

# BEACH MANAGEMENT PROGRAM SUSTAINABILITY

Florida Shore and Beach  
Preservation Association  
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# Sustainable Beach Management

What does it mean...?

- **Application of the appropriate available resources to at least meet but not necessarily exceed beach management expectations...**
- **Often moving target**



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# Most applicable to ...

- **Historically successful long-term programs**
- **Predictable physical and economic conditions**
- **Historically reliable funding sources**
- **Traditionally restored and maintained with large comprehensive beach nourishment projects**



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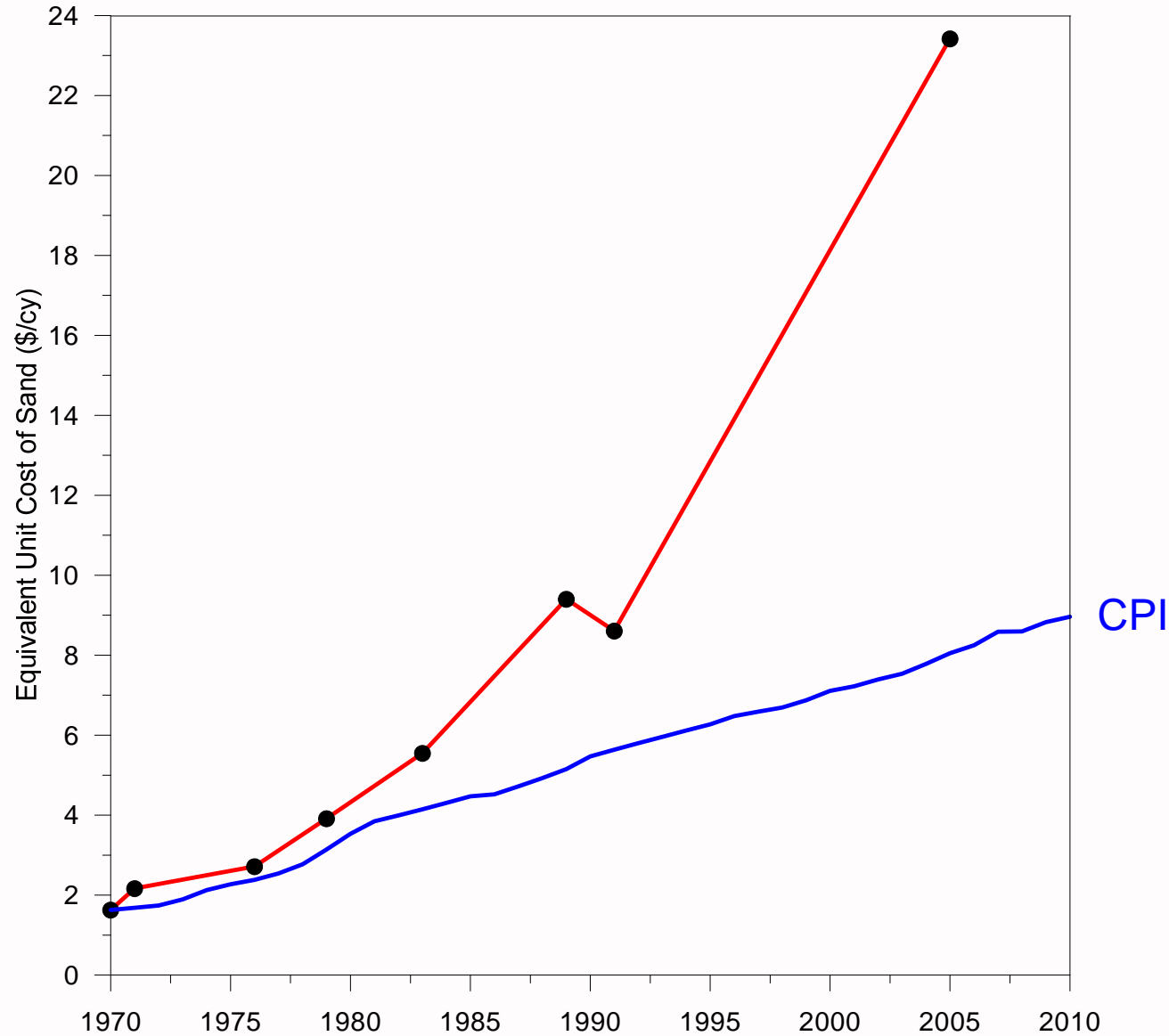
# WHAT CAN AFFECT SUSTAINABILITY?

- **Unplanned increases in construction costs**
- **Unexpected program needs**
  - unplanned project(s)
- **Decrease or elimination of funding**



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# Construction Cost Increases...



