



November 30, 2021

Professional Engineering Design Services for

Wekiva Trail, Segment 1

Presented to: Lake County, FL



- **27+ years of experience**
 - With JMT since June 2020
 - 27 years working with FDOT, FTE, CFX, Volusia, Seminole and Osceola Counties
 - The last 10 years has successfully led over 10 Design Build projects as a PM or EOR totaling over 1.2 Billion in construction
- **Similar Project Experience includes:**
 - Project Manager for Wekiva Parkway 4A/4B from CR 435 to SR 46, FDOT
 - 1st Wekiva Parkway Project Constructed
 - Coordinated with Lake and Orange County
 - Knowledge of local area
 - Project Manager for Phase 4B and 5 East Central Regional Trail Rail, Volusia Co.
 - 19 miles of Rails to trails design and construction
 - Design of 2 trail heads and 4 bridges
 - LAP project with Volusia County and FDOT
 - Project Manager for Sidewalk and Misc. Design Build Push Button, FDOT
 - SR 471 Sidewalk from CR 478A to Central Avenue in Webster
 - SR 15 Sidewalk from New York Avenue to Minnesota Avenue
 - SR 40 Sidewalk from I-75 to NW 27th Avenue in Ocala
 - SR 5A Sidewalk at Bellevue Avenue in Daytona Beach
 - Principal and QA/QC for Orange Blvd Safety Improvements, Seminole Co.
 - Includes the construction of a 10-ft Shared Use Path
 - Right-of-way mapping and acquisition of 95 Parcels
 - Principal and QA/QC for Partin Settlement Road Reconstruction, Osceola Co.
 - Includes the construction of a 10-ft Shared Use Path
 - Right-of-way mapping and acquisition of 45 Parcels

Luis Tellechea, PE

Project Manager



- 14+ years of experience
 - With JMT since August 2018
 - 14 years working with FDOT, FTE, Seminole and Osceola Counties
 - Technical knowledge, expertise in trail design, project management experience, and leadership skills makes him an excellent Deputy PM/EOR
- Experience on similar projects
 - Project Manager and Roadway EOR for Orange Blvd Safety Improvements, Seminole Co.
 - Includes the construction of a 10-ft Shared Use Path
 - Right-of-way mapping and acquisition of 95 Parcels
 - Project Engineer for SR 46 Wekiva 7B Reconstruction, Seminole Co. FDOT District 5
 - Includes the construction of a 10-ft Shared Use Path
 - Project Engineer for SR 46 Wekiva 3B Reconstruction, Lake Co., FDOT District 5
 - Includes section of US 441 under Rail Bridge, a shared use path, and coordination with the City of Mt. Dora and Lake County
 - Project Manager for Coast to Coast Trail – Orange County Gap Segment #2, Orange County, FDOT District 5
 - Construction of 10-ft concrete shared use path in Orange County
 - Project Engineer for SE 4th St. Reconstruction, City of Gainesville, FL
 - Includes a construction of dedicated bike path, sidewalk and raised crossing for the Gainesville Hawthorne State Trail

Jason Flick, PE

Deputy Project Manager | Trail Engineer of Record



Theodore Sparks, PE, SE, CBI

Structures

Heath & Lineback Engineers, Inc.



21+ years of Experience

- Bridge design, bridge inspection, and bridge rehabilitation plans. Various pedestrian trail facilities including timber boardwalks, steel truss bridges, and flat slab bridges.

Experience on Similar Projects

- Multiple Steel Truss Pedestrian Bridge Designs along PATH400,
- Multiple Pedestrian Bridge Designs along PATH400 Trail Ext.
- Flat Slab and Steel Truss Pedestrian Bridge Design along Bob Callan Trunk Trail, Phase II, Section B,
- Flat Slab and Steel Truss Pedestrian Bridges along Southwest Beltline Connector Trail – Phase 1, PATH Foundation
- Multiple Steel Truss Pedestrian Bridges along Tanyard Atlanta Memorial Park Trail
- Flat Slab and Steel Truss Pedestrian Bridges along Rockdale River Trail – Phase C

