

**Lake Jackson PD&E
Preliminary Engineering Report**

for

**Lake Jackson Ecopassage (US 27)
From Clara Kee Boulevard
to Old Bainbridge Road (CR0361)
Leon County, Florida**

Project Development and Environment Study

**FM Numbers: 414746-1
Federal Aid Project Numbers: TBD**

**Prepared for:
Capital Region Transportation Planning Agency
and
Florida Department of Transportation
District Three**

**Prepared by:
Kimley-Horn and Associates, Inc.**

January 2007

PRELIMINARY ENGINEERING REPORT

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Concurred by:
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SUMMARY

The need for an ecopassage along US 27 to allow safe migration of animals from Lake Jackson to Little Lake Jackson has been identified by Leon County. Animal migrations from Lake Jackson to Little Lake Jackson occur on a daily basis. However, over the years, it has been documented that periodic “drydowns” occur where the lake either partially or completely empties its waters into sinkholes and eventually into the Floridan Aquifer. These drydowns are expected to continue in the future, occurring about every 10 to 15 years with the most recent cycle occurring in 2000. When these events occur, large numbers of wildlife migrate from the dry lakebed of Lake Jackson to Little Lake Jackson. More than 25,000 vehicles travel this busy corridor each day and thousands of species of animals are killed either routinely or during drydown events creating a hazard for motorists. The proposed project is consistent with Capital Region Transportation Planning Agency (CRTPA) Long Range Transportation Plan (LRTP) (formerly Metropolitan Planning Organization – MPO) for 2025. The proposed project is also consistent with the Leon County, CRTPA Transportation Improvement Program (TIP) for the fiscal years of 2006/2007 through 2009/2010.

Leon County completed the *Lake Jackson Ecopassage Feasibility Study* in April 2005. This study evaluated various alternatives for construction of an ecopassage to allow animals to cross US 27 between Lake Jackson and Little Lake Jackson. The study provided detailed public involvement including meetings with the Lake Jackson Technical Advisory Committee and the CRTPA. A preferred alternative was identified as part of this process. The project limits for Lake Jackson Ecopassage are illustrated on the Project Location Map (*Figure 1*).

This Project Development and Environment (PD&E) Study involves evaluating the No Action and Preferred Alternative as described below:

Replace the one existing culvert and construct three additional culverts, as well as construction of a diversion wall along the length of the proposed project. Specifications for the wall and culvert should be 8-feet high and at least 8-feet wide, and the wall should be at least 5-feet high on the lake side, and include a 6-inch overhanging lip on the lake side of the wall. It is anticipated that right-of-way acquisition will not be required.

This Feasibility Study has made recommendations for the locations and sizes of proposed culverts and walls. However, the implementation of these recommendations will be dependent on existing conditions, including ground elevations, and the presence of environmentally sensitive zones such as drainage basins, wetlands, and floodplains.

Passageway sizes were based on available data suggesting that larger culverts will have greater success as functional ecopassages. The US Fish and Wildlife Service suggested that when designing the ecopassages review previous successful designs. Examples can be found at <http://www.wildlifecrossings.info/beta2.htm>. Based on existing topography, the existing roadway may need to be raised to accommodate the larger culverts. Additional data, including topographical survey and geotechnical information, will need

to be obtained during the design phase of this project in order to determine the exact locations and sizes of culverts.

1.1 Commitments

1. Gopher tortoise pre-construction survey and coordination with Florida Fish and Wildlife Conservation Commission (FWC) regarding permitting of tortoise relocations or appropriate mitigation measures, if required.
2. Coordination with the permitting agencies regarding mitigation requirements for wetland impacts will occur during the design phase of the project.

1.2 Recommendations

1. Development of a Monitoring and Maintenance Plan.
2. Development of a Habitat Management Plan.
3. Temporary fencing with monitoring prior to construction.

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NOTES:

1. This map is for informational purposes only.
2. Location maps from Microsoft Streets and Trips, 2004.

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FIGURE 1 - LOCATION MAP



2. INTRODUCTION

2.1 Purpose

The purpose of this Preliminary Engineering Report (PER) is to document the findings of the engineering evaluation for the proposed Lake Jackson Ecopassage in Leon County, Florida. The general location of the project is depicted in *Figure 1*. This report presents the engineering data and analysis needed to define the proposed project improvements. It documents the existing physical features of the roadway and the existing environmental characteristics of the project corridor. This report also defines the need for improvement, including the analysis of existing and projected traffic conditions establishing the requirements for the proposed project improvements. The results of the analysis are summarized, and the analysis of viable alternatives is documented. An alternative evaluation matrix, which compares the relative strengths and weaknesses of the No-Build and Build alternative developed for this study, is included in *Section 6.0*. This matrix makes it possible to perform a preliminary design analysis of the conceptual plans, including the evaluation of social, economic, and environmental impacts, as well as transportation needs. The conceptual design plans are included in *Appendix A*.

This report will serve as the document of record to move this project forward and to support decisions as the project advances through design and construction. This PD&E study was conducted in accordance with FDOT guidelines and related federal, state, and local government requirements.

2.2 Project Description

The project involves replacing the existing culvert, constructing new culverts, and diversion walls on either side of the highway. The walls would serve to divert animals from crossing the highway and would encourage them to travel through the culvert. This alternative provides a more permanent means for safer animal migration, reduced road kill incidents, and reduced animal/vehicle conflicts on the highway. Highway safety along the corridor would be improved because of a reduction of avoidance measures by cars and collisions. However, some species may succumb to exhaustion or predation as they travel too far away from the culvert and get trapped along the retaining wall. Decisions would need to be made regarding how far to extend the walls, the type of materials to use in the walls, and the type of materials to use in the subsurface at the base of the walls. Replacement of the current culvert should be done with the understanding that it is an existing operational passage under the road. It is recommended that the height and width of the new culvert be duplicated, as these factors are likely the attributes leading to its success.

3. NEED FOR IMPROVEMENT

The stretch of US Highway 27 (US 27) (North Monroe Street) between Old Bainbridge Road and Clara Kee Boulevard in Leon County, Florida, crosses a portion of the large sinkhole lake known as Lake Jackson. The proximity of the highway to the lake, combined with the natural habitat and unique hydrology of the Lake Jackson ecosystem, results in conditions where large numbers of animals, particularly reptiles and amphibians, cross the highway and come in contact with motor vehicles. Animal populations are at risk as increasing numbers of animals are killed on the road by vehicles. Additionally, the animal crossings put humans at risk by increasing the potential for motor vehicle accidents as motorists stop for, attempt to swerve around, or collide with wildlife.

3.1 Area Needs

The need for an ecopassage along US 27 to allow safe migration of animals from Lake Jackson to Little Lake Jackson has been identified by Leon County. Animal migrations from Lake Jackson to Little Lake Jackson occur on a daily basis. However, over the years, it has been documented that periodic “drydowns” occur where the lake either partially or completely empties its waters into sinkholes and eventually into the Floridan Aquifer. These drydowns are expected to continue in the future, occurring about every 10 to 15 years with the most recent cycle occurring in 2000. When these events occur, wildlife migrates in mass quantities from the dry lakebed of Lake Jackson to Little Lake Jackson. More than 25,000 vehicles travel this busy corridor each day and thousands of species of animals are killed either routinely or during drydown events creating a hazard for motorists. The proposed project is consistent with Capital Region Transportation Planning Agency (CRTPA) Long Range Transportation Plan (LRTP) (formerly Metropolitan Planning Organization – MPO) for 2025. The proposed project is also consistent with the Leon County, CRTPA Transportation Improvement Program (TIP) for the fiscal years of 2006/2007 through 2009/2010.

3.1.1 Federal, State, or Local Government Authority

The proposed project lies within the jurisdictions of Leon County, the Capital Region Transportation Planning Agency, FDOT District 3, and Federal Highway Administration (FHWA). The project has been found to be consistent with the Tallahassee-Leon County Comprehensive Plan.

3.1.2 Social Demands or Economic Developments

The Lake Jackson ecosystem is an important part of the local economy. It has a longstanding reputation as a world class sport-fishing resource, and the area is also used by many individuals for active and passive recreational activities such as swimming, picnicking, bird watching, waterskiing, and boating. An

economic report prepared in 1994 (McGinnis et. al., 1994) indicated that in 1993, 53,441 people visited Lake Jackson.

