

Documentation in Support of Category 4e for WBID 647C: Lake Killarney

Waterbody/Watershed Identification

Organization	City of Tallahassee (COT) – Local Government Agency
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Project Title	Clean Lakes Education And Restoration Project WBID 647
Waterbody(s)	WBID 647C (Lk Killarney), WBID 647F (Lk Kanturk), WBID 647B (Lk Sheelin), WBID 647A (Lk Tom John), WBID 647H (Alford Arm Trib)
Watershed(s)	Ochlockonee/St Marks River Watershed/Lake Lafayette Planning Unit
No. Waterbody / Pollutant Combinations	2012 Draft Verified List: WBID 647C Lk Killarney –Nutrients (TSI), WBID 647F Lk Kanturk –Nutrients (TSI), WBID 647H Lk Alford Arm(stream) – BOD, WBID 647A Lk Tom John –Mercury
No. Watersheds Improved	One (1) Apalachee-St. Marks River 03120001

Description of Baseline Conditions

Watershed(s)	Apalachee-St. Marks River 03120001		
Impairments	<u>HUC</u> St. Marks River	<u>WBID</u> 2012 Draft Verified List: WBID 647C Lk Killarney –Nutrients (TSI),	<u>Impairment Cause</u> Not Determined
Baseline Data	The COT has monitored WBIDs 647C and 647F quarterly since 1990 and provided the Florida Department of Environmental Protection (FDEP) quality assured data from 2007 to present. Figures 1-6 show water quality trends in both of these waterbodies. A complete list of the data used to determine the current Draft Verified list from the IWR45 for the waterbodies affected by this restoration activity (647C, 647F, and 647H) is included in the supporting documentation.		
Map	Figure 7 shows the WBIDs and local watersheds that will be targeted for this restoration project. Additionally Figure 7 illustrates the landuse distribution that was used for the loading calculations discussed in Watershed Plan section below. Figure 8 depicts the boundaries of several of the major neighborhood associations known to exist within the target area. These two maps are also included in the supporting documentation		

