



Lake County | PROFESSIONAL ENGINEERING DESIGN SERVICES FOR WEKIVA TRAIL, SEGMENT 1

(RSQ 22-902)

October 7, 2021

LAKE COUNTY ADMINISTRATION BUILDING

3 | Proposed
Solution



PROJECT UNDERSTANDING AND APPROACH

WGI strives to implement innovation in all design efforts to increase citizens' quality of life in alignment with the County's vision of a high-quality, safe, and reliable transportation network. We are also familiar with the City of Mount Dora and the Historic Preservation Board's goal of creating a diverse, vibrant, and sustainable community while respecting its historic character and small-town charm and serving as a unique regional and local destination. In working toward these goals, WGI plans to preserve the historic railroad characteristics of the corridor in addition to the historic nature of the surrounding area while implementing key safety and aesthetic features along the way. The design of a multi-use, regional trail will support healthy goals, and create connectivity within the community.

This project ranges from Tremain Street in Mount Dora to SR 46 in Sorrento and is Segment 1 of the Wekiva Trail. With Segment 2 having been designed and the WGI-designed Segment 3 in construction, Segment 1 will successfully complete the connection between the Tav-Dora Trail with the Seminole-Wekiva Trail. Doing so will provide the visitors and residents of the County the opportunity to commute to local landmarks and attractions in a non-motorized travel mode. This new sense of accessibility is vital to the long-term economic vitality of the surrounding communities. The trail will also provide important gateway opportunities that will convey a growing sense of arrival to key destinations.

Existing Conditions

The alignment, proposed as part of the preferred alternative in the Wekiva Trail Segments 1 and 2 PD&E study, will utilize the existing Seaboard Coast Line Railroad (SCLRR) corridor and is approximately 5.5 miles long. This existing railroad corridor is owned by CSX and operates under lease to the Florida Central Railroad (FCRR). The railroad is an active railroad from Tremain Street to just west of CR 437.

Within Segment 1, the railroad corridor between Tremain Street and US 441 has been determined to be eligible for listing in the National Register of Historic Places (NRHP). The 2017 Wekiva Trail Segments 1 and 2 PD&E study identified the corridor as the preferred alternative due to the limited need for right-of-way acquisition and utility relocation among other reasons.

There are two existing bridges within the project limits. The Tremain Street Bridge is an existing timber railroad bridge over Tremain Street, and the US 441 bridge is an existing steel plate girder over US 441. Currently, the vertical clearances under the bridges do not meet

FDOT Florida Design Manual (FDM) standards at 9 feet 6-inches and 14 feet 5-inches respectively. The existing plans are not available for either bridge, so approximate methods will be required to estimate the bridge capacity. Both bridges are eligible for listing on the NRHP.



Existing timber bridge that crosses over Tremain Street



Existing steel bridge that crosses over US 441 (SR 500)

Local Knowledge

WGI's Orlando office will serve as the responsible project office and is located at 800 N. Magnolia Avenue, Suite 1750, Orlando, Florida 32803. Our proximity to the project allows easy access to the site or the County's offices for existing conditions review and data collection, project meetings, and joint field reviews.

WGI's Orlando staff designed the Wekiva Trail Segment 3, which is currently under construction as part of the Wekiva Parkway Project for FDOT District 5. As a result, our team is very familiar with the County's preferences, requirements, and ordinances for the Wekiva Trail system. This includes the FDOT FDM, FDOT *Manual of Uniform Minimum Standards for Design, Construction, and Maintenance for Streets and Highways* (aka Florida Greenbook), and

the County's Transportation Planning, Design, and Construction Standards. The SR 46 exit of SR 429 (our project) is only three miles from the Wekiva Trail Segment 1 project limits. The Orlando office also serves the County on the Schofield Road project. The relationships with the County engineering staff and lessons learned from these projects will be beneficial to the Wekiva Trail Segment 1 project.

Design Criteria

When dealing with local roadways, we must be cognizant of many factors that could affect the design early in the scoping process and design phase, including verifying local trail and road design criteria and understanding the necessary agreements we must obtain, such as resolutions, approved typical sections, and pavement designs.

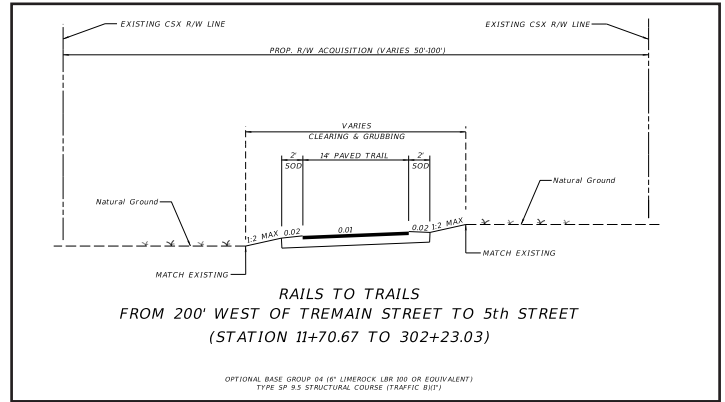
WGI is familiar with the design criteria and design considerations for shared-use paths and has experience with designing shared-use paths both on and off the state highway system. Applicable design criteria for the shared-use path come from the FDOT FDM when the trail is within state maintained right-of-way and the Florida Greenbook, Chapter 9 Bicycle Facilities, Section C Shared-Use Paths when the trail is not within state maintained right-of-way. Our team will also verify that the criteria used complies with the County's Lake County Trails Master Plan design criteria.

