

An aerial photograph of a paved road winding through a dense, green forest. The road has a yellow center line and is flanked by lush trees. In the distance, a few cars are visible on the road. The sky is clear and blue. The text is overlaid on the upper right portion of the image.

LAKE COUNTY

RSQ 22-901

NORTH LAKE TRAIL PHASE 3 PD&E STUDY

03. PROPOSED SOLUTION

PROPOSED SOLUTION

Lake County Comprehensive Plan, Policy VI-1.7.11 outlines the County's goal of providing a County-wide network of pedestrian, bicycle, recreational, and equestrian trails. This Project Development and Environment (PD&E) Study supports the County's goal by studying the potential expansion of the North Lake Trail Phase 3 project from East Collins Street (CR 450) in Umatilla to SR 40. The study spans approximately 19 miles and includes the area surrounding SR 19, CSX Railroad, CR 445, and CR 445A. The study area intersects the City of Umatilla and the local communities of Altoona, Pittman, and Astor Park.

We recognize that development of the North Lake Trail will provide a significant regional resource that serves local recreational needs and economic development but will have far-reaching benefits as part of a connected statewide system of greenways and trails for recreation, conservation, alternative transportation, healthy lifestyles, and improved quality of life.

The Halff team has an expert understanding of North Lake Trail Phase 3 project and recognizes the importance of continuing the project momentum created by the Corridor Planning Study. Our team will provide the necessary engineering and environmental analysis and documentation, along with a robust public engagement program in order to comply with the federal NEPA requirements while creating a distinct "Sense of Place" and implementing the vision of providing a Gateway to the Ocala National Forest.

This PD&E study will continue the analysis and outreach conducted for the Florida Department of Transportation (FDOT) District Five's North Lake Trail Phase 3 Corridor Planning Study. This previous corridor study evaluated four build alternatives as well as a no-build alternative. One alternative alignment utilized Railroad Grade Road which was removed from further consideration. This PD&E study will include the remaining three build alternatives and the No-Build. **A project study area map with the build alternatives is provided on the next page.**

The Halff team provides Lake County with extensive trail planning and design expertise and experience; offers significant FDOT PD&E experience; and possesses the wide range of technical services in each discipline required to implement the North Lake Trail vision. We will apply our knowledge and lessons learned from

previous similar projects to this PD&E study. The Halff team has trail development and permitting experience with the U.S. Department of Agriculture (USDA) Forest Service lands in Florida having worked on SR 40 project through the Ocala National Forest, as well as the Gopher Frog and Alligator Trail and the Capital Circle Southeast project—both located within Apalachicola National Forest easements.

To ensure the project qualifies for future federal funding, the study will comply with the National Environmental Policy Act (NEPA) and other related environmental laws and regulations. We understand this new era of PD&E within FDOT and that a Memorandum of Understanding with the Federal Highway Administration (FHWA) was executed on December of 2016, with FDOT assuming FHWA's responsibilities under NEPA. With NEPA assignment, the FDOT will be the lead agency with approval authority provided by FDOT District Five and, depending on the Class of Action, the Office of Environmental Management (OEM). Our Project Manager, Gary Phillips, AICP, served as FHWA's Environmental Coordinator for Florida, and was responsible for reviewing and approving all FDOT NEPA documents. More recently, he managed the sociocultural effects and public involvement programs for OEM. Gary is ideally suited to assist Lake County with successfully managing this PD&E study.

Halff team's PD&E experience in District Five, familiarity and experience working on projects in the Ocala National Forest, and public engagement and planning experience throughout Florida, makes our thoughtfully selected team of experts the perfect fit for this project. Our team's multi-use trail experience in planning, design, and PD&E, will be evident as we work closely with Lake County staff, environmental agencies, FDOT District Five, and all project stakeholders to successfully deliver this important, regionally significant project.

PROJECT PHASES

Phase 1 Planning

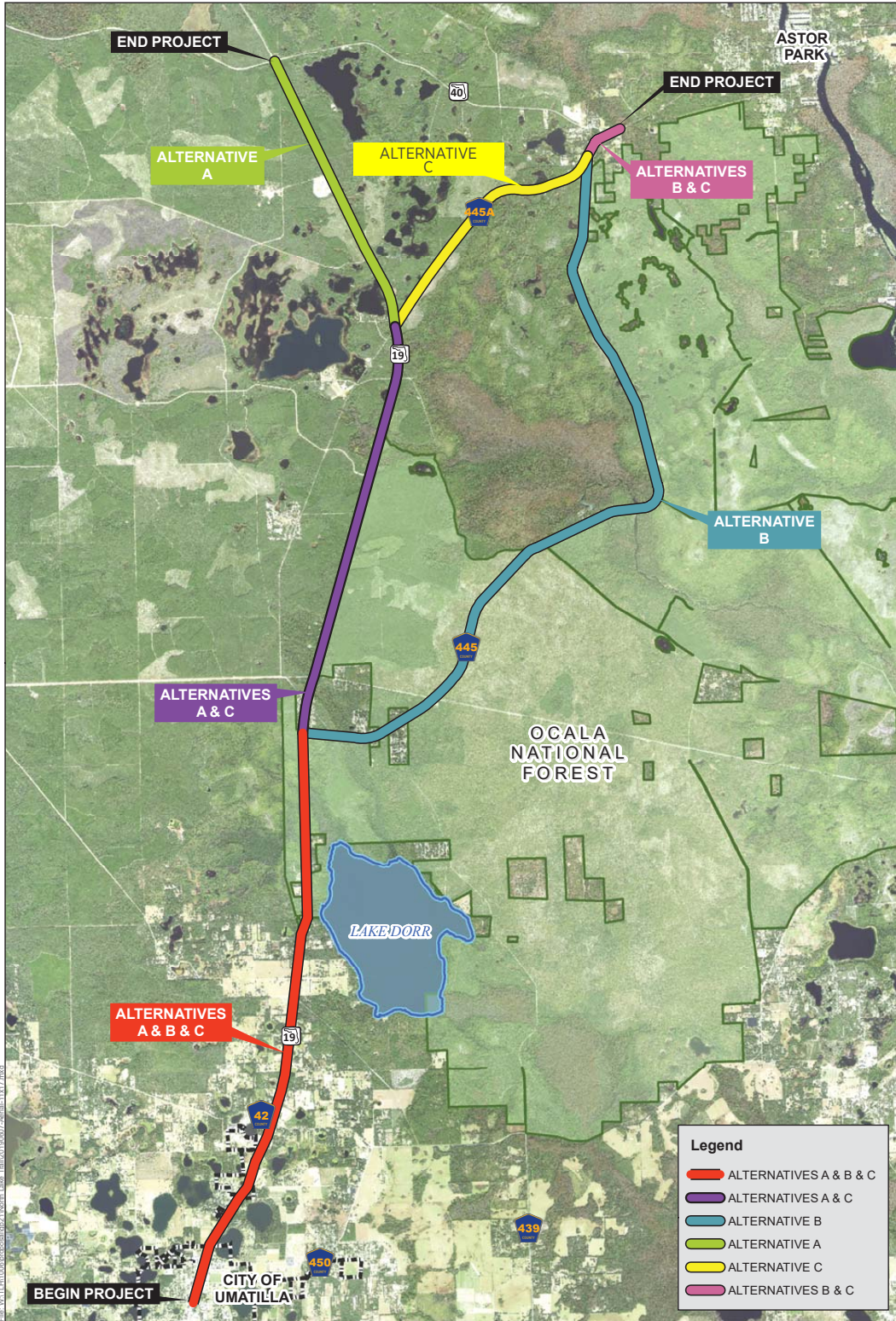
Phase 2 PD&E Study

Phase 3 Final Design & Engineering

Phase 4 Right of Way Acquisition

Phase 5 Construction

Phase 6 Maintenance



HALFF

902 North Sinclair Avenue
Tavares, FL

Overview of Alternatives

North Lake Trail
Lake County, Florida

Miles

Project Risks and Mitigation Strategies

We have reviewed the Corridor Planning Study and available project documents for the North Lake Trail Phase 3 project, and conducted extensive field reconnaissance. The Halff team has identified three key risks areas that have the potential to impact the project if not appropriately mitigated. Our team has worked through these risks and produced various mitigation strategies that we have implemented on past projects and are proven to be effective in moving the project forward.