Ex. Broward County Federal SPP

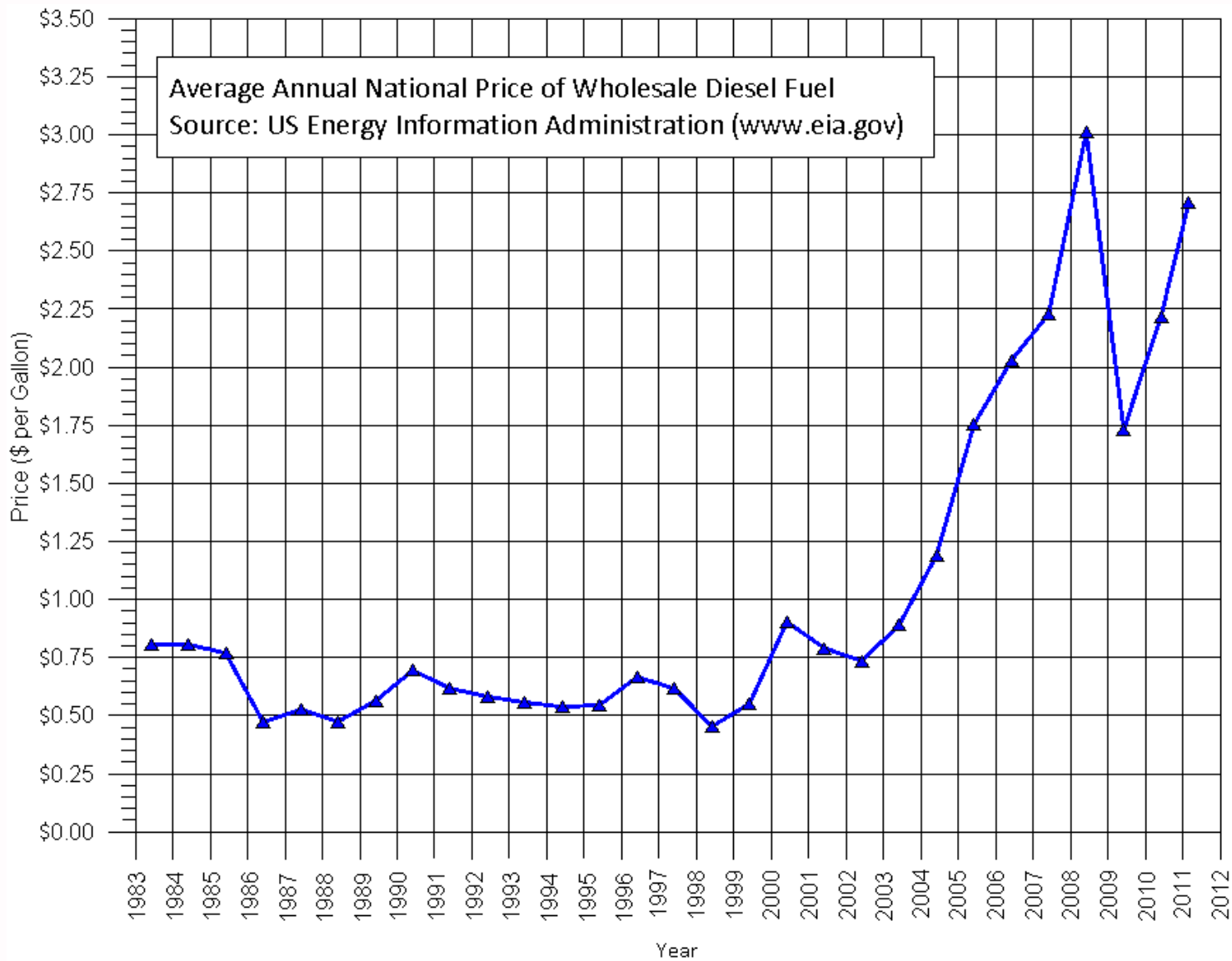


# Construction Cost Increases...

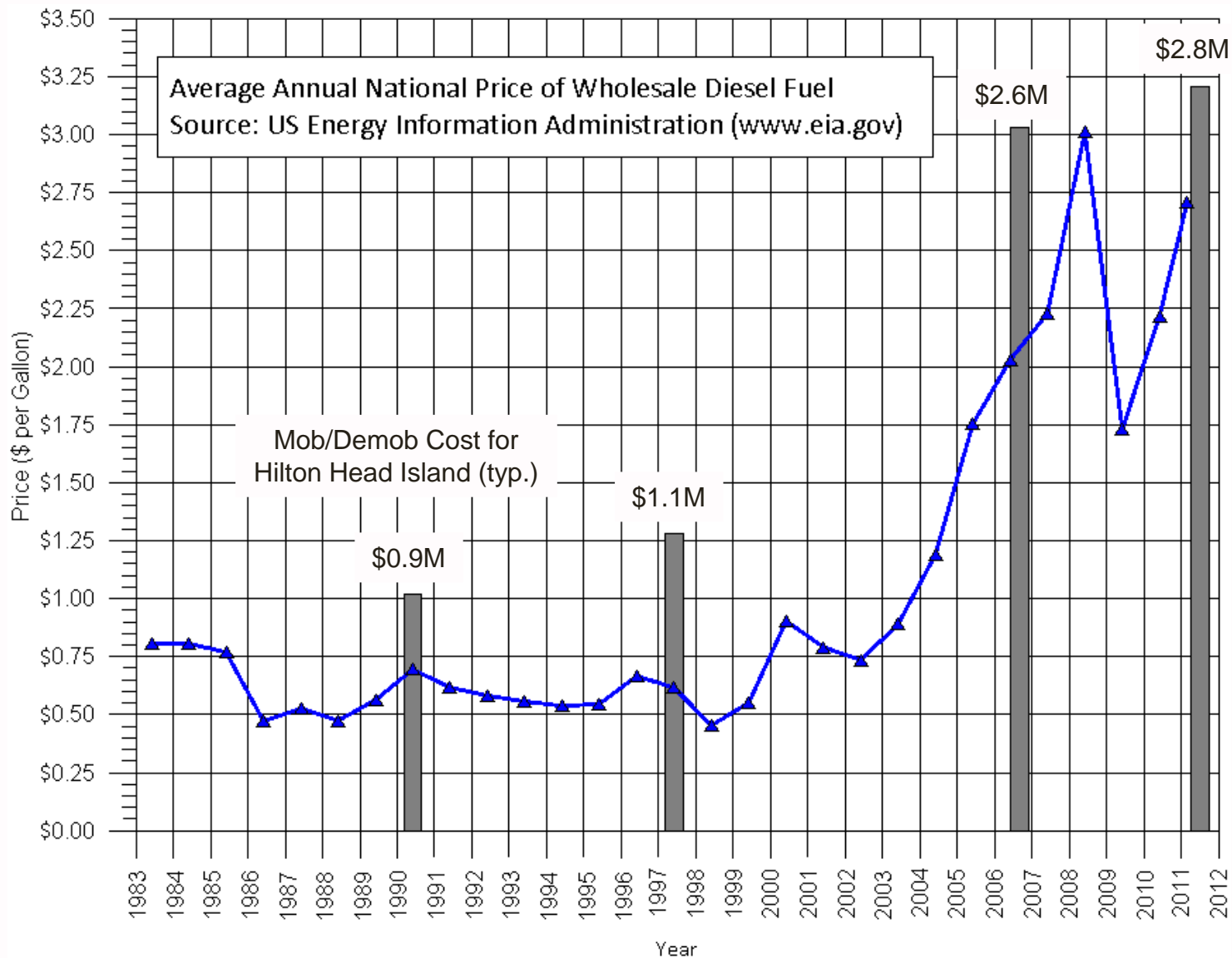
- **Fuel prices**
- **Environmental constraints**
  - Construction seasons
  - Access restrictions/buffers
  - Monitoring and Mitigation
- **Reduced local sand supply**
  - Increased distance to sand sources
- **Periodic reduced competition in “dredge market”**



