



**Wekiva Trail Extension-Segment 5  
(formerly known as the Tavares-  
Mount Dora Trail)  
Corridor Planning Study  
Technical Memorandum**

Project Limits: from Disston Avenue (Wooton Park) in  
Tavares to Tremain Street in Mount Dora

FM #: 405854-1

Date: December 2020

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# **1 Report Purpose**

This report documents the analysis of the proposed concepts for a shared use path (named segment 5 of the Wekiva Trail) from Wooton Park in the City of Tavares to Tremain Street in the City of Mount Dora. These planning concepts were evaluated by performing a review of existing conditions, researching technical standards, and producing an evaluation matrix. This report provides a summary of the study area planning concepts, stakeholder and public involvement activities and the next steps for the study.

## **2 Introduction**

### **2.1 Project Description**

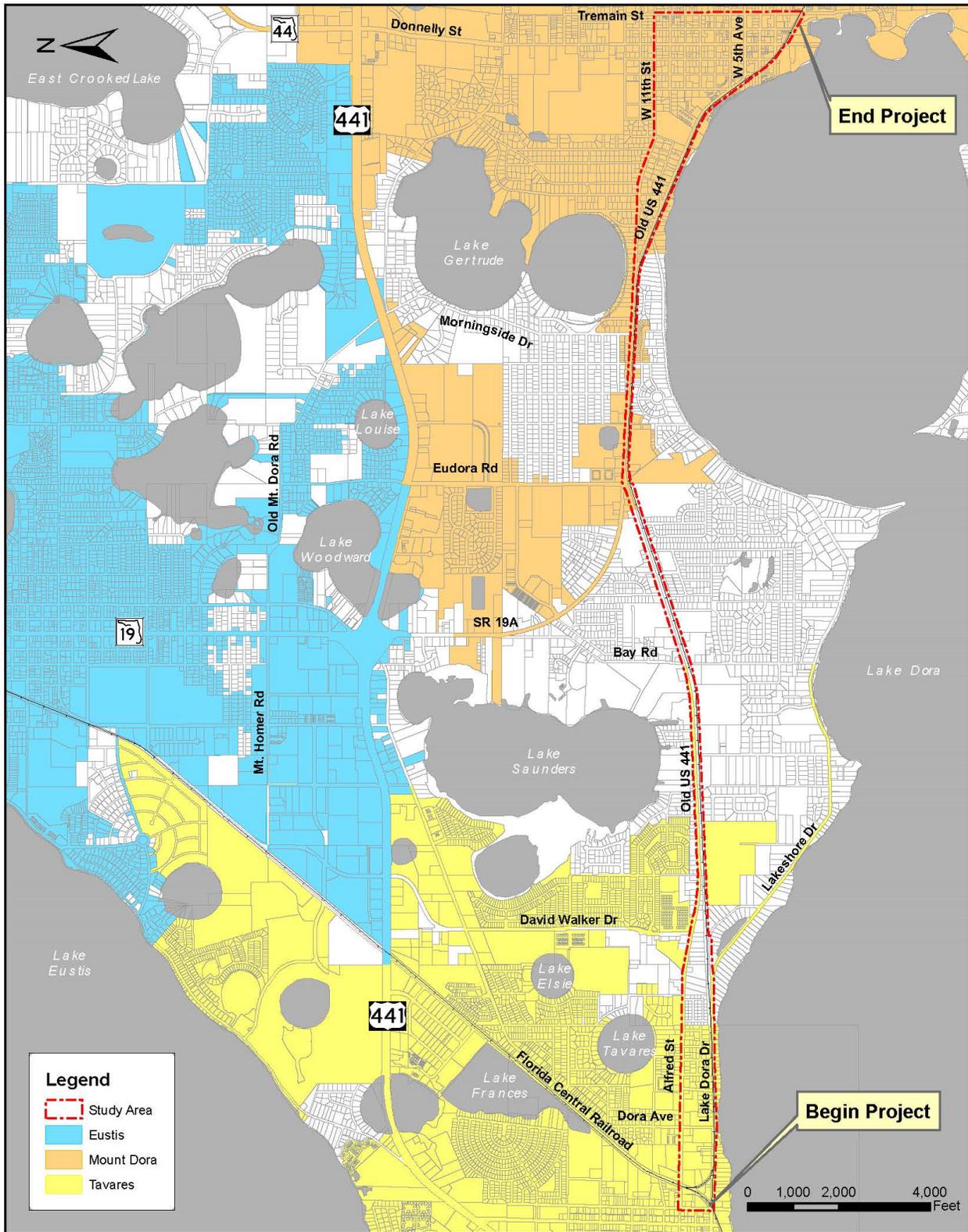
This study is being conducted by the Florida Department of Transportation (FDOT) – District Five Office in coordination with the cities of Tavares and Mount Dora, Lake-Sumter Metropolitan Planning Organization (MPO), Lake County Public Works Department, Lake County Office of Parks and Trails, and the Lake County Transit Division. This study was initially named the Tavares-Mount Dora Trail. In April 2020, at the request of the cities of Mount Dora and Tavares, and Lake County, the name was changed to Wekiva Trail Extension-Segment 5 in order to signify the relevance of this segment as part of the overall regional network. All documents prior to this report include “Tavares-Mount Dora Trail” in the title, i.e. Tavares-Mount Dora Trail Corridor Planning Study – Existing Conditions Report.

The study evaluates planning concept alignments for a shared use path included in the Lake County Trails Master Plan (2018 update) as part of the regional Wekiva Trail and will connect the cities of Tavares and Mount Dora along Old U.S. 441 or the CSX/Florida Central Railroad (FCEN) railroad right of way. This trail will also provide a connection to the North Lake Trail Phase 1 and Tav-Lee Trail to the west and Segments 1 through 4 of the Wekiva Trail to the east.

### **2.2 Study Area Description**

The proposed shared use path will travel along a 5.5 to 6-mile corridor beginning at Disston Avenue/Wooton Park in the City of Tavares and terminate at Tremain Street in the City of Mount Dora and follow the Old U.S. 441 and/or the Florida Central Railroad right of way in between. The study area is illustrated in Figure 1.

Figure 1 | Study Area Map

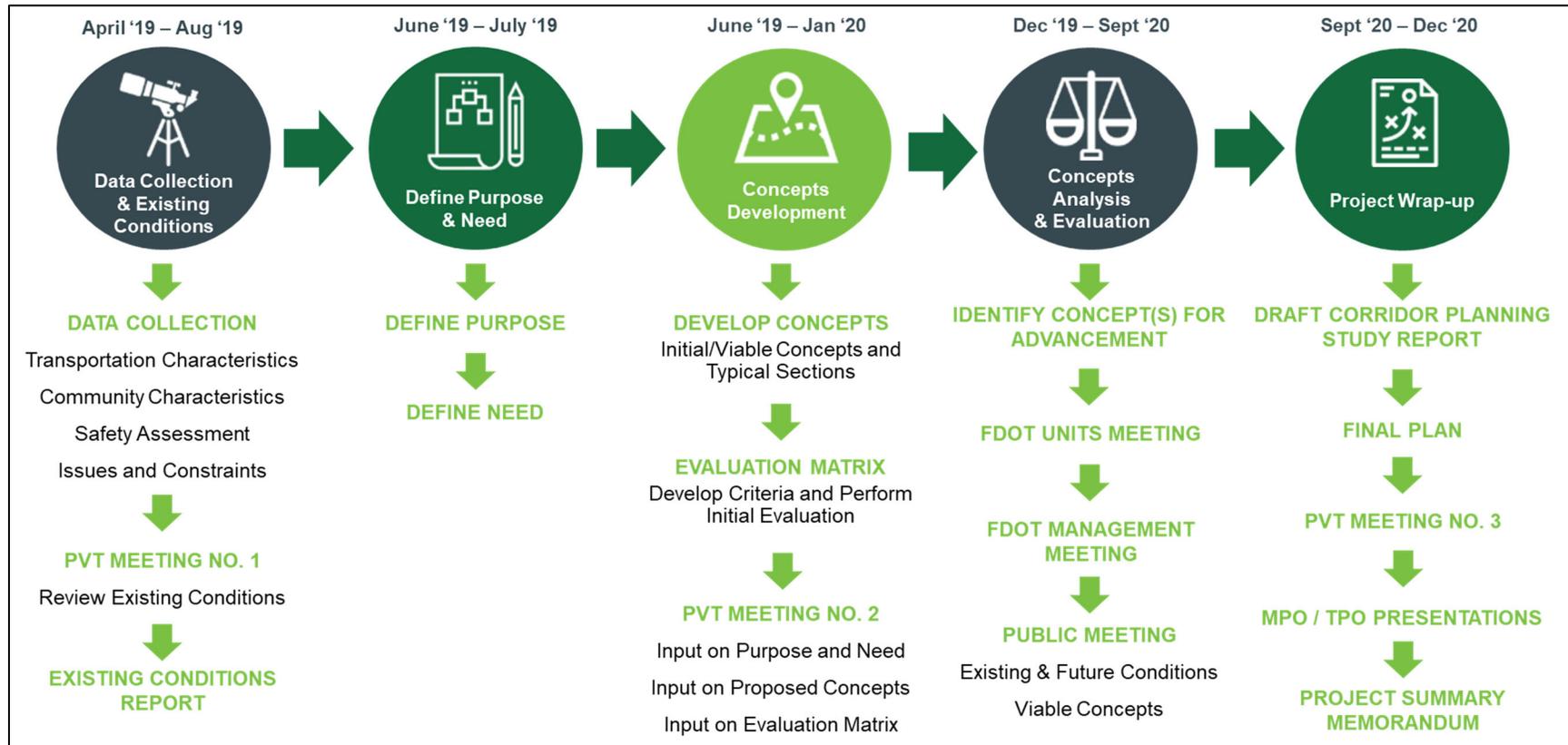


Updated July 25, 2019 - Source: FDOT

## 2.3 Study Approach

The study approach involved five steps including data collection and review of existing conditions, defining the purpose and need, development of planning concepts, analysis and evaluation of concepts, and project wrap-up/ development of the corridor planning study report. Activities included in each step are illustrated in Figure 2.

Figure 2 | Study Approach



PVT = Project Visioning Team

Note: The initial project schedule was delayed due to COVID-19 and the limitations of hosting an in-person public meeting.

### **3 Purpose and Need**

#### **3.1 Purpose**

The purpose of this project is to provide a safe, comfortable, and accessible multiuse trail facility to safely accommodate bicyclists, pedestrians, and other non-motorized users of all ages and abilities. The project will connect the cities of Tavares and Mount Dora and fill the gap in the regional Wekiva Trail network and promote the recreational goals of the region.

#### **3.2 Need for Improvement**

The need for this project stems from two primary factors, which include:

- Gaps in the regional trail network; and a
- Lack of safe, comfortable, and accessible pedestrian and bicycle facilities.

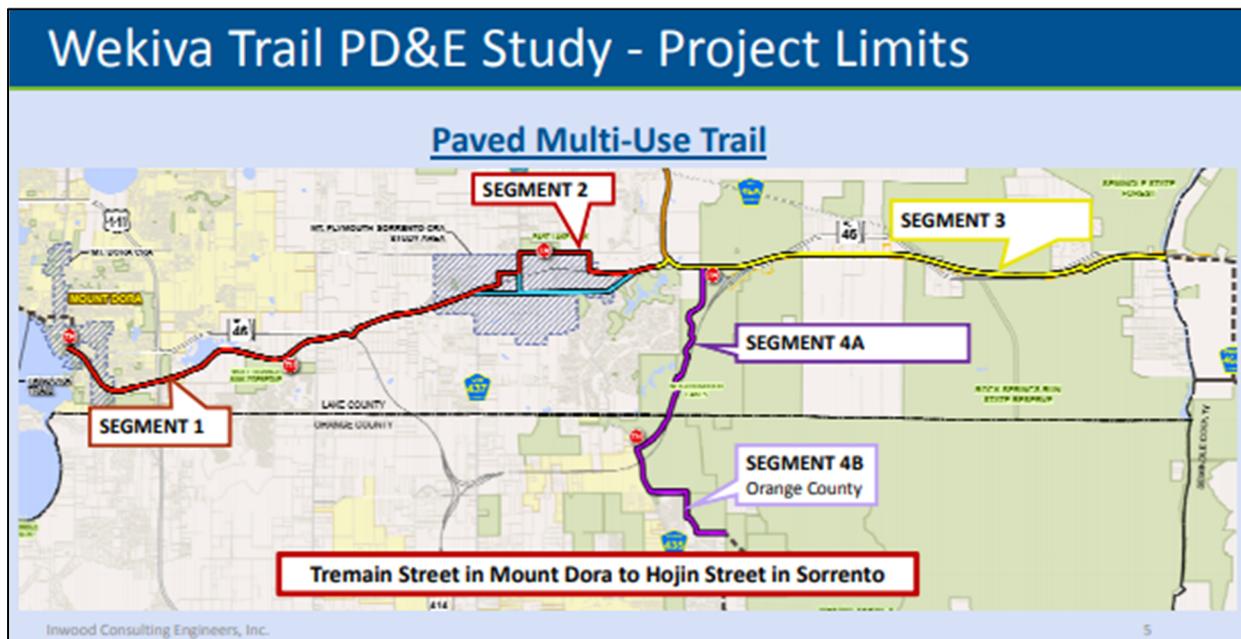
##### *Gaps in the Regional Trail Network*

The Wekiva Trail Extension-Segment 5, also referred to as the Tavares-Mount Dora Trail, would fill the network gap in the Wekiva Trail, by completing all five segments of the Wekiva Trail and by extending the Wekiva Trail further west of Mount Dora to connect with existing Phase 1 Tavares Trail and the proposed North Lake Trail Phase 1 in Tavares. The proposed Wekiva Trail Extension-Segment 5 would also provide connections to the proposed North Lake Trail, Sylvan Shores Connector, the Golden Triangle YMCA proposed trailhead and the Mount Dora bicycle network and trail system.

