

**Golden Gate Estates
Environmental Stewardship**

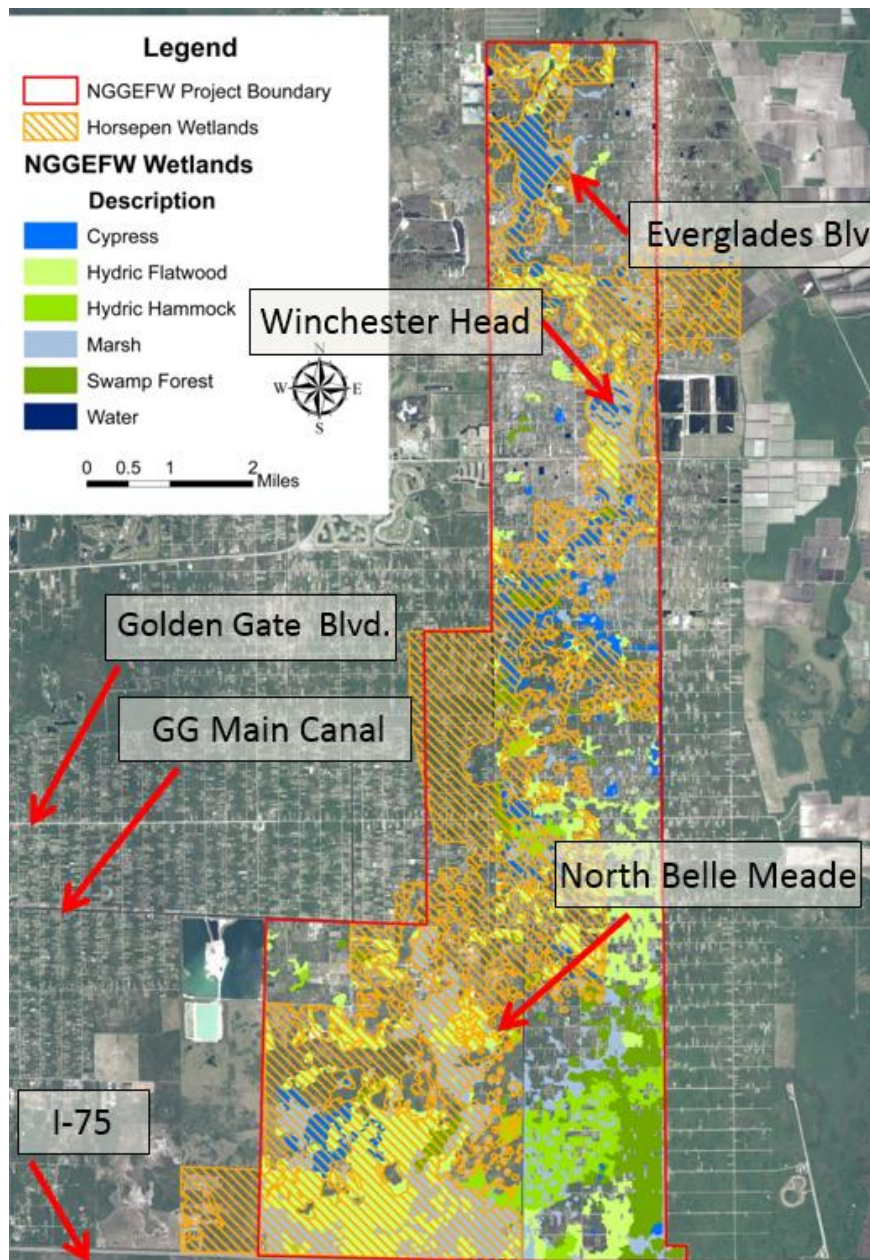
Watershed and Related Water Resource Topics

In 2011, the Board accepted the Collier County Watershed Management Plan (WMP), which was developed over several years by staff and consultants. The WMP covered the major basins within Collier County, including the Golden Gate/Naples Bay Watershed. The underlying study included an evaluation of the surface water and groundwater, wetlands and related environmental resources, and the performance of the current water management facilities in providing the

desired levels of services for flood control, water supply, water quality and environmental protection. It recommended initiatives that would serve as a guide for staff in developing policies, programs, ordinances and regulations for further consideration by the Board. The major water resource concerns identified for the GGAMP region include:

- Excessive fresh water discharges from canals into Naples Bay
- Lack of appropriate levels of flood protection
- Pollutant loading associated with development and land use activities
- Aquifer impacts due to reduced recharge and increased withdrawals

Notably, among the WMP ranking of projects for



benefit to cost ratio, the Golden Gate Estates Flowway Restoration project scored highest.

