Item No. 19c

AGENDA ITEM MEMORADUM

Town Manager's Office
Department

Connie Hoffmann
Department Director

COMMISSION MEETING DATE (*) - 7:00 PM	Deadline to Town Clerk
☐ Jan 10, 2012	Dec 30th
☐ Jan 17, 2012 SPECIAL COMMISSION MEETING	Jan 6
☐ Jan 24, 2012	Jan 13
☒ Feb14, 2012	Feb 3
☐ Feb 28, 2012	Feb 17

*Subject to Change

☐ Presentation ☐ Reports ☐ Consent ☐ Ordinance
☐ Resolution ☐ Quasi-Judicial ☒ Old Business ☐ New Business

☐ **FY2011 DESIGNATED HIGH PRIORITY ITEM - PRIORITY TOPIC**

SUBJECT TITLE: SET DATE FOR PUBLIC MEETING ON PROPOSED BEACH NOURISHMENT PROJECT

EXPLANATION: In December, Eric Myers of the Broward County's Natural Resources Planning & Management Division made an informative presentation to the Town Commission on the County's plans to undertake a beach nourishment project that would affect LBTS at two different locations. At the time, the County had not yet made a determination of whether they would propose to truck sand to the sites or pump it in from off shore. The Commission decided that, once the County staff had made a recommendation on that issue, the Town would hold a community workshop to get feedback from Town residents and businesses on whether they wished to see this project go forward in LBTS. Mr. Myers recently sent a letter and summary report (attached as an exhibit to this agenda item) advising the County staff is recommending that the sand be trucked to the beaches from upstate sand mines..

This decision means there is a strong possibility of heavy truck traffic in our Town during high tourist season, depending on the beach access points the County choses to dump off the sand being trucked in for the project. The County specifically mentions the possibility of using Palm Avenue as an access point in their report. It also means disruption of the beach during high tourist season as trucks and bulldozers would move and spread the sand on the beach from the drop points. And, of course, there is the important concern of the impact of this project on our reefs.

The County is estimating the cost of the project to be $38 million. As you know from Mr. Meyer's earlier presentation, the Town would be expected to contribute financially to the project but the amount of our contribution is unknown at this time, due to uncertainty about state and federal funding for the project.

The County has requested the Town's feedback on the proposed project within the next few weeks, so the Commission needs to set a date for the public meeting on this topic. It is recommended that be set up as a special meeting so that the Commission can make a decision on the feedback it wishes to send the County on the proposed project.

RECOMMENDATION: Select a date for a special meeting on the topic of the County's proposed beach nourishment project.

EXHIBITS: Letter from Eric Myers dated February 3, 2012 to the Mayor and the Project Overview & Recommendation Summary

Reviewed by Town Attorney
☐ Yes ☒ No

Town Manager Initials _____

BROWARD COUNTY
FLORIDA

ENVIRONMENTAL PROTECTION and GROWTH MANAGEMENT DEPARTMENT
Natural Resources Planning & Management Division
Mailing Address: 115 South Andrews Avenue, Room 329H, Ft. Lauderdale, FL 33301
954-519-1270 • FAX 954-519-1496

02-08-12P01:08 RCVD

February 3, 2012

Roseann Minnet, Mayor
Town of Lauderdale-By-The-Sea
4501 Ocean Drive
Lauderdale-By-The-Sea, FL 33308

Dear Mayor Minnet:

Re: Broward County Segment II Beach Nourishment Project

As you are probably aware, Broward County is preparing to advance to the final design and permitting of a beach nourishment project for portions of Segment II (Hillsboro Inlet to Port Everglades Inlet). Two fill areas are proposed for nourishment including 1) portions of Pompano Beach and northern Lauderdale-by-the-Sea and 2) southern Lauderdale-by-the-Sea and Ft. Lauderdale. As part of the project scoping process we considered two sources of beach fill, offshore sand which we used for all of our previous projects and upland sand from mines to the north.