Walter Smith, PSM, PLS, PS

Mobil LiDAR Survey Manager

ESP Associates, Inc



42 years of Experience

- Experience working in construction engineering and surveying industry
- Previous FDOT District Five District Location Surveyor
- Experience in Hy-Rail® equipped vehicles operating on both rail tracks and conventional roads

Carrie Read, PLA, ASLA

Landscape Architecture Group Leader

S&ME












15+ years of Experience

- Areas of specialty and interest include streetscape design, green infrastructure and sustainable sites utilizing LEED principles such as multi-modal transportation and bicycle facilities

Experience on similar projects

- Lake Wekiva Trail Segment 5 PD&E
- Lake County Continuing Services for Landscape Architectural Services
 - Citrus Grove Rd.
 - Fire Station No. 109
 - Fire Station No. 15

JMT Staffing Plan and Work Breakdown

PROJECT TEAM MEMBER	PROJECT ROLE	(% OF PROJECT)	AVAILABILITY OF KEY MEMBERS
	Project Management, Trail Design, Safety, Signing and Marking, Drainage/Permitting	65%	90%
 Heath & Lineback Engineers, Inc.	Structures Design	12%	85%
	Mobile LiDAR/ Right of Way Mapping	10%	65%
 Geotechnical and Environmental Consultants, Inc.	Geotechnical & Contamination Review	5%	65%
 UTILITY ENGINEERING & SURVEY	Subsurface Utility Survey & Utility Coordination	2%	40%
	Landscaping Design	2%	65%
	Public Involvement	2%	45%
	Asbestos & LBP Survey	2%	55%
	Right of Way Acquisition	(As Needed)	TBD

LAP Process Familiarity

The project will be considered a LAP Classification Class C – off the State and National Highway Systems and includes structural components such as a pedestrian bridge over a roadway.

Project Classification	Design Criteria and Standards	Specifications
Class C	<ul style="list-style-type: none"> For Structural Components – the design elements are to meet the <u>FDOT Design Manual</u>, <u>FDOT Structures Manual</u> and <u>FDOT Standard Plans</u>. For all other Components – the design elements are to meet the <u>Florida Greenbook</u>. 	<ul style="list-style-type: none"> For Structural Components – <u>FDOT Standard Specifications</u>. For all other Components – <u>LAP Big 4 or Approved Local Agency Specs</u>.

KEY TRAIL ELEMENTS

DESIGN ELEMENT	FLORIDA GREENBOOK 2018	FDOT DESIGN MANUAL 2021	GREENBOOK SOURCE	FDM SOURCE
Shared Use Path Width	10-14'	12' (10' for constrained R/W not on SUNTRAIL)	Chapter 9, Section C.1	Section 224.4
Shared Use Path Longitudinal Grade	5% max	5% max	Chapter 9, Section C.1	Section 224.6
Separation of Shared Use Path from Travelway	5'	4' from BOC	Chapter 9, Section C.2	Section 224.12
Horizontal Clearance from Shared Use Path	2' min with 1:6 slope	4' with a 2' minimum wide 1:6 max grade	Chapter 3, Section C.1	Section 224.7
Pedestrian Drop Off Criteria	1' Flat (1:6 max) then max 1:2 slope	1' Flat (1:6 max) then max 1:2 slope	Figure 8-5	Figure 222.4.1

KEY STRUCTURAL ELEMENTS

DESIGN ELEMENT	FLORIDA GREENBOOK 2018	FDOT DESIGN MANUAL 2021	GREENBOOK SOURCE	FDM SOURCE
Vertical Clearance (Pedestrian Bridge)	17' minimum	17.5' minimum for new bridge	Chapter 3, Section C.7.j.4(b)	Table 260.6.1

Task	2022	Feb.	March	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.	2023	Jan.	Feb.
NTP		★													
Survey - Rail LiDAR		█													
Public Involvement Kickoff			★												
Line & Grade Plans		█													
County/FDOT Review (L&G)					█										
Initial Plans						█									
County/FDOT Review (Initial)								█							
Final Plans									█						
Virtual Public Outreach Meeting										★					
R/W Maps									█						
County/FDOT Review (Final)												█			
Finalize Plans														█	
Plans & R/W Maps Complete															★

Through time savings in Survey & Initial to Final Plans Preparation the JMT Team can produce Final Plans and R/W Maps in 12 Months!

