

**SUMMARY OF RECOMMENDED CHANGES  
2011 EVALUATION & APPRAISAL REPORT (EAR)**

**Public Facilities Element – Drainage Sub-Element**

**Goals, Objective and Policies:** The entire Sub-Element will be revised to reflect the proper formatting for all Goals, Objectives and Policies, as defined below:

**Goal:** General statement defining what the plan will ultimately achieve, typically beginning with “TO” followed by a transitive verb, such as, TO PROTECT or TO ENSURE.

**Objective:** A more specific statement than the stated Goal; describing actions that will help achieve the goal(s), typically beginning with the active verb providing the general direction, such as, “Implement”, “Promote” or “Protect”. Objectives use the term “will” and allow Policies to specifically require an activity with “shall”.

**Policies:** Specific statements that provide directives on how to achieve the objectives and ultimately the Sub-Element’s goals, typically beginning with phrases like, “The County shall promote...”, “The County shall continue to...” or “The District shall expand...” or similar phrases. Policies use the terms “may” or “shall” to provide specific direction.

**Goals, Objective and Policies:** The entire Sub-Element should be revised to reflect Department name changes, designee changes, renumbering due to objective and/or policy additions and/or deletions, and grammatical changes.

To be renamed, including Sub-Element, Goal and throughout Objectives and Policies

Goal – revisions to reflect all that stormwater management entails, and its interdependence with provisions found in other Elements and Sub-Elements; reformatting.

Objective 1 – minor revision to reflect GIS use; reformatting.

Objective 2 – reformatting.

Policy 2.1 – part of revision affecting multiple Elements to eliminate redundancy; verify that “as amended” may be used in this context.

Objective 3 – reformatting.

Policy 3.4 – revision to provide the desired clarity.

Objective 4 – reformatting, with consideration of minor revision to provide the emphasis suggested by the Environmental Advisory Council (EAC).

Policy 4.1 – revision to update document reference.

Objective 5 – reformatting; verify that “as amended” may be used in this context.

**Objective 6 – reformatting, with consideration of revisions to provide additional natural drainage feature protections in certain County projects, introducing new detention features and including filter marshes, as suggested by the Environmental Advisory Council (EAC).**

**Policy 6.1 – verify that certain Federal and State standards would apply, with the proper agency protocols, whether or not references are included to them.**

**Policy 6.2 – minor revision to update document cite; revision to coincide with the increased water quality treatment requirement found in the CCME.**

**Policy 6.3 – minor revision to update document cite; consideration of revisions to provide additional natural drainage feature protections, as suggested by the Environmental Advisory Council (EAC).**

**Assessment of the Successes & Shortcomings  
and Recommendations  
for the Public Facilities Element – Drainage Sub-Element**

**A. Introduction & Background:**

The purpose of the Drainage Sub-Element is defined within its single Goal, which reads as follows:

**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.**

The intent of the Drainage Sub-Element is to assure the provision of drainage and flood protection facilities and services that would enable the citizens of Collier County to meet their needs for stormwater management while also assuring public health and safety in accordance with the criteria set forth in Rule 9J-5, F.A.C., and Chapter 163, Florida Statutes.

The annual update and amendment to the Capital Improvement Element, adopted January 28, 2008 included the initial step toward re-naming of this Sub-Element from the "Drainage" Sub-Element to the "**Stormwater Management**" Sub-Element. The new name should be used in all titles, headings and text within this Sub-Element, and in all references to this Sub-Element found throughout the Growth Management Plan.

Note that, in one respect, there is overlap in the intended purpose of 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. For an evaluation of the Natural Groundwater Aquifer Recharge Sub-Element, refer to that Section of this Report. In addition to the overlap of policies within the Drainage and Natural Groundwater Aquifer Recharge Sub-Elements, there is also an overlap between the intended purpose of the Drainage Sub-Element and Goal 2 of the Conservation & Coastal Management Element (refer to the CCME Section of this Report), including the Watershed Management Plans discussed under Objective 2.1 of the CCME. EAR-based amendments made to those sections should be reflected in this Sub-Element, as necessary.

As currently formatted, this Sub-Element consists entirely of a single Goal, and its supporting Objectives and Policies.

The provision of public facilities and services for stormwater management, floodplain management and flood protection, potable water supply and, aquifer recharge area protection and watershed management are planned in correlation with future land use projections. This Goal should be expanded to fully capture the County's goals in these areas and ensure collaboration in implementing Objectives and applying Policies. These interdepartmental collaborations should also be recognized, and strengthened if necessary, in the Conservation & Coastal Management Element (CCME) and Intergovernmental Coordination Element (ICE) of this Growth Management Plan.

