The

Lake Jackson Ecopassage Feasibility Study

Project Team

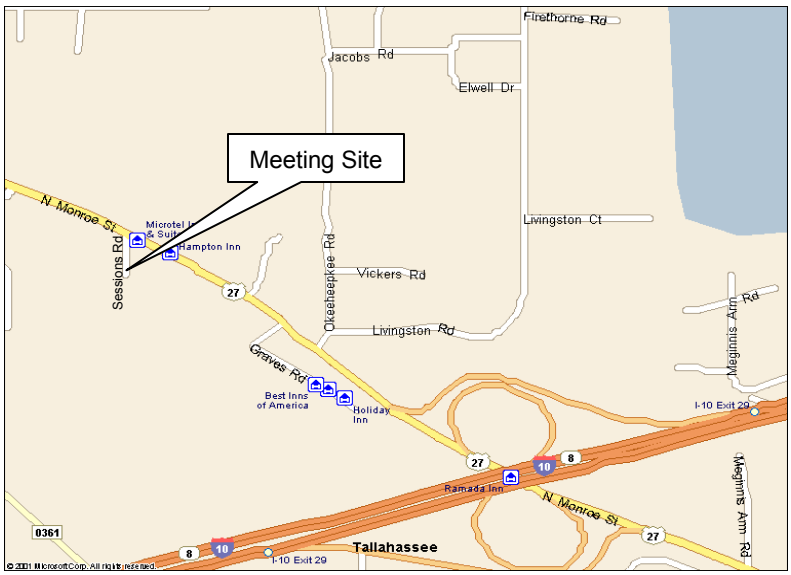
Invites You To A

FOCUS WORKSHOP

To Discuss the Proposed Ecopassage
At Lake Jackson and US 27

When: Wednesday August 18, 2004
6pm-8pm

Where: Fringe Benefits Management Co. Building
3101 Sessions Road



Meeting Location Map

Kimley-Horn and Associates, Inc.

TALLAHASSEE-LEON COUNTY MPO Metropolitan Planning Organization

Questions? Contact Allison Connell at Kimley-Horn and Associates, Inc. (772) 794-4078

AGENDA

LAKE JACKSON ECOPASSAGE FEASIBILITY STUDY
PUBLIC WORKSHOP

Fringe Benefits Management Company Building
Wednesday, August 18, 2004
6:00 pm

I. 6:00-6:30 pm Open House

II. 6:30-7:15 pm Presentation

- Power Point presentation on project by Jon Sewell of Kimley-Horn and Associates, Inc. (6:30-7:00)
- Brief overview of Lake Jackson Ecosystem by Alex Cordero of Florida Department of Environmental Protection (FDEP) Aquatic Preserves (7:00-7:15)

III 7:15-7:30 pm Question and Answer Session

IV 7:30-8:00 pm Open Discussion / Meeting Conclusion *

* Please do not forget to fill out the Alternatives Ranking and comment sheets and leave them at the front table or podium.

The Lake Jackson Ecopassage Feasibility Study Project Team thanks you for your participation.

WELCOME, PLEASE SIGN-IN

Lake Jackson Ecopassage Feasibility Study
Public Focus Workshop
Fringe Benefits Management Co. Building
3101 Sessions Road, Tallahassee, Florida
August 18, 2004 6:00 – 8:00 PM

NAME	ADDRESS	E-MAIL ADDRESS	Would you like to receive updates via E-mail? Y/N
Joanne Kowal	4871 Old Bainbridge Rd.	GAK44@aol.com	X
Mark Endries	2220 Pontiac Dr		
Rebecca Hale	"	hale@ecology.ufl.edu	X
BRYANT PAULK		bryant.paulk@dot.state.fl.us	Y
Margaret Gunzburger	3807 Stewart Way 32303		
Richard Reeves	5314 Pimlico Dr	richard reeves@comcast.net	Y
Tyler Macmillan	7411 Litchfield Rd 32312		N
Rob + Jan Wilson	9055 Eagles Ridge Rd 32312	robjanwilson@aol.com	Y
DAVID STEEN	1605 E. D. WEST BAINBRIDGE GA	DAVIDASTEEN@YAHOO.COM	Y
LORA Smith	730 Rose Creek Bainbridge GA	lora.smith@jonesctr.org	Y
Judith Dougherty	BOCC - Leon County	judith@nettally.com	Y
Jeremy Floyd	2112 Skyland Dr	jeremyfloyd@wilsonmiller.com	Y
Christine Klasse	1711 N. Meridian Rd. Apt. 7	chrisklassen@earthlink.net	Y
Maggie McGrath	4380 Camden Rd		

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NAME	ADDRESS	E-MAIL ADDRESS	Would you like to receive updates via E-mail? Y/N
Jeff Phipps	300 Orchard Pond Rd	Jfipps@aol.com	yes
Rick Bessey	1814 Ivan Dr.	[illegible]	already on –
Mary Anne Koos	FDOT- Design	maryanne.koos@dot.state.fl.us	
Cary Carothers	Leon County EEM	–	

WELCOME, PLEASE SIGN-IN

Lake Jackson Ecopassage Feasibility Study
Public Meeting
Lake Jackson Boat Landing
on North Monroe St., Tallahassee, Florida
October 28, 2004 6:00 – 8:00 PM

NAME	ADDRESS	E-MAIL ADDRESS	Would you like to receive updates via E-mail? Y/N
MARTIN GREEN	301 S. MONROE ST. BOCC	GREENM@LEONCOUNTYFL.GOV	Y
Don Alford	1843 Miller Landing Rd.	chief@nettally.com	Y
BRYANT FAULK	FDOT		Y
MICHAEL JON FITZPATRICK	1972 SHADY OAKS DRIVE		
Richard [illegible]	122 Mill Branch Rd 32312	[illegible]@HOTMAIL	Y
Judith Dougherty	2433 Mary Ellen Dr	judith@nettally.com	Y
Fred Jones	1517 Fuller Rd	b.f.jones@juno.com	Y
NANCY ROGERS	2069 WILDRIDGE DRIVE 32303	Nancy.Rogers@fsu.edu	Y
MICHAEL BUCHLER	" " " "	mbuchler@fsu.edu	Y
Jennifer Carver	300 S. Adams	carverj@talgov.com	Y
Matt Aresco	754 Livingston Court, Tallahassee	aresco@bio.fsu.edu	Y
ED OAKSFORD	2520 HARRIMAN CIR TALL	etoaksford@earthlink.net	Y
James Oaksford	"		
Ellie Whitney	745 Hunter St. #3	ewhitney@comcast.net	Y

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NAME	ADDRESS	E-MAIL ADDRESS	Would you like to receive updates via E-mail? Y/N
Ann Morrow	1968 Lawson Rd 32308	morrann@att.net	Y
Richard + Lyn Barr	KHA		Y
Karla Brandt	PO BOX 3884 Talla 32315	turtlewing@earthlink.net	y
Howard Kessler	251 Levy Bay Rd Panacea	hkessle@mywakulla.com	y
ANNE VAN Meter	1945 Surf Rd Panacea		
Jill DEAN	450 RIVERVIEW-HAVANA	SEAlegs@notdsly.com	
Louise Kirn + Tom Nelson	3642 Doris Dr Tal FL	weezrows@yahoo.com	Y
Dianne Zumbrunn	3416 Welwyn Way tal		
Jim Zumbrunn	" " "		
David Barr	104 winn Cay Dr.		
Bruce & Tracy Ryan	1932 Queenswood Dr	Tall.	Y.

