERP	SWFWMD ERP Applicant's Handbook Volume II (2013)
SD	FDOT Drainage Handbook Storm Drains (2014)

## 4. ALTERNATIVES

### 4.1 Alternatives Considered

The Preliminary Engineering Study evaluated two alternatives: 1) the No-Build Alternative and 2) the Build Alternative. A comparison of the two alternatives is provided for social, environmental, and economic impacts.

#### 4.1.1 No-Build Alternative

The No-Build Alternative maintains the existing two-lane roadway geometry. The evaluation of the No-Build Alternative considers all programmed and planned improvements adjacent to the subject roadway, including the widening of C-468, intersection improvements at CR 501 and C-468, and the future Florida's Turnpike ramp at C-468 on the north leg of the intersection with CR 501.

#### 4.1.2 Build Alternative

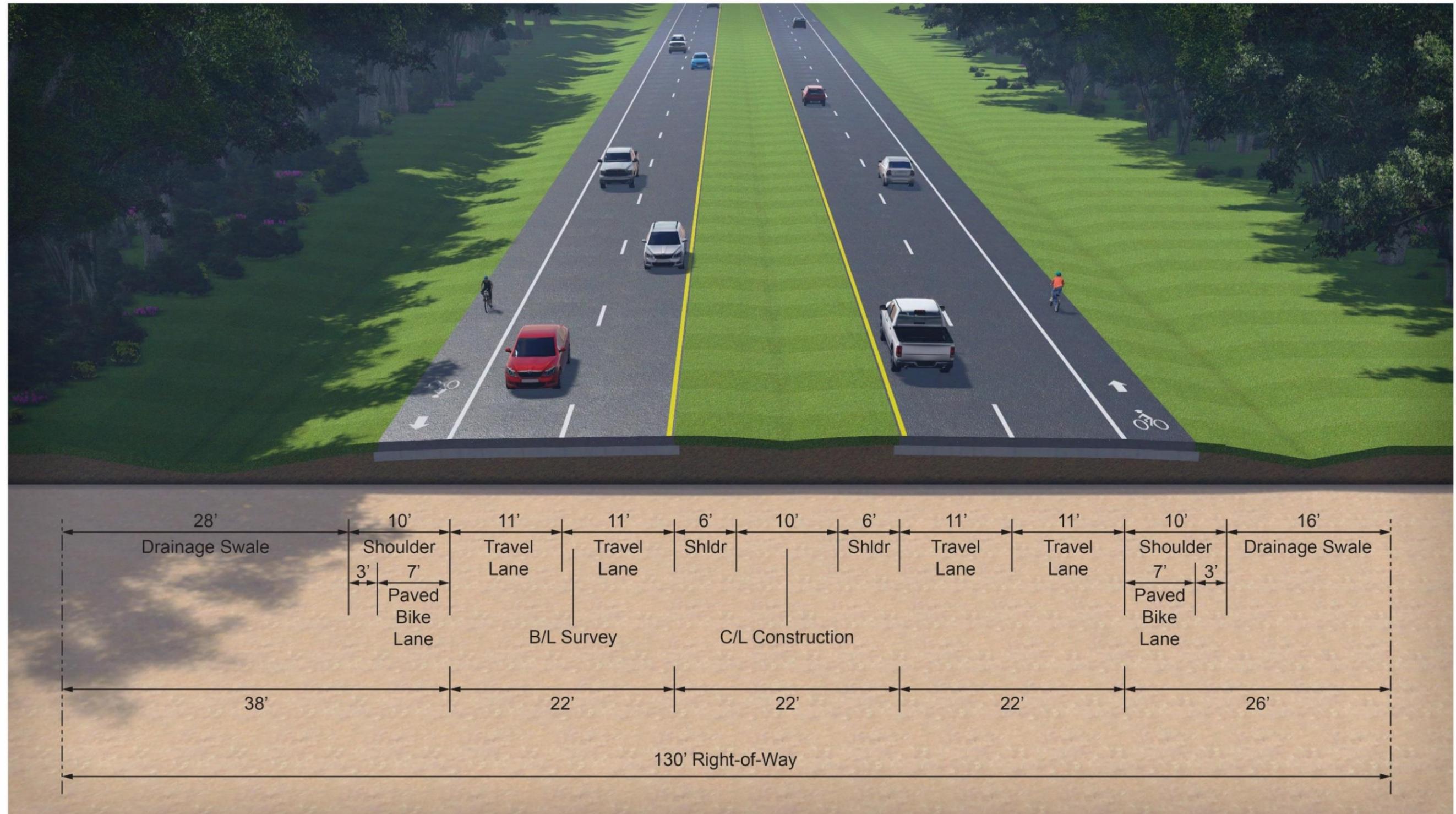
The Build Alternative includes widening CR 501 to accommodate the anticipated 2040 traffic demand on the roadway. The Build Alternative includes widening the existing two-lane undivided roadway to be a four-lane divided roadway section. The Build Alternative roadway section contains two 11-foot travel lanes and a 7-foot bicycle lane in each direction of travel. The proposed typical section includes rural open swale drainage and a 22-foot wide inverted median. The Build Alternative will follow the existing roadway alignment and utilize the existing roadway structure for the proposed southbound travel lanes. The proposed typical section can be accommodated within the existing roadway right-of-way with the exception of a corner clip required to intersection improvements at CR 501 and C-468.

Access management will be implemented consistent with Sumter County and FDOT Access Management standards for Access Classification 5, with full median openings limited to approximate 0.25-mile spacing. The design speed for the Build Alternative is 50 mph, with a posted speed of 45 mph. The design speed reduces to 35 mph on the approach to the intersection with C-468 to meet design standards while maintaining the existing roadway alignment and right-of-way.