As you would expect, there are significant differences between construction techniques, the sand characteristics, and the costs associated with the different sand sources. In addition there are differences in how the materials will interact with or impact the beach environment and thus permitting implications. We have prepared the attached document to describe the project in greater detail as well as the alternative sand sources, construction and environmental consequences. You will note that we are recommending the use of an upland source of fill based on environmental and regulatory considerations.

It is our desire to formally advance a project recommendation to our Board for final direction pending receipt of any comments from each of the partner municipalities. We are eager to receive your feedback and to respond to any questions or concerns you may have in a timely manner. We will be in contact in the next few days to determine if your community would like to have additional dialogue which we would like to accomplish in the next several weeks. If you have any immediate questions or concerns I can be reached at (954) 519-1231 or emyers@broward.org

Sincerely,

Eric Myers
Natural Resources Administrator

Broward County Board of County Commissioners
Sue Gunzburger • Dale V.C. Holness • Kristin Jacobs • Chip LaMarca • Ilene Lieberman • Stacy Ritter • John E. Rodstrom, Jr. • Barbara Sharief • Lois Wexler
www.broward.org

Enclosure

Cc: Ms. Connie Hoffman, Town Manager (with enclosure) ✓
Mr. Ralph (Bud) Bently, Assistant Town Manager (with enclosure)
Dr. Jennifer Jurado, Director, NRPMD
Mr. Norm Beumel, Coastal Planning and Engineering, Inc.
Mr. Chris Creed, Olsen Associates, Inc

BROWARD COUNTY FEDERAL SHORE PROTECTION PROJECT - SEGMENT II
PROJECT OVERVIEW and RECOMMENDATION

This document presents information related to the planning, design, and implementation of the Broward County Shore Protection Project - Segment II nourishment. It is intended to provide information regarding project elements to facilitate a general understanding of the project scope, design, sand source, cost and schedule issues.

Staff Recommendation: Advance a Joint Coastal Permit (JCP) application for a project that proposes to place 750,000 cubic yards of beach compatible sand from an upland sand source as beach fill along portions of the Segment II shoreline between R-36 and R-73. The recommendation is based upon shoreline condition and change analyses, sand source investigations, environmental considerations and expected regulatory constraints. Based upon currently available physical and cost information, the probable cost of construction for sand placement and nearshore hardbottom mitigation is roughly $33 million. It is expected that project related indirect costs for planning, design, permitting, construction management and environmental monitoring will be about $12.5 million for a total project cost of $45.5 million.

Project Purpose: The Segment II shoreline is located between Hillsboro Inlet to the north and Port Everglades Inlet to the south. The purpose of the Segment II nourishment project is to reconstruct areas of the eroded beach and increase storm protection to upland development along portions of the Broward County Segment II shoreline.

Beach Fill Plan: The project will place sand fill along two discrete reaches of the Segment II shoreline (Figure 1). This will include renourishment of a portion of the previously constructed Pompano Beach/Lauderdale-By-The-Sea (LBTS) project and initial restoration of the beach berm along a portion of the LBTS/Fort Lauderdale shoreline. It is anticipated that the project will require the placement of approximately 750,000 cubic yards of sand along 5.2 miles of shoreline.

Segment II Beach Nourishment History: The Segment II shoreline in its entirety is part of the Federally authorized Broward County Shore Protection Project. The project's