	<p>RISK # 1: Managing the Timeline</p> <p>A substantial portion of the 19-mile trail is located within the Ocala National Forest which is owned, and maintained, by the USDA Forest Service. The USDA Forest Service will prepare a separate, environmental assessment of the trail project before approving easement modifications. This process has the potential to substantially impact the project schedule.</p>
	<p>Mitigation Strategy</p> <p>Frequent communication is essential for ensuring that the USDA Forest Service has the information they need to complete the Environmental Assessment. Identifying those needs early in the schedule will avoid surprise requests that could lead to delays. Our strategy is to hold monthly meetings with the USDA Forest Service to ensure that there are consistent communications.</p>
	<p>Similar Project Example</p> <p>A similar strategy was used for the Space Coast Trail PD&E study. Monthly meetings were held with FDOT, U.S. Fish and Wildlife Service, National Park Service, and NASA to discuss progress and provide an opportunity to share and exchange information. This approach kept all partners on-task that lead to the successful completion of the project.</p>

	<p>RISK # 2: Safety</p> <p>For the 19-mile trail length, the current trail alignments have frequent crossings of SR 19, CR 445 and CR 445A, including mid-block crossings. Posted speed limits on these roadways vary from 35 mph to 55 mph, with 10% to 21% truck traffic. The context classification of SR 19 varies and includes C1- Natural, C2- Rural, C2T- Rural Town, and C4-Urban. These items, along with others, will be strategically evaluated so that the final recommendations result in a facility that is safe and comfortable all ages.</p>
	<p>Mitigation Strategy</p> <p>Develop and implement the safest and most comfortable crossings at each presented opportunity for all users. Separated grade crossings are ideally the safest option to separate non-vehicular traffic from motor vehicles. Opportunities for using box culverts to create a separated crossing will be evaluated at high traffic locations. Additional crossing opportunities that utilize high visibility crossings, or even raised crossings, to achieve traffic calming and maintain trail user visibility will be reevaluated</p>
	<p>Similar Project Example</p> <p>On the 53-mile Gopher, Frog and Alligator Trail though the Apalachicola National Forest, opportunities to utilize low volume roadways, former railways, and other parallel alignments were evaluated throughout the length of the project. Working closely with the USDA Forest Service, FDOT, and the Citizens Action Committee, the trail alignments were selected placing safety as paramount. In addition, Halff has extensive experience designing pedestrian crossings for local governments utilizing Pedestrian Hybrid Beacons (PHBs) at locations where pedestrians need to cross and vehicle speeds or volumes are high, but traffic signal warrants are not met.</p>



RISK # 3: Community Support

A portion of the proposed alignments are directly adjacent to residential properties. Residents will be concerned about safety issues and impacts to property values. Their concerns, if not addressed, could significantly impact project support and the project timeline.



Mitigation Strategy

Convey the trail's benefit to the community through a series of personalized workshops early in the project to ensure design is agreed upon by as many parties as possible, and can progress in a timely manner. The Halff team, led by our engagement specialists, Gary Phillips, AICP, Michael Garau, PE (Kimley-Horn), and Tammy Vrana, AICP (Vrana), are highly experienced in engaging communities on challenging issues, including for urban and rural trails. We will use specialized engagement techniques for the communities of Umatilla, Altoona, Pittman and Astor Park communities.

Residential properties directly adjacent to the trail alignment will be the most concerned and will warrant face-to-face engagement. Early on, we will schedule multiple in-person meetings with them. We will walk potential routes with and conduct neighborhood meetings to document concerns and convey possible solutions (including alignment adjustments if feasible and needed).



Similar Project Example

From our work on the Florida National Scenic Trail—Lake Okeechobee, Babcock Ranch Preserve Recreation Master Plan and Community Visioning for Gopher, Frog and Alligator Trail through the Apalachicola National Forest, we have learned that engagement for trails must start early, be sincere in its desire to understand issues, and be built on a strong understanding of the concerns and issues of potential trail alignments and typical sections.

Project Approach

Our team fully understands the scope of services and has proven experience delivering successful projects to Lake County and FDOT District Five. The project will include documenting the project description, logical termini, purpose and need for the improvements, potential effects to the social, economic, cultural, natural, and physical environments and project costs. Coordination with appropriate federal, state, and local agencies will occur throughout the life of the project to identify project-specific issues and potential impacts. Information provided by these agencies will be vital to the development and refinement of the alternatives throughout the study process and will be documented in technical support documents.

Public involvement will also be a major component on this project. Public input will help ensure that the project that meets the multi-modal transportation needs of the area and will provide the residents and other stakeholders the opportunity to shape decisions that could affect their lives.



We approach each of our trail projects, regardless of project size, using three core principles:

- **Engagement-centric.** Understanding that engaged stakeholders will not only provide the vision for the project but will also champion its implementation.
- **Design-based.** Ensuring that concepts are clearly communicated visually using realistic design and development parameters.
- **Implementation-focused.** Generating realistic action recommendations that provide sufficient guidance to execute the vision.



Engagement-Centric

Our approach starts with a strong engagement component focused on deriving the wants and needs of key stakeholders, including staff, appointed and elected officials, user groups and the community at large. In essence, we guide and gather the vision for what the ideal future “should be” or “could be.”

Design-Based

Using decades of local, regional and state trail planning, design, permitting, and construction experience, the Halfff team educates stakeholders about project realities, tradeoffs, and pros and cons of trail alignments, connections, access, safety, surface materials, and environmental and permitting hurdles. This information is used to establish planning/design parameters for trail connection options. Two- and three-dimensional concept graphics, models and plans are generated to communicate the vision, limitations, and options for consideration.

Implementation-Focused

Upon reaching a general consensus of a unified proposed concept, the Halfff team will provide construction and material considerations, construction opinion of probable construction costs, and anticipated operations, maintenance, and life cycle costs for owner/key stakeholder approval.

In addition to our trail approach, Halfff is uniquely qualified to accomplish this PD&E study for Lake County based on our staff’s knowledge of the project issues, and our extensive design experience working for Lake County over the past 20 years. The project is located in our Tavares office’s back yard. Halfff’s Principle-in-Charge, Duane Booth, PE, has worked for Lake County on numerous roadway design projects over his 34-year career. His local knowledge and working relationships with key stakeholders including the U.S. Forest Service and Friends of Lake County Trails will prove extremely valuable to the PD&E study.

NEPA Documentation

The expected Class of Action Determination (COA) for North Lake Trail Phase 3 Project is a Type 2 Categorical Exclusion (CE). Although the project action, “Construction of bicycle and pedestrian lanes, paths, and facilities,” is listed in 23 CFR.117(c) and FDOT’s PD&E Manual as a Type 1 CE, there are several resource and agency coordination provisions that may necessitate completing a Type 2 CE including:

- Potential Wetland impacts that would require a U.S. Army Corp of Engineers (USACE) permit
- Potential Section 7 Consultation
- U.S. Forest Service Easement Modifications through the Ocala National Forest
- Potential involvement with a Wild and Scenic River (WSR) – Alexander Springs is designated WSR
- Potential Section 404 bridge permit – CR 445 bridge crossing of Alexander Springs
- Alexander Springs is Navigable Waterway and subject to U.S. Coast Guard Permit

