

OCEAN CITY DREDGING PROGRAM UPDATE

Mayor Jay Gillian and City Council

Ocean City Senior Center
August 25, 2015 7:00 PM

ACT
ENGINEERS



 ANCHOR
OEA 

ACT / ANCHOR TEAM

Carol Beske, Project Principal

- 12+ year history with Ocean City projects
- 32 years Public Involvement experience

Eric Rosina, Project Manager

- 20+ years environmental impact project experience
- 15 years New Jersey permitting experience

Ram Mohan, PE, PhD, Dredging Engineer

- 27+ years worldwide dredging experience
- Chairman, World Organization of Dredging Associations

Robert Korkuch, PE

- 28+ years public infrastructure, municipal engineering, land planning experience

Michael J. McGuire, PLS

- 32+ years surveying experience

Travis Merritts, PE

- 10+ years nationwide dredge project design experience

Junetta Dix

- 25+ years environmental permitting experience
- 10+ years permitting for Ocean City



DREDGING PROGRAM SUPPORT

- ▶ 2015 Dredging Program Support
 - ▶ Snug Harbor Bathymetric Survey
 - ▶ CDF 83 Topographic Survey
 - ▶ CDF 83 Geotechnical Verification
 - ▶ 2015 Dredge Season Permit Extension (NJDEP Extension through December 2015)
 - ▶ Rebid 2015 Back Bay Dredging (Snug Harbor) (Contract 15-21 R-1)
 - ▶ Dredging Construction Oversight and Contract Administration
 - ▶ CDF 83 Haul Road Engineering



ACT was contracted to support the City's 2015 dredging program. Initially, the team conducted a review of historic information and permits as well as a field inspection of the bay areas – you may have seen us out in the water taking preliminary measurements. Based on this inspection it was determined that a limited dredging program could proceed for 2015. Snug Harbor presented a combination of factors which made it the appropriate for dredging this year – we will look at the factors for defining a dredge program as we go through this tonight. However as a result, since mid-July the team has been conducting and preparing the following activities:

Snug Harbor Bathymetric Survey – we will look at the details of this survey in a few minutes

CDF 83 Topographic Survey – determine current capacity availability

CDF 83 Geotechnical Verification – evaluate a possible change order for the current operations in the CDF

Permit Extension – First ever for NJDEP to issue an extension before dredges are in the water.

Haul Road Engineering – in preparation for next year's dredging program we need to develop dredge material storage capacity. This capacity will be developed, at least in part, by reusing material out of CDF 83.

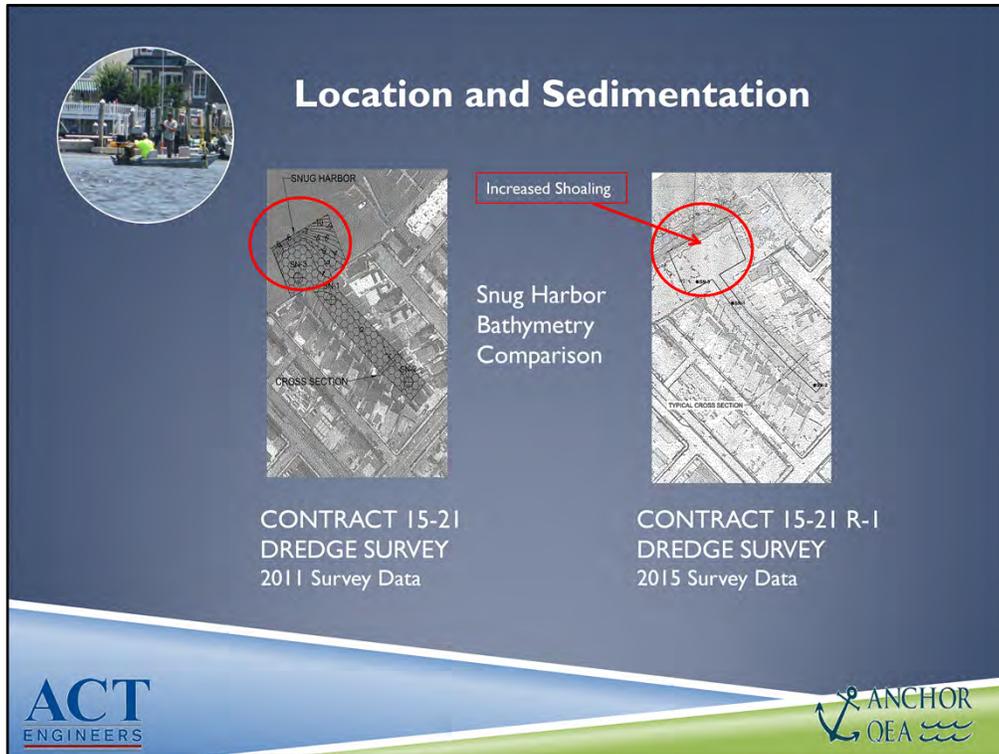
Process to determine the integrity of the Southern berm to support addition of dredge materials