The Build Alternative includes intersection improvements at the intersections of CR 501 with C-470 and C-468. The southbound approach on CR 501 at C-470 will include a southbound left-turn lane, through lane, and shared through/right-turn lane. The northbound approach on CR 501 at C-468 will include a northbound right-turn lane, through lane, and dual left-turn lanes.

The Build Alternative Typical Section is provided in **Figure 4**.

Figure 4 – Build Alternative Typical Section



## 4.2 Alternatives Evaluation

An alternatives matrix is utilized to evaluate the options being considered. The alternatives matrix evaluates traffic capacity improvements, operational analysis, safety, neighborhood and social impacts, relocations, right-of-way requirements, pedestrian and bicycle facilities, environmental impacts, engineering costs, right-of-way costs, and construction costs.

### 4.2.1 No-Build Alternative

The following are advantages and disadvantages of the No-Build Alternative.

#### Advantages

- No environmental impacts
- No right-of-way acquisition
- No expenditure of capital funds for construction
- No utility relocations are required

#### Disadvantages

- Does not meet the project's Purpose and Need
- No relief for the increasing traffic volumes
- Not consistent with area transportation plans

### 4.2.2 Build Alternative

The following are advantages and disadvantages of the Build Alternative.

#### Advantages

- Consistent with area transportation plans
- Consistent with economic development activities planned and pending on adjacent land uses
- Provides additional transportation capacity, which benefits users and reduces operating costs
- Reduced congestion has the potential to result in fewer crashes
- Improves bicycle facilities
- Meets the project's Purpose and Need

#### Disadvantages

- Cost associated with design and construction
- Will require right-of-way for drainage retention areas
- Will require right-of-way for improvements at the intersection of CR 501 & C-468
- Utility relocations are required
- Temporary environmental impacts during construction (i.e., noise, dust, etc.)

### 4.2.3 Alternatives Evaluation Matrix

The matrix utilized to evaluate the alternatives is provided in Table 5 below.

**Table 5 – Evaluation Matrix**

ALTERNATIVE	NO-BUILD	BUILD
<b>ENGINEERING</b>		
Traffic Operation	This alternative does not enhance the local transportation system. This alternative does not accommodate the 2040 design year travel demand within the adopted level of service standard.	Widening CR 501 to four lanes will increase capacity and enhance traffic operations within the planning horizon. This alternative accommodates the 2040 design year travel demand within the adopted level of service standard.
Vehicle Safety	Does not provide for widening of CR 501, which has the potential for increased congestion and higher probability of crashes in the future	Increasing the number of lanes from 2 to 4 will increase capacity and is anticipated to improve vehicle safety
Pedestrian/Bicycle Facilities	Existing 4-foot paved shoulders can accommodate bicycles.	Provides improved bicycle facilities with 7-foot paved bicycle lanes
Drainage	No change to existing conditions	Drainage swales and pond locations will be designed to current standards.
Evacuation	No improvement	The increase in capacity will enhance vehicle evacuation from the area.
Utilities	No impact	Some SECO overhead lines require relocation. Some Wildwood water utilities and underground fiber and cable utilities may require relocation.

**Table 5 – Evaluation Matrix (continued)**

ALTERNATIVE	NO-BUILD	BUILD
<b>SOCIO-ECONOMIC</b>		
Potential Relocations of Businesses or Residential	No impact	No impact
Right-of-Way Acquisition (acres)	No impact	Roadway right-of-way will be required for intersection improvements at C-468. Approximately 6.9 acres of right-of-way will be required for drainage ponds.
Community Services/Features	No impact	No impact
Impact to Parks/Recreation Areas	No impact	No impact
<b>ENVIRONMENTAL</b>		
Wetlands	No impact	No impact
Number of Threatened & Endangered Species (Potential)	No change to existing conditions	No change to existing conditions
Number of Potential Contaminated Sites	No impact	No impact
Floodplains	No impact	No impact
Farmlands	No impact	No impact
Cultural/Historical	No impact.	No impact
Potential to Encounter Archaeological/Historical Sites	None	Low
<b>COST *</b>		
Right-of-Way	\$ 0	\$ 525,000
Construction	\$ 0	\$ 11,600,000
Survey and Design, CEI (15% construction cost)	\$ 0	\$ 1,700,000
Construction Engineering Inspection (10% construction cost)	\$ 0	\$ 1,200,000
<b>TOTAL PROJECT COST</b>	<b>\$ 0</b>	<b>\$ 15,025,000</b>

\*costs shown are in 2015 dollars based on 2014/2015 actual construction costs

### **4.3 Recommended Alternative**

The Build Alternative has been chosen by Sumter County Public Works Division as the Recommended Alternative to move into the next phase of the project. The Build Alternative was chosen as the Recommended Alternative based on the advantages and disadvantages provided in the previous section, meeting the project's Purpose and Need and input received at the Public Alternatives Meeting. The Build Alternative meets the long term transportation planning objectives of Sumter County and provides improved transportation capacity to accommodate the year 2040 projected traffic demand.

Supporting analysis and documentation is provided for the Recommended Alternative in the following sections.

## 5. RECOMMENDED ALTERNATIVE

### 5.1 Roadway Alignment

The Build Alternative will maintain the existing roadway alignment. Since the existing travel lanes are not centered within the roadway right-of-way, the existing roadway section will be utilized for the future southbound travel lanes. The proposed alignment will be maintained within the existing right-of-way. As previously discussed, a design variance will be required for the minimum required curve length for the curve on approach to the intersection with C-468 to maintain the existing roadway alignment and right-of-way with a design speed of 35 mph. The concept plans are provided in **Appendix A**.