Accordingly, the North Golden Gate Estates (NGGE) Flowway Restoration Project ensued. Its purpose was to reconnect the primary wetland flowways in the Estates area, particularly the major wetlands of Horsepen Strand and Winchester Head for eventual restoration of the flowway connection from NGGE to the historic Henderson Creek/Belle Meade watershed as shown on Figure 19. The Study was completed in 2013, funded in part by FDEP and SFWMD. The study area is shown below.

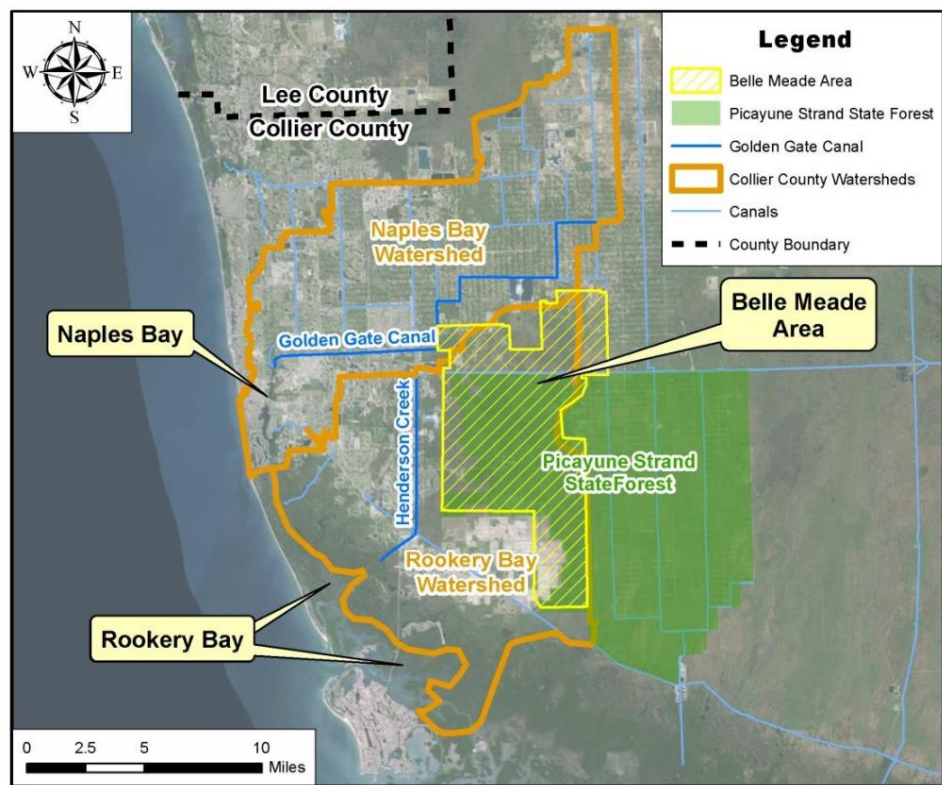
As a result of the Study, the historic and remnant flowway connections were identified and a plan was recommended. As a first phase of its implementation, 42 new culverts were installed in selected sections of NGGE and the project was completed in August, 2014. The study also yielded a conceptual design for diversion of stormwater into North Belle Meade.

In 2016, as part of an application for BP settlement “RESTORE” funds, the Collier County Comprehensive Watershed Improvement Plan was developed and accepted by the Board. This plan, co-sponsored by Rookery Bay National Estuarine Research Reserve, outlines a rehydration effort designed to provide greater balance between the Rookery Bay and Naples Bay estuaries, through diversion of

a portion of Golden Gate Canal flows to the Belle Meade area. The RESTORE funds are intended to aid in design and implementation of the project. A depiction of the area in relation to watersheds appears in Figure 20.

In 2017, as part of the implementation of a non-structural WMP recommendation, the Board adopted newly revised surface water

maximum allowable discharge rates, now applied to development in 16 additional County basins, including the main Golden Gate Canal Basin. The reduced allowable discharge rates convey County-wide benefits, but it should be noted that they do not apply to single family parcels, such as those previously platted in Golden Gate Estates.