There is strong support from the public and governmental agencies for the protection of wildlife crossing the roadway. The proposed project would result in conserving the wildlife that makes Lake Jackson such an important part of the local economy.

3.2 Project Corridor Needs

3.2.1 Safety

The overall goal of this project is to provide a safe crossing between Lake Jackson and Little Lake Jackson for animals along this section of US 27 and to reduce the potential for wildlife/vehicular collisions. Reptile mortality not only affects reptiles, but also causes tire blow outs, vehicular crashes from swerving, and even reptile debris through windshields.

The proposed improvements to US 27 may help reduce the number of crashes and vehicle damage along this section of roadway. The safer this section of roadway is, the better it will serve the growing population in the coming years.

3.2.2 Structural

No major structures exist in this section of road, however there is currently one culvert in the northern section of road that will be replaced. The project proposes to build three additional culvert crossings underneath the existing US 27.

4. EXISTING CONDITIONS

4.1 Existing Roadway Characteristics

The northern boundary of the study area begins approximately 1,242 feet south of the intersection of US 27 and Old Bainbridge Road. The southern boundary of the study area lies at the intersection of US 27 and Clara Kee Boulevard. The corridor is located within Section 5, Township 1 North, Range 1 West and Section 32, Township 2 North, Range 1 West.

US 27 consist of four travel lanes divided by a 30-foot wide grassy median. Lane widths in the northbound direction vary between 12 and 14 feet, with 4-foot paved shoulders. There is 9 feet of grass between the existing silt fence (currently used to keep animals from crossing the road) and the roadway signs south of Red and Sams Lane, with an additional four feet to the paved shoulder.

In the southbound direction, lane widths are between 11 and 14 feet with a 3-foot paved shoulder. There is generally 7 feet between the temporary silt fence and the paved shoulder.

The pavement is generally in good condition. There are no designated bicycle or pedestrian facilities in the study area. In 2004, the Average Annual Daily Traffic (AADT) was 21,500 vehicles. According to the Tallahassee-Leon County Comprehensive Plan, the functional classification for this section of US 27 is Urban-Principal Arterial.

4.1.1 Soils Data

According to the United States Department of Agriculture/Natural Resource Conservation Service (USDA/NRCS) *Soil Survey of Leon County, Florida* (1981), eight soil types exist within the proposed project area.

- 1 - Albany loamy sand, 0 to 2 percent slopes
- 25 - Lucy Fine Sand, 5 to 8 percent slopes
- 33 - Orangeburg Fine Sandy Loam, 2 to 5 percent slopes
- 34 - Orangeburg Fine Sandy Loam, 5 to 8 percent slopes
- 41 - Plummer Fine Sand
- 50 - Wagram Loamy Fine Sand, 0 to 5 percent slopes
- 51 - Wagram Loamy Fine Sand, 5 to 8 percent slopes
- 52 - Yonges Fine Sandy Loam

In general the majority of the soils are well drained upland soils where the water table is well below the soil surface (>30 inches). Soil types 1, 41, and 52 are relatively level, poorly drained soils where the seasonal high water table ranges from 6 to 30 inches of the soil surface for up to four months of the year.

4.1.2 Crash Data

In addition to the ecological and economic reasons, there are also human safety reasons to take measures to reduce wildlife road kills at US 27 and Lake Jackson. Wildlife attempting to cross the highway is a threat to motorist safety. The Wildlife Society estimates that more than 200 motorists are killed and thousands more are injured in animal-vehicle related collisions yearly in the United States (USDOT/FHWA, 2000). On US 27, near misses between vehicles have occurred when vehicles have stopped to help animals cross the road, or have swerved sharply in an attempt to avoid hitting animals (Aresco, personal comment). Many adult turtles weigh at least five to ten pounds, and can become projectiles when hit, flying at a height and speed fast enough to crash through a windshield. Peak migration days can result in hundreds of animals crossing the highway, causing concern for motorist safety.

4.2 Right-Of-Way

Right-of-Way (R/W) along the project study area varies from 160 feet in width in the southern $\pm 3,500$ feet of the corridor, to 200 feet in the northern $\pm 1,200$ feet of the corridor. Undeveloped area along the R/W ranges from 25 feet to 40 feet in width on either side of the road. FDOT has stated that it will not acquire additional R/W for this project. Thus, the chosen alternative will have to be accomplished within the existing FDOT R/W. The width and configuration of the R/W will play a large part in the final design of the chosen alternative. The final design may result in the need for acquisition or easements on private or city owned property in order to construct the wall. Leon County Department of Parks and Recreation has determined that the wall can be accommodated at the boat ramp and on the park that is located southeast of the corridor. Additionally, the Lake Jackson Ecopassage Alliance has purchased several parcels adjacent to the roadway with the express purpose of accommodating the wall construction.

Parts of the undeveloped R/W are vegetated, and, in some areas, topography is very steep as the terrain slopes from the roadway toward the water bodies. As such, clearing of vegetation and grading will likely be necessary for construction of the preferred alternative.

4.3 Utilities

According to a survey prepared for FDOT as part of a roadway resurfacing project planned along the project corridor (not part of this study), utilities located in the R/W along the project corridor include overhead power and telephone lines, as well as buried water lines. Design of the preferred alternative will need to take measures to avoid impacts to these utilities, and additional surveys will be necessary prior to the design of the preferred alternative.

Utility companies with placements in the project corridor were contacted and asked to provide information about their utility lines in the area. Talquin Electric Cooperative, Inc. has water, sewer, and electricity lines along US 27. There is a 10-inch PVC water main located along the east side of the road; it is 3-5 feet from the edge of the pavement and is generally 36 inches below the ground. There is also a 6-inch sewer forcemain on the west side of the road. This line is 6-10 feet off the edge of the pavement and is generally 36 inches deep.

Talquin Electric has a three-phase, 12.5 kilovolt underground electric distribution line that crosses US 27 at the County boat ramp. Utility poles are located 36 feet from the edge of the northbound paved shoulder. Talquin Electric stated that the distance between any diversion wall and their utility poles must be more than 10 feet to facilitate maintenance of the poles.

The City of Tallahassee has gas lines that may be impacted by the project. There is a 3-inch low pressure gas main on Cool View Drive with a service line to a metering

station on the southwest corner of the intersection with US 27. There is also a 6-inch main along the west side of US 27 starting at Point View Drive and crossing the road to Jackson Oak Plaza as a 2-inch line. The City indicated that the project will not conflict with the 6-inch gas main and it is anticipated that it will not conflict with the 3-inch low pressure main on Cool View Drive. The City of Tallahassee also stated that it has no water or electricity lines within the study area.

Comcast Cablevision has aerial cable beginning just south of the intersection of US 27 and Old Bainbridge Road, on the east side of US 27. The line crosses US 27 and continues south parallel to the road until a point just north of Clara Kee Boulevard, where it again crosses to the east side of the road.

Florida Gas Transmission has no gas lines in the study area.

4.4 Intersections

Within the project area, there are three intersection points along US 27: Cool View Drive (on the west side) / Boat Ramp Entrance (on the east side) (*Figures 4 and 5*), the entrance point for the proposed Summerfield development (on the west side) / a private driveway into an office building (on the east side), and Clara Kee Boulevard on the east side of US 27 at the southern end of the project area. The following describes several of the openings at the intersections:

- County Boat Ramp (*Figure 4*): 112-foot wide entrance, with a 60-foot opening in the median for turning cars; 12-foot left turn lane in northbound direction
- Cool View Drive (*Figure 5*): 52-foot wide entrance before start of right turn lane; 220 feet from north edge of entrance to beginning of guardrail, guardrail is 343 feet long
- Entrance to proposed Summerfield Development: 19 feet wide, with a 37-foot opening in the median for turning cars
- Law Office of Paul (Fred) Hartsfield (*Figure 6*): 45-foot wide entrance

4.5 Level of Service (LOS)

According to the Tallahassee-Leon County Comprehensive Plan, the adopted level of service for US 27 in the study area is LOS D.

Figure 2: County Boat Ramp Entrance



Figure 3: Cool View Drive



Figure 4: Entrance to Law Office of Paul (Fred) Hartsfield



4.6 Typical Section

The typical section of US 27 is a four lane divided highway. There are two lanes measuring 24 feet total in each direction with a 30-foot grassy median and 3 to 4-foot paved shoulders (*Appendix A*). Photographs are designated as *Figures 5 and 6*. There are temporary silt fences at a minimum of 7 feet from the shoulder, varying by direction (*Figures 7*).