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NAME	ADDRESS	E-MAIL ADDRESS	Would you like to receive updates via E-mail? Y/N
Cynthia Brown	2919-A Par Lane 32301	cynmoon@earthlink.net	Y
Paula Gunter	3000 Hunters Glen	tbgunter@cs.com	Y/N
LAKE MCGRATH	3022 S. SHORE CIR		
NANCY MCGRATH	3022 S. SHORE CIR	NANCYMCGRATH5@HOTMAIL.COM	Y
Tracy Allen	1013 Gardenia Dr	tea@hcsmail.com	yes
Lindsay Macmillan	741 Litchfield RD	tylermac@mindspring.com	Y
Georgia Stahl	2033 E. Forest Dr		N
Elizabeth Heeremans	909 Kinnikinnick Rd.	Trrip7@aol.com	
Joan Macmillan	2316 Armistead	—	
Tomoka Brady	5885 OLD Bainbridge Rd	SAHFIAIS640@YAHOO.COM SINEDIE4U@Yahoo.Com	Yes
Travis Briggs	1518 Doolittle Ave	tob03@fsu.edu	Yes
Mike Brezin	1401 N. Randolph Cir	cbreez@mfn.onlinet.net	Yes
Bob Walker	1430 N Randolph Cr.	BobW@Apalacheecenter.org	Y
Leslie Hawks	"	"	"

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NAME	ADDRESS	E-MAIL ADDRESS	Would you like to receive updates via E-mail? Y/N
Howard Leban	117 Ivernia Loop Tal. FL 32317	howard/leban@yahoo.com	already got 'em
Joel Bonenfant		Bonenfaj@talgov.com	yes.
Thomas Gunter	8000 Hunters Glen, Tal, FL 32303	tbgunter@cs.com	Y
Atsuko Ota	1949 Treeline Drive		
Dallas Marshall	3108 Livingston Rd	LinDalMar@SSI.ca	Y
Michelle McGrath	3022 southshore	NancyMCGrath5	Y
Mary Anne Koos	P.O. Box 607, Chipley, FL 32428	maryanne.koos@dot.state.fl.us	Y
Thomas McGrath	3022 SouthShore cir.		
Steve Hodges	TLCPD, city hall, TLH	hodges@talgov.com	y
Justin Whitfield	1790 Brown St	jjbean@comcast.net	Y
Maureen Rogers	1940 Shadyoaks Dr.	MAMO11@hotmail.com	I GOT THEM
Karin Smalkoski	185 Pitkin Terrace		"
Julia Horrocks	418 Lorene St Tal. 32304	SGAEnvironmental@fsu.edu	Y
Rynn & Chloe Dollard	5163 Boxwood ct Tallah FL 32303	RTaylor@GrayRobinson.com	Y

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NAME	ADDRESS	E-MAIL ADDRESS	Would you like to receive updates via E-mail? Y/N
Rick Bessey	1814 Ivan Dr. 32303	[redacted]	I
George E. Lewis II	203 N. Monroe, #6 32301	magpk@hcsmail.com	
Seaborn & Ariel Carter	4391 Cool View Drive 32303		
Amber Mikluscak	1812 Falconcrest St	amber.mikluscak@k-h.com	Y
Pat ~~Wr~~. Wright	4480 Cool Emerald Dr	pwright@nettally.com	Y
TOM NELSON	3642 DORIS DR TALLY 32302		
Dale Jackson	6416 Dancer's Image	djackson@fnai.org	
Chislaine Guyot Jackson	6416 Dancer's Image Trail	GGUYOT13@AOL.COM.	

Vale

LAKE JACKSON ECOPASSAGE FEASIBILITY STUDY
POSSIBLE ALTERNATIVES SUMMARY

The following Matrix is a summary of some possible alternatives to minimize roadkills and wildlife/vehicle incidents along US 27 between Lake Jackson and Little Lake Jackson. The Columns at the far right are for your input. We ask that you rank the alternatives in the "Rank" column, and offer comments or suggestions for the alternatives in the "Comments" column. Your input is important to us and appreciated.

ALTERNATIVE	DESCRIPTION	COST*	PROS	CONS	RANK	COMMENTS
No Action	This alternative calls for no action whatsoever.		- No monetary cost is associated with this alternative. - Drydowns are a natural occurrence that only occur, on average, about every 19 years; since mass migrations aren't that frequent, a permanent solution may not be necessary (alternative assumes that local wildlife populations 'bounce back" after mass kills during drydowns).	- Does not address the problem of migrations across road in normal (non-drydown) years. - Does not address problem of mass migration during drydown years (including impacts to animals as well as motorist safety). - Does not help to increase public awareness about the lake ecosystem. - Could lead to increased costs in the long run; if, during another event, the subject has to be revisited (resulting in another study and possible future construction, all of which could have costs affected by inflation and/or higher material and labor costs). - This alternative does not take into account social costs (i.e. collisions with wildlife) and the biological costs (if roadkills have a significant effect on local wildlife populations).	NA	long generation time. Human deaths - only takes one!
Habitat Enhancement Only	This alternative would include enhancement of habitat around the lake edge and adjacent areas only, through regular clearing/bush hogging of overgrown areas and removal of invasive/exotic species. It should be noted that implementation of this alternative, to a certain degree, will likely occur as part of a Maintenance, Monitoring, and Management Plan for any of the following alternatives (with the possible exception of the Temporary Fencing Alternative).	$	- Would enhance potential nesting areas for turtles, possibly minimizing the need for turtles to cross the road in search for suitable nesting areas. - Would help encourage a more diverse ecosystem of native vegetation (as opposed to the monoculture that exists in many areas). - An economical way to possibly reduce cross-road migration in normal (i.e. non-drydown) years.	- Does not address problem of mass migration across road in drydown years. - Managing areas for turtle nesting habitat only; does not totally consider effects on other wildlife species (e.g. mammals and birds) that may use existing overgrown vegetation for food and cover. - Opening up areas may also make them more accessible to humans, which could have a negative impact on nesting and wildlife. Monitoring and maintenance to discourage human impacts would be necessary.	Males + juv's cross; not-nesting. NA	But should be part of all options.
Temporary Fencing Only	Respond to drydown events by installing temporary fencing (i.e. siltfence) along roadway. Fence could be oriented to encourage crossing at existing culvert. Fence would be removed following lake refill/end of mass migration.	$	- Construction and maintenance costs would be low. - Fence would only need to be installed during mass migration (due to drydown). - Likely the least expensive way to minimize roadkills during mass migration periods. - Private property owners along corridor may be more willing to accept periodic temporary fence on their property (as opposed to a permanent structure), thus minimizing need for property acquisition.	- Does not address migrations across road in normal years. - With no maintenance, fence would deteriorate quickly and animals would be able to breech fence, rendering it ineffective. - With no maintenance, animals attempting to cross too far from culvert may get 'stuck" and succumb to exhaustion, dehydration, or predation (including collection by humans). - Would require high level of coordination to get fence installed when necessary. - Does not encourage public to learn about lake ecosystem. - Temporary fence could be considered an "eyesore".	& would be installed inadequately never happen NA	

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M = million dollars

ALTERNATIVE	DESCRIPTION	COST	PROS	CONS	RANK	COMMENTS
Establish Additional Passageways Under Highway - With retaining wall - With full permanent wall on one side - With Full Permanent Wall on Both Sides	In addition to replacing the existing culvert, this alternative would include establishing two additional culverts/passageways in high potential crossing areas to the south of the existing culvert. Additional culverts with "wingwalls". Additional culverts with full exclusion wall.	$$$ to $$$$	- The additional culverts would offer more opportunities for animals to cross road, thus alleviating the potential problem of animals getting stuck along wall (if full wall used). - If wing walls at culvert entrances were used, would still offer more opportunities for animals to cross while still minimizing construction and maintenance costs. - Passageways could be used by animals during normal and event years. - The visible infrastructure (wall) would be noticed by passing motorists and could be used as an opportunity to educate the public about the lake ecosystem. A wayside kiosk or small visitor center could also be considered for public education (may increase cost depending on type of facility).	- If wingwalls used, species crossing outside of wall area would not be protected (possibly creating bad PR for project). - Culverts would likely have to be a great deal smaller than the existing 3.5m culvert; it is unknown whether species will use smaller culverts (some data suggests turtles may not use the smaller passageways). - Careful and regular maintenance of the walls would be necessary in order to ensure their effectiveness (e.g. cracks and vegetation growing up walls would need to be repaired frequently to minimize animals climbing wall). - Construction and maintenance of full walls could be costly. - Private property owners may not be willing to cooperate with wall being built along their frontage. give NO choice	3 2	
Bridge	This alternative would call for the replacement of the section of US 27 that runs between Lake Jackson and Little Lake Jackson with a Bridge.	$$$$$	- Would restore natural lake hydrology and habitat. - Would allow animals to cross freely between Lake Jackson and Little Lake Jackson with no interference from vehicles. - Once bridge was built, maintenance of crossing area would be minimal. - Would do the most effective job at minimizing collisions between wildlife and vehicles. - From an ecological perspective, this is possibly the best option.	- The feasibility of this option is severely limited by the cost, which is very high. - Construction schedule for a project such as this would be very long term; thus this option does not address the immediate need for a solution at the location. - Construction of this option could have a temporary negative impact on the existing habitat (though area may improve after bridge is built).	1	

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SOME THINGS TO CONSIDER:

1. Walls may not be able to stop birds, various species of frogs (particularly tree frogs), or some larger mammals and snakes. MOOT/NOT FOCUS

2. Without proper maintenance, the number of species (and number of animals in general) able to breech the wall will increase, rendering the wall generally ineffective. A Maintenance, Monitoring, and Management Plan will need to be developed for the ecopassage. Use cement/steel. . . -

3. Costs of walls/ general construction costs could be reduced by using cheaper materials (i.e. wood, cinder block, etc.) however, using cheaper materials may increase overall maintenance costs (i.e. repeated need to replace cracked or broken wood or concrete) as well as affect the landscape (i.e. a "cheaper" materials more likely to result in something that could be considered an "eyesore").