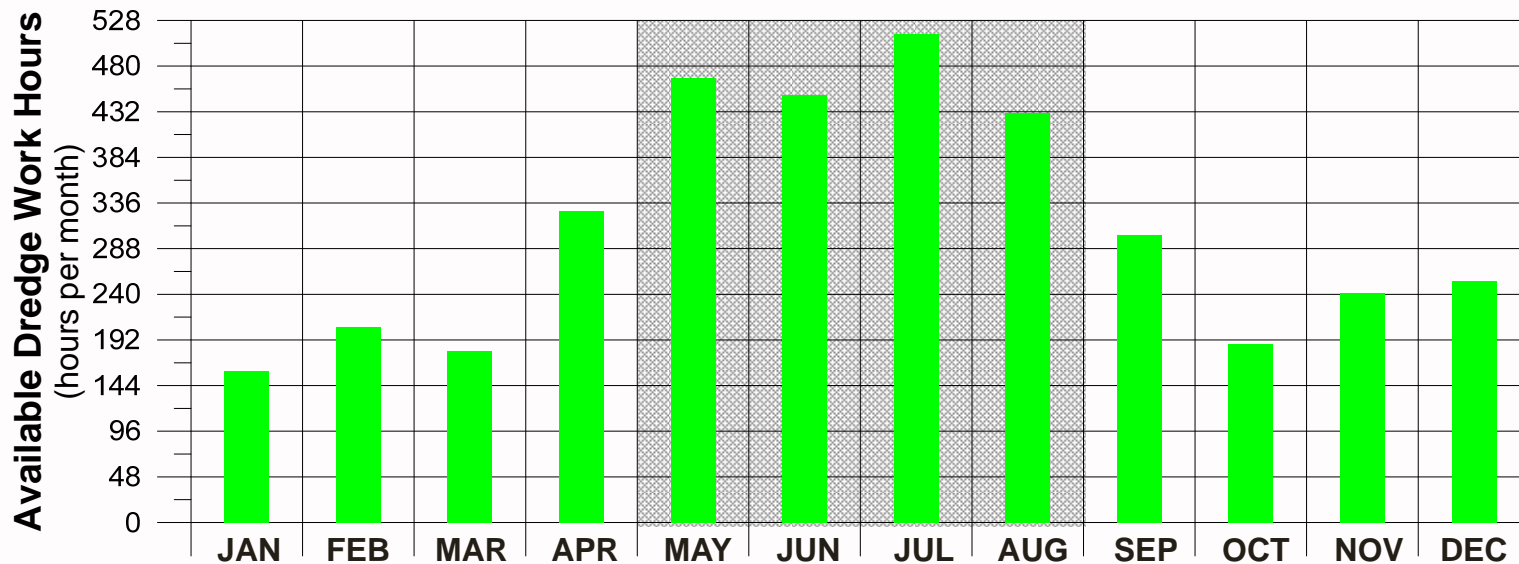
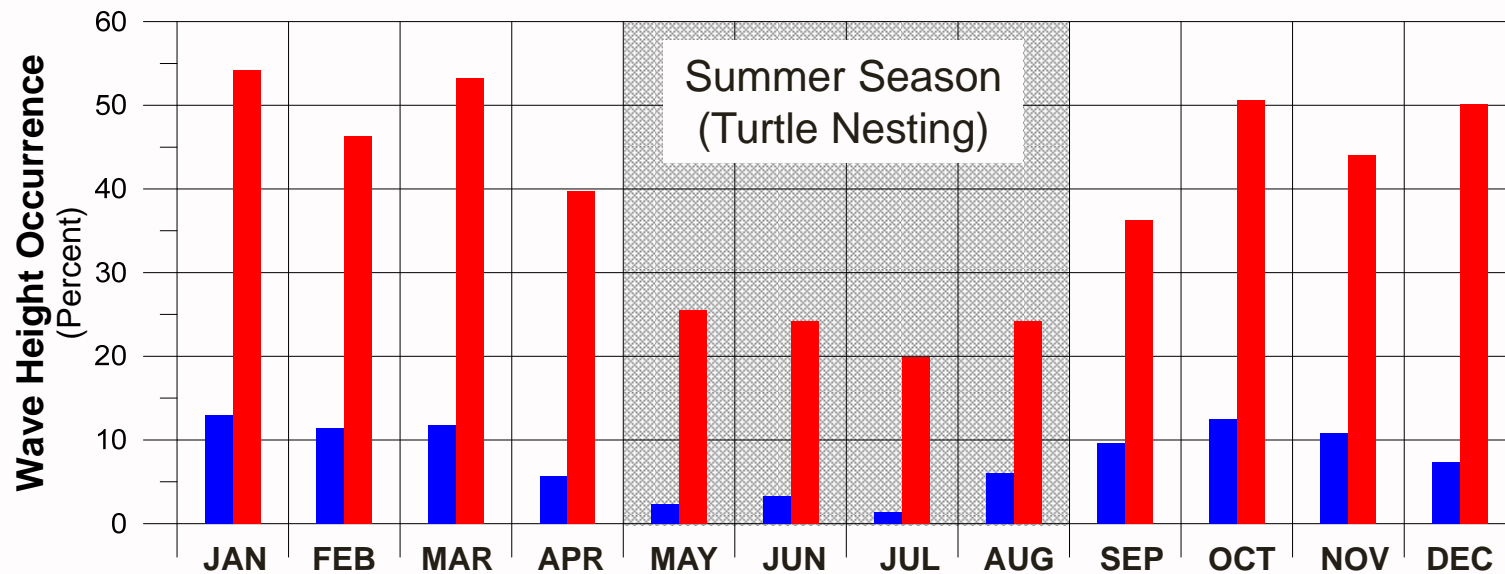
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# Fuel (Diesel) Prices