Figure 5: Typical Section, Southbound US 27 at Cool View Drive



Figure 6: Typical Section, US 27 Northbound



Figure 7: Temporary Silt Fences



4.7 Drainage

Drainage facilities along this segment US 27 include several drains in the median of the roadway. The roadway runoff flows into the vegetated shoulder.

Figure 8: Drainage Facilities in Median Strip



4.8 Surface Water

In addition to Lake Jackson being an Aquatic Preserve, Leon County has designated the area around Lake Jackson as an environmentally sensitive zone, and, as such, it is subject to the special development standards as outlined in the Leon County Land Development Code (Section 10-192). Protections in place for the area around the lake (“Lake Protection Zone”) include limitations on development and specific requirements for stormwater treatment. Sites within the Lake Protection Zone that are located within closed basins that do not naturally or artificially discharge into Lake Jackson are not subject to the same treatment standards as areas within the Lake Protection Zone that are open to Lake Jackson. The Lakeside residential subdivision is one such closed-basin development. The stormwater system is entirely closed (i.e. does not discharge to Lake Jackson). As a result, the County has indicated that installing a wildlife crossing/culvert in an area that would connect the Lakeside closed basin to Lake Jackson may not be permissible without additional analysis. An alternative culvert location may be required during final design.

4.9 Groundwater

Tallahassee-Leon County data indicates that the water elevation within Lake Jackson is approximately 86’ NAVD.

4.10 Environmental Characteristics

4.10.1 Existing Land Use

Existing land use within the project area was determined through the interpretation of aerial photographs 1" = 100' scale, review of land use maps for Leon County, and field reconnaissance of the project corridor conducted on July 20, 2006. Development near the project study area is limited, and includes two small professional office buildings (<4,000 square feet) on the eastern side of US 27 at the southern end of the corridor, the county boat ramp, the Lakeside residential subdivision, and an existing liquor store on the eastern side of US 27 at the northern project limits. A lodge/meeting hall is present along the west side of the road, across from the liquor store. The remainder of the land along the project corridor is largely undeveloped. Much of the undeveloped land along the project study area is owned by either the county, (i.e. the boat ramp property and the proposed Jackson View Park Property) or the State of Florida (i.e. the submerged lands of Lake Jackson). Several small parcels, south of the boat ramp, have been purchased or are under contract to be purchased by the Lake Jackson Ecopassage Alliance. A large tract of undeveloped land (± 33 acres) on the western side of the roadway, adjacent to Little Lake Jackson, is owned by the Lakeside subdivision; however, it was placed under conservation easement granted to Leon County as part of the development agreement for the subdivision. An amendment to the conservation easement would be required to allow construction of enhancements (i.e. diversion walls or culverts) on the Lakeside conservation area property. A generalized land use map of the proposed project is provided in *Figure 9*.

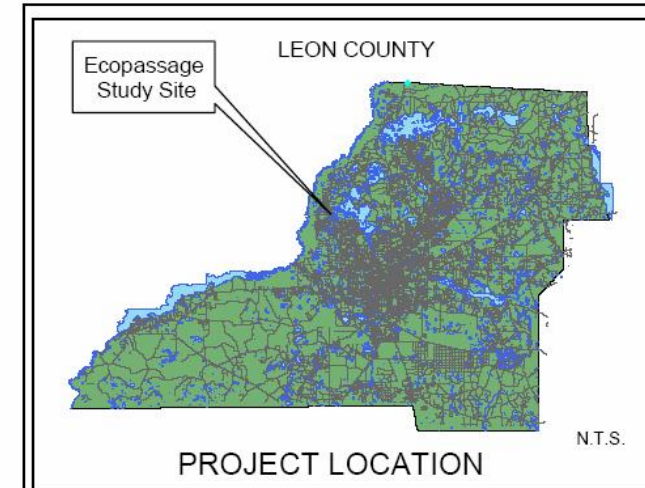
4.10.2 Future Land Use

Most of the areas around the proposed project are currently undeveloped. The east side of US 27 features one county park and several parcels owned by Leon County and the Lake Jackson Ecopassage Alliance. These parcels will most likely not be developed. The Lakeside subdivision west of US 27 is the only development along the middle of the corridor. There is a proposed development immediately south of the Lakeside subdivision. Other adjacent development is located at the ends of the corridor. Additional development in the middle of the corridor is not anticipated.

Based on review of Leon County land use data, there are several parcels of undeveloped privately owned land not under conservation easement located within the project study area. The parcels on the west side of US 27, from north to south, include an approximately 0.34-acre parcel located on the western side of US 27, an approximately 0.7-acre parcel located north of Cool View Drive and a 1-acre parcel located south of Cool View Drive, and an approximately 24-acre tract that is part of the 107-acre Sellers Parcel. The parcels on the east side



FIGURE 9 - LAND USE AND LAND COVER (FLUCFCS) MAP



Legend

- FLUCFCS Study Area
- Study Area (Not Accessible)*
- FLUCFCS Area Boundary

* Area was not accessible. Land cover information was obtained from Leon County records (Natural Features Inventory (NFI) submitted by Others).



NOTES:

1. This map is for informational purposes only.
2. Land use and cover codes from the Florida Land Use, Cover and Forms Classification System (FLUCFCS), FDOT, 1999.
3. Aerial from Aerial Express, 2006.
4. Vegetative Survey and Mapping conducted and compiled by Biological Research Associates, Ltd. July 2004.
5. Project and FLUCFCS boundaries and acreages approximate, based on aerial interpretation.

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of US 27, from north to south, include the proposed commercial center at the corner of US 27 and Old Bainbridge Road, and three small parcels (between 0.5 and 0.25 acre) located on the eastern side of US 27 immediately south of the county boat ramp property (*Figure 1 and 9*).

The two undeveloped parcels on either side of Cool View Drive are commercially zoned lots that are currently for sale. Based on discussions with Leon County, it is likely that proposed driveway access for future development on these parcels will be required to connect to Cool View Drive rather than US 27 due to Leon County and Florida Department of Transportation (FDOT) regulations. As such, it may be possible to construct a diversion wall within the R/W along the US 27 frontage of these properties without interfering with the driveway access.

The 107-acre Sellers Parcel, a former agricultural property that is primarily undeveloped, is proposed for development with a Planned Unit Development (PUD) project, including multi-family residential and mixed commercial uses. Leon County approved the development plan, with restrictions, in September 2004. The Summerfield Planned Unit Development concept plan (Parcel ID # 21-04-51-000-012-0), which was approved based on certain conditions in 2004 is currently in litigation. This parcel is on the west side of US 27 (*Figure 10*).

The Circle Oak Commercial Center and CVS Pharmacy (Parcel ID #s 24-32-20-260-000-0, 24-32-20-274-000-0, and 24-32-20-276-000-0), which would include a 12,900 square foot drug store, a 12,000 square foot bank, and 10,000 square feet of retail space is located on the southeast corner of US 27 and Old Bainbridge Road, north of the project area (see *Figure 11*).

Two of the three small parcels immediately south of the boat ramp on the eastern side of US 27 identified as problematic for a proposed diversion wall because the construction of a wall could interfere with future access from these parcels to US 27 (the only available roadway access) have been purchased by the Lake Jackson Ecopassage Alliance (parcel ID #s 24-32-20-403-000-0 and 24-32-20-402-000-0). The third parcel is currently under contract to be purchased by the Alliance (Parcel ID # 24-32-20-401-000-0). If the proposed wall were to extend from the R/W onto the county-owned Jackson View Park Property, (as it likely would) it would have to cross over the southernmost of the Alliance owned parcels, and an easement over this property would be necessary. Leon County has indicated that it would be very difficult to get development permits for these three parcels (due to lake protection regulations and adjacent wetland areas).

Figure 10: Entrance to Proposed Summerfield Development



Figure 11: Site of the Proposed Circle Oak Commercial Center and CVS



Leon County has plans for a trail that will connect Jackson View Park to Lee Vause Park (off of Old Bainbridge Road, on the northern edge of Lake Jackson). The County has made a grant application for funding to the State of Florida. This money would be supplemented with County funds to create a trail connection. Current plans call for a trail that will traverse the three parcels just

south of the County boat ramp to create a connection between Jackson View Park and the boat ramp. The County is in negotiations with the Alliance to develop this part of the trail. Leon County is also in negotiations to purchase land for a trail connection between the public boat ramp and the closed Red and Sam's fish camp located north of the project corridor, but these plans are still in the preliminary phases.