Figure 1

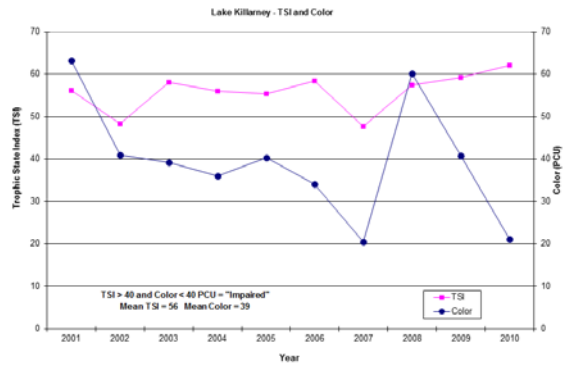


Figure 2

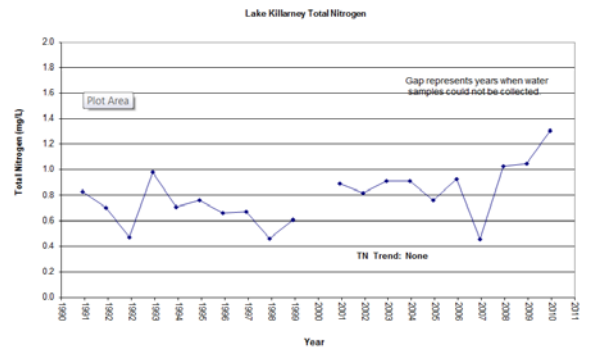


Figure 3

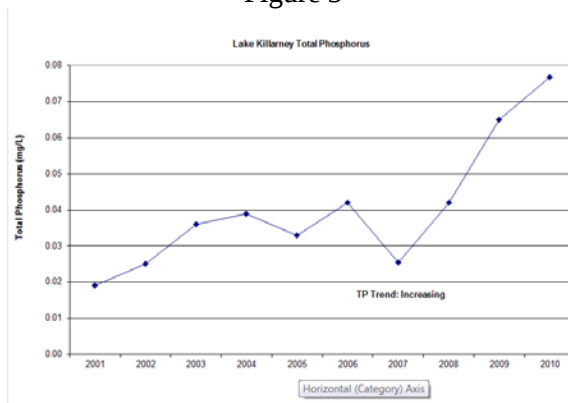


Figure 4

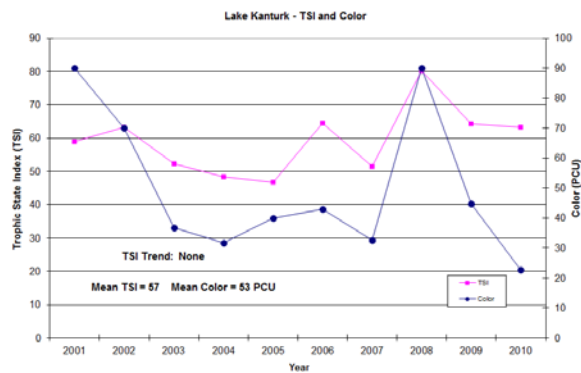


Figure 5

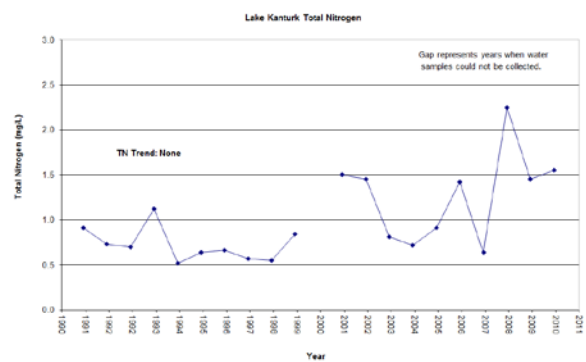


Figure 6

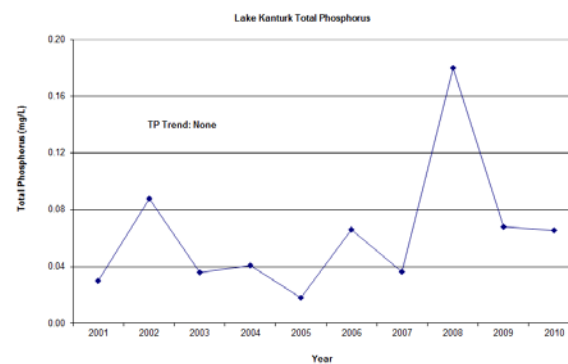


Figure 7

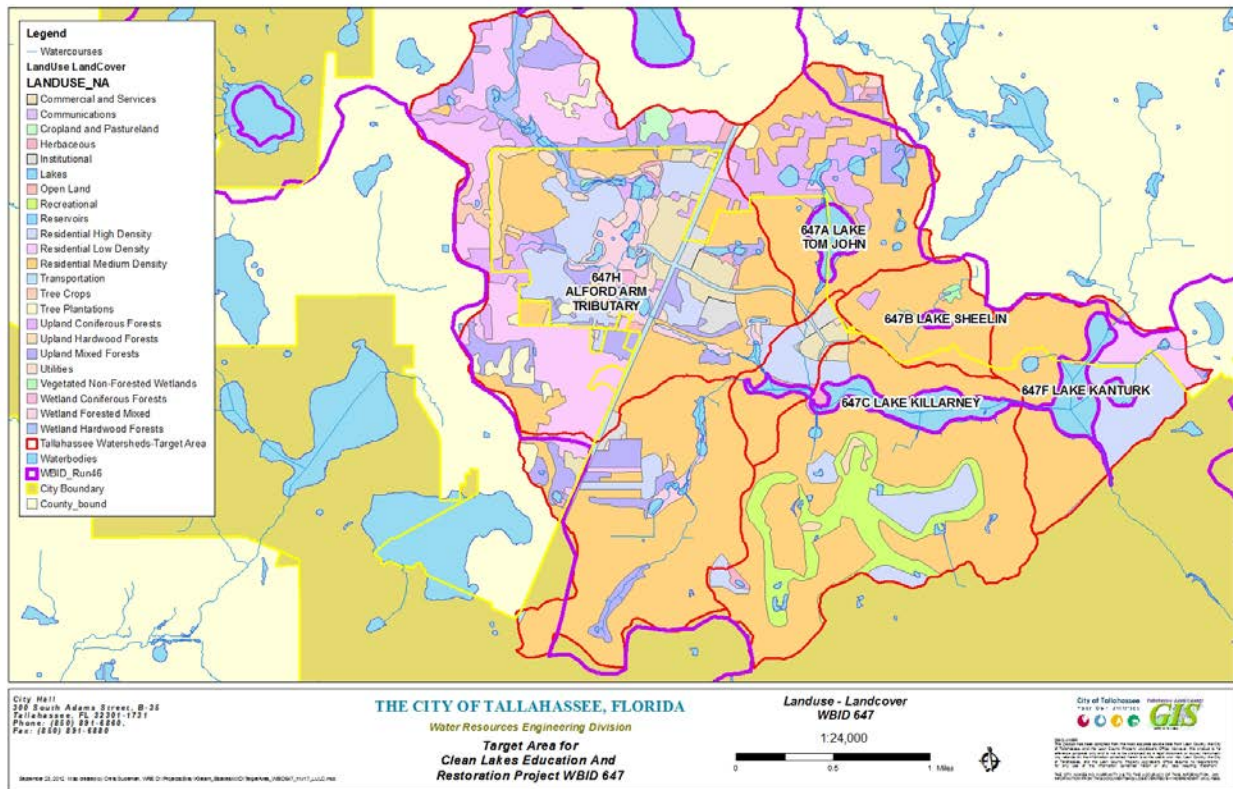
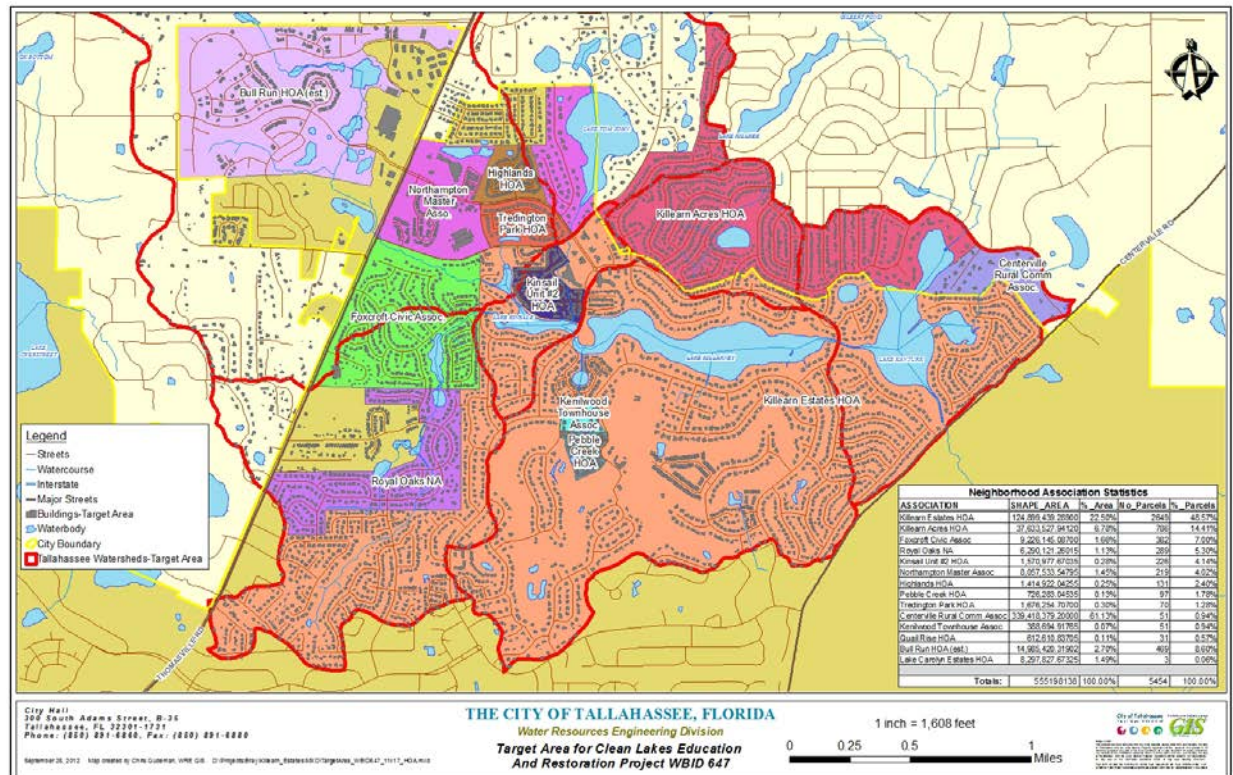


Figure 8



Evidence of Watershed Approach

Area of Effort

The area of effort is part of the Ochlockonee-St. Marks River Basin, a TMDL Group 1 Basin, and is located in the northeast portion of the City of Tallahassee in the Lake Lafayette drainage basin. The target area includes 5 WBIDs and 7 local watersheds. The WBID 647H (Alford Arm) covers a large area of the drainage basin (19,439 acres), while the target area, including the other 4 WBIDs (4,944 acres) falls within the boundaries of 647H. Water drainage generally flows from the northwestern portion of the target area southeasterly through streams and shallow, impounded (formerly wetland) areas (647C & 647F) to an extensive stream system that discharges into Lake Lafayette. Other smaller lakes and WBIDs such as 647A (Tom John) and 647B (Sheelin) drain to 647C (Killarney) and 647F (Kanturk). The goal of the project is to focus on the runoff from areas and discharges from waterbodies that flow to and have the potential to affect water quality conditions in Killarney and Kanturk.