This Goal should be rephrased to improve its formatting as a "goal".

**B. Objectives Analysis:**

**OBJECTIVE 1:**

**The County shall utilize the Annual Update and Inventory Report on Public Facilities (AUIR) process to update the Drainage Atlas Maps and Channel/Structure Inventory components of the adopted Water Management Master Plan to verify the existing watershed basin boundaries within Collier County. The County will also 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 program 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.**

Objective Achievement Analysis:

The above Objective requires drainage projects to be included in the County's Annual Update and Inventory Report (AUIR), and thus the annual Capital Improvement Element and Schedule of Capital Improvements update. The County has been diligent in adhering to this requirement. Each year the County provides its latest AUIR to the Florida Department of Community Affairs along with its submittal of its latest adopted Capital Improvement Element.

All mapping for the stormwater management system is now done in the GIS, and "Drainage Atlas Maps" are no longer utilized. This reference should be changed to identify the GIS and update its connection with the AUIR process.

Based on the above, this Objective is being achieved and should be retained, essentially as written. This Objective should be rephrased to improve its formatting as an "objective".

*[Public Comment from January 25, 2010 EAR Public Meeting – Suggesting the County should re-evaluate monitoring and maintenance procedures for nutrient loads/pollution/water quality.]*

**OBJECTIVE 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.**

Objective Achievement Analysis:

The purpose of this Objective and its policies is to maintain and implement the County's adopted drainage LOS standards for its established drainage basins. Implementation provisions are based in the CCME. Based on the above, this Objective is being achieved and should be retained, essentially as written. This Objective should be rephrased to improve its formatting as an "objective".

Policy Relevance:

There are two (2) policies within this Objective.

**Policy 2.1:**

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, 90-10 and 2001-27, and Land Development Code Ordinance Number 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**

<b>BASIN</b>	<b>LEVEL OF SERVICE</b>
<b>MAIN GOLDEN GATE SYSTEM</b>	
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
<b>DISTRICT NO. 6 SYSTEM</b>	
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
<b>COCOCHATCHEE RIVER SYSTEM</b>	
Cocohatchee River Basin	D
Pine Ridge Canal Basin	C
Palm River Canal Basin	D
West Branch Cocohatchee River Basin	C
East Branch Cocohatchee River Basin	D
Airport Road Canal North Basin	D
951 Canal North Basin	D
<b>GORDON RIVER EXTENSION</b>	
Gordon River Extension Basin	D
Goodlette-Frank Road Ditch Basin	D
<b>HENDERSON CREEK BASIN</b>	
Henderson Creek Basin	D

**LEVELS OF SERVICE ATTAINED BY BASINS  
BASIN**

**LEVEL OF SERVICE**

<b>FAKA-UNION SYSTEM</b>	
Faka-Union Canal Basin	D
Miller Canal Basin	D
Merritt Canal Basin	C
Prairie Canal Basin	C
<b>SOUTHERN COASTAL BASIN</b>	
US-41 Outfall Swale No. 1 Basin	D
US-41 Outfall Swale No. 2 Basin	D
Seminole Park Outlet Basin	C
<b>BARRON RIVER SYSTEM</b>	
Okaloocoochee Slough Basin	D
Barron River Canal North Basin	C
Urban Immokalee Basin	C
<b>MISCELLANEOUS INTERIOR WETLAND SYSTEMS</b>	
Corkscrew Slough Basin	D

This Policy lists standards for the various identified drainage basins.

The LOSS for stormwater management systems appearing in Policy 2.1 above is one of two locations within this GMP where these standards are shown. The other location is Policy 1.5; subsection “C” in the Capital Improvement Element. This dualism may be a simple matter of unnecessary redundancy, except that the two Policies are not the same. These differences should be reconciled and a single location selected for these LOSS to appear. If it is decided to show the LOSS in both locations, then the CIE could be formatted to provide the LOS Standards, while the Sub-Element entries could elaborate on the figures. This Policy will remain relevant in its reconciled format.

