

I. INTRODUCTION

[New Language, page 1]

This portion of the Collier County Growth Management Plan inventories both the natural conditions and stormwater management activities within unincorporated Collier County. In Collier County, there are two (2) primary service providers with regard to the provision of stormwater management services. The County's Stormwater Management Section (part of the Road Maintenance Department) maintains drainage systems associated with County and State Roadways. This system of drainage ways is referred to as the Secondary Drainage System. The Big Cypress Basin Board, an arm of the South Florida Water Management District (SFWMD), maintains the larger, regional surface water management systems within Collier County. The regional drainage system is also referred to as the Primary Drainage System.

However, management of stormwater is concerned not only with flood prevention (a quantity issue), but also with the removal of various pollutants picked up by the stormwater as it flows across the County's developed land areas (a quality issue). Such pollutants can include oils, greases, heavy metals, pesticides, fertilizers and other substances, which can have a deleterious impact on the County's natural systems and, above all, its groundwater quality. Note that, in this respect, there is overlap in the intended purpose between the Drainage and Natural Groundwater Aquifer Recharge Sub-elements: both seek to protect aquifer recharge areas. However, the emphasis of the Drainage Sub-element is on surface water protection, whereas the emphasis of the Natural Groundwater Aquifer Recharge Sub-element is on groundwater protection.

The term "stormwater management" refers to a set of comprehensive strategies for dealing with both stormwater quantity and stormwater quality issues. The primary component of these strategies is the need to ensure that the volume, rate, timing and pollutant load of stormwater runoff after development is similar to that which occurred prior to development. To accomplish this task, stormwater management entities employ a combination of structural and non-structural techniques. Non-structural techniques emphasize preservation or restoration of natural drainage features to promote infiltration, filtering and slowing of runoff. Structural techniques include the variety of manmade channels and control structures maintained within the primary and secondary drainage systems. The objective of stormwater management is to develop a combination of techniques, which provides for adequate pollutant removal and flood protection in the most economical manner.

One of the key principles of current stormwater management techniques is recognition of the need for basin-wide (or watershed basin) planning. The stormwater management system has to be designed so as to ensure that the final outlet point has adequate capacity to handle all discharges from the upstream portion of the watershed under conditions present at the time of design. Subsequent development upstream must then utilize stormwater management techniques and systems, which will maintain predevelopment runoff conditions so that the capacity of the downstream portion of the watershed is not exceeded. In this respect, there is an overlap between the intended purpose of the

Drainage Sub-element and Goal 2 of the Conservation & Coastal Management Element, including the Watershed Management Plans discussed under Objective 2.1 of the CCME.

Goal, Objectives and Policies Drainage Sub-Element

GOAL 1: **[Renumbered, revised text, page 1]**

COLLIER COUNTY SHALL PROVIDE DRAINAGE AND FLOOD PROTECTION FOR EXISTING AND FUTURE DEVELOPMENT, MINIMIZE THE DEGRADATION OF QUALITY OF RECEIVING WATERS AND SURROUNDING NATURAL AREAS AND PROTECT THE FUNCTIONS OF NATURAL GROUNDWATER AQUIFER RECHARGE AREAS.

OBJECTIVE 1.1: (CAPITAL FACILITY PLANNING FOR DRAINAGE SYSTEMS) **[Renumbered, revised text, page 1]**

The County shall utilize ~~Via~~ the Annual Update and Inventory Report on Public Facilities (AUIR) process, ~~annually~~ to update the Drainage Atlas Maps and Channel/Structure Inventory components of the adopted Water Management Master Plan and to verify the existing watershed basin boundaries within Collier County. The County will also ~~V~~verify the design storm capacity of the drainage facilities within each basin, and determine the costs necessary to maintain the facility capacities to selected design storm standards. This information shall be used to ~~for inclusion of needed programming of~~ operational funds in the Annual County Budget and to identify necessary capital projects and basin studies in the Annual Capital Improvement Element Update and Amendment.

Policy 1.1.1: **[Renumbered, revised text, page 1]**

The County shall continually ~~M~~monitor ~~adopted~~ existing water management procedures ~~that are in place~~ to ensure that ~~existing~~ natural systems, existing developments, and proposed developments ~~will~~ receive beneficial consideration ~~from~~ in proposed water management ~~procedures and~~ projects. Future updates and revisions to water management procedures shall reflect necessary ~~changed conditions~~ changes ~~in the new techniques~~ as identified through monitoring activities.