Hy-Rail System

- Provides detailed scanned collection from the Rails minimizing the need for supplemental data within the corridor and saving substantial time
- Single Pass Scans will collect the detailed point cloud data in a contiguous process minimizing data mergers and processing time
- Hy-Rail System provides safe and efficient data collection
- Horizontal and Vertical Control will be set adjacent to the rails allowing the scanned data to be reconciled in a short period of time



Hy-Rail System

VZ400i Semi-Mobile Scanner

- Supplemental scans will be collected utilizing the VZ400i system
- Complement the minor areas that will need further densification along the corridor
- Conventional survey will be minimized by the use of scanning technology for cross section verification and the supplemental survey for drainage structures and minimal obscure areas along the corridor

**Utilizing this methodology
will deliver the topographic
data for design in 30-45
days!**

**Expediting design schedule
by 4 months!**



VZ400i Mobile Scanner



- ★ 4 – Raised Side Street Crossings
- ★ 10 – Side Street Crossings
- ★ 1 – Highway Mid-Block Crossing (SR 46)
- ★ 1 – Enhanced Side Street Crossing
- 2 – Pedestrian Bridges
- 2 – Pedestrian Underpasses

Trail Design Approach

Typical Section:

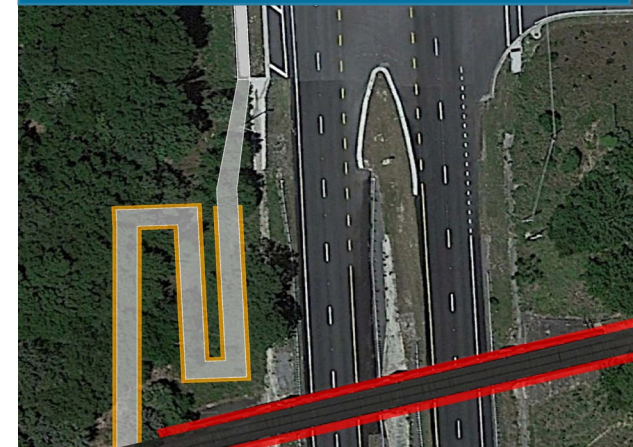
- A 14-foot asphalt paved trail with 2-foot shoulders and 1:4 tie-down slopes to avoid any pedestrian drop-off issues.
- Eight feet of horizontal clearance will be provided on both sides of the trail per Lake County preference.
- The trail will have a 2% maximum cross-slope pitched towards a shallow drainage swale along one side of the trail to provide positive drainage as well as prevent erosion. This swale can be placed on either side of the trail to avoid impacts to wetlands and adjacent properties.
- A maximum 5% longitudinal grade of 5% will be maintained to avoid the need for handrails.
- With the use of the existing rail footprint, minimum horizontal geometry will be exceeded and there will be no need for superelevation.

JMT Team Innovative Safety and Enhancement Concepts:

- **Raised Side Street Crossing in Mount Dora City Limits (Safety)**
 - Crossings at side streets (Grandview Street, Clayton Street, Highland Street, Rossiter Street) will be raised to improve pedestrian safety.
 - Slows traffic down and utilized as a traffic calming technique.
- **Switch-back Trail Connection at US 441 sidewalk (Enhancement)**
 - With the completion of the sidewalks along US 441 to the north of the existing rail bridge, a switchback connection can be provided to increase accessibility to the trail at minimal cost.
- **Enhanced Side Street Crossing at Mid-Florida Materials (Safety)**
 - Due to high truck traffic (98%) additional signs on both the trail and side street will be provided.
 - Enhanced pedestrian pavement markings to be provided at the location.