Shared-Use Path Design Criteria Table		
Design Element	FDM	Florida Greenbook
Minimum paved width for a two-way path	10 feet	10 feet ^{1,2}
Minimum clear width on structures	Approach path width plus 4-foot-wide clear areas	Approach path width plus 2-foot-wide clear areas
Design speed	18 mph for longitudinal grades < 4%	18 mph
	30 mph for longitudinal grades > 4%	
Maximum grade	5%	5%
Maximum cross slope	2%	2%
Minimum distance to edge of roadway traveled way	5 feet	5 feet
Minimum offset to lateral obstructions	3 feet desirable	3 feet desirable
Minimum clear area recovery area	Adjacent to maximum 1:6 slope	2 feet
	Adjacent to canals, ditches, slopes steeper than 1:3	5 feet desirable ³
<ol style="list-style-type: none"> 1. <i>A reduced width of eight feet may be used where the following conditions prevail:</i> <ul style="list-style-type: none"> • <i>Bicycle traffic is expected to be low, even on peak days or during peak hours</i> • <i>Pedestrian use of the facility is not expected to be more than occasional</i> • <i>Horizontal and vertical alignments provide frequent, well-designed passing and resting opportunities</i> 2. <i>The path will not be regularly subjected to maintenance vehicle loading conditions that would cause pavement edge damage</i> 3. <i>A path width of eight feet may be used for a short distance due to a physical constraint such as an environmental feature, bridge abutment, utility structure or fence</i> <ul style="list-style-type: none"> • <i>For clear recovery areas less than five feet, physical barriers or rails are recommended in the following situations:</i> • <i>Slopes 1:3 or steeper with drop-off six feet or greater</i> • <i>Slopes 1:3 or steeper adjacent to a parallel body of water or other substantial obstacle</i> • <i>Slopes 1:2 or steeper with a drop-off four feet or greater</i> • <i>Slopes 1:1 or steeper with a drop-off one-foot or greater</i> 		

Should the Wekiva Trail be adopted into the SUN Trail Network, WGI will incorporate the specific criteria outlined in the FDOT's SUN Trail Handbook and FDM. For example, SUN Trail network facilities that are less than 12 feet require approval by the chief planner. WGI has experience with the design criteria and the coordination required by the SUN Trail Program from our SJR2C Loop Trail project in Volusia County.

Connectivity

Increased connectivity points along Wekiva Trail Segment 1 will increase its usage and promote healthy lifestyle choices for the community. The construction of this segment of the Wekiva Trail is estimated to add \$7.9M in economic benefits due to the increased connectivity between the surrounding residential communities and the areas of interest identified in the LSMPO's 2015 Predictive Economic Impact Assessment. Beyond the connectivity provided for local businesses, the trail will also connect residential communities to Round Lake Charter School and Mount Dora High School. Providing safe and pleasant routes to school will be a particularly crucial factor that our team will consider in the design of this segment of Wekiva Trail.



Typical Section for Wekiva Trail Segment 1



Downtown Mount Dora Connectivity

Typical Section

The proposed typical section for Segment 1 of the Wekiva Trail is a 14-foot-wide paved shared-use trail. A four-foot clear area adjacent to both sides of the path will be provided and for restricted conditions, railing can be located within four feet of the edge of pavement. This typical section is consistent with the FDOT FDM, section 224. With permission from County officials, the typical section narrows to eight feet wide at the Tremain Street Bridge to minimize impacts to the historic bridge. Should the Wekiva Trail be adopted into the SUN Trail Network, WGI will work to secure approval from the chief planner for this modified typical section. While an eight-foot-wide typical section meets the minimum AASHTO criteria for a shared-use path, appropriate signing will be implemented to alert trail users that the trail is narrowing and instruct cyclists to dismount and walk. The US 441 bridge typical section is 12 feet wide in order to minimize impacts to the historic bridge.

Pavement Design

WGI proposes to use the pavement design for Segment 1 of the Wekiva Trail from the preliminary engineering report (February 2017); it includes a one-inch lift of type SP-9.5 structural course laid on top of a six-inch layer of Limerock LBR 100 (optional base group 04). Our team will ensure that the design meets the County's standard paving section for a shared-use path. Where the trail crosses US 441 (SR 500) on the existing steel bridge, a mesh reinforced concrete slab will be used as the final surface at the preference of the maintaining agency.

Pedestrian and Bike Safety

Safety goes hand-in-hand with one of WGI's core values, *Passion for People*. We make safety a priority in all of our projects, and we are committed to developing plans to address safety during our survey and data collection, project design, construction, and final operations. To accurately provide the necessary improvements for each pedestrian crossing, WGI proposes the following improvements to preserve the safety of bicyclist(s) and pedestrian(s):

1. Color and texture changes on crosswalks and mid-block crossings combine improved pedestrian and bicyclist safety with the possibility for enhanced aesthetics for the local municipality that contribute to an enhanced sense of place. The main advantages of utilizing thermoplastic pavement markings and patterned pavement include **anti-skid/anti-slip elements on the pavement surface, non-reflective material conforms to Manual on Uniform Traffic Control Devices (MUTCD) guidance for crosswalk enhancements, ADA compliance, minimal maintenance, and design flexibility as the patterns and colors are customizable.** WGI implemented this design feature on the Sligh Boulevard and Columbia Street projects for the City of Orlando.

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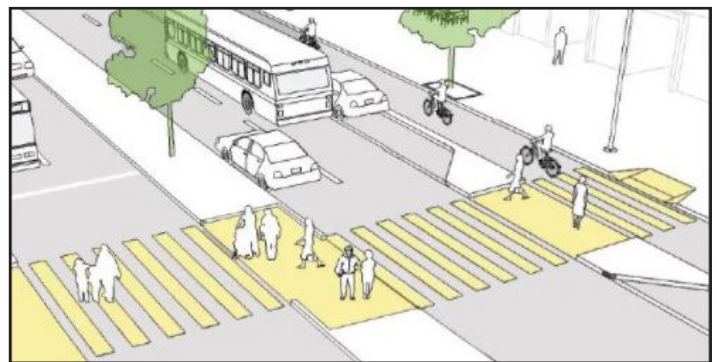
Project Approach and Process