Key Stakeholders Involved and Their Roles

The City of Tallahassee will execute the project and provide funding.

Watershed Plan & Other Supporting Documentation

With this project, the COT will significantly improve nutrient levels contributed from fertilizer, pet waste and residential soil erosion. The target area includes approximately 5,000 acres of mostly residential properties. Using the pollutant removal efficiencies established from a COT-wide education campaign and other delivery ratios and assumptions based on literature, this education and restoration campaign is expected to reduce nutrient loadings by (6918 lbs) of total nitrogen (31%) and 802 lbs of total phosphorus (11%). Table 1 below shows the breakdown of pollutant load reduction achieved by each component of the COT proposed restoration program. The worksheet calculations for the pre and post pollutant loadings are included in the supporting documentation.

Table 1
ESTIMATED NUTRIENT LOAD & POST PROJECT REDUCTION:

BMP's Installed		TSS (Lbs/yr)	TP (Lbs/yr)	TN (Lbs/yr)
FERTILIZER MGMT				
Pollutant Loads	Pre-Project		7,206	22,457
	Post-Project		6,726	17,007
	Load Reduction		480	5,450
	% Reduction		7%	24%
BMP's Installed		TSS (Lbs/yr)	TP (Lbs/yr)	TN (Lbs/yr)
PET WASTE MGMT				

Pollutant Loads	Pre-Project		7,206	22,457
	Post-Project		7,085	21,997
	Load Reduction		120	460
	% Reduction		2%	2%
BMP's Installed		TSS (Lbs/yr)	TP (Lbs/yr)	TN (Lbs/yr)
RES EROSION CNTL				
Pollutant Loads	Pre-Project		7,206	22,457
	Post-Project		7,004	21,449
	Load Reduction		202	1,008
	% Reduction		3%	4%
BMP's Installed		TSS (Lbs/yr)	TP (Lbs/yr)	TN (Lbs/yr)
SUMMARY				
Pollutant Loads	Pre-Project		7,206	22,457
	Post-Project		6,404	15,539
	Load Reduction		802	6,918
	% Reduction		11%	31%

Point Sources	There are no NPDES permitted facilities in the target project area. Note: Generic Permits for stormwater discharge from large and small construction activities were considered temporary; therefore, not included in this listing.
Nonpoint Sources	The contributing sub-watersheds that will be targeted in this project consist of a highly urbanized landuse. The landuse is primarily residential, nearly 70 %. The other landuses include 4% Commercial, 1% Major Hwys, 4% Recreational/Open Space, 14% Undeveloped and 9% Open Water/Wetland. Typical non-point sources for nutrients from this area would include fertilizer, pet waste, soil erosion, septic systems, and wildlife. The first three primary nutrient sources listed will be addressed in this project. Much of the area lies within the jurisdiction of the COT Municipal Separate Storm Sewer System (MS4) permit (FLS000034).
Restoration Work	This project will be an extensive education and outreach campaign specifically focused on the above mentioned target watersheds and impacted WBIDs. It will target neighborhoods, residents, and local commercial businesses who may contribute a substantial amount of the nutrient pollutant loading to the nearby

waterbodies. This campaign project will consist of a variety of educational components in conjunction with engaging, interactive outreach events and localized marketing.

Clean Lakes Education And Restoration Project WBID 647

Purpose

- To generate awareness of water quality issues
- To understand the causes of water quality issues
- To educate individuals and communities on what they can do to help improve water quality
- To change behaviors

Target Audience

- Residents and Neighborhood Associations
- Apartment Complexes
- Local Businesses – including, but not limited to: golf courses and landscaping companies

Strategies

- Campaign Theme Development
- Key Message Development
- Media Development and Distribution
- Outreach
- Monitoring and Assessment

The initial phases of the project will consist of developing the campaign theme and key message so that it will have a unique identity for the target area that builds excitement and commitment from the local citizens while they begin to understand the problem and how it affects them. Using this customized messaging, the advertising, logos, and various informational and social media will be developed for distribution in the target area.

