



SECTION 3: PROPOSED SOLUTION

ENGINEERING CONSIDERATIONS

In addition to meeting the goal of safety and accessibility for all ages and user abilities, the design of the North Lake Trail Phase 3 will meet the standards of the Florida Department of Transportation (FDOT) criteria, the Lake County Public Works Department standards, and the guidelines outlined in the 2018 Trails Master Plan Update as appropriate. Portions of the trail alternative are along a state road and will follow the standards outlined in the FDOT Design Manual (FDM) 224: Shared Use Path, which would call for a 12-foot-wide paved trail with a two-foot graded area as well as a maximum 1:6 slope and a four-foot clear area adjacent to both sides. The FDM indicates the width of a shared use path can range from a minimum 10 feet to 14 feet. We understand a 14-foot path is the County's desire and will work with both the County and FDOT to reach an agreeable width along the state roadway.

FDM Standards	
TRAIL WIDTH	12' Standard (10' – 14' Range)
CROSS SLOPE	2% Maximum
LONGITUDINAL GRADE	5% Maximum
HORIZONTAL CLEARANCE	4' Clear Area
VERTICAL CLEARANCE	10' – 12' Desirable
DESIGN SPEED	18 mph, 30 mph > 4% (Longitudinal Grade)

Other portions of the trail alternatives will be beside county roads where we will implement the guidelines of the 2018 Trail Master Plan Update. The guidelines define the intended use of a multi-use trail to be for non-motorized uses. It is typically designed for two-way travel, is separated from motor vehicles by open space or a barrier, and can be within a roadway right-of-way (ROW) or in an independent ROW. The guidelines also state, "Generally 12.5 feet wide or more, in areas where a great deal of pedestrian and bicycle use is anticipated, 15 feet is the recommended width." Therefore, we will examine a variation in width when the trail is adjacent to a county road. During this width examination, we will consider other factors beyond the standards and guidelines. For example, the St. Johns River Water Management District (SJRWMD) exempts multi-use recreational paths that are 14 feet wide or less from water quality treatment. Thus, stormwater treatment requirements can be avoided by designing with a maximum width of 14 feet.

The environment and community *sense of place* will vary along the trail alternatives, so the trail will be

specifically designed for the area's unique context. With this and the Corridor Planning Study in mind, four typical sections are anticipated for the project corridors.

- **Typical Section 1:** The first typical section will be applied to unconstrained areas, and the trail will be separated from the roadway by a grassed area (>12 feet), all within the existing ROW.
- **Typical Section 2:** A second typical section will be applied to unconstrained areas, and the trail will be separated from the roadway by a grassed area (>12 feet). However, the trail is within a separate easement.
- **Typical Section 3:** A third typical section will be applied to constrained areas; the trail will be within the existing ROW and separated from the roadway by a grassed area approximately 12 feet wide.
- **Typical Section 4:** The fourth typical, reserved for extremely constrained areas, will place the trail behind a curb and gutter, separated by a five-foot utility strip. The path width may need to be reduced to 10 feet in these locations to stay within existing ROW. The curb and gutter systems may connect to a closed drainage system with cross drains to divert the flow to the opposite existing roadside ditch. The existing ditch may require modification to accommodate the increased runoff volume.

Trail Alignment

For the first roughly eight miles of trail, we anticipate all three alternatives will be co-located, beginning along SR 19 at the E. Collins Street and CR 450 intersection. The trail will run within existing roadway ROW on the east side of the road until just north of Mary Street. The first typical section described under the trail design approach will be applied in this area using FDM standards. The minor swale that currently exists may need to be regraded and the drainage structures adjusted due to the addition of the trail. Utilities are roughly 14 feet from the existing edge of SR 19 pavement, so trail placement in this area will be critical for avoiding utilities. Specifically, consideration for swales, drainage structures, and utility avoidance will be an integral part of the trail alignment design. Additional discussion regarding drainage and utilities can be found in the Drainage Design/Permitting and Utility Coordination sections.

