

Comprehensive Watershed Improvement Program (CWIP)
Ad Hoc Technical Advisory Committee
Golden Gate Estates Flow-way
Recommendations from Committee Members
Prepared by Collier County Stormwater Planning
September 23, 2016

Summary of priority issues, problems or challenges for the Golden Gate Estates area:

- This area includes platted lots with roads and drainage ditches that have disrupted the historic hydrology resulting in loss of wetlands, loss of habitat, and loss of flow connectivity.
- Future growth and development in this area could be impacted as lots build out and base flow elevations increase. This has the potential for increasing flooding, including the reduction of the levels of service provided by the canals and other stormwater infrastructure. Flooding may also disrupt the functionality of older existing septic systems.
- This area drains into the Golden Gate Canal and into Naples Bay which experiences excessive freshwater inflows which have reduced ecological productivity and health.
- In terms of water quality, iron levels were higher when ground water was the main source of water in the canal. This means that the current dissolved oxygen and iron impairments for this basin should likely be classified as “natural conditions.”
- There are extensive well fields, and associated well field protections zones, within this watershed and the canal infrastructure reduces recharge of surficial aquifers.

Summary of existing strategies to improve watershed functionality and issues:

- Several studies have been conducted to identify wetlands and wetland features such as sloughs and strands.
- Culverts have been installed to better mimic the north to south historic flow pattern.
- There are remnant high quality wetlands in Winchester Head and Red Maple Swamp Preserve that are part of a multi-parcel project that is a Conservation Collier initiative.
- Various reports have proposed an array of policy solutions to reduce density and protect wetlands in the area including the use of the Transfer of Development Rights program, tax incentives, or easements, although none of these have been studied or implemented.

DRAFT summary of potential management options prepared by staff for the CWIP Committee to review:

Option 1: Endorse the staff initiative to study the six GAC parcels, owned by the County, for their use as stormwater treatment and storage areas.

Option 2: Include the remaining Conservation Collier parcels within the multi-parcel project in Horsepen Strand and Red Maple Swamp Preserve as sending lands in the Transfer of Development Rights program to incentivize the completion of this initiative which is to protect the highest quality wetlands in that region.

Option 3: Endorse a feasibility study to include additional parcels within the TDR program. The study would focus on current ownership and development within the deeper wetland flow-way areas (building upon previous studies) with the future goal of directing development away from the wetlands, lessening density, and restoring the historic north-to-south flow-way.

Option 4: Endorse a feasibility study to encourage and promote the consolidation of smaller lots into larger lots through tax and impact fee incentives to lessen future density.

Option 5: Request funding from the FDEP to fund a particular initiative.

**Comprehensive Watershed Improvement Program (CWIP)
Ad Hoc Technical Advisory Committee
Golden Gate Estates Area**

Recommendations Analysis from Speaker Presentations
Prepared by Collier County Stormwater Planning, July - August 2016

Speaker and Organization	What are the priority issues, challenges, or problems?	What are the unique drivers, considerations, or other factors that should be understood?	What existing or upcoming efforts or solutions are you undertaking to address these identified problems?	Do you have a request, idea, or recommendation for addressing the identified problems that the Committee should consider? If so, what are they?	Is there anything else you would like to share with us?
Assistant Director, Jennifer Carpenter, South District Office, Florida Department of Environmental Protection				There is a pot of money managed by the FDEP South District Office that is supposed to be used for projects in the Northern Golden Gate Estates and it was from a settlement agreement with the Gulf Atlantic Corporation. These funds are dwindling but they can be requested to assist relevant efforts.	
Project Manager, Jerry Kurtz, Collier County Stormwater Planning	<ul style="list-style-type: none"> Construction of the Golden Gate Estates canal network and residential roads fractured the connectivity of wetland systems in the north Golden Gate 	Conceptual planning goals include: <ul style="list-style-type: none"> Identify potential hydrologic adjustments to the existing system utilizing the historic flowways located within the 34-square mile area. Improve surface water conveyance utilizing 	Previously completed studies include: <ul style="list-style-type: none"> Belle Meade Area Stormwater Management Master Plan 2006 Horsepen Strand Conservation Area Feasibility Study (Phase 1) 2008 Collier County Watershed Management Plan 2011 		