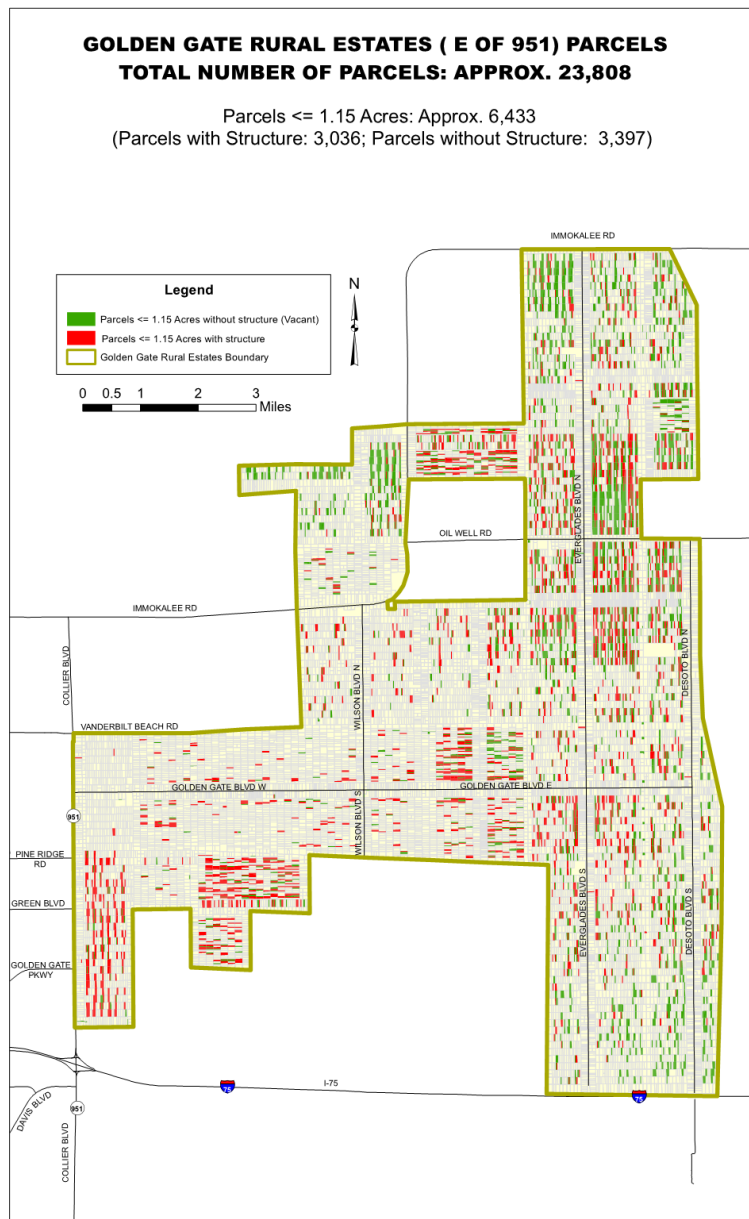


Additionally, the Board amended stormwater standards in 2017, directly impacting Estates lot development. The amendment requires a stormwater plan for all lots and provides a new threshold for engineered plans based on percentage of impervious lot coverage. This addresses site specific issues but does not address area-wide stormwater concerns.

The aquifers beneath the Estates provide potable water supplies to residents of the Estates, and also to customers of the two major public water utilities serving City of Naples and County residents. In meetings with Golden Gate Estates residents and with the GGEACA, a strong preference emerged regarding conservation principles related to the protection of water resources. Ideas and support for those ideas included wetland preservation initiatives and aquifer health. Residents and community leaders value the relationships among components of water policy: floodplain management (dispersion and diversion), water quantity and quality, aquifer recharge, salt water intrusion and estuary health. The following subsections reflect ideas and comments presented by residents and considered by County staff. Necessarily, most of these ideas will require additional study and debate, and therefore appear as aspirational recommendations.

Lot Combinations

Most of Golden Gate Estates was platted into 5 acre tracts by Gulf American Land Corporation (GAC), the developer of the Estates, although many larger and smaller lots were also platted. The Land Development Code currently allows lot splits into parcels no smaller than 2.25 acres with frontage of at least 150 feet. However, that was not always the case. Smaller lot splits were allowed in the past: prior to Oct. 14, 1974 in the former “Coastal Area Planning District” and prior to Jan. 5, 1982 in the former



“Immokalee Area Planning District”.

These legal non-conforming lots (sometimes referred to as “band-aid lots”) abound in the Estates, both in the western area, Figure 21, and in the eastern area, Figure 22. Of the 27,250 total parcels in the Estates, 7,275 are non-conforming. Of those, 3,397 (nearly half) are not yet developed.