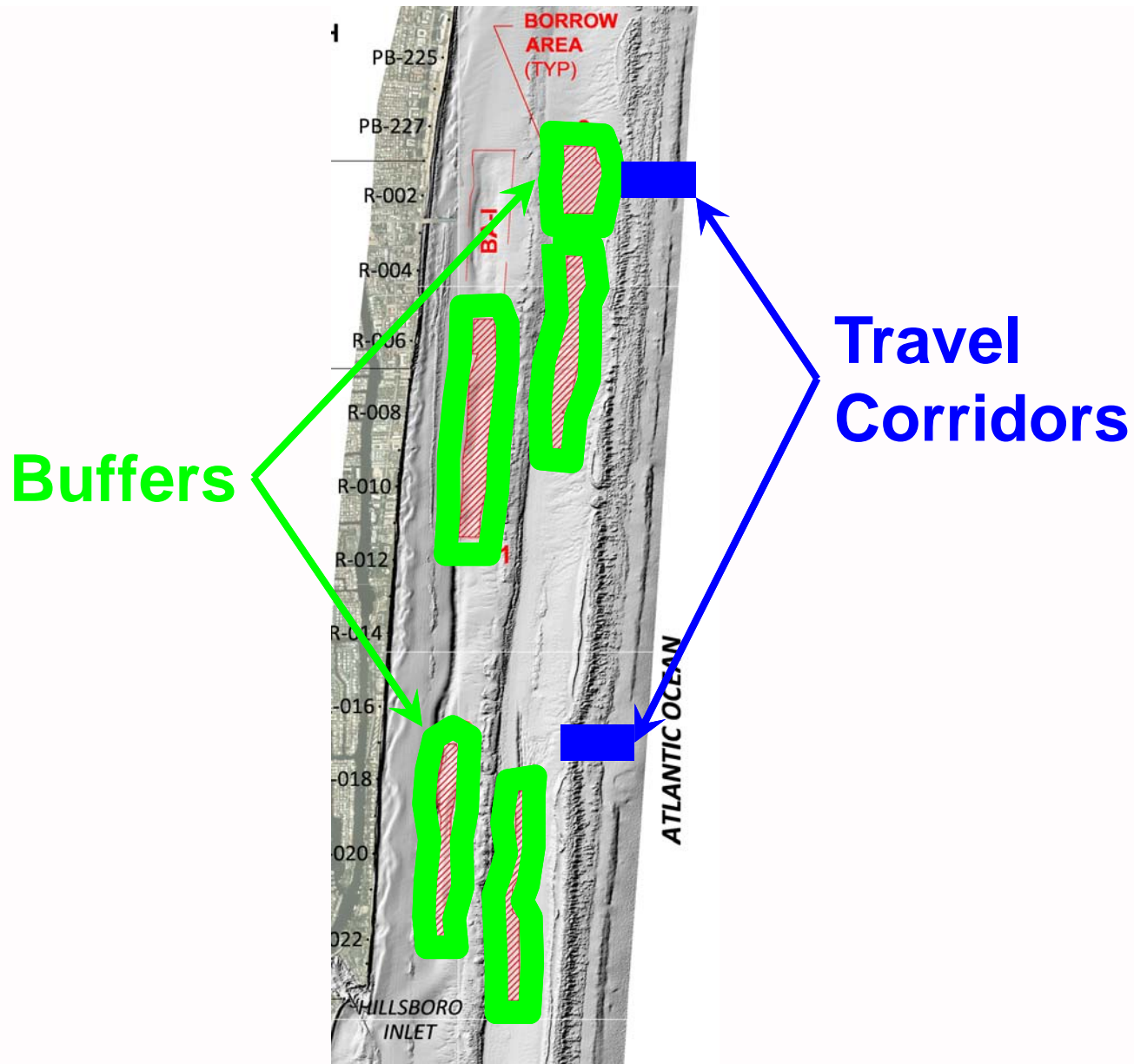


# Fuel Prices and Historical Mob/Demob Costs



# Environmental Constraints

## - construction window

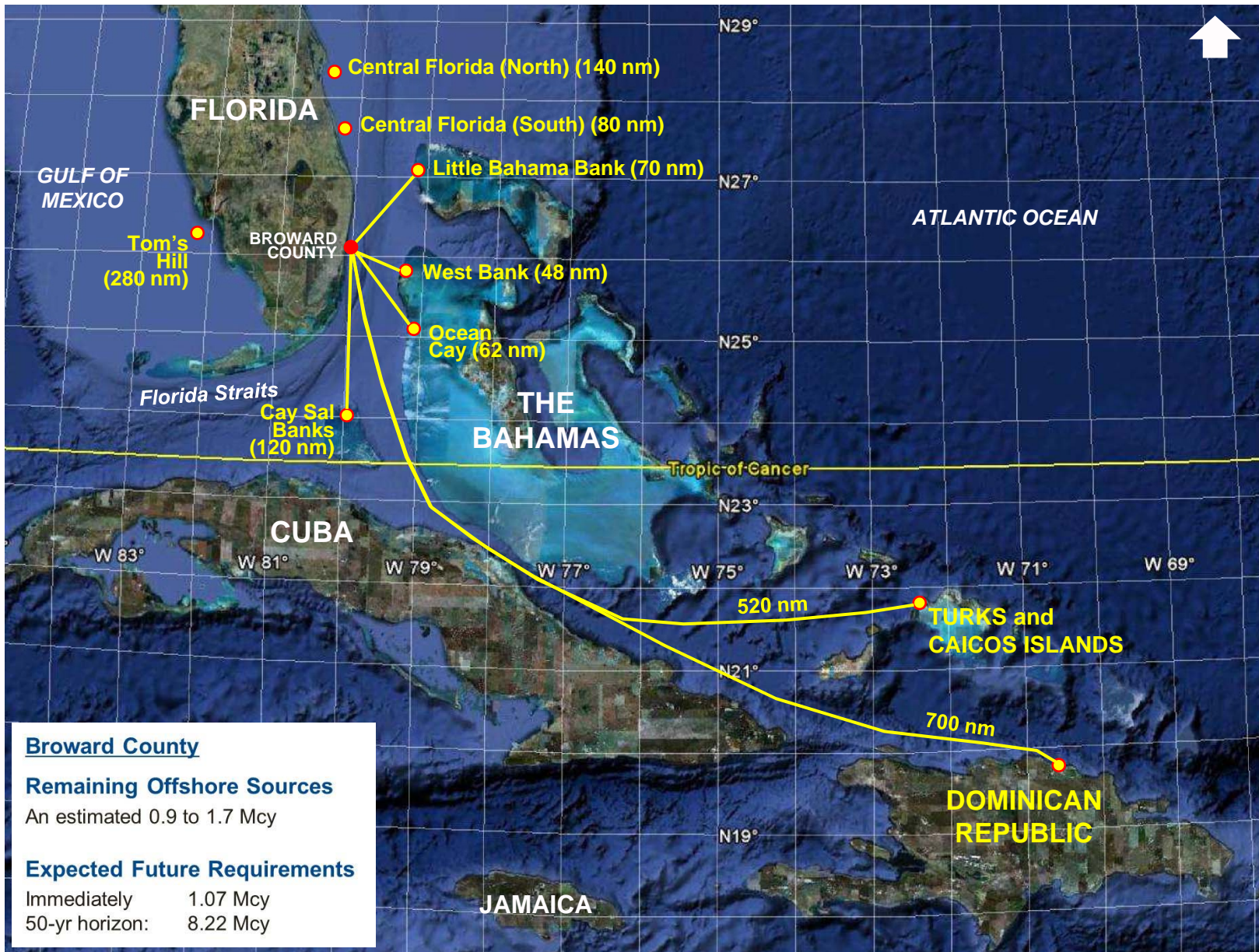


# Environmental Constraints

- resource buffers/access restrictions



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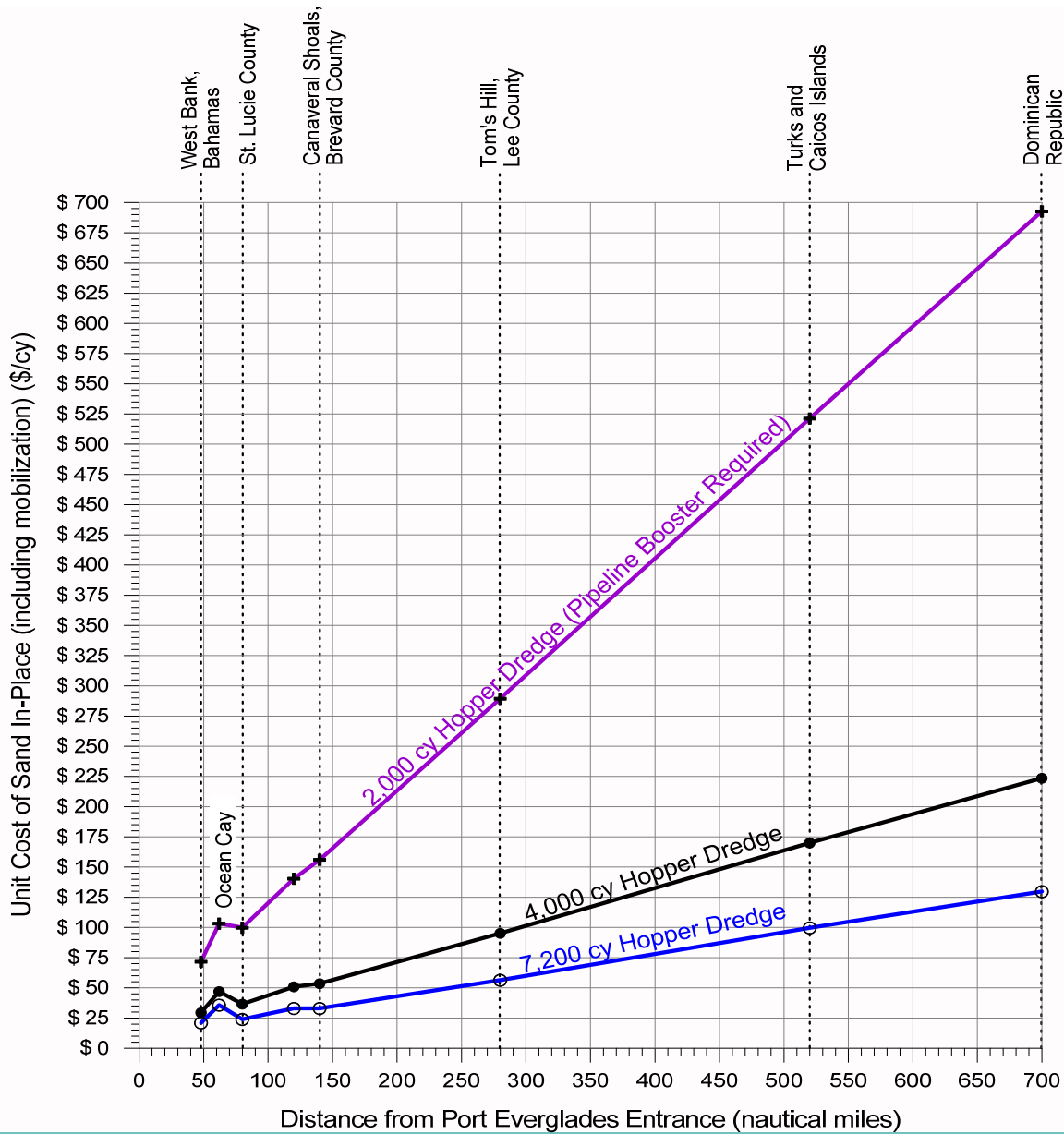
**Broward County**

**Remaining Offshore Sources**  
 An estimated 0.9 to 1.7 Mcy

**Expected Future Requirements**

Immediately	1.07 Mcy
50-yr horizon:	8.22 Mcy

# Potential Future Sand Sources for South Florida



# Sand Cost vs. Distance to Source



# Example

- 1-2 Mcy Nourishments
- Offshore Borrow Areas
- 2006/11 Projects Constructed During Winter Season
- Notable variations in bid results from project to project

## Bid Price

1990 (2 mcy)		
Dredge Co. 1	\$ 9.1	
Dredge Co. 2	\$ 10.3	112.6%
Dredge Co. 3	\$ 13.0	142.2%
1997 (2 mcy)		
Dredge Co. 1	\$ 8.9	
Dredge Co. 2	\$ 9.2	103.5%
Dredge Co. 3	\$ 9.6	108.3%
Dredge Co. 4	\$ 9.9	111.2%
2006 (2 mcy)		
Dredge Co. 1	\$ 16.6	
Dredge Co. 2	\$ 21.8	130.7%
Dredge Co. 3	\$ 22.5	135.3%
2011 (1 mcy)		
Dredge Co. 1	\$ 8.19	
Dredge Co. 2	\$ 9.39	114.7%
Dredge Co. 3	\$ 9.92	121.1%
Dredge Co. 4	\$ 9.93	121.2%

millions of dollars

# Effect of Dredge Market Conditions on Cost

# Funding...

- **Local**
  - Reduced Revenues
  - Modest Future Growth
- **State**
  - Reduced Funds Available for Cost-Sharing
- **Federal**
  - Uncertainties with Future Funding

Required to do the same or more with less or nothing



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# Ensure Sustainability

- Understand that historical management approach may not be suitable for a sustainable future
- Prioritize wants and needs
- Strategic beach renourishment
- Strategic use of structures to increase renourishment interval
- Work to reduce restrictions/prohibitions that may exist on economical sand resources
- Pursue alternate funding sources/approaches
  - *More emphasis on local options*



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# Town of Hilton Head Island, SC

Incorporated in 1983

54 square miles

Approximately 1200 acres of Town Property – 142 Parcels

13 miles of beach

8 beach access parks

55 miles of pathways

Population – 40,000 (approx.)