4. The more "visible" the ecopassage is (i.e. the bigger and better the infrastructure) the more likely the project will be considered something "special" and more likely to attract tourists, naturalists, and create an opportunity to educate public about the area/ecosystem (as well as create the need to build a visitor/education center, which could, in turn, increase tourism).

5. Walls and passageways, in general, can attract a wide variety of natural and human predators. The ecopassage may require security (to prevent poaching/collection of animals along walls) especially during drydown/mass migration events. Migration routes and nesting areas will likewise need to be protected. These issues will need to be addressed in a Management and Monitoring Plan.

6. The cost of security and routine maintenance and signage could be offset by the development of an Ecotourisim program that could be contracted out to a reputable company (certified). The income could help offset the costs of some options through direct fees, as well as support the local economy though visitor hotel nights, food purchases, incidental expenses, and visits to other sites in the area. Of course, the success of this would be hard to predict and would be contingent on the effectiveness of the tour company business, PR, and marketing. LOW POTENTIAL

7. Wall junctions, corners, and other seams in walls may require sealing at least twice a year. Likewise, vegetation growing up against the wall will require regular mowing/trimming (more frequently in growing season). These needs should be addressed in a Monitoring, Maintenance, and Management Plan. Available information suggests that a wall without a regular maintenance and management program will quickly become a failure. TURTLES climb poorly!

8. The replacement of the current culvert should be done with the understanding that it is an operational ecopassage under the road. Animals are currently using it. Data suggests that some special passages (which generally have been smaller) have been failures. We recommend that the height and width of the new culvert be duplicated, as these factors are likely the attributes leading to its success. — or exceeded

9. Positioning of additional ecopassages should be established using current data from migrations during and after drawdown events on Lake Jackson.

10. Due to the lack of information pertaining to successful use of ecopassages by turtles and other species groups, as well as information suggesting their apparent failure (i.e. lack of use), it is highly recommended that the current culvert under US 27 between Lake Jackson and Little Lake Jackson be used as a model for height and width for other ecopassages, as it is apparently being used by turtles and other species.

11. Flarebacks and curves on walls must be done at the end of each wall and there should never be a corner where animals get stuck. If there are less than 3 functional Ecopassages under the highway, then flareback walls should be put into place at various strategic locations along the barrier wall. These are walls that come off the barrier walls and curve back toward the lake. This should help to keep turtles from getting stuck in the back and forth syndrome, where turtles get fixated on a direction and move back and forth over a few feet of wall, until they are totally exhausted and die or fall prey to predators who learn to hunt the wall for food.

12. In order to address gaps in the wall which might occur at roads or driveways that intersect with US 27, a cattle guard- like pipe crossing over a concrete box or other suitable structure could be put into place. This would avoid having a point where animals could get on to the highway yet allow vehicle and human access. Periodic maintenance would be required to ensure animals do not become trapped. — Huh?

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Temporary Fencing Only	Respond to drydown events by installing temporary fencing (i.e. siltfence) along roadway. Fence could be oriented to encourage crossing at existing culvert. Fence would be removed following lake refill/end of mass migration.	$	- Construction and maintenance costs would be low. - Fence would only need to be installed during mass migration (due to drydown). - Likely the least expensive way to minimize roadkills during mass migration periods. - Private property owners along corridor may be more willing to accept periodic temporary fence on their property (as opposed to a permanent structure), thus minimizing need for property acquisition.	- Does not address migrations across road in normal years. - With no maintenance, fence would deteriorate quickly and animals would be able to breech fence, rendering it ineffective. - With no maintenance, animals attempting to cross too far from culvert may get 'stuck" and succumb to exhaustion, dehydration, or predation (including collection by humans). - Would require high level of coordination to get fence installed when necessary. - Does not encourage public to learn about lake ecosystem. - Temporary fence could be considered an "eyesore".	4	

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ALTERNATIVE	DESCRIPTION	COST	PROS	CONS	RANK	COMMENTS
or **Temporary Fence with Monitoring**	Install temporary fence (same as previous option) but have a contracted paid staff supplemented with volunteers to routinely monitor fences twice a day, helping move animals attempting to cross road, as well as maintain fence. Grants or donations could be obtained in amounts that would act as principal trust. The interest accumulated could be used to fund fencing and maintenance. Fence could be removed following drydown events.	$ to $$	- Construction Costs would be low. - Current conditions demonstrate this option should be effective in keeping animals off roadway. - Likely the least expensive and most effective way to minimize roadkills during migration events. - Could attract volunteers to help out and could provide opportunity for individuals to learn about area though volunteering. - Volunteer/ paid staff option would lower potential for problems with maintenance/ breeches at fence and animals getting stuck at fence. - Paid staff option could create economic opportunity. - Private property owners along corridor may be more willing to accept periodic temporary fence on their property, thus minimizing need for property acquisition.	- Effectiveness would depend on persons volunteering/working to maintain fence. - Would require a high level of coordination between agencies and organizations to get fence installed and maintained when necessary. - High potential for flaws resulting in roadkills if coordination/monitoring not maintained. - May not effectively address problem of migrations during normal years. - Does not encourage public to learn about lake ecosystem outside of periodic drydown events. - Temporary fence could be considered an "eyesore".	4	
Use/Replace Existing Culvert and construct wall	This alternative would involve using/replacing the existing culvert with varying degrees of barrier walls on either side of the highway to divert wildlife to existing culvert. Using "wingwalls" (i.e. walls extending out a few hundred feet from either side of the culvert entrance to help direct animals to culvert) would be less expensive then full walls on either side, but would also be less effective.	$$ to $$$$	- Available data suggests that wildlife are currently using the existing culvert as passage way; thus its success is known. - Costs could be minimized since the FDOT will need to replace the culvert anyway, thus costs would only be associated with the degree and type of wall (i.e. wingwalls less expensive than full walls). - The visible infrastructure (wall) would be noticed by passing motorists and could be used as an opportunity to educate the public about the lake ecosystem. A wayside kiosk or small visitor center could also be considered for public education (may increase cost depending on type of facility). - Could benefit animals during both normal and event years.	- If wingwalls used, species crossing outside of wall area would not be protected (possibly creating bad PR for project). - If full walls used, species trying to cross far from the culvert may get to the wall and succumb to exhaustion or predation before reaching culvert; design of wall could help to minimize this (e.g. use "flareback" walls spaced accordingly to divert species away from wall to avoid "direction freeze" along a long length of wall). - Careful and regular maintenance of the walls would be necessary in order to ensure their effectiveness (e.g. cracks and vegetation growing up walls would need to be repaired frequently to minimize animals climbing wall). - Construction and maintenance of full walls could be costly. - Private property owners may not be willing to cooperate with wall being built along their frontage.	3	

