

MEMORANDUM

TO: Tom Harmer, Town Manager
FROM: Isaac Brownman, Public Works Director
DATE: April 26, 2019
SUBJECT: Canal Dredging Project Update

Recommended Action

None, informational only.

Background

At the October 17, 2016, Regular Workshop Meeting the Town Commission held discussions regarding a canal dredging maintenance project. Dr. Cliff Truitt, P.E., and Ms. Jenna Phillips of Taylor Engineering presented the results of the Canal Dredging Feasibility Study. Discussions centered on future optimal/desired navigation depth of canals that would trigger different types of permitting requirements from State and Federal regulatory agencies.

Taylor Engineering also presented at the April 17, 2017, Regular Workshop Meeting to provide an update regarding completed work and to provide recommendations of budget planning level construction estimates and proposed sediment management handling areas.

Based on the resulting studies, the Taylor recommendation, and Town direction, was to use a depth of 3-feet below Mean Lower Low Water (“MLLW”) level as a minimum navigable threshold. As such, Taylor Engineering developed “hot spot” dredge areas and adjacent areas to establish the program of sixteen (16) canals. During the current review process fourteen (14) canals are now being considered for dredging as part of the current effort.

In addition, the Greer Island Beneficial Use project was added as part of the overall program with the goal of removing sand material that has migrated around Greer Island up to and past the Longboat Pass bridge and is contributing to the potential closure of Canal 1A. The goal of this project scope is to remove the migrated sand and place back on the beach face on the gulf side.

Current Status of Project Permitting

Prior to formal submittal of the USACE and FDEP permits for the canal dredging project, the USACE requires that the Seagrass Mitigation Plan be included in the submittal. Sub-consultant Sheda Ecological Associates has conducted a recent seagrass survey to assist in prioritizing a final mitigation plan for submittal.

Based on the results of the canal sea grass surveys, it has also been determined that significant sea grass impacts will occur with the project, which will be required to be mitigated at a 2:1 ratio. The sea grass survey to analyze the proposed mitigation area

was delayed in 2018 due to Red Tide, storms and government shut downs. In addition, the nature of this project is such that progression of engineering and environmental design/permitting for project has been incremental as information becomes available. In addition to the seagrass survey, other elements of the mitigation plan must include identification of the sand fill source, geotechnical data analysis of soils at the mitigation site compared to the canal dredging locations, and preliminary design and volume calculations for the proposed mitigation site.

Below is a summary of permits required from both State and Federal agencies, in order of priority:

- USACE canal dredging permit (requires mitigation plan completion)
- FDEP Individual Permit for Mitigation Site
- FDEP Canal Maintenance Exemption submittal (requires letters of consent from Golf course and FDOT as proposed Dredge Material Management Areas)

The timing for receipt of these permits is unknown, and it is likely that the permits are not received concurrently. For this reason, it is difficult to estimate the timing for start of construction – which may not occur concurrently. Therefore, in an effort to be conservative (for budget planning), we assumed that this work may require separate bid and construction stages.

Current Status of Budget

At the April 17, 2017, Town Commission meeting, Taylor Engineering provided conceptual project cost estimates ranging from \$1.25 Million to \$2.35 Million. The conceptual costs did not include construction administration nor a full picture of the overall mitigation, permitting and construction requirements.

Based on the initial cost estimates, the Town decided to budget General Fund dollars to fund the project, as opposed to establishing special district(s). The Town budgeted CIP funds in major line items for canals and beaches (Greer Island Beneficial Use) related to this project includes about \$1,684,570 plus some incidental line items and carryover amounts.

As more information becomes available, it is becoming clearer that the level of funding to accomplish the total project is more than originally planned and/or budgeted. For example, based on current and proposed work scopes to accomplish all engineering design, permitting, bidding and construction administration for the project is approximately \$709,060. Construction costs are unknown at this point, however, Taylor Engineering recommended additions to the five (5) year CIP in order to accomplish the total project. Those additions roughly totaled \$2 million and far exceed the Town's capacity to fund under our current General Fund budget source.