4.10.3 Cultural Features and Community Services

Cultural features preserve and enhance the cultural nature of a community and include parks and other recreation areas, historic sites, archaeologically significant sites, schools, religious institutions, and other neighborhood gathering places. Community services include facilities that provide necessary services such as retirement centers, government buildings/services, libraries, retail and other commercial establishments, and emergency services. The cultural features and community services present along the proposed project are described below.

Parks/Section 4(f) Resources and Recreation Areas

Jackson View Park is located on the Lake Jackson side (east side) of US 27 towards the southern end of the project corridor. A county boat ramp is located on the east side of US 27 in the middle of the corridor.

Archaeological/Historic Sites

A Cultural Resource Assessment Survey (CRAS) was conducted as part of the PD&E Study. The results indicate that no archaeological sites occur along the proposed project. Two historic buildings were documented along the proposed project. Neither of the buildings are eligible for listing on the National Register of Historic Places. SHPO concurs with the findings of the CRAS. The concurrence letter is attached in Appendix E.

Schools and School Districts

No schools are located within or adjacent to the project corridor.

Religious Institutions and Community Meeting Halls

One community meeting hall exists adjacent to the project study area along the northern limits, along the west side of US 27, the Odd Fellows Leon Lodge #5.

Retirement Centers

No retirement centers exist within the project study area.

Government Buildings/Services

No government buildings or services are located within the project study area.

Libraries

No libraries are located within the project study area.

Retail and Other Commercial Establishments

One commercial lot (Colonial Liquors and Lounge) is located within the project study area (northern limits along the east side of US 27).

Emergency Services

No emergency services are located within the project study area.

4.10.4 Natural and Biological Features

4.10.4.1 Wetlands

In accordance with state requirements, Executive Order 11990, Protection of Wetlands, and FHWA Technical Advisory T6640.8A, a Wetland Evaluation Memorandum was prepared which documents the extent and types of wetlands and other surface waters in the proposed project area.

Three wetlands and a surface water were identified within the proposed project area. Classifications for wetlands and the other surface water were assigned according to the FDOT *Florida Land Use, Cover and Forms Classification System* (FLUCFCS, January 1999) and the USFWS publication *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin *et al.* 1992). A summary of these features is provided in *Table 1*. A depiction of the wetlands and surface water can be found on *Figure 12*.

W1 is located along the western side of US 27 toward the northern limits of the project boundary and is dominated by Carolina willow (*Salix caroliniana*). It is the vegetated littoral area of Little Lake Jackson located at the base of US 27 along the slopes. Subdominant species include water oak (*Quercus nigra*), Chinese privet (*Ligustrum sinense*), wax leaf privet (*Ligustrum japonicum*), popcorn tree (*Sapium sempervirens*), wax myrtle (*Myrica cerifera*), Japanese climbing fern (*Lygodium japonicum*), false nettle, red maple (*Acer rubrum*), and pepper vine (*Ampelopsis arborea*). This site is classified as a palustrine, forested (broad-leaved deciduous), seasonally-flooded system and a palustrine, emergent (persistent), seasonally-flooded system (PFO1C/EM1C).

W2 is along the eastern edge of US 27 halfway down the project corridor. It surrounds a surface water that appears to be used for stormwater purposes. This wetland consists of similar vegetation to W1 and is classified as a palustrine, forested (broad-leaved deciduous), seasonally-flooded system (PFO1C).

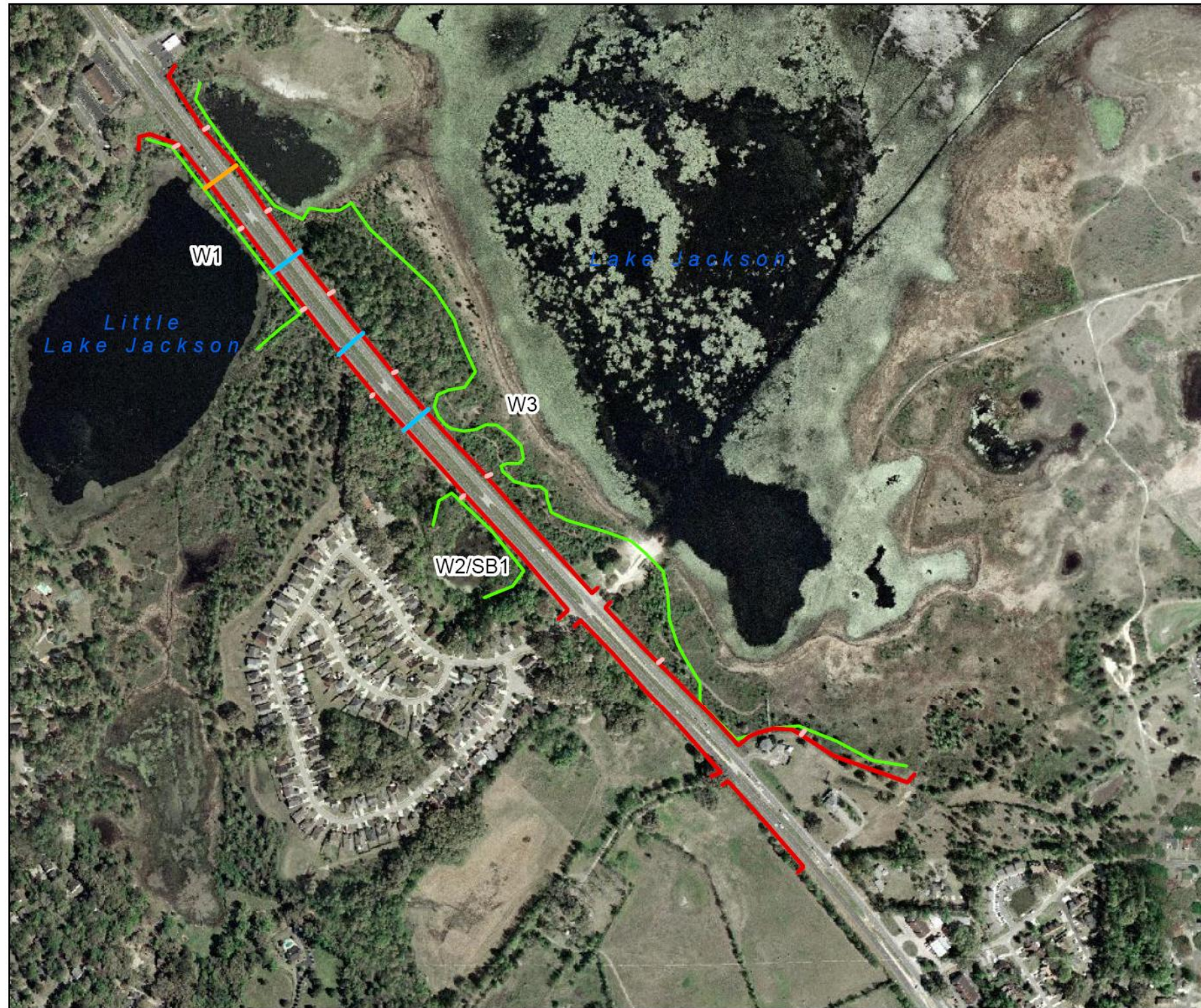
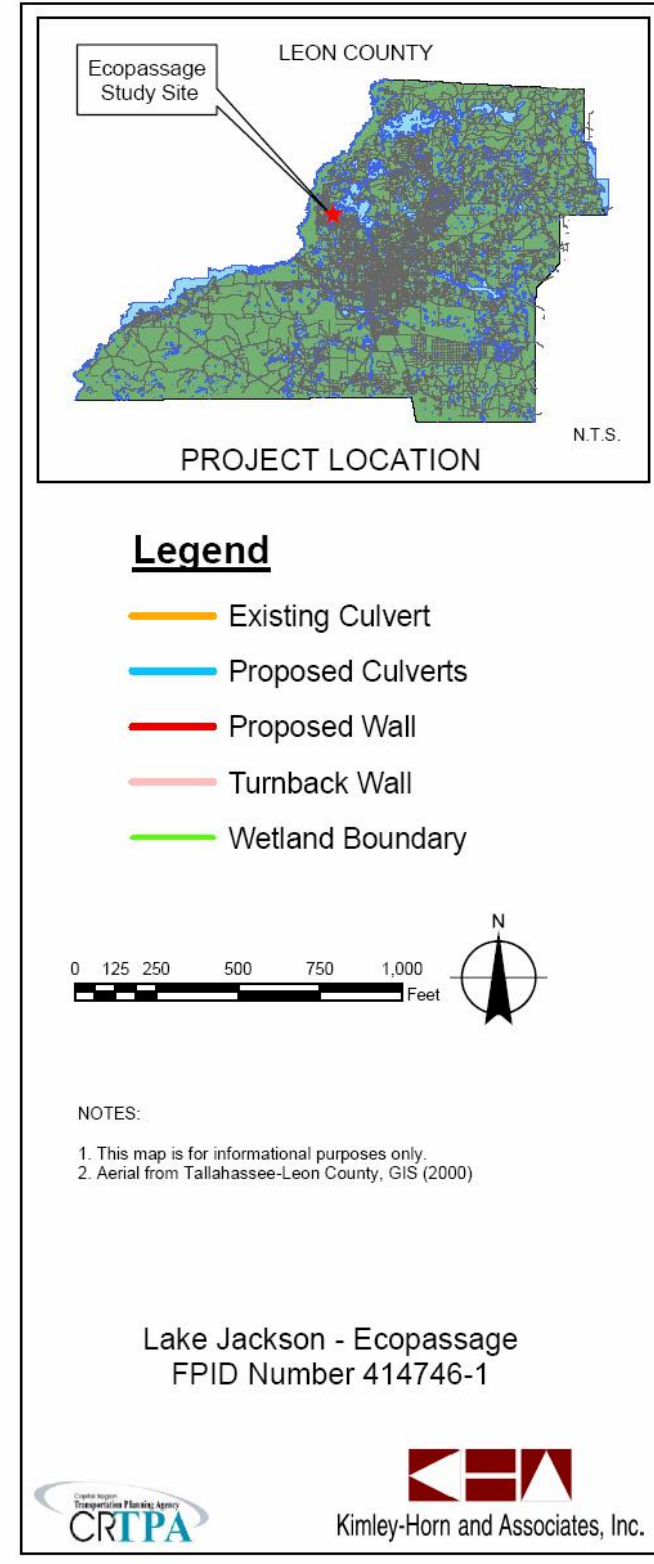