Citizens and representatives of the GGEACA suggested that these lots might be re-combined, if possible, through an incentive-based system. The rationale behind recombining these smaller lots relates to water benefits- watershed, floodplain, aquifer and estuary related. It has been said by a former District 5 Commissioner, that protection of this low-density area translates to a “County DRGR (density reduction, groundwater recharge) area without cost to the County.” It follows that further density reduction in the Estates can enhance these benefits. Larger lot sizes with relatively less impervious area generate less run-off per lot, and contribute to surface water attenuation, water



quality benefits, floodplain storage capacity, aquifer recharge and less flow or “pulse” to canals and estuaries.

Ideas to incentivize small lot recombination have included tax incentives, impact fee reduction and credits for stormwater stewardship, if a stormwater utility is created. Not all potential solutions will suit every situation. For example, it would be possible to recombine vacant parcels to create a larger parcel with any of the above suggestions. On the other hand, combining a vacant 1.14 acre parcel with another developed lot takes impact fee credits out of the equation.

Moreover, the legal and fiscal basis for implementing incentives requires further study and Board direction. Ad valorem tax abatement would require a referendum before County voters. Impact fee credits may necessarily require a study to keep overall impact fees in a neutral revenue position. The costs and benefits of all incentives need further study to determine fiscal impact and quantifiable benefits. For these reasons, the recommendation related to this initiative supports further study within a defined time period to implement any incentives for recombination. Following the study, if the Board directs implementation, its provisions would be contained in the Land Development Code or Code of Ordinances.

TDR credits in the Estates

Community Planning staff attended numerous Comprehensive Watershed Improvement Plan Ad Hoc Technical Advisory Board (CWIP) meetings, exchanging concepts related to the existing TDR program (RFMUD) and potential Golden Gate Estates initiatives. One idea that gained attention was the potential issuance of TDR credits as part of a sale or donation proposal for parcels within current or future acquisition areas. The examples of two specific wetland sites, Red Maple Swamp and Winchester Head within the Conservation Collier acquisition areas were discussed and studied. The “Gore” properties and surrounding area could also be considered.

The CWIP committee understood its role as a technical advisory committee, and not a policy advisory committee. Accordingly, by motion at its March 7, 2017 meeting, CWIP recommended the concept of using TDRs for acquisition of select wetland parcels as “consistent with CWIP goals in improving the floodplain, surface hydrology, aquifer recharge and connectivity of the watershed”. In the Committee’s view, a recommendation beyond consistency would have exceeded their scope.

In the meantime, the Board considered the idea of external (outside of RFMUD Sending lands) sources of TDR credits at its RFMUD Workshops in January, May and June of 2017. Staff had recommended a modest allowance of TDR credits as part of an acquisition program in Golden Gate Estates, if the number of credits would have a nominal effect on overall TDR supply and price. Staff also noted that implementation could be difficult within the same RFMUD currency or domain, because property values are much different in the Estates as compared to RFMUD Sending Lands. The Board did not reach any consensus on this issue, but held it open for later discussion.

Given the complexity of the evaluation and completion of the RFMUD Restudy, staff is now of the opinion that acquisition of Estates lots for stormwater benefits using RFMUD TDR credits should not be pursued. As stated by some RFMUD stakeholders, a closed system, at least on the supply side, should be more predictable while avoiding the dilution of currency to Sending Land owners. One alternative is the further study of a second credit system, (Transfer of Development Units or TDUs), which could direct Estates density values to urban development. This could be considered in the context of County (or other agency) ownership of quality wetland or high habitat value locations. The related recommendation, below, suggests an evaluation in a timeframe directed by the Board.

Dispersed Water Management

The Golden Gate Estates Area Civic Association has also been in favor of the concept of dispersed water management (DWM) as a means of attenuating stormwater to the benefit of residents. The typical Estate lot is 660 feet deep, encouraging the owner to construct a home and accompanying impervious areas (driveways, parking, etc.) close to the roadway. This leads to stormwater run-off to roadside swales with eventual conveyance to the nearest primary or secondary canals.

Several recent studies (including the Watershed Management Plan (2011), have indicated that the present system of conveyance and treatment of stormwater run-off in the Estates is deficient in providing the desired levels of service for flood protection, water quality improvement, groundwater recharge, fire protection and restoration of historic flowways. Protection of water resources in this area is critical to the health of the public water supply, including wellfields for Collier County and the City of Naples.