### 5.2 Design Traffic Volume

Future year traffic volumes were developed for opening year 2020, mid-year 2030, and design year 2040. The future year traffic projections were developed considering future demographics, planned roadway network improvements, and travel demand based on the Central Florida Regional Planning Model (CFRPM) version 5.1. The existing two-lane configuration on CR 501 was utilized in the modeling efforts to provide a conservative evaluation of the future travel demand on the corridor.

The 2020 opening year AADT on CR 501 was obtained from the CFRPM model output. The 2040 design year AADT was calculated by applying a 1% annual linear growth rate to the 2035 CFRPM model output. The 2030 mid-year AADT volumes were calculated by interpolating the opening year 2020 AADT and design year 2040 AADT. The directional design hour volumes (DDHV) were calculated by applying a standard K factor of 9.0 and D factor of 56.4 to the projected AADT values. The future year AADT and design hour traffic volumes are provided in **Table 6**.

**Table 6 – Future Year Design Traffic Volumes**

CR 501	Opening Year 2020 AADT	Mid-Year 2030 AADT	Design Year 2040 AADT	2020 DDHV	2030 DDHV	2040 DDHV
C-470 to CR 500	5,500	11,000	16,000	280	560	810
CR 500 to C-468	6,200	12,500	19,000	320	640	960

With the current geometry, the roadway is expected to operate within the LOS standard in opening year 2020. By mid-year 2030, traffic volumes on CR 501 are expected to approach the current service capacity of the roadway, but operate within the adopted service volume. By design year 2040, the roadway is expected to operate with a LOS “F” with the current No-Build roadway geometry. The four-lane Build Alternative will have sufficient capacity to accommodate the future traffic demand in the 2040 design year. **Table 7** provides a summary of the 2020 opening year and 2040 design year level of service for the No-Build and Build alternatives.

**Table 7 – Future Year Roadway Level of Service**

CR 501	LOS Standard	2020 No-Build LOS	2040 No-Build LOS	2020 Build LOS	2040 Build LOS
C-470 to CR 500	D	C	F	C	C
CR 500 to C-468	D	C	F	C	C

### 5.3 Typical Section

The recommended typical section proposes to improve the current two-lane roadway section to a four-lane roadway section (see **Figure 4**) consistent with current design standards to increase capacity and improve traffic operations. The proposed typical section will include two 11-foot travel lanes and a 7-foot bicycle lane in each direction. The travel lane widths were chosen based on the minimum lane widths provided in the FDOT Greenbook, Table 3-8 for a collector roadway. The width of the bicycle lane was chosen based on the recommended width provided in the FDOT PPM, Table 2.1.2 for an urban collector roadway because the roadway is located within one mile of an urban area.

The existing roadway will be rehabilitated and utilized for the future southbound travel lanes. There will be a grassed median between the two directions of travel. The roadway will remain rural with open swale drainage, with the exception of the approach to the intersection with C-468 where a curb and gutter section will be utilized to allow for a lower design speed. The roadway is proposed to have a 50 mph design speed with a 45 mph posted speed limit from Station 10+00 to Station 169+10. From Station 169+10 to Station 176+60.14, the posted and design speed will be lowered to 35 mph due to the curvature of the existing roadway alignment on approach to the intersection with C-468.

### 5.4 Intersection Improvements

The intersections of CR 501 with C-470 and C-468 were evaluated using the Synchro 8 software package to determine the geometric needs within the planning horizon.

The intersection of CR 501 at C-468 is currently under construction as part of the C-468 widening project. The existing planned geometry at the intersection is anticipated to support the projected design hour traffic volumes within the 2040 design year, with the addition of an exclusive southbound right-turn lane for the Turnpike southbound off-ramp and addition of a second northbound left-turn lane on CR 501. The intersection will operate under signalized control at some point in the future after the Turnpike interchange is constructed. A right-of-way corner clip is required for the southwest corner of the intersection to accommodate the recommended geometry on CR 501.

The 2040 design year traffic volumes support the need for an exclusive southbound left-turn lane, through lane, and shared through/right-turn lane on CR 501 at the intersection with C-470. No right-of-way will be required for these improvements. The south leg of the intersection is planned to be the main entrance to the Landstone mixed-use development and will be designed and constructed as a part of the development's permitting requirements. A PD&E study is currently being performed by FDOT for C-470 in the vicinity of CR 501, and necessary improvements to that roadway will be developed with that study. Traffic volumes at the intersection are likely to warrant signalization at some point in the future when development occurs.

### 5.5 Bicycle and Pedestrian Facilities

A 7-foot bicycle lane is proposed in both directions of travel based on standards within the FDOT Plans Preparation Manual. Sidewalks are not proposed within the typical section because of the existing large tract rural land uses along the roadway. There is potential for pedestrian facilities to be built in the future as development occurs along the corridor.

## 5.6 Access Management

Access management should be implemented consistent with Sumter County and FDOT access management standards for Access Classification 5, with full median openings limited to approximate ¼ mile spacing. The median openings will include exclusive left-turn lanes where appropriate. The proposed design speed for the Build Alternative roadway typical section is 50 mph, with a posted speed of 45 mph. The left-turn lane lengths are recommended to be 390 feet to include 290 feet of deceleration length per FDOT Design Standards, Index 301 and 100 feet of queue storage per the FDOT Greenbook, Figure 3-13. The concept plans located in **Appendix A** illustrate the proposed access management for the roadway section.