FIGURE 12 WETLAND AND SURFACE WATER MAP



W3 is northeast of US 27 and consists of the area immediately surrounding Lake Jackson. Due to the highly variable hydrology this wetland contains a variety of vegetation. Dominant plant species includes brambles (*Rubus cuneifolis*), Canada goldenrod (*Solidago canadensis*), pinebarren goldenrod (*S. fistulosa*), American cupscale (*Sacciolepis striata*), hairy smartweed (*Polygonum hirsutum*), dog fennel (*Eupatorium capillifolium*), elderberry (*Sambucus canadensis*), wax myrtle, red maple, saltbush (*Baccharis halimifolia*), black cherry (*Prunus serotina*), and black gum (*Nyssa biflora*). This site is classified as a palustrine, scrub-shrub (broad-leaved evergreen), seasonally-flooded system (PSS3C).

Table 1 Summary of Wetlands and Other Surface Waters					
Site No.	FLUCFCS Code	Cowardin Classification	Prominent Vegetation	Hydrologic Contiguity†	Comments
WETLANDS					
W1	618/641	PFO1C/EM1C	Carolina willow, water oak, Chinese privet, wax myrtle, Japanese climbing fern	3	Western edge of US 27 at the northern limits of the project
W2	641	PFO1C	Carolina willow, water oak, red maple, wax myrtle, Japanese climbing fern	1	Surrounds a stormwater pond for a residential development on the western side of US 27
W3	6417	PSS3C	Brambles, goldenrod, fennel, elderberry, wax myrtle, red maple, saltbush, black gum	3	This is the area immediately surrounding Lake Jackson in the northeastern portion of study area
SOUTHBOUND OTHER SURFACE WATERS					
SB1	523	L2EMOJ	Duckweed	1	Stormwater pond surrounded by W2
Notes: †Hydrologic contiguity as defined in the FDOT <i>PD&E Manual</i> , Part 2, Chapter 18 (page 18-5): (1) Perched or isolated from a regional surface water drainage system, including flats and depressions; (3) Joined to a regional drainage system by distinct natural connections or by a well defined ditch or canal.					

The surface water located in the project area is a stormwater pond for an existing residential community. *Table 1* provides a list of the prominent vegetation recorded for the surface waters, and a brief comment for each as well. Detailed descriptions of these features are found in the Wetland Evaluation Memorandum that has been prepared for this project.

The final design and wall location has not determined but it is anticipated that impacts to wetlands would be minimal and less than 0.5 acre. The R/W in the project area ranges from 160 to 200 feet in width.

The roadway, shoulders and median are approximately 100 feet in width. Therefore, there is between 30 to 50 feet on either side of the roadway to construct the diversion wall. It is assumed that approximately 20 feet is needed as a construction zone to construct the type of retaining wall that has been proposed for the project. Additionally, guardrail will be needed in locations where the walls lie within the roadway clear zone. The wall can be constructed from the roadway minimizing impacts to wetlands and natural communities. It is anticipated that impacts from replacement or installation of culverts would be *de minimis*. In most cases the culverts could be installed from uplands under the road with only minimal disturbance. Slight shifts in culvert locations could further reduce impacts.

4.10.4.2 Wildlife and Habitat

The Lake Jackson ecosystem is a valuable biological, aesthetic, and recreational resource of Leon County. This ecosystem was designated as the Lake Jackson Aquatic Preserve in 1974 for the primary purpose of preserving and maintaining the biological resources in their natural condition. As stated above, there are three wetlands and one surface water adjacent to the roadway as well as expansive freshwater marshes and native submerged vegetation nearby that provide fish, reptile, amphibian, waterfowl and wading bird habitat. Interspersed between the wetland areas are extensive forested upland areas. Because these are high quality habitats and they provide habitat for listed species it is paramount that a crossover system be designed to safely allow these species passage underneath US 27. Impacts to wetland habitats will be minimal (<0.5 acres) and any species saved by the addition of crossovers underneath the roadway will more than offset impacts to their habitat.

Eight species of animals (three federally-listed and five state-listed) were evaluated to determine if the proposed project will result in any adverse effects (*Table 2*).

Table 2
Listed Animal Species Potentially Found in Proposed Project Area

Common Name	Scientific Name	Federal Status	State Status
Bald Eagle	<i>Haliaeetus leucocephalus</i>	T	T
Wood stork	<i>Mycteria americana</i>	E	E
American alligator	<i>Alligator mississippiensis</i>	T(S/A)	SSC
Little blue heron	<i>Egretta caerulea</i>	N	SSC
Least tern	<i>Sterna antillarum</i>	N	T
Snowy egret	<i>Egretta thula</i>	N	SSC
Gopher tortoise	<i>Gopherus polyphemus</i>	N	SSC
Suwannee cooter	<i>Pseudemys concinna</i>	N	SSC

Notes: E = Endangered, T = Threatened, T(S/A) = Threatened due to Similarity of Appearance, SSC = Species of Special Concern, N = Not Listed

The proposed project lies within the 18.6-mile core foraging area of at least two confirmed wood stork nest locations active as of 2002. According to USFWS the colonies are located 1.67 miles to the northwest and 1.42 miles south of the proposed project. Impacts to wetlands are anticipated to be minimal (<0.5 acres) and therefore impacts to wood storks are expected to be minimal.

Based on information from FWC, there is one bald eagle nest located within 5 miles of the project corridor (LN001). This nest is located on the opposite side of Lake Jackson from the proposed project and was last seen active in 2003. No open water or surface waters will be impacted therefore, no bald eagle foraging habitat will be impacted. No adverse impacts to bald eagles are anticipated as a result of this project.

The surface waters in the area are habitat for the American alligator. Alligators inhabit both natural and man-made surface waters throughout the state of Florida. Alligators have been found dead along the corridor due to vehicle impacts. It is anticipated that the project will enhance the protection of this species.

The foraging grounds of state-listed wading bird species were identified in the project area. Although these birds were not observed during the field surveys, they are commonly found in both natural and man-made surface waters throughout the state of Florida. No impacts to wading birds are anticipated due to this project.