Raised Side Street Crossing



Switch-back at SR 441



Trucks at Mid Florida

JMT Team Innovative Concept (Enhancement and Safety) – North Tremain Street

Benefits

- Removes the deficient vertical clearance condition on North Tremain Street below the new pedestrian bridge. To meet Greenbook criteria for a pedestrian bridge above a roadway, the bridge would need to have a clearance of **17-feet per Chapter 3 Section C.7.j.4(b)**.
- The sidewalk gap between the marina and the proposed trailhead can be constructed without the need for new retaining walls below the rail bridge. Through discussions with the local residents, this is a highly used walking route.
- Increases accessibility for emergency response vehicles.
- Eliminates the need for pier protection on the piers of the existing wood bridge. The footprint for the pier protection elements will not fit.
- The existing rail bridge can remain in-place after further fortification to ensure the viability of the existing bridge. The local residents have expressed a great interest in maintaining this existing rail bridge.
- This concept meets the PD&E commitment to **Salvage and Reuse Existing Railroad Elements**.
- **\$250,000 in construction cost savings over the construction of a new pedestrian bridge.**

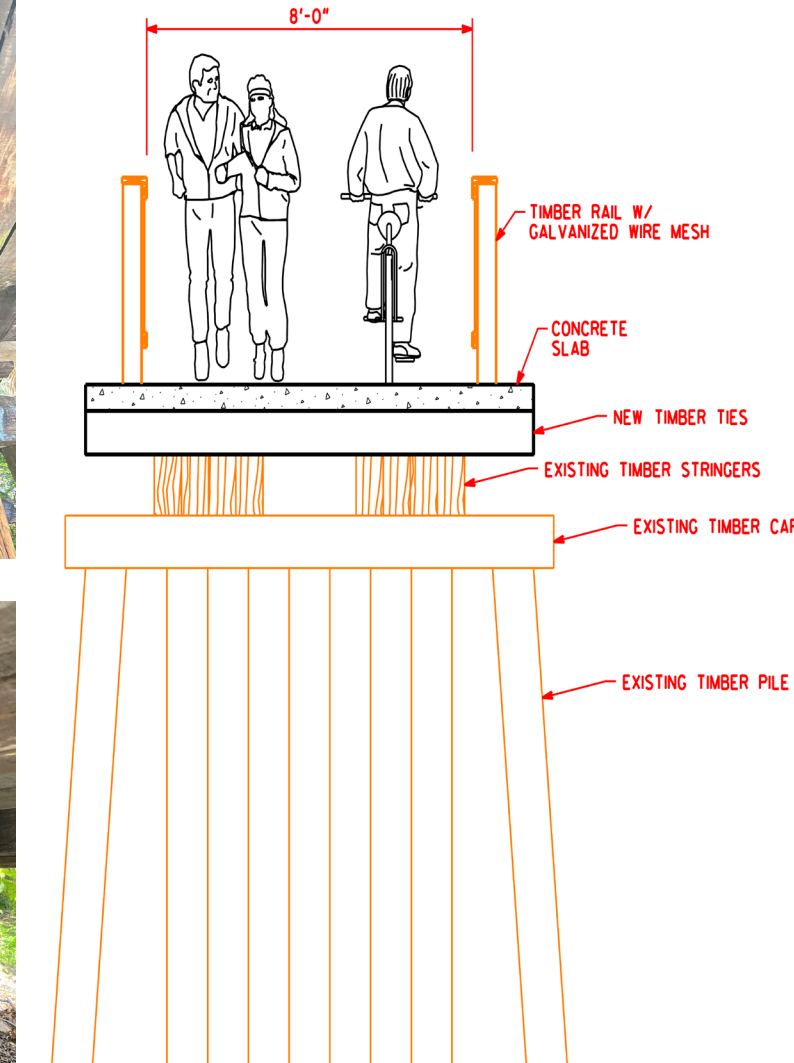


- ✓ Extend Baker Street to connect to Charles Avenue
- ✓ Remove T-intersection at North Tremain Street
- ✓ Construct safe pedestrian crossing from trailhead and neighborhood to the Marina