<p>Estates area.</p> <ul style="list-style-type: none"> Roadside swales and ditches now divert stormwater runoff and overland surface water flow directly into the canal system. The result is a loss of wetland hydrology and an increased volume of discharge to Naples Bay. The effect includes less recharge to the surficial aquifer system which is the primary source of drinking water for Collier County and the City of Naples. 	<p>existing low-lying areas.</p> <ul style="list-style-type: none"> Enhance connectivity of low-lying areas. Optimize utilization of remnant sloughs and wetland areas such as Winchester Head, Horsepen Strand, and Winchester Strand, for better surface water management. Redirect surface water flows to low lying areas reducing the burden placed on the canal system. Reduce flows to Naples Bay. Enhance aquifer recharge for public water supplies. <p>Engineering considerations include:</p> <ul style="list-style-type: none"> Evaluate the presence of roadside berms that restrict sheet flow. Determine the maximum groundwater elevation that is allowed for proper function of septic system in the immediate vicinity Consider the affects of increased sheetflow on downstream properties. Evaluate flow rates and storage capacities within the system and size culverts accordingly. <p>Project benefits would include:</p> <ul style="list-style-type: none"> Improve wetland hydrology in the proposed flowway. Provide additional water quality treatment 	<ul style="list-style-type: none"> NGGE Flowway Restoration Study (Phase 2) 2013 Culvert Installation 2014 <p>Possible solutions include:</p> <ul style="list-style-type: none"> Redirect flows using ditch/swale blocks and additional culverts to provide connectivity within the wetland system re-establishing historical flow patterns. Increasing small sections of canal areas (scalloping) to gain additional capacity. Designate an area as a mitigation area and create incentive programs to obtain properties and to generate funds to implement the project Use of GAC lands 	
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<p>Principal Planner Gino Santabarbara, Collier County</p>	<p>SWT exploring options to improve conditions of the Stormwater Drainage System and reviewing CC owned parcels within GG for possible stormwater uses. Avatar Property Inc. (f/k/a Gulf Atlantic Corp) gave lots to CC. Staff looked into parcels whose Locations were in wetlands or adjacent to canals and identified six parcels abutting the GG canal.</p>	<ul style="list-style-type: none"> • Increase groundwater recharge, well field and water supply sustainability <p>Project concerns include:</p> <ul style="list-style-type: none"> • Elevated groundwater level may affect septic systems and or increase flood risk for residential properties near the vicinity. • May require purchase of private property within the primary flowway 	<ul style="list-style-type: none"> • Currently working with CAO to determine if potential SW activities would be consistent with the requirements of the agreement SW projects would serve a community area benefit. This is decided by a Committee that is charged with carrying out the requirements, conditions and various provisions the 1983 Agreement relating to the use of land, or funds derived from the sale of land, conveyed to the County by Avatar Properties Inc. (f/k/a GAC Properties, Inc.) If the legal test and Committee approval is secured then - <p>Project considerations include:</p> <ul style="list-style-type: none"> • Cost to acquire • Construction cost • Land acquisition requirements • Operation and maintenance • Potential Grant 	<p>Attending upcoming GGE Land Trust Advisory Committee Meeting</p> <ul style="list-style-type: none"> • Better understand the process • Review property inventory • Gain feedback <p>Continue discussions with Collier County Real Property Division to:</p> <ul style="list-style-type: none"> • Review additional property inventory • Identify additional potential parcels if success has been realized through pilot <p>Next steps include:</p> <ul style="list-style-type: none"> • Continue discussions with Collier County Real Property Management Team • Attend upcoming GGE Land Trust Advisory Committee meeting • Identify process and eligibility requirements • Conduct feasibility studies of identified parcels <p>Pursue properties if deemed effective and useful</p>	<p>If these properties could be used, potential improvements include:</p> <ul style="list-style-type: none"> • Filter Marshes • Wetlands • Stormwater Detention • Increasing sections of canal areas (scalloping) • Redirecting surface water flows to low lying areas <p>Benefits could include:</p> <ul style="list-style-type: none"> • Improve wetland hydrology • Provide additional water quality treatment • Increase groundwater recharge, well field and water supply
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		<ul style="list-style-type: none"> award/funding Cost to Benefit Analysis 		<p>sustainability</p> <ul style="list-style-type: none"> Gain additional capacity Reducing burden on the canal system Habitat Restoration Flood Reduction Velocity Reduction
<p>Coordinator Alex Sulecki, Conservation Collier</p>	<p>Finding a way to balance property rights and water management in the Estates.</p>	<p>The Estates is a mosaic of uplands and wetlands. Some properties are fine for development and others will create problems if developed. There could be a fair compensation way for owners to get wetland lots, that could be utilized to protect neighboring upland lots, into conservation.</p>	<p>Conservation Collier has acquired parcels in wetland areas in the NGGE.</p>	<p>Further explore a mitigation format that could get wetland lots into conservation.</p> <p>No</p>
<p>Planning Manager, Kris VanLengen, Collier County</p>	<p>From the perspective of the Growth Management-Eastern Area Restudies, we are nearing conclusion of the conceptual phase of the Rural Fringe (RFMUD) restudy, which will take the form of a "white paper" of recommendations to CCPC and BCC in August and September. As well, we are well along in the Golden Gate Area Master Plan</p>	<p>How can the TDR program help the County achieve its goals in GGE for watershed management?</p>	<p>Providing ideas and possibilities; standing by for CWIP direction (ultimately BCC).</p>	<p>Thank you for a well-organized inter-disciplinary approach.</p> <ul style="list-style-type: none"> Continue deliberations on GGE goals and priorities and recommend to the Community Planning (restudies) Team whether the TDR program should play a role Any other recommendations wherein the GGE residents are stakeholders should be conveyed to the Community Planning team

