

**SARASOTA COUNTY GOVERNMENT
PUBLIC WORKS
STORMWATER DIVISION**

INTEROFFICE MEMORANDUM

TO: The Board of County Commissioners
James L. Ley, County Administrator

THROUGH: Alan T. Wheeler, P.E., Executive Director, Public Works *ATW.*

FROM: Stephen M. Suau, P.E., General Manager *MS*
Public Works, Stormwater

SUBJECT: Board of County Commissioners Item
Cow Pen Slough/Shakett Creek Basin Master Plan

DATE: May 21, 2002

RECOMMENDATIONS:

Approve the Cow Pen Slough/Shakett Creek Basin Master Plan.

REPORT:

Basin Overview

The Cow Pen Slough/Shakett Creek Drainage Basin (CPSSCDB) is located in the north central portion of Sarasota County as shown on Exhibit 1. The Cow Pen Slough/Shakett Creek Basin including the Fox Creek Basin is approximately 47,565 acres (or 74.3 square miles) in size and extends northward into Manatee County. A portion of the basin located west of I-75 and north of Laurel Road is in the City of Venice. The CPSSCDB is bordered by Phillippi Creek and South Creek to the west, Curry Creek to the south, and the Myakka River watershed to the east. Major tributaries include Fox Creek and Salt Creek. All of these watercourses converge into Shakett Creek at the southern end of the basin. The CPSSCDB is primarily undeveloped, but does include some residential communities including Kings Gate Mobile Home Park, Saddle Creek, Saddle Oaks Estates, Gator Creek, Misty Creek, and Heritage Oaks. The area east of Interstate 75 consists of mainly undeveloped and agricultural lands including the Hi-Hat Ranch, the LT Ranch, Hawkins Ranch, and the Albritton Orange Grove.

The CPSSCDB drains from north to south, ultimately discharging into Dona Bay. According to Chapter 62-302.600 of the Florida Administrative Code (FAC) and County Ordinance 72-37, Shakett Creek and Dona Bay are categorized as Outstanding Florida Waters (OFW).

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The Cow Pen Slough/Shakett Creek Basin Master Plan (CPSSCBMP) has (1) characterized the existing hydrologic/hydraulic network; (2) identified existing Flood Protection Level of Service (FPLOS) deficiencies; (3) delineated the existing 100-year/24 hour floodplain to guide future planning and development; (4) assessed long term maintenance needs for the primary system; and (5) determined the existing base-line water quality conditions. A copy of the Basin Master Plan is available in the Administration office for your review.

Existing Flood Protection Level of Service (FPLOS) Deficiencies

Exhibit 3 identifies the horizontal limits of the 100-year 24-hr. floodplain. No existing structure FPLOS deficiencies are identified in the CPSSCBMP. Street FPLOS deficiencies in Cowpen Slough Basin are identified on Exhibit 4 and street FPLOS deficiencies in Shakett Creek are identified on Exhibit 5. There are eleven public and nine private streets that are susceptible to flooding in excess of the FPLOS criteria.

A preliminary evaluation of potential solutions to the existing street FPLOS deficiencies was conducted as part of the report. However, a more detailed alternative analysis identifying cost effective projects to address the public street FPLOS deficiencies will need to be performed prior to proposing any specific stormwater Capital Improvement Program (CIP) projects.

Existing Water Quality Condition

The Sarasota Bay National Estuary Program (SBNEP) established Pollutant Load Reduction Goals (PLRGs) of 7% for nitrogen and 27% for metals. However, since Dona Bay is located just south of the SBNEP study area, these PLRGs may not apply. Dona Bay and the Cow Pen Slough watershed were included in the Charlotte Harbor National Estuary Program (CHNEP). PLRGs and Total Maximum Daily Loads (TMDLS) for the CHNEP are to be determined as part of the Charlotte Harbor National Estuary Program between 2002 and 2006. The report also presents a summary of an existing conditions pollutant loading analysis for Cow Pen Slough conducted by the Natural Resource Service (NRS.)

Any new development within the drainage basin is required to include stormwater treatment facilities to mitigate potential increases in pollutant loads as required by the Southwest Florida Water Management District (SWFWMD) and Land Development Regulations. Any future capital improvement project to address FPLOS deficiencies will also need to consider incorporating stormwater treatment components into its design.