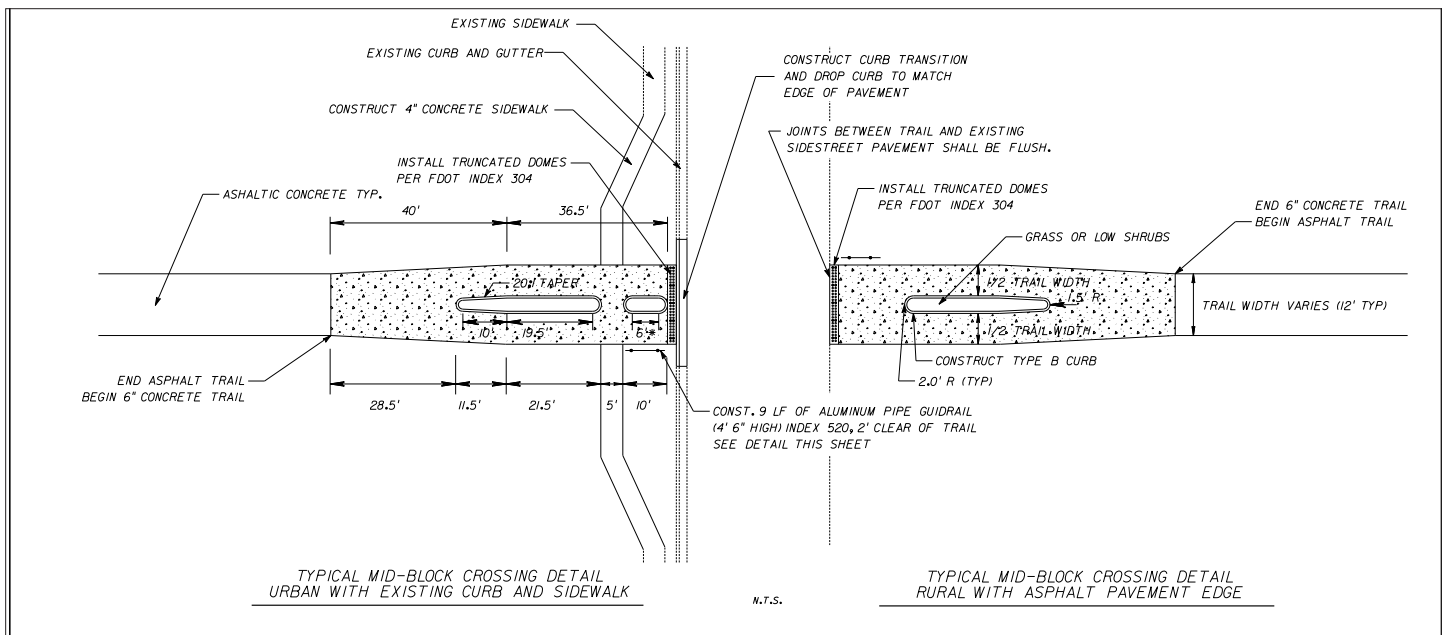
Patterned Crosswalks improve safety by providing a visual alert to motorists and pedestrians

2. At driveway and mid-block crossings, as well as side street intersections, WGI will apply the County's standard intersection details. These include requirements for approach signage and pavement markings, elements that are vital to the safety of the users of the trail. WGI is familiar with these standards and has incorporated them into the design for Wekiva Trail Segment 3 on our Wekiva Parkway project. FDM Table 231.2.1 will be used to evaluate lighting improvement options at mid-block crossings and signalized intersections. WGI has experience working with these criteria from our design of SR 865 (San Carlos Boulevard) in Lee County.

3. WGI is aware of the planned widening of Round Lake Road and plans to coordinate with the County and its consultant on this project to minimize any amount of re-work by either project. Since the proposed typical section, presented at a public meeting in April 2021, for this project shows a 22-foot median, we propose the implementation of a staggered crosswalk as shown below. **The pedestrian refuge provided in the median will force pedestrians to face the oncoming direction of travel** and assess the presence of traffic. WGI recognizes the heightened importance of pedestrian safety in this area due to its proximity to Round Lake Charter School.



Staggered Crosswalk



Lake County Trail Standards

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Project Approach and Process

- Pedestrian warning signs, flashing beacons or HAWK beacons will be proposed based on the guidelines found in MUTCD Chapter 4F and Figure 5.2-2 "Guidelines for the Installation of Pedestrian Treatments on High-Speed Roadways" from the FDOT Traffic Engineering Manual.



HAWK Signal

- As part of the scope, the existing steel bridge of US 441 (SR 500) is to be jacked up 2.5 feet. As a result, WGI will design the longitudinal grade approaching the bridge from either side to be a maximum of 5% to ensure ADA-compliance. Our team will also evaluate the available right-of-way in these areas to ensure there is enough room for a 4-foot clear area and a 1:2 maximum tie-down slope on either side of the trail. Depending on right-of-way conditions, WGI will propose a short retaining wall and/or handrail to mitigate the drop-off hazard to pedestrians and cyclists.

Historical Commitments and Placemaking

WGI is committed to preserving the historic nature of the City of Mount Dora and the County during the design of Segment 1 of the Wekiva Trail. Mile markers at points of interest and trail information signs that represent the significance of each landmark are recommended for installation throughout the corridor. At each crossing, WGI proposes installing crossing signs reminiscent of the one shown below at Fort Fraser Trail. They will serve two purposes: **to warn on-coming vehicles of potential crossing pedestrians/bicyclists and to preserve the railroad history of the trail corridor.** Our team also recommends the installation of gateway signage in areas of interest to create a sense of arrival and significance. WGI will also explore options that include placing trailhead kiosks, benches, refuges, and other place-making features at the beginning, middle, and end of the trail.

While the historic rails and ties will be removed, other historic artifacts and features from the SCLRR will remain as part of the new trail system. These include signs, markers, railroad spur tracks, switching gears, stairs/retaining walls, and a bridge. These elements will be incorporated into the design as interpretive displays that will

perpetuate the inter-relationship with the historic rail line and will provide the users of the trail with visual reminders of the corridor's original use. Any elements that are not designated to remain or returned to CSX will be displayed in a location identified by the Mount Dora Historic Preservation Board as mentioned on the Wekiva Trail PD&E study from 2017.