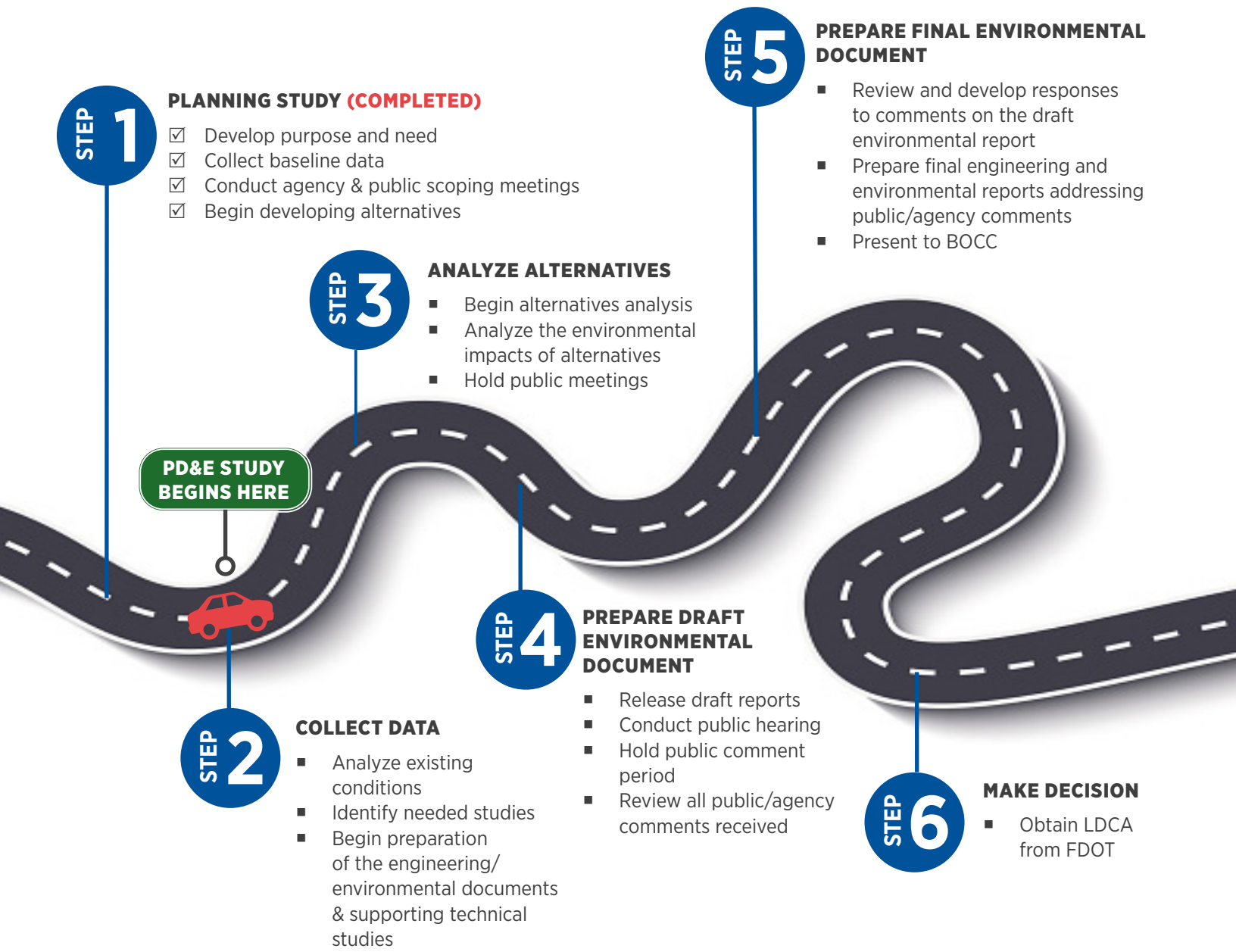
Please keep in mind, if there is no public controversy or exceeding of the resource impact or agency coordination provisions (as provided in FDOT PD&E Manual Part 1, Chapter 2: Class of Action for Highway Projects), **the project’s Class of Action determination could be processed as a Type 1 CE.** The analysis and documentation requirements for the Type 1 CE are substantially less than a Type 2 CE and FDOT review and approval would remain at the District Five Office and would not need to go to OEM in Tallahassee.

The Halff team routinely prepares NEPA documents for FDOT review and approval and uploads project support documents into the FDOT’s SWEPT tool. In support of the Type 1 or 2 CE, our team proposes the use of the “Commitments” module of the FDOT’s Project Suite Enterprise Edition (PSEE) system to complete the Project Commitments Record (PCR) to document project commitments in the Commitments section.



Below is a NEPA Roadmap describing the six key steps of FHWA’s environmental process that will be followed for this project.

NEPA ROADMAP



Data Collection

The Halff team will maximize the use of existing information available from state, regional, local agencies, private sources, and its own files related to data collection. We will conduct field investigations to collect all pertinent existing field information necessary to develop, evaluate and compare the alternative improvement concepts. An inventory of all project information acquired through the Data Collection task will be maintained by Halff and provided to the County. The existing data will be compiled, documented, and mapped on the aerial photography base maps for public presentations. Key elements of this task follow.

Aerial Photography/Base Maps

The Halff team will obtain existing aerial photography for Lake County and will prepare 1" =100' scale verified aerial based raster image maps to be used to present the master drainage basins, the alternative improvement concepts, the recommended trail concept, right of way requirements, and any other required information. Color aerial photography will be used to present the overall project concept and the final preferred alternative to the public at the various public meetings.

Utilities/Railroads

Known utilities within the study area are shown below.

UTILITY PROVIDER	UTILITY TYPE
City of Leesburg	Fiber
Clay Electric Salt Springs District	Electric
City of Eustis Water Dept.	Water & Sewer
City of Umatilla	Water & Sewer
Opticaltel	Telecom
Florida Gas Transmission - Orlando	Gas
Florida's Natural Growers	Industrial Waste
Duke Energy	Electric & Telecom
Comcast Communications	Fiber & Telephone
Teco Peoples Gas	Gas
Sumter Electric Cooperative	Electric
CenturyLink-Ocala	Telecom



Halff will obtain a Sunshine 811 Call Design Ticket for the project corridor to verify these entities and others located within the corridors. Upon receipt of this information, Halff will utilize its vast database of Franchise Utility Owner’s and compare this information with our understanding of the facilities in the area. Contacts will be made with all utility agency owner’s and requests for acquiring information as it pertains to facilities within the corridor (size and type), location of said facilities (within right of way or easement), and any known future utility construction that may be forthcoming. Halff will identify impacts for each alternative and also non-reimbursable and reimbursable costs for impacts. This information will be compiled into a Utility Assessment Package and included in the Preliminary Engineering Report (PER).

Halff will coordinate with the FDOT Railroad coordinator as required.

Land Use Plans

Halff’s significant experience in comprehensive and land use planning provides a strong foundation for assessing land use impacts and benefits. Halff understands how to minimize impacts on nearby properties as well as enhancing overall benefits to the general public and the larger region that benefits from this regional trail facility. Key factors to consider when determining land use impacts/benefits may include:

- Access to adjacent lands
- Potential for needed right of way acquisition
- Impacts on existing and future facilities within the Ocala National Forest
- Impacts to area utility corridors

Survey Requirements

Halff surveyors, who live and work in Lake County will begin by requesting a copy of a right of way package from the Lake County Right of Way Supervisor. Our surveying team will establish, recover, or re-establish project alignments in order to provide property line information for the PD&E study.



The survey will show existing recorded right of way with recording information for the dedication document clearly identified (deed, plat, court order, or recorded maintenance or right of way maps). It will also include intersecting side street right of way. All other evidence of right of way that is shown on the survey shall be shown in different line type, with the source clearly identified (i.e. property line per deed, State Road Department (SRD)/FDOT monument found, RW per unrecorded plat, or recorded plat).

Soil Survey and Geotechnical Data

AEI is extremely familiar with the area soils through their work on many Lake County projects and will be responsible for collecting soil survey and geotechnical data. Based on AEI's review of the available studies of the proposed project trail alignment completed to date, and experience within the project area, the subsurface soil and ground water conditions are generally expected to suitable for the proposed trail design.

Of particular geotechnical design concern, are the lower lying areas of the project where potential organic soil deposits exist and could become a foundation support issue. Another area of concern will be the areas within and adjacent to existing bridges and the proposed bridge modifications and improvements. The Planning Corridor Study identified predominantly sandy soils with high permeability. Several areas containing muck

were also identified west of Altoona, at the intersection with CR 445, a few locations north of Alexander Springs along CR 445A and CR 445, and along SR 40 east of SR 19. These areas will need careful design consideration and planning.