(GGAMP) restudy (set for outreach phase 2 in October).

The restudy analysis for both RFMUD and GGAMP should ideally take into consideration, the objectives and findings of the CWIP committee as it pertains to the TDR program or other land use issues. We believe it is highly important to accommodate the direction of the CWIP and ultimately the BCC on watershed issues. That said, land planners on not, on their own, in a position to suggest priorities or best practices to address eastern Golden Gate Estates watershed design or implementation. For example, we do not know whether County ownership or easements over properties should be considered as part of the TDR program, we merely suggest it as a possibility. If watershed and

for additional outreach and vetting at the October workshops.

<p>Principal Environmental Specialist Rhonda Watkins, Collier County Pollution Control</p>	<p>floodplain issues are better addressed through ROW improvements that might eliminate the need for additional parcels in the County portfolio for water management.</p>	<p>Water quantity, rather than quality seems to be the major issues with this watershed. This basin contains many public wellfields. Recharge of the aquifer should be a priority.</p>	<p>This basin loses a lot of recharge via baseflow to the canals. This baseflow into the canal is also causing high iron and low dissolved oxygen impairments in the watershed.</p>	<p> <ul style="list-style-type: none"> • Pollution Control did a study at a weir on Henderson Creek (HC2) to examine upstream and downstream iron levels. This study concluded that iron levels were higher when ground water was the main source of water in the canal. Upcoming efforts would include getting the current dissolved oxygen and iron impairments for this basin classified as "natural conditions." However, this would hopefully include measures in the County/SFWMD is taking to lessen baseflow to the canals. • The Watershed Management Plan indicated that weir operation should be examined to decrease baseflow into the canals. This would increase recharge and potentially decrease flows to Naples Bay. </p>	
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Collier County Stormwater Management FY 17 Capital Projects

No.	FY 17 Capital Projects	FY 2016/17 Proposed Funding	Project Description
1	Naples Park Stormwater Management Improvements	\$1,392,000	This project is complete roadside swale reconstruction in coordination with the Utilities Department water main and sanitary sewer collection system replacements, this project includes all east-west streets in the Naples Park Subdivision.
2	Haldeman Creek Weir Replacement <ul style="list-style-type: none"> • BCB Board approved \$800,000 FY 17 Local Partnership Grant (April 28, 2016 Board meeting) 	\$1,000,000	This project includes the design and replacement of an existing surface water management control structure located at the freshwater/saltwater interface of Haldeman Creek just north of US 41 in East Naples. The structure has reached the end of its useable life cycle and is in need of full replacement; it has structural and mechanical deficiencies, as well as operational and maintenance issues and thus cannot meet stormwater management goals.
3	Immokalee Stormwater Management Improvements	\$1,000,000	Efforts include completion of the master plan update, stormwater treatment pond acquisition and future improvement project design.
4	GG City Outfall Replacements	\$500,000	Four square mile area of Golden Gate City - the project includes the replacement and improvements to existing aging infrastructure such as the removal of old catch basins replaced with ditch bottom inlets with grates to catch debris, the addition of sumps at catch basins, re-grading and sodding of swales to prevent erosion providing water quality improvement.
5	West Goodlette Frank Road Area SW Improvements (FKA Ridge Street)	\$500,000	Project planning has begun in coordination with the City of Naples Wastewater Collection System