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Establish Additional Passageways Under Highway - With retaining wall - With full permanent wall on one side - With Full Permanent Wall on Both Sides	In addition to replacing the existing culvert, this alternative would include establishing two additional culverts/passageways in high potential crossing areas to the south of the existing culvert. Additional culverts with "wingwalls". Additional culverts with full exclusion wall.	$$$ to $$$$	- The additional culverts would offer more opportunities for animals to cross road, thus alleviating the potential problem of animals getting stuck along wall (if full wall used). - If wing walls at culvert entrances were used, would still offer more opportunities for animals to cross while still minimizing construction and maintenance costs. - Passageways could be used by animals during normal and event years. - The visible infrastructure (wall) would be noticed by passing motorists and could be used as an opportunity to educate the public about the lake ecosystem. A wayside kiosk or small visitor center could also be considered for public education (may increase cost depending on type of facility).	- If wingwalls used, species crossing outside of wall area would not be protected (possibly creating bad PR for project). - Culverts would likely have to be a great deal smaller than the existing 3.5m culvert; it is unknown whether species will use smaller culverts (some data suggests turtles may not use the smaller passageways). - Careful and regular maintenance of the walls would be necessary in order to ensure their effectiveness (e.g. cracks and vegetation growing up walls would need to be repaired frequently to minimize animals climbing wall). - Construction and maintenance of full walls could be costly. - Private property owners may not be willing to cooperate with wall being built along their frontage.	2	The bridge sounds nice but not likely to be a realistic option → this seems to be best shot at making a real difference & being implemented
Bridge	This alternative would call for the replacement of the section of US 27 that runs between Lake Jackson and Little Lake Jackson with a Bridge.	$$$$$	- Would restore natural lake hydrology and habitat. - Would allow animals to cross freely between Lake Jackson and Little Lake Jackson with no interference from vehicles. - Once bridge was built, maintenance of crossing area would be minimal. - Would do the most effective job at minimizing collisions between wildlife and vehicles. - From an ecological perspective, this is possibly the best option.	- The feasibility of this option is severely limited by the cost, which is very high. - Construction schedule for a project such as this would be very long term; thus this option does not address the immediate need for a solution at the location. - Construction of this option could have a negative impact on the existing habitat (though area may improve after bridge is built).	1	would thus also help elevate risk of flooding to surrounding areas - good angle - natural hydrology benefits also

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or **Temporary Fence with Monitoring**	Install temporary fence (same as previous option) but have a contracted paid staff supplemented with volunteers to routinely monitor fences twice a day, helping move animals attempting to cross road, as well as maintain fence. Grants or donations could be obtained in amounts that would act as principal trust. The interest accumulated could be used to fund fencing and maintenance. Fence could be removed following drydown events.	$ to $$	- Construction Costs would be low. - Current conditions demonstrate this option should be effective in keeping animals off roadway. - Likely the least expensive and most effective way to minimize roadkills during migration events. - Could attract volunteers to help out and could provide opportunity for individuals to learn about area though volunteering. - Volunteer/ paid staff option would lower potential for problems with maintenance/ breeches at fence and animals getting stuck at fence. - Paid staff option could create economic opportunity. - Private property owners along corridor may be more willing to accept periodic temporary fence on their property, thus minimizing need for property acquisition.	- Effectiveness would depend on persons volunteering/working to maintain fence. - Would require a high level of coordination between agencies and organizations to get fence installed and maintained when necessary. - High potential for flaws resulting in roadkills if coordination/monitoring not maintained. - May not effectively address problem of migrations during normal years. - Does not encourage public to learn about lake ecosystem outside of periodic drydown events. - Temporary fence could be considered an "eyesore".		ANOTHER BAND AID. AS STATED EARLIER, MORTALITY OF FEMALES IN "NORMAL" YEARS IS SUFFICIENT TO ALTER POPULATIONS. TEMPORARY SOLUTION DEPENDENT ON TOO MANY UNPREDICTABLE VARIABLES
Use/Replace Existing Culvert and construct wall	This alternative would involve using/replacing the existing culvert with varying degrees of barrier walls on either side of the highway to divert wildlife to existing culvert. Using "wingwalls" (i.e. walls extending out a few hundred feet from either side of the culvert entrance to help direct animals to culvert) would be less expensive then full walls on either side, but would also be less effective.	$$ to $$$$	- Available data suggests that wildlife are currently using the existing culvert as passage way; thus its success is known. - Costs could be minimized since the FDOT will need to replace the culvert anyway, thus costs would only be associated with the degree and type of wall (i.e. wingwalls less expensive than full walls). - The visible infrastructure (wall) would be noticed by passing motorists and could be used as an opportunity to educate the public about the lake ecosystem. A wayside kiosk or small visitor center could also be considered for public education (may increase cost depending on type of facility). - Could benefit animals during both normal and event years.	- If wingwalls used, species crossing outside of wall area would not be protected (possibly creating bad PR for project). - If full walls used, species trying to cross far from the culvert may get to the wall and succumb to exhaustion or predation before reaching culvert; design of wall could help to minimize this (e.g. use "flareback" walls spaced accordingly to divert species away from wall to avoid "direction freeze" along a long length of wall). - Careful and regular maintenance of the walls would be necessary in order to ensure their effectiveness (e.g. cracks and vegetation growing up walls would need to be repaired frequently to minimize animals climbing wall). - Construction and maintenance of full walls could be costly. - Private property owners may not be willing to cooperate with wall being built along their frontage.		DO TURTLES USE CULVERTS? (DODD ET AL 2004) FOUND A REDUCTION IN MORTALITY, THIS IS LIKELY APPLICABLE AT LAKE JACKSON, NEED WALLS AND WINGS FOR TURTLES TO FIND CULVERTS, THEY ARE DRIVEN BY INSTINCT TO MOVE ... NOT TO FIND "SAFE" ROUTES

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LAKE JACKSON ECOPASSAGE FEASIBILITY STUDY
POSSIBLE ALTERNATIVES SUMMARY

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Habitat Enhancement Only	This alternative would include enhancement of habitat around the lake edge and adjacent areas only, through regular clearing/bush hogging of overgrown areas and removal of invasive/exotic species. It should be noted that implementation of this alternative, to a certain degree, will likely occur as part of a Maintenance, Monitoring, and Management Plan for any of the following alternatives (with the possible exception of the Temporary Fencing Alternative).	$	- Would enhance potential nesting areas for turtles, possibly minimizing the need for turtles to cross the road in search for suitable nesting areas. - Would help encourage a more diverse ecosystem of native vegetation (as opposed to the monoculture that exists in many areas). - An economical way to possibly reduce cross-road migration in normal (i.e. non-drydown) years.	- Does not address problem of mass migration across road in drydown years. - Managing areas for turtle nesting habitat only; does not totally consider effects on other wildlife species (e.g. mammals and birds) that may use existing overgrown vegetation for food and cover. - Opening up areas may also make them more accessible to humans, which could have a negative impact on nesting and wildlife. Monitoring and maintenance to discourage human impacts would be necessary.		MANY TURTLE SPECIES EXHIBIT NEST SITE FIDELITY, GOING TO SAME NESTING SITE YEAR AFTER YEAR. THERE IS NO DATA TO SUPPORT THE HYPOTHESIS THAT TURTLES WILL USE NESTING SITES THAT PEOPLE FIND ADEQUATE. ARESCO'S DATA CLEARLY SHOWS THAT NESTING MIGRATIONS ARE NOT THE ONLY MOVEMENTS
Temporary Fencing Only	Respond to drydown events by installing temporary fencing (i.e. siltfence) along roadway. Fence could be oriented to encourage crossing at existing culvert. Fence would be removed following lake refill/end of mass migration.	$	- Construction and maintenance costs would be low. - Fence would only need to be installed during mass migration (due to drydown). - Likely the least expensive way to minimize roadkills during mass migration periods. - Private property owners along corridor may be more willing to accept periodic temporary fence on their property (as opposed to a permanent structure), thus minimizing need for property acquisition.	- Does not address migrations across road in normal years. - With no maintenance, fence would deteriorate quickly and animals would be able to breech fence, rendering it ineffective. - With no maintenance, animals attempting to cross too far from culvert may get 'stuck" and succumb to exhaustion, dehydration, or predation (including collection by humans). - Would require high level of coordination to get fence installed when necessary. - Does not encourage public to learn about lake ecosystem. - Temporary fence could be considered an "eyesore".		BAND AID, NOT VIABLE OPTION. ROAD MORTALITY ~~OF~~ OF FEMALES ON NESTING MIGRATIONS HAS THE POTENTIAL TO ALTER FRESHWATER TURTLE POPULATIONS (STEEN AND GIBBS 200 NOT EVEN TAKING INTO ACCOUNT MOVEMENTS TO ESCAPE UNFAVORABLE HABITAT CONDITIONS

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Bridge	This alternative would call for the replacement of the section of US 27 that runs between Lake Jackson and Little Lake Jackson with a Bridge.	$$$$$	- Would restore natural lake hydrology and habitat. - Would allow animals to cross freely between Lake Jackson and Little Lake Jackson with no interference from vehicles. - Once bridge was built, maintenance of crossing area would be minimal. - Would do the most effective job at minimizing collisions between wildlife and vehicles. - From an ecological perspective, this is possibly the best option.	- The feasibility of this option is severely limited by the cost, which is very high. - Construction schedule for a project such as this would be very long term; thus this option does not address the immediate need for a solution at the location. - Construction of this option could have a negative impact on the existing habitat (though area may improve after bridge is built).		