AEI will complete a soil survey with soil borings staggered at agreed upon intervals. Soil samples will be collected and will provide existing groundwater data and estimated seasonal high groundwater. The laboratory testing will determine water content, grain-size distribution, and Atterberg Limits. The soils will be classified with respect to the American Association of State Highway and Transportation Officials (AASHTO) Soil Classification System. A summary of the testing performed will be provided on the geotechnical plan sheet and provide a soil classification data sheet for each boring completed. Each soil boring will be provided at an agreed upon depth per boring location.

Representative soil samples will be selected for laboratory testing as deemed necessary to determine classification and physical properties. Excavation records will be presented in CADD format in a clear, complete, and concise manner. Evaluations and analyses will be carried out using the collected field and laboratory data, project details and specifications. Once the engineering evaluations/analyses are completed, the information and recommendations will be compiled and synthesized into a comprehensive geotechnical report.

Trail Alternatives Development and Analysis

The Halff team will review the three build alternatives, and the no-build alternative contained in the Corridor Planning Study and as described in the scope of services. Halff will analyze the benefits and impacts associated with each alternative alignment trail concept as well as the no-build concept.

The Halff team will analyze and refine the alternative alignments and typical sections. The analysis of each alternative will focus on compliance with the project purpose and need and will identify any fatal flaws that may prevent an alternative from being advanced. The Three Project Build Alternatives and Typical Sections contained in the Corridor Planning Study are described below along with key issues.

ALTERNATIVE

A

Alternative A begins at CR 450, and travels north on the eastern side of SR 19. Alternative A crosses to the western side of SR 19 at Beach Street and continues north. Upon reaching West Altoona Road, a dirt road parallel to the west SR 19, the path then continues north along the western side of West Altoona Road. The path then crosses Lake Daisy Drive, crossing over to the east side of West Altoona Road and when reaching SR 19, turns north on the western side of the road. The path continues on the western side of SR 19 until terminating at SR 40.

ALTERNATIVE

B

Alternative B follows a similar path as Alternative A, until reaching CR 445. At CR 445, the trail crosses from the west side of SR 19 to the east and follows CR 445 on the north/west side of the road. The trail crosses Alexander Springs Creek and continues until reaching CR 445A. Once at CR 445A, the path crosses to the southern/eastern side of CR 445A, continuing north until reaching SR 40.

ALTERNATIVE

C

Alternative C also begins at CR 450, following the Alternative A alignment until reaching CR 445A. Upon reaching CR 445A, the trail alternative then proceeds to follow CR 445A until reaching the intersection it shares with SR 40. The path of the trail would ultimately end at the intersection of CR 445A and SR 40.

An evaluation matrix of the proposed alternatives will provide informational context based on corridor impacts, performance, and cost. Halff has extensive capabilities for generating high quality, accurate concept plans, from graphical renderings to photo-realistic animated visualizations as well as detailed plan-view renderings for public viewing and stakeholder coordination. A series of topic-specific base maps will display alternatives and include community context features, natural features, cultural resources, sensitive sites, and other key issues. The Halff team has already collected available GIS data for this mapping task in preparation for the project. Additional items to be addressed with each alternative will include constructability, permissibility, conceptual drainage analysis, utility involvement, and right of way requirements. Throughout the analysis, the Halff team will coordinate closely with Lake County staff to ensure that each alternative achieves the goal of enhancing the bicycle and pedestrian network by improving pedestrian comfort and safety, accessibility, and network connectivity.

”

“Duane lives in Umatilla, and knows the forest and proposed route of the North Lake Trail like the back of his hand.”

- Michael A. Stephens | Friends of Lake County Trails



Key trail alignment and design considerations include:

- Trail crossings (non-signalized, midblock, driveway, street and signalized)
- Logging operations (currently nine logging purchasers who work with the Ocala National Forest). Paisley Woods is not logged
- Controlled burns (fire along the trail corridor would create a maximum heat exposure of 3,000 BTU (British Thermal Unit) per square foot)
- Traffic operations and safety (volumes and speeds)
- Trail offset
- Drainage modifications
- Utility conflicts
- Alexander Springs crossing
- Connections to existing and planned trails in the study area
 - » Florida National Scenic Trail
 - » Black Bear Trail
 - » Timucuan Trail
 - » Ocala Adventure Trail
 - » Wandering Wiregrass Trail
 - » Baptist Loop Horse Riding Trail
 - » Paisley Woods Bicycle Trail
 - » Heart of Florida Loop,
 - » Alexander Springs Run,
 - » Lake Wekiva Trail
 - » South Lake Trail Phase IIIB
 - » South Lake Trail Phase IV

Conceptual Drainage Analysis

Halfff will prepare and review GIS maps of available natural features information (floodplains, wetlands, closed basins, soils, and karst features).

Based on available GIS LiDAR contour information, the Halfff team will prepare existing conditions drainage basin maps for each corridor. The drainage basin maps will identify primary drainage basin areas, mapped floodplains, base flood elevations, receiving waterbody and classification, and general drainage patterns near the projects. We will supplement documented information by conducting field reviews of each corridor to identify major storm sewer systems with attention to cross drains

The Halfff team will prepare a Preliminary Concept Drainage Report that will include the following:

- Research and Data Summary
- Existing Conditions Context Maps
- Existing Conditions Drainage Basin Maps
- Preliminary Drainage Permitting Approach
- Conceptual Wetland and Floodplain Impact Summary
- Critical Permitting Constraints Summary
- Corridor Drainage Facility Requirements and Potential Alternatives Summary

Trailhead/Amenities

The Wandering Wiregrass OHV Trailhead is located off of CR 445 between Altoona and Astor. Providing a 17-mile loop for motorcyclists and ATV riders through the southeastern corner of the Ocala National Forest, the Wandering Wiregrass OHV Trail meanders through hilly longleaf pine habitat south of Alexander Springs.

The Florida Trail Alexander Springs Trailhead is located within the Alexander Springs Recreation Area, approximately .75 miles west of the Alexander Springs Creek bridge. Alexander Springs Recreation Area is a 67-unit campground that accommodates tents and RVs up to 35 feet. Alexander Springs Recreation area includes backpacking, boating, nature viewing, scuba diving, swimming, and walking trails. Day hikers will appreciate the shady Timucuan Trail, a 0.9-mile interpretive loop with a boardwalk through a jungle of palms along the spring run and more challenging terrain leading into the Big Scrub. A paved path leads along the south side of the basin from the canoe launch to the trailhead for the Timucuan Trail. The interpretive trail continues as a boardwalk through the lush palm hammock along the spring's edge to observation decks along the spring run.

The Halfff team will review potential trailhead location opportunities within the study area and recommend locations and concepts to the County.

Preferred Trail Concepts

The Halff team will refine the preferred trail concept including estimating the final right of way limits, drainage improvements, social impact estimates, cost and other major features needed to advance the project to the design phase. Halff team will prepare the draft North Lake Trail Phase 3 Trail Conceptual Analysis Report documenting all activities leading to and including selection of the preferred improvement concept. This draft will be prepared and available for public review prior to the final public meeting and BCC public hearing. The Halff team will finalize the document following the BCC Public Hearing by incorporating the final public input received and the BCC's final action on the recommendation.

Coordination and communication with FDOT throughout the PD&E study will be essential and the quality and completeness of required analysis and documentation is critical to ensuring Location and Design Concept Acceptance. The Halff team's experience with successfully completing local government and FHWA/FDOT NEPA documentation will be invaluable to the County.

Structures (Bridges)

One potential bridge crossing is the CR 445 Bridge over Alexander Springs Creek (Bridge No. 114047) built in 1959. A review provided by the National Register of Historic Places (NRHP) indicated the bridge was exempt from Section 106 evaluation under the 2012 Program Comment for Common Post-1945 Concrete and Steel Bridges. Alternative B crosses this structure or crosses Alexander Springs Creek with a new pedestrian bridge structure adjacent to the existing structure.

The existing bridge typical section consists of two approximately 10.5-foot travel lanes and 1.5-foot outside shoulders with a 2-foot wide safety curb and concrete traffic railing on both sides. The overall bridge width is 30 feet which will not accommodate a multi-use trail. The existing bridge may be eligible for replacement due to its construction date of 1959 making it 62 years old and could be considered nearing the end of its useful life. The bridge width is also considered to be "functionally obsolete" by today's bridge width requirements. A replacement bridge to carry CR 445 over Alexander Springs Creek could be designed to current bridge deck width standards and include provisions for a multi-use trail.