Between Mary Street and Lake Street, the need for additional ROW is expected since the roadway ROW narrows and the parcel adjacent to the ROW is owned by CSX. From north of the CSX property to just north of Beach Street, the trail will reside within County-owned land adjacent to the eastern SR 19 ROW. Since the trail will not be in the existing roadway ROW, the second typical, in conjunction with the FDM, will apply.



Figure 3-1: Right-of-way and habitats along CR 445 corridor within the project area.

Just north of Beach Street, the trail will cross SR 19 to the west side of the roadway and continue north. For a short segment, the trail will reside within the roadway ROW, then transition to County-owned land adjacent to the west SR 19 ROW until Keene Road. From Keene Road to just north of Lake View Terrace Drive, the roadway ROW widens to once again accommodate the trail. Just north of Lake View Terrace Drive, the trail will transition from SR 19 ROW to the ROW associated with West Altoona Road (on the east side). The trail will follow the alignment of West Altoona Road, staying within County ROW until Lake Daisy Drive. The one exception is CR 42 (Bent Tree Road). At this location, the trail will return to SR 19, crossing CR 42 at the signalized intersection and then returning to West Altoona Road. Along this stretch of trail, we will implement County standards as defined in Appendix A of the Lake County Land Development Regulations and explore trail enhancements in line with the 2018 Trail Master Plan Update.

At Lake Daisy Drive, the trail will return the SR 19 ROW along the west side of the roadway and will reside within that ROW for slightly over two miles until just south of Ravenswood Road. This approximately two-mile segment of trail is within a constrained area with only 60 feet of ROW, and the typical section will need to reflect this condition. To avoid impacting 35 parcels, the fourth typical section will be considered using FDM criteria. From Ravenswood Road to CR 445, the ROW along SR 19 varies from 65 to 120 feet, with the Ocala National Forest being the predominate owner of the adjacent parcels. Where appropriate, we will explore placing the trail on what is currently national forest land to allow for a safe and comfortable distance between the trail and SR 19, which correlates to the second typical section. Approximately 0.45 miles south of CR 445, the ROW for



Figure 3-2: Looking downstream of Alexander Springs Creek, an Outstanding Florida Water along the CR 445 alternative corridor.

SR 19 widens to 132 feet where the trail will return to the western ROW line.

At CR 445, the three trail alternatives are no longer co-located. The alternatives will now be discussed independently (see Section 1 for an alternatives map).

First Alternative

From CR 445, the first alternative will continue to follow SR 19 for approximately 9.4 miles until it ends at SR 40. SR 19 has 132 feet of ROW throughout this length except where the ROW widens to 150 feet as it approaches SR 40. Given the width of the existing SR 19 ROW, it is anticipated the trail will be located within and near the western ROW line. The majority of the adjacent property is part of the Ocala National Forest. The first typical section will be applied using the FDM criteria.

Second Alternative

From CR 445, a second alternative will follow the alignment of CR 445 for approximately 10.9 miles—crossing Alexander Springs Creek along the way—until it meets CR 445A. Based upon property appraiser information, CR 445 ROW ranges from 100 to 150 feet, and the majority of adjacent property belongs to Ocala National Forest. It is anticipated this alternative will stay within the existing CR 445 ROW near the western line, using County standards with the first and third typical sections depending on ROW width. We can also examine the possibility of using the second typical with an easement for the trail, again using County standards. Once this alternative reaches CR 445A, it will turn north to follow CR 445A's alignment along the eastern ROW line for approximately a half mile until it ends at SR 40. The ROW of CR 445A ranges from 85 to 100 feet. This

portion of CR 445A does not abut Ocala National Forest; therefore, every effort will be made to keep the trail within CR 445A ROW to avoid acquisition. Within the constrained nature of this segment, the fourth typical section may be required to avoid ROW acquisition. Along CR 445, we can explore trail enhancements outlined in the 2018 Trail Master Plan Update, particularly since the North Lake Trail is part of the River to Hills. These may include trail width, trail counters, and other trail amenities such as benches and wayfinding signage.