Trail crossing signs are a good opportunity to communicate the history of an area



Gateway signage improves the aesthetics of a trail while also creating a sense of arrival

One location that WGI proposes adding placemaking elements is the Highland Street underpass. This location is in the heart of the historic district of Mount Dora and provides a tremendous opportunity to create a place of interest and refuge. With the implementation

of landscaping, an informational kiosk, benches, and a uniform aesthetic for the existing bridge piers using a Class V finish, the Highland Street underpass can become a landmark destination for trail users.



Highland Street Underpass

A sustainable design for Wekiva Trail Segment 1 is essential. We will provide landscape, hardscape, and irrigation recommendations that use best management practices, including the use of native species and species diversity within the landscape plans. Our team will evaluate the size and species of plant material for vehicle clearance, signage, and sight lines. Through coordination with our design engineers, we will prioritize critical pedestrian elements, such as location of street trees and planters to make sure they are not impacted during construction.

Traffic Control Plan

WGI expects that the impact to vehicular traffic will be minimal since all work will occur outside of a main roadway corridor. However, we have successfully designed numerous capacity improvement projects with temporary traffic control plans to efficiently phase the construction while maintaining mobility on arterial and collector

roads. We understand the County/FDOT requirements associated with maintaining active traffic through work zones. WGI will prepare a constructability analysis of the preferred alternative and typical section to assess the impacts that construction will have on the local traffic patterns. Our temporary traffic control plan will:

1. Minimize the number of traffic phases and pattern changes to avoid driver confusion or distraction
2. Maintain access to side streets and driveways
3. Locate construction activities away from drivers
4. Provide safe work zone ingress/egress for construction traffic along the proposed corridor

Our proposed temporary traffic control design will maintain existing traffic flows and provide a safe corridor for vehicles, pedestrians, bicyclists, and work crews, while minimizing the construction schedule duration.

Structures

The project scope includes structural modifications to two existing rail bridges to include jacking, timber component and steel repair, abutment repair/replacement, addition of riding/walking surfaces, and pedestrian enclosures. The addition of a slope cut back retaining wall to accommodate a new sidewalk at Tremain Street is part of the scope as well.

The railroad bridge over US 441 will need to be raised approximately 2.5 feet to obtain the required vertical clearance of 17-foot 6-inches. This can be accomplished by jacking the bridge at the supports sequentially and inserting steel support pedestal between the rocker bearing assembly and the pier. The floor beams at the pier locations should be analyzed to determine if they can carry the dead load of the structure for jacking purposes. Each simple span can be jacked independently using steel shims to sequentially jack the bridge the required height. **WGI led the bridge jacking design for the Turnpike/SR 704 Interchange in West Palm Beach, Florida and the MOT and traffic pacing design for the Martin Highway interchange bridge jacking over the Turnpike in Palm City, Florida**, giving our team experience in managing the bridge jacking process. The structural steel of this bridge exhibits significant damage from vehicle impacts and corrosion and should be repaired and repainted as part of the scope. If a design exception could be obtained to retain the existing vertical clearance, a cost savings of approximately \$450,000 could be realized for the project by eliminating jacking and associated retaining walls required to raise the trail grade.



WGI's bridge jacking design over Florida's Turnpike



Existing bridge piers and supports over US 441 (SR 500)

The historic railroad bridge over Tremain Street is in fair condition but needs some deteriorated timbers replaced and the railroad ties need to be trimmed to a consistent length for the pedestrian enclosure railings to be attached. The east abutment has a relic retaining wall in front of it that should be replaced as it is leaning on one of the bridge piers. The bridge span where the sidewalk is to be located has a clear spacing between piles of approximately 7 feet, enough for the proposed five-foot sidewalk. A conventional gravity wall

could be used here; however, for a more aesthetically pleasing wall system, there is enough room between the bridge abutment and the sidewalk location to excavate space for segmental block wall (SBW) straps. The FDOT Structures Design Guidelines categorizes SBW as a Type 4 MSE wall. WGI recently designed a SBW as a cost savings initiative proposal on US 41 in Lee County. WGI's SBW design was 400 linear feet, eight feet tall, more cost-effective than a gravity wall option, and was constructed in less than one week.



Relic Retaining Wall

Structural effort for this project could potentially include traffic signal structures or retaining walls at additional locations. Additional structural support will be provided, as needed, for locations where the trail crosses near existing retaining walls and bridges, to verify clearance requirements are met and avoid impacts to the existing facilities.

Geotechnical

GEC will lead the geotechnical and contamination assessment activities for the team. GEC's staff has extensive experience with trail projects including the Lake Wekiva Trail Segment 2, Cross-Seminole Trail, the Seminole-Wekiva Trail, the West Orange Trail, the City of Lakeland Fort Fraser Trail, the Osceola County Babb Citrus Park Boardwalk, the Lake County Tav-Lee and Lee-Wild Trails, and the Orlando Dinky Line Trail. GEC's local experience also includes the

Wekiva Parkway Sections 2 and 3, which are located along the Lake Wekiva Trail Segment 1. In addition, GEC performed the Level 1 contamination screening evaluation for the Wekiva Parkway Trail PD&E study and Wekiva Parkway Trail feasibility study.

Geotechnical Conditions

Soil conditions along the majority of the trail alignment include upland, gently to moderately sloping, sands with seasonal high groundwater levels ranging from 3.5 feet to greater than six feet below the natural ground surface. However, the trail alignment crosses several isolated areas of depressional, poorly drained sands with seasonal high groundwater levels ranging from two feet above to 1.5 feet below the natural ground surface. These depressional areas are typically composed of several circular features, indicative of relic sinkholes. Relic sinkhole features are generally water-filled and many of the lakes in this area of the County are composed of one or more relic sinkholes. In some cases, relic sinkholes may contain deep organic soil (muck) deposits.