The outreach activities will begin initially with a kick-off event to provide the following: establish stakeholder relationships, unveil the campaign effort, introduce the local neighborhoods to the water quality issues affecting their area, highlight the restoration activities planned for the residents, and share information about the COT's ongoing and planned stormwater improvements that are in addition to this education and restoration project.

During the intensive interactive phase of the project, the COT will hold a variety of workshops and field days with community groups. The goal of the activities will be to educate and engage the community toward changing their behaviors, including common lawn maintenance and waterfront property management practices that add to the degradation of local waterbodies. Many of the workshops and activities will be inclusive with the residents, such as lakeside events to educate and demonstrate restorative practices, e.g. invasive plant removal and shoreline/buffer zone planting. Examples of other activities may include teams that "walk the watershed" identifying positive and potentially negative impacts while engaging neighbors, demonstration events, and direct communications with landscaping/fertilizing companies working in the target area.

To measure the effectiveness of non-structural best management practices, such

as education and outreach, the COT will consult with media research specialists to conduct pre and post-campaign surveys and focus groups. The COT will continue ambient water quality monitoring of 647C and 647F. Additional water quality and hydrological data are needed to understand the physical, chemical, and biological dynamics of these waterbodies. Therefore, the COT will collect additional water quality data in several of the tributaries to these systems and contract with the Northwest Florida Water Management District to collect hydrological (stage and rain) data.

Critical Milestones/Monitoring

Anticipated Critical Milestone(s):	If this approach is approved by FDEP, the project would be initiated in November 2012. The kick-off and interactive phase of the project (in addition to several monitoring components) would occur beginning in early 2013 and continue through December 2014. The assessment of post project survey results (i.e. performance) would be expected to be completed by mid-2015. Additional water quality and hydrological monitoring would continue through 2016 and would be available for the Group 1 Cycle 4 assessment scheduled for 2017.
Monitoring Component	The monitoring for this project will include several components: • COT will continue quarterly ambient water quality monitoring of WBIDs 647C and 647F. These data are submitted to FDEP STORET and if applicable, used for IWR assessment. • COT will begin additional ambient monitoring at a select number of tributaries (minimum of 3 stations, sampled quarterly) interconnected with WBIDs 647C and 647F. • COT intends to contract with the Northwest Florida Water Management District for hydrological monitoring support to assist in stage/level/precipitation data collection. • COT will contract with media research consultants to conduct assessments of the effectiveness of the educational components of the project (such as awareness and behavior change). Assessments will include, but are not limited to pre and post-interactive phase phone surveys, focus groups and mailings.

Key Dates

Critical Milestone Dates	If this approach is approved by FDEP, the project would be initiated in November 2012. The kick-off and interactive phase of the project (in addition to several monitoring components) would occur beginning in early 2013 and continue through December 2014. The assessment of post project survey results (i.e. performance) would be expected to be completed by mid-2015. Additional water quality and hydrological monitoring would continue through 2016 and would be available for the Group 1 Cycle 4 assessment scheduled for 2017.
Estimated Completion Date for the Restoration Activities	Restoration activities will begin in 2013 and continue intensively to 2015.
Estimated Delisting Date	These WBIDs (647C and 647F) are in the Florida's Group 1 Basin. The Group 1 Basin is currently in assessment Cycle 3 (2012) and is expected that Cycle 4 will

be in 2017, at which time sufficient data will be acquired to fully assess these WBIDs, and if not impaired, the WBIDs are expected to be delisted by FDEP.
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Financial Commitments

Estimated Implementation Cost	1. Kick off Events, Wkshops, Materials (2 yrs Interactive Phase)	\$100,000
	2. Focus Groups - 4/year for 2 years	\$21,000
	3. 1 Pre & 1 Post Surveys	\$30,000
	4. Quarterly WQ Monitoring (3 yrs WBIDs 647C, 647F)	\$7,440
	5. Bi-Monthly WQ Monitoring (3 yrs, includes 1 st yr site set up)	\$50,000
	6. Hydrological Monitoring (2 sites, includes 1 st yr site set up)	\$47,057
TOTAL COST		\$255,497

Funding Sources	Unless additional funds are obtained from grants, the COT will provide funding for this project entirely from stormwater utility fees.
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Supporting Documentation (References)

1. IWR45 Raw Data for WBID 647C (Killarney), WBID 647F (Kanturk) and WBID 647H (Alford Arm)
2. Two Maps: Landuse and Neighborhood Associations
3. WBID 647 CLEAR Assessment (calculations)