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Use/Replace Existing Culvert and construct wall	This alternative would involve using/replacing the existing culvert with varying degrees of barrier walls on either side of the highway to divert wildlife to existing culvert. Using "wingwalls" (i.e. walls extending out a few hundred feet from either side of the culvert entrance to help direct animals to culvert) would be less expensive then full walls on either side, but would also be less effective.	$$ to $$$$	- Available data suggests that wildlife are currently using the existing culvert as passage way; thus its success is known. - Costs could be minimized since the FDOT will need to replace the culvert anyway, thus costs would only be associated with the degree and type of wall (i.e. wingwalls less expensive than full walls). - The visible infrastructure (wall) would be noticed by passing motorists and could be used as an opportunity to educate the public about the lake ecosystem. A wayside kiosk or small visitor center could also be considered for public education (may increase cost depending on type of facility). - Could benefit animals during both normal and event years.	- If wingwalls used, species crossing outside of wall area would not be protected (possibly creating bad PR for project). - If full walls used, species trying to cross far from the culvert may get to the wall and succumb to exhaustion or predation before reaching culvert; design of wall could help to minimize this (e.g. use "flareback" walls spaced accordingly to divert species away from wall to avoid "direction freeze" along a long length of wall). - Careful and regular maintenance of the walls would be necessary in order to ensure their effectiveness (e.g. cracks and vegetation growing up walls would need to be repaired frequently to minimize animals climbing wall). - Construction and maintenance of full walls could be costly. - Private property owners may not be willing to cooperate with wall being built along their frontage.	(1) Best option (3)	This would remove as much as possible auto traffic from the ecosystem. It would also free the existing road for a trail or other greenway

This ranking & response was meant for the "Bridge" alternative

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ALTERNATIVE	DESCRIPTION	COST	PROS	CONS	RANK	COMMENTS
Establish Additional Passageways Under Highway - With retaining wall - With full permanent wall on one side - With Full Permanent Wall on Both Sides	In addition to replacing the existing culvert, this alternative would include establishing two additional culverts/passageways in high potential crossing areas to the south of the existing culvert. Additional culverts with "wingwalls". Additional culverts with full exclusion wall.	$$$ to $$$$	- The additional culverts would offer more opportunities for animals to cross road, thus alleviating the potential problem of animals getting stuck along wall (if full wall used). - If wing walls at culvert entrances were used, would still offer more opportunities for animals to cross while still minimizing construction and maintenance costs. - Passageways could be used by animals during normal and event years. - The visible infrastructure (wall) would be noticed by passing motorists and could be used as an opportunity to educate the public about the lake ecosystem. A wayside kiosk or small visitor center could also be considered for public education (may increase cost depending on type of facility).	- If wingwalls used, species crossing outside of wall area would not be protected (possibly creating bad PR for project). - Culverts would likely have to be a great deal smaller than the existing 3.5m culvert; it is unknown whether species will use smaller culverts (some data suggests turtles may not use the smaller passageways). - Careful and regular maintenance of the walls would be necessary in order to ensure their effectiveness (e.g. cracks and vegetation growing up walls would need to be repaired frequently to minimize animals climbing wall). - Construction and maintenance of full walls could be costly. - Private property owners may not be willing to cooperate with wall being built along their frontage.	(2)	This is a great, feasible alternative that could be nicely linked to a greenway. It would be critical to determine whether 3 culverts is enough
Bridge	This alternative would call for the replacement of the section of US 27 that runs between Lake Jackson and Little Lake Jackson with a Bridge.	$$$$$	- Would restore natural lake hydrology and habitat. - Would allow animals to cross freely between Lake Jackson and Little Lake Jackson with no interference from vehicles. - Once bridge was built, maintenance of crossing area would be minimal. - Would do the most effective job at minimizing collisions between wildlife and vehicles. - From an ecological perspective, this is possibly the best option.	- The feasibility of this option is severely limited by the cost, which is very high. - Construction schedule for a project such as this would be very long term; thus this option does not address the immediate need for a solution at the location. - Construction of this option could have a negative impact on the existing habitat (though area may improve after bridge is built).	(1)	

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LAKE JACKSON ECOPASSAGE FEASIBILITY STUDY
POSSIBLE ALTERNATIVES SUMMARY

The following Matrix is a summary of some possible alternatives to minimize roadkills and wildlife/vehicle incidents along US 27 between Lake Jackson and Little Lake Jackson. The Columns at the far right are for your input. We ask that you rank the alternatives in the "Rank" column, and offer comments or suggestions for the alternatives in the "Comments" column. You input is important, and appreciated.

ALTERNATIVE	DESCRIPTION	COST*	PROS	CONS	RANK	COMMENTS
No Action	This alternative calls for no action whatsoever.		- No monetary cost is associated with this alternative. - Drydowns are a natural occurrence that only occur, on average, about every 19 years; since mass migrations aren't that frequent, a permanent solution may not be necessary (alternative assumes that local wildlife populations 'bounce back" after mass kills during drydowns).	- Does not address the problem of migrations across road in normal (non-drydown) years. - Does not address problem of mass migration during drydown years (including impacts to animals as well as motorist safety). - Does not help to increase public awareness about the lake ecosystem. - Could lead to increased costs in the long run, if, during another event, the subject has to be revisited (resulting in another study and possible future construction, all of which could have costs affected by inflation and/or higher material and labor costs). - This alternative does not take into account social costs (i.e. collisions with wildlife) and the biological costs (if roadkills have a significant effect on local wildlife populations).		not a solution
Habitat Enhancement Only	This alternative would include enhancement of habitat around the lake edge and adjacent areas only, through regular clearing/bush hogging of overgrown areas and removal of invasive/exotic species. It should be noted that implementation of this alternative, to a certain degree, will likely occur as part of a Maintenance, Monitoring, and Management Plan for any of the following alternatives (with the possible exception of the Temporary Fencing Alternative).	$	- Would enhance potential nesting areas for turtles, possibly minimizing the need for turtles to cross the road in search for suitable nesting areas. - Would help encourage a more diverse ecosystem of native vegetation (as opposed to the monoculture that exists in many areas). - An economical way to possibly reduce cross-road migration in normal (i.e. non-drydown) years.	- Does not address problem of mass migration across road in drydown years. - Managing areas for turtle nesting habitat only; does not totally consider effects on other wildlife species (e.g. mammals and birds) that may use existing overgrown vegetation for food and cover. - Opening up areas may also make them more accessible to humans, which could have a negative impact on nesting and wildlife. Monitoring and maintenance to discourage human impacts would be necessary.		not a solution
Temporary Fencing Only	Respond to drydown events by installing temporary fencing (i.e. siltfence) along roadway. Fence could be oriented to encourage crossing at existing culvert. Fence would be removed following lake refill/end of mass migration.	$	- Construction and maintenance costs would be low. - Fence would only need to be installed during mass migration (due to drydown). - Likely the least expensive way to minimize roadkills during mass migration periods. - Private property owners along corridor may be more willing to accept periodic temporary fence on their property (as opposed to a permanent structure), thus minimizing need for property acquisition.	- Does not address migrations across road in normal years. - With no maintenance, fence would deteriorate quickly and animals would be able to breech fence, rendering it ineffective. - With no maintenance, animals attempting to cross too far from culvert may get 'stuck" and succumb to exhaustion, dehydration, or predation (including collection by humans). - Would require high level of coordination to get fence installed when necessary. - Does not encourage public to learn about lake ecosystem. - Temporary fence could be considered an "eyesore".		not a solution