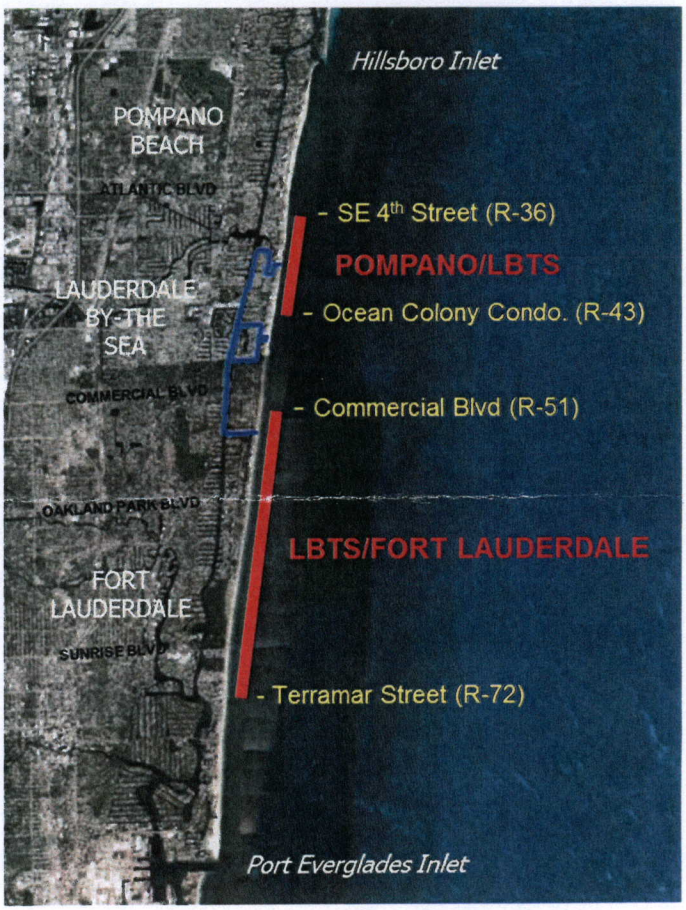

Figure 1: The location and extent of the planned Segment II beach restoration and renourishment project.

Federal authorization (Section 103 of Public Law 89-298, October 27, 1965) provides for initial restoration and periodic maintenance of portions of the Broward County Segment II shoreline. Initial restoration of a portion of the Broward County shoreline was completed in 1970 and included approximately 3.2 miles of shoreline between Northeast 5th Court in Pompano Beach (FDEP R-Monument R-32) south to Washington Avenue in LBTS (R-49). The project extended the 1970 mean high water line (MHW) seaward by 134 feet. The total volume of material placed on the beach at that time was 1.5 million cubic yards.

The first Segment II renourishment occurred in 1983. An estimated 1.9 million cubic yards of sand were placed along 5.5 miles of the shoreline between Hillsboro Inlet (R-26) and LBTS (R-53). This project included renourishment of the 1970 project shoreline and initial restoration of 2.3 miles shoreline. Due to the beneficial effects of the Hillsboro Inlet sand bypass operation which adds approximately 110,000 cubic yards of sand to the Segment II shoreline annually (more than 3 million cubic yards since 1983), the Segment II shoreline has not required renourishment since the 1983 project. A graphical summary of these historical projects is presented in Figure 2.

nourishment projects in Segment II.

In 2004, a second renourishment was planned for a portion of the previously constructed areas of Segment II shoreline and a portion of the Fort Lauderdale shoreline. That project, which was not constructed due to resource protection concerns, called for the placement of approximately 930,000 cubic yards of sand dredged from offshore borrow areas along two reaches of the Segment II shoreline. These included a reach in Pompano Beach/LBTS (R-36 to R-41) and northern and central Fort Lauderdale (R-51 to R-72).

Project Design: The presently proposed Segment II project is intended to place about 750,000 cubic yards of sand along the same two reaches of shoreline described by the 2004 project noted above. It is anticipated that the project will include construction of 1) a beach berm and 2) a back beach dune where shorefront development is most vulnerable to erosion and coastal storm effects. The section of Segment II shoreline that would benefit most from the construction of a dune includes Galt Ocean Mile (R-53 to R-59), the single family community in northern Fort Lauderdale (R-59 to R-64), and the area seaward of the Hugh Taylor Birch State Park finger streets (R-64 to R-67).