A new pedestrian bridge to carry the trail over Alexander Springs Creek could be built adjacent to the CR 445 highway bridge. A variety of pedestrian bridges could be constructed using conventional concrete and/or steel elements to span the nearly 350 feet of the Creek. Many prefabricated bridge structures could also be evaluated at this site.

The Alexander Spring Creek is designated by Florida Department of Environmental Protection as an Outstanding Florida Waters and is classified as a Wild and Scenic River by the U.S. Department of Agriculture Forestry Service. The Corridor Planning Study recommended the trail continue over the Alexander Springs Creek Bridge without modifications to the structure. It is recommended that additional options for the trail crossing of Alexander Springs Creek Bridge be evaluated such as sharrow lanes, signing and pavement markings to warn trail users of the upcoming bridge crossing and to inform motor vehicles of the pedestrian/bicyclist movement.



Environmental Analysis

The Halff team will collect pertinent environmental data, conduct analyses, and document the results of this analysis within technical reports or memoranda consistent with FDOT's PD&E Manual. Key elements of this task are described below.

Cultural Features/Archaeological Sites and Historic Resources

Archaeological Consultants, Inc. (ACI) shall analyze the proposed trail alternatives within the study area boundary in Lake County to determine, preliminarily, if any significant or potentially significant cultural resources, including archaeological sites and historic resources, will be impacted by the construction of any of the proposed trails. The purpose of the desktop report is to provide preliminary information and fatal flaws within the specific corridors. The report will include background research identifying previously recorded resources, discuss the potential for unrecorded cultural resources (archaeological and historical), and present methods proposed for field survey, data analysis, and documentation. Once a preferred trail alternative is selected, a Cultural Resource Assessment Survey (CRAS) will then be conducted.



Archaeological Sites and Historic Resources

ACI conducted a preliminary review of the proposed 19-mile North Lake Trail Segment IIIA study area, from CR 450/Bulldog Land in Umatilla to SR 40 in Lake County, Florida. This research revealed that archaeologically, the project limits have a moderate to high potential for archaeological sites.

Eighty-two archaeological sites have been recorded within one mile of the proposed trail alternatives and of those 25 have been recorded within 200 meters (656 feet). The 25 sites consist of mounds, historic refuse,

homesteads, artifact, and lithic scatters. Four of the 25 sites have been found to not be eligible for listing in the National Register of Historic Places (NRHP) by the State Historic Preservation Officer (SHPO), one has been determined eligible for listing in the NRHP, and one is potentially eligible for listing in the NRHP. The remainder have not been evaluated or have insufficient information for the SHPO to make a NRHP evaluation. As a result, archaeological testing will be necessary.

Based on the preliminary research and review of the Florida Master Site File (FMSF) 55 previously recorded historic resources are located adjacent to the proposed trail alternatives. This includes 54 buildings and one cemetery (8LA00080). Of these, 51 buildings were determined ineligible for listing in the NRHP and the cemetery and one building have not been evaluated by the SHPO. Two buildings are NRHP-eligible (8LA00268 & 8LA02074) are located along the southern segment containing all three proposed alternatives (A-C). A review of the Lake County Property Appraiser website, historic aerial photographs, and Google Earth imagery indicates that approximately 84 resources, 45 years of age or older (constructed in 1976 or earlier), are present within the three proposed alternatives.





Section 4(f)

Several public parks, boat ramps, and conservation areas are located within the alternative corridors including:

- Umatilla Veterans Park
- McTureous Memorial Park
- Lake Beakman Boat Ramp
- Alexander Springs Creek Bridge Canoe Launch
- Ocala National Forest (USDA Forest Service)

A determination of applicability (DOA) will be required to determine whether these resources qualify as designated Section 4(f) sites. Christie Pritchard has previously prepared Determination of Applicability documents on several PD&E projects for FDOT projects. This research involves field reviews, interviews with Officials with Jurisdiction (OWJ) over the resource. FDOT Geographic Information System (GIS) databases, current management plans, and property appraiser

websites to determine boundaries. Once this research determines that the resource is considered to be a Section 4(f) resource under 23 CFR 774.117, an evaluation of project alternatives is conducted to determine whether there is a use of that resource within the meaning of Section 4(f). Often times on transportation projects, either there is no use of the resource or the action qualifies as an exception or an exemption to Section 4(f) regulations, in which an Exception/Exemption form will be prepared. This form is typically prepared on FDOT projects where a trail or sidewalk is constructed within a park or recreation area, and it serves as an enhancement to the Section 4(f) resource. Christie has routinely prepared DOAs, No Use, and Exception/Exemption forms as part of her in-house support staff for various FDOT Districts. Within the last year, she has successfully submitted Section 4(f) forms on various PD&E projects utilizing the Section 4(f) on-line tool in the Statewide Environmental Project Tracker (SWEPT). She was also involved with the testing phase of the tool before the implementation stage of the online tool. With her varied and depth of experience working on projects with Section 4(f) experience, Christie will be an asset to this contract because she is intimately familiar with all of the procedures/processes embedded in these laws/regulations, and she has also coordinated extensively with FDOT Districts and OEM on these types of projects.

Natural Features

The landscape between the start and end of the proposed trail is primarily undeveloped, and includes land use classifications of low density residential,



agriculture/pastureland, upland forests, upland scrub and sandhills, and wetlands. The proposed trail alternatives north of Pittman are within the Ocala National Forest which has some of the best sandhills in central Florida and the largest contiguous scrub habitat in the state. With respect to natural habitats, the three proposed trail alternatives predominately bisect upland forests including pine flatwoods, sand pine, mixed hardwood-conifer forests, planted pine stands, and forest regeneration areas within a 100 ft. buffer of the trail. For all three alternatives, over 90% of the natural habitat within the 100 ft. buffer is upland pine or mixed pine forests. Trail alternatives A and B have a small percentage of native rangeland habitat within 100 ft. of the proposed alignments; however Alternative C does not. While wetland habitats are present within 100 ft. of each of the three trail alternatives, they represent 9% or less of the total native habitat within each alternative.

The project is located within the USFWS consultation area for the Florida scrub-jay, snail kite, red-cockaded woodpecker, sand skink and Lake Wales Ridge plants and is likely to have potential involvement with all but the snail kite based on potential suitable habitat present. In addition, there is potential for the eastern indigo snake, Florida black bear, Florida sandhill crane, southeastern American kestrel, wood stork, wading birds, bald eagle, and protected plant species. There are multiple state and federally listed plant species that have a potential to occur within the proposed alignments particularly within the Ocala National Forest area. All three alternatives appear



to be within suitable sand skink habitat throughout portions of the trail and would be verified during a field review to determine if a sand skink coverboard survey would be needed. A Florida scrub-jay sighting was documented adjacent to Alternative A, and multiple red-cockaded woodpecker sightings have been reported within Alternative B along CR 445 between US 19 and Alexander Springs. Habitat for these species would be assessed during the field review and based on coordination with USFWS it would be determined if a species-specific survey would be required for these species.

