

SARASOTA COUNTY GOVERNMENT*Public Works***Interoffice Memorandum**

TO: The Board of County Commissioners

THROUGH: Alan T. Wheeler, Executive Director, Public Works

FROM: Stephen M. Suau, P.E., General Manager, Watershed Management

SUBJECT: Discussion on the Whitaker Bayou Basin Master Plan

DATE: December 7, 2004

Recommended Motion(s) or Action(s):

Staff will update the Board on the Whitaker Bayou Basin Master Plan. No action is needed at this time.

Summary:

The Sarasota Board of County Commissioners approved the Whitaker Bayou Basin Master Plan on December 17, 2003. This approval authorized the use of the 100-year floodplain delineation, developed as part of the Plan, for use in establishing finished floor elevation and evaluating new development in unincorporated Sarasota County, as the best available information. However, roughly half of the Whitaker Bayou drainage basin is located within the limits of the City of Sarasota (see Figure 1). The City is not necessarily bound by this action.

The study also identified approximately 154 existing homes and businesses with their finished floor elevations below that elevation of the 100-year floodplain. These structures are considered flood protection level of service (FPLOS) deficiencies as defined in the Sarasota County Comprehensive Plan. Staff, with funding assistance from SWFWMD and technical assistance from Boyle Engineering Corporation has evaluated several preliminary design alternatives to address these FPLOS deficiencies. The following report provides a summary of this effort to date, and staff recommendations, including on-going and future efforts.

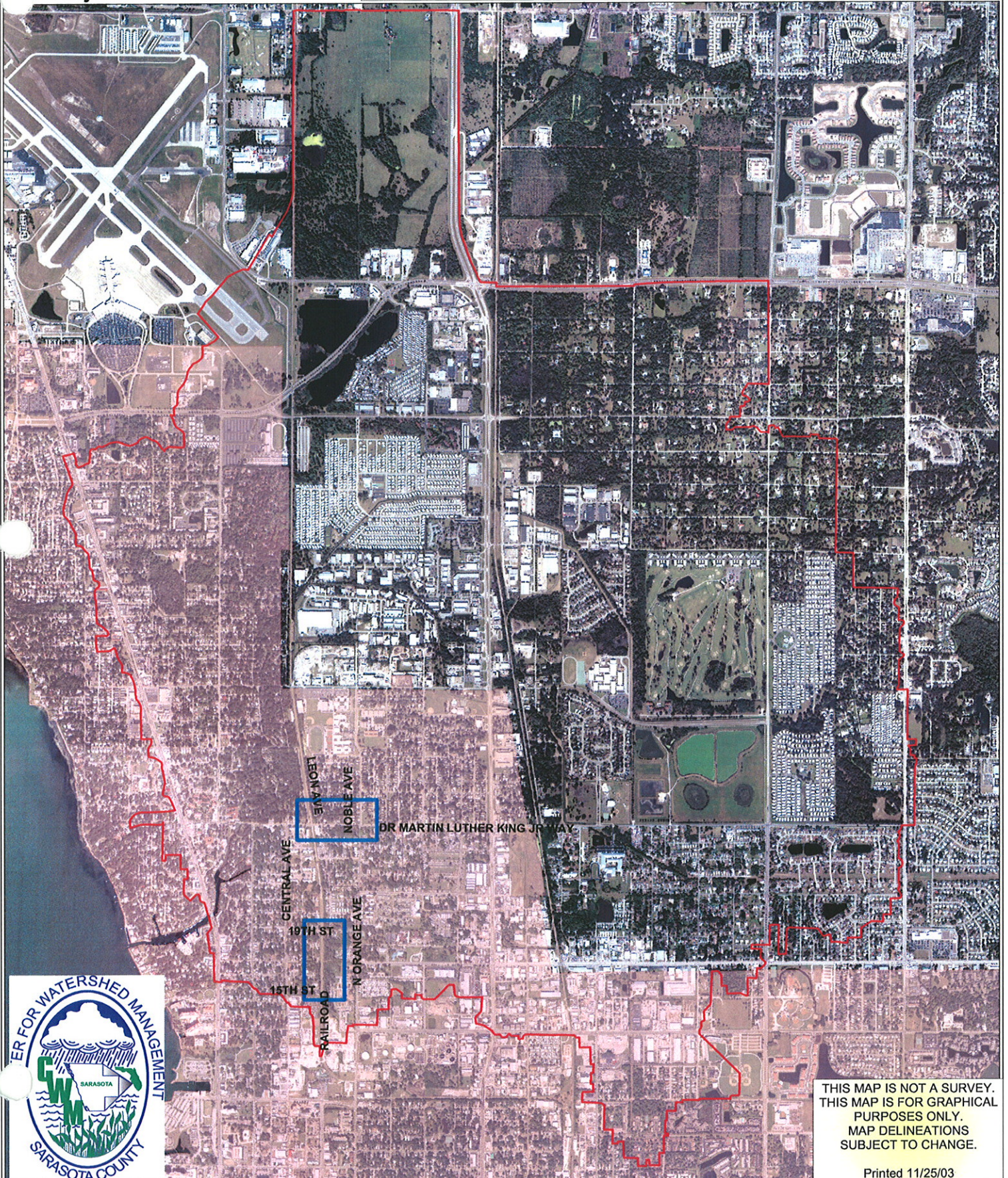
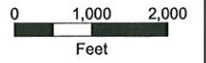
- Basin
- ▭ City Limits
- ▭ Completed Project Locations

2002 Aerial

Whitaker Bayou Completed Project Locations



Exhibit 4



THIS MAP IS NOT A SURVEY.
THIS MAP IS FOR GRAPHICAL
PURPOSES ONLY.
MAP DELINEATIONS
SUBJECT TO CHANGE.