Since the project is experiencing budget constraints, options being reviewed by Public Works include:

- Reduce project scope to start with a smaller project within budget. The scope, magnitude, and method of mitigation is still of concern.
- Perform a third-party peer review to review the work performed to date and provide recommendations. The cost would further reduce capacity of construction funding.
- Explore the possibility of pursuing a design-build contract to complete a design, permitting and mitigation scenario for a sub-set of the canal project at a Not-to-Exceed amount.
- For the remainder of the project (and future canal dredge programs), develop a funding methodology to include special assessments / districts rather than dependency on the General Fund, or note the extent of a millage increase to accomplish this project with the General Fund.

It is important to note that additional funding of about \$300,000 from the West Coast Inland Navigation District (“WCIND”) is pending and can contribute towards the project. The request requires Sarasota County Commission and WCIND Board approval of selected canals being declared public access and use.

Additional Residential Canals

A number of residents have approached Public Works about the following scenarios: 1) adding adjacent canals to the Town project, as their canals were outside of the established threshold, 2) extending the limits of dredging in current canals to within private or residential docks at owner cost, and 3) adding other canals and utilizing the Town contractor at owner cost. In addition to the budget constraints involved for any additions to the Town project, additional work would be required for all scenarios in the form of:

- Verification that the canals fit the exemption definition for FDEP
- Additional natural resource surveys
- Dredging design and volume calculations
- Modification to mitigation plan (if required), design and FDEP Mitigation permit
- Extends timeline for permitting and construction

Next Steps

Permitting of the project is still actively moving forward. Public Works will continue to develop options of revising the project scope into a smaller project within budget, consider alternative delivery methods for construction, and possibly pursue a third-party peer review in order to gain any additional insights and/or recommendations. Public Works will provide a follow-up update before the summer recess.

Attachments

PowerPoint Presentation



Canal Dredging Update

Town Commission Regular Meeting

May 6, 2019



Canal Dredging Project Update

- Project History & General Criteria
- Conceptual Design & Permitting
- Budget and Costs
- Options and Future of Program



Project History

- Prior work efforts:
 - Developed GIS database
 - Collected preliminary field data
 - Estimated canal shoal volumes



Identify from: < Top-most layer >

Location: 530,546.521 381,464.087 Meter

Field	Value
CanalFront	1
Shape	Polygon
HasDock	Substantial Dock
PARCELID	7835100004
NOBUILDG	1
TWN	35S
RNG	16E
SEC	23
STATEPARID	C51-000-538-4799-2
ACRES	.78
OBJECTID_1	1665
OBJECTID	2589
SELECTPRN	7835100004
OWNER	MASTENBROEK,HENDRIKUS
SECONDARY	MASTENBROEK,DEBORAH ANN
PRIMARY_AD	6516 BAYOU HAMMOCK RD
PROP_HH	6516
PROP_JH	BAYOU HAMMOCK
PROP_DSR	
PROP_CITYN	LONGBOAT KEY
PROP_ZIP	34228
COMMISSION	John Chappie
SUBORDM	0000000
SUBDIVES0	NOT IN SUBDIVISION Q/D
SUBDIVES_1	N/A,N/A
LUC	0100
LUC_DESCR1	Single Family Residential (1554
FUTURE_LAN	CITY
SECTION_LIN	522,23 735 R 16
HELY_NAME	NONE
OVERLAYS	NONE
WATERSHED	NONE
HISTORIC	URBAN-A
FIRE_DISTR	Longboat Key
EVACUATION	A-NONE
IMPACT_PRR	A-SIV
SPECIAL_AR	CRA,NONE
SCHOOL_SVC	SSA-4

CanalFront	Shape*	HasDock	PARCELID	NOBUILDG	TWN	RNG	SEC	STATEPARID	ACRES	OBJECTID_1*	OBJECTID	SELECTPRN	OWNER
1	Polygon	Substantial Dock	7835100004	1	35S	16E	23	C51-000-538-4799-2	.78	1665	2589	7835100004	MASTENBROEK,HENDRIKUS



Project History – Initial Canal Inventory

- Evaluated 91 canals/waterways, totaling ~147,000 ft. (almost 28 miles)
- Found 18 canals with some degree of “hot spot” shoaling, using our preliminary criterion: < 2 ft. depth (Mean Lower Low Water [MLLW], Red)
- Our assessment indicates these hot spots result in ‘restricted access’ during MLLW along length of about 12,500 ft. (~2.4 miles) or 9% of total
- Deeper draft boats would be a concern for areas in Yellow (representing 49 canals), these added to Red would be about 33% of entire length

Conceptual Design – General Criteria

Regulatory Exemptions, Permits...