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ALTERNATIVE	DESCRIPTION	COST	PROS	CONS	RANK	COMMENTS
or **Temporary Fence with Monitoring**	Install temporary fence (same as previous option) but have a contracted paid staff supplemented with volunteers to routinely monitor fences twice a day, helping move animals attempting to cross road, as well as maintain fence. Grants or donations could be obtained in amounts that would act as principal trust. The interest accumulated could be used to fund fencing and maintenance. Fence could be removed following drydown events.	$ to $$	- Construction Costs would be low. - Current conditions demonstrate this option should be effective in keeping animals off roadway. - Likely the least expensive and most effective way to minimize roadkills during migration events. - Could attract volunteers to help out and could provide opportunity for individuals to learn about area though volunteering. - Volunteer/ paid staff option would lower potential for problems with maintenance/ breeches at fence and animals getting stuck at fence. - Paid staff option could create economic opportunity. - Private property owners along corridor may be more willing to accept periodic temporary fence on their property, thus minimizing need for property acquisition.	- Effectiveness would depend on persons volunteering/working to maintain fence. - Would require a high level of coordination between agencies and organizations to get fence installed and maintained when necessary. - High potential for flaws resulting in roadkills if coordination/monitoring not maintained. - May not effectively address problem of migrations during normal years. - Does not encourage public to learn about lake ecosystem outside of periodic drydown events. - Temporary fence could be considered an "eyesore".		Not a long term solution
Use/Replace Existing Culvert and construct wall	This alternative would involve using/replacing the existing culvert with varying degrees of barrier walls on either side of the highway to divert wildlife to existing culvert. Using "wingwalls" (i.e. walls extending out a few hundred feet from either side of the culvert entrance to help direct animals to culvert) would be less expensive then full walls on either side, but would also be less effective.	$$ to $$$$	- Available data suggests that wildlife are currently using the existing culvert as passage way; thus its success is known. - Costs could be minimized since the FDOT will need to replace the culvert anyway, thus costs would only be associated with the degree and type of wall (i.e. wingwalls less expensive than full walls). - The visible infrastructure (wall) would be noticed by passing motorists and could be used as an opportunity to educate the public about the lake ecosystem. A wayside kiosk or small visitor center could also be considered for public education (may increase cost depending on type of facility). - Could benefit animals during both normal and event years.	- If wingwalls used, species crossing outside of wall area would not be protected (possibly creating bad PR for project). - If full walls used, species trying to cross far from the culvert may get to the wall and succumb to exhaustion or predation before reaching culvert; design of wall could help to minimize this (e.g. use "flareback" walls spaced accordingly to divert species away from wall to avoid "direction freeze" along a long length of wall). - Careful and regular maintenance of the walls would be necessary in order to ensure their effectiveness (e.g. cracks and vegetation growing up walls would need to be repaired frequently to minimize animals climbing wall). - Construction and maintenance of full walls could be costly. - Private property owners may not be willing to cooperate with wall being built along their frontage.		A minimal long term solution with problems.

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ALTERNATIVE	DESCRIPTION	COST	PROS	CONS	RANK	COMMENTS
Establish Additional Passageways Under Highway - With retaining wall - With full permanent wall on one side - With Full Permanent Wall on Both Sides	In addition to replacing the existing culvert, this alternative would include establishing two additional culverts/passageways in high potential crossing areas to the south of the existing culvert. Additional culverts with "wingwalls". Additional culverts with full exclusion wall.	$$$ to $$$$	- The additional culverts would offer more opportunities for animals to cross road, thus alleviating the potential problem of animals getting stuck along wall (if full wall used). - If wing walls at culvert entrances were used, would still offer more opportunities for animals to cross while still minimizing construction and maintenance costs. - Passageways could be used by animals during normal and event years. - The visible infrastructure (wall) would be noticed by passing motorists and could be used as an opportunity to educate the public about the lake ecosystem. A wayside kiosk or small visitor center could also be considered for public education (may increase cost depending on type of facility).	- If wingwalls used, species crossing outside of wall area would not be protected (possibly creating bad PR for project). - Culverts would likely have to be a great deal smaller than the existing 3.5m culvert; it is unknown whether species will use smaller culverts (some data suggests turtles may not use the smaller passageways). - Careful and regular maintenance of the walls would be necessary in order to ensure their effectiveness (e.g. cracks and vegetation growing up walls would need to be repaired frequently to minimize animals climbing wall). - Construction and maintenance of full walls could be costly. - Private property owners may not be willing to cooperate with wall being built along their frontage.	2	Best option if cost is a factor Walls needed on both sides.
Bridge	This alternative would call for the replacement of the section of US 27 that runs between Lake Jackson and Little Lake Jackson with a Bridge.	$$$$$	- Would restore natural lake hydrology and habitat. - Would allow animals to cross freely between Lake Jackson and Little Lake Jackson with no interference from vehicles. - Once bridge was built, maintenance of crossing area would be minimal. - Would do the most effective job at minimizing collisions between wildlife and vehicles. - From an ecological perspective, this is possibly the best option.	- The feasibility of this option is severely limited by the cost, which is very high. - Construction schedule for a project such as this would be very long term; thus this option does not address the immediate need for a solution at the location. - Construction of this option could have a negative impact on the existing habitat (though area may improve after bridge is built).	1	If funding could be secured by far the best option. But would this option cause little lake Jackson to draw down with lake Jackson? It is important to restore natural hydrology. With bridges you could tie into eco tourism angle. ~~with~~ If park/public area is established there could be potential for canoe rentals and allow canoers to ~~be~~ travel to little lake Jackson, they could be "enter crossed"

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LAKE JACKSON ECOPASSAGE FEASIBILITY STUDY
POSSIBLE ALTERNATIVES SUMMARY

SCALE
1 - Best case
5 Worst case
(B) = Biology
E = Economics

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ALTERNATIVE	DESCRIPTION	COST*	PROS	CONS
A- 5 B - See Cons Public attitude of region, state, nation - conservation groups - NEGATIVE Tourists **No Action** C - (B) 5 E-2	This alternative calls for no action whatsoever.		- No monetary cost is associated with this alternative. - Drydowns are a natural occurrence that only occur, on average, about every 19 years; since mass migrations aren't that frequent, a permanent solution may not be necessary (alternative assumes that local wildlife populations 'bounce back" after mass kills during drydowns).	- Does not address the problem of migrations across road in normal (non-drydown) years. - Does not address problem of mass migration during drydown years (including impacts to animals as well as motorist safety). - Does not help to increase public awareness ab the lake ecosystem. - Could lead to increased costs in the long run, i during another event, the subject has to be revisited (resulting in another study and possit future construction, all of which could have co affected by inflation and/or higher material an labor costs). - This alternative does not take into account soc costs (i.e. collisions with wildlife) and the biological costs (if roadkills have a significant effect on local wildlife populations).
A- 4 B - will not prevent nest searching or other road cross **Habitat Enhancement Only** C - (B) 5 E 3	This alternative would include enhancement of habitat around the lake edge and adjacent areas only, through regular clearing/bush hogging of overgrown areas and removal of invasive/exotic species. It should be noted that implementation of this alternative, to a certain degree, will likely occur as part of a Maintenance, Monitoring, and Management Plan for any of the following alternatives (with the possible exception of the Temporary Fencing Alternative).	$	- Would enhance potential nesting areas for turtles, possibly minimizing the need for turtles to cross the road in search for suitable nesting areas. - Would help encourage a more diverse ecosystem of native vegetation (as opposed to the monoculture that exists in many areas). - An economical way to possibly reduce cross-road migration in normal (i.e. non-drydown) years.	- Does not address problem of mass migration across road in drydown years. - Managing areas for turtle nesting habitat only; does not totally consider effects on other wildl species (e.g. mammals and birds) that may use existing overgrown vegetation for food and cover. - Opening up areas may also make them more accessible to humans, which could have a negative impact on nesting and wildlife. Monitoring and maintenance to discourage human impacts would be necessary.
	Respond to drydown events by		- Construction and maintenance costs would	- Does not address migrations across road in