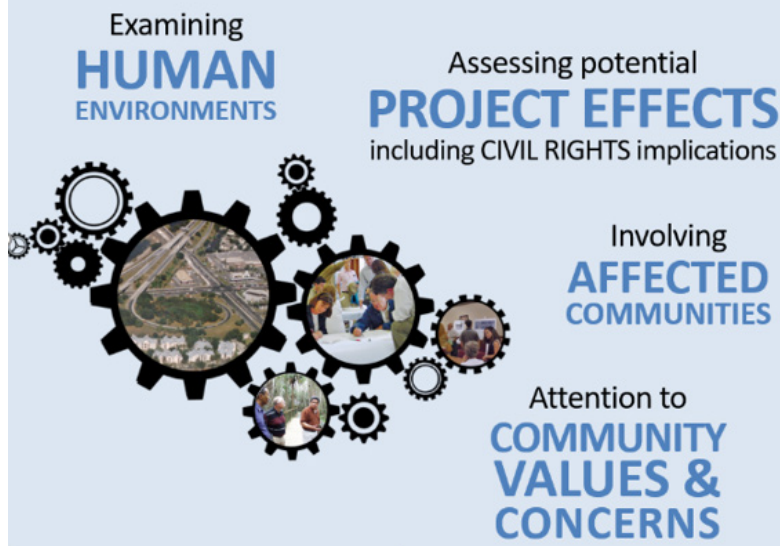
While there are limited impacts to wetlands anticipated from each of the alternatives, our team will look at ways to avoid and minimize impacts to wetlands. This can be done through constructing boardwalks or use of a gravity wall in strategic locations. In 2018, FDEP was given the authority to begin the rulemaking process to assume the federal dredge and fill permitting program under section 404 of the Clean Water Act within state-assumed waters. This process was completed in July 2020 and created the State 404 Program within Chapter 62-330 and 62-331, F.A.C. to facilitate this assumption. This State 404 Program is responsible for overseeing permitting for any project proposing dredge or fill activities within state-assumed waters.

The State 404 Program is a separate program from the existing ERP program, and projects within the state-assumed waters require both an ERP and a State 404 Program authorization. Based on a review of the database depicting state assumed waters, Alternatives A and C would follow the permitting requirements of the SJRWMD Environmental Resource Permit (ERP) and FDEP Section 404 State Program. Alternative B would follow the permitting requirements of the SJRWMD and USACE if there are wetland impacts associated with Alexander Springs since this system is a federally retained waterway. If wetland impacts are less than 0.5 acres, then an ERP through SJRWMD and either a general or individual permit through FDEP would be applicable for Alternatives A and C. If wetland impacts are less than 0.5 acres for Alternative B, then an ERP through SJRWMD and a Nationwide permit through the USACE would be applicable. If impacts to wetlands are greater than 0.5 acres, then a SJRWMD and FDEP Individual permit and a USACE Individual permit would be applicable based on the respective permitting agency.

It is also important to consider ways to minimize impacts to unique upland habitats that support protected plant and animal species. If impacts to protected plant species are unavoidable, there is an opportunity to coordinate with the National Forest Service and local plant conservatories to facilitate the relocation of the plants for the design phase. Coordination with USFWS North Florida Field Office will be an important part of this project and our team has previous coordination with Zakia Williams, USFWS biologist for the North Florida Field Office, to refine the areas subject to survey for the sand skink based on site-specific habitat conditions.

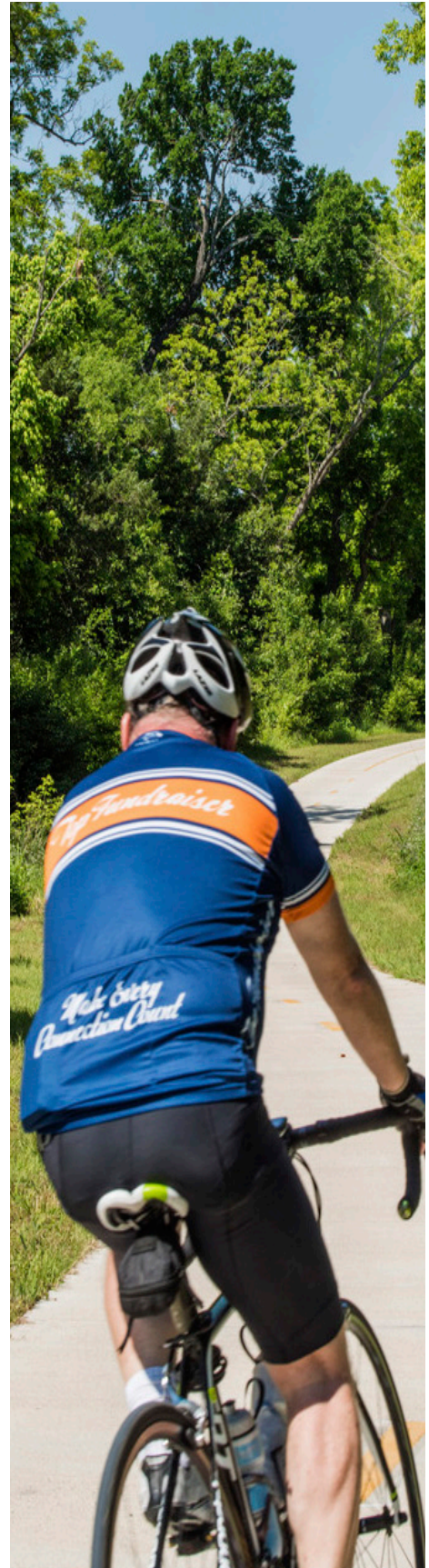
As part of the PD&E study, the Halff team will prepare a Natural Resource Evaluation (NRE) report. The purpose of the NRE is to document and analyze existing natural features such as land use, soils, wetlands, wildlife, and habitat with the selected area of study. The analysis of the identified environmental features included the evaluation for potential impacts proposed by the three Build Alternatives. The potential impacts identified from the Build Alternatives will be compared to the No-Build Alternative.

SCE Evaluation is a Process



Community Impact Assessment (Sociocultural Effects Evaluation)

The sociocultural effects (SCE) evaluation for the project will examine the potential for project-related social, economic, land use change, mobility, aesthetic, and relocation potential effects. The evaluation will direct attention to the potential for any disproportionate adverse impacts to minority, low-income, and other vulnerable populations as a result of the project in accordance with Executive Order 12898 on Environmental Justice, Title VI of the Civil Rights Act, and other applicable nondiscrimination laws and policies. If potential sociocultural effects are identified, the affected communities will be engaged through the public involvement process in assessing the extent and severity of effects and developing context-sensitive solutions.



Notable demographic characteristics in the area, surrounding several of the eight project segments identified in the Corridor Planning Study, are described below.

Populations addressed by the Environmental Justice

Executive Order: Within the 1,320-foot buffer area, the racial/ethnic minority population for the project segments range from 13.9% (Segment 1) to 18.8% (Segment 3) of the segment's total population. At the countywide level, the minority population is significantly higher at 30.3%. Persons within the buffer area living below poverty level range from 4.4% (Segment 1) to 18.3% (Segment 6). In comparison, the countywide poverty percentage is 12.0%.

Transportation Disadvantaged Population: The total occupied housing units with no vehicle available for all of the project segments is 43 units. The estimated population of these households is approximately 107 persons. The child/youth population (under age 18) ranges from 16.7% to 20.7% in the segment buffer areas. The age 65 and over population ranges from 22.8% (Segment 2) to 44.9% (Segment 4). The population age 20 to 64 years with a disability in segments 3-7 are greater than 15%. The segment with the highest share of persons in this age group with a disability is Segment 6 at 21.6%. The lowest is Segment 1 at 9.3%.

Limited-English Proficient (LEP) Population (Addressed by Title VI of the Civil Rights Act): Per the ACS survey data, limited English proficiency is not prevalent among the project segments buffer areas. For segments 1, 2, and 4, persons age five and over who speak English "less than very well" is less than 5.0%. For the remaining segment, the buffer area has 0.0% of this population. Further investigation will be conducted to determine the

accuracy of the data (e.g., interviewing knowledgeable locals). Also associated with English proficiency is educational attainment. The population age 25 and over reported less than a high school diploma accounted for greater than 20% of the total population in the buffer areas for segments 5-8. For Segments 3-4 and 7, the percentage was over 10%. Project communications will be developed using plain language and clear graphics to facilitate access by persons with low-literacy skills. Source: FDOT Sociocultural Data Reports, 2015-2019 American Community Survey.

Contamination/Hazardous Material Sites

AEI will prepare a Contamination Screening Evaluation Report for the trail project. The purpose of the study is to evaluate the likelihood of hazardous or petroleum substance impacts within and adjacent to the proposed trail right of way corridors. As part of the contamination screening evaluation, a physical site investigation of the proposed trail alignment corridors will be performed, as well as a review of aerial photographs, city and county directories, environmental databases, and interviews with select regulatory personnel. The Corridor Planning Study reviewed the EPA and FDEP databases and determined that all of the alternatives would have low potential for contamination impacts because they are not expected to have direct impacts to any contamination facilities.