As is common to most beach nourishment projects, the sand fill will be initially constructed in a wide sand berm on the upper, most eroded portion of the beach profile. Subsequently, the fill material will gradually "equilibrate" -- thus narrowing from the constructed width -- to a shape more consistent with the natural beach. This "equilibrated" shape is the intended "design" condition (Figure 3).

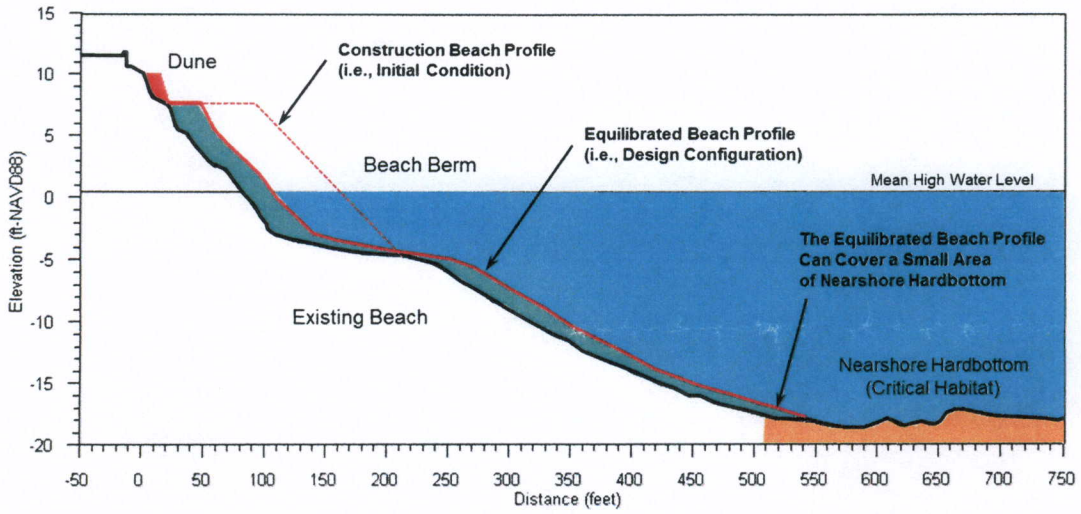

Figure 3: Typical planned Segment II beach fill cross-section.

Potential Nearshore Hardbottom Impacts: The volume and quality of sand that is used as beach fill often contributes to how a project may affect nearshore hard-bottom resources following fill equilibration. Thus, the placement of sand along the Broward County shoreline can possibly result in the direct coverage and concomitant degradation of nearshore hardbottom areas immediately adjacent to the beach system. Along the Segment II shoreline, highly sensitive nearshore hardbottom areas are located relatively close to the waterline. In some areas, the hardbottom is just 300 feet from the waterline (Figure 4). Environmental concerns and regulatory constraints will necessitate a significantly narrower residual beach width than has been constructed in other areas of Broward County.

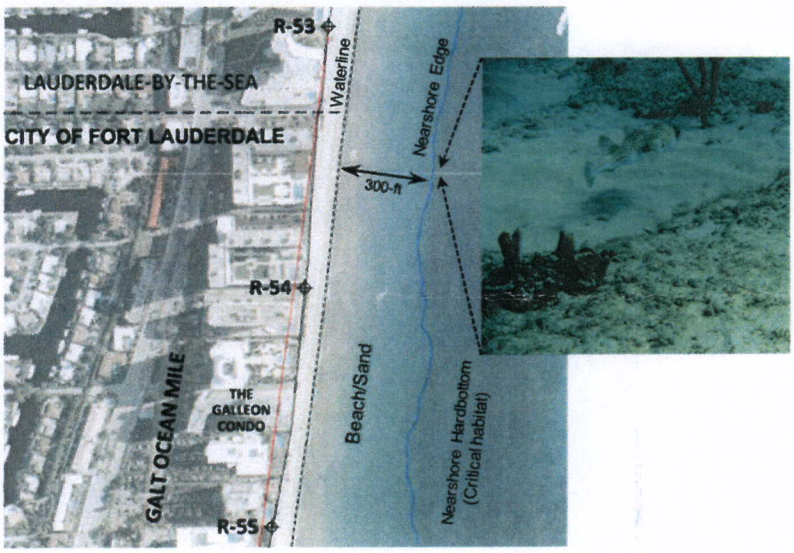

Figure 4: Typical nearshore hardbottom conditions along the Segment II shoreline.