## 5.7 Drainage

The CR 501 existing roadway section is crowned along the centerline. All stormwater is collected in roadside swales in a ditch block system. One dry retention area is located within the right-of-way at approximately Station 125+00 and operates similar to a ditch system. There are no additional off-site retention areas under existing conditions.

The proposed project is comprised of four drainage basins of varying size. Under Build Conditions, each study basin area will include runoff from the proposed road improvements within the right-of-way, proposed dry retention areas, and offsite areas draining to the CR 501 stormwater system. All affected drainage outside the analyzed basin areas will be diverted to existing collection areas.

The widening of CR 501 will encroach into the available right-of-way area for drainage swales on the eastern side of the road. The area available for swale construction is not large enough to accommodate all of the stormwater runoff required for the eastern portion of the proposed typical section without additional pond construction. The proposed stormwater system will convey runoff from the eastern portion of the typical section to dry retention areas via the newly constructed swales. Stormwater runoff from the western portion of the typical section will be retained in the existing ditch block swale sections. All post-development runoff within the basins will be retained for the 100-year, 24-hour storm event. Basin 1 extends from Station 10+50 to Station 38+00 and will require a dry retention area approximately 1.2 acres in size. Basin 2 extends from Station 38+00 to Station 91+80 and will require a dry retention area approximately 1.9 acres in size. Basin 3 extends from Station 91+80 to Station 132+00 and will require a dry retention area approximately 2.1 acres in size. Basin 4 extends from Station 132+00 to Station 176+50 and will require a dry retention area approximately 1.7 acres in size. Refer to **Appendix D** for more information on the proposed pond site locations.

## 5.8 Right-of-Way Requirements

The proposed typical section can be contained within the existing 130-foot right-of-way. Approximately 0.07 acres of right-of-way will be required for a corner clip to accommodate the intersection improvements at CR 501 and C-468. Approximately 6.9 acres of right-of-way will be required for drainage pond locations. A planning-level right-of-way cost of \$40,000/acre and a \$50,000 acquisition cost per parcel were assumed for the right-of-way cost estimates based upon information provided by Sumter County.

## 5.9 Utility Impacts

There are several utilities located in the project corridor that run parallel to CR 501 within the roadway right-of-way. Utility companies were contacted and requested to submit markups of their existing and planned facilities within the project study area. The contacts as of August 2015 for utilities within the study area are listed in **Table 8** below.

**Table 8 – Utility Contacts**

AGENCY	CONTACT NAME
City of Wildwood	Dave Watson
Sumter Electric Cooperative, Inc.	Alan Kimbley
Bright House Networks, LLC	Ed Cannon
Century Link	Greg Schmid
Duke Energy	Yani Mikedis
Level 3 Communications	Kelli Whitehead
City of Leesburg Gas	Kim Keenan

Sumter Electric Cooperative (SECO) has overhead electric transmission lines along the east side of the corridor. The overhead lines south of the SECO Federal Substation will need to be relocated to the back of the right-of-way to accommodate the Build Alternative. The overhead lines to the north of the SECO Federal Substation are located just outside of the roadway right-of-way in a utility easement. The CR 501 concept plans show the median opening at the current SECO Federal Substation driveway location. SECO is planning an expansion to the Federal Substation and has provided preliminary layouts for review and incorporation into the study. The construction timeframe for the expansion is unknown. Depending on the timeframe for roadway construction and the SECO Substation expansion, the location of the proposed median opening at the SECO Substation may need to shift during the design or construction phase to match the proposed driveway location.

The City of Wildwood’s Coleman Water Treatment Facility (WTF) is located along the corridor, outside of the roadway right-of-way. The Coleman WTF is the main southern water treatment facility for the City of Wildwood and has recently been expanded to accommodate a volume over 1 million gallons a day. There is a new transmission line for the WTF SCADA system located within the roadway right-of-way. The City of Wildwood also has a 12-inch water main along the roadway and a force main that connects the Coleman Federal Correction Facility to a lift station at Florida’s Turnpike. The force main to the Correctional Facility requires frequent maintenance, and this will need to be considered during the design phase of the project.

The City of Leesburg has a six-inch high pressure gas line running east and west on the south side of C-470 at the intersection with CR 501. Duke Energy has an underground distribution line crossing CR 501 at the intersection of C-468 below the pavement. Brighthouse Networks has an underground fiber optic line along C-470 at the intersection with CR 501 and an aerial fiber optic line on the SECO poles located on the east side of CR 501.

### **5.10 Construction Impacts**

The proposed typical section utilizes the existing travel lanes for the future southbound travel lanes. This will allow for the northbound travel lanes to be constructed, while maintaining two-way travel on the existing roadway. The newly constructed northbound lanes could then be utilized for two-way traffic while the southbound lanes are resurfaced and expanded. There are limited driveways and businesses along the corridor. Temporary driveway locations would be constructed to allow full access to properties during construction. Maintenance of traffic procedures will be implemented during construction per Sumter County and FDOT standards.

Some temporary construction easements will be needed for slope tie-ins to adjacent properties and driveway reconstruction. Details of the specific temporary construction easement locations will be determined during the design phase of the project.

## 6. SUMMARY OF ENVIRONMENTAL IMPACTS

Following is a summary of the environmental impacts given the existing conditions of the corridor and the recommended Build Alternative. **Appendix E** contains the complete Environmental Technical Compendium.

### 6.1 Endangered, Threatened, and Species of Special Concern

Impacts to wildlife and habitat are minimal. Ten federal and state listed species of wildlife and twelve listed plants were evaluated to determine if the proposed project will adversely affect these species. Based upon a review of available literature and a site reconnaissance of the CR 501 corridor, there is a low likelihood of occurrence for many of the identified species, as presented in **Table 9**.