Third Alternative

From CR 445, a third alternative will continue to follow the alignment of SR 19 for approximately 5.5 miles until it reaches CR 445A. SR 19 has 132 feet of ROW through this length, and the alternative will be located near the western SR 19 ROW line. The majority of the adjacent property is part of the Ocala National Forest. The first typical section will be applied using the FDM criteria. From the intersection of SR 19 and CR 445A, this alternative will follow the alignment of CR 445A for approximately 4.1 miles until it ends at SR 40. The ROW width of CR 445A for that length is between 100 and 150 feet, with the exception of a short segment that narrows to 85 feet. For the approximately 4.1 miles along CR 445A, this alternative is anticipated to be within the existing ROW near the northern ROW line. Nearly all of the property adjacent to this portion of the alternative is Ocala National Forest with the exception of the segment from the CR 445/CR 445A intersection to SR 40. Depending upon the ROW width, the trail will use County standards with the first, third, and potentially, the fourth typical sections. As previously mentioned, we can explore trail enhancements along CR 445A as outlined in the 2018 Trail Master Plan Update.

Rest Areas

Given the length of the trail, we will look for potential rest area locations along each alternative from an overall standpoint and specifically in rural areas abutting the Ocala National Forest. The rest areas will be small, pull-off concrete areas alongside the trail. Where feasible, they will include a bench and trash can. We will also look for opportunities to provide shade to trail users.

Connectivity

With 11 existing/planned trails within the study area, connectivity must be considered. While all alternatives will connect to the proposed SR 40 Black Bear Trail, they can potentially connect to the Florida National Scenic Trail and three recreational areas/parks. The second alternative also has the potential to connect with the existing Alexander Springs Run and the Timucan Trail.

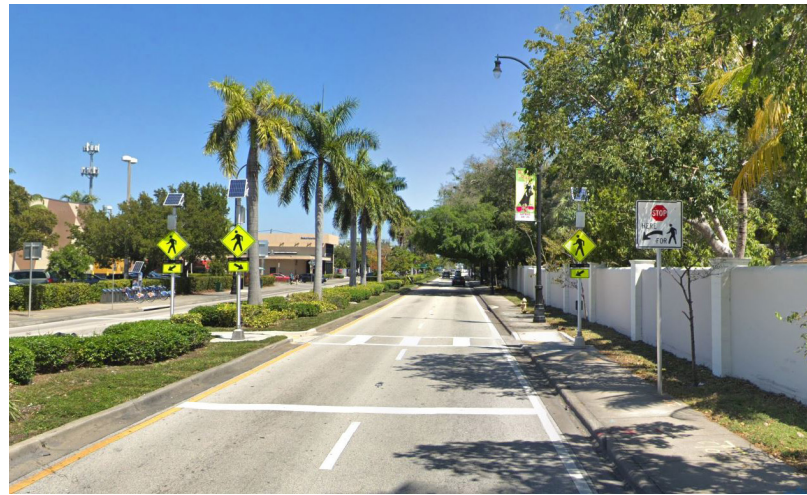


Figure 3-3: An example of rectangular rapid flashing beacons and median refuges.

Additionally, social and cultural resources have potential for trail connectivity. For example, one school and three religious institutions are located within 500 feet of the alternatives and could benefit from trail connectivity.

Roadway Crossings

When a multi-use trail crosses a roadway or driveway, the design must be carefully thought-out to provide the safest crossing for both trail users and the motoring public. All alternatives associated with this North Lake Trail segment include multiple at-grade road and driveway crossings. While the majority of these crossings are associated with low-volume roadways, each alternative will cross E. Collins Street in Umatilla, CR 42 (Bent Tree Road) in Altoona, and SR 19, which have the highest traffic volumes along the project corridor. While crossings of E. Collins Street and CR 42 will occur at signal-controlled intersections, crossings of SR 19 will occur at non-signalized locations. As a result, we recommend considering a rectangular rapid flashing beacon (RRFB) with any proposed crossings of SR 19. Our team has used RRFBs on multiple trail and roundabout projects, and RRFBs provide additional safety for the trail users by alerting motorists when trail users are present. We recommend median refuges also be considered at SR 19 crossings. For each roadway/driveway crossing, we will provide signage and striping as outlined in the Lake County Trail standards.

Signalization & Signing

Three main conditions exist for a trail crossing: mid-block crossing, at-grade intersection, and grade-separated. The mid-block and at-grade intersection are the two potential types anticipated for the North Lake County



Figure 3-4: Bridge over Alexander Springs Creek looking south.