Numerous gopher tortoises have been documented by Florida State

University's Matt Aresco throughout the study area and many have also been found dead on the side of the road from vehicle collisions. This species will benefit from this project due to a decrease in roadside mortality from the proposed Ecopassages and associated retaining wall.

Numerous Suwannee cooters have also been found dead on the side of the road from vehicle collisions. This species will benefit from this project due to a decrease in roadside mortality from the proposed Ecopassages and associated retaining wall.

Data from the Florida Department of Agriculture and Consumer Service (FDACS) publication *Notes on Florida's Endangered and Threatened Plant* (Coile and Garland 2003), along with information from the FNAI and USFWS, were used to compile information on the federal and state-listed plant species that may be present in Leon County. Suitable habitat for listed plant species does not exist within the proposed project R/W, and no federal-listed plant species were noted in the proposed project area. No adverse impacts to these plant species are anticipated.

4.10.4.3 Floodplain

According to Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (panel 12073C0115D); portions of the project area are located within the 100-year floodplain. The floodplain elevation around the lake area is 86 feet (NGVD 29). Minor encroachments in the floodplain may be required. Because of the type of the facilities being proposed in the R/W it is anticipated that floodplain encroachments can be avoided or minimized.

4.10.4.4 Outstanding Florida Waters/Aquatic Preserves

The proposed project is adjacent to the Lake Jackson Aquatic Preserve, an Outstanding Florida Water. Both Lake Jackson and Little Lake Jackson are part of the Lake Jackson Aquatic Preserve. No impacts to this Aquatic Preserve are anticipated.

4.10.5 Contamination

A Contamination Screening Evaluation was conducted to identify potential contamination concerns from past or present facilities and property areas within or near the proposed project area. The search of regulatory databases identified six potential contamination sites within a mile of the project limits. All of the sites were assigned a rating of "LOW" for potential contamination impact to the project corridor. A summary of the site conditions is provided in *Table 3*, and their locations are illustrated in *Figure 12*. Therefore, no impacts to potentially

contaminated sites are anticipated due to construction of the proposed project.

Table 3 Potentially Contaminated Sites					
Site No.	Site Name	Address/Location	Approx. distance to Proposed Project (Ft.)	Potential Contaminant Parameters	Potential Contamination Rating
1	Citgo-Lake Jackson	5670 North Monroe Street	580	Underground Storage Tanks	LOW
2	Union 76-Lake Jackson	5691 North Monroe Street	340	Underground Storage Tanks	LOW
3	Lake Jackson Fishing Lodge	5575 North Monroe Street	Adjacent	Underground Storage Tanks	LOW
4	Petro #296	4513 North Monroe Street	1,290	Underground Storage Tanks	LOW
5	Southeast Milk	4876 Woodlane Circle	4,118	Underground Storage Tanks	LOW
6	Cumbie Construction	4871 Woodlane Circle	4,224	Underground Storage Tanks	LOW

4.10.6 Farmlands

In accordance with the Farmland Protection Policy Act of 1984, the study-involved coordination with the United States Department of Agriculture/Natural Resource Conservation Service (USDA/NRCS) has occurred. No farmland exists within the project study area.

4.10.7 Air

Because of the nature of the project, wildlife enhancement, it was determined air quality data collection and analysis would not be required.

4.10.8 Noise

Because of the nature of the project, wildlife enhancement, it was determined noise data collection and analysis would not be required. Temporary construction noise impacts could occur as a result of implementation of the preferred alternative.

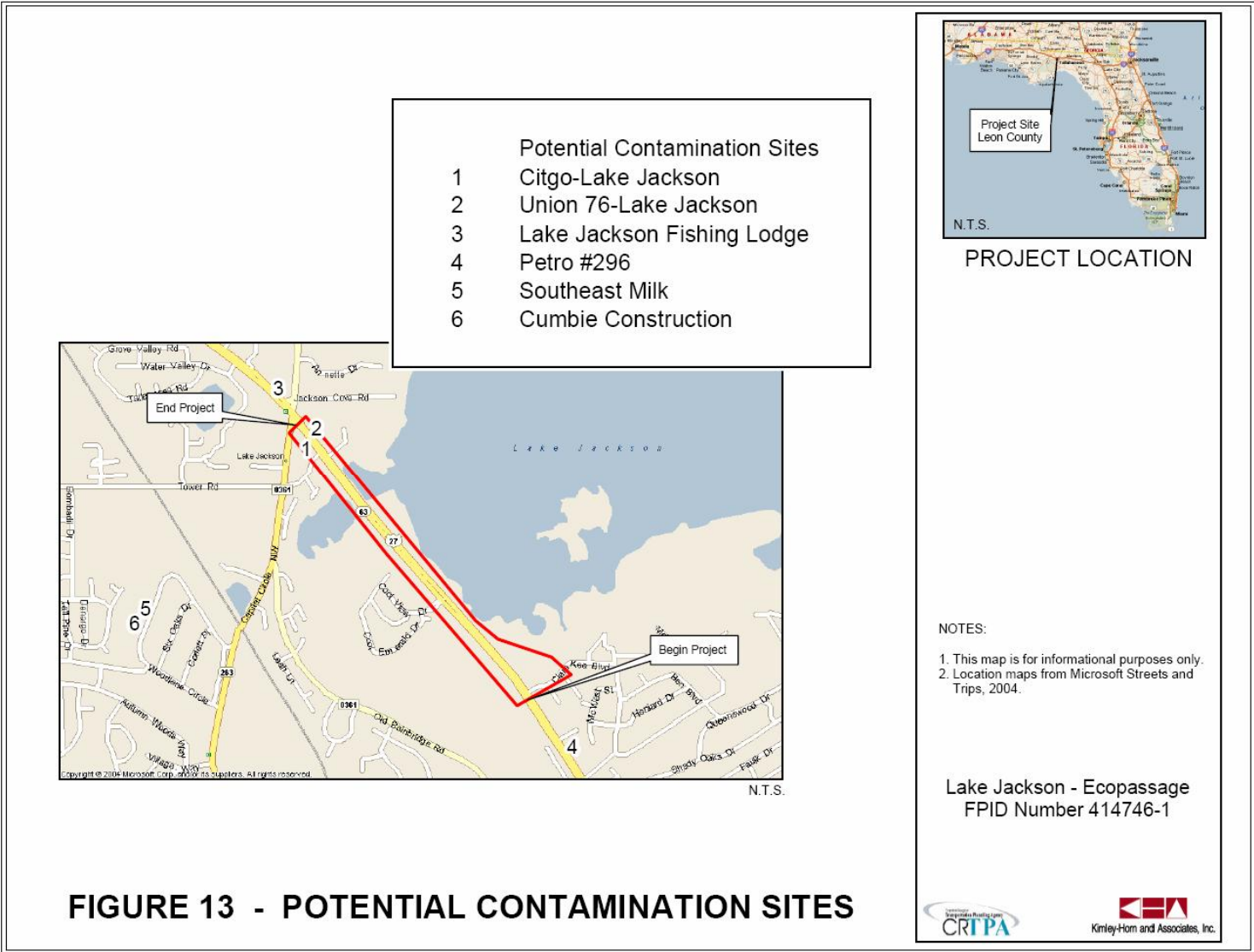


FIGURE 13 - POTENTIAL CONTAMINATION SITES

5. DESIGN CRITERIA, CONTROLS AND STANDARDS

Design and construction criteria for the proposed ecopassages will meet all FDOT standards for the design of such roadways, and will comply with recommended standard practices as set forth in the following documents:

- A Policy on Geometric Design of Highways and Streets, AASHTO
- Drainage Manual, Florida Department of Transportation
- Manual on Uniform Traffic Control Devices, Federal Highway Administration (2003)
- Roadway and Traffic Design Standards, Florida Department of Transportation (2003)
- Highway Capacity Manual, Transportation Research Board
- Structures Design Manual, Florida Department of Transportation
- Plans Preparation Manual, Florida Department of Transportation (2006)
- Standard Specifications for Road and Bridge Construction, Florida Department of Transportation (2007)

It is recognized that all criteria are subject to change, and only the then current criteria will be used during the final design phase.

6. ALTERNATIVE ALIGNMENT ANALYSIS

6.1 Description of Alternatives

6.1.1 No-Build Alternative

The No-Build Alternative will not provide additional ecopassages under roadway within the study area, leaving the existing facilities unchanged from their present configurations. This will result in the continued animal mortalities and accident potential due to the animals crossing the roadway.