Visitors 2,235,000 annually



# Mid-1980 Beach Conditions/Issues

- **Areas of Highly Erosional Shoreline**
- **Chronic Sediment Deficit (northern 2/3)**
- **Need for Comprehensive Protection of Upland**
- **Minimal Dry Beach (over 9,000 feet of oceanfront armoring)**
- **Potential impacts from Port Royal Sound Federal Navigation Project**

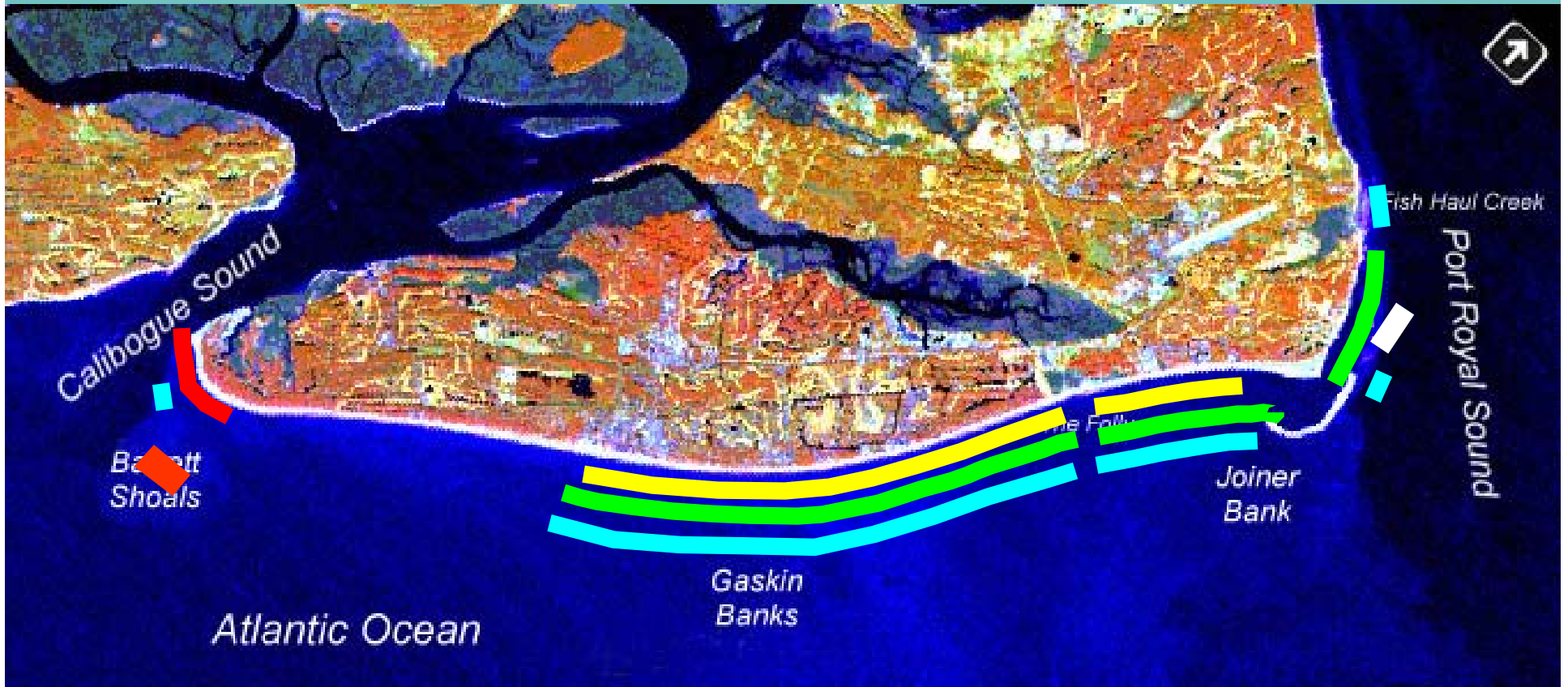


# Program Foundation

- **Comprehensive Beach Restoration**
- **Comprehensive Beach Monitoring**
- **Strategic use of shore-stabilizing structures to improve performance/increase longevity of beach nourishment**
- **Use of near-island sand sources, as available**
- **Attempt to control seaward advancement of development and protect beach/dune resources**



# Project History



1990 – Atlantic Restoration

1997 – Atlantic Renourishment/Port Royal Restoration

1999 – South Beach Restoration

2006/07-Atlantic-Port Royal-South Beach Renourishment



# Return on Investment

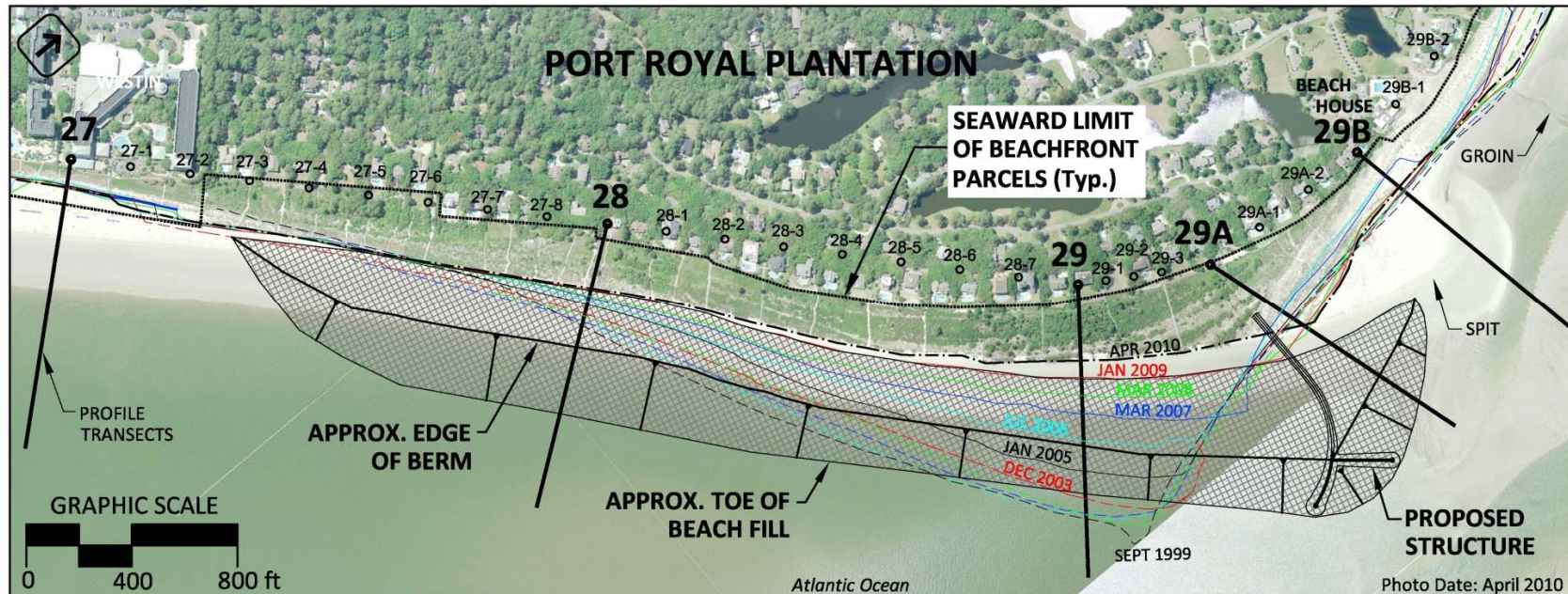
Recent inquiry / criticism:

**“beach renourishment is expensive”**

2008 appraised valuations *	~ \$2.8 Billion
2011 appraised valuations *	~ \$3.9 Billion
2010 tax revenue	~ \$31.5 Million

\*First row only, not including golf courses which may have ocean frontage but are  
Primarily large inland tracts of land

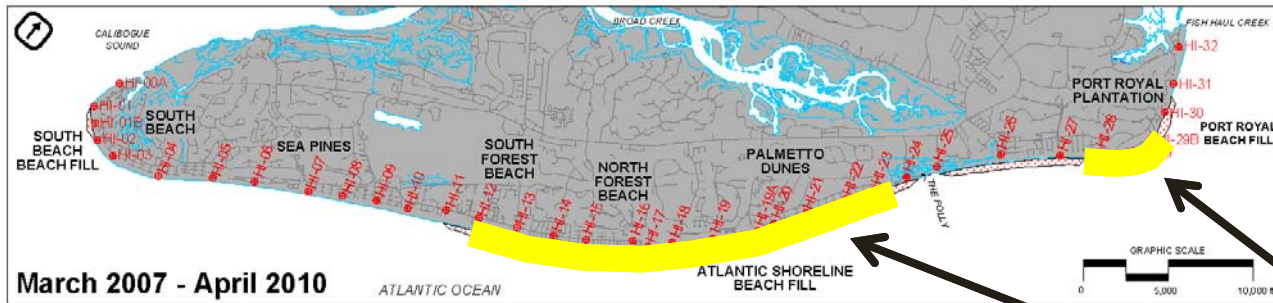




- **Beach Nourishment with Shore Stabilizing Structure**
- **Stabilize High Rate of Erosion at Heel and Incorporate Area into Future Renourishment Projects**

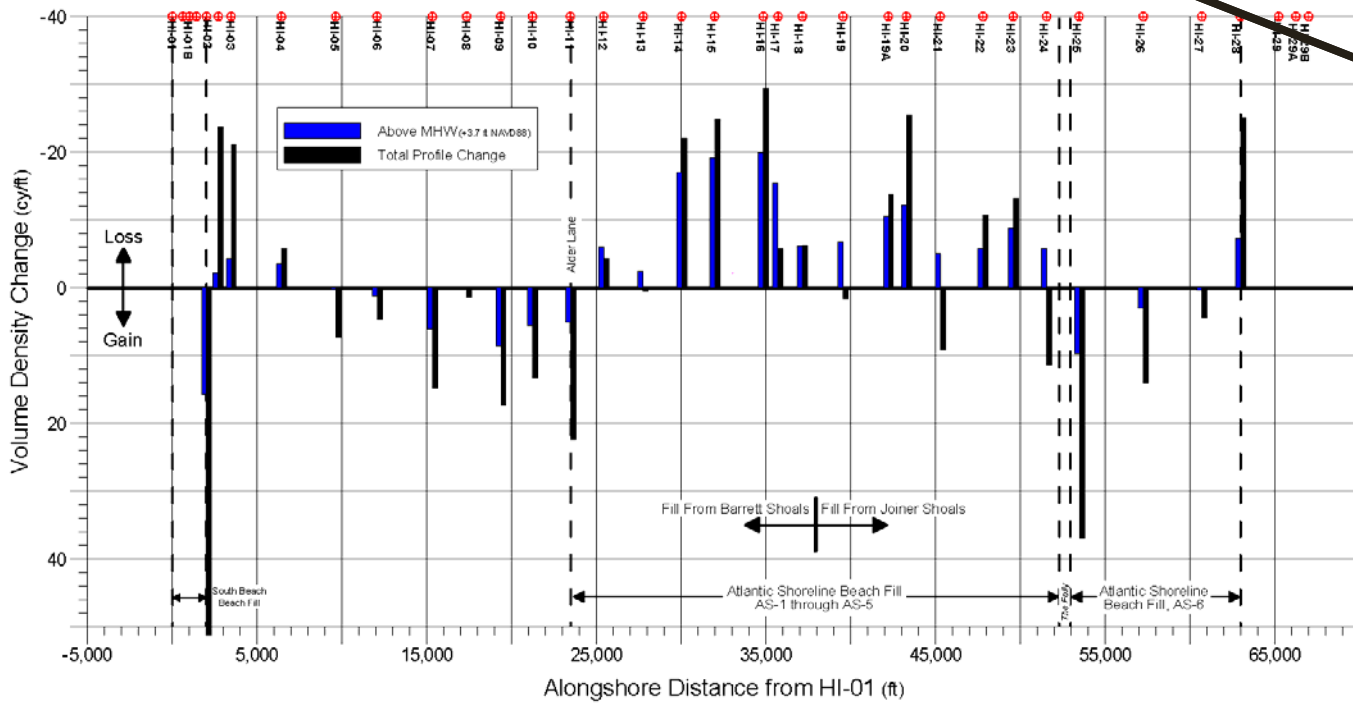
**Proposed Plan of Action to Address Heel Shoreline Erosion**





● Heel Shoreline

● North Forest Beach/Palmetto Dunes Shoreline



# Areas Most Likely to Need Future Nourishment



# Funding

- 100% Local
- 100% Local
- 100% Local



# Beach Preservation Fee

(Established in 1993)

- 2% accommodation tax on overnight, short-term (less than 90 days) lodging
- Preservation, maintenance, nourishment, renourishment, and improvement to the beaches and facilities related thereto
- Generates approximately \$4.4 M annually



# Other Typical Historic Beach Preservation Fee Expenditures

- Land Acquisition (open space preservation)
- Park Development
- Support Facilities (Public Works)
- Natural Resources (sea turtles, plovers, dune plantings, etc.)
- General Fund Transfer (prorated portions of salaries, etc.)
- Establish Fund Balance (\$13 million)



# Port Royal Fill Project & Sustainable Beach Renourishment Program

- Determine financing strategies to ensure the Town has a long-term sustainable beach renourishment program.
- Recommend a financing plan for the FY11 Port Royal Fill Project.



