

# ALTERNATIVE SAND SOURCES

## DADE COUNTY, FLORIDA BEACH EROSION CONTROL AND HURRICANE PROTECTION PROJECT

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Presented by:  
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# TOPICS OF DISCUSSION

- Introductions
- Beach Renourishment Basics
- History of the Federal Project
- Future Needs of Miami-Dade County Beaches
- Recommended Plan
- Schedule
- Funding (Federal/Non-Federal)
- Q&A



1970s Pre-Project



Post-Nourishment



## BEACH RENOURISHMENT BASICS

- **Healthy Beaches are Vital to our Way of Life**

- *Florida's beaches contribute \$15 billion annually to the state's economy*
- *U.S. coastal towns see 3,600 new residents daily*
- *1,500 new homes built along U.S. coasts daily*

- **What Causes Beach Erosion**

- *Winds, Tides, Currents and Waves keeps sand moving and eroding*
- *Hurricanes and Coastal Storms move huge volumes of sand away from shorelines significantly eroding beaches*
- *Beachfront developments interrupt natural movement of sand and narrow beach widths*



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## BEACH RENOURISHMENT BASICS

- **Beach Renourishment is the Preferred Method of Shore Protection**

- *Beach renourishment is the only shore protection method that adds sand to the coastal system*
- *Renourished beaches keep the erosive power of strong waves from reaching dunes and structures*
- *Without renourished beaches the starting point of damage would be farther onshore during significant storm events*

- **How Beach Renourishment Works**

- *Find an acceptable borrow source (offshore or upland)*
- *Design beach width based on erosion rates, etc.*
- *Advertise, Award and Construct (typically 2-3 months)*
- *Each renourishment places approximately 150k-350k cubic yards of sand*
- *Monitor placement area*



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## HISTORY OF FEDERAL PROJECT

- **Initial Authorization**
  - Originally authorized by Flood Contract Act 1968
  - Covers 9.3 miles Government Cut to Bakers Haulover
  - Covers 1.2 miles of Haulover Beach Park
  - Initial Construction Completed 1975
- **Subsequent Authorization**
  - 2.5 miles of Sunny Isles Beach added with WRDA 1986
  - Initial Construction Completed 1988

**CORPS OF ENGINEERS HAS PLACED ~19.8 MILLION CUBIC YARDS OF SAND ON MIAMI-DADE BEACHES SINCE 1975**




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## SAND SEARCH HISTORY

1986	1987	1996 - 98	1999	2000	2001	2002
WRDA '86 Section 935 Limiting acquisition of Non-Domestic Sand Sources	Dade Design Memorandum – Investigates Aragonite	USACE Workshops Seek Industry Input; Proposed Test Beach Using Bahamian Sand	Energy & Appropriations Bill (H8842) Limits acquisition of Foreign Sources of Sand	Deep Water Explorations of Miami-Dade County	Dade Evaluation Report outlines all potential sources	Solicitation for Test Beach Using Upland Sources (cancelled – funding constraints)
2005 - 2006	2007	2009	2011	2012	2013	
Borrow Areas Offshore of Other Counties in the Region Researched for Use in Miami-Dade County	Draft Letter Report Recommending Non-Domestic Sand for Miami-Dade County beaches; ASA* Recommends 3-Tiered Approach	Southeast Atlantic RSM Identifies Small Domestic Sand Surplus – Recommends Non-Domestic Sand Source	Updated Cost Estimates Indicate St. Lucie & Palm Beach Counties to be More Economical Sources of Sand Than Bahamas	Contract E: Uses Last 300,000 cy Sand Offshore and at Lummus Park	Contract G: 300,000 cy Sand From Baker's Haulover Ebb Shoal	

\* Assistant Secretary of the Army




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## WHY WE CAN'T USE NON-DOMESTIC SAND SOURCES

Section 935 of WRDA '86: "Notwithstanding any other provision of law, in any case in which the use of fill material for beach erosion and beach nourishment is authorized as a purpose of an authorized water resource project, the Secretary is authorized to acquire by purchase, exchange, or otherwise from non-domestic sources and utilize such material for such purposes if such materials are not available from domestic sources for environmental or economic reasons."

Conferee Report on the FY 99 Energy and Water Appropriations Bill (H8842): "The conferees direct that none of the funds provided for the Dade County, Florida project be used for acquisition of foreign source materials for the project unless the Secretary of the Army provides written certification to the Committees on Appropriations that domestic sources of material are not available."