Geotechnical Design Considerations

The primary geotechnical considerations for this project include establishing accurate groundwater levels along the trail alignment, as well as delineating any surface or buried muck deposits. Geotechnical services will also include corrosion series testing for optional pipe material analysis for new cross-drain pipes. GEC's field crews have extensive experience working on rail corridors and will obtain all necessary roadway work protection training in accordance with CSX access requirements.

Contamination Considerations

GEC performed an August 2012 CSER for the portion of Wekiva Trail west of US 441. The CSER identified 15 potential contamination sites and assigned risk ratings of low to 12 sites, medium to one site, and high to two sites. In addition, GEC performed a current preliminary review of the FDEP map direct website for potential contamination sites located within the PD&E manual, Part 2 Chapter 20 search distances for project alignment. They identified the following listings:

- Sixteen petroleum tank facilities
- Three petroleum-contaminated sites
- Six hazardous material generators
- One Brownfield-designated zone
- Three solid waste sites
- Railroad corridor.

Potential contamination sites near the alignment and possible contamination related to former railroad operations along the majority of the trail are important project concerns. Railroad ties were typically coated with inorganic and/or petroleum-based preservatives and would likely require special disposal provisions. Herbicides were used surrounding the ties for weed control and contained hazardous chemicals, possibly including arsenic. Such materials may have resulted in soil and/or groundwater impacts along the railway corridor. Soils that contain chemical concentrations above cleanup criteria or above toxic characteristic concentrations must be handled and disposed of properly. Chemicals of concern include volatile and semi-volatile organics, arsenic, chromium, cresol compounds, pentachlorophenol, and pesticides. During the contamination screening evaluation, soil samples will be collected along the rail bed to evaluate the presence of contaminants. This data will be used to develop recommendations for trail design and construction that will protect construction workers and trail users from exposure to rail bed contaminants.

Railroad bridges are located at the SR 500/US 441 and North Tremain Street rail crossings. These bridges will be evaluated for asbestos and metals-based coatings as part of the contamination screening process.

Drainage

The project lies within the Lake Dora watershed (FL2831B) which is under the jurisdiction of the SJRWMD. The SJRWMD has designated Lake Dora as an impaired waterbody due to excessive levels of nitrogen and phosphorus. There are two locations throughout the project corridor that fall within 100-year FEMA designated flood zones AE. The first Floodplain Impact Area (FIA) is within the Wolf Branch Sink sub-watershed and has an established base flood elevation (BFE) of 82 feet; the second FIA is in the Lake Amos sub-watershed with a BFE of 64 feet. Since the trail is expected to be constructed at existing grade along the existing railroad bed, there are no anticipated impacts to the floodplains.

Field reviews, both during dry and wet conditions, will be performed to determine the current operational efficiency of each drainage feature. The existing drainage system throughout the corridor is comprised of "open drainage systems," where stormwater runoff sheet flows from the existing railroad bed into swales and through a series of side drains before discharging into historic outfalls. The swales and side drains will be evaluated to determine if they have sufficient capacity to perform in the proposed condition. Where necessary the swales will be regraded to effectively convey the

stormwater runoff to historic locations. Improvements made to the "open drainage system" will also provide additional water treatment before the stormwater runoff reaches the larger waterbodies. In some areas the existing culverts will need to be extended to accommodate the proposed trail. Every effort will be made to maintain existing drainage patterns and historic outfalls for the area.

The visual inspection, analysis, and inventory of the drainage system will be documented and included in a matrix that includes photos, locations, type of, and recommendations for improvement for each drainage feature with a defect. It is anticipated that this project will be exempt from SJRWMD permitting per Rule 62-330.051 F.A.C. due to the absence of adverse impacts on existing stormwater management systems.

Environmental

Wetlands

The 2015 Wildlife and Habitats Report estimated total wetland impacts to be less than 0.5 acres for all segments. Based on current land use/land cover data from the SJRWMD it appears wetland impacts may be unavoidable along this segment. The proposed project limits do not cross any outstanding Florida waters, aquatic preserves, or other waterbodies with special designations. A portion of the project abuts the Wolf Branch Sink Preserve; impacts to this conservation land will be avoided.

If wetland impacts can be avoided altogether, the project will qualify for an exemption from the SJRWMD per F.A.C. 62-330.051(10) for recreation trails and will not require a Federal Section 404 permit from FDEP. If the project results in unavoidable impacts, an individual environmental resource permit from the SJRWMD is anticipated. Potential wetland mitigation options include purchasing credits from one of four wetland mitigation banks permitted to serve the project area, these are Emeralda, Hammock Lakes, Blackwater Creek, and Wekiva mitigation banks. Since the wetlands appear to be waters of the U.S., a Federal Section 404 permit through FDEP will be required. Specifically, the project is anticipated to qualify for a general permit per F.A.C. 62.331.217 for linear transportation projects.

Protected Species

The project area falls within the U.S. Fish and Wildlife Service (USFWS) consultation areas (CAs) for Lake Wales Ridge plants, the Florida scrub-jay, Everglade snail kite, and sand skink. Informal consultation with the USFWS was completed as part of the PD&E

study for this project. In 2015, the USFWS concurred with the following effect determinations for federally listed species:

- May affect, not likely to adversely affect – eastern indigo snake, Florida scrub-jay, wood stork
- No effect – Everglade snail kite, sand skink, bluetail mole skink

Notably, this portion of the project is outside of any wood stork core foraging areas; therefore, mitigation for impacts to wood stork suitable foraging habitat will not be required. The CA for the bluetail mole skink has been modified and the project limits are not within the CA; therefore, bluetail mole skink involvement is not anticipated. In 2015, the USFWS determined sand skink species-specific surveys would not be required for this project; therefore, none are anticipated.