The road and drainage infrastructures have virtually eliminated some of the historic wetland flowways, leading to exotic infestation, draw-down of the water table and severity of wildfires. As the extent of impervious area continues to grow, the antiquated canals and swales cannot fully accommodate runoff, leading to frequent nuisance flooding. Major structural modifications to the current conveyance system does not appear feasible, either environmentally, economically, or socially (if private property rights are encroached).

DWM is a means to reduce the full impact of single family development on water resources and management. To the extent that homeowners can attenuate stormwater runoff in quantity and quality before it reaches swales and canals, the better County water goals may be achieved. To be sure, DWM is not a “one size fits all” solution. Parcels with very little wetlands on or nearby may be able to detain some water toward the back of the lot, so long as detention is very temporary, its elevation is sufficiently above the wet season water table and does not interfere with the proper functioning of septic systems. Properties with high percentages of wetland areas might require an engineered solution and/or an incentive-based approach to convey drainage easements to the County at relevant locations.

The best proposal for DWM on single family Estates lots will be simple to understand and apply. Consideration should be given to regulatory approaches (required detention or limited fill

quantity) and incentive-based approaches and whether to apply various rules to developed and undeveloped properties. Among other ideas, abatement of stormwater utility billing can be considered. Study and public input on a regulatory approach for new home construction should be included. The Restudy recommends a formal study of solutions that will be equitable, reasonable in cost, and understandable to land owners. Results of the study should be provided to the Board within 2 years for consideration.

Potential of the C-1 Canal and other Golden Gate Canal Relievers

The GGEACA spoke in favor of further improvements to the connector C-1 canal. The C-1 connector provides a 1.7 mile east-west link from the Golden Gate Main Canal to the Miller Canal. Due in part to numerous crossings that have constrained its effectiveness, the C-1 has historically played a minor role, serving as an equalizer depending on the head differential between the Golden Gate and Miller Canals.

In view of its strategic location, improvements to the canal’s capacity could add operational flexibility and allow Golden Gate Main outflows to be moved south by the Miller Canal. In addition, this initiative would also require design and placement of an in-line gated structure to control flow exchanges, and ensure that desired flow directions are achieved.

The concept of Aquifer Storage and Recovery systems was also encouraged by the GGEACA to divert wet season flows from the Golden Gate Canal. This is another capital-intensive initiative, and the County should continue to study costs, feasibility and possible implementation as a long-term beneficial initiative.

Educational Components

Many of the concepts noted above or measures currently in place should be augmented by public education efforts where possible. Residents, potential buyers and builders of single family homes in the Estates would be well served by a better understanding of water-related issues and programs, and how these serve their self-interests. Wetland maintenance, aquifer recharge, floodplain protection and Firewise concepts should be stressed. As an example, builders and land owners should become aware of the benefits of adding “freeboard” to building plans, which will provide even greater flood prevention beyond current base flood elevations (BFE) standards, as well as providing National Flood Insurance Program (NFIP) discounts in premium.

Other Watershed Management Plan Initiatives

The structural (S) and non-structural (NS) projects listed in the table below were derived during the development of the County’s Watershed Management Plan. These projects have the potential to benefit the Golden Gate Estates community by addressing flood control, water supply, water quality, and environmental protection and restoration. These are included here for information and reference, not as recommendations for GGAMP amendment.

Table 1: Selected Structural (S) and Non-structural (NS) Water management Improvements in GGAMP Recommended by WMP

Project Name	Watershed	Project Description	Comments/Status
(S) North Golden Gate Estates Flowway Restoration Project (Winchester Head and Horsepen Strand)	Golden Gate Canal, Naples Bay and Henderson Creek – Belle Meade	Reestablish habitat and hydrologic connectivity along two wetland strands for eventual restoration of the historic flowway to the Rookery Bay Watershed	* Two feasibility and modeling studies have been completed; and, a network of 42 culverts was installed in project’s first phase. *Funding and evaluation of other project segments are needed
(NS) North Golden Gate Estates Land Acquisition for Winchester Head Wetlands Preservation	Golden Gate Canal, Naples Bay & Faka Union Canal	Multi-parcel (60) acquisition within the Winchester Head area	*Land donations are accepted through the offsite preservation provision of the LDC *Funding for acquisition and/or additional land donations is needed
(S) Corkscrew Regional Ecosystem Watershed/East Bird Rookery Swamp Hydrologic Restoration Enhancement	Golden Gate Canal & Cocohatchee	Hydrologic restoration by berm removal, vegetation control, ditch blocks and flowway redirection	*Project scope has been defined *Funding is needed
(S) Northern GGE, Unit 53 Acquisition and Restoration	Golden Gate Canal & Cocohatchee	Wetland restoration in the area of Shady Hollow Rd. Ext. and 38 th Ave. N.W. Ext. by berm removal and exotic vegetation control	*Project scope has been defined *Funding for land acquisition and restoration is needed
(S) Golden Gate Canal Water Quality Improvements	Golden Gate Canal & Naples Bay	Six Tracts conveyed by GAC to Collier County totaling 33 acres, with 3,646 ft. of frontage along the GG canal system, to be used for isolated water quality treatment	*Funding for feasibility study needed
(NS) Stormwater Retrofit Project	All Watersheds	Restoration and protection of existing natural systems by establishing retrofit programs to address existing developments, public facilities and other areas that lack treatment	*Retrofit options such as sewer inlet protection, debris collectors, and bio-swales have been identified by staff *Pond inventory and SOPs established for county owned facilities *County staff, in cooperation with the Water Symposium, to monitor county stormwater ponds and establish Best Management Practices.