North Tremain Street Bridge

Proposed Solution

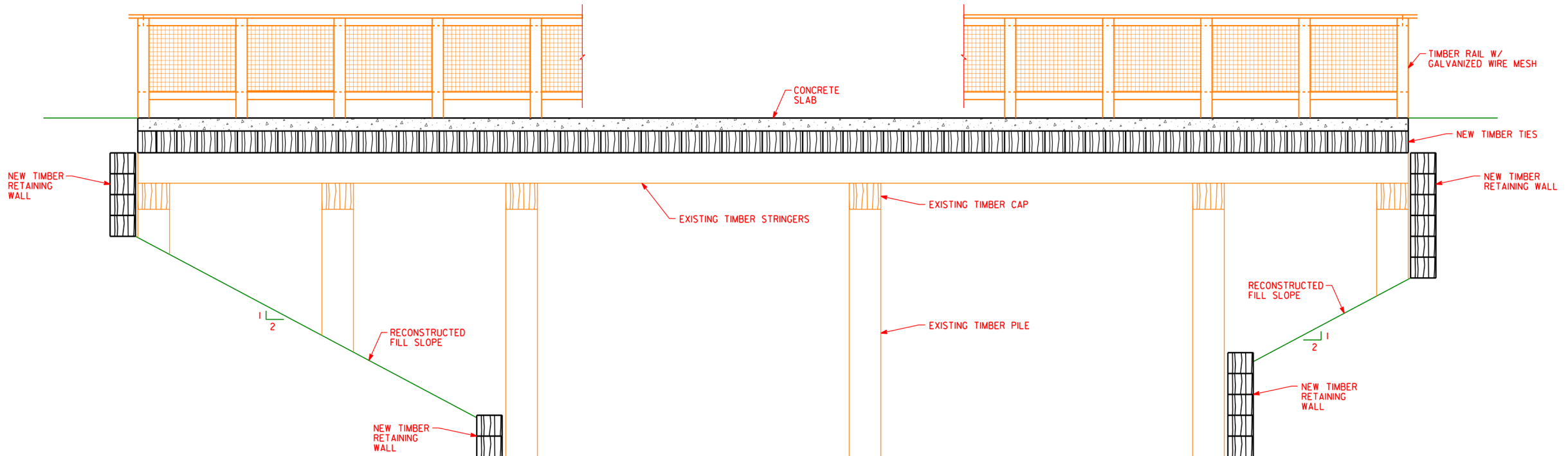
- Maintain original characteristics of the structure
- Hands-on inspection of entire structure
- Load rate based on AASHTO LRFD Specifications
- Test for hazardous material and contamination such as asbestos and lead-based paint (by Aerostar).
- Maintain major structural elements and replace/strengthen deteriorated elements as required to support proposed trail loads
- Replace timber ties
- Construct concrete slab with timber railing