The trail alignment is proposed to be located entirely within existing railroad right-of-way where habitats have been degraded by the existing railroad and remaining abutting natural areas are highly disturbed. Therefore, habitats supporting protected species are minimal. Our team will coordinate with USFWS and confirm that these previous determinations are still valid and additional survey is not required. Our team will inspect the bridges for evidence of state protected bats and determine whether an exclusion will be necessary during construction.

As committed, a 100% gopher tortoise survey and permitted relocation will be conducted, as needed; a gopher tortoise relocation permit is expected to be required from the Florida Fish and Wildlife Conservation Commission (FWC). The standard protection measures for the eastern indigo snake will be followed during construction. Our team will adhere to all PD&E commitments made.

Utility Coordination

Through preliminary investigations, we have identified 10 UAOs within the project limits: Central Florida Expressway Authority, CenturyLink, City of Eustis, City of Mount Dora, Comcast, Duke Energy, Florida Gas Transmission, Summit Broadband, Sumter Electric Coop and TECO Peoples Gas. Since the scope calls for an asphalt trail, utilities that have above-ground appurtenances or are shallow in depth could be impacted. WGI recommends performing SUE in those areas to facilitate mitigation through design, or identify areas where the utilities may need to be relocated. Any impacts to the City of Eustis or City of Mount Dora water and sewer facilities may trigger a joint project agreement to have their facilities relocated by the highway contractor as part of the project. WGI will begin the coordination process immediately upon notice to proceed (NTP) and maintain a

proactive approach through the project’s duration, working with the UAOs to eliminate or reduce utility impacts through design. “Early and often” are key words in the communication essential to our utility coordination process. We will schedule project kickoff and preliminary meetings with each UAO at the concept stage to ensure the UAOs understand the process and schedule. Face-to-face meetings will be scheduled with individual UAOs at their offices, if needed, to expedite a response. If requested, field meetings will be scheduled with the UAOs when site conditions warrant a direct on-site review.

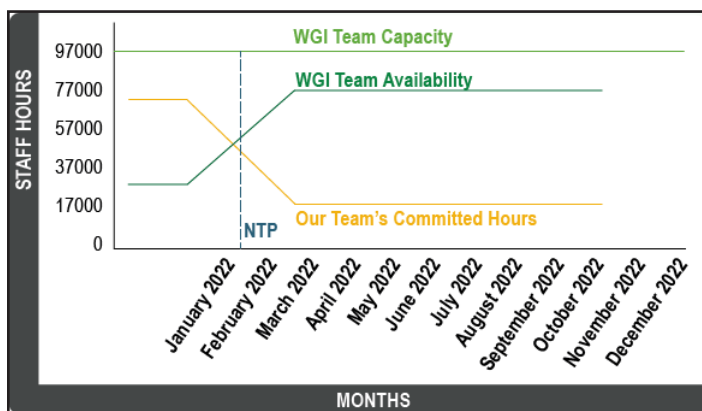
MANAGEMENT APPROACH

Adequacy of Resources

WGI firmly believes that successfully managing difficult schedules is a function of labor force and the ability to effectively use that labor pool. WGI currently employs more than 540 highly skilled and experienced professionals committed to excellence and unsurpassed service to our clients. Our staff specializes in providing services to a wide variety of public clients, including counties, municipalities, and FDOT. With our depth of staff, including our teaming partners, we can provide the County with adequate qualified personnel, making sure you receive the most competent and efficient services available.

WGI’s current workload is moderate, and the proposed project team is immediately available and dedicated to the County. WGI has ample capacity to undertake the Wekiva Trail Segment 1 project. Each staff member presented in the organizational chart will be available as needed. We commit to dedicating the necessary time to assigned tasks in order to meet project time requirements.

The chart below shows our estimated availability from NTP.



Public Involvement

Engagement Plan

Our team understands the importance of communicating with the public through websites and public workshops. Global-5 designed, developed, and maintains the construction information websites for I-4 Ultimate and I-4 Beyond the Ultimate. Their approach to website content includes working with the design team to develop accurate and engaging content, and the internal QA/QC process to ensure quality work. Their graphic designers and web developers will create and maintain a website that is visually appealing and where members of the public will be able to easily access the information they need. Global-5 also has expertise in search engine optimization to help make the website easier to find and secure appropriate and accessible locations for public meetings, including providing site visits and review of meeting technology and seating.

All the materials—from handouts, display boards, sign-in sheets to PowerPoint presentations and videos—will be consistently branded with the County and the Wekiva Trail, Segment 1 design project. Their trained and experienced facilitators will present the information clearly and ensure everyone has the opportunity to provide input and feedback. Global-5 proposes using MindMixer and/or Slido, real-time survey and feedback tools, to help collect input from stakeholders. Our staff will also be at all meetings to take notes and minutes for submission to the County and posting on the website. Meeting notes, received comments, responses to inquiries, photos, and other required information will be included in the meeting report to the County. Audio and/or video recording and verbatim transcriptions of the meetings can also be provided, as required.

Global-5 has the capabilities and experience to provide virtual and hybrid meetings with clients and stakeholders. They provided live video streaming for FDOT’s first M-CORES joint task force meeting, and set the standard for FDOT hybrid (online and in-person) public hearings for the Champions Gate diverging diamond construction project. They led two webinar trainings for first responders on accessing the new I-4/SR 408 interchange ramps and met via webinar with residents of a Seminole County community to facilitate feedback on a plan for FDOT to provide right-of-way easements to property owners.