A- 4 B – NA **Temporary Fencing Only** C. (B) 4 (E) -3 maintence Appearance decision of? when? Community concern	installing temporary fencing (i.e. siltfence) along roadway. Fence could be oriented to encourage crossing at existing culvert. Fence would be removed following lake refill/end of mass migration.	$	be low. - Fence would only need to be installed during mass migration (due to drydown). - Likely the least expensive way to minimize roadkills during mass migration periods. - Private property owners along corridor may be more willing to accept periodic temporary fence on their property (as opposed to a permanent structure), thus minimizing need for property acquisition.	normal years. - With no maintenance, fence would deteriora quickly and animals would be able to breech fence, rendering it ineffective. - With no maintenance, animals attempting to cross too far from culvert may get 'stuck" ar succumb to exhaustion, dehydration, or predation (including collection by humans). - Would require high level of coordination to fence installed when necessary. - Does not encourage public to learn about lak ecosystem. - Temporary fence could be considered an "eyesore".
ALTERNATIVE	**DESCRIPTION**	**COST**	**PROS**	**CONS**
Requires professional oversight **or** **Temporary Fence with Monitoring**	Install temporary fence (same as previous option) but have a contracted paid staff supplemented with volunteers to routinely monitor fences twice a day, helping move animals attempting to cross road, as well as maintain fence. Grants or donations could be obtained in amounts that would act as principal trust. The interest accumulated could be used to fund fencing and maintenance. Fence could be removed following drydown events.	$ to $$	- Construction Costs would be low. - Current conditions demonstrate this option should be effective in keeping animals off roadway. - Likely the least expensive and most effective way to minimize roadkills during migration events. - Could attract volunteers to help out and could provide opportunity for individuals to learn about area though volunteering. - Volunteer/ paid staff option would lower potential for problems with maintenance/ breeches at fence and animals getting stuck at fence. - Paid staff option could create economic opportunity. - Private property owners along corridor may be more willing to accept periodic temporary fence on their property, thus minimizing need for property acquisition.	- Effectiveness would depend on persons volunteering/working to maintain fence. - Would require a high level of coordination between agencies and organizations to get fence installed and maintained when necessa - High potential for flaws resulting in roadkill coordination/monitoring not maintained. - May not effectively address problem of migrations during normal years. - Does not encourage public to learn about lak ecosystem outside of periodic drydown even - Temporary fence could be considered an "eyesore".
A- 3 B- NA C- (B) -3 E- 3 **Use/Replace Existing Culvert and construct wall**	This alternative would involve using/replacing the existing culvert with varying degrees of barrier walls on either side of the highway to divert wildlife to existing culvert. Using "wingwalls" (i.e. walls	$$ to	- Available data suggests that wildlife are currently using the existing culvert as passage way; thus its success is known. - Costs could be minimized since the FDOT will need to replace the culvert anyway, thus costs would only be associated with the degree and type of wall (i.e. wingwalls less expensive than full walls). - The visible infrastructure (wall) would be noticed by passing motorists and could be	- If wingwalls used, species crossing outside wall area would not be protected (possibly creating bad PR for project). - If full walls used, species trying to cross fa from the culvert may get to the wall and succumb to exhaustion or predation before reaching culvert; design of wall could help minimize this (e.g. use "flareback" walls spaced accordingly to divert species away from wall to avoid "direction freeze" along long length of wall).

	extending out a few hundred feet from either side of the culvert entrance to help direct animals to culvert) would be less expensive then full walls on either side, but would also be less effective.	$$$$	used as an opportunity to educate the public about the lake ecosystem. A wayside kiosk or small visitor center could also be considered for public education (may increase cost depending on type of facility). - Could benefit animals during both normal and event years.	- Careful and regular maintenance of the wal would be necessary in order to ensure their effectiveness (e.g. cracks and vegetation growing up walls would need to be repaire frequently to minimize animals climbing wall). - Construction and maintenance of full walls could be costly. - Private property owners may not be willing cooperate with wall being built along their frontage.

Educational - His toric al information on original construction

ALTERNATIVE	DESCRIPTION	COST	PROS	CONS
A- 2 B- 4-6 ? Light visibility Culvert size substrate	C.- (B)-2 E-4. (could increase public support - tourism?		- The additional culverts would offer more opportunities for animals to cross road, thus alleviating the potential problem of animals getting stuck along wall (if full wall used). - If wing walls at culvert entrances were used, would still offer more opportunities for animals to cross while still minimizing construction and maintenance costs. - Passageways could be used by animals during normal and event years. - The visible infrastructure (wall) would be noticed by passing motorists and could be used as an opportunity to educate the public about the lake ecosystem. A wayside kiosk or small visitor center could also be considered for public education (may increase cost depending on type of facility).	- If wingwalls used, species crossing outside wall area would not be protected (possibly creating bad PR for project). - Culverts would likely have to be a great de smaller than the existing 3.5m culvert; it is unknown whether species will use smaller culverts (some data suggests turtles may nc use the smaller passageways). - Careful and regular maintenance of the wal would be necessary in order to ensure their effectiveness (e.g. cracks and vegetation growing up walls would need to be repaire frequently to minimize animals climbing wall). - Construction and maintenance of full walls could be costly. - Private property owners may not be willing cooperate with wall being built along their frontage.
Establish Additional Passageways Under Highway - With retaining wall - With full permanent wall on one side - With Full Permanent Wall on Both Sides	In addition to replacing the existing culvert, this alternative would include establishing two additional culverts/passageways in high potential crossing areas to the south of the existing culvert. Additional culverts with "wingwalls". Additional culverts with full exclusion wall.	$$$ to $$$$		

NO

A. - 1 B - NA C - (B) 1 E - 5 Bridge OVERPASSES TUNNEL for HIGHWAY REROUTING HIGHWAY - CLOSE ROAD	This alternative would call for the replacement of the section of US 27 that runs between Lake Jackson and Little Lake Jackson with a Bridge.	$$$$$	- Would restore natural lake hydrology and habitat. - Would allow animals to cross freely between Lake Jackson and Little Lake Jackson with no interference from vehicles. - Once bridge was built, maintenance of crossing area would be minimal. - Would do the most effective job at minimizing collisions between wildlife and vehicles. - From an ecological perspective, this is possibly the best option.	- The feasibility of this option is severely limited by the cost, which is very high. - Construction schedule for a project such as this would be very long term; thus this opti does not address the immediate need for a solution at the location. - Construction of this option could have a negative impact on the existing habitat (though area may improve after bridge is built).

MODIFY TRAFFIC FLOW - EDUCATION

SOME THINGS TO CONSIDER:

1. Walls may not be able to stop birds, various species of frogs (particularly tree frogs), or some larger mammals and snakes.

2. Without proper maintenance, the number of species (and number of animals in general) able to breech the wall will increase, rendering the wall generally ineffective. A Maintenance, Monitoring, and Management Plan will need to be developed for the ecopassage.

3. Costs of walls/ general construction costs could be reduced by using cheaper materials (i.e. wood, cinder block, etc.) however, using cheaper materials may increase overall maintenance costs (i.e. repeated need to replace cracked or broken wood or concrete) as well as affect the landscape (i.e. a "cheaper" materials more likely to result in something that could be considered an "eyesore").

4. The more "visible" the ecopassage is (i.e. the bigger and better the infrastructure) the more likely the project will be considered something "special" and more likely to attract tourists, naturalists, and create an opportunity to educate public about the area/ecosystem (as well as create the need to build a visitor/education center, which could, in turn, increase tourism).

5. Walls and passageways, in general, can attract a wide variety of natural and human predators. The ecopassage may require security (to prevent poaching/collection of animals along walls) especially during drydown/mass migration events. Migration routes and nesting areas will likewise need to be protected. These issues will need to be addressed in a Management and Monitoring Plan.

6. The cost of security and routine maintenance and signage could be offset by the development of an Ecotourisim program that could be contracted out to a reputable company (certified). The income could help offset the costs of some options through direct fees, as well as support the local economy though visitor hotel nights, food purchases, incidental expenses, and visits to other sites in the area. Of course, the success of this would be hard to predict and would be contingent on the effectiveness of the tour company business, PR, and marketing.