As documented in the Wekiva Trail Project Development and Environment (PD&E) Study (prepared by the Lake-Sumter Metropolitan Planning Organization, completed in March 2016), the design and construction of the Wekiva Trail is divided into the following segments (Figure 3):

- Segment 1 is a 5.5-mile segment from Tremain Street in Mount Dora to State Road (S.R.) 46 in Sorrento;
- Segment 2 is a 3-mile segment from S.R. 46 to Hojin Street in Sorrento;
- Segment 3 is a 6.5-mile segment from Hojin Street in Sorrento to the Wekiva River; and
- Segment 4 is a 6.3-mile Neighborhood Lakes Trail, that will connect the Wekiva Trail starting at S.R. 46 to the future West Orange Trail in Kelly Park.

Figure 3 | Wekiva Trail Segments



Source: Wekiva Trail PD&E, Segment 1 Public Meeting, March 17, 2016, Summary Presentation.

The Wekiva Trail Extension-Segment 5 will provide an important connection that will complete the regional trail network and provide a continuous multiuse trail facility to benefit non-motorized users in Lake County.

#### *Lack of Safe, Comfortable, and Accessible Pedestrian and Bicycle Facilities*

Approximately 10 percent (10%) of the study area households do not own a vehicle. These households are dependent upon bicycle and pedestrian facilities to travel between destinations. There are no bicycle facilities, and sporadic sidewalks throughout the study area, with the exception of a small segment at the east edge of the study area along Tremain Street. The lack of continuous pedestrian and bicycle facilities within the study area offers few opportunities for non-motorized travel between local destinations. Bicyclists and pedestrians currently utilize the paved or unpaved shoulders to travel adjacent to motorized vehicles along Old U.S. 441. The speed limits along Old U.S. 441 are primarily posted at 35 and 45 miles per hour (mph). Vehicles along the roadway typically travel at much higher speeds, creating an unfriendly environment for pedestrians and bicyclists. Additionally, there is approximately six percent (6%) truck traffic along the corridor. Of the bicycle and pedestrian facilities that are present on connecting roadways, there are limited Americans with Disabilities Act (ADA) compliant connections between residences, community features, and conservation areas.

## 4 Traffic

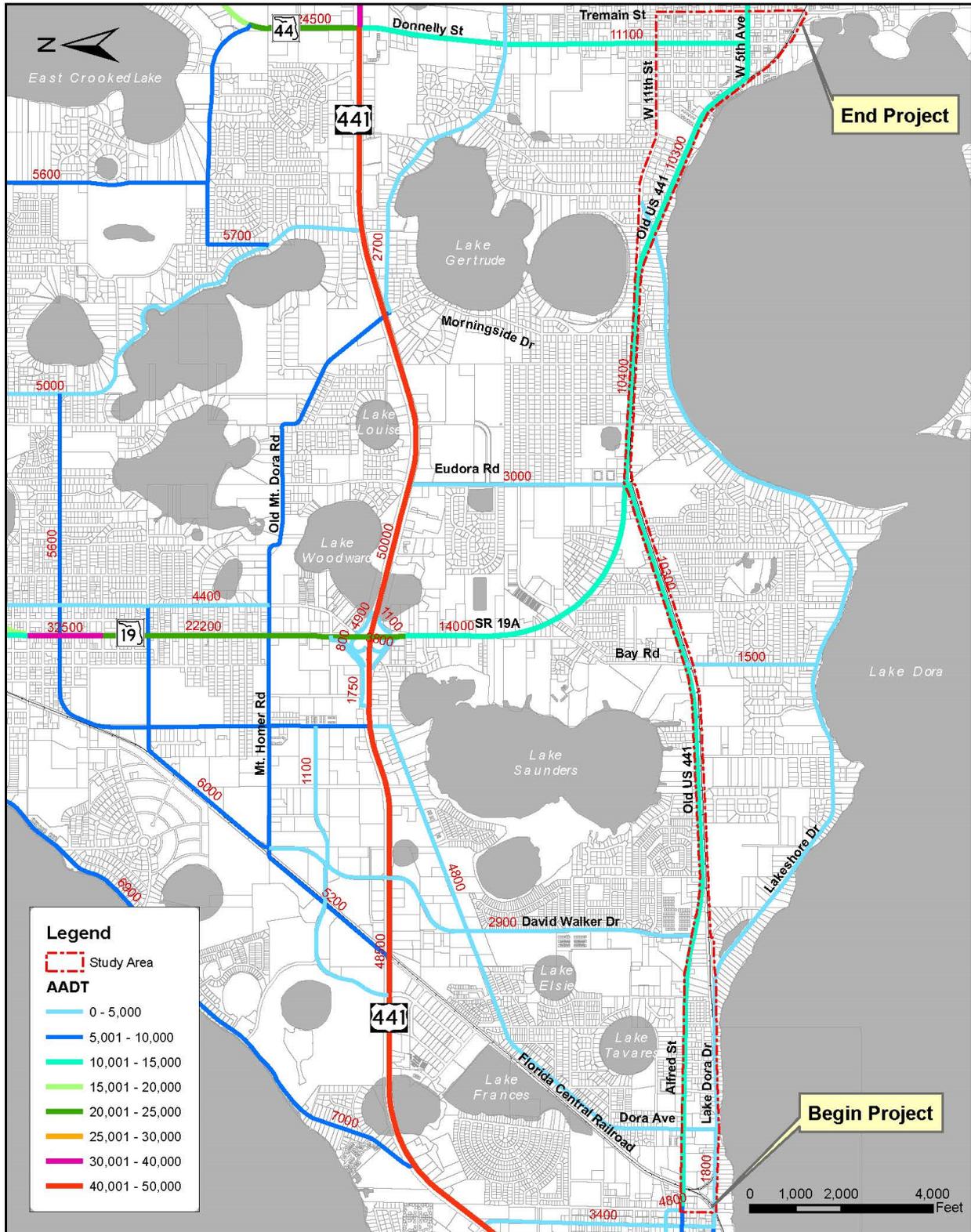
### 4.1 Existing Year Volumes

The Annual Average Daily Traffic (AADT) for the study area is illustrated in Figure 4. The Old U.S. 441 corridor is a two-lane collector in an urban area from Disston Avenue to C.R. 19A. Along this segment, the AADT was approximately 10,300 vehicles, according to FDOT 2018 AADT data. Between C.R. 19A and Tremain Street, Old U.S. 441 is a minor arterial in an urban area with an AADT of approximately 10,400 vehicles. Pedestrian and bicycle count data was not available along the corridor; however, cyclists and pedestrians were observed along Old U.S. 441, primarily in the downtown areas of Tavares and Mount Dora during field review.



Photo along Old U.S. 441 west of Lucerne Drive, facing west.

Figure 4 | Annual Average Daily Traffic (AADT)



## 4.2 Existing Operational Analysis (LOS)

Level of Service (LOS) measures the travel delay of vehicles and provides a “grade” based on the delay. LOS examples are shown in Figure 5. An “A” grade represents free flowing traffic, while “F” is considered failing and highly congested. The LOS for Old U.S. 441 varies between LOS B and LOS C, as illustrated in Figure 6. The corridor LOS were obtained from the Lake Sumter MPO Transportation Management System (TMS).

*Figure 5 | Level of Service Examples*



**A/B**



**C/D**

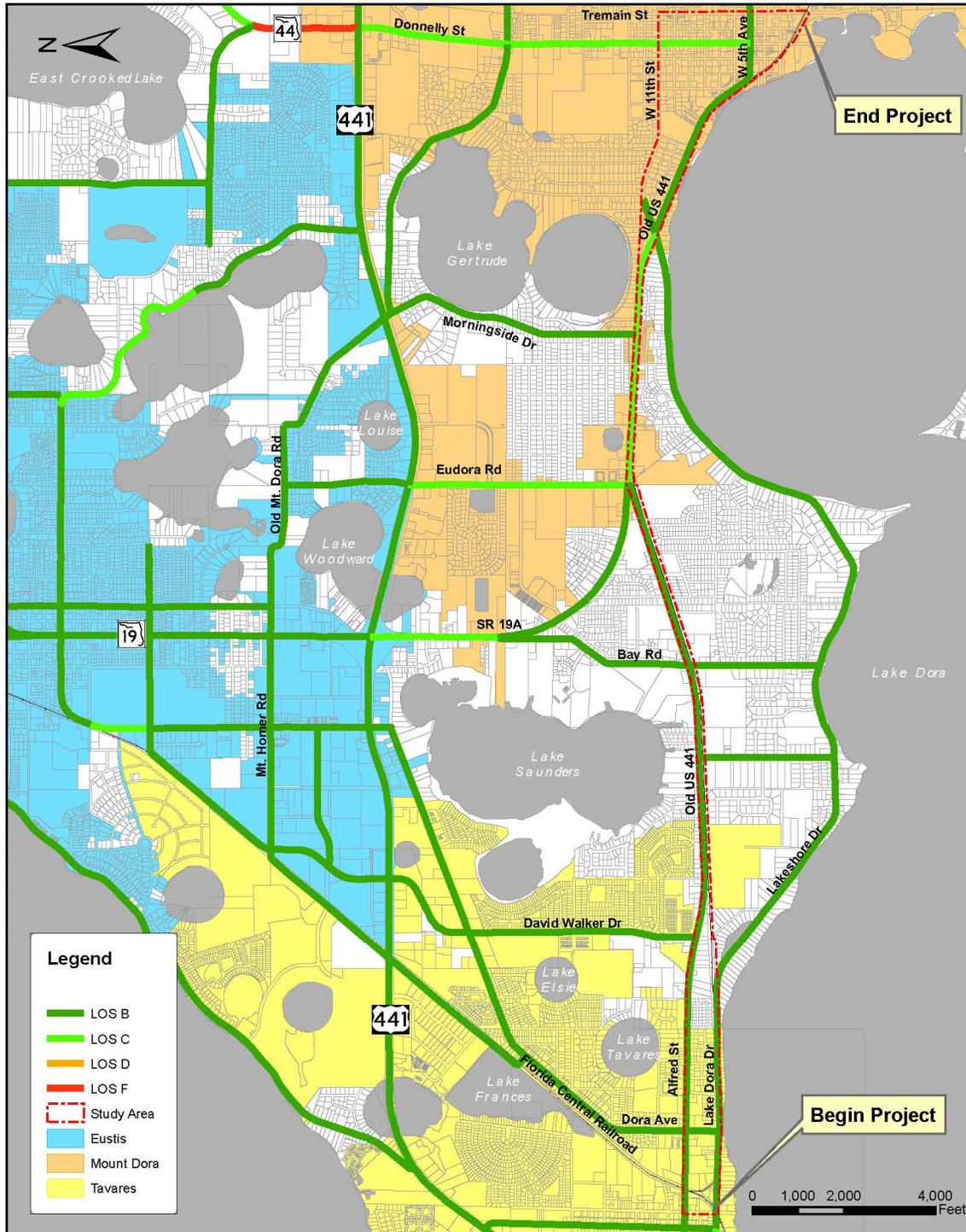


**E/F**

The levels of service of the roadway segments within and adjacent to the study area are primarily LOS B, with the following exceptions, which are LOS C:

- Old U.S 441 from Eudora Road to Lakeshore Drive
- S.R. 19A from Bay Road to U.S.441
- Eudora Road from Old U.S. 441 to U.S. 441
- Donnelly Street from W 5<sup>th</sup> Avenue to U.S. 441

Figure 6 | Corridor Level of Service (LOS)



Updated August 28, 2019 - Source: Lake Sumter MPO

## **5 Planning Concept Analysis and Development**

### **5.1 No Build Planning Concept**

The No Build Planning Concept would result in no changes being made to the existing study area. Under the No Build Planning Concept, Old U.S. 441 would remain as it exists today, and there would not be any bicycle nor pedestrian facilities developed. Bicyclists and pedestrians would continue to utilize the existing paved/unpaved shoulders and disconnected network of sidewalks along Old U.S. 441 to travel adjacent to vehicular traffic.