Global-5’s public meeting experience includes working with elected officials in reference to upcoming meetings in their jurisdiction, and they will provide those same services to the County Commissioners and County Attorney. Our Good Neighbor Outreach approach ensures the members of the target community—residents, business owners,

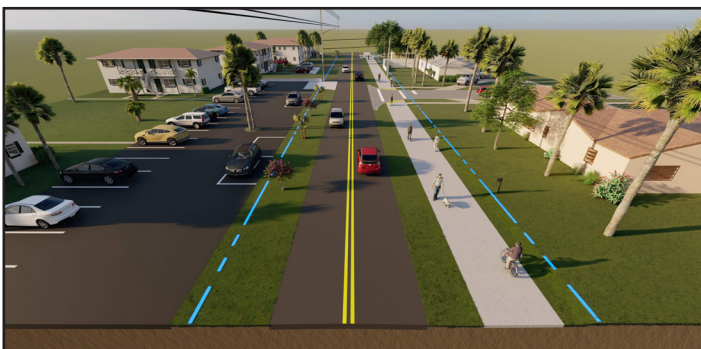
and other stakeholders—are aware of the meeting and have ample notification. This includes mailings, in-person, and digital outreach to the community, and legal and paid advertisements in appropriate publications. They will work with homeowners’ associations and groups, apartment complexes, commercial facilities, and other nearby stakeholders to publicize public meetings to their residents and the residents of nearby communities, customers, club members, and others to maximize attendance and participation in the meetings.

3D Design and Visuals

Leveraging WGI’s knowledge, experience, and training abilities in 3D design will generate value-added features, which is WGI’s primary goal. WGI will assist the County with public involvement by providing interactive animations, and photo-realistic renderings created directly from the active 3D design. This approach and end-product, WGI created on the Colonial Parkway PD&E, was well received by the public and FTE. A similar product was created for the SJR2C Trail public meeting held in January of 2020. In this situation, WGI’s rendering helped the interested stakeholders understand how the proposed trail would look and how it would affect their property.



Public meeting rendering for Colonial Parkway



Public meeting rendering for St. Johns River to Sea Loop Trail

Agency Coordination

WGI has invested more than three decades into building relationships with regulatory agencies at local, state, and federal levels. We have a robust understanding of the specific criteria, standards, and regulations the agencies implement. We understand the importance of agency coordination early in a project’s planning phase to maximize efficiency of the regulatory review process and to minimize potential adverse impacts associated with the proposed activity.

Coordination with organizations such as the County, City of Mount Dora, FCRR, FHWA, and Florida State Historic Preservation Officer will be established in order to address any concerns that arise during the design phase and provide necessary accommodations. We understand the importance of responsiveness and providing clear communication to our clients, as well as representing them on issues affecting them. WGI has an exceptional history of providing roadway planning, design, and construction-related services for numerous Florida roadway projects.



Key Stakeholder Coordination

Our team will maintain communication with the Mount Dora Historic Preservation Board and the design and aesthetics committee to gauge public opinion on the aesthetics of the trail and ensure that the crossings through the “Historic District” reflect the architectural character of the County and City of Mount Dora.

Another important stakeholder is Mid-Florida Materials. Wekiva Trail will be passing through the entrance driveway of the facility, which is trafficked by a high volume of large vehicles. Our team will take the proper precautions to ensure that pedestrians and bicyclists traveling through this area are highly visible to the truck drivers passing through the facility.

Once a contractor is selected for this project, WGI will provide them with a contact matrix of all key stakeholders, including adjacent communities, nearby businesses, elected officials, emergency services, and key County staff that require notification prior to commencement of work.

Data Collection/Design Software and Equipment

WGI stays “one step ahead” with methodical and appropriate investments in innovative technology. These investments include a broad array of specialized software and equipment to complete field and office assignments. Our state-of-the-art software and equipment for data collection and design will benefit the County by providing quality innovative and cost-effective deliverables.

Data Collection Software and Equipment

- Leica Pegasus mobile scanner
- Data collectors
- Backpack Leica LiDAR scanner
- GeoXT Trimble GPS GIS
- Apple iPads

These methods allow our crews to quickly gather topographical information safely and accurately, with little to no impact to traffic on adjacent roadway facilities. This also allows our staff to avoid entering the roadway, as required by conventional survey, to gather topographical information, resulting in safer conditions for them, motorists, cyclists, and pedestrians.

Design Software and Equipment

Our design software and equipment include:

- CADD production and data processing
- AutoCAD/Civil 3D
- MicroStation
- GeoPAK and OpenRoads
- ESRI ArcMap and ArcPro
- EFB, EFBP, EFB Mobile, and FDOT Vector

Using these tools and methods, our design team will develop design deliverables in the format of your choice.

PROJECT QUALITY, SCHEDULE, AND COST

In order to provide quality deliverables and maintain the schedule and budget, WGI prepares a detailed project management plan (PMP) at the start of each project. This PMP fully addresses the coordination, public awareness, technical aspects, financial controls, QC, and scheduling requirements. The detailed plan contains a project contact list, project file directory, scope of services, negotiated man-hours, schedule, budget, and project-specific QA manual with a QC plan.

WGI's experienced management team will focus on controlling the quality, schedule, and costs for every project. As shown on our organizational chart, WGI's team is led by project manager and vice president of WGI's transportation division, **Henri Belrose, PE**, along with **Lilli O'Steen, EI**, deputy project manager, and **Nancy Clements, PE**, principal in charge and senior vice president of transportation. They will lead our team of resources and maintain clear, proactive communications among the County, stakeholders, and subconsultants. Throughout each project, Henri, Lilli, and Nancy, along with each discipline leader, will be involved in project scheduling, team meetings, and providing constant peer review of reports, plans, and documents.

To manage the interdependent elements anticipated with this contract, Henri will deploy project management controls tailored to the specific task. He will lead the team by integrating the total effort across all active tasks to achieve the technical success that the County expects. WGI's management team will focus on:

Managing proactively. Regularly scheduled internal progress meetings will be held amongst the team members, ensuring the project progresses smoothly. Regular communication will ensure critical path items are identified and completed successfully.

Accelerating the start of critical path activities to assist in maintaining the County's schedule and budget requirements.

The key to success is the early coordination with the County traffic forecasts, early data collection, conditions assessment, and early coordination with agencies and stakeholders to set the critical alignment parameters.

Building and maintaining relationships. Working with public agencies (including FDOT, SJRWMD, etc.) to control the permitting schedule.