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SARASOTA COUNTY GOVERNMENT
BOARD AGENDA REQUEST / CONTRACT APPROVAL REQUEST
STAFF REPORT

SUBJECT:	Whitaker Bayou Basin Master Plan
MEETING DATE:	December 7, 2004
PREPARED BY:	Charles Walter, P.G., Stormwater Manager

REPORT:

The majority of the Flood Plain Level of Service (FPLOS) deficiencies are located in Tri-Par Estates, the 17th Street area, and areas east of North Tuttle Avenue, flooded structures are spread throughout the basin. Due to the size of the Whitaker Bayou drainage basin, no one project can address all 154 FPLOS deficiencies. Therefore, seven different project configurations were identified and evaluated for both their cost and effectiveness in addressing the flooding problems in the drainage basin. Projects in each configuration typically either (1) increase the storage of upstream by holding back flows in regional storage pond, or (2) increase the downstream capacity of the existing conveyance network by enlarging pipes, bridges, ditches, etc.

The ratio of the project implementation cost and benefit (measured as the dollar value of avoided flood damages) were determined to evaluate the cost effectiveness of these project configurations. A cost to benefit ratio greater than 1 indicates that the cost of the project exceeds the benefit of the project. Therefore, a cost to benefit ratio of 1 or less is desirable. Project implementation costs were estimated by Boyle Engineering Corporation and included real property acquisitions, design and permitting, and construction costs. The cost/benefit ratio for each alternative also included a consideration for water quality. A water quality base model was developed for Whitaker Bayou to estimate the amount of stormwater pollutants entering Sarasota Bay. An additional dollar value was added if the alternative project configuration would necessitate pollutant mitigation. The results of the cost/benefit analysis show ratios ranging from 6 to 1 up to 28 to 1. For comparison, the table below lists all dollar amounts associated with each alternative.

Alternative	No. of structures removed from 100-yr/24-hr flooding	Construction Cost (Millions)	Benefits for 100-yr/24-hr design storm (Millions)	Cost/Benefit Ratio for 100-yr/24-hr storm
A	53	\$65.30	\$3.04	22:1
B	40	\$38.30	\$2.54	15:1
C	36	\$58.30	\$2.14	27:1
D	27	\$33.00	\$2.00	17:1
E	28	\$10.60	\$1.44	7:1
F	42	\$110.50	\$3.93	28:1
G	33	\$11.57	\$2.05	6:1

As indicated in the table above, none of the projects were determined by Boyle Engineering Corporation to be cost effective. Funding for the first four alternatives would come from a basin-wide assessment. The remaining three alternatives would be assessed only to affected areas of the basin. These assessments would be based on the number of Equivalent Stormwater Units (ESU's) for each affected parcel. The table below shows an approximate assessment for each alternative, spread over 20 years.

SARASOTA COUNTY GOVERNMENT
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REPORT (cont.):

Alternative	Assessment Per ESU/Year	Assessed Areas
A	\$500	All
B	\$300	All
C	\$500	All
D	\$270	All
E	\$180	Subbasins "A" and "Main"
F	\$1,800	Subbasins "A" and "Main"
G	\$400	Subbasin "D"

PUBLIC INPUT

A public meeting was held on September 23, 2004 to present the floodplain attenuation alternative project configurations to the public. In general, the residents in attendance were overwhelmingly not in favor of the alternatives due to a high cost to benefit ratio and associated assessments. Several attendees raised concerns relative to the approval of new development in the City of Sarasota. Unfortunately, no one from City staff was in attendance at the meeting to speak to these concerns.

Staff also has met with the board of directors for the Tri-Par Estates community since the September 23, 2004 public meeting. Tri-Par Estates has the largest cluster of FPLOS deficiencies in the Whitaker Bayou drainage basin with 40 homes. One potential solution discussed was to relocate the low-lying, flood prone structures to vacant lots owned by the community associations and located on the "high ground". The board felt that the residents located in the flood prone area would prefer to stay along the watercourse and flood periodically than to relocate. Elevating structures in place was also discussed as a possibility and staff offered to pursue such through the FEMA flood mitigation grant program with any residents that might be interested.

RECOMMENDATIONS

- Due to the high cost to benefit ratios for each alternative project configuration, staff does not recommend moving forward with any of the projects (or CIP assessments) evaluated by Boyle Engineering Corporation.
- Staff recommends engaging Boyle Engineering Corporation to evaluate the effectiveness in reducing existing FPLOS deficiencies by limiting the allowable release rate from new development in the unincorporated Sarasota County portion of the Whitaker Bayou drainage basin to 0.1 cfs/acre (or some other possible target rates). This is essentially the "critical capacity" strategy implemented by the BCC in the Phillippi Creek drainage basin. Only if this strategy would be effective in reducing existing FPLOS deficiencies would staff provide the BCC with a revision to the Critical Capacity Resolution to include certain portions of the Whitaker Bayou drainage basin.
- Continue to look for opportunities to address drainage problems and flooding in the Whitaker Bayou drainage basin through involvement in existing and future community plans.
- Encourage the City of Sarasota to use the 100-year design storm criteria to evaluate all new development in the City portion of the Whitaker Bayou basin so that no future reduction of Level of Service for the 100-year/24 hour storm that could be experienced.