The No-Build Alternative has the following advantages:

- no construction or utility costs
- no traffic disruptions due to construction
- no environmental impacts
- no engineering costs

The No-Build Alternative has the following disadvantages:

- no reduction in the number of animal mortalities
- no reduction in the number of vehicular crashes

The No-Build Alternative will be retained as a viable alternative through the PD&E Study.

6.1.2 Build Alternative

The build alternative considered is replacing the existing culvert, constructing additional culverts, and constructing a diversion wall. The location of the culverts and wall and the conceptual typical sections can be found in *Appendix A*.

The Lake Jackson Ecopassage Feasibility Study evaluated several alternatives to minimize the animal mortalities on US 27. The alternatives included:

- reroute road
- road closure during seasonal migrations
- habitat enhancement
- construction of temporary fences
- construction of a bridge or culvert

The study found that the culvert alternative with a diversion wall was the most cost effective and feasible way to accomplish the ecopassage goals. Therefore the other alternatives were eliminated from further consideration and the culvert/wall option was adopted as the “Build” Alternative.

The Build Alternative will be located mostly within the US 27 R/W. The R/W along the project corridor ranges from 160 to 200 feet. The roadway, median, and shoulders are approximately 100 feet in width. This leaves approximately 30 to 50 feet on each side of the roadway for the construction of culverts and the diversion wall. A wall of this type can be constructed within 20 feet. The wall on the southeastern side of the project will be built on the upland side of county land. Therefore, the wall will be able to be constructed with minimal wetland impacts. Both the construction of the culverts and the wall will be accomplished from the roadway side of the R/W minimizing the environmental impacts of the project.

6.1.3 Evaluation Matrix

A qualitative analysis was conducted to determine the advantages and disadvantages of the Build/No-Build Alternatives. The alternative was evaluated in relation to engineering, socio-economic, and environmental criteria, as well as various cost factors. The comparative Alternative Evaluation Matrix is presented in *Table 4*.

Table 4 Alternative Evaluation Matrix		
Evaluation Category	Alternative	
	No Build	Build
Engineering		
Functional Relationship with Transportation Network and Traffic Aspects	No impacts will result 0	No impacts will result 0
Vehicle Safety	No change -	Improved safety, due to reduced animal crossings +
Socio-Economic		
R/W	0	Need for R/W easements -
Community Services	0	0
Emergency Response	0	Minimal, during construction period 0
Schools / Churches	0	0
Parks	0	Minor park impacts, Parks and Recreation Dept. indicates the wall can be accommodated in park 0
Environmental		
Wetland / Surface Waters	0	Minimal impacts may occur (<0.5 Ac.) 0
Threatened and Endangered Species	0	Will allow for safe animal crossing under the roadway +
Contamination	0	0
Air Quality	0	0
Noise	0	0
Floodplains	0	Potential minor encroachments 0
Cost		
Construction	0	\$4,500,000
Total	+ = 0 0 = 13 - = 1	+ = 2 0 = 12 - = 1

6.2 Preferred Alternative

The preferred alternative was to replace the existing culvert and construct at least three additional culverts, as well as construct a diversion wall on both sides of the road along the length of the proposed project. The approximate locations of the walls and culverts are illustrated in *Appendix A*. Specifications for the wall and culvert were also made; such as ecopassge culverts should be 8-feet in height and at least 8-feet wide, and the wall should be at least 5-feet high on the lake side, and include a 6-inch overhanging lip on the lake side of the wall. The wall will be approximately 5,000 feet in length on both sides of the roadway.

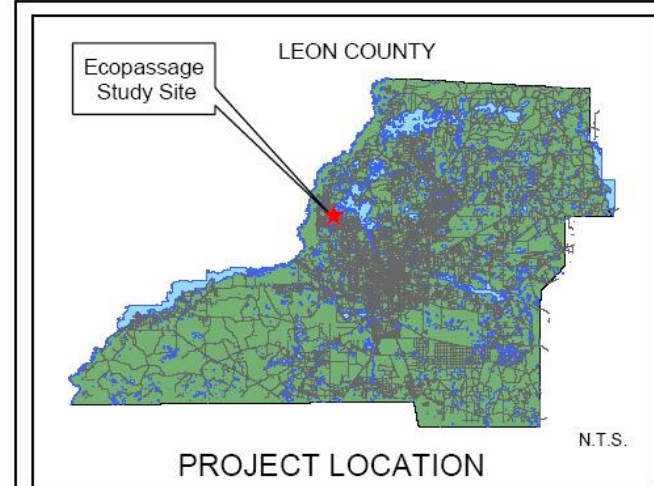
FINAL DRAFT

Appendix A
Conceptual Preferred Alternative

FINAL DRAFT

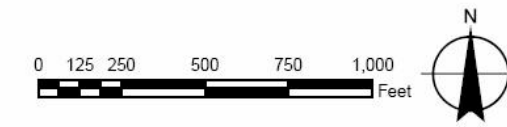


PREFERRED ALTERNATIVE



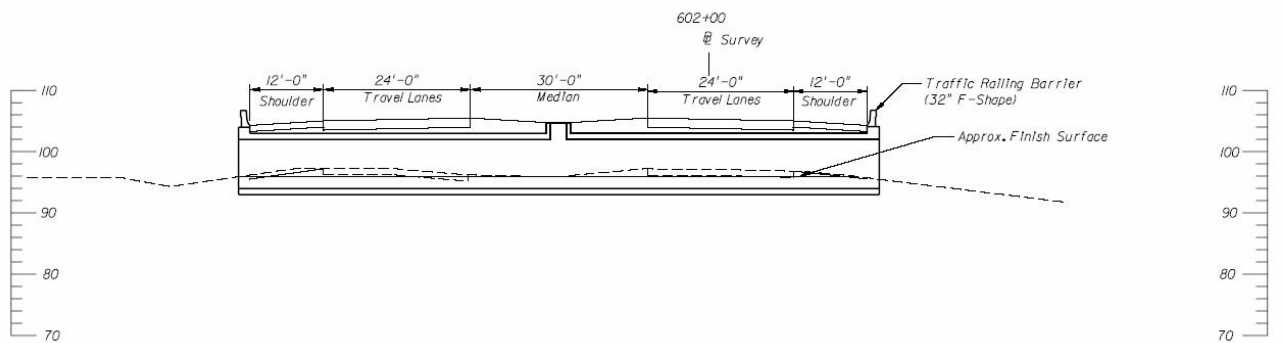
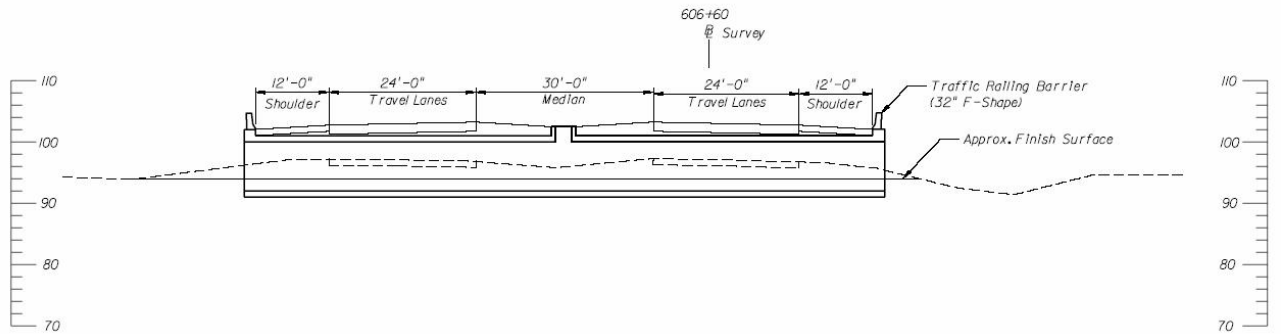
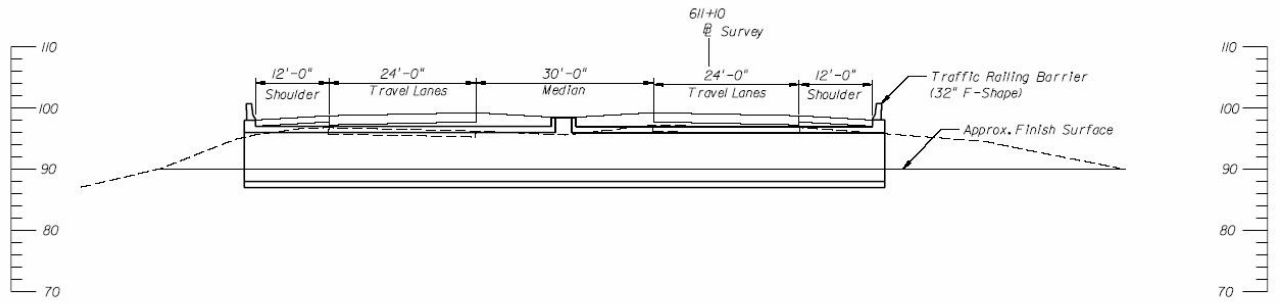
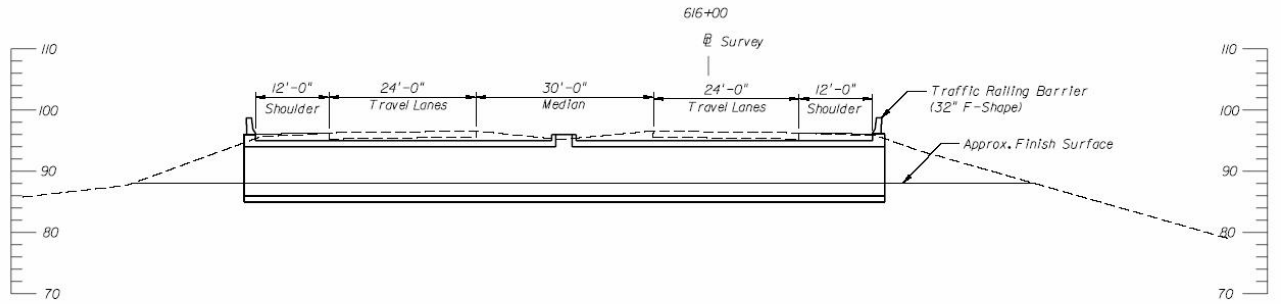
Legend