North Tremain Street Bridge

Proposed Solution

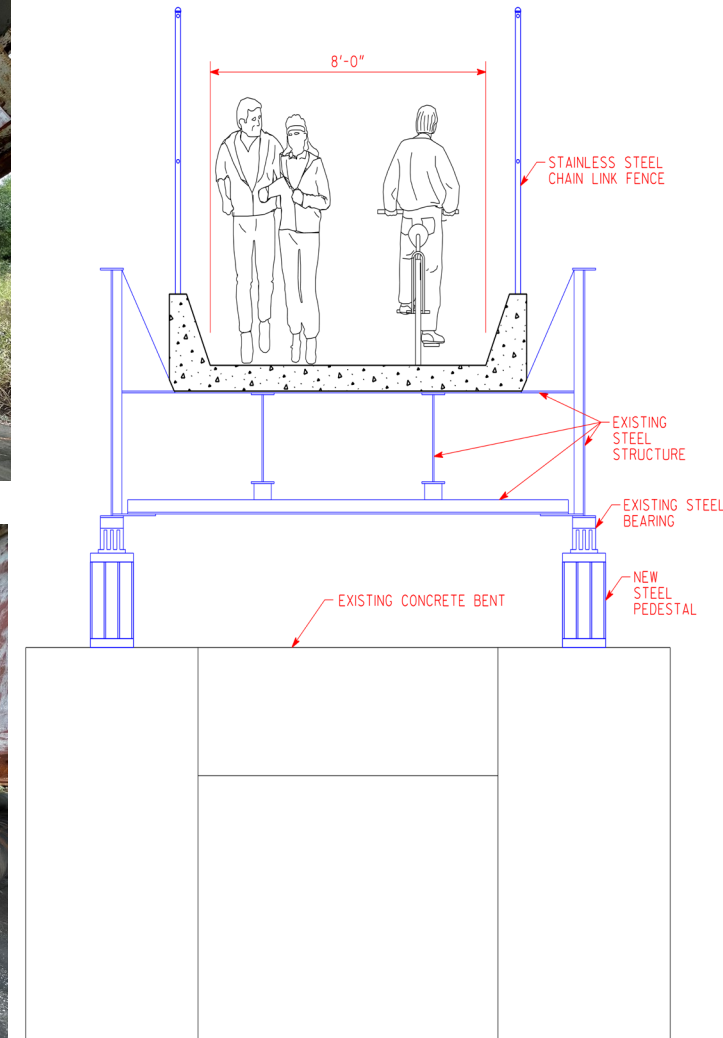
- Reconstruct retaining walls at end bents
- Reconstruct fill slopes and retaining walls at the toe
- Maintain opening under bridge for pedestrian access to trailhead



US 441 Bridge

Proposed Solution

- Maintain original characteristics of the structure
- Hands-on inspection of entire structure
- Load rate based on AASHTO LRFD Specifications
- Test for hazardous material and contamination such as asbestos and lead-based paint (by Aerostar).
- Maintain major structural elements and replace/strengthen deteriorated elements as required to support proposed trail loads
- Jack entire structure to satisfy vertical clearance requirements
- Repaint entire structure
- Remove existing ballast
- Rehabilitate concrete slab as needed
- Avoid utilities on the east side of the bridge



Landscaping/Hardscaping

A Landscaping Opportunity plan will be developed along with the line and grade Plans to identify optimal locations for landscaping and hardscaping elements such as landscaped splitter islands, benches and tree planting. The preliminary locations of these elements are as follows:

- Side Street crossings
- Underpasses at Highland Street and SR 453 (Wekiva Section 2C)

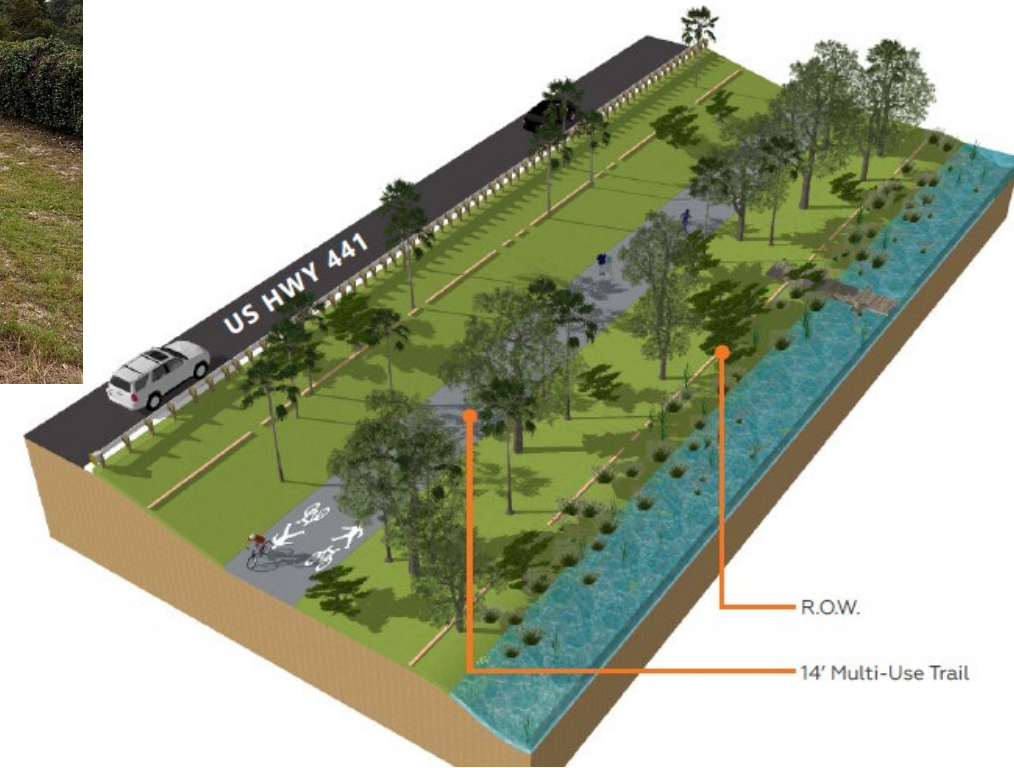
Additionally, JMT's teaming partner S&ME utilizes 3D modeling and visualization throughout the landscape development phase to help in the Public Involvement process to maintain local support.