Sand Source Considerations: Remaining sand resources in Broward County are located offshore of the northern area of the County, north of Hillsboro Inlet and off Deerfield Beach and Hillsboro Beach. It is estimated that between 1.0 and 1.5 million cubic yards of beach compatible sand may be available offshore of Broward County for future use as beach fill material.

Sand sources located offshore Broward County generally consist of between 50% and 80% calcium carbonate material, are slightly finer than the native beach sediments, and have between 1% and 3% fines, by weight. The sands are generally dark gray in color when first placed of the beach, but change to a light gray within a few days (Figure 5).

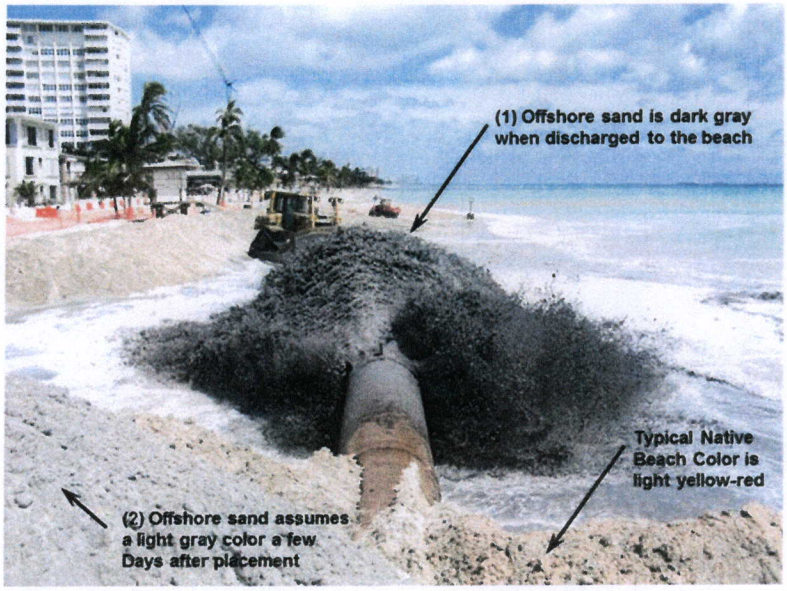

Figure 5: Typical sediment color conditions associated with sand sources offshore of Broward County.

The construction of a beach fill project using an offshore borrow area requires a dredge operating between offshore reefs; the deployment of pipelines from an offshore offloading area, across reefs, and to the beach; and hydraulic sand placement (Figure 6).

Figure 6: Typical construction operations associated with an offshore dredging for beach fill.

There are no known upland beach compatible sand sources within Broward County. The nearest upland sources suitable for beach placement in Broward County are located north and northwest of the county about 125 miles from Fort Lauderdale. These sources are located in commercial mines that have sufficient quantities of material to supply the Segment II beach nourishment project.

Sand products from these upland sand mines are almost exclusively silica sand, typically have larger average grain sizes and a smaller fines fraction than material found in the offshore borrow areas, and are generally light yellow in color (Figure 7). These sources are expected to be more stable, produce less turbidity in the nearshore environment after placement on the beach, and be more similar in color to Broward County native beach sediments than those available in the offshore borrow areas.