The primary advantage of the No Build Planning Concept is that there would be no environmental or drainage impacts from construction in wetland areas and drainage basins. It does not require any capital, or expenditure of state/federal funds, and does not necessitate the acquisition of additional railroad right of way, land or mitigation.

The disadvantages of the No Build Planning Concept are significant when compared to the Build Planning Concepts, including:

- Safety concerns with potential conflicts between higher-speed vehicular traffic and pedestrians/cyclists traveling within close proximity will remain unaddressed.
- Lack of safe, comfortable, and accessible pedestrian and bicycle facilities within the area will remain unaddressed.
- A six-mile gap within the regional trail network will remain unresolved.

The No Build Planning Concept provides baseline information by which other project planning concepts may be compared throughout the concept selection process, which is further described in Section 5.4. The No Build Planning Concept will be carried forward throughout the project process with the recognition that it does not fulfill the study's purpose and need.

### **5.2 TSM&O and Multi-Modal Planning Concepts**

Transportation Systems Management and Operations (TSM&O) concepts are comprised of various improvement options and are usually generated to achieve the maximum use and energy efficiency of the existing facility. TSM&O planning concepts include activities designed to optimize the performance and utilization of the existing infrastructure through implementation of systems, services, and projects to preserve the capacity and improve security, safety, and reliability of the roadway system.

Each of the proposed trail concepts, as described in Section 5.4, are focused on providing safe, comfortable, and accessible bicycle and pedestrian facilities from Wooton Park in City of Tavares to Tremain Street in the City of Mount Dora. The proposed improvements constitute a TSM&O initiative. The proposed improvements also include multi-modal components, as each build concept analyzes a corridor for bicyclists and pedestrians to travel between destinations within the study area and ties into existing transit routes where present.

### 5.3 Design Criteria

The design of the Wekiva Trail Extension-Segment 5 should follow all proper design elements for a trail with consideration given to the local area. Table 1 summarizes the design criteria for a shared use path/trail based on the Cities of Mount Dora and Tavares and Lake County design standards. Table 2 includes the design guidance for a shared use path based on the 2020 FDOT Design Manual (FDM), which sets forth geometric and other design criteria, as well as procedures for FDOT projects.

Table 1 | Mount Dora, Tavares and Lake County Design Criteria

Design Element	Urban	Rural	Source
<b>Mount Dora</b>			
Regional shared-use trails were developed based on the Lake County Trails Network. Regional shared-use trails are characterized by their interconnection to regional destinations and other statewide trails. These trails are 12 to 15 feet in width and consist of an asphalt or concrete surface.			<i>Mount Dora Trails Master Plan, Section 4.0 – Design Standards</i>
Design speed	20 mph	20 mph	
Paved Width			
Desirable	15 ft	12 ft	
Minimum	10 ft	10 ft	
Minimum Radius	75 ft	30 ft	
Horizontal Clearance to Obstacles			
Desirable	4 ft	4 ft	
Minimum	3 ft	3 ft	
Minimum (with drop off)	6 ft	6 ft	
Minimum Separation from Roadway <i>(distance to edge of shoulder)</i>	Outside Clear Zone	5 ft	
Desirable	5 ft	5 ft	
Minimum			
Vertical Clearance			
Desirable	10 ft	10 ft	
Minimum	8 ft	8 ft	
Shoulder Width (Grassed)	2 ft	2 ft	
Horizontal Curve Radius			
Desirable	100 ft	100 ft	
Minimum with proper signing	36 ft	36 ft	
Profile Grade			
Desirable	< 5%	< 5%	
Maximum (with restricted lengths)	11%	11%	
Maximum change in grade without vertical curve	4%	7%	
Minimum base clearance above design high water elevation	1 ft	1 ft	
Minimum pavement cross slope	0.02	0.02	
Community paths and trails connect homes to the larger trail network. These walkways are 8 to 10 feet in width and consist of an asphalt or concrete surface.			

Design Element	Urban	Rural	Source
Urban Bicycle and Pedestrian Corridor - The design standards for these types of facilities are outside the scope of this Master Plan and should be developed for individual projects based on the cited references, engineering judgment, and local preferences.			
<b>Tavares</b>			
Not available. Refer to Lake County Design Standards.			
<b>Lake County</b>			
<p>Width</p> <p>Generally, 12.5 feet wide or more. 15 feet is the recommended width.</p>			<p><i>Lake County Office of Parks and Trails Master Plan, Vol II, Trails, Section 9 – Trail System Design Standards</i></p>
<p>Lateral Clearance</p> <p>The minimum lateral clearance distance is two feet. The MUTCD requires three feet clear between trail and signage.</p>			
<p>Overhead Clearance</p> <p>The recommended overhead clearance for structures is 10 ft, with a minimum of 8 ft. Trees will be limbed up thirteen feet above the trail surface.</p>			
<p>Striping</p> <p>Striping may be installed where passing is inadvisable, including at the approach and departure of intersections. Striping may also be advisable where trail user volume is high, sight distance is restricted, or design speed is low.</p>			
<p>Cross slope</p> <p>Shared use paths adjacent to roadways function as sidewalks according to PROWAG and therefore cannot have a cross slope greater than 2%. A 1% cross-slope is recommended for ease of use by people with disabilities.</p>			
<p>Grade</p> <p>The maximum grade of a shared use path adjacent to a roadway is 5%. Grades for paths in an independent right-of-way should not exceed 5%. Switchbacks and pull-outs can be provided to mitigate excessive grade changes. Signage should also be provided to warn users of grade changes.</p>			
<p>More geometric design criteria detail can be found in the AASHTO Guide for the Development of Bicycle Facilities.</p>			

Table 2 | Design Criteria

Design Element	Criteria	Source	
<b>Widths</b>			
<u>Two-Directional Shared Use Path</u>			
Range	10-14 ft	FDM, Section 224.4	
Standard	12 ft		
<u>Shared-Use Nonmotorized (SUN) Trail Network Facilities</u>			
Less than 12 ft	Chief Planner's Approval Required		
<u>SUN Trail Network Facilities (N/A)</u>			
Limited R/W	10 ft		
Constrained Conditions	8 ft		
	*Consider accommodation of emergency & maintenance vehicles / management of steep grades when selecting width.		
	*FHWA's Shared Use Path Level of Service Calculator may be used as a guide in determining appropriate width.		
<b>Cross Slopes</b>			
Maximum Cross Slope (ADA Requirements)	0.02	FDM, Section 224.5	
Changing Slope Direction of Path	Use 75 ft distance to transition from -2% to 2% OR 2% to -2% *Consider potential for ponding water		
<b>Longitudinal Slopes</b>			
Maximum Slope (ADA Requirements)	0.05	FDM, Section 224.6	
Ramp	>5%		
Max Ramp Slope	8.33% with a maximum rise of 30 inches with a level landing at least 60 inches in length	FDM, Table 224.6.1, *Refer to FDM 224.11 for controls on grade changes	
Ramp Maximum Grade	Grade (%)		Length (ft)
	6		800
	7		400
	8		300
	9		200
	10		100
	+11		50
	1) When using a longer grade, consider adding 4 to 6 ft of additional width to path to allow a bicyclist to dismount and walk their bicycle. 2) Clear Distances and sight distances should be adjusted to accommodate longer grades.		

Design Element	Criteria	Source		
<b>Horizontal Clearance</b>				
Adjacent to both sides of path	4 ft (including placement of signs)	<i>FDM, Section 224.7</i>		
Max Slope adjacent to both sides of path	1:6			
Graded Area Width Restricted Conditions	2 ft			
(bridge abutments, signposts, fencing, railing)	Within 4 ft of the edge of pavement; not less than 2 ft			
<b>Vertical Clearance</b>				
Bottom of lowest edge of an overhead obstruction to any portion of path under obstruction	10 ft	<i>FDM, Section 224.8</i>		
Overhead Signs/ Other obstructions under constrained conditions	8 ft			
Accommodation of equestrians / maintenance and emergency vehicles;	12 ft	<i>*FDM 260.6 for bridge structure minimum clearance</i>		
Underpasses and tunnels;  SUN Trail	<i>*Existing elements that provide a minimum 8 ft vertical clearance are not required to be corrected to the clearances listed above.</i>			
<b>Design Speed</b>				
Longitudinal Grade ≤ 4%	18 mph	<i>FDM, Section 224.9</i>		
Longitudinal Grade > 4%	30 mph			
<b>Maximum Radii</b>				
Horizontal Curves	Design Speed	Cross Slope	Maximum Radius	<i>FDM, Section 224.10, Table 224.10.1</i>
	18 mph	2%	74 ft	
	18 mph	-2%	86 ft	
	30 mph	2%	261 ft	
	30 mph	-2%	316 ft	
	<i>*For paths with two-way traffic use minimum radius given for cross slope of -2%</i>			

Design Element	Criteria	Source
<b>Stopping Sight Distance</b>		
Flat Grades	Design Speed	Grade
	18 mph	134
	30 mph	Use 18 mph Values
FDM, Section 224.10, Table 224.10.2		
<b>Vertical Alignment</b>		
When S>L	$L = 2S - \frac{900}{A}$	FDM, Section 224.11
When S<L	$L = \frac{AS^2}{900}$	
	L = Min. Length of Vertical Curve (ft)	
	A = Algebraic Grade Difference (%)	
	S = Stopping Sight Distance (ft)	
<b>Separation from Roadway</b>		
Flush Shoulder w/speeds ≤ 45 mph	Edge of path at least 5 ft from edge of paved shoulder	FDM, Section 224.12
Curbed Roadways w/speeds ≤ 45 mph	Edge of path at least 4 ft from back of curb w/consideration of roadside obstructions (e.g. signs, light poles)	
Roadways w/speeds ≥ 50 mph	Edge of path at least 5 ft from shoulder break	
<b>Lighting</b>		
Lighting for shared use paths is important and should be considered where riding at night is expected, such as paths serving college students or commuters. Lighting should also be considered through underpasses or tunnels. Lighting standards are provided in Table 231.2.1.		FDM, Section 224.13
<b>Signing, Pavement Marking, and Signalization</b>		
The Standard Plans and the MUTCD provide guidance and requirements for signage, pavement markings and signals for shared use paths. Signs on shared use paths should follow the dimensions provided in Table 9B-1 Bicycle Sign and Plaque Sizes, MUTCD.		FDM, Section 224.14

Design Element		Criteria	Source
<b>Drop-off Hazards</b>			
Shielding Condition 1	Severity	See FDM, Figure 224.15.1	FDM, Section 224.15
Shielding Condition 2	Severity	See FDM, Figure 224.15.1	
Shielding for Severity Conditions other than Cases 1 or 2		<p>1) The engineer should consult the District Bicycle/Pedestrian Coordinator or Trail Coordinator regarding pedestrian and cyclist traffic and their routes.</p> <p>2) Installing fencing or railings are two ways to shield the drop-offs. Fencing is generally intended for use in rural areas along paths and trails. Railing is generally intended for urbanized areas, locations attaching to bridge rail or along concrete walkways. Pedestrian/Bicycle Railings (Standard Plans, Index 515 Series) are adequate for shielding all drop-offs but are generally intended for use on drop-offs greater than 60 inches. Pipe Guiderail (Standard Plans, Index 515-070 and 515-080) is adequate for shielding drop-offs which are 60 inches or less.</p> <p>3) Along continuous sections where the drop-off varies above and below the 60-inch threshold, for uniformity the engineer may consider using only one of the railing types adequate for shielding all drop-offs.</p> <p>4) Railing or fencing near intersections or driveways could obstruct the driver's line of sight. To reduce the need for railings, as a sidewalk or shared use path approaches an intersection, consider extending cross drains and side drains to minimize drop-offs.</p> <p>5) The installation of fencing, railing, or pipe guardrail presents a hazard in and of itself. Evaluate whether or not the installation of these devices present a greater risk than the drop-off or other condition it is intended to shield.</p>	
Drainage		<p>Environmental Resource Permit (ERP) should be obtained if trail construction impacts are not exempt or above the permit thresholds for the water quantity, water quality, and wetlands.</p> <p>Storm water Pollution Prevention Plan (SWPPP) should be developed and submitted.</p>	<p>SJRWMD</p> <p>FDM, Drainage Design Guide</p> <p>National Pollutant Discharge Elimination System (NPDES)</p>
<b>Path Railings</b>			
Requirements for railings and fences are discussed in FDM 222.4.			FDM, Section 224.16
<b>Typical Sections</b>			
Example typical sections are provided in FDM 306.			FDM, Section 224.17

Design Element	Criteria	Source
<b>Pavement Design</b>		
	See the FDOT Pavement Management website for guidance on pavement requirements.	<i>FDM, Section 224.17.1</i>
<b>Shade Considerations</b>		
	<p>Shade along shared use paths is desired. Consider shade from landscaping and shade from architectural sources such as buildings, pavilions, and shade sails. To maximize shade and minimize costs:</p> <ul style="list-style-type: none"> <li>• Begin coordination between the designer, project manager, utilities, district landscape architect, and the landscape’s maintaining agency during Phase I of the design.</li> <li>• Choose an alignment of the path that can capitalize on shade from existing and proposed trees or architectural sources.</li> </ul> <p>For more information on shade from Landscape Design, refer to FDM 228, FDM 329 and Work Program Instructions Part 3, Chapter 16.</p>	<i>FDM, Section 224.18</i>

## 5.4 Build Concepts

Three planning concepts were identified for the proposed shared use path as described below.