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## SEDIMENT ASSESSMENT AND NEEDS DETERMINATION (SAND) STUDY

- Initiated: December 2011 Completed: June 2013
- Extensive coordination/collaboration between Florida Department of Environmental Protection (FDEP), the five southeast Florida counties, the Corps, & the Bureau of Ocean Energy Management (BOEM)
- Each county determined their own 50-year sand need for federal & non-federal projects
- All needs assessments were peer reviewed & contingencies applied
- Geological investigations identified sand sources meeting FDEP criteria; contingencies were applied to reach a final volume available
- FDEP funded an independent technical review of the volume reports

The Florida Department of Environment (FDEP) Sand Rule And Sediment Quality is directed by Florida Administrative Code (F.A.C.) 62B-41.007, also known as the "Sand Rule." The Sand Rule is designed to protect the environmental functions of Florida's beaches and includes parameters regulating:

- Grain Size
- Sediment Sorting
- Sand Color (Munsell Value)
- Shell Content
- Silt Content
- Beach Rocks
- Debris

Sediment color is especially important to sea turtles and other species that use the beach as habitat.



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## SCOPING MEETING FOR ALTERNATIVE SAND SOURCES DADE COUNTY BEACH EROSION CONTROL AND HURRICANE PROTECTION PROJECT

**LEGEND**

- Unincorporated Beach Area
- Incorporated Beach Area
- State/Federal Boundary
- State County BEACH Project

**ALTERNATIVE SAND SOURCES**

Alternative sand sources may include, but are not limited to:

1. Sandstone quarrying in permitted regions (State Beaches areas)
2. Unincorporated sandstone
3. Sandstone from offshore of Miami-Dade County
4. Sandstone from offshore of Palm Beach County
5. Sandstone from offshore of Broward County
6. Sandstone from offshore of St. Lucie County
7. Sandstone from offshore of Indian River County
8. Sandstone from offshore of Volusia County
9. Sandstone from offshore of Brevard County
10. Sandstone from offshore of Polk County
11. Sandstone from offshore of Seminole County
12. Sandstone from offshore of Alachua County
13. Sandstone from offshore of Marion County
14. Sandstone from offshore of Duval County
15. Sandstone from offshore of Nassau County
16. Sandstone from offshore of Santa Fe County
17. Sandstone from offshore of Clay County
18. Sandstone from offshore of Putnam County
19. Sandstone from offshore of Alameda County
20. Sandstone from offshore of Contra Costa County
21. Sandstone from offshore of San Francisco County
22. Sandstone from offshore of Alameda County
23. Sandstone from offshore of Contra Costa County
24. Sandstone from offshore of San Francisco County

**SEDIMENT ASSESSMENT NEEDS DETERMINATION (SAND) STUDY RESULTS**

The Southeast region of Florida has an excess amount of 100,000,000 cubic yards of sand in the region.

Region	Excess Sand (Cubic Yards)
Florida	100,000,000
50-year need	20,000,000
Excess Sand	80,000,000

## SAND STUDY RESULTS

Southeast region of Florida has excess sand of 100,000,000 cubic yards beyond its 50-year need

## FUTURE NEEDS OF MIAMI-DADE COUNTY

- Sand sources offshore of Miami-Dade County are nearly depleted
- A small volume of “renewable” sand sources remain viable in the vicinity of Miami-Dade County
- Approximately **3,625,620** cubic yards of sand will be needed for the remaining period of federal participation:
  - ▶ 10 years: original project (Baker’s Haulover to Government Cut and Haulover Beach Park)
  - ▶ 23 years remain for the Sunny Isles Segment

## APPLYING SCREENING CRITERIA

### DADE COUNTY BEC&HP PROJECT

- Grain size
- Color compatibility
- Federal authority to acquire sand source
- Identified for use by another county in regional SAND Study
- Significant investment/existing permit by other project?
- Volume meeting Florida Department of Environment Sand Rule
- Existing core borings
- Completed seismic survey of area
- Volume meeting Dade grain size specifications
- Volume meeting Dade color specifications
- Volume meeting Dade sand specifications
- Production rate
- State versus federal waters
- Distance from project center
- Environmental resource conflicts
- Cultural resource conflicts
- Impact on other beaches
- Distance from project

#### DADE-SPECIFIC SEDIMENT NEEDS

GRAIN SIZE	MAXIMUM SILT CONTENT	MUNSELL VALUE
0.30 to 0.55 mm	5% Passing #230 Sieve	6 to 8