The eastern indigo snake was one species identified as potentially occurring within the project corridor due to the presence of suitable foraging and refuge habitat within and surrounding the CR 501 right-of-way. This species was not observed during field review nor were there documented historic occurrences; however, according to the United States Fish and Wildlife Service (USFWS) Eastern Indigo Snake Programmatic Effect Determination Key (updated January 5, 2012), the proposed project *may affect* the eastern indigo snake. Based on this determination, consultation with USFWS is required during the permitting process and the Standard Protection Measures for the Eastern Indigo Snake will need to be implemented during construction. These protection measures include signage and educational materials made available to construction personnel.

**Table 9 – Potential Endangered and Threatened Species Occurrence**

Common Name	Scientific Name	Federal Status	State Status	Habitat	Likelihood of Occurrence
<b>MAMMALS</b>					
Sherman's Fox Squirrel	<i>Sciurus niger shermani</i>	N	SSC	No fox squirrels were observed during field reconnaissance and there are no documented or historical occurrences of this species within the project corridor. Suitable foraging and nesting habitat occurs adjacent to the existing CR 501 right-of-way.	Low
Florida Mouse	<i>Peromyscus floridanus</i>	N	SSC	This species was not observed during field reconnaissance and there are no documented or historical occurrences. Low quality foraging and nesting habitat occurs onsite.	Low

**Table 9 – Potential Endangered and Threatened Species Occurrence**

Common Name	Scientific Name	Federal Status	State Status	Habitat	Likelihood of Occurrence
<b>BIRDS</b>					
Wood Stork	<i>Mycteria americana</i>	E	E	No wood stork foraging habitat occurs within the project corridor, no wood storks were observed during site reconnaissance, and there are no documented or historical occurrences (FNAI). The site is not located within any colony core foraging areas (CFAs).	None
Snail Kite	<i>Rostrhamus sociabilis</i>	E	E	The site falls within a USFWS consultation area for this species; however, no individuals were observed during site reconnaissance, there is no suitable habitat within the project corridor, and FNAI reports no documented or historical occurrences of this species.	None
Florida Scrub-jay	<i>Aphelocoma coerulescens</i>	T	T	The site is within a USFWS consultation area and is within a documented scrub jay metapopulation (Central Lake – M20). The species was not observed during site reconnaissance and FNAI reports no documented or historical occurrences of this species.	Low
Florida Sandhill Crane	<i>Grus Canadensis pratensis</i>	N	T	Foraging habitat occurs throughout the project corridor. However, this species was not observed during field reconnaissance and there is no nesting habitat on or in the vicinity of the project corridor.	Low
Bald Eagle	<i>Haliaeetus leucocephalus</i>	N*	N*	No eagles or nests were observed within the project corridor during site reconnaissance. One documented nest (SU031) located approximately one (1) mile south of the site was last reported active in 2011 (FWC eagle nest locator).	Low

**Table 9 – Potential Endangered and Threatened Species Occurrence**

Common Name	Scientific Name	Federal Status	State Status	Habitat	Likelihood of Occurrence
<b>REPTILES</b>					
Eastern Indigo Snake	<i>Drymarchon couperi</i>	T	T	Suitable habitat occurs within vicinity of project corridor. No individuals were observed during site reconnaissance and there are no documented or historic occurrences of this species.	Med
Gopher Tortoise	<i>Gopherus polyphemus</i>	C	T	Suitable foraging and nesting habitat occurs within and adjacent to project corridor. During site reconnaissance, three (3) gopher tortoise burrows were documented more than 180 feet west of proposed pond site 1B along the project corridor.	High
<b>AMPHIBIANS</b>					
Gopher frog	<i>Rana capito</i>	N	SSC	Suitable habitat occurs within the corridor. No individuals were observed during site reconnaissance.	Low
E = Endangered T = Threatened SSC = Species of Special Concern N = Not Listed C - Candidate species					
*The Bald eagle is protected under the Bald and Golden Eagle Protection Act, Migratory Bird Treaty Act and FWC Management Plan regulations.					

The project is also within the USFWS consultation area for the Florida scrub-jay, as well as one documented scrub-jay metapopulation (Central Lake – M20); however, there are no historic occurrences of this species or suitable foraging and nesting habitat within the project corridor. Thus the project will have no effect on this species.

The state-listed gopher tortoise (*Gopherus Polyphemus*) was also identified in **Table 9** due to potential occurrence within the project corridor and three potentially occupied gopher tortoise burrows were documented 180 feet west of proposed pond location 1B during the field review. Based on the current Build Alternative, no development will occur within 25 feet of any documented gopher tortoise burrows. FWC guidelines require that a 100% survey of potentially impacted gopher tortoise habitat be completed no more than 90 days prior to any commencement of construction within areas proposed for development and within 25 feet of the limits of construction. If any tortoise burrows are proposed to be impacted, a permit would be required from FWC to excavate the burrows and relocate any tortoises

and commensal species associated with that burrow. If the tortoise burrows are avoided, then no FWC permit is required.

The potential occurrence of Sherman’s fox squirrel (*Sciurus niger shermani*), a species of special concern (SSC), was also assessed along the project corridor. No fox squirrels were observed during site reconnaissance and the proposed roadway improvements within the CR 501 right-of-way will not impact potential habitat. However, the nest of an unidentified species was observed within the tree canopy of one of the proposed pond site locations for pond 1A. Impacts to the nest will occur if that pond location is chosen for development. Therefore, a follow-up survey will be necessary prior to construction in order to confirm whether the nest is occupied by fox squirrels. Florida Fish and Wildlife Conservation Commission (FWC) recommends limiting activity within 125 feet of an active nest and unavoidable impacts to nests require an incidental take permit to be issued by FWC.