- Concept A-1 includes a shared use path that generally follows the Old U.S. 441 corridor. The path crosses over to the residential area near the Heron Cay Bay and Breakfast Inn (east of Old U.S. 441) and transitions to East 8<sup>th</sup> Avenue. The trail then transitions to Tremain Street in the Mount Dora Historic District and continues south, terminating where Tremain Street meets the railroad.
- Concept A-2 includes a shared use path that generally follows the Old U.S. 441 corridor to Heim Road/West 11<sup>th</sup> Avenue. The path then follows Helen Street, to West 8<sup>th</sup> Avenue and transitions to Tremain Street in the Mount Dora Historic District. The trail then continues south, terminating where Tremain Street meets the railroad.
- Concept B includes a shared use path within the existing railroad right of way.

### 5.4.1 BUILD CONCEPTS ALIGNMENT AND TYPICAL SECTIONS

The following section provides an overview of each build concept, included in Appendix A.

#### 5.4.1.1 Planning Concept A-1

The first segment of Concept A-1, as depicted in Figure 7, begins at Main Street and Disston Avenue in Tavares, continues along Disston Avenue to Alfred Street, and terminates at the intersection of Old U.S. 441 and Heim Road/West 11<sup>th</sup> Avenue. As depicted in Figure 8, this segment maintains the existing 12-foot travel lanes (shaded in gray) and includes a 12-foot multi-use trail (shaded in green). The proposed trail would be located on the south side of Old U.S. 441 and faces challenges such as the location of utility poles and a drainage culvert.

The trail then continues east to the intersection of Old U.S. 441 and Eudora Road, and crosses over to the north side of Old U.S. 441, to just west of the Old U.S. 441 and Heim Road intersection. As depicted in Figure 9, the segment includes a 10-foot cycle track<sup>1</sup> (shaded in yellow) within the existing road on the north side of Old U.S. 441, and two 11-foot travel lanes (shaded in gray). The proposed cycle track is separated from the travel lanes by a 7-foot median. Because this segment is within the right of way, there are no anticipated environmental impacts at this stage of the study.

The trail then continues south, along the north side of Old U.S. 441, to an existing public path at the Heron Cay Bed and Breakfast, which connects Old U.S. 441 to Helen Street and then turns east onto West 8<sup>th</sup> Avenue. As depicted in Figure 10, this segment includes reduced travel lanes from 12-feet in each direction to 11-feet in each direction (shaded in gray) and an 8.5-foot sidewalk (shaded in beige) on the north side of Old U.S. 441.

Concept A-1 terminates at the Tremain Street Trailhead and includes an extension of the existing cycle track to tie into the existing trailhead. The proposed cycle track would extend from Charles Avenue to W. 5<sup>th</sup> Avenue as depicted in Figure 11, and would include a single 12-foot northbound travel lane (shaded in gray), and a two-way cycle track (shaded in yellow).

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<sup>1</sup> A two-way cycle track (also known as a protected bike lane) is a physically separated track that allows bicycle movement in both directions on one side of the road.

Figure 7 | Planning Concept A-1 Alignment

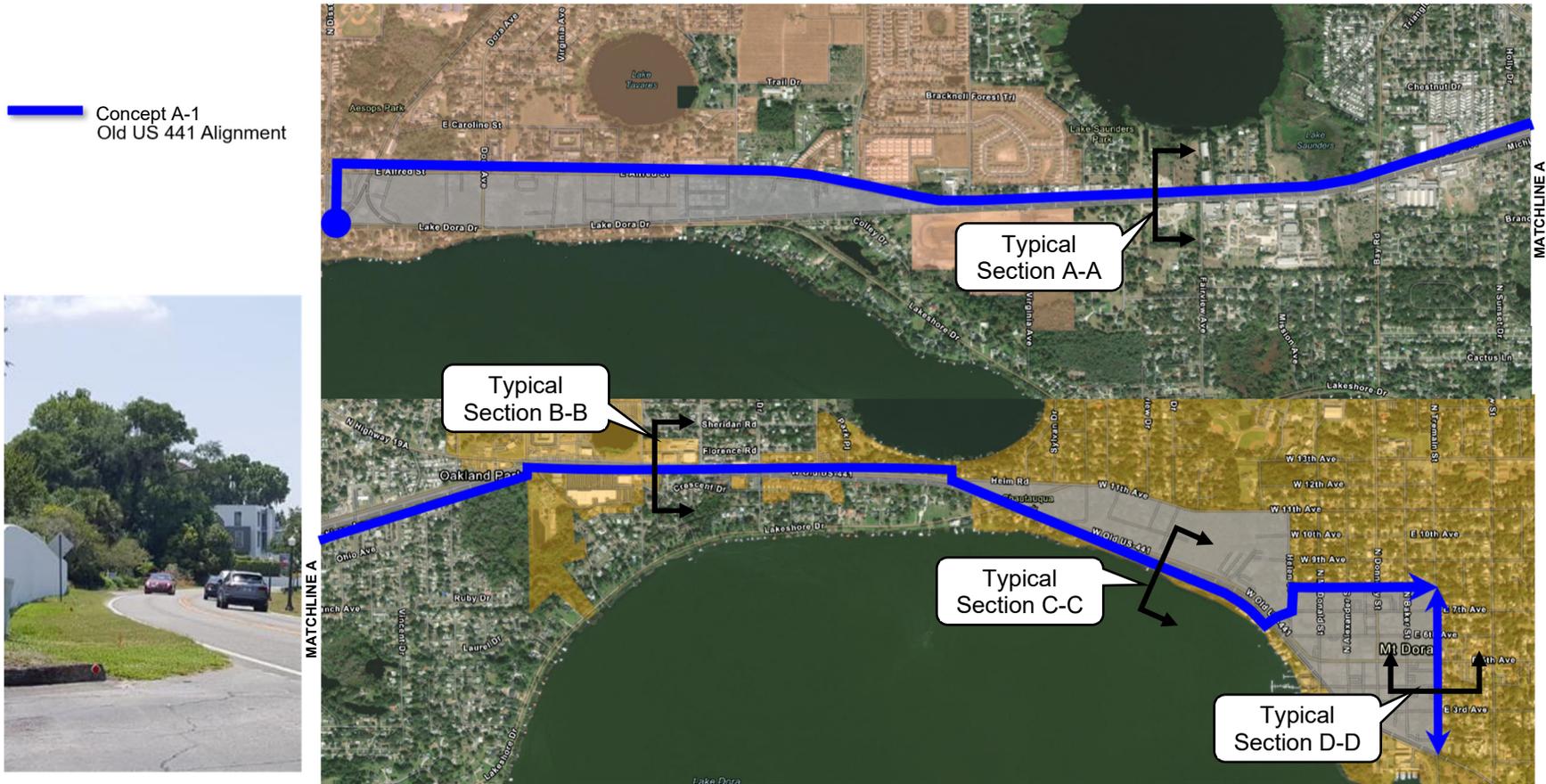
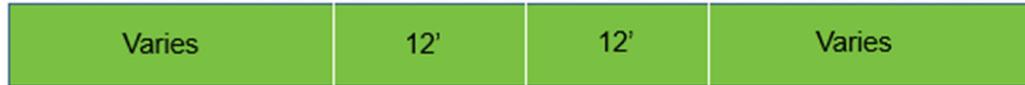


Figure 8 | Planning Concept A-1 Typical Section A-A

- 12-foot Shared-Use Path along Old U.S. 441 from Disston Avenue to Golden Isle Drive.



Existing



Proposed Concept A-1

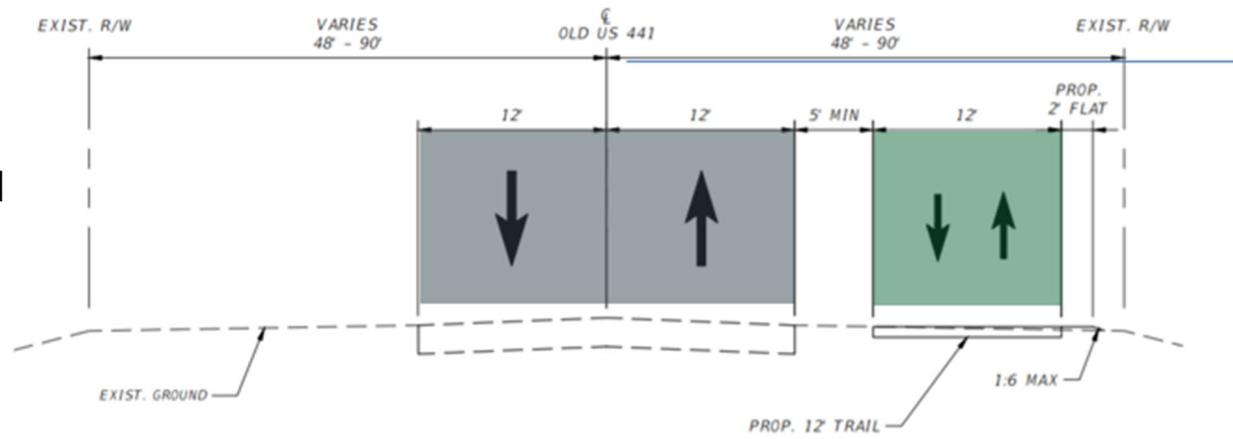


Figure 9 | Planning Concept A-1 Typical Section B-B

- 10-foot Cycle Track with 7-foot separator along Old U.S. 441 from Eudora Road to Heim Road