Corridor Analysis Report

Halff will review the corridors from the previously prepared plan or present a new path. Prior to the selection of a recommended alignment, corridors will be analyzed and screened for their potential to address the project's purpose and need while considering socio-economic issues, engineering and environmental



features, and alignment control factors that may influence corridor location. The corridor analysis will address the current and projected development pattern and the presence of any environmentally sensitive features within the corridor.

Public and Agency Involvement

When people are involved in creating public projects and spaces, they develop a strong sense of ownership and pride in the outcomes. Early and continuous public involvement will help to bring diverse viewpoints and values into the decision-making process and provide the County with a better understanding of potential issues and opportunities. The North Lake Trail Phase 3 project will create a beautiful multi-modal facility and “Sense of Place” in Lake County. Through public engagement, diverse stakeholders will have a place at the table to share their values, preferences, and ideas.



The public involvement effort for this PD&E study will be led by our Project Manager, Gary Phillips, AICP, with support from Michael Garau, PE, and Tammy Vrana, AICP. Gary, Michael, and Tammy have been working together for several years on a continuing service contact for the FDOT Office of Policy Planning for statewide public involvement guidance and trainings. Recent work projects are listed below and may be viewed on the FDOT Public Involvement Resources webpage.

- FDOT Public Meeting/Hearing Guidance (COVID-19)
- Guide to Hybrid Meetings and Hearings
- How to Set Up and Host a Virtual Public Meeting
- Engaging with Questions: Using Polls and Surveys
- Public Involvement 101 training (video)
- Public website and tools for the FDOT Five-Year Work Program process

Continuous Public Engagement, From Kickoff to Completion

The Halfff team is prepared for robust public engagement. This total team effort is built on our relationships and deep understanding of the

communities along the corridor. The Halfff team proposes to engage each unique audience in their space, along with holding large public meetings (relationships matter). This approach allows each Corridor segment to reflect the adjacent community, ranging from documenting history, to creating spaces for play, to guiding landscaping, safety improvements, and project amenities.

A comprehensive Public Involvement Plan (PIP) will be developed and modified as needed for use during this project. The PIP describes specific methods and techniques regarding the public involvement approach for the project and ensures a free flow of information between Lake County and all of the stakeholders/interested parties. Activities implemented as part of this PIP will encourage people living and working within the project study area, as well as other interested parties, to contribute to the decision-making process. The goal of this PIP is to generate interest in the project, obtain input for decisions made on the project and to outline the public involvement process. The process will ensure the general public, local communities, agencies and officials, and other interested parties understand the nature of the project through open, two-way communication where project information is presented in a straightforward format that is easily accessible.

Development of the PIP will be supported by demographic data, visiting the project area, and talking to people who are knowledgeable about people and places in the project area. These steps will give the team a better understanding of who could be affected, who might be interested, and potential community concerns.

These and other community demographics will be compiled and analyzed as part of the sociocultural effects evaluation (community impact assessment) process will identify potentially affected communities and community resources, which will inform the project PIP. The PIP will include strategies for reaching and engaging these communities in the PD&E project.

The Halfff team has experience successfully conducting all of the meetings and outreach efforts identified in the scope of services and listed on the next page:



- Project Overview Meeting
- Public Alternatives Concepts Workshop
- Public Information Meeting on the Draft Recommended Improvement
- Board of County Commissioners Public Hearing.
- Coordination Meetings with Local and State Organizations
- Small Group Meetings

Identification of Stakeholders

Halfff will prepare a mailing list of interested parties which includes any person or institution expressing an interest in the project, potential permitting or review agencies, elected and appointed officials in the area, community leaders, media representatives and all homeowners/property owners located within 300 feet of any improvement concept.

The North Lake Trail will serve as an amenity that can be used by residents and visitors alike. Therefore, its alignment and the project's progress will be of interest to a variety of people inside and outside the project study area, including local governments and municipalities, developers, utility providers, homeowner associations (HOAs), landowners, residents and business owners near the trail alignment, bicyclists/cyclist clubs, pedestrians, and environmentalists. The scope of services includes agency coordination meetings with Lake County Board of County Commissioners, FDOT, Cities of Tavares and Mount Dora, Lake County Office of Parks and Trails, Local Public Utilities, USEPA, SJRWMD, City of Umatilla, U.S. Forestry Service—Ocala National Forest, Friends of Lake County Trails, FDEP, Chambers of Commerce and Citizens Advisory Committees. All of these stakeholders, along with others identified, will be incorporated into the PIP.

Visualization and Graphics

Our team includes talented and experienced graphic and visual artists that specialize in creating and preparing computer-generated 3D visualizations, renderings, illustrations, and animations. Our artists routinely transform existing condition photographs or aerial/drone obliques, obtained by our Federal Aviation Administration-certified remote pilots, into realistic before and after graphics and presentation materials for community meetings and/or demonstrations. These visualizations help community members bring their ideas to life.



Virtual and Hybrid Meetings

The Halfff team has extensive experience using online digital engagement techniques. Whether it's to poll the public on community interests, gather needs through interactive mapping, communicate via a website, employ social media, record, and publish videos, conduct surveys, or host virtual meetings, we've got you covered. The hybrid components of the community meeting could be held synchronously or asynchronously. For a synchronous meeting, we suggest broadcasting the virtual meeting to the in-person location(s), for example, a library meeting room with projection screen, sound system, and staff. For an asynchronous meeting, we suggest hosting the virtual meeting prior to the in-person meeting to drive attendance to the virtual component given any heightened need for safety protocols in physical spaces.

Our team will set up and manage the virtual public meeting platform, including attendee registration. Providing multiple ways to register for the meeting and provide comments/questions will accommodate all forms of meeting attendance. During the meeting, project information will be presented using PowerPoint slides and video animation, as appropriate. The presentation will be narrated in descriptive, plain language that speaks to the "why," as well as the "what." Key information will be provided in handouts for in-person meeting component and downloads for the virtual component.

Our team of web designers bring expertise in developing, maintaining, and hosting websites to provide project-specific information in a way that is

easily accessible (including American with Disabilities ADA or language translation). Our websites can integrate with ArcGIS and other tools. This approach includes virtual tours, interactive GIS Story Maps, informational videos, conceptual renderings, design team interaction, and public feedback

Equity and Accessibility

Halfff is committed to providing equitable engagement opportunities designed to meet the unique needs of traditionally underserved communities. We consider the needs of diverse populations and tailor our strategies to best reach the communities we serve. Tools may include providing translated project information, publishing notices that language services are available (including Spanish project hotline), providing interpreters at public meetings upon request, publishing information in alternative news media (print, radio, online), exhibiting at fairs and festivals, publishing notices and information printed in large font, posting information at local libraries and community centers, holding public events in locations that are accessible by transit and at times that are convenient for community members, partnering to provide services for paratransit users, and providing services to support all abilities, as requested.

Newsletters

Halfff will prepare and distribute three newsletters: one at the start of the project, one at middle, and one after the last Public Hearing. The newsletters will be double-sided and printed in color on 8 1/2" x 11" sheets. The newsletters will be sent to each entry included in the data base mailing list. Those newsletters not mailed will be distributed as needed through the small group meetings, workshops, and public meetings

Website Page Creation/Maintenance

An interactive website will be an important component of the comprehensive public involvement program for the North Lake Trail Phase 3 PD&E Study. We have overseen the development of successful websites for projects such as the Capital City to the Sea Trails Master Plan and PD&E Study, River to Sea TPO Long Range Transportation Plan (Connect 2045), and several other studies and plan. Our team will draw from this experience to develop a user-friendly website that will seamlessly integrate with the study's outreach approach. It will be developed to ensure that public involvement protocols and requirements are met and that is fully compliant with Web Content Accessibility Guidelines (WCAG) 2.0 Level AA.

The website will serve as a central portal to provide key project documents, a project schedule overview, workshop announcements, and other information. Importantly, it will include an intuitive platform for the public to easily provide comments on the project through methods such as an online comment form, link to send comments by email, and printed PDF comment form that can be downloaded, completed, and mailed. We will coordinate closely with County staff to design the website content, graphics, and functionality to be consistent with the vision for the study.