Trail. For the mid-block crossing, the elements that must be taken into consideration are traffic and trail volumes, operating speed, vertical grade, and sight distance. At minimum, high-visibility crosswalks and appropriate pavement markings and signage—including advance trail crossing signs—should be applied. Additional enhancements of raised median with curb and gutter and pedestrian lighting can also be examined.

The at-grade intersection crossing will occur at signalized and non-signalized intersection as well as driveways. Again, crosswalks that provide a designated safe space for trail users will be an important aspect to at-grade intersections. At the signalized intersections of SR 19 at E. Collins Street and SR 19 at CR 42 (Bent Tree Road), the pedestrian phasing is an additional critical element. Each crossing will be designed with context in mind and will provide the most clarity. Signing and crossing standards for Lake County and the MUTCD will be followed. In addition, we will work with the County regarding wayfinding signage, an integral part of trail development, providing safety to the trail users.

Structures

Only one existing bridge structure is found within the three project alternative alignments. This structure is located along CR 445 and extends over Alexander Springs Creek, an Outstanding Florida Water. This structure was constructed in 1959 and consists of two 10.5-foot travel lanes with 1.5-foot outside shoulders and a curb and concrete railing. While unlikely, this structure will be evaluated to determine if widening the structure and reconfiguring its typical section to accommodate the multi-use trail is feasible. A new adjacent pedestrian bridge at this location will also be assessed. As part of this assessment, a preliminary horizontal and vertical

geometry, including span lengths and arrangements, will be established. Possible bridge types will be evaluated, and aesthetic options will be investigated. A bridge plan, elevation, and typical section will be developed, and preliminary cost estimates will be provided. Our team will also evaluate constructability and maintenance of traffic (MOT) solutions.

Each of the proposed corridors will be evaluated to determine if a grade separation is warranted at any trail crossings of existing roadways.

Potential structural impacts to existing box culverts along the alternative corridors, including those at Blackwater Creek and Ninemile Creek, will also be evaluated.

Drainage Design/Permitting

The majority of the project will meet the requirements of Chapter 62-330.051(10) Florida Administrative Code (FAC) and will be exempt from water quality treatment requirements. However, any potential impacts to existing drainage patterns or the 100-year floodplain will need to be assessed and addressed. In addition to the potential crossing over the Alexander Springs Creek floodplain, the alternative project corridors also include areas adjacent to small depressions where impacts to historical basin storage will need to be evaluated. Raising the trail grade and adding crossdrains in these areas to alleviate flooding and prevent adverse impacts will be considered. Any existing culverts that require modification due to the proposed slopes and embankment will also be identified. Impacted ditches and swales will be analyzed to ensure they provide adequate capacity. In any highly constrained sections, we will identify the need for storm sewer systems and will give consideration to the maintenance of existing flow patterns and outfall locations.

Three Outstanding Florida Waters receive runoff from the project study area: Lake Dorr, Juniper Creek, and Alexander Springs Creek with two others downstream. Adverse impacts to these water bodies are not anticipated. The project alternatives fall within the boundaries of nine Florida Department of Environmental Protection (FDEP) WBIDs: Island Lake Outlet (2801A), Lake Dorr Outlet (2929Z), Buck Lake Drain (2918F), Unnamed Drain (2917A), Beakman Lake (2918H), Juniper Creek (2905), Unnamed Drain (2927), Alexander Springs Drain (2918A), and Jumping Gulley Creek (2916); however, no impacts to water quality are anticipated due to the trail's operation.

Utility Coordination

From our initial assessment of the alternative project corridors, we identified 19 utility agency owners (UAOs).

