

BEACH MANAGEMENT PROGRAM SUSTAINABILITY

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Beach Preservation Technology
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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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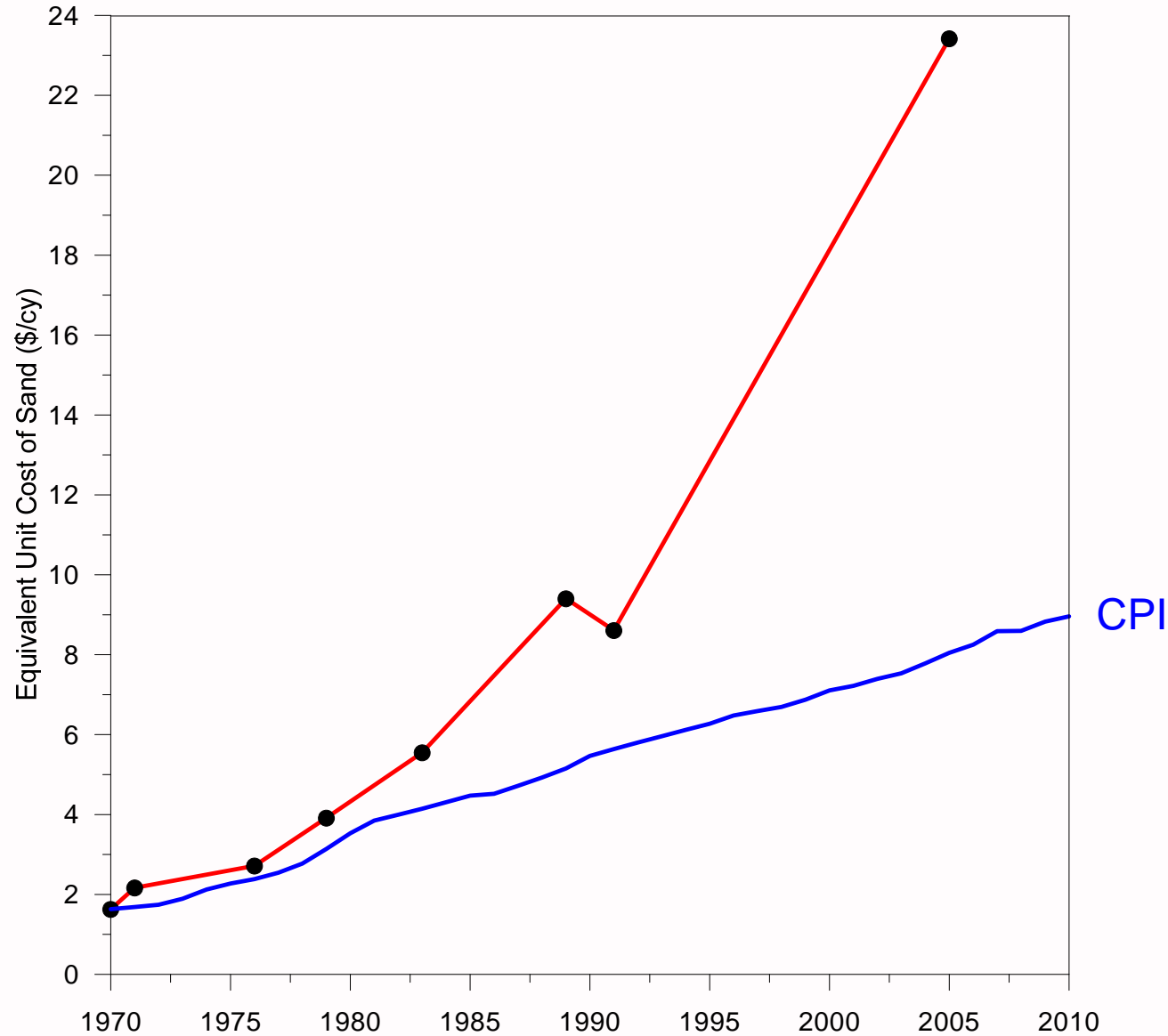
WHAT CAN AFFECT SUSTAINABILITY?

- **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