**6.2 Historical and Archaeological Impacts**

A Cultural Resources Assessment Survey (CRAS) of the project corridor and areas no more than 330 feet from the CR 501 right-of-way was completed by SEARCH in July 2015. As part of the literature review conducted for the CRAS, one historic structure and 19 archaeological sites were previously identified in the Florida Master Site File within one mile of the project corridor as highlighted in **Table 10**. In addition, an archaeological survey was conducted within the CR 501 right-of-way where a total of 109 shovel tests were excavated. Eighteen of the shovel tests were performed within an archaeological site (e.g. 8SM00142) that had been previously recorded within the right-of-way. The results of all shovel tests were negative for cultural material. Based on these results no additional archaeological survey is recommended.

**Table 10 – Previously Recorded Cultural Resources within One Mile of the CR 501 APE**

<i>Historic Structures</i>				
FMSF No.	Address	Year Built	Surveyor Evaluation	SHPO Evaluation
8SM00490	6369 E. County Road 470	ca. 1953	Ineligible for NRHP	Ineligible for NRHP
<i>Archaeological Sites</i>				
FMSF No.	Name	Time Period	Surveyor Evaluation	SHPO Evaluation
8SM00139	Wright #2	Prehistoric lacking pottery	Ineligible for NRHP	Ineligible for NRHP
8SM00140	Wright #3	Prehistoric lacking pottery	Ineligible for NRHP	Ineligible for NRHP
8SM00141	Wright #4	Prehistoric lacking pottery	Ineligible for NRHP	Ineligible for NRHP
8SM00142	Wright #5	Prehistoric lacking pottery	Ineligible for NRHP	Ineligible for NRHP
8SM00143	Wright #6	Prehistoric lacking pottery	Ineligible for NRHP	Ineligible for NRHP
8SM00144	Wright #7	Prehistoric lacking pottery	Ineligible for NRHP	Ineligible for NRHP
8SM00145	Wright #8	Prehistoric lacking pottery	Ineligible for NRHP	Ineligible for NRHP

**Table 10 – Previously Recorded Cultural Resources within One Mile of the CR 501 APE (continued)**

<i>Archaeological Sites</i>				
<b>FMSF No.</b>	<b>Name</b>	<b>Time Period</b>	<b>Surveyor Evaluation</b>	<b>SHPO Evaluation</b>
8SM00148	Wright #11	Prehistoric lacking pottery	Ineligible for NRHP	Ineligible for NRHP
8SM00149	Wright #12	Prehistoric lacking pottery	Ineligible for NRHP	Ineligible for NRHP
8SM00242	CCC-3	Archaic, 8500—1000 BC	Ineligible for NRHP	Ineligible for NRHP
8SM00360	Frost Site	Prehistoric lacking pottery	Ineligible for NRHP	Ineligible for NRHP
8SM00361	Long Leaf Site	American, 1821—present	Insufficient Information	Ineligible for NRHP
8SM00364	Farmstead # 2	Nineteenth and twentieth century American, 1821—present	Insufficient Information	Insufficient Information
8SM00365	Tobacco Barn	Twentieth century American, 1900—present	Insufficient Information	Insufficient Information
8SM00402	Bingham Ranch Site	Middle Archaic; St. Johns, 700 BC—AD 1500	Ineligible for NRHP	Ineligible for NRHP
8SM00494	Bigham Sink	Safety Harbor, AD 1000—1500	Ineligible for NRHP	Ineligible for NRHP
8SM00524	Xerxes	Prehistoric lacking pottery	Ineligible for NRHP	Ineligible for NRHP
8SM00528	Susan B	Unknown prehistoric with pottery; Twentieth century American, 1900—present	Ineligible for NRHP	Ineligible for NRHP
8SM00622	Bigham scatter	Prehistoric	Insufficient Information	Not Evaluated by SHPO

Architectural resources were also surveyed and evaluated within the proposed corridor, which resulted in the identification of one newly recorded historic structure (8SM00784) and the reevaluation of one previously recorded structure (8SM00490). The evaluation of these two resources indicated that both structures lack architectural distinction and significant historical associations that are required for them to be considered for listing on the National Register for Historic Places (NRHP). Thus, SEARCH made the recommendation that these resources are ineligible for NRHP listing. No other existing or potential NRHP districts were observed or identified. The results of the CRAS indicate that the proposed improvements will have no effect on cultural resources eligible for listing in the NRHP.

The CRAS has been submitted to the SHPO for concurrence on the findings. A copy of the SHPO concurrence letter and the CRAS is located in **Appendix F**.

### **6.3 Potential Contamination Sources**

A Contamination Screening Evaluation (CSER) was conducted for the proposed project within the CR 501 right-of-way and a surrounding screening buffer area of approximately 0.25 mile in order to identify, review, and evaluate known or potential contamination problems; provide risk rankings for properties, facilities or sites that have the potential for contamination to affect the proposed improvements; and to present recommendations concerning these problems. The CSER includes file and regulatory document research, local and state historical land use reviews, field reconnaissance, and interviews with site/facility owners, nearby businesses and residents where possible.

Based on the results of the CSER, a total of four sites were identified that had the potential for contamination concerns as highlighted in **Table 11**. Each facility was evaluated and associated with risk evaluation ratings ranging from No Risk to High Risk. All four facilities identified within the project corridor were assigned a “Low” risk evaluation rating based on criteria outlined in the FDOT PD&E Manual, Part 2, Chapter 22. A stormwater pond that would be constructed as part of the proposed Build Alternative falls within one of the potential contamination sites identified in the CSER (e.g. Bigham Hide Company, Inc.); however, visual reconnaissance of the property indicated that the potential contamination sources (e.g. Aboveground Storage Tanks [AST]) observed on the site were associated with well pumps that are located several hundred feet south of the proposed pond sites.