These UAOs include:

- CenturyLink (aka Lumen)
- City of Eustis
- City of Umatilla
- Clay Electric Cooperative
- Comcast Communications
- Duke Energy Distribution
- Duke Energy Fiber
- Duke Energy Transmission
- Florida Gas Transmission
- Florida's Natural Growers
- Gig Stream
- Opticaltel
- St. Johns River Utility Inc.
- Summit Broadband
- Sumter Electric Cooperative Distribution
- Sumter Electric Cooperative Fiber
- Sumter Electric Cooperative Transmission
- TECO Peoples Gas
- Unifi Fiber

As an initial project phase, we will complete field reviews to confirm the identified UAOs and determine their exact location, size, type, and material. This information can then be used in locating project alternative alignments to minimize impacts to utilities. If impacts are unavoidable, we will work to determine the extent of impacts and assess potential design adjustments or other mitigative actions to resolve conflicts. We will request order of magnitude cost estimates from all UAOs as well as identify any utility work agreement and certification (UWAC) potentials. All findings will be documented in a utility assessment report.

A utility of note is a Florida Gas Transmission (FGT) pipeline crossing of SR 19 just south of Lake Dorr Road in Altoona. As the trail will need to cross over the FGT pipeline and will likely be located within existing SR 19 ROW, this crossing will need to address the August 21, 2013, Agreement and Global Settlement between FDOT and FGT. This agreement outlines specific criteria for construction near and/or over FGT pipelines located within FDOT ROW. We will assess this area carefully and develop alternatives to avoid encroachments into the FGT easement that extends outside the SR 19 ROW. We will also closely coordinate the pipeline crossing with FGT. Our team members have extensive experience working with FGT and addressing requirements of the FDOT/FGT agreement on projects throughout Florida, including segments of the Florida's Turnpike in Palm Beach, Martin and St. Lucie Counties, SR 70 in Highlands County, and Central Polk Parkway in Polk County.

Duke Energy Transmission also has facilities within an easement located along the west side of the SR 19 ROW from Baker Road in Umatilla to Keene Road in

Altoona. Alternative alignments within this area will be aligned to avoid impacts to this easement.

Topographic & ROW Survey

The Lochner team is prepared to provide advanced survey in support of the PD&E effort. We will review proposed alternative routes and collect field survey information to be used in the preparation of ROW index maps and survey exhibits. At present, we foresee this information only being collected in specific areas where ROW limits may be critical in the development of alternatives (e.g., Disston Avenue to Tremain Street). Information gathered in the field will likely consist of recovering section lines, existing ROW limits, and subdivisions and property lines. Collected information will be supported by research and review of publicly available records, such as the ROW packages (to be provided by Lake County and/or FDOT District 5) and property appraiser's information. If needed, our team will collect limited design survey data at specific locations to assist in evaluating the preferred alternative. We anticipate the limited design survey data to include information such as cross sections of topography and limited utility information (above and below ground).

Survey data will be collected using a combination of terrestrial static LiDAR, total stations, and GPS as most suitable for the specific tasks. We are also prepared to use drones for collecting imagery and preliminary topographic information in support of the PD&E study.

Geotechnical

Based on review of the USDA NRCS Soil Survey and our team's past experience within the project area, the natural near-surface soils generally consist predominantly of sandy soils (A-3/A-2-4) underlain occasionally by clayey soils (A-2-6/A-4/A-6/A-7). Organic soils (A-8) are not anticipated to be a major concern within the project area; however, they are noted to exist in depths of greater than five feet along the CR 445 alternative alignment within the area of Alexander Springs Creek. In areas of higher elevations along the alignments, the predevelopment seasonal high groundwater (SHGWT) level is anticipated to be at depths of greater than six feet below the natural grade. However, in other portions of the study area, SHGWT may be encountered to range from above natural grade to 3.5-feet below natural grade.

Our team will review existing soils data including USDA NRCS soil survey maps and any existing geotechnical explorations available within the project area. The existing geotechnical data obtained will be summarized in a technical memorandum to support the preliminary layouts and analysis of alternative alignments.

ENVIRONMENTAL CONSIDERATIONS

Cultural Resources

A review of the Florida Division of Historic Resources (DHR) Florida Master Site File (FMSF) shows multiple recorded historic and archaeological resources along the alternative project alignments. Of these resources, two historic sites (both located along SR 19) have been determined eligible for listing in the National Register of Historic Places (NRHP): the Pittman Dwelling (8LA00268) at the Pittman Work Center and the Altoona United Methodist Church (8LA02114). In addition, one archaeological site (8LA00530), located along CR 445, has also been determined eligible for listing.