Policy 1.1.2: **[Renumbered, revised text, page 1]**

County drainage system capital facility planning shall be designed ~~Outline how~~ to implement procedures and projects in a manner to ensure that adequate water management facility capacity is available at the time a development permit is issued, or that such adequate water management facility capacity is available ~~or~~ will be available when needed to serve the development.

Policy 1.1.3: **[Renumbered, revised text, page 1]**

The County shall continue to develop public drainage facilities, which to maintain the groundwater table as a source of recharge for the County's potable water aquifers, and meet the provide a source of irrigation water needs for agricultural, horticultural and golf course and commercial operations and provide water to native vegetation.

Policy 1.1.4: **[Renumbered, revised text, page 1]**

~~Continue on-going efforts to evaluate the feasibility of restoring surface water flow into historical flow ways and utilizing them to help control discharge into the estuaries.~~

The County shall continue to evaluate structural and non-structural measures for restoring historical hydroperiods in impacted watersheds where possible and for reducing the impacts of canal and stormwater discharges to estuaries. Selected measures will be implemented through the Watershed Management Planning process identified within Goal 2 of the Conservation and Coastal Management Element of the Growth Management Plan.

Policy 1.1.5: **[Renumbered, revised text, pages 1, 2]**

~~Three (3) detailed basin studies are planned within the 5-year planning time frame as follows:~~

One Watershed Management Plan is currently underway and scheduled for completion as follows:

<u>Basin</u>	<u>Starting Date</u>	<u>Completion Date</u>
Gordon River Extension	FY 96/97	FY 98/99
Belle Meade	FY 98/99-May, 2004	FY 2000/2001-April, 2006
Immokalee	FY 2000/2001	FY 2002/2003

Additional Watershed Management Plans will be undertaken as set forth in CCME Objective 2.1 of the Conservation and Coastal Management Element.

~~As the studies are~~ After each plan is completed, the results will be made available to the property owners located within the basin's boundaries for their use in petitioning the Board of County Commissioners to create a taxing/assessment unit to fund the proposed implementation of the studies' plan's recommendations.

Policy 1.1.6 **[Deleted text, page 2]**

~~Initiate sub-basin studies on the Secondary Drainage System and portions of the basin within the Urban Area. The status of several of the critical sub-basin studies is as follows:~~

<u>Basin</u>	<u>Starting Date</u>	<u>Completion Date</u>
Lely Main/Branch/Manor	N/A	1985
Harvey	FY 95/96	FY 96/97

~~US 41 Outfall Swales N/A 1986~~
~~Implementation of these projects is currently underway.~~

OBJECTIVE ~~1.2:~~ [Renumbered, revised text, page 2]

The County shall maintain adopted drainage level of service standards for basins and sub-basins identified in the Water Management Master Plan. Maintenance of the drainage level of service (LOS) identified for each basin will be implemented through the Watershed Management Planning process identified within Goal 2 of the Conservation and Coastal Management Element of this Growth Management Plan.

Policy ~~1.2.1:~~ [Renumbered, revised text, pages 2, 3]

The following levels of service for drainage are hereby adopted for the purpose of issuing development permits. Upon completion of each associated Watershed Management Plan, the level of service will be modified, if warranted.

- A. Future "private" developments - water quantity and quality standards as specified in Collier County Ordinance Numbers 74-50, and 90-10 and 2001-27, and Land Development Code Ordinance Number 91-102 2004-41, as amended.
- B. Existing "private" developments and existing or future public drainage facilities - those existing Levels of Service identified (by design storm return frequency event) by the completed Water Management Master Plan as follows:

LEVELS OF SERVICE ATTAINED BY BASINS

<u>BASIN</u>	<u>LEVEL OF SERVICE</u>
MAIN GOLDEN GATE SYSTEM	
Main Golden Gate Canal Basin	D
Cypress Canal Basin	D
Harvey Canal Basin	D
I-75 Canal Basin	D
Green Canal Basin	C
Airport Road Canal South Basin	D
Corkscrew Canal Basin	D
Orange Tree Canal Basin	D
951 Canal Central Basin	C
DISTRICT NO. 6 SYSTEM	
Rock Creek Basin	D
C-4 Canal Basin	C
Lely Main Canal Basin	D
Lely Canal Branch Basin	D
Lely Manor Canal Basin	D
Haldeman Creek Basin	D