Based on the results of the CSER the proposed improvements and construction of stormwater ponds will not result in significant contamination concerns.

Table 11 – Summary of Potential Contaminated Sites

Site No.	Facility Name	Location/Address	County	Facility ID	Distance from ROW	Potential Concern(s)	Site History and Potential Contamination Parameters	Risk Evaluation Rating
01	Coleman Federal Correctional Complex	1548 County Road 501 Wildwood, FL 34785	Sumter	110015622067 110055498144 FLR10L147 FLR10F538	Adjacent (west)	TBD	This facility was observed due west of CR 501 in the southern section of the Site. The facility was constructed in the 1990s and contains low, medium, and high level security correctional facilities. The GeoSearch® Radius Report indicated two (2) general storm water permits were associated with the facility. The permits were not associated with violations and both subsequently expired in 2003 and 2008. The permits were associated with the expansion of the correctional facility in the early 2000s. No additional information was identified in the OCULUS database regarding these permits. The EPA Envirofacts database identified the facility as a conditionally exempt RCRA generator with no violations. In addition, the facility was associated with the Toxic Release Inventory (TRI) Program, which tracks the management of toxic chemicals that may pose a threat to human health and the environment. Facilities in certain industry sectors report annually the volume of toxic chemicals managed as waste, recycled, treated, and/or burned for energy recovery. Lead was the only compound associated with the facility and the last annual report was submitted in April 2014.	Low
02	Broadwing Communications and Services, Inc./Level 3 Communications	405 County Road 501 Wildwood, FL 34785	Sumter	NA	Adjacent (east)	Operational Propane Tank	This facility was not listed in the regulatory databases. This 4.49-acre parcel contains three (3) structures within a security fence due east of CR 501 in the southern section of the study area. The property was first developed with these structures in the early 2000s. Signage indicated the facility is operated by Level 3 Communications. An emergency generator and an aboveground propane tank were associated with this property. No evidence of diesel storage tanks were observed in the readily available documentation.	Low
03	City of Wildwood Public Water Supply	469 County Road 501 Wildwood, FL 34785	Sumter	NA	Adjacent (east)	Operational AST	This facility was not listed the regulatory databases. This 12-acre parcel is operated by the City of Wildwood as a source of municipal drinking water. The property was first developed with these structures in the early 2000s. Two supply wells are situated in the central and eastern sections of the property. Two large holding tanks used for storage and treatment along with an operations building are situated in the western section of the property. An emergency generator, a cart-mounted AST day tank, and an electrical transformer are situated due south of the aforementioned building. No releases were associated with the tank and no evidence indicates the presence of a registered storage tank at this facility.	Low
04	Bigham Hide Company, Inc.	2467 County Road 501 Wildwood, FL 34785	Sumter	NA	Adjacent (east)	AST	This facility was not listed the regulatory databases. A large AST used as a fuel source for a well pump was situated in an open field in the south-central section of this property. A wellhead was observed adjacent to the AST and pump. This feature was first identified in a 2006 aerial photograph. A second well was situated in close proximity to CR 501 due south of the aforementioned well and storage tank. This system did not appear to be operational. Another well and a storage tank were identified adjacent to a dilapidated house and stable in the northern section of this property. The storage tank was not in use and was lying on the ground surface. No releases were identified in association with storage tanks and there was no evidence to support appropriate registration with the FDEP.	Low

## **6.4 Floodplain and Wetland Information**

According to Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs panel numbers: 12119C0142D, 12119C0144D, 12119C0161D, and 12119C0163D dated 09/27/2013) for Sumter County, the proposed project corridor and proposed pond sites are located entirely within flood Zone X – areas outside the 500-year flood plain with less than 0.2% annual probability of flooding. Therefore, it has been determined that no floodplain encroachment will occur. The FEMA Flood Hazard Zones Map is provided as Figure 5 in the attached Environmental Technical Compendium (**Appendix E**).

Based on document and database review, and an assessment of the vegetative communities, hydrologic conditions, and soils observed during site reconnaissance, no wetlands and surface waters occur within the proposed project corridor (i.e. CR 501 existing right-of-way, 330-foot buffer area, and proposed pond site locations). One wetland was observed approximately 50 feet east of proposed pond site 2A; however, this wetland will not be impacted by the proposed improvements. Thus, impacts to wetlands or surface waters will not occur.

## **6.5 Stormwater**

The project will be designed to meet state water quality and quantity requirements and Best Management Practices (BMP) will be utilized during construction to ensure there are no violations to water quality standards. The project falls within the jurisdiction of the Southwest Florida Water Management District (SWFWMD). In accordance with Rule 62-330.315, F.A.C. and Chapter 6.2 of the Environmental Resource Permit Applicant's Handbook Volume 1 (General and Environmental), a major modification to the existing Standard General Permit (ERP) will be required from the SWFWMD based on the proposed increase in impervious area and construction of the stormwater management system. The ERP is a joint permitting process between state and federal agencies.

No wetlands and surface waters occur within the proposed project corridor (i.e. CR 501 existing right-of-way, 330-foot buffer area, and proposed pond site locations); therefore, a dredge and fill permit from the United States Army Corps of Engineers (USACE) will not be required.