			improvements to address stormwater (flooding) problems and existing septic system failures during periods of high rainfall on several streets between Goodlette-Frank Road and US-41. Stormwater runoff from the area flows east into the upper Gordon River then to Naples Bay. Work will include water quality improvements designed to decrease nutrient of sensitive, impaired receiving waters.
6	Stormwater Feasibility and Preliminary Design	\$300,000	Funds are available for various feasibility studies which may lead to future potential projects, preliminary cost estimates, planning studies, etc.
7	Griffin Road Area Stormwater Improvement Project	\$300,000	The Griffin Road Stormwater Improvement Project is located near the southwestern terminus of Griffin Road in the East Naples area of Collier County off of US41 Tamiami Trail and Barefoot Williams Road. The project includes construction of a water quality treatment area on Rookery Bay National Estuarine Research Reserve property. The focus of the project is to provide water quality treatment facilities and an adequate stormwater outfall for the area.
8	North Golden Gate Estates Flowway	\$200,000	Effort includes developing strategies to redirect stormwater runoff in the North Golden Gate Estates (NGGE) area currently conveyed to the canal system into surrounding low-lying wetland areas. The work includes analysis of potential linking of areas by multiple culvert installations under estates roads. Project benefits include City and County potable water well field recharge and reduction of fresh water flows into Naples Bay via the Golden Gate Main Canal.
9	Gateway Triangle Improvements	\$150,000	Completed water quality improvement/flood remediation pond

			and pumping station with two outfalls into Naples Bay via the Curlew Canal and the Brookside Canal. Outstanding efforts include WQ testing, pond littoral plantings, permit modification for WQ credits, and Brookside HOA coordination.
10	Lely Areas Stormwater Improvement Project (LASIP)	\$127,000	Project is principally complete. This funding is for final cures of negotiations resulting from the condemnation process for acquired easements.
11	NPDES MS4 Program	\$100,000	Funds are for continued development of and compliance with the federally mandated National Pollutant Discharge Elimination System (NPDES) permitting program for the County operated Municipal Separate Storm Sewer System (MS4).
12	Secondary System Repair	\$100,000	Planning and execution on an as-needed or contingency basis of unexpected necessary system infrastructure repairs or replacements; These efforts are characteristically slightly more complex than typical operation and maintenance repairs, needing some basic planning, permitting, design and construction oversight.
13	Pine Ridge Stormwater Management Improvements	\$100,000	This project includes replacement and improvements to existing aging infrastructure in Pine Ridge Estates such as catch basins, culverts and re-grading and sodding of swales.
14	Pine Ridge Canal Weir Replacement	\$100,000	Additional funds provided to continue the structure replacement which began in FY 15 - 16.
15	Upper Gordon River Stormwater Improvements	\$100,000	The project focus is on the northernmost portion of the Gordon River north of Golden Gate Parkway, upstream of the natural section of the Gordon River and Naples Bay. Work may include partnership with several surrounding

			golf courses, one or two water control structure replacements, exotic vegetation removal, and supplemental native vegetation plantings to improve water quality, flow conveyance and aquifer recharge.
16	Harbor Lane in Brookside	\$60,000	Funds are available to begin a survey of the existing street and stormwater management system .
17	Stormwater Maintenance	\$50,000	Project includes funding of various maintenance activities associated with certain existing stormwater assets.
18	Vanderbilt Drive and Conner's Subdivision Stormwater Improvements	\$50,000	Additional funds provided to continue stormwater improvements coordinated in 2016 with the Public Utilities Department.
Total		\$6,129,000	