Review of the Lake County Property Appraiser's database indicates additional parcels contain potentially unrecorded historic structures within and adjacent to all proposed alternative alignments. Additionally, historic aerial and topographic imagery indicates an unrecorded segment of the St. John and Lake Eustis Railroad (8LA04716) may intersect the project limits near Ravenswood Road, and the culvert crossing Ninemile Creek north of Sand Hill Pond may also be historic. While the existing CR 445 bridge over Alexander Springs Creek (Bridge No.: 114047) was constructed in 1959 and would be considered historic, it is exempt from historic resource evaluation (Section 106) under the *2012 Program Comment for Common Post-1945 Concrete and Steel Bridges* agreement.

Archaeological probability along the project alternative alignments is considered moderate to high, with higher archaeological potential in well-drained upland areas in proximity to fresh water and with lower archaeological potential in areas of poorly drained soils.

Our team will initially prepare a detailed archaeological and historical desktop analysis of the project alternative alignments. The desktop analysis will include identification of known cultural resources that have been recorded with the DHR Florida Master Site File, research regarding unrecorded historic resources, and the development of archaeological probability models to develop an understanding of the cultural resource issues associated with each alignment under consideration. Information collected will be used to aid in the assessment of alternatives and their potential for cultural resource involvement.

Upon selection of a preferred alternative, we will conduct a cultural resource assessment survey of the project's area of potential effect, which should include existing and proposed ROW in addition to a 330-

foot (100-meter) buffer. The area will be surveyed to investigate and document evidence of the presence of historic or prehistoric resources and to evaluate identified resources for their potential eligibility for listing in the NRHP.

The cultural resource assessment survey (CRAS) will include an archaeological and architectural history survey, the results of which will be presented in a Phase I CRAS report that meets the requirements of Part 2, Chapter 8 of the FDOT PD&E Manual (latest edition) and Chapter 1A-46 of the Florida Administrative Code. The field methods will follow the recommendations presented in Section 2 (Cultural Resource Assessment Surveys) of the DHR's Cultural Resource Management Standards & Operations Manual.

Section 4(f)

To meet federal requirements, the project will need to address Section 4(f) of the Department of Transportation Act of 1966. The intent of this act was to enhance the protection of publicly owned park and recreation lands during the planning and development of transportation facilities. To be considered a Section 4(f) resource, a property must function or be designated as a significant public park, recreation area, wildlife or waterfowl refuges, or historic site. The Ocala National Forest qualifies as a Section 4(f) resource.

The applicability of Section 4(f) is based upon a project's use of land, which is designated as a Section 4(f) resource. The proposed trail's use of lands within the Ocala National Forest should qualify for a *de minimis* 4(f) determination. A *de minimis* determination is made when the transportation use of the Section 4(f) property, together with any measures to minimize harm, do not adversely affect the activities, features, or attributes that qualify a property as a Section 4(f) resource. The proposed trail should be a compatible use with, and not adversely affect, the Ocala National Forest.

Alternatively, a determination of *No Section 4(f) Use* may also be applicable to this project as the proposed trail project will not result in permanent acquisition of land from the national forest (assuming use of easements) and will serve to enhance use, features, and amenities of the national forest.

Our team members have extensive experience dealing with Section 4(f) resources and requirements. We have been extremely successful in obtaining letters of non-applicability for construction of segments of the Peace River Trail through the Fort Meade Outdoor Recreation Area in Polk County and the construction of a parking area and trail network within the Van Whidden Park in Glades County. We will utilize this 4(f) experience



Figure 3-5: Alexander Springs Creek is within CA for manatees, which are documented to use the Alexander spring system particularly during winter.

when coordinating with FDOT District 5 and the FDOT Office of Environmental Management (EMO), and will coordinate early in the project schedule to determine the applicability of Section 4(f) to this project.

Natural Environment

From the perspective of the natural environment, the project study area can be divided into two sections: urban/suburban and rural/conservation. The urban/suburban portions include the southern terminus at the intersection of SR 19 and CR 450 in Umatilla north to just north of Altoona. Within this section, the trail uses the SR 19 corridor, comprised of a mixture of commercial and residential development interspersed with pasture and other agricultural land uses.