## 7. SUMMARY OF PUBLIC INVOLVEMENT

A Public Involvement Program was prepared and approved in November 2014 in accordance with Part 1, Chapter 11 of the FDOT PD&E Manual. Feedback from local municipalities and residents was used to develop the Recommended Alternative. Presentations and meetings were held throughout the project to keep stakeholders and residents informed and to receive input. Scheduled public meetings provided opportunities to review alternatives and to express concerns. A summary of the public involvement efforts is provided below.

### 7.1 Elected Officials and Agency Kickoff Meeting

An Elected Officials and Agency Kickoff Meeting was held on January 21, 2015 starting at 4:00 p.m. at the Villages Sumter County Service Center located in Wildwood, Florida. The meeting was held to provide information about the project and solicit input from agency and elected officials and the public. Richard Baier, P.E., Sumter County Public Works Director, opened the meeting with an introduction. Amber Gartner, P.E., Project Manager for Kimley-Horn, gave a brief presentation. The presentation provided the purpose of the study, overview of the project corridor and existing conditions, need for the project, project schedule, and contact information. Following the presentation, County staff and engineering consultants were available to answer any questions.

Fourteen persons registered as having attended the meeting, including County staff and engineering consultant representatives. Three persons registered as having attended the meeting for elected and appointed officials.

The questions from the public were in regards to the provision of bicycle lanes on the CR 501 corridor, as well as other surrounding roadways including C-468 and C-470. Several of the public in attendance were a part of the Sumter Landing Bicycle Club.

The meeting was noticed through direct mailers to elected and appointed officials, advertisement in the *Villages Daily Sun* (12/30/2014 and 1/12/2015), and advertisement in the *Florida Administrative Register* (1/12/2015).

More details about the meeting can be found in **Appendix G**.

### 7.2 Public Alternatives Meeting

A Public Alternatives Meeting was held on June 3, 2015 starting as an informal open house at 5:00 p.m. at the Wildwood Community Center located in Wildwood, Florida. The meeting was held to afford interested individuals an opportunity to discuss with project team members the location, conceptual design, social, economic and environmental effects of the proposed project alternatives. At 5:30 p.m., Amber Gartner, P.E., Project Manager for Kimley-Horn, gave a brief presentation. The presentation provided information on the progress of the study, overview of the project alternatives and an evaluation matrix, need for the project, project schedule, and contact information. Following the presentation, Sumter County staff and engineering consultants were available to answer any questions.

Twenty-three persons registered as having attended the meeting, including County staff and engineering consultant representatives.

The questions from the public that were discussed during the open house portion of the meeting were in regards to access management, proposed intersection improvements, proposed right-of-way, potential utility relocations, and proposed pond site locations. One comment card was submitted following the meeting that was responded to by Richard Baier, Sumter County Public Works Director. In addition, other emailed comments were submitted with most requesting a copy of the meeting presentation materials or acknowledging receipt of the invitation.

The meeting was noticed through direct mailers to elected and appointed officials, advertisement in the *Villages Daily Sun* (5/20/2015), and advertisement in the *Florida Administrative Register* (5/26/2015).

A copy of the meeting presentation and display boards were uploaded to the Sumter County Engineering website following the meeting.

More details about the meeting can be found in **Appendix H**.

### **7.3 Stakeholder and Committee Meetings**

Stakeholder meetings and presentations were provided during the project to keep the public informed and receive input and feedback on the projects. **Table 12** lists the dates and times of the Stakeholder coordination meetings.

**Table 12 – Summary of Stakeholder Meetings**

<b>Stakeholder</b>	<b>Date of Meeting</b>
Lake-Sumter MPO Technical Advisory Committee	August 12, 2015 1:30 PM
Lake-Sumter MPO Citizens Advisory Committee	August 12, 2015 4:00 PM
Lake-Sumter MPO Bicycle and Pedestrian Advisory Committee	August 13, 2015 3:00 PM
Lake-Sumter MPO Board Meeting	August 26, 2015 2:00 PM

### **7.4 Public Hearing**

A public hearing is tentatively scheduled for October 27, 2015

## 8. CONCEPTUAL COST

A preliminary design level cost estimate was prepared to determine an appropriate amount of funds to program for implementation. The FDOT Long Range Estimates (LRE) system was used to develop the cost estimate. The default unit costs within the LRE system were reviewed and updated as appropriate based on information from recent bids awarded in north central Florida. The construction cost was increased by 20% to include mobilization and maintenance of traffic. A 20% construction contingency was also included. The LRE cost estimate is included in **Appendix I**.

Survey, design, and permitting were assumed to equal 15% of the construction estimate. Engineering construction phase services were assumed to equal 10% of the construction estimate.

Right-of-way costs were also estimated. The total right-of-way acquisition needed for pond sites is expected to be approximately 6.9 acres. The corner clip needed at the intersection of CR 501 and C-468 is approximately 0.07 acres. A planning-level right-of-way cost of \$40,000/acre, plus \$50,000 acquisition cost per parcel were assumed for this estimating effort.

**Table 13** below summarizes the total cost estimate for the Recommended Build Alternative. All costs are provided in 2015 dollars.

**Table 13 – Build Alternative Cost Estimate**

<i>Item</i>	<i>Estimated Cost</i>
<i>Right-of-Way Acquisition</i>	\$525,000
<i>Construction</i>	\$11,600,000
<i>Survey, Design, Permitting (15%)</i>	\$1,700,000
<i>Construction Administration (10%)</i>	\$1,200,000
<i>Total Project Cost</i>	\$15,025,000

Funding for the design, right-of-way, and construction phases of the project has not been allocated in the next five years of Sumter County’s Five-Year Capital Improvement Plan. Future phases of the project will be identified within the current Long Range Transportation Plan update, which will be adopted in the last quarter of 2015.