- 40D-4.051 Exemptions from Permitting
 - The performance of maintenance dredging of existing manmade canals, channels, basins, berths [...] to a depth of no more than 5 feet below mean low water.





Navigable Depth of Marine Vessel Trafficsheds

Resources including:

Regional Waterway Management System Reports, Robert Swett and Gustavo Antonini for Manatee County (2002) and Sarasota County (1998)
Sarasota County Manatee Protection Plan (2011)

<u>Navigable Depth Ranges for Typ. Vessel Drafts (ft) Depths</u>	<u>Binned Bathy</u>
1.5 - 2.4	0 – 2 ft.
2.5 – 3.4	2 – 3.9 ft.
3.5 - >4	>4 ft.

Based on vessels surveyed with each county, nearly 78% of all vessels within County trafficshed have an average draft ranging between 1.5 to 3 feet



Conceptual Design – General Criteria Cont.

- Previously summarized data showed average vessel drafts within County boating-sheds range between 2 and 3 ft.
- Town direction (October 2016): **use a depth of 3 ft. below MLLW as a minimum ‘threshold’**; result in adequate navigable depth for most vessels at all stages of the tide.
- Town guidance allowed us to refine prior analysis and focus on a priority program for these ‘hot spot’ canals; adjoining ‘yellow’ shoaled areas are included in the expanded analysis as areas of ‘restricted access’.



2016 Feasibility Study Results

“Hot Spot” Shoaling:

- Red (Depths from 0 to 2 ft MLLW)

“Potentially Restricted” Shoaling:

- Yellow (Depths from 2 to 4 ft MLLW)



Conceptual Design – Estimating Restricted Limits

The ‘red canal’ priority program identifies locations where:

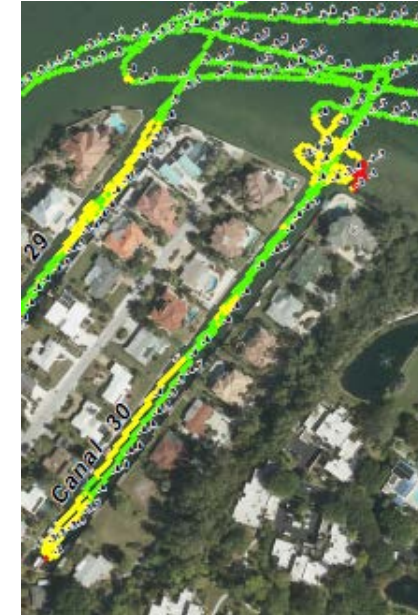
- Threshold conditions exist to the extent that dredging is proposed
- Volume calculations assume that all dredge cut depths will be consistent with the full permitted or exempt depths for each canal

The ‘yellow canals’ included in the program are in locations where:

- The yellow areas are **contiguous with red** areas
- The existing depths are less than -3 ft.-MLLW or rationale such as connecting two similar but not contiguous areas where depths might be deeper than -3 ft.

Based on the criteria developed, number of canals was reduced from 49 to 16

Images





Past Work/Current Status

Canal Dredging project required two authorizations – State & Federal

FDEP Canal Dredging Maintenance Exemption

- Requires Steps:
 - Conceptual Design
 - Pre-application Meeting
 - Verify man-made canals to meet exemption requirements
 - Submit 'consent of use' letters (Town) for upland DMMA use
 - Addendum SOW to revise design
 - Submit FDEP application

USACE Permit

- Require Steps:
 - Pre-application Meeting
 - Environmental Resource Survey
 - Seagrass Mitigation Plan & FDEP Permit



Permitting Organizational Chart

State

1. FDEP Canal Dredging Exemption
2. No Mitigation Required

Federal

1. Seagrass Mitigation Required
2. Mitigation Plan
3. Mitigation Site Design
4. Additional FDEP & USACE Permit
 - A. Fill Source
 - i. Greer Island JCP
 - B. Mitigation Required
 - C. Construction Means and Methods



State and Federal Authorizations Cont.

Important factors

- Upon completion of sea grass surveys for priority canals and meeting with USACE, it has been determined that a significant volume of seagrass exists and will have to be mitigated at a 2:1 ratio
- Related seagrass survey and pre-application permitting coordination for proposed mitigation site were delayed in 2018 due to Red Tide, storms and government shutdowns.
- Scope of Work (“SOW”) Progression of engineering and environmental design/permitting for project has been incremental as information becomes available.