Long Term Maintenance

The primary drainage system for the Cow Pen Slough basin is the canal constructed in the late 1960's by the Soil Conservation Service (SCS.) The drainage works completed by the SCS included the Cow Pen Slough channel, three major water level control structures, 32 metal pipe/riser structures, and 46 breaches in the adjacent spoil pile/levee. According to the original SCS plans, the canal is located within a 160' wide public drainage easement with 100' x 20' public drainage easement stubs corresponding to the riser structure locations. The public ease-

ment agreement with underlying private property owners was granted in consideration of maintenance and operation being performed by Sarasota County.

Sediment Removal

Periodic and routine sediment removal would minimize sediment loads to the receiving water body, which in this case are Shakett Creek and Dona Bay. A routine sediment removal program is currently being formulated in coordination with Drainage Operations. Prior to any sediment removal it is recommended that core samples of the sediment accumulation be analyzed to determine both the suitability of the material for potential landfill cover and to determine the nutrient and heavy metal content on the sediments, if any. The analysis is recommended to help quantify potential water quality benefits that could be associated with removal of these sediments in terms of potential nutrient and metal pollutant load reductions.

Riser Structure Replacement/Repair/Modifications

The original "as-built" plans for the Cow Pen Slough canal included over 30 metal pipes to accommodate drainage from lands adjacent to the canal. These structures are contained within public drainage easements. Few of the riser structures are currently in their original operative condition. Some structures are missing entirely, many are rusted and in disrepair, some have been replaced and elevated with concrete inlet boxes, and additional pipes have been added, particularly in the residential developments north of Clark Road. Replacement and restoration of the structures is being coordinated with Drainage Operations.

Gated Water Level Control Structure Replacement/Removal

A recent inspection of water level control structures 1 and 2 indicate that the gates have become badly rusted and are in need of repair. Water level control structure 3 has never been operational. Rehabilitation of water level control structures 1 and 2 is currently being conducted by Drainage Operations. Structure 3, removal or restoration will be addressed in association with future development in the area. Drainage Operations will resolve erosion issues involved with the by-pass of Structure 3.

Future Development

As part of the CPSSCBMP, the limits of the 100-year riverine floodplain have been identified and mapped consistent with FEMA's designations as shown on Exhibit 3. It should be noted that the FEMA "AE" zones, identified in dark blue, correspond to areas in the 100-year floodplain typically associated with moving and/or deep water while FEMA "AH" zones, identified in light blue, correspond to areas of ponding, as defined by FEMA, where average depths are between 1 and 3 feet. Exhibit 3 identifies these two zones, reflecting these differing floodplain functions that are recognized by FEMA. Adoption of the CPSSCBMP will assure that these floodplain areas will be recognized and that the floodplain functions will be preserved when new development proposals are considered. In addition, the detailed stormwater model developed as

part of the Basin Mater Plan provides a valuable tool to evaluate the effects of proposed land use changes.

Public Input

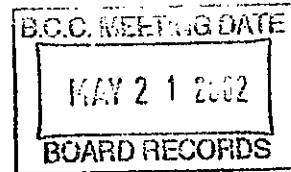
Formal meetings were held on April 2, 2002 for the Shakett Creek Subbasin and April 4, 2002 for the Cow Pen Slough Subbasin to present the findings of each basin to the public. Overall, the residents in attendance had favorable comments on the information provided.