LAKE JACKSON ECOPASSAGE FEASIBILITY STUDY
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Habitat Enhancement Only	This alternative would include enhancement of habitat around the lake edge and adjacent areas only, through regular clearing/bush hogging of overgrown areas and removal of invasive/exotic species. It should be noted that implementation of this alternative, to a certain degree, will likely occur as part of a Maintenance, Monitoring, and Management Plan for any of the following alternatives (with the possible exception of the Temporary Fencing Alternative).	$	- Would enhance potential nesting areas for turtles, possibly minimizing the need for turtles to cross the road in search for suitable nesting areas. - Would help encourage a more diverse ecosystem of native vegetation (as opposed to the monoculture that exists in many areas). - An economical way to possibly reduce cross-road migration in normal (i.e. non-drydown) years.	- Does not address problem of mass migration across road in drydown years. - Managing areas for turtle nesting habitat only; does not totally consider effects on other wildlife species (e.g. mammals and birds) that may use existing overgrown vegetation for food and cover. - Opening up areas may also make them more accessible to humans, which could have a negative impact on nesting and wildlife. Monitoring and maintenance to discourage human impacts would be necessary.	not acceptable	
Temporary Fencing Only	Respond to drydown events by installing temporary fencing (i.e. siltfence) along roadway. Fence could be oriented to encourage crossing at existing culvert. Fence would be removed following lake refill/end of mass migration.	$	- Construction and maintenance costs would be low. - Fence would only need to be installed during mass migration (due to drydown). - Likely the least expensive way to minimize roadkills during mass migration periods. - Private property owners along corridor may be more willing to accept periodic temporary fence on their property (as opposed to a permanent structure), thus minimizing need for property acquisition.	- Does not address migrations across road in normal years. - With no maintenance, fence would deteriorate quickly and animals would be able to breech fence, rendering it ineffective. - With no maintenance, animals attempting to cross too far from culvert may get 'stuck" and succumb to exhaustion, dehydration, or predation (including collection by humans). - Would require high level of coordination to get fence installed when necessary. - Does not encourage public to learn about lake ecosystem. - Temporary fence could be considered an "eyesore".	not acceptable	

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ALTERNATIVE	DESCRIPTION	COST	PROS	CONS	RANK	COMMENTS
or **Temporary Fence with Monitoring**	Install temporary fence (same as previous option) but have a contracted paid staff supplemented with volunteers to routinely monitor fences twice a day, helping move animals attempting to cross road, as well as maintain fence. Grants or donations could be obtained in amounts that would act as principal trust. The interest accumulated could be used to fund fencing and maintenance. Fence could be removed following drydown events.	$ to $$	- Construction Costs would be low. - Current conditions demonstrate this option should be effective in keeping animals off roadway. - Likely the least expensive and most effective way to minimize roadkills during migration events. - Could attract volunteers to help out and could provide opportunity for individuals to learn about area though volunteering. - Volunteer/ paid staff option would lower potential for problems with maintenance/ breeches at fence and animals getting stuck at fence. - Paid staff option could create economic opportunity. - Private property owners along corridor may be more willing to accept periodic temporary fence on their property, thus minimizing need for property acquisition.	- Effectiveness would depend on persons volunteering/working to maintain fence. - Would require a high level of coordination between agencies and organizations to get fence installed and maintained when necessary. - High potential for flaws resulting in roadkills if coordination/monitoring not maintained. - May not effectively address problem of migrations during normal years. - Does not encourage public to learn about lake ecosystem outside of periodic drydown events. - Temporary fence could be considered an "eyesore".	not acceptable	this requires a non-profit group to be involved - why isn't this mentioned? this is impossible! only Matt is dedicated enough for this - this isn't a realistic option!
Use/Replace Existing Culvert and construct wall	This alternative would involve using/replacing the existing culvert with varying degrees of barrier walls on either side of the highway to divert wildlife to existing culvert. Using "wingwalls" (i.e. walls extending out a few hundred feet from either side of the culvert entrance to help direct animals to culvert) would be less expensive then full walls on either side, but would also be less effective.	$$ to $$$$	- Available data suggests that wildlife are currently using the existing culvert as passage way; thus its success is known. - Costs could be minimized since the FDOT will need to replace the culvert anyway, thus costs would only be associated with the degree and type of wall (i.e. wingwalls less expensive than full walls). - The visible infrastructure (wall) would be noticed by passing motorists and could be used as an opportunity to educate the public about the lake ecosystem. A wayside kiosk or small visitor center could also be considered for public education (may increase cost depending on type of facility). - Could benefit animals during both normal and event years.	- If wingwalls used, species crossing outside of wall area would not be protected (possibly creating bad PR for project). - If full walls used, species trying to cross far from the culvert may get to the wall and succumb to exhaustion or predation before reaching culvert; design of wall could help to minimize this (e.g. use "flareback" walls spaced accordingly to divert species away from wall to avoid "direction freeze" along a long length of wall). - Careful and regular maintenance of the walls would be necessary in order to ensure their effectiveness (e.g. cracks and vegetation growing up walls would need to be repaired frequently to minimize animals climbing wall). - Construction and maintenance of full walls could be costly. - Private property owners may not be willing to cooperate with wall being built along their frontage.	3	one culvert doesn't seem like enough for the whole area!

* Cost: $ = Lowest Cost (Less than 0.5 M); $$ = Moderately Low Cost (0.5 to 1.5 M); $$$ - Moderate Cost (1.5 M to 3 M); $$$$ - High Cost (3 M to 5 M); $$$$$ - Highest Cost (over 5 M)
M = million dollars

ALTERNATIVE	DESCRIPTION	COST	PROS	CONS	RANK	COMMENTS
Establish Additional Passageways Under Highway - With retaining wall - With full permanent wall on one side - With Full Permanent Wall on Both Sides	In addition to replacing the existing culvert, this alternative would include establishing two additional culverts/passageways in high potential crossing areas to the south of the existing culvert. Additional culverts with "wingwalls". Additional culverts with full exclusion wall.	$$$ to $$$$	- The additional culverts would offer more opportunities for animals to cross road, thus alleviating the potential problem of animals getting stuck along wall (if full wall used). - If wing walls at culvert entrances were used, would still offer more opportunities for animals to cross while still minimizing construction and maintenance costs. - Passageways could be used by animals during normal and event years. - The visible infrastructure (wall) would be noticed by passing motorists and could be used as an opportunity to educate the public about the lake ecosystem. A wayside kiosk or small visitor center could also be considered for public education (may increase cost depending on type of facility).	- If wingwalls used, species crossing outside of wall area would not be protected (possibly creating bad PR for project). - Culverts would likely have to be a great deal smaller than the existing 3.5m culvert; it is unknown whether species will use smaller culverts (some data suggests turtles may not use the smaller passageways). - Careful and regular maintenance of the walls would be necessary in order to ensure their effectiveness (e.g. cracks and vegetation growing up walls would need to be repaired frequently to minimize animals climbing wall). - Construction and maintenance of full walls could be costly. - Private property owners may not be willing to cooperate with wall being built along their frontage.	1	-why isn't culvert use by turtles + other wildlife a part of this study? -isn't US 27 about to be repaved? too bad these projects can't be combined -a park/info area seems like a good idea-
Bridge	This alternative would call for the replacement of the section of US 27 that runs between Lake Jackson and Little Lake Jackson with a Bridge.	$$$$$	- Would restore natural lake hydrology and habitat. - Would allow animals to cross freely between Lake Jackson and Little Lake Jackson with no interference from vehicles. - Once bridge was built, maintenance of crossing area would be minimal. - Would do the most effective job at minimizing collisions between wildlife and vehicles. - From an ecological perspective, this is possibly the best option.	- The feasibility of this option is severely limited by the cost, which is very high. - Construction schedule for a project such as this would be very long term; thus this option does not address the immediate need for a solution at the location. - Construction of this option could have a negative impact on the existing habitat (though area may improve after bridge is built).	2	this seems like a good idea, but the actual construction seems very invasive to the habitat

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Please use this space for any comments you may have or to offer your own alternative to address the situation at Lake Jackson and US 27. Your comments and imput are an important part of the study, and are appreciated.

Consider a combination alternative w/ a bridge in the northern part + culverts/ ecopassages south. I also really like the idea of using the old road as a trail.

Please use this space for any comments you may have or to offer your own alternative to address the situation at Lake Jackson and US 27. Your comments and imput are an important part of the study, and are appreciated.

I am so glad this project seems to be moving forward! It had been a one-man project for too long, this is a very important conservation project for Leon Co. I look forward to the next meeting to see what data was been compiled + what the recommendations are.

Margaret Gunzburger

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Any investment, both financial and personal, should be protected for encroaching developement by a reasonable and wide conservation area (Summer field PUD).

- public concern and contact is essential. Would there ever be an opportunity for funding related to a public information campaign?

Thanks,

Please use this space for any comments you may have or to offer your own alternative to address the situation at Lake Jackson and US 27. Your comments and imput are an important part of the study, and are appreciated.

Map economic impact of providing pedestrian access from neighborhoods, nearby schools

Consider economic impact to local business from greenway extension.