Tracking the schedule. WGI uses Microsoft Project for schedule management and tracking, allowing easy preparation of critical path method scheduling. It allows for unlimited numbers of activities, customized calendars, GANTT and PERT charting, cost loading and resource leveling of activities, and dynamic filter and report creation. In addition, Microsoft Project is the best platform for preparation of base schedules, analyzing monthly schedule updates, performing time impact analysis and what-if scenarios, and documenting project progress.

Project compliance. WGI will verify that deliverables meet the County's standards and requirements.

3 | PROPOSED SOLUTION

Project Quality, Schedule, and Cost

Tracking the budget. WGI uses a sophisticated internal budget tracking system that provides regular reports describing project labor charges, direct costs to the project, and relative percent of the fee utilized. We also use Deltek Vision software in projecting staffing needs. Deltek Vision is linked to budgeting software to provide accurate and continuously updated information, including a three-line diagram that compares planned performance to actual progress. This exercise ensures that any necessary staffing adjustments are identified and resolved as soon as possible.

Document control. WGI uses the proven ProjectWise content management software for all our projects. ProjectWise was specifically designed to manage the large interdisciplinary data collection and CADD requirements of projects. WGI will be the main hub for document control, status reporting, project communication,

design collaboration, and CADD drawings. ProjectWise serves as a cloud-computing platform that gives team members—regardless of location or prime/subconsultant role—equal access for posting new documents, editing documents, making comments, and approving documents in real-time for all team members to see.

Management of subconsultants. WGI is experienced at working in a team environment and has managed multiple contracts and subconsultants for state, local, and federal clients. We have excellent relationships with our proposed subconsultants and we require that they comply with our project work plan and QA/QC plan and provide timely cost and schedule inputs to the project manager. The project manager is responsible for managing and controlling cost and schedule performance for WGI's subconsultant's tasks.



Quality Assurance/Quality Control

Lee Dowden, PE, LEED AP, will be our QA/QC manager. He will sign off, prior to all milestone deliverables, verifying our QC process was followed and properly documented. Lee has the authority to stop any submittal that does not meet our standards for quality work. Our QC discipline leaders are senior professionals who are recognized experts in their respective fields, and have the breadth and depth of knowledge to perform cross-discipline reviews to identify incompatible elements between design components. Our QC team has no direct involvement in the design development, which allows them to bring a fresh perspective to each review. Our QC process includes self-checks, independent reviews, and QA. We will provide a project-specific QC plan detailing our formal red, yellow, green process for reviewing all construction documents. WGI also will oversee the quality of work performed by our subconsultant. Our subconsultants will be held to the same WGI standards for quality work and must provide proper documentation per the QC process.

QC Process

PRIOR TO QC—DOCUMENT READY. Responsible professional/project manager deems document ready for QC review.

Review. QC reviewer reviews comments and marks using **YELLOW highlighter** for all correct items, **RED pen** to note change(s), and **BLUE pen** to comment or suggest to the responsible professional/project manager. QC reviewer returns documents to responsible professional/project manager.

Concurrence. Responsible professional/project manager reviews QC reviewer notes and using **GREEN pen** marks with a check to agree and incorporate, writes "STET" to leave as is, or writes a comment. Responsible professional/project manager gives documents to production team member to make changes.

Incorporation. Production team member reviews comments from responsible professional/project manager and marks using **BLUE highlighter** to show changes have been made. Production team member returns corrected documents to responsible professional/project manager.

Verification/backcheck. Responsible professional/project manager reviews changes and marks using **YELLOW highlighter** over **BLUE highlighter** (to make **GREEN highlights**) showing all changes have been reviewed. All marks on documents should be **YELLOW** (correct on original) or **GREEN** (corrected via process).

QA Assurance. QA officer reviews, documents, and signs memorandum of compliance. Memorandum and copy of final QC plans, including tracking stamp, are scanned and filed electronically.

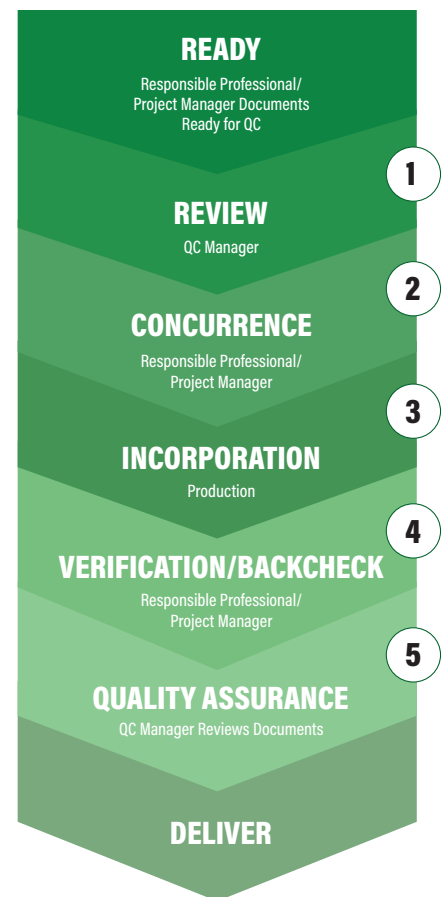
Deliver. Deliver high-quality products to client.

QC Roles

- **RP.** Responsible professional (principal in charge, project manager, engineer of record)
- **PM.** Project Manager
- **QCR.** QC reviewer (independent team member with no involvement in design decision process)
- **Production.** Any member of the production team
- **QA Officer.** QA officer (independent team member who is a senior engineer or **PIC.** Not the QCR!)

Commitment

WGI is committed to quality, safety, innovation, and the preservation of local history and the natural environment. We look forward to the opportunity of partnering with the County on another successful project.





Lake County | **PROFESSIONAL ENGINEERING DESIGN SERVICES FOR WEKIVA TRAIL, SEGMENT 1**

(RSQ 22-902)

October 7, 2021

LAKE COUNTY ADMINISTRATION BUILDING

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