Budget Pressure

April 17, 2017

Town-wide Dredging Project Costs

Estimated Dredge Volume	20,000 CY	
Estimated Construction Cost	\$600,000 to \$1 Mil	
<u>Design & Engineering Fees*</u>	<u>\$150,000 to \$200,000</u>	
	\$750,000	\$1,200,000

** Includes Permitting*

- Engineering fees may vary depending on the regulatory permit and mitigation requirements
- Includes canal 1a (1,900 CY)

Canal 1a/Greer Island Beneficial Use (Stand alone)

Estimated Dredge Volume	5,000 to 25,000 CY	
Estimated Construction Cost	\$400,000 to \$1 Mil	
Mitigation Costs	TBD	
<u>Design & Engineering Fees*</u>	<u>\$75,000 to \$150,000</u>	
	\$475,000	\$1,150,000

** Includes Permitting*

- Order of magnitude costs
- Engineering assessment not complete
- Engineering fees may vary depending on the regulatory permit and mitigation requirements. Mitigation requirements unknown at this point



Original Town Budgeted Amounts

Major Budget Line Items General Fund (Limited)

Canal Dredging Program:	\$745,800
Greer Island Beneficial Use:	\$750,000 (if applied to beach)
<u>Monitoring and Mitigation:</u>	<u>\$184,570</u>
	\$1,684,570 + incidental carryover lines
Remaining available funds:	<u>\$1,536,530</u>



Current Available Information

Encumbered and in-progress:

Dredging Design, Permit, Construction Admin:	\$249,950
Sea Grass Field Investigation and Planning:	\$57,158

Proposed:

Sea Grass Mitigation Design, Permitting, Construction Admin:	\$231,390
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Greer Island Beneficial Use Design, Permit and Construction Admin:	<u>\$170,562</u>
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\$709,060

Recommended CIP Budget Additions: \$2.0 Mil (R.O.M.)

Appears project was budgeted based on lower side of estimates



West Coast Inland Navigation District

Potential WCIND Funding towards the project:

Approximately \$300,000

Pending Sarasota County Commission and WCIND Board approvals for public declaration of certain canals within Sarasota County.



Options Under Review

- **Reduce Project Scope**
Create an Initial Project within available Budget
Challenge is scope and magnitude of mitigation
- **Perform a Third-Party Peer Review**
Review work performed to date and provide recommendations
- **Explore a possible Design-Build Contractor**
In order to provide a project based on a Not-to-Exceed price
Contractor hire consultant to complete design and permitting
a project canal sub-set and mitigation approach that fits budget



Continuation of Overall Program

Develop funding options to bring to Town Commission for consideration

(ex., special assessment canal dredging program – was part of original feasibility study task, but GF became the preferred funding option)

General fund cannot sustain current or future dredge projects without a millage increase.



Estimated Regulatory Schedule Cont.

Greer Island Joint Coastal Permit

- Additional Scope of Work
- Data Collection
- Refine Concept Design to reflect ~2004 shoreline alignment
- Follow up Pre-application Meeting with FDEP and USACE
- Preliminary Design
- Prepare Permit application
- Permit Process timeline uncertain



State and Federal Authorizations Cont.

Mitigation Site FDEP Individual Permit and USACE:

- Addendum SOW for Seagrass Mitigation Site Design, Permitting & Construction.
- Addendum SOW for Greer Island Beneficial Use Design, Permitting & Construction.
- Identify viable mitigation fill source
- Additional Data Collection – per agency requirements
- Mitigation Site Design
- FDEP Individual Permit for Mitigation Site
- Specification and Modification to Canal Dredging Bid Package



Impact of Adding New Canals

State and Federal Authorizations/Permits

1. Canal Residents Pursue Separate Permit/Projects

- Not same as incidental dock maintenance under waiver dredging performed under 2002 project
- Develop data necessary for permit application submittal – hire engineer (see above)

2. Piggyback on Town exemption/permit

- Verify canals fit the exemption
- Additional natural resource surveys
- Dredging design and volume calculations
- Town modifies mitigation plan, design and FDEP Mitigation permit
- Extends timeline for permitting and construction



Additional Residential Canals:

Revisit after developing a revised project approach for this project after consideration of options

End of Agenda Item