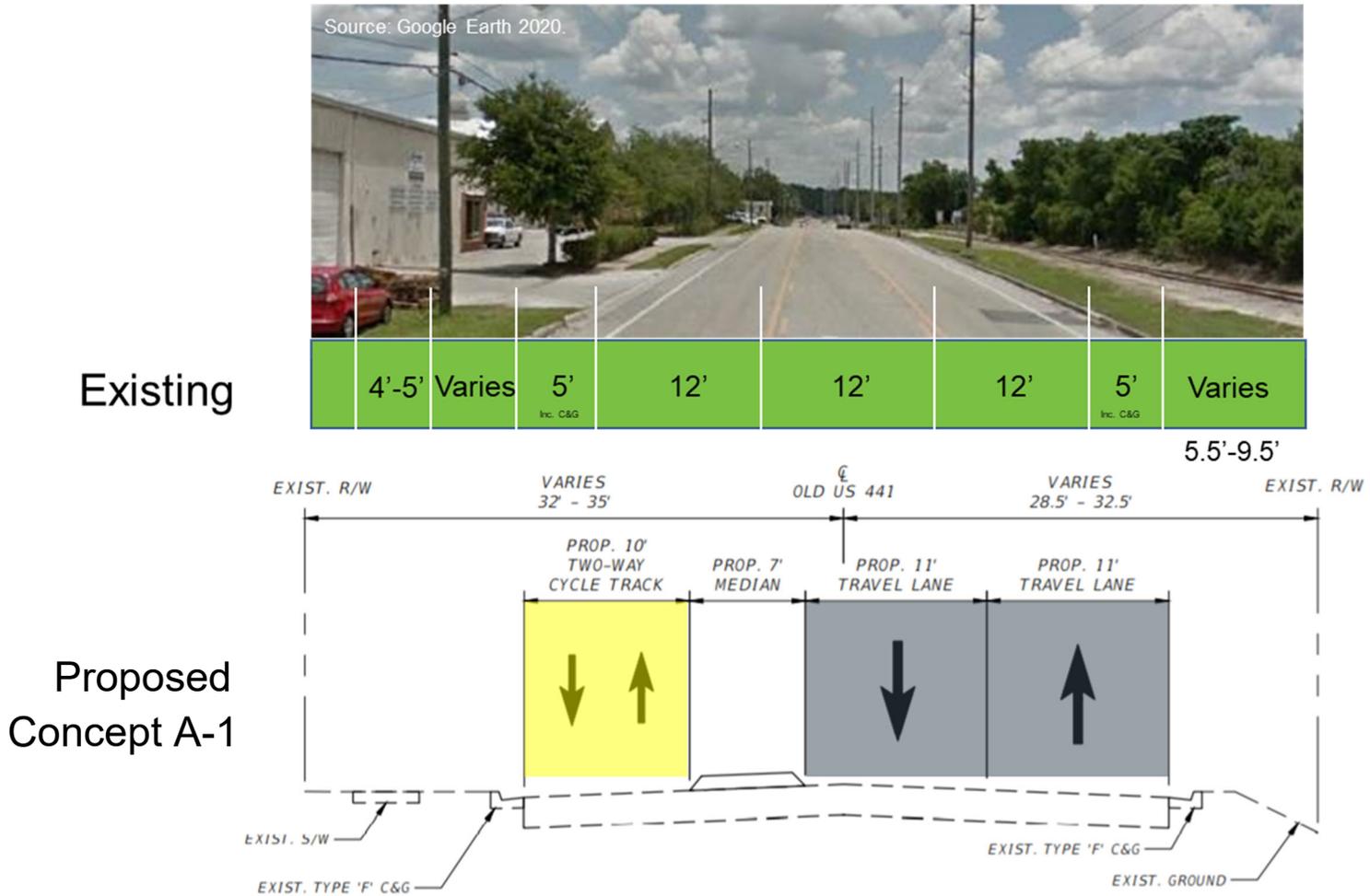
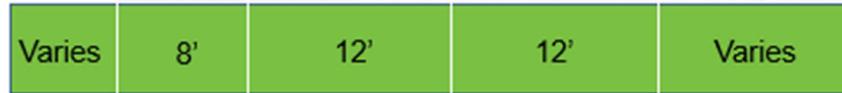


Figure 10 | Planning Concept A-1 Typical Section C-C

- 8.5-foot Sidewalk along Old U.S. 441 from Heim Road to Helen Street/W 8th Avenue



Existing



Proposed Concept A-1

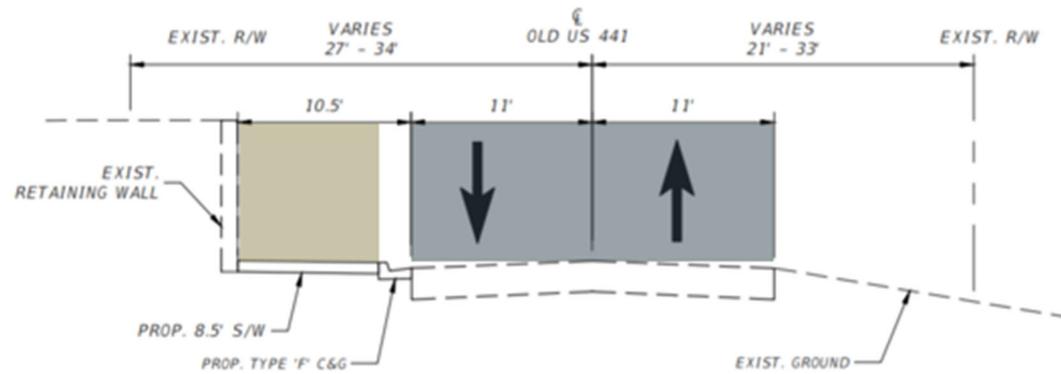


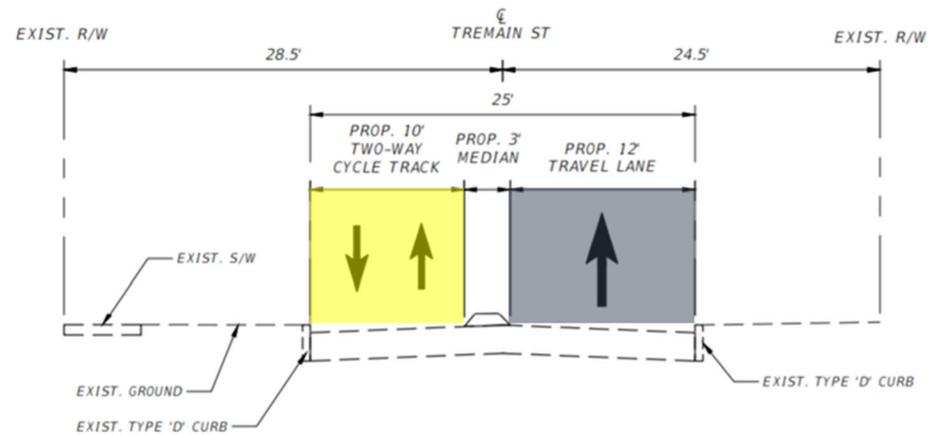
Figure 11 | Planning Concept A-1 Connector Alignment Typical Section D-D

- 10-foot Two-Way Cycle Track along Tremain Street from Charles Avenue to 5th Avenue



Existing

Proposed Connector Alignment



#### *5.4.1.2 Planning Concept A-2*

The first two segments of Concept A-2, from Wooton Park at the intersection of Main Street and Disston Avenue to the intersection of Old U.S. 441 and Heim Road, are the same as in Concept A-1, as depicted in Figure 12.

Concept A-2 picks up at the Old U.S. 441 and Heim Road intersection and continues east along Heim Road, then travels along the south side of Heim Road as a 12-foot trail, turns south along Helen Street and then east along West 8th Avenue. As depicted in Figure 13, the roadway shaded in gray remains the same, with a new 12-foot multi-use trail on the south side (shaded in green). The trail would replace the existing sidewalk.

Similar to Concept A-1, Concept A-2 terminates at the Tremain Street Trailhead and includes an extension of the existing cycle track to tie into the trailhead.

Figure 12 | Planning Concept A-2 Alignment



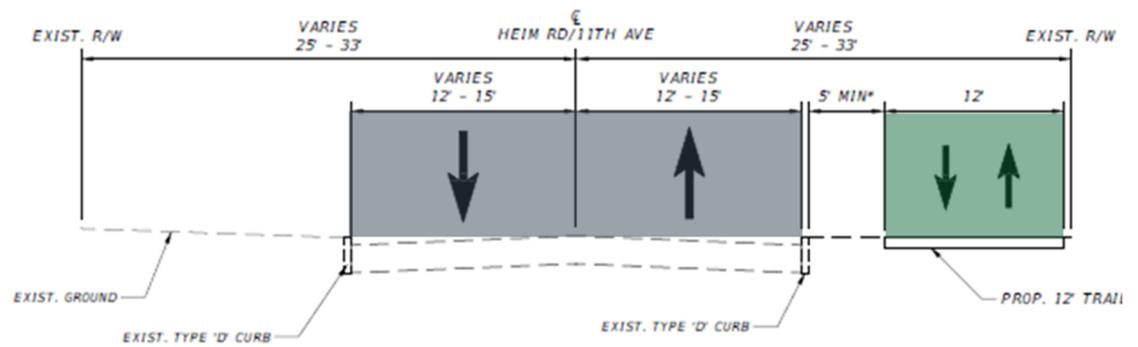
Figure 13 | Planning Concept A-2 Typical Section E-E

- 12-foot Shared-Use Path along Heim Road from Old U.S. 441 to Helen Street



Existing

Proposed Concept A-2



#### *5.4.1.3 Planning Concept B*

As depicted in Figure 14, Concept B includes a 14-foot wide trail within the existing CSX Railroad right of way along Lake Dora Drive, replacing the existing railroad tracks. The CSX Railroad is currently being used for rail car storage.

The proposed trail along the section of Lake Dora Drive from Disston Avenue to Dora Avenue runs down the center of roadway. As shown in Figure 15, the existing CSX Railroad would be replaced by the trail (shaded in green).

The remainder of Concept B travels within the existing CSX Railroad right of way and parallels the Old U.S. 441 corridor. Concept B terminates at Tremain Street. As shown in Figure 16, the 14-foot trail (shaded in green) would remain within the CSX Railroad right of way throughout the entire segment.

Figure 14 | Planning Concept B Alignment

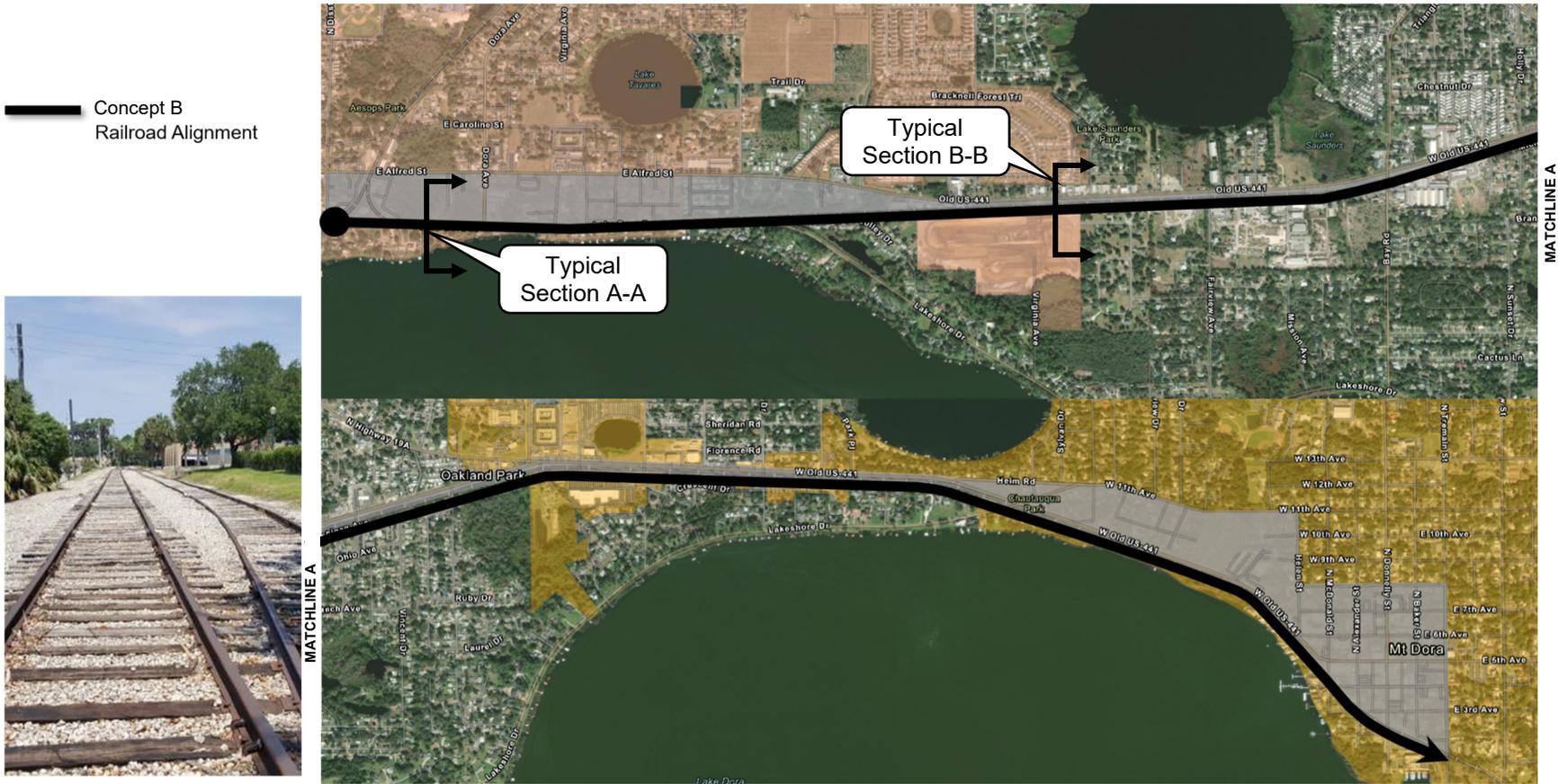


Figure 15 | Planning Concept B Typical Section A-A – 14-foot Trail

- Within CSX Railroad from Disston Avenue to Dora Avenue.