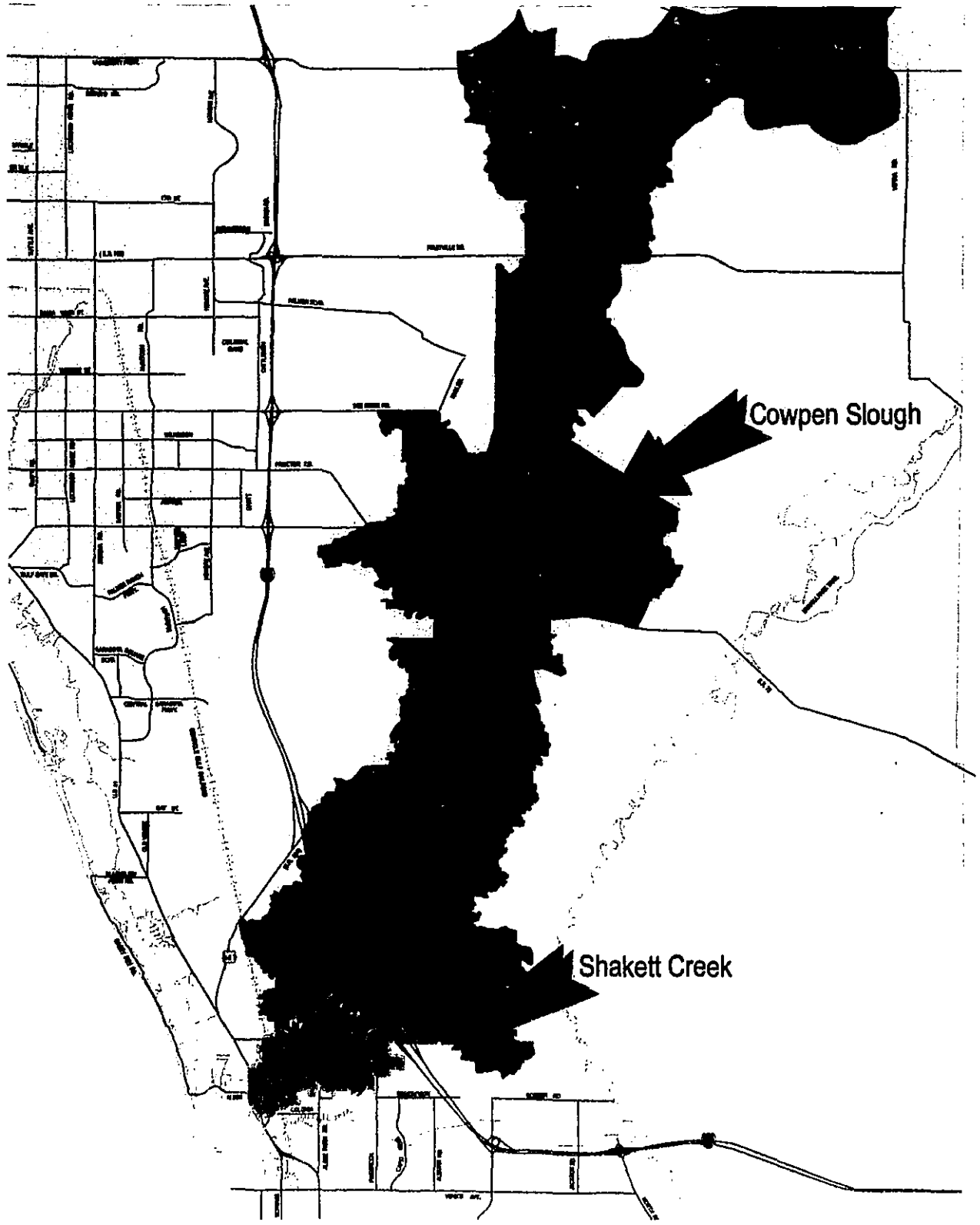
FUNDING:

There is no funding required for approval of a Basin Master Plan. At this time, no Capital Improvement Program assessment is anticipated, as there are no recommended capital projects. If, in the future, capital improvements are recommended within this basin, staff will return for further discussion.

- Attachments:** EXHIBIT 1. Basin Location Map
- EXHIBIT 2. Cowpen Slough and Shakett Creek Basin Map
- EXHIBIT 3. Cowpen Slough and Shakett Creek 100 Year Floodplain
- EXHIBIT 4. Cowpen Slough 100-Year Floodplain with FPLOS Deficiencies
- EXHIBIT 5. Shakett Creek 100-Year Floodplain with FPLOS Deficiencies

cc: David R. Bullock, Deputy County Administrator





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UNIVERSITY BLVD

FRUITVILLE RD

BEE RIDGE RD

CLARK RD

COWPEN SLOUGH

75

681

KNIGHTS TRAIL

BAUREL RD

BORDER RD

JACARANDA

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— COWPEN BASIN
SHAKETT BASIN

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Cowpen & Shakett 100-Year Floodplain

EXHIBIT



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| <p>  COWPEN BASIN  SHAKETT BASIN </p> | <p>  FEMA AE ZONE (>3' OR MOVING)  FEMA AH ZONE (1'-3') </p> |
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MANATEE CO
SARASOTA CO

— COWPEN BASIN
— SHAKETT BASIN

■ FEMA AE ZONE (>3' OR MOVING)
■ FEMA AH ZONE (1'-3')

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