Implementing an effective dredging program is a timely combination of factors including:

- Location and Sedimentation
- Sediment Type
- Material Disposal/ReUse options

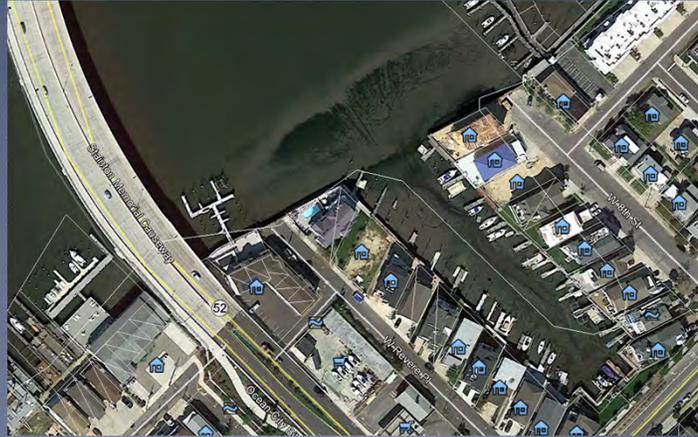
Since all of these factors are variables an effective program provides flexibility for dredge materials management. For the 2015 program, the material management solutions available allowed the City to reissue a dredging Request for Proposal focused on Snug Harbor.



The bathymetric survey quantified that there have been significant changes in the shoaling in Snug Harbor.

As illustrated in these images from the contract drawings, the area outside Snug Harbor which had sloped dramatically to the north is now completely shoaled to the intercoastal waterway. These differences ultimately result in contract volumes not matching actual dredge material volumes and cost overruns.

Location and Sedimentation



Source: "Snug Harbor, Ocean City" 39 16' 56.26"N and 74 12' 02.52"W. Google Earth. October 14, 2014. August 25, 2015.



Recent Google Earth imagery from last year, confirms this finding in Snug Harbor.

SEDIMENT VOLUME - SURVEY

- ▶ Land Survey
 - ▶ Haul road, CDF 83
 - ▶ Route 52 CDF
 - ▶ Possible Restoration Areas
- ▶ Bathymetric Survey (Bulkhead to Bulkhead)
 - ▶ Northpoint Lagoon
 - ▶ Glen Cove
 - ▶ Carnival Bayou
 - ▶ Venetian Bayou
 - ▶ Sunny Harbor
 - ▶ South Harbor – Marcus, Tonga, Midway, Salvador, Cayman, Verde and Pitcairn
 - ▶ Bluefish Lagoon
 - ▶ Clubhouse Lagoon
 - ▶ Waterview Blvd