Proposed Railroad Alignment

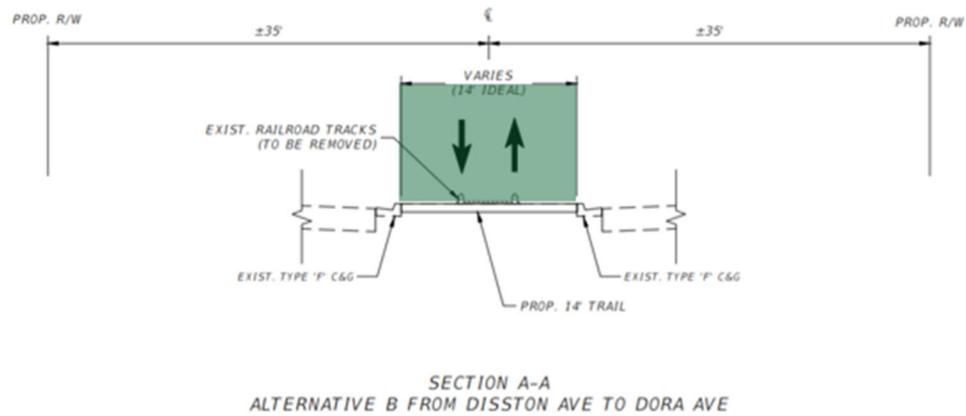


Figure 16 | Concept B Typical Section B-B

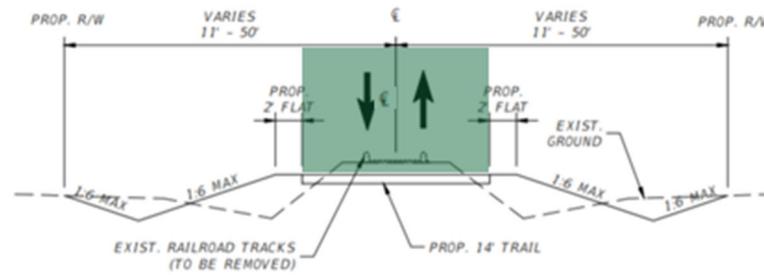
- 14-foot Trail within CSX Railroad from Dora Avenue to Tremain Street.



Existing



Proposed Railroad Alignment



## 5.5 Initial Concepts Comparison and Matrix

The evaluation criteria were developed based on the study goals and objectives for the Wekiva Trail Extension-Segment 5 Corridor. These criteria address socioeconomic characteristics, cultural and natural resources, physical characteristics, trail experience, traffic operations and safety, and project cost estimates to capture the development of the project. In addition, the criteria examine the qualitative factors such as community support and the continual support from maintaining municipalities. The following comparative evaluation examines each criterion and summarizes the assessment conducted for each concept. The evaluation process used these criteria to determine recommended corridors to be carried forward to the next phase of the project.

### 5.5.1 SOCIAL & ECONOMIC EVALUATION

#### 5.5.1.1 Consistency with Local Plans

A review of local transportation plans was performed to demonstrate the consistency of this project with regional and local transportation planning efforts. A summary of the project's consistency is provided below in Table 3, and the full analysis is documented in the Wekiva Trail Extension-Segment 5 (Tavares-Mount Dora Trail) Corridor Planning Study: Existing Conditions Report. The consistency with local plans is the same for each concept.

Table 3 | Consistency with Local Plans

Agency	Applicable Standard	Consistent with Project	Source
Lake County	<ul style="list-style-type: none"> <li>Objective VII-1.5 Trails and Greenways, references development of a comprehensive greenway, blueway, trails, equestrian and bikeway system</li> <li>Policy VII-1.5.1 Greenways and Blueways, references coordination of establishing and maintaining greenway and blueway trails</li> </ul>	Yes	<ul style="list-style-type: none"> <li>Lake County Comprehensive Plan, Planning Horizon 2030 (updated March 2018)</li> </ul>
	<ul style="list-style-type: none"> <li>The Tav-Dora Trail is included in the Lake County Trails Master Plan as part of the County's master trail system, to eventually connect to the regional and state trail systems.</li> </ul>		<ul style="list-style-type: none"> <li>Lake County Trails Master Plan (updated September 2018)</li> </ul>
Lake-Sumter MPO	<ul style="list-style-type: none"> <li>Identifies the Tav-Dora Trail Study (Wekiva Trail Extension-Segment 5) for a new trail.</li> </ul>	Yes	<ul style="list-style-type: none"> <li>Lake-Sumter MPO List of Priority Projects</li> </ul>

Agency	Applicable Standard	Consistent with Project	Source
City of Mount Dora	<ul style="list-style-type: none"> <li>• Transportation Element Policy 5.e., references future pedestrian and bike paths, per the City's Trails Master Plan.</li> <li>• Conservation Element Policy 2.k., references promoting public access to lakes through the use of pedestrian paths, trails or walkways.</li> </ul>	Yes	<ul style="list-style-type: none"> <li>• Mount Dora Comprehensive Plan 2032 (updated June 2018)</li> </ul>
	<ul style="list-style-type: none"> <li>• The Florida Central Railroad right of way is identified in the Trails Master Plan for future acquisition for a trail.</li> </ul>		<ul style="list-style-type: none"> <li>• Mount Dora Trails Master Plan (April 2009)</li> </ul>
City of Tavares	<ul style="list-style-type: none"> <li>• Objective 2-1.1, references providing Safe, Convenient, and Efficient Multimodal Transportation system utilizing roads, trails, rail, water and air as transportation mediums.</li> <li>• Objective 2-1.5 Pedestrian/Bicycles, references promoting a System of Bicycle and Pedestrian Ways in Planning for Transportation Facilities.</li> <li>• Policy 2-1.5.2 Tav-Lee Trail, references coordination with Lake County to analyze the feasibility of acquiring abandoned railroad right of ways within the City for use as regional bicycle and pedestrian paths.</li> </ul>	Yes	<ul style="list-style-type: none"> <li>• Tavares Comprehensive Plan (updated December 2011)</li> </ul>

**5.5.1.2 Maintaining Agencies and Community Support**

Support from the maintaining agencies and local communities are integral components to the success of a trail concept. Each of the three maintaining agencies are in support of the Wekiva Trail Extension-Segment 5 and are in discussions with CSX to negotiate use of the railroad right of way for the trail segment. Their support for each concept is shown in Table 4. The degrees of support (low/medium/high) were determined based on feedback and discussion from stakeholders and community representatives at the Project Visioning Team meetings and the Virtual Public Meeting, which are further described in Section 6.1 and in the Public Involvement Plan.

The Wekiva Trail Extension-Segment 5 study area has a population of approximately 20,500 people and over 8,868 households based on the 2017 American Community Survey (ACS) data. Support for the Wekiva Trail Extension-Segment 5 Corridor by the community within the study area is analyzed for each concept based on degree of support as shown in Table 4.

Table 4 | Maintaining Agencies & Community Support

<b>Evaluation Criteria</b>	<b>Concept A-1 (Old U.S. 441)</b>	<b>Concept A-2 (Heim Rd/11<sup>th</sup> Ave)</b>	<b>Concept B (Railroad)</b>
Maintaining Municipalities	Low	Low	High
Community Support	Low	Low	High

### 5.5.1.3 Right of Way Impacts

The total acreage of right of way impacts within the study area are identified in Table 5 for each concept. No relocations are anticipated with any of the concepts. The impacted right of way includes primarily privately-owned lands.

The right of way impacts for Concept B are pending discussion with CSX Transportation, which is currently under negotiation with the Cities of Mount Dora and Tavares and Lake County.

Table 5 | Potential Right of Way Impact(s)

<b>Evaluation Criteria</b>	<b>Concept A-1 (Old U.S. 441)</b>	<b>Concept A-2 (Heim Rd/11<sup>th</sup> Ave)</b>	<b>Concept B (Railroad)</b>
Total Parcel Impact(s)	8	8	8
<i>Private</i>	7	7	8
<i>Public</i>	1	1	0
Total Acres of Impact(s)	1.00	1.00	42.43
<i>Private</i>	0.97	0.97	42.43
<i>Public</i>	0.03	0.03	0.00

### 5.5.1.4 Community Facilities

The community services and social resources within the study area are displayed in the *Existing Conditions Report, Figure 27*, available under a separate cover. A synopsis of the resources present within the study area are shown in Table 6. The potential connectivity to social and cultural resources is similar for each concept.

Table 6 | Summary of Social Resources in the Study Area by Concept

<b>Evaluation Criteria</b>	<b>Concept A-1 (Old U.S. 441)</b>	<b>Concept A-2 (Heim Rd/11<sup>th</sup> Ave)</b>	<b>Concept B (Railroad)</b>
Parks and Recreational Facilities	6	6	6
Schools	2	2	2
Churches and Religious Institutions	7	7	7
Fire and Police	5	5	5
Medical and Emergency Operation Facilities	0	0	0
Other Public Buildings and Facilities	3	3	3
Other Significant Locations <sup>1</sup>	7	7	7
<b>TOTAL</b>	<b>30</b>	<b>30</b>	<b>30</b>

1. Chambers of Commerce, Shopping Centers and Hotels

**5.5.2 CULTURAL RESOURCES EVALUATION**

*5.5.2.1 Historic and Archaeological Resources*

Section 106 of the National Historic Preservation Act (NHPA) requires that historic and archaeological resources be considered in project planning for federally funded or permitted projects. Cultural resources or historic properties include any, “prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in the National Register of Historic Places (NRHP).”

There is one historic district and four individual sites that have been added to the National Register of Historic Places within the study area. Designated on October 1, 2009, the Mount Dora Historic District (NRHP #09000777) encompasses the historic downtown of Mount Dora. Roughly bounded by 3rd Avenue, 11th Avenue, Clayton Street, and Helen Street, the 230-acre district was added to the National Register of Historic Places for areas of significance including Architecture, Community Planning and Development, Commerce and Exploration/Settlement between 1877 and 1959.

It features 565 contributing and 146 non-contributing resources. Three contributing resources were previously listed as individual sites in the National Register:

- Atlantic Coast Line Railroad Station (NRHP #92000099) – 341 Alexander Street
- John P. Donnelly House (NRHP #75000560) - 530 Donnelly Street
- Lakeside Inn (NRHP #87000481) - 100 North Alexander Street

In addition to the resources identified in Mount Dora, the Harry C. Duncan House (NRHP #97000860) at 426 Lake Dora Drive in Tavares is listed in the National Register of Historic Places and located within the study area. Furthermore, a Cultural Resource Assessment Survey (CRAS) for the Wekiva Trail Project Development and Environment (PD&E) Study east of Tremain Street

was prepared for the Florida Department of Transportation (FDOT) in November 2012. The objective of this survey was to identify cultural resources within the project area of potential effect (APE) and assess their eligibility for listing in the National Register of Historic Places (National Register) according to the criteria set forth in 36 CFR Section 60.4.

This CRAS identified the CSX / Seaboard Coast Line Railroad (8LA2957) corridor as being eligible for inclusion in the National Register in the areas of Transportation and Commerce. According to the Historic Railroad Resources of Florida Multiple Property Submission (MPS) cover nomination prepared in 2001, a railroad resource must “retain their historic appearance to a high degree.” This would include its historic appearance and existence of significant railroad elements, including the tracks and ties. These sites are shown in the Existing Conditions Report, Figure 26. A comparison of the number of properties containing known historic or archaeological resources within 50 feet of the study area are summarized in Table 7.

*Table 7 | Cultural Resources Concepts Comparison*

<b>Evaluation Criteria</b>	<b>Concept A-1 (Old U.S. 441)</b>	<b>Concept A-2 (Heim Rd/11<sup>th</sup> Ave)</b>	<b>Concept B (Railroad)</b>
State Historic Preservation Office Structures <i>Number / Eligible or Potentially Eligible for listing in NRHP</i>	437 / 34	437 / 34	437 / 34
State Historic Preservation Office Bridges <i>Number / Eligible or Potentially Eligible for listing in NRHP</i>	1 / 1	1 / 1	1 / 1
State Historic Preservation Office Cemeteries <i>Number / Eligible or Potentially Eligible for listing in NRHP</i>	0 / 0	0 / 0	0 / 0
State Historic Preservation Office Sites <i>Number / Eligible or Potentially Eligible for listing in NRHP</i>	0 / 0	0 / 0	0 / 0
<b>Total</b> <i>Number / Eligible or Potentially Eligible for listing in NRHP</i>	<b>438 / 35</b>	<b>438 / 35</b>	<b>438 / 35</b>

#### 5.5.2.2 Section 4(f)

Section 4(f) refers to a portion of the Department of Transportation Act of 1966, now known as 23 U.S.C. § 138 and 49 U.S.C. § 303, which “governs the use of publicly owned parks, recreation areas, wildlife and waterfowl refuges, and public or private historic sites for U.S. DOT transportation projects.” These resources are typically referred to as Section 4(f) resources or properties (FDOT PD&E Manual 2019).