## SAND SOURCE RESULTS DADE COUNTY BEC&HP PROJECT

MAP REFERENCE	EXISTING DADE ACCRETION SOURCES		UPLAND SOURCES			OFFSHORE SOURCES (Federal Waters)	
	1	2	3	4	5	6	7
SOURCE	BAKER'S HAULOVER EBB SHOAL	LUMMUS PARK (SOUTH BEACH)	ORTONA	WITHERSPOON	ACI	MARTIN COUNTY	ST. LUCIE COUNTY
VOLUME (cubic yards)	30,000 annually	50,000 annually	adequate	adequate	adequate	600,000	4,600,000
DISTANCE FROM PROJECT SITE	4.5 miles south of northern project limit	Southern 1.5 miles of project	120 miles	120 miles	35 miles	80 miles	120 miles
TRANSPORT	Dredge & pipeline	Dredge & pipeline	Truck haul	Truck haul	Truck haul	Dredge & pipeline	Dredge & pipeline



### SAND SOURCE RESULTS DADE COUNTY BEC&HP PROJECT

#### EXISTING DADE ACCRETION SOURCES

- 1 Baker's Haulover Ebb Shoal
- 2 Lummus Park (South Beach)

#### UPLAND SOURCES

- 3 Ortona Sand Mine
- 4 Witherspoon Sand Mine
- 5 Atlantic Civil, Inc. (ACI)

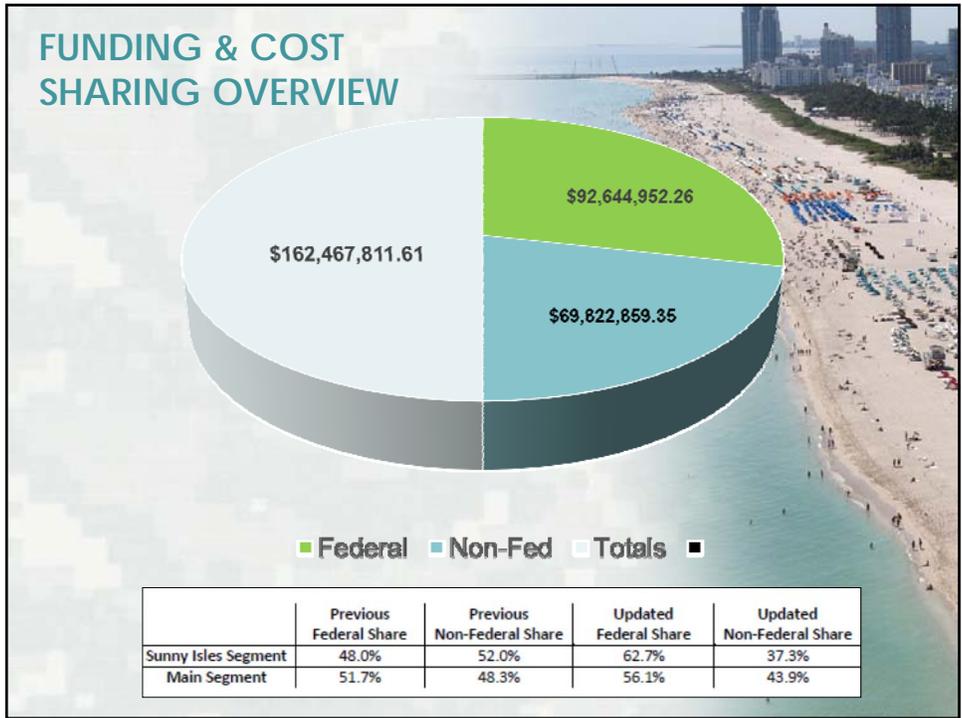
#### OFFSHORE SOURCES

- 6 Offshore Martin County
- 7 Offshore St. Lucie County

## PROJECT SCHEDULE

		MILESTONE	DATES
Report		Complete Public Review LRR/EA	31 July – 2 Oct 2015
		Edit Report Based on Public Comments	2 Oct – 30 Oct 2015
		Report Final Routing & Signatures	2 Nov – 27 Nov 2015
		Report Complete	27 Nov 2015
Next Renourishment		Design Complete	Feb 2016
		Advertise Contract	Mar – Apr 2016
		Award Miami Beach Renourishment	May 2016



### FUTURE RENOURISHMENTS

	Year	Location	Estimated Cost
<b>MAIN SEGMENT</b>	2016	Miami Beach	\$42,300,000
	2018	Surfside	\$42,200,000
	2019	Haulover, Bal Harbor, Miami Beach	\$79,900,000
	2021	Miami Beach	\$16,700,000
	2022	Surfside	\$11,700,000
		<b>2,478,290 CY</b>	<b>\$192,800,000</b>
<b>SUNNY ISLES SEGMENT</b>	2016 - 2017	Sunny Isles	\$40,900,000
	2026	Sunny Isles	\$37,500,000
	2036	Sunny Isles	\$9,100,000
		<b>(1,147,330 cy)</b>	<b>\$87,500,000</b>

**NOTE: SUBJECT TO FUTURE FUNDING**



**Report Comments are needed by**  
**October 2, 2015**

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