PROPOSED MAINTENANCE DREDGING PROJECT PER CENAP-OP-R-2010-511-24 FOR OCEAN CITY, NJ LAGOON & BACK BAY AREAS

CANAL/LAGOON	EST. DREDGE VOLUME (CYDS)	EST. AREA (SF)
CLUBHOUSE & BLUEFISH	61,000	537,000
SOUTH HARBOR	43,400	238,500
SUNNY HARBOR	39,800	569,100
VENETIAN BAYOU	19,000	293,000
CARNIVAL BAYOU	44,200	519,800
GLEN COVE	7,600	36,700
SOUTH HARBOR	18,300	84,500
BAYFRONT	9,300	60,400
FAVORITE HARBOR	390	6,000
BAY VILLAS	106	5,400
BAYSIDE CENTER	600	10,300
BRITTANY DRIVE	9,900	11,900
NORTH POINT LAGOON	13,100	185,200

PROPOSED MAINTENANCE DREDGING PROJECT PER CENAP-OP-R-200400992-24 FOR OCEAN CITY, NJ LAGOON & BACK BAY AREAS

CANAL/LAGOON	EST. DREDGE VOLUME (CYDS)	EST. AREA (SF) ¹
NORWALTON SUNSET BAY	26,175	344,194
BAY CLUB	3,930	33,977
GREAT EGG VILLA	4,945	71,421
HARBOR HOUSE	6,131	333,275

1. Includes Estimated Private Slip Areas.

Volumes based on 2010-2012 Surveys



Both Land surveys and bathymetric surveys are necessary to determine where the material is and where it could go both short term and long term. Included in this is an evaluation of possible restoration areas which could provide additional shoreline protection in future storm events.

Bathymetric Survey of the areas included in the existing permit areas is necessary to evaluate and update the dredge material volumes

City has requested ACT to consider additional areas in maintenance permitting

FUTURE DREDGING PROGRAM SUPPORT

- ▶ 2016+ Dredge Program Support
 - ▶ CDF 83 Haul Road Permitting/Design
 - ▶ NJDEP
 - ▶ USACE
 - ▶ Cape May County
 - ▶ CDF Operations Construction Management
 - ▶ Bathymetric Surveys (Beginning September 8, 2015)
 - ▶ NJDEP Permit Extension
 - ▶ NFWF Grant Program Design (future/on-going)
 - ▶ Wetland Restoration
 - ▶ Sediment Sampling (future)
 - ▶ 2016 Program Design (future)






Once the survey data is available the Team will have the information necessary to design future dredging programs. However, we have been preparing in ways that we can even before that data becomes available. These preparations have included

Haul Road Permitting Support

CDF Operations Construction Management

Bathymetric Surveys

NJDEP Permit Extension – the current maintenance permit runs through the 2016 program but does not include the 2017 dredging season. Since we know that dredging activities will be on-going we have begun to discuss permit renewal options and conditions with the NJDEP.

National Fish and Wildlife Foundation Grant – The city has a grant for \$2.6M for coastal wetland restoration. The team is working with NFWF to direct those funds effectively and may be utilized for dredge materials placement – we will look at some of the ideas we are currently pursuing for that in a minute.

This data ultimately combines with appropriate sampling data (if currently not available) into what the 2016 dredge program will look like.

Sediment Type Determines Reuse



GEOTECHNICAL
SAND
SILT
CLAY

CHEMICAL
RESIDENTIAL
NON- RESIDENTIAL
ECOLOGIC






Based on sampling data, material reuse options can be identified. Both Geotechnical and Chemical or environmental sampling is required. This data allows the team to specify the appropriate dredging technique, protect workers and develop material placement recommendations. The image in the top left corner is of approximately 2.5 feet of silt accumulated in Ocean City’s lagoons. The main image here is the locations of samples previously collected as part of the current dredging permit.