Winter Park Outlet Basin	D
COCOHATCHEE RIVER SYSTEM	
Cocohatchee River Basin	D
Pine Ridge Canal Basin	C
Palm River Canal Basin	D
COCOHATCHEE RIVER SYSTEM (continued)	
West Branch Cocohatchee River Basin	C
East Branch Cocohatchee River Basin	D
Airport Road Canal North Basin	D
951 Canal North Basin	D
GORDON RIVER EXTENSION	
Gordon River Extension Basin	D
Goodlette-Frank Road Ditch Basin	D
HENDERSON CREEK BASIN	
Henderson Creek Basin	D
FAKA-UNION SYSTEM	
Faka-Union Canal Basin	D
Miller Canal Basin	D
Merritt Canal Basin	C
Prairie Canal Basin	C
SOUTHERN COASTAL BASIN	
US-41 Outfall Swale No. 1 Basin	D
US-41 Outfall Swale No. 2 Basin	D
Seminole Park Outlet Basin	C
BARRON RIVER SYSTEM	
Okaloacoochee Slough Basin	D
Barron River Canal North Basin	C
Urban Immokalee Basin	C
MISCELLANEOUS INTERIOR WETLAND SYSTEMS	
Corkscrew Slough Basin	D

Policy ~~1-2.32~~: **[Renumbered, revised text, page 4]**

~~The County's Enlarge the scope of the Water Management Master Plan to shall include recommendations for changing Levels of Service together with an analysis of capital requirements.~~

OBJECTIVE ~~1-3~~: **[Renumbered, revised text, page 4]**

~~Beginning with fiscal year 1996-97, a five-year schedule of capital improvement needs for water management facilities will be maintained and updated annually in conformance with the review process for the Capital Improvement Element of this plan.~~

The County shall maintain and annually update a five-year schedule of capital improvements for water management facilities in conformance with the annual review

process described within the Capital Improvement Element of the Growth Management Plan.

Policy 1.3.1: [Renumbered, revised text, page 4]

The County shall ~~D~~develop and maintain procedures to annually update water management facility demand and capacity information.

Policy 1.3.2: [Renumbered, revised text, page 4]

The County shall ~~P~~prepare ~~periodic~~ annual summaries of capacity and demand information for each water management facility and service area.

Policy 1.3.3: [Renumbered, revised text, page 4]

Collier County shall evaluate and rank ~~W~~water management capital improvement projects ~~will be evaluated and ranked according to~~ in accordance with the priorities stated in the Capital Improvement Element of this plan.

Policy 1.3.4: [Renumbered, revised text, page 4]

County improvements to existing ~~Major emphasis shall be given to improving existing drainage facilities shall give major emphasis to the maintenance of those facilities located within in and around the urban and estates designated areas (on the adopted Future Land Use Map), exclusive of Southern Golden Gate Estates to maintain their use.~~

OBJECTIVE 1.4: [Renumbered, revised text, page 4]

The County shall ~~Beginning with fiscal year 1996-97,~~ develop and maintain policies and programs to correct existing deficiencies and to provide for future facility needs in accordance with ~~for those projects which have been outlined the annual work program referenced in the adopted Water Management Master Plan and any future individual basin studies.~~

Policy 1.4.1: [Renumbered text, page 4]

Water management projects shall be undertaken in accordance with the schedule provided in the Capital Improvements Element of this plan. These projects shall be undertaken in coordination with the Big Cypress Basin/South Florida Water Management District 5 Year Plan.

Policy 1.4.2: [Renumbered, revised text, page 4]

Collier County shall ~~C~~correct existing deficiencies and provide for future water management facility needs through the formulation and implementation of an annual work programs. In order to implement the annual work program, the County shall

Encourage the use of innovative funding sources mechanisms including, but not limited to utilization of special taxing or assessment districts.