North of Altoona to SR 40, the project corridor traverses much of the Ocala National Forest. The project area is at least partially within the U.S. Fish and Wildlife Service (FWS) Consultation Area (CA) for five federally protected species: the West Indian manatee, Florida scrub-jay, Everglade snail kite, sand skink, and red-cockaded woodpecker. Species occurrences, habitat suitability, and potential impacts vary by species and alignment alternative. A review of data obtained during the SR 40 PD&E study and current USFS, Florida Fish and Wildlife Conservation Commission (FWC), and SJRWMD GIS databases indicate several hotspots where impacts to protected species would be more likely.

Manatee

The spring run for Alexander Springs Creek is within the CA for the manatee, and manatees have been documented using the spring system, especially during

winter months. The crossing of Alexander Springs Creek at CR 445 would require consideration of impacts to manatee during in-water work.

Florida Scrub-Jay

While the Florida scrub-jay has been documented throughout the Ocala National Forest, it is especially prevalent within the Big Scrub area that abuts the SR 19 corridor between Altoona and SR 40. Much of Big Scrub is managed for the scrub-jay, and clusters of documented observations occur on both sides of the SR 19 corridor especially around the intersection of NF Road 19-8.4 and again at SR 40.

Everglade Snail Kite

The Everglade snail kite is generally limited to emergent woody vegetation within the littoral zone of freshwater wetlands. The kite is not common within the Ocala National Forest, and suitable nesting/foraging habitat is limited within and abutting the corridor alternatives.

Sand Skink

The sand skink is a cryptic species considered by FWS to be present when an area meets the location, elevation, and soils criteria needed to support sand skinks. FWS recently expanded the suitable soils list for the sand skink, and much of the uplands within all three corridor alternatives meet the criteria to be considered suitable to support skinks.

Red-Cockaded Woodpecker

The red-cockaded woodpecker (RCW) is documented within the Ocala National Forest with a cluster of known nest trees north and south of NF Road 10 just east of CR 445. Suitable habitat to support RCWs occurs through much of this section of the Ocala National Forest between Lake Dorr and Alexander Springs Creek, which is within the general vicinity of the alternative that follows CR 445.

Additional Wildlife

Additional wildlife considerations include the bald eagle, eastern indigo snake, Florida black bear, gopher tortoise, Florida sandhill crane, SE American kestrel, and various wading birds. One documented eagle nest (Nest ID LA192) is located just east of Alexander Springs Creek and just outside 660 feet of CR 445.

Wetlands are comprised of a mixture of forested and herbaceous systems and include several large, regionally significant systems associated with Lake Dorr, Alexander Creek, Billie's Branch, and Sellers Lake. Most of the wetlands associated with these systems also include suitable foraging habitat for the wood stork

along with other wading birds and are within the Core Foraging Areas of documented wood stork rookeries at Lake Yale and Mud Lake. Additionally, the FDEP assumed portions of the CWA 404 permitting program in December 2020; these were previously administered by USACE. However, some waters were retained by USACE, and within the project area, this includes the Alexander Springs Creek system as well as wetlands within 300 feet of the creek’s surface water limits.

Our team will prepare a natural resources evaluation (NRE) report to support the PD&E study. The NRE will include an assessment of natural habitats within and abutting the alignment alternatives, effect determinations for state and federally listed species, a preliminary wetland assessment using the Unified Mitigation Assessment Method (UMAM), and a conceptual mitigation plan that will identify mitigation options to offset any impacts to wetlands and listed species that are not avoidable.

Contamination

As a preliminary assessment, our team reviewed databases maintained by the FDEP to obtain the most up-to-date information on potential contamination sites within 500 feet of the project alternative alignments. Each alignment begins in the City of Umatilla and uses a small portion of the CSX railroad corridor. Railroads can be a contamination source due to the application of various chemicals for weed control and leaching from the crossties and trains. As a result, contamination such as herbicides, heavy metals, and petroleum projects are often detected in surficial soils of former railroad corridors. We also identified approximately 25 additional regulatory-listed sites associated with the project alternative alignments. Additionally, the U.S. Navy Pinecastle Electronic Warfare Range is located in close proximity to SR 19. Although all of these listings have the potential for contamination involvement, none are currently associated with soil or groundwater remediation activities. Therefore, involvement with soil and groundwater contamination is not expected.