Material Disposal/Reuse – Currently Available

- ▶ 542,000 CY Current Dredging permitted

- ▶ Route 52 CDF - 8,600 CY Available Capacity
 - ▶ Coordination with City and NJDOT regarding Equipment Access for Emptying of site

- ▶ CDF 83 – Currently at Capacity
 - ▶ 50,000 CY material to Wildwood
 - ▶ Additional sites being evaluated
 - ▶ Additional Material removal after construction of temporary haul road (future)
 - ▶ Geotechnical Evaluation for Berm Stability



PERMITTING FUTURE DREDGE MATERIAL MANAGEMENT

- ▶ CDF 83 Temporary Haul Road
- ▶ Develop Permit for 2017+ Dredging Program
- ▶ Acceptable Use Determination (AUDs)
 - ▶ Wildwood Landfill Cap
 - ▶ Turf Farm(s) Reuse
 - ▶ Fill at Redevelopment Sites
- ▶ Pursuing Wetland Restoration/Shoreline Restoration - Thin Layer application – NFWF Grant Funding (Dredge Program Support)



As we look to future dredge program development we will need to have a firm understanding of available on-going capacity at CDF 83. This includes emptying CDF 83 via the temporary haul road and understanding the expectation(s) if any that the USACE has to utilize this capacity. We also need to continually evaluate possible reuse locations. Each location requires an AUD from the NJDEP prior to acceptance of dredge materials. The ACT/Anchor Team continues to work with the NJDEP to define and approve these locations. As you can imagine the closer the reuse sites, the less expensive the transportation costs. To that end we are looking at some reuse options within Ocean City through Thin Layer applications to reuse some of these materials through the NFWF Grant funding.

Ram Mohan will talk a bit about what Thin Layer Application looks like and why we believe it may be appropriate for Ocean City to consider in the near term.



Material Placement – Beneficial Reuse – Wetland Restoration

- ▶ Thin Layer Placement (TLP)
 - ▶ Placement of a thin layer (usually 6 to 12 inches) of dredged material
 - ▶ Typically used in coastal wetland and marsh areas
 - ▶ Several placement methods available, including:
 - ▶ Hydraulic spraying, mechanical bucket placement, hydraulic piping
 - ▶ Site-specific characteristics should be considered when selecting TLP method
 - ▶ Wetland and marsh environments often have limitations (shallow water depth, fragile habitats, limited access, etc.)



Material Placement – Beneficial Reuse – Wetland Restoration

- ▶ Advantages of TLP
 - ▶ Enables reclamation/restoration of lost intertidal wetlands
 - ▶ Enables re-establishment of vegetation in degraded wetlands
 - ▶ Reduces capacity needed in upland containment facilities
 - ▶ May reduce dredged material transportation costs
- ▶ TLP marsh restoration example projects/pilot studies
 - ▶ DE: Pepper Creek (2013), Prime Hook National Wildlife Refuge (2015 - currently underway)
 - ▶ NJ: Stone Harbor and Middle Township (2014), Little Egg Harbor and Tuckerton (2015 - planning currently underway)
 - ▶ NY: Jamaica Bay (2003)
 - ▶ MD: Black Water Marsh (2002)
 - ▶ NC: Lake Landing Canal (1992), Masonboro Island (2006)
 - ▶ LA: Venice Marshes (1999) and Barataria Bay (1999)



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PREPARING FOR DREDGING

- ▶ Clear Area for Dredge
 - ▶ Boats
 - ▶ Floating Docks
- ▶ Access for Survey
 - ▶ Access to lagoons through private property
 - ▶ Access to private docks



Source: "South Harbor, Ocean City" 39 16' 17.75"N and 74 35 50.17 W. **Google Earth**. June 21, 2015. August 25, 2015.

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So what can you do to help the City with this program?

Provide Clear access areas for our Survey Equipment

Provide Access for our Survey Crews – Land routes and Access to docks are helpful

QUESTIONS/COMMENTS

 **Ocean City Dredging
Town Hall Meeting
August 25, 2015**

Comment: _____

Contact information: Name: _____
Address: _____
Email: _____
Telephone: _____

Will you allow surveyors access to your dock with notification? Yes _____ No _____

For additional information, please contact: ACT Engineers, Inc., 1 Washington Blvd., Suite 3, Robbinsville, NJ 08691, 609.918.0200.
Email comments to: ocactinfo@actengineers.com

Comments: OceanCity@actengineers.com

Presentation: <http://www.actengineers.com/projects/ocean-city-dredging-program>

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609-918-0200