The website can be hosted by our team, a third-party hosting provider, or on a dedicated page on Lake County's website. We will work closely with County staff to identify the most appropriate hosting solution. We can also deliver options such as interactive maps, online surveys, and production of scripted informational videos to be used on the website and during public workshops. We will provide content maintenance and update throughout the duration of the study.

Analysis and Summary of Public Comments

The purpose of the PIP is to identify potentially affected people in a community and define the outreach methods and schedule to involve and gain their input. The public and stakeholders comment process includes the following steps:

1. Collection
2. Analysis
3. Acknowledgment
4. Distribution and Tracking
5. Consideration
6. Response
7. Sharing
8. Documentation

The documentation process will serve several purposes. In addition to providing documentation of public involvement activities, it will help to inform the County of community issues and needs that should be considered in developing transportation solutions. Information gleaned from the public comments may also serve to inform future project phases. A comment database will be created and continually maintained to track all comments received during the project development process. The information collected will include the comment, data received, format/source (e.g. email, at meeting, from website, etc.), responses

given, and follow-up conducted. Commenters will be asked to provide their zip code. Following entry of the comment, staff will review the comments and categorize them for reporting purposes such as no improvement; worried about impact to property; environmental concerns; suggested alignment; or others.

Monthly progress reports and a comment and coordination report will be developed to summarize the public outreach results and recommendations. The report will also contain the overall input provided through the other public involvement techniques utilized in the project development process.

Contract Administration

Once the Notice to Proceed (NTP) is issued, our Project Manager, Gary Phillips, AICP, will prepare a Work Plan and distribute it to the County and all Halff team members. The Work Plan will include the scope of services, staff hours, fees, schedule, major milestone dates, QA/QC Plan, and contact information for all team members. This document will serve as a “living document” that is continually updated as the project progresses. Halff is committed to meeting the agreed upon project schedule for the Project Development and Environment (PD&E) study effort by using the communication tools described below.

Project Management

Halff’s approach to any project begins with assembling the best team to meet the unique needs of the project. As Project Manager, Gary Phillips, will be responsible for managing the overall contract and ensuring that the

project is economical, on time and of high quality. Gary will be the primary contact for the County and will also be responsible for coordinating with subconsultants and all team members to ensure that the project schedule is maintained. Gary is an effective communicator and recognizes the benefits of being proactive. One of Gary’s primary responsibilities will be to facilitate seamless communication and coordination between the Halff team and County staff throughout the life of this project. Effective methods that we have implemented on past projects and anticipate using on this project will include the following:

Gary will immediately bring critical issues to the County with recommended solutions. The Halff team coordination tools include:

- Formal Bi-weekly Meetings: These meetings include the Halff team, and the County Project Manager, centered around project specific issues. In these, various task leads are brought to the meeting as well to ensure that the most technical/critical challenges are being conveyed, communicated, and addressed.
- Monthly Status Meetings. These meetings include the Halff team and the County Project Manager to discuss overall project schedule, major project risks, upcoming effort, and project strategy to maintain the aggressive timeline.
- Project Status Reports. Each month, Gary will send a status report that allows the County Project Manager to have a clean formal record of the current project schedule, and associated issues that were discussed over the past month.

FOUR PILLARS OF HALFF’S CORE VALUES



PEOPLE

We transform the lives of the people we serve. Our ideas serve the people who use them through an informed understanding of their needs and desires for moving forward.



PLACE

Our legacy is embodied in the places we bring to life. Our ideas create inspiring and usable places which foster strong, lasting connections for the people who use them.



PLANET

We are stewards of our environment. Our ideas preserve and conserve our most valued assets and focus on creating sustainable and resilient outcomes.



PROSPERITY

An enduring future must also be fiscally-sustaining. Our ideas embrace the difficult decisions necessary to create opportunities to grow and create lasting value.

- Informal virtual conference calls. The Halff team utilizes Microsoft Teams and will schedule and conduct impromptu virtual meetings to quickly address any project issues as they arise, as well as to share newly discovered information.
- Lessons Learned Log will document resolved issues.
- Project Site Visits. A key element of a successful project is to understand the project area, and throughout the project, the Halff team will meet the County Project Manager to walk through issues identified and review on site to determine if there are alternative approaches to consider.
- WebEx Meetings to save time and expedite decisions.
- Share Project Files through ProjectWise, FTP, TEAMS to improve work efficiency.



In general, our goal is to minimize the time that the County’s staff must spend monitoring this project. Halff has established practices and procedures and, more importantly, we have key team members who have worked together on numerous similar projects with a proven track record of excellence. We are confident that we can minimize the time you spend managing this project.

Project Schedule

An 18-month project schedule which includes the major tasks and durations is shown below. A detailed Microsoft Project schedule will be prepared for County review as part of Task 1.

Task	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Notice to Proceed	★																				
Data Collection																					
Stakeholder Coordination/Meetings																					
Environmental Analysis																					
Trail Alternatives Development & Analysis*																					
Preferred Trail Concept Development*																					
Finalize Reports																					
LDCA																					★

*Durations include time for County and FDOT review.

NOTE: U.S. Forest Service will prepare Environmental Assessment (EA) Document concurrent with project.

Quality Assurance/Quality Control (QA/QC)

A successful project begins and ends with QC. Our vast PD&E study experience allows us to be very effective in providing the most efficient service to properly plan, scope and avoid or minimize rework. Providing a firm foundation with a strong work plan and scope will set up the project for success. Task managers have the ability to pull resources as needed to complete a specific objective and then those resources become available again for other task managers to utilize.

Project Manager, Gary Phillips, AICP, will work directly with Task Managers to assign additional resources to the project to accelerate tasks as needed and keep a project on schedule. Avoiding rework is the second key to being efficient. We minimize rework by involving the QC reviewers from the beginning and regularly at important decision-making milestones to provide input rather than having to make changes when trying to meet a submittal milestone. The process is designed to identify internal and intra-disciplinary issues as early as possible. Our QA/QC objectives are to meet or exceed client contractual expectations; conform to applicable laws, codes, and regulations; perform to a standard of care consistent with that of the industries we serve and the assignments we undertake; and seek to continually improve our products, our processes, and our people.

Our objective is the continued improvement to the total delivery process to enhance quality, productivity, and client satisfaction. We recognize that not any two projects will be alike. We approach each project separately and develop a specific QC Plan (QCP). Halff implements a strict QCP that defines staffing, schedule, requirements, objectives, and QA/QC procedures for the contract as well as for each assigned task. Our QCP, including subconsultants, meets and/or exceeds those set forth by FDOT. The Halff QCP is based on the understanding that:

- Quality is achieved by the project team (led by an experienced Project Manager) being aware of the work requirements and performing each work function with the objective of “doing it right the first time.”
- Quality is controlled by adequate planning, coordination, supervision, and technical direction; proper definition of job requirements and procedures; and the involvement of experienced professionals and technicians.

- Quality is verified by documentation of the checking and reviewing of work activities by objective individuals who are not directly responsible for performing the initial work.
- Having a manager perform QA functions that involve monitoring and close review not only of the work itself, but also of the procedures used in performing the work assures quality.
- Quality is confirmed by an independent peer review by experienced professionals and technicians who evaluate compliance with procedures and determine the constructability of the project. Mike Adams, PE, will perform that independent peer review will ensure that all deliverables, including those of our subconsultants, go through our rigorous five-step process.
- Quality is achieved by providing adequate time in the project schedule to execute the plan.
- Halff maintains a copy of the complete manual (excerpted above) on our internal website.
- Specific details of the QA/QC process such as timing, monitoring, and record keeping are established at the kick-off meeting. Our internal construction services staff also provides constructability review and it is not uncommon to send plans out to a local contractor for a preliminary estimate and secondary constructability review.

We will submit a signed QCP for approval within 20 business days of the NTP. The quality of our work is imperative to ensure that there are no delays in design or construction related to issues not addressed during the PD&E study. We have and will continue to perform at the highest level to minimize potentials for errors by executing a proven QA/QC plan. QA is planned and coordinated with continuous internal activities being performed to measure our processes against the predetermined critical requirements.