The Wekiva Trail Extension-Segment 5 is anticipated to have Section 4(f) impacts, due to the

proximity of each of the trail concepts to historic sites located within a quarter mile of each trail concept, which may incur *de minimis* impacts to the properties.

According to a November 2013 Wekiva Trail PD&E Study Cultural Resources Section 106 Effects Consultation Case Study Report prepared for FDOT, the CSX / Seaboard Coast Line Railroad (8LA2957) segment being evaluated in the Concept B alignment, was determined to be eligible for inclusion in the National Register. In addition, the Railroad Bridge over Oakland Drive, may be considered a contributing resource to the Seaboard Coast Line Railroad (8LA2957).

According to the Historic Railroad Resources of Florida Multiple Property Submission (MPS) cover nomination prepared in 2001, a railroad resource must “retain their historic appearance to a high degree.” The railroad segment parallel to Old U.S. 441 continues to exhibit its historic appearance and the significant railroad elements remain, including the tracks and ties. Though the portion of the railroad no longer serves its historic purpose, it still retains historical importance for its role in the development and transportation in the area. This portion of the CSX / Seaboard Coast Line Railroad was determined eligible for inclusion in the National Register in the areas of Transportation and Commerce. The removal of the resource’s essential materials, including the rails and ties, would constitute an adverse effect. Although the route will continue to be evident, as the new trail will not deviate from the railroad corridor, the railroad’s integrity will be compromised by the loss of materials.

In addition, there are several public parks, boat ramps, and conservation lands located within 0.25 mile of the corridor, as listed below.

- Lakeside Inn
- Donnelly, Annie E Park
- Seaboard Coast Line RR Grade
- Riley’s Park Resource Group (mobile home park)
- Mount Dora Historic District

### 5.5.3 NATURAL RESOURCES EVALUATION

#### 5.5.3.1 Wetlands

Wetlands are protected under Executive Order 11990, “Protection of Wetlands.” There are rivers, marshes and lakes located near the study area. The presence of surface waters increases the occurrence of wetlands. Desktop analysis of National Wetlands Inventory data and field visits were used to identify wetlands. Potential wetland impacts resulting from each concept are compared in Table 8.

Table 8 | *Wetland Impacts*

<b>Evaluation Criteria</b>	<b>Concept A-1 (Old U.S. 441)</b>	<b>Concept A-2 (Heim Rd/11<sup>th</sup> Ave)</b>	<b>Concept B (Railroad)</b>
Acreage of Potential Wetland Impacts	0.16	0.16	0.60

Direct wetland impacts can be minimized through use of a gravity wall or similar drainage modification. Indirect impacts include introduction of potential pollutants, increased runoff, a higher probability of ponding, and fluctuating water level elevations as a result of the trail improvements. The severity of each impact should be considered. Any indirect impact should comply and align with any applicable ordinances or proposed conservation or developmental plans set forth by the St. Johns Water Management District, particularly regarding the Ocklawaha and Middle St. Johns basins.

### 5.5.3.2 Floodplains

Protection of floodplains is required by Executive Order 11988, "Floodplain Management", USDOT Order 5650.2, "Floodplain Management and Protection," and Federal Aid Policy Guide 23 CFR 650A. Floodplains were identified using Federal Emergency Management Agency maps and geographic information system (GIS) data. The proposed concept alignments are in/adjacent to the 100-year and 500-year floodplain in several locations along the corridor. A comparison of the floodplain impacts from each trail concept are summarized in Table 9.

Table 9 | Floodplain Impacts

<b>Evaluation Criteria</b>	<b>Concept A-1 (Old U.S. 441)</b>	<b>Concept A-2 (Heim Rd/11<sup>th</sup> Ave)</b>	<b>Concept B (Railroad)</b>
Acreage of Potential Floodplain Impacts	0.30	0.30	0.71

Any fill of floodplain occurring with this project between the Seasonal Highwater Level (SHWL) and the floodplain elevation will require floodplain compensation. No net encroachment into the floodplain is allowed between the SHWL and the floodplain elevation.

### 5.5.3.3 Outstanding Florida Waters / Aquatic Preserves

There are no Outstanding Florida Waters within the study area. No impacts to the Outstanding Florida Waters are anticipated with any of the proposed build concepts.

### 5.5.3.4 Wild and Scenic Rivers

There are no wild and scenic rivers present in the study area and no impacts are anticipated with any of the proposed build concepts.

### 5.5.3.5 Wildlife and Habitat

Information regarding the primary wildlife and plant species are referenced in Table 10 and Table 11. Species were identified utilizing the Florida Geographic Data Library and their protection status was obtained from the Florida Fish & Wildlife Conservation Commission and the Environmental Protection Agency (EPA).

Direct impacts to protected species are not known at this time. Habitat fragmentation is categorized as a low risk for all concepts because the trail would extend adjacent to or within existing barriers rather than developing/clearing a new path through the forest.

Table 10 | Wildlife in Study Area

Wildlife Species Common Name	Scientific Name	Federal or State Listing	Protection Status
Florida Scrub-Jay	<i>Aphelocoma Coerulescens</i>	Federal	Threatened
Red-cockaded Woodpecker	<i>Picoides borealis</i>	Federal	Endangered
Wood Stork	<i>Mycteria americana</i>	Federal	Threatened
Eastern Indigo Snake	<i>Drymarchon corais couper</i>	Federal	Threatened
Sand Skink	<i>Neoseps reynoldsi</i>	Federal	Threatened
West Indian	<i>Manatee Trichechus manatus</i>	Federal	Threatened Marine Animal

Table 11 | Plant Species in Study Area

Plant Species	Scientific Name	Federal or State Listing	Protection Status
Britton's Beargrass	<i>Nolina brittoniana</i>	Federal	Endangered
Florida Bonamia	<i>Bonamia grandiora</i>	Federal	Threatened
Lewton's Polygala	<i>Polygala lewtonii</i>	Federal	Endangered
Okeechobee Gourd	<i>Cucurbita okeechobeensis ssp.</i>	Federal	Endangered
Papery Whitlow-Wort	<i>Paronychia chartacea</i>	Federal	Threatened
Pigeon Wings	<i>Clitoria fragrans</i>	Federal	Threatened
Pygmy Fringetree	<i>Chionanthus pygmaeus</i>	Federal	Endangered
Scrub Buckwheat	<i>Eriogonum longifolium var. gnaphalifolium</i>	Federal	Endangered
Scrub Plum	<i>Prunus geniculata</i>	Federal	Threatened
Wide-Leaf Warea	<i>Warea amplexifolia</i>	Federal	Endangered

#### 5.5.3.6 Coastal Zone Consistency / Coastal Barrier Resources

The National Coastal Zone Management Program, administered by the National Oceanic and Atmospheric Administration (NOAA), is a voluntary partnership between the federal government and coastal states and territories that works to address some of today's more pressing coastal issues. Lake County is not subject to the National Coastal Zone Management program.

## 5.5.4 PHYSICAL CHARACTERISTICS EVALUATION

### 5.5.4.1 Air Quality

There are no expected air quality impacts resulting from the project. Lake County is currently designated as being in attainment for the following Clean Air Act National Ambient Air Quality Standards (NAAQS): ozone, nitrogen oxide, particulate matter (2.5 microns in size and ten microns in size), sulfur dioxide, carbon monoxide, and lead.

### 5.5.4.2 Noise

There are no expected adverse noise impacts to the study area. Noise mitigation efforts are not anticipated.

### 5.5.4.3 Potential Contamination

EPA data helped to identify contaminated locations within the study area. *Existing Conditions Report, Figure 28* identifies locations of known contaminated sites within 500 feet of all concepts. For each concept, the degree of risk (low/medium/high) was determined based on the known criteria and proximity to potentially contaminated sites. All concepts were determined to have a low potential for contamination because they are not expected to have direct impacts to any contaminated facilities.

### 5.5.4.4 Utilities

Several utility services are located in the study area as summarized in *Table 1* in the *Existing Conditions Report*. The exact number of utilities impacted by each concept has not yet been determined; however, based on the utilities location along both sides of Old U.S. 441 and the railroad right of way, it is expected that Concepts A-1 and A-2 would have greater utility impacts than Concept B. A comparison of the utility impacts from each concept are summarized in *Table 12*.

*Table 12 | Utility Impacts*

<b>Evaluation Criteria</b>	<b>Concept A-1 (Old U.S. 441)</b>	<b>Concept A-2 (Heim Rd/11<sup>th</sup> Ave)</b>	<b>Concept B (Railroad)</b>
Level of Utility Impacts	Moderate	High	Low

### 5.5.4.5 Drainage

A comparison of the drainage impacts from each trail concept are summarized in *Table 13*. Conveyance must be maintained in all existing swales, and storage that is impacted by the proposed trail must be compensated for within the basin. Storm structures that are impacted must be replaced to maintain existing drainage patterns.

Table 13 | Drainage Impacts

Evaluation Criteria	Concept A-1 (Old U.S. 441)	Concept A-2 (Heim Rd/11 <sup>th</sup> Ave)	Concept B (Railroad)
Level of Drainage Swale Impacts	High	Moderate	Moderate

*Drainage Swale Impacts*

Concepts A-1, A-2 and B have the potential for existing drainage swale impacts. Concepts A-1 and A-2 have the potential to impact existing swales from Merry Road to Eudora Road. Concept A1 has the potential to impact existing swales 300’ south of Heim Road/11th Avenue to 520’ south of Heim Road/11th Avenue and Concept A2 consists of widening an existing sidewalk where no swales exist currently.

Concept B can potentially impact the swales on the south side of Old U.S. 441 from Merry Road to W-2 and from Poinsettia Drive to 300’ south of Heim Road/11th Avenue. The potential impact to swales under Concept B continues to the end of the project.

*Drainage Structure Impacts*

Each concept has the potential to impact existing drainage structures. If any of the proposed concepts are constructed, cross-drains will need to be extended.

Concepts A-1 and A-2 could potentially impact existing drainage structures on the south side of Old U.S. 441 from Merry Road to Eudora Road. Concepts A-1 and A-2 include a cycle track between Eudora Road and Heim Road/11th Avenue. If adding a raised median to separate the cycle track from the travel lanes blocks existing stormwater flow, the median may need to be slotted or drainage structures will need to be added to maintain existing drainage patterns. Concept A-1 includes potential drainage structure impacts along 8th Avenue, while Concept A-2 includes potential drainage structure impacts along Heim Road/11th Avenue, Helen Street and 8<sup>th</sup> Avenue.

Concept B could impact existing drainage structures on the south side of Old U.S. 441 from Merry Road to 5th Avenue. It is deemed that Concepts A-1, A-2 and B have the same level of drainage structure impacts. Potential drainage structure impacts may be avoided by reducing the width of the trail.

**5.5.4.6 Culvert Modifications**

Stormwater runoff is conveyed east from Merry Road to a 2’ X 2’ box culvert identified beneath Old U.S. 441, 700’ west of Bay Road. In order to accommodate the runoff from the paved trail along Old U.S. 441, the crossing culvert under is anticipated to be either extended, modified or replaced.

#### 5.5.4.7 Structures

As noted in Section 4.12 of the Existing Conditions Report, CSX Transportation owns and leases the railroad corridor paralleling Old U.S. 441 to the Florida Central Railroad (FCEN). The railroad crossing over Oakland Drive, is the only existing structure located within the study area. The bridge extends approximately 68 feet in width and is approximately 10.5 feet wide at the narrowest section. According to a 2012 Cultural Resource Evaluation conducted for the adjacent proposed Wekiva Trail, this railroad segment and railroad bridge are both likely eligible for inclusion in the National Register in the areas of Community Planning and Development, Commerce, and Transportation.

### 5.5.5 TRAIL EXPERIENCE

#### 5.5.5.1 Intersection, Side Street and Driveway Crossings

The potential number of intersections, side street and driveway crossings are identified for each concept in Table 14. Concept B would have significantly fewer crossings as compared to Concepts A-1 and A-2.