Policy 1.4.3: **[Renumbered, revised text, page 4]**

~~Develop a public awareness program to inform the governmental leadership and general public of the need to utilize total watershed management concepts within the existing drainage systems and the environmental enhancements that will result from their implementation.~~

The County shall develop and maintain a stormwater management public awareness program, which will include, but not necessarily be limited to, a Collier County Stormwater Management website. The primary purpose of this program shall be to provide information regarding the County's stormwater management programs to the general public including, but not limited to, the environmental enhancements that will result from the use of total water management concepts within the existing drainage network.

OBJECTIVE 1.5: **[Renumbered, revised text, page 5]**

The County shall continue to regulate land use and development to in a manner that protects the functions of natural drainage features and natural groundwater aquifer recharge areas. Implementation of this Objective will be consistent with the Watershed Management Planning process identified within Goal 2 of the Conservation and Coastal Management Element of the Growth Management Plan, through and with relevant provisions contained within the adopted Land Development Code (Ordinance 94-102 Number 2004-41 as amended).

Policy 1.5.1: **[Renumbered, revised text, page 5]**

Collier County shall Annually periodically review all appropriate Water Management Ordinances and regulations to determine their effectiveness in protecting the functions of the natural drainage features and natural groundwater aquifer recharge areas.

Policy 1.5.2: **[Renumbered, revised text, page 5]**

Based upon the periodic review described in Policy 5.1, the County shall develop any appropriate new ordinances and regulations that are necessary to ensure protection of the functions of natural drainage features and natural groundwater aquifer recharge areas.

OBJECTIVE 1.6: **[Renumbered, revised text, page 5]**

The County shall protect the functions of natural drainage features shall be protected through the application of standards that address the quality and quantity of discharge from stormwater management systems. Implementation of this Objective will be consistent with the Watershed Management Planning process identified within Goal 2

and Objective 2.1 of the Conservation and Coastal Management Element of the Growth Management Plan. This objective is made measurable through the following policies:

Policy ~~1-6.1~~: [Renumbered, revised text, page 5]

Projects shall be designed and operated so that off-site discharges will meet State water quality standards, as set forth in Chapter ~~17-302~~ 62-302.300, F.A.C., as it existed ~~on August 31, 1999~~ at the date of project approval.

Policy ~~1-6.2~~: [Renumbered, revised text, page 5]

Collier County's ~~R~~etention and detention requirements shall be the same as those provided in the South Florida Water Management District's Basis of Review, ~~Section 5.2,~~ as it existed ~~on August 31, 1999~~ at the time of project approval.

Policy ~~1-6.3~~: [Renumbered, revised text, pages 5, 6]

~~Collier County shall compute~~ Allowable off-site discharge rates shall be computed using a storm event of 3 day duration and 25 year return frequency. The allowable off-site discharge rates are as follows:

- | | | |
|----|--|---------------|
| a. | Airport Road North Sub-Basin
(North of Vanderbilt Beach Road) | 0.04 cfs/acre |
| b. | Airport Road South Sub-basin
(South of Vanderbilt Beach Road) | 0.06 cfs/acre |
| c. | Cocohatchee Canal Basin | 0.04 cfs/acre |
| d. | Lely Canal Basin | 0.06 cfs/acre |
| e. | All other areas | 0.15 cfs/acre |

~~In special cases, the County may exempt~~ projects ~~may be exempted by the County~~ from these allowable off-site discharge rates if providing any of the following applies:

1. The project is exempt from allowable off-site discharge limitations pursuant to Section 40E-400.315, FAC.
2. The project is part of an existing SFWMD permit, which allows discharge rates different than those listed above.
3. It can be documented that the project currently discharges off-site at a rate higher than those listed above. The documentation required for this purpose shall be prepared by a registered professional engineer, and will consist of an engineering study ~~prepared by a registered professional engineer,~~ which utilizes the applicable criteria in the "SFWMD Basis of Review for Environmental Resource Permit Applications". The study shall be subject to review and approval by the County and SFWMD staff. The study shall include the following site-specific information:

- a. Topography
- b. Soil types and soil storage volume
- c. Vegetation types
- d. Antecedent conditions
- e. Design rainfall hydrographie
- f. Depression storage capacity
- g. Receiving water hydrograph, and
- h. Other relevant hydrologic and hydraulic data.

Using the above information, a hydrologic and hydraulic model shall be developed which demonstrates the higher off-site discharge rate ~~shall be developed~~.