Figure 7: *Typical sediment color conditions associated with south Florida upland sand sources.*

The construction method for a beach fill project using an upland source is significantly different from that using an offshore source. For an upland sourced project, the sand is delivered to the beach by truck, stockpiled, transferred to off-road equipment, and placed mechanically on the beach (Figure 8). As a result, oceanfront interests (where the sand is placed) as well as the local community and regional roadways are temporarily affected by the hauling and placement of material during the construction process. Upland sourced projects require several dedicated access and staging areas for the delivery, handling and transfer of sand material. Such areas must be of sufficient size to handle the truck sand deliveries and temporary material stockpiling. For the Segment II project, it is anticipated that one access point will be required for the Pompano Beach/LBTS reach and three or four sites for the Fort Lauderdale reach. For the latter, it would be optimal if access points were located north and south of Galt Ocean Mile -- possibly Palm Avenue in LBTS and the vicinity of Oakland Park Blvd. in Fort Lauderdale, respectively -- and one located in the vicinity of NE 18th Street and A1A in Fort Lauderdale.

Figure 8: *Typical construction operations associated with an upland truck-haul beach fill project.*

Regulatory Issues: There will be a high level of both regulatory and public scrutiny associated with the currently proposed Segment II project. The principal concerns will be related to the potential for beach fill related impacts to nearshore hardbottom areas. As such, questions about the project will include but may not be limited to 1) the project's purpose, 2) the amount of sand fill required, 3) the sand placement areas and 4) the type of sand that will be placed. Concerns associated with the use of offshore sand involve dredging between offshore reefs, impacts to reef due to the deployment of the dredge pipeline and the potential for high turbidity levels at the borrow areas and at the beach. The use of upland sand sources would eliminate these physical impacts and would provide materials that may reduce significantly the potential for adverse turbidity-related effects. A concern with upland sources would be the source, variability of materials at the source, and required QA/QC protocols during the construction period. It is anticipated that the use of sand from suitable upland sources for the Segment II project will be viewed more favorably by the regulatory agencies and public environmental protection interests than will sand dredged from offshore.

Cost: The source of material that is used to construct the proposed project will affect project cost. In general, using sand from offshore is less expensive than sand from upland sources. Table 1 summarizes probable project costs for the Segment II project using offshore and upland sand sources. It is possible that the use of upland sand sources for the Segment II project could increase the overall project cost by 20 percent. The principal reasons upland sand is more costly are 1) the cost of the sand, 2) the distance between the sources and the fill site, 3) the method of delivery, and 4) the requirement for double handling.

Table 1: Probable Segment II Project Costs for Offshore and Upland Sand Sources. Cost in Millions of Dollars.

Cost Item	Offshore Source	Upland Source
Construction Equip. Mob/Demob	$ 3.0	$ 0.3
Sand Fill	$ 11.1	$ 26.3
Mitigation	$ 8.7	$ 6.5
Subtotal - Construction Contract	***$ 22.8***	***$ 33.1***
Planning/Engr/Permitting/Design/Const.	$ 7.9	$ 7.9
Environmental Monitoring	$ 6.3	$ 3.3
Subtotal - Implementation	***$ 15.5***	***$ 12.5***
Contingency	$ 1.3	$ 1.3
Total	**$ 38.3**	**$ 45.6**

Assumptions:
1) 750,000 cy of "Sand Fill"; 2) Offshore "Sand Fill" Unit Cost = $15/cy ; 3) Upland "Sand Fill" Unit Cost = $35/cy

Schedule: The current project schedule anticipates that construction could begin in the fall of 2013. Regulatory review and/or possible Administrative Challenges to project permits could delay the schedule. The sand source selected affects the time required to complete the project. The use of an upland sand source may require up to three seasons for placement of the entire 750,000 cubic yards along the Segment II shoreline with sand placement activities to occur along reaches of the Segment II shoreline during the 2013-2014, 2014-2015, and 2015-2016 winter seasons. If an offshore sand source were used, the 750,000 cubic yards of sand could be placed within 2 to 4 months, depending upon the type of dredge plant that is mobilized to the project, with the entire project constructed during the 2013-2014 winter season.