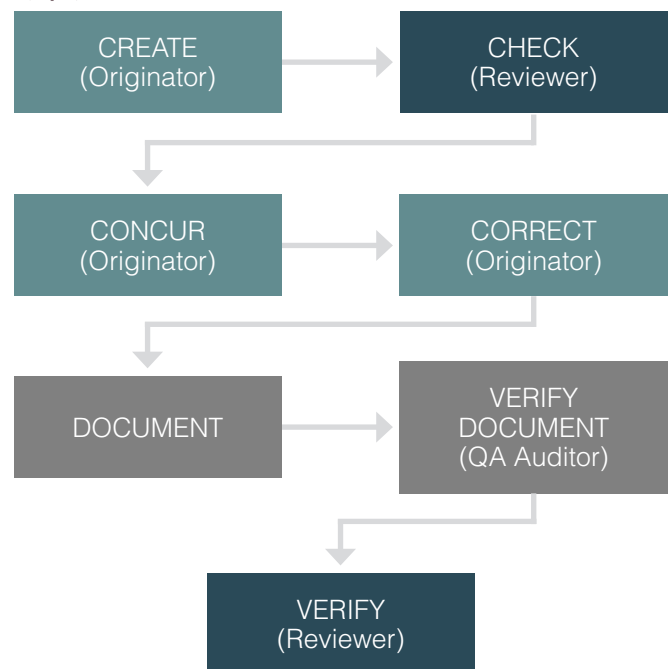
To document potential contamination conditions, our team will prepare a Contamination Screening Evaluation Report (Level I) in accordance with Part 2, Chapter 20 of the FDOT’s PD&E Manual (latest edition 2020). As part of this report, risk ratings will be provided for each site identified (low, medium, and high), and any recommendation for further assessments (Level II testing) will be provided. Information collected as part of this task will also be used in the design of alternatives and in the determination of a recommended alternative.

Quality Control/Quality Assurance

Meeting client needs with quality services and products is critically important to Lochner. As such, we require quality work of our employees and team members and strive to exceed our clients’ expectations with constant improvement of our services and products. Our definition of quality is “conformance to requirements.” Lochner’s primary quality goals are to achieve “zero defects” and “exceed client’s expectations.” Products such as studies, documents, drawings, and calculations are expected to be complete, orderly, correct, and appropriate for the intended purposes, to not impose potential liability or require rework, or require an inappropriate review effort on the part of the client. The responsibility for delivering quality services and products rests with every team member working on the project and ultimately with Mark Easley, Project Manager, and Don Skelton, PE, Principal-in-Charge. Additionally, Lochner performs annual independent QC audits on projects, completed by a senior executive of the firm, reinforcing our commitment to quality.

An individual QA/QC plan will be developed and submitted for this contract. Mark will assign each major task associated with this project to an experienced task leader qualified to perform the work. The responsible professional must complete the assigned task according to the applicable standards, procedures, and practices within the agreed upon time and budget.

QA/QC PROCESS



Upon completion of the task, products are checked by a qualified senior professional—the quality reviewer—designated for the task in the QA/QC plan.

Summary

The Lochner team brings a wealth of trail PD&E experience to Lake County, and our experience with the FDOT/FHWA PD&E process and LAP projects is unsurpassed. As stated previously, our team members have successfully completed numerous LAP trail PD&E studies for local governments including Polk, Glades, Collier, Hillsborough, Seminole, and Volusia Counties, and the Cities of Haines City, Casselberry, and Orlando.

Additionally, our team members have worked extensively with and for FDOT District 5, under project specific, Districtwide and Continuing Services contracts, and the Office of Environmental Management (OEM); as a result, we know their processes and requirements. We have the unique experience of having worked with the USFS and the Ocala National Forest on previous projects during both PD&E and design and can support Lake County with USFS coordination needed to obtain easements for trail construction and operation in the national forest. In closing, we look forward to working with Lake County and helping to expand their existing trail network.