Table 14 | Intersection and Midblock Crossings

<b>Evaluation Criteria</b>	<b>Concept A-1 (Old U.S. 441)</b>	<b>Concept A-2 (Heim Rd/11<sup>th</sup> Ave)</b>	<b>Concept B (Railroad)</b>
Crossings at Signalized Intersections	Yes / 3	Yes / 3	Yes / 1
Side Street/Driveway Crossings	33 / 84	37 / 96	19 / 6

#### 5.5.5.2 Connections to Other Trails

Within the study area there are several well-known existing/planned trails. The trails listed and described in the *Existing Conditions Report, Section 4.14*, have the potential to be a connection to the Wekiva Trail Extension-Segment 5. The existing/planned trails in the study area include:

- Wekiva Trail
- Tav-Lee Trail
- North Lake Trail
- Sylvan Shores Park Trail (via proposed Sylvan Shores Connector)

#### 5.5.5.3 Nearby Households and Businesses

Any household within a 0.5-mile radius from the Wekiva Trail Extension-Segment 5 is accounted for and has been used to identify the number of nearby households for each concept. The potential number of nearby households and businesses observed from the study are the similar orders of magnitude for each concept as shown in Table 15.

Table 15 | Nearby Households and Businesses

Evaluation Criteria	Concept A-1 (Old U.S. 441)	Concept A-2 (Heim Rd/11 <sup>th</sup> Ave)	Concept B (Railroad)
Nearby Households (number of households within 0.5 miles)	5,583	5,510	5,040

5.5.6 TRAFFIC OPERATIONS AND SAFETY

5.5.6.1 Adjacent Roadway Traffic Volume

Old U.S. 441 from Disston Avenue in Tavares to C.R. 19 is classified by FDOT as a collector street in an urban area and is a two-lane collector. Old U.S. 441 from C.R. 19 to Tremain Street in Mount Dora is classified as a minor arterial in an urban area with an AADT of approximately 10,300 vehicles, according to FDOT 2018 AADT data. Between C.R. 19A and Tremain Street in Mount Dora, Old U.S. 441 is a minor arterial in an urban area with an AADT of approximately 10,400 vehicles. Pedestrian and bicycle count data was not available along the corridor; however, cyclist and pedestrians were observed along Old U.S. 441 primarily in the downtown areas of Tavares and Mount Dora during field review.

5.5.6.2 Adjacent Roadway Speed Limit

The posted speed limit varies depending on the segment of the roadway. Speeds posted by roadway segment referenced in the *Existing Conditions Report, Figure 11* are used to analyze the adjacent roadway speed limit for each concept, in miles per hour (mph). The posted speed by roadway segment and adjacent roadway segments are shown in Table 16.

Table 16 | Speed Limit

Evaluation Criteria	Concept A-1 (Old U.S. 441)	Concept A-2 (Heim Rd/11 <sup>th</sup> Ave)	Concept B (Railroad)
Alfred Street	45 mph	45 mph	
Old U.S. 441 (from Anderson Drive to Eudora Road)	45 mph	45 mph	45 mph
Old U.S. 441 (from Eudora Road to W. 5 <sup>th</sup> Avenue)	35 mph	35 mph	35 mph
Heim Road/West 11 <sup>th</sup> Street		25 mph	
Lake Dora Drive			35 mph
Lakeshore Drive			35 mph
West 8 <sup>th</sup> Avenue	25 mph	25 mph	
West 5 <sup>th</sup> Avenue	25 mph	25 mph	

<b>Evaluation Criteria</b>	<b>Concept A-1 (Old U.S. 441)</b>	<b>Concept A-2 (Heim Rd/11<sup>th</sup> Ave)</b>	<b>Concept B (Railroad)</b>
Dora Avenue	35 mph	35 mph	35 mph
David Walker Drive	35 mph	35 mph	35 mph
S.R. 19A (from south of S.R. 441 to Eudora Road)	45 mph	45 mph	45 mph
Bay Road	35 mph	35 mph	35 mph
Eudora Road (from Old U.S. 441 to Lake Center Drive)	25 mph	25 mph	25 mph
Donnelly Street	25 mph	25 mph	25 mph
Tremain Street	25 mph	25 mph	25 mph

### 5.5.6.3 Trail Offset from Roadway

An appropriate trail offset from the roadway can prevent crashes on the Wekiva Trail Extension-Segment 5 Corridor. Trail offset (reported in feet) is identified for each concept in Table 17.

Table 17 | Trail Offset

<b>Evaluation Criteria</b>	<b>Concept A-1 (Old U.S. 441)</b>	<b>Concept A-2 (Heim Rd/11<sup>th</sup> Ave)</b>	<b>Concept B (Railroad)</b>
Trail Offset from Roadway	0' – 5'	3' – 5'	19' – 44'

### 5.5.7 COST ESTIMATES

The estimated preliminary cost for the Wekiva Trail Extension-Segment 5 Corridor varies from \$5.35 million to \$6.00 million (in 2019 dollars), which includes costs for construction, design, and CEI as shown in Table 18. Utility relocation, wetland mitigation, and right of way costs will be determined during the project design phase. The right of way costs are currently being negotiated between the railroad owner (CSX) and the Cities of Tavares and Mount Dora.

The cost estimate was prepared using FDOT's Long Range Estimating (LRE) system and FDOT cost per mile. Design and CEI costs were estimated as 15 percent of the construction cost.

Table 18 | Cost Estimates

Item	Estimated Cost (in millions)		
	Concept A-1 (Old U.S. 441)	Concept A-2 (Heim Rd/11 <sup>th</sup> Ave)	Concept B (Railroad)
Construction	\$2.97	\$2.20	\$3.30
Design (15%)	\$0.45	\$0.33	\$0.50
CEI (15%)	\$0.45	\$0.33	\$0.50
Contingency (5%)	\$1.49	\$1.10	\$1.65
<b>TOTAL</b>	<b>\$5.35</b>	<b>\$3.96</b>	<b>\$5.94</b>

The above costs do not include costs for purchasing right of way costs. The estimated right of way costs for each concept are as follows:

- Concept A-1 and A-2: ~\$808,000
- Concept B: ~\$23.4 million

## 5.5.8 TRAIL EVALUATION MATRIX

The following Trail Evaluation Matrix (Table 19) summarizes the impacts from the three concepts outlined in this report. The preferable option for each category is highlighted where there are differences amongst the concepts.

Table 19 | Trail Concepts Evaluation Matrix

Evaluation Criteria	Concept A-1 (Old U.S. 441)	Concept A-2 (Heim Rd/11 <sup>th</sup> Ave)	Concept B (Railroad)
<b>TRAIL EXPERIENCE</b>			
Crossings at Signalized Intersections	Yes / 3	Yes / 3	Yes / 1
Side Street / Driveway Crossings	33 / 84	37 / 96	19 / 6
New Bridge Crossings	1	1	0
Railroad Crossings	3	1	6
Residential properties directly impacted by trail	17	41	0
Nearby Households (number of households within 0.5 miles)	5,583	5,510	5,040
<b>NATURAL</b>			
Estimated Wetland Impacts (acres)	0.16	0.16	0.60
Estimated Floodplain Impacts (acre-ft)	0.30	0.30	0.71
<b>PHYSICAL</b>			
Level of Utility Impacts	Moderate	High	Low
Level of Drainage Swale Impacts	High	Moderate	Moderate
Potential Bridge Crossings (number of bridge crossings)	1	0	0
<b>CULTURAL</b>			
Risk of Impacting Historical Sites	Moderate	Moderate	Low
Risk of Impacting Archaeological Areas	Low	Low	Low
<b>SOCIAL &amp; ECONOMIC</b>			
Consistency with Local Plans	Yes	Yes	Yes
Nearby Community Features (number of features within 0.5 miles)	35	35	35
Maintaining Agency Support	Low	Low	High

<b>Evaluation Criteria</b>	<b>Concept A-1 (Old U.S. 441)</b>	<b>Concept A-2 (Heim Rd/11<sup>th</sup> Ave)</b>	<b>Concept B (Railroad)</b>
<b>TRAFFIC &amp; SAFETY</b>			
Adjacent Roadway Traffic Volume (AADT)	10,300	10,300	1,800 / 10,300
Adjacent Roadway Posted Speed Range (MPH)	35 to 45	35 to 45	35 to 45
Distance from Thoroughfare (weighted average of trail distance from adjacent roadway in feet)	0' - 5'	3' - 5'	19' - 44'
<b>RIGHT OF WAY IMPACT</b>			
Estimated Acres of New Right of Way / Easements	1.0	0.0	42.4
Number of Property Owners (Government Owned / Privately Owned)	1 / 7	1 / 7	0 / 8
<b>COST ESTIMATE</b>			
Right of Way	Low	Low	High
Construction	~\$5.35	~\$3.96	~\$5.94

### 5.6 Selected Concept Description

Based on concept-level design, environmental impact analysis, and stakeholder input, all three concepts will be carried forward to the next phase of the Project Development and Environment (PD&E). Next steps are described in Section 7.0.

### 5.7 PEL Questionnaire

Federal Highway Administration's Planning and Environmental Linkage (PEL) Questionnaire is intended to ensure that planning information and decisions are properly documented to be consistent with the National Environmental Policy Act (NEPA). FDOT's Efficient Transportation Decision Making (ETDM) process is considered an equivalent approach to FHWA's Planning and Environmental Linkage (PEL) Questionnaire. If the project progresses to a Project Development and Environmental Study, then FDOT's ETDM process will be utilized.

## 6 Public Involvement

The public involvement process for this study was comprised of three primary outreach strategies: 1) Project Visioning Team meetings, 2) Agency and Stakeholder meetings, and 3) a Public meeting. As described below, the level of public engagement methods, as well as detailed meeting summaries, can be found in the Wekiva Trail Extension-Segment 5 Public Involvement Plan (PIP).

### 6.1 Project Visioning Team

To assist the project team in the development and assessment of potential concepts, a Project Visioning Team (PVT) was assembled. The PVT comprised of local government representatives, community stakeholders, business owners, and interested participants. The PVT meetings were held on June 30, 2019 and on January 28, 2020. The role of the PVT is to provide input on the trail concepts and developments, recommend concepts to be advanced for further study, and share local knowledge and history. Further information regarding each PVT meeting is below.

#### 6.1.1 PROJECT VISIONING TEAM MEETING #1

The purpose of the first PVT meeting held on June 30, 2019 was to provide an overview of the Wekiva Trail Extension-Segment 5 Corridor Planning Study process, discuss existing conditions within the trail study area, obtain information regarding the PVT members' ideas for a preferred concept as well as their insight on what the project team should consider in design. Discussions on existing geometric conditions included right of way variations, drainage elements, and utility locations helped the project team better understand the issues facing the construction of the corridor. Further topics covered during the first PVT meeting included clarification on the procedure for developing the trail alignment, and any potential obstacles faced with developing concepts given the available existing data and local knowledge shared. The PVT Meeting Summary is included as Appendix B.





### 6.1.2 PROJECT VISIONING TEAM MEETING #2

The purpose of the second PVT meeting held on January 28, 2020 was to provide refined concepts with corresponding evaluations. PVT members discussed the evaluation criteria and expressed their opinions and preferences regarding the two primary concepts as presented. There was general consensus amongst all PVT members that Concept B would be a better option for bicyclists of all skill levels and pedestrians. When surveyed by agency, representatives from Mount Dora, Tavares, Lake County and the Lake County MPO all preferred Concept B (trail within the CSX Railroad right of way) with a 14-foot trail. The PVT Meeting Summary is included as Appendix B.



## **6.2 Public Meeting**

Due to the COVID-19 pandemic, the public meeting for this project was held as virtual meeting on September 9, 2020 at 10:00 AM. The virtual meeting was held consistent with the State of Florida Governor's Temporary Order on Meetings. The virtual meeting was hosted by the cities of Tavares and Mount Dora in coordination with Lake County, Lake Sumter MPO and FDOT.

At the conclusion of the meeting, the meeting recording remained on the City of Tavares' website for post-meeting replay until September 16, 2020. Notification for the public meeting was mailed to over 1,400 properties within the Wekiva Trail Extension-Segment 5 project study area, as well as e-mailed to interested citizens and stakeholders. Notification was also provided to applicable governmental agencies and elected and appointed officials, as outlined within the PIP. On August 26, 2020 the public meeting advertisement was published in the *Daily Commercial*.

Members of the public participated in the meeting by submitting their comment(s) to [trail@tavares.org](mailto:trail@tavares.org). The public comments and responses by the City of Tavares and FDOT are included in the PIP.

Over 270 interested parties viewed the virtual meeting.

## **7 Next Steps and Commitments**

The Wekiva Trail Extension-Segment 5 Project will move forward into a PD&E study in 2021 following the completion of this corridor planning study. The PD&E study will be completed by the local agencies (City of Tavares, City of Mount Dora and/or Lake County). The recommended planning concept will be finalized as part of the PD&E study.

## **Appendices**

Appendix A: Concept Plans

Appendix B: Public Involvement Plan