Project Name	Watershed	Project Description	Comments/Status
(NS) Water Quality Monitoring Program	All Watersheds	Define water quality conditions in estuaries and along canal networks to achieve greater distribution in the groundwater monitoring network	*Ongoing efforts to establish new programs to meet project objectives *Ongoing program that is periodically reevaluated and adaptively managed by the County's Pollution Control staff. (Specific recommendations for monitoring completed in 2014)
(NS) Verification of No Floodplain Impact	All Watersheds	Implement requirement for development to verify no impact upstream and downstream for the 100 yr./72-hr. design storm event	*Modeling was used to evaluate future development alternatives on DFIRM base flood elevations (BFE) in GGE. The analysis of future build-out shows an increase of BFEs in the range of 0.25 – 0.5 feet assuming current development practices (fill placement for SF homes). This is well below the NFIP threshold of 1 ft. increase. *Consider implementation
(NS) Flood Protection Levels of Service	All Watersheds	Propose a standard 25-yr design storm for drainage on arterial roads and 10-yr. design storm for collector and neighborhood roads to increase flood protection levels of service	* SFWMD is modeling the primary canal system *County to follow with modeling of the secondary system *Staff to continue to refine concept for inclusion within the planning process for the CIP
(NS) Low Impact Development (LID) Program	All Watersheds	Implementation of a LID program that would apply to all new development countywide	*The Pollution Control Section is developing a LID manual to be used as a technical working document by the community

Related Existing Provisions in the GGAMP

OBJECTIVE 1.3:

Protect and preserve the valuable natural resources within the Golden Gate area.

Policy 1.3.0.1:

The County shall protect and preserve natural resources within the Golden Gate area in accordance with the Objectives and Policies contained within Goals 6 and 7 of the Collier County Conservation and Coastal Management Element.

Policy 1.3.1:

The Collier County Environmental Services Department shall coordinate its planning and permitting activities within the Golden Gate Area with all other applicable environmental planning, permitting and regulatory agencies to ensure that all Federal, State and local natural resource protection regulations are being enforced.

Policy 5.3.2:

The Land Development Code shall continue to allow and further encourage the preservation of native vegetation and wildlife indigenous to the Estates Area.

Policy 7.1.4:

The Golden Gate Fire Control and Rescue District and the Collier County Bureau of Emergency Services shall hold one or more annual “open house” presentations in the Golden Gate Area emphasizing issues related to wildfires, flooding, emergency access and general emergency management.

Generally:

- Conservation and Coastal Management Element
- Capital Improvement Element
- Stormwater Management Sub-element

Recommended Policies

The County will continue to pursue the Watershed Management Plan initiatives as financial and staff resources become available.

The County will encourage the combination of parcels less than 2.25 acres in size with adjacent parcels, to preserve the low-density advantages within Golden Gate Estates. Within 2 years, GMD staff will recommend to the Board potential incentives to apply to developed and undeveloped lots.

The County will evaluate the potential for a second transfer of development units/rights program (TDU) to transfer density from Estates lots to the urban area, and will consider transfer of ownership options, in a timeframe directed by the Board.

The County will commence a formal study, within one year, on the feasibility of dispersed water management (DWM) for single-family Estates lots, and determine whether a DWM initiative should be voluntary or mandatory and the extent to which the program should apply to developed and undeveloped properties.

The County will continue to identify and implement educational opportunities related to water resources for use by parcel owners, home owners, builders, real estate professionals and the public to aid in understanding and addressing the owner’s financial and personal interests as well as area-wide impacts.