*[Planning Commission (CCPC) Comment from August 27, 2010 EAR Workshop – Supporting staff suggestion to locate Level of Service Standards in the CIE, with this Sub-Element being revised to direct readers to the CIE for this information.]*

*[Planning Commission (CCPC) Comment from August 27, 2010 EAR Workshop – Questioning whether the use of “as amended” in this context makes this Policy self amending.]*

**OBJECTIVE 3:**

**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.**

Objective Achievement Analysis:

Like other types of capital improvements, drainage projects are included in annual updates to the Five-Year Schedule of Capital Improvements, and thus the County’s Annual Budget for each fiscal year. This Objective is being achieved and should be retained, essentially as written. This Objective should be rephrased to improve its formatting as an “objective”.

Policy Relevance:

There are four policies within this Objective.

**Policy 3.4:**

**County improvements to, and maintenance of, existing drainage facilities shall be a priority over new construction projects in the urban and estates designated areas (exclusive of Southern Golden Gate Estates).**

This Policy requires that the County give major emphasis to drainage improvements in the Estates and Urban Areas, as opposed to other portions of the County. This emphasis toward these improvements is considered in the County's Annual Update and Inventory Report (AUIR). This Policy remains relevant and should be retained as written.

*[Planning Commission (CCPC) Comment from August 27, 2010 EAR Workshop – Suggesting that the language in this Policy is ambiguous and needs revision to provide clarity and avoid an interpretation that the improvement and maintenance of **existing** facilities **Countywide** are a priority over **new** projects in the **Estates** – as this is not the case. SGGE is no longer open to development, so no facilities have priority there. ]*

**OBJECTIVE 4:**

**The County shall develop and maintain policies and programs to correct existing deficiencies and to provide for future facility needs in accordance with the annual work program referenced in the adopted Water Management Master Plan.**

Objective Achievement Analysis:

This Objective requires the County maintain its drainage work program to correct deficiencies and provide for future need. Based on the above, this Objective is being achieved and should be retained, essentially as written. This Objective should be rephrased to improve its formatting as an "objective" such as, **Develop and maintain policies and programs to correct existing deficiencies and to provide for future facility needs in accordance with the annual work program referenced in the adopted Water Management Master Plan.**

*[Public Comment from March 15, 2010 EAR Public Meeting – Suggesting that watershed management and water resource management should take a more holistic approach.]*

*[Environmental Advisory Council (EAC) Comment from August 11, 2010 EAR Workshop – Emphasizing the importance of preparing and following an annual work program.]*

Policy Relevance:

There are three (3) policies within this Objective.

**Policy 4.1:**

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

This Policy requires water management projects to be undertaken in accordance with the procedures outlined within the Capital Improvements Element, and that such projects be coordinated with the Big Cypress Basin Board and the South Florida Water Management District. (It is worth noting here that, in Collier County the Big Cypress Basin Board, an arm of the South Florida Water Management District, maintains the major drainageways while Collier County maintains the tributary systems.) This Policy remains relevant and should be retained if re-written. ***Post EAC Workshop comment: The Big Cypress Basin is not going to publish the 5-year plan in this format (County has been doing this since the early 1980s). Beginning this year the new document will be called Big Cypress Basin Strategic Plan 2010-2015. Properly revise reference to the "Strategic Plan" without the date reference.***

**Policy 4.1**

*County capital stormwater management projects shall be undertaken in accordance with the schedule provided in the Capital Improvement Element of this Plan. These projects shall be undertaken in coordination with the Big Cypress Basin Strategic Plan.*

*[Public Comment from March 15, 2010 EAR Public Meeting – Suggesting a number of these ‘other regulatory agencies’ be identified, including the Federal Emergency Management Agency (FEMA), Department of Environmental Protection (DEP), and the U.S. Army Corps of Engineers (USACOE), as those among whom water resource management is coordinated – including surface water, stormwater, and water supplies for municipal services.]*

**OBJECTIVE 5:**

**The County shall continue to regulate land use and development 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, and with relevant provisions contained within the adopted Land Development Code (Ordinance Number 2004-41, as amended).**

Objective Achievement Analysis:

This Objective provides for the protection of natural drainage features and natural groundwater aquifer recharge areas. This Objective is being achieved and should be retained, essentially as written. This Objective should be rephrased to improve its formatting as an “objective”.

*[Planning Commission (CCPC) Comment from August 27, 2010 EAR Workshop – Questioning whether the use of “as amended” in this context makes this Objective self amending.]*

**OBJECTIVE 6:**

**The County shall protect the functions of natural drainage features 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:**

Objective Achievement Analysis:

This Objective seeks to protect natural drainage features through the imposition of stormwater discharge quantity and quality standards. The Objective relies on its subject policies for the definition of standards. As per Objectives 2 and 5, this Objective should be revised to reference (in general) the objectives and policies contained in Goal 2 of the CCME, and the Watershed Management Plans described under Objective 2.1 of the CCME, and to acknowledge that these portions of the CCME provide guidance for protecting the functions of the County's natural drainage features. Based on the above, this Objective is being achieved and should be retained, essentially as written. This Objective should be rephrased to improve its formatting as an "objective".