Cultural Resources

The Section 106 process of the National Historic Preservation Act is a key element of this project. Three historic resources are located within the project area, including the National Register eligible Seaboard Coast Line Railroad (SCLRR), the rail bridge over Tremain Street, and the SCLRR bridge over US 441.

- A Memorandum of Agreement (MOA) was executed for the project on December 12, 2016, specifying the necessary mitigation for the adverse effect to the SCLRR.
- A Cultural Resource Committee has been formed and will continue as the Design and Aesthetics Committee through design.

The JMT Alternative Concept at the North Tremain Street Bridge achieves the overall goal of the project to maintain existing rail elements!



Environmental Permitting:

Wetlands

- Freshwater marsh and shrub habitats associated with Wolf Branch occur north the rail corridor, near Mount Dora Disposal & Fill, between approx. STA 110+00 to STA 142+00. As the trail is proposed to remain within the existing rail corridor, wetland impacts are not anticipated.

Anticipated Permits

- We anticipate this project will be exempt from St. Johns River Water Management District (SJRWMD) Clean Water Act Section 401 permitting per Chapter 62-330.051 (10)(a,b,c), F.A.C. which specifies exempt activities for the construction, alteration, maintenance, removal, or abandonment of recreational paths.

Threatened and Endangered Species

- Minimal natural habitat remains within and adjacent to the corridor with land uses primarily consisting of residential, commercial, and industrial, with minimal scattered natural forested uplands. Based on field observations, the potential occurrence of listed species is low.
- Potentially occupied gopher tortoise burrows were observed at numerous locations along the existing rail berm, including inside the existing rails. A formal 100% species-specific survey for gopher tortoise burrows will be conducted.

Public Involvement:

Upon notice to proceed, Quest will work closely with JMT and the County and Cities to develop a Community Awareness Plan which will:

- Identify key stakeholders and potential concerns
- Outline a strategy for effectively engaging all stakeholders early and continually to build community support for the project

A hybrid public meeting in compliance with County, State and Federal Requirements will be conducted to meet FDOT LAP requirements





Innovation

- Proposed innovative survey approach saves time
- Developed the North Tremain Street Alternative to meet PD&E commitments, improve pedestrian connectivity and safety
- Proposed switch back enhancement for the trail at US 441
- Proposed to improve safety of pedestrians with trucks at the Mid-Florida Materials dump crossing



Experience

- Project Manager and EOR Experience:
 - ✓ Rail to Trail experience
 - ✓ LAP experience
 - ✓ Right of Way acquisition experience
 - ✓ Wekiva Parkway experience
 - ✓ Local project experience
- Quest has local experience and is Wekiva Parkway liaison for FDOT



Availability

- JMT key members are 90% Available to work on this project
- JMT currently has no active work with Lake County
- JMT is not shortlisted on any other advertisements in Lake County allowing top Priority on this project
- JMT has 1,650 employees and has the staff to work on this project