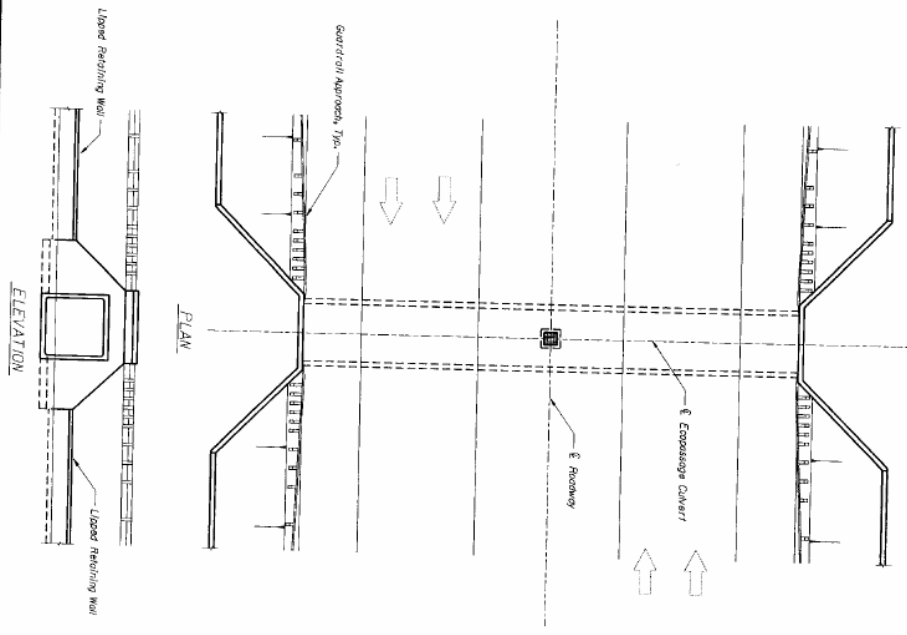
-  Existing Culvert
-  Proposed Culverts
-  Proposed Wall
-  Turnback Wall



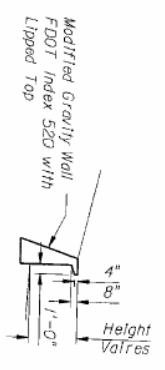
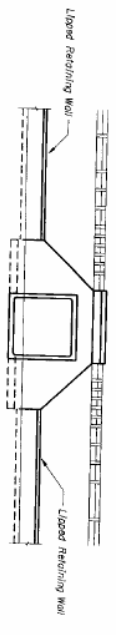
- NOTES:
1. This map is for informational purposes only.
 2. Aerial from Aerial Express, 2006.

Lake Jackson - Ecopassage
FPID Number 414746-1

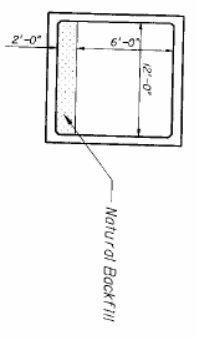




ELEVATION



TYPICAL RETAINING WALL SECTION



TYPICAL CULVERT SECTION

DATE	BY	CHKD	APP'D	SCALE	PROJECT NO.	COUNTY	SECTION	ENGINEER'S REGISTRATION NO.	SHEET NUMBER
					12170004	LAKE JACOBSON	1	10000	1 OF 1
<p>LAKE JACOBSON EOPASSAGE TYPICAL CULVERT CROSSINGS</p>									

Appendix B
SHPO Concurrence Letter

FINAL DRAFT



FLORIDA DEPARTMENT OF STATE
 Sue M. Cobb
 Secretary of State
 DIVISION OF HISTORICAL RESOURCES

Amanda Marshall
 Florida Department of Transportation
 Post Office Box 697
 Chipley, Florida 32428

RECEIVED
 DEC 21 2006

December 8, 2006

Environmental Management

RE: DHR Project File Number: 2006-4188 (B)
 Received by DHR: December 8, 2006
 Financial Project ID Number: TBD
 Project: Phase 1 Cultural Resources Assessment Survey for the Lake Jackson Ecopassage PD&E Study, Leon County

Dear Ms. Marshall:

Our office received and reviewed the above referenced project in accordance with Section 106 of the *National Historic Preservation Act of 1966* as amended and *36 CFR Part 800: Protection of Historic Properties*, and Chapter 267, *Florida Statutes*. It is the responsibility of the State Historic Preservation Officer to advise and assist, as appropriate, Federal and State agencies in carrying out their historic preservation responsibilities; to cooperate with Federal and State agencies to ensure that historic properties are taken into consideration at all levels of planning and development; and to consult with the appropriate Federal agencies in accordance with the *National Historic Preservation Act of 1966*, as amended, on Federal undertakings that may affect historic properties and the content and sufficiency of any plans developed to protect, manage, or to reduce or mitigate harm to such properties.

A cultural resource assessment survey has been conducted for this proposed ecopassage project. A previously identified archaeological site, 8LE1949, determined eligible for listing in the *National Register of Historic Places (NRHP)* in the vicinity of the project area. This survey included an archaeological investigation that included 117 shovel tests and found no cultural material. No evidence of the Lake Jackson archaeological site, 8LE1949, was found in the area of potential effect (APE). Two historic buildings (8LE5316 and 8LE5317) were recorded within the APE. These buildings were determined not eligible for listing in the *NRHP*. As a result, the Florida Department of Transportation concluded that the project will have no effect on historic properties listed, or considered eligible for listing in the *NRHP*, or otherwise of historical or archaeological value. Based on the information provided, our office finds the submitted report complete and sufficient and concurs with this finding.

500 S. Bronough Street • Tallahassee, FL 32399-0250 • <http://www.flheritage.com>

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Historic Preservation
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Historical Museums
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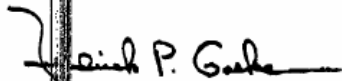
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St. Augustine Regional Office
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Tampa Regional Office
 (813) 272-3843 • FAX: 272-2340

Amanda Marshall
Page 2
December 8, 2008

If you have any questions, please contact Duane Denfeld, Architectural Historian, Transportation Compliance Review Program, by email dhdensfeld@dds.state.fl.us or at 850-245-6430.



Sincerely,
Frederick P. Gaskie, Director, and
State Historic Preservation Officer

XC: George B...
XC: Roy Jacks...