*[Public Comment from January 25, 2010 EAR Public Meeting – Suggesting that watershed management planning needs to be about more than just water – planning should take a more holistic approach.]*

*[Public Comment from March 15, 2010 EAR Public Meeting – Suggesting that watershed management and water resource management should take a more holistic approach.]*

*[Environmental Advisory Council (EAC) Comment from August 11, 2010 EAR Workshop – Suggesting that this Objective be expanded to address additional protections of natural drainage features in roadway construction and other transportation projects, for introducing or increasing both wet and dry detention features, and for including filter, or trickle, marshes to the system.]*

Policy Relevance:

There are three (3) policies within this Objective.

**Policy 6.1:**

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

This Policy identifies a specific resource to address stormwater discharges to natural drainage features and requires the County to meet State water quality standards. This Policy remains relevant and should be retained as written.

*[Environmental Advisory Council (EAC) Comment from August 11, 2010 EAR Workshop – Questioning whether any applicable Federal water quality standards may not be incorporated into State standards and would still apply, and if so, include proper reference to them.]*

**Policy 6.2:**

**Collier County's retention and detention requirements shall be the same as those provided in the South Florida Water Management District's Basis of Review, as it existed at the time of project approval.**

This Policy identifies stormwater retention/detention requirements of the appropriate Water Management District, with this document reference appearing to be out of date. This Policy also

mirrors other provisions found in another Public Facilities Element Sub-Element. The Pollution Control Department implements this Policy. This Policy remains relevant and should be revised to replace "Basis for Review, dated January 2004" with "**Environmental Resource Permit Information Manual, Volume IV, 2009**".

It is also noted that the County does not adhere to the same retention and detention requirements as those found in the resource identified. The interim watershed management regulations exceed the SFWMD retention and detention requirements by requiring 150% of SFWMD criteria for all developments. The SFWMD typically only requires that for projects discharging into designated Outstanding Florida Water (OFW) sources. This Policy remains relevant and should accordingly be further revised to reflect the increase in water quality treatment.

*This Policy conflicts with CCME Objective 2.1.a. which requires 150% of the SFWMD water quality treatment requirement. This is part of the Interim Watershed Standards.*

*[Planning Commission (CCPC) Comment from August 27, 2010 EAR Workshop – Suggesting that both the CCME and this Policy properly reflect the 150% figure.]*

**Policy 6.3:**

**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<br>(North of Vanderbilt Beach Road) | 0.04 cfs/acre  |
| b. Airport Road South Sub-basin<br>(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. Harvey Basin   | 0.055 cfs/acre |
| f. Wiggins Pass Basin   | 0.13 cfs/acre  |
| g. All other areas  | 0.15 cfs/acre  |

The County may exempt projects from these allowable off-site discharge rates if 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 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 hydrograph
- 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.**

This Policy commits the County to using the 3-day, 25-year storm event as a discharge rate standard. The Policy also contains a list of calculated discharge rates for identified basins and sub-basins. This Policy references discharge requirements of the appropriate Water Management District, with this document reference appearing to be out of date. This Policy also mirrors other provisions found in another Public Facilities Element Sub-Element. The Pollution Control Department implements this Policy. This Policy remains relevant and should be revised to replace “Basis for Review for Environmental Resource Permit Applications” with “**Environmental Resource Permit Information Manual, Volume IV, 2009**”.

*[Environmental Advisory Council (EAC) Comment from August 11, 2010 EAR Workshop – Suggesting that the County consider setting new limitations, or maximums for these exempt projects to provide additional protections of natural drainage features.]*

**CONSIDER INTRODUCING A NEW OBJECTIVE AND SUBSEQUENT POLICY OR POLICIES FOLLOWING FROM THE 2009 ADOPTION OF HB 697.**

*[Planning Commission (CCPC) Comment from August 27, 2010 EAR Workshop – Suggesting that the amount of change introduced with Objectives and Policies following from the adoption of HB 697 may be misplaced and consideration for any such change may serve better if consolidated to address multiple Elements or Sub-Elements at another location , and should be removed from the/ as a proposed revision.]*