# Key Points for Project & Program

- An **out-of-cycle** project for 2011 with an estimated cost of \$12.5 million which requires extensive financial analysis due to potential additional layering of debt.
- The planned renourishment life is 8 to 10 years with an 8 year cycle as the ideal. This assumes no significant storms occur to alter recurring renourishment needs.
- Future sand losses at Port Royal would be addressed in the Island-wide renourishment.
- The likely date of the next renourishment is 2015.



# Financial Assumptions

## Reasonableness of Growth Trends

- 1 - 2.3% growth is conservative & in line with Town's budget.
- Assumptions represent growth *after* the economic decline – general belief that the bottom has been hit.

## Reasonableness of Transfers to General Fund

- Performing cost allocation study, especially for beach fees.
- Recommend \$110,000 reduction of beach fee transfer in FY11 and forward to be offset by hospitality tax revenue; future adjustments pending cost study.

## Reasonableness of Transfers to Capital Projects Fund

- Reviewed the prior costs and trends.
- Modified the cost for the FY11 base year; new base is \$615,696.



# Fund Balance Levels

- Balance goal of maximizing available cash vs. funding emergency project.
- Need to maximize cash on hand is based on bond ratings and ability to respond to disasters.
- Recommended plan requires the reclassification of prior year funds.
- While Town uses some reserve funds, the plan includes:
  - A turning point whereby fund balance starts to increase.
  - Sufficient fund balance for FEMA matching.
  - Sufficient funds for sustainable future renourishment.



# Bid Results – July 2011

## Contractor – Beach Fill

## Price

Great Lakes Dredge and Dock Co.	\$ 8.19 M (Million Dollars)
Norfolk Dredging Co.	\$ 9.39
Marinex Construction Inc.	\$ 9.92
Weeks Marine Inc.	\$ 9.93

## Contractor – Terminal Groin

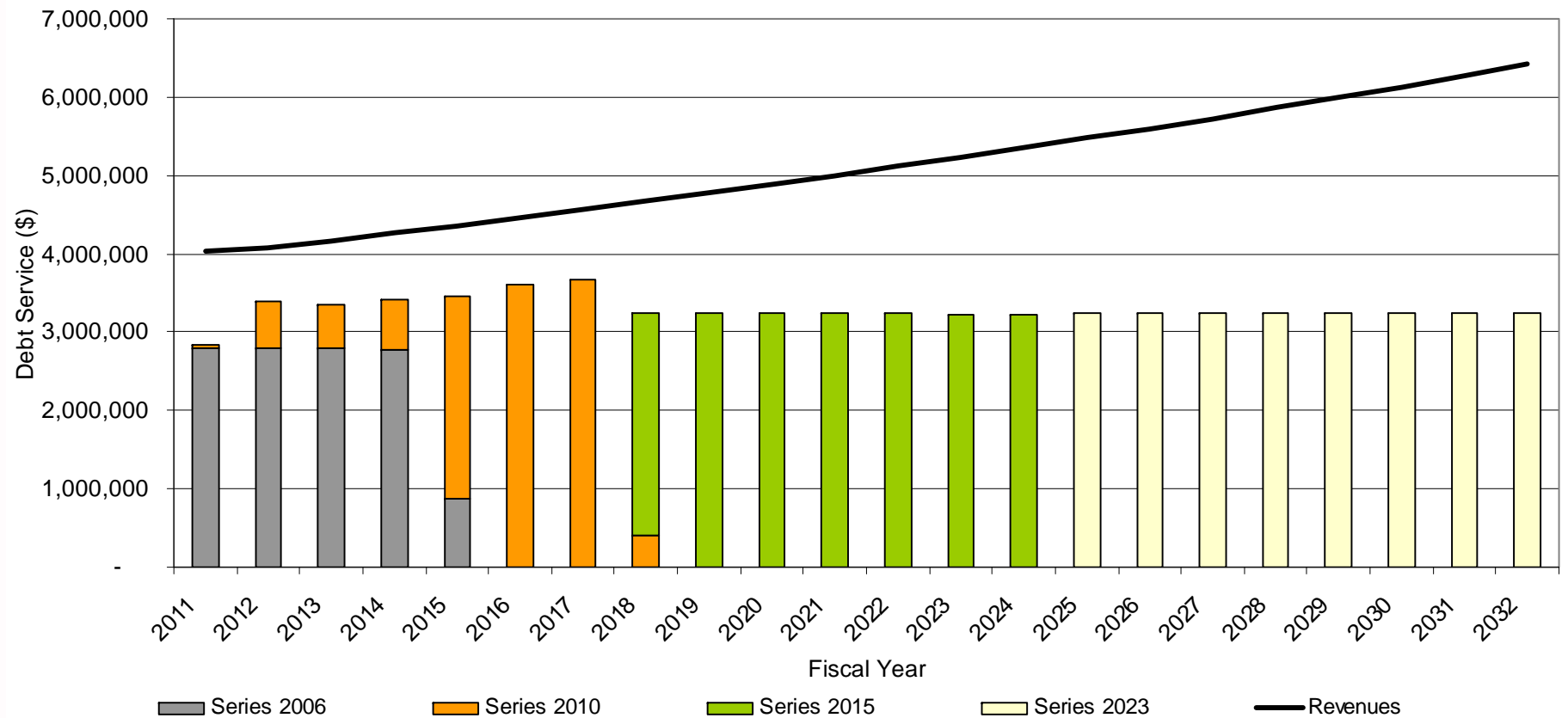
TIC	\$ 1.66 M
Archer-Western	\$ 2.54
Cape Romain Contractors	\$ 2.58
Baker Infrastructure	\$ 2.96
L-J, Inc.	\$ 3.59

## **Contract Amount – Total**

**\$ 9.82 M**



# Beach Preservation Fee Debt Structure



# Future Program Approach

- A paradigm shift in the beach management program
- The future objectives should focus on maintaining conditions rather than striving to continually widen the beach
- Recent observations suggest that smaller projects in the future may be sufficient to maintain beach conditions
- Following completion of the Port Royal Shoreline Restoration and Stabilization Project in 2011, island-wide periodic nourishment projects may only need to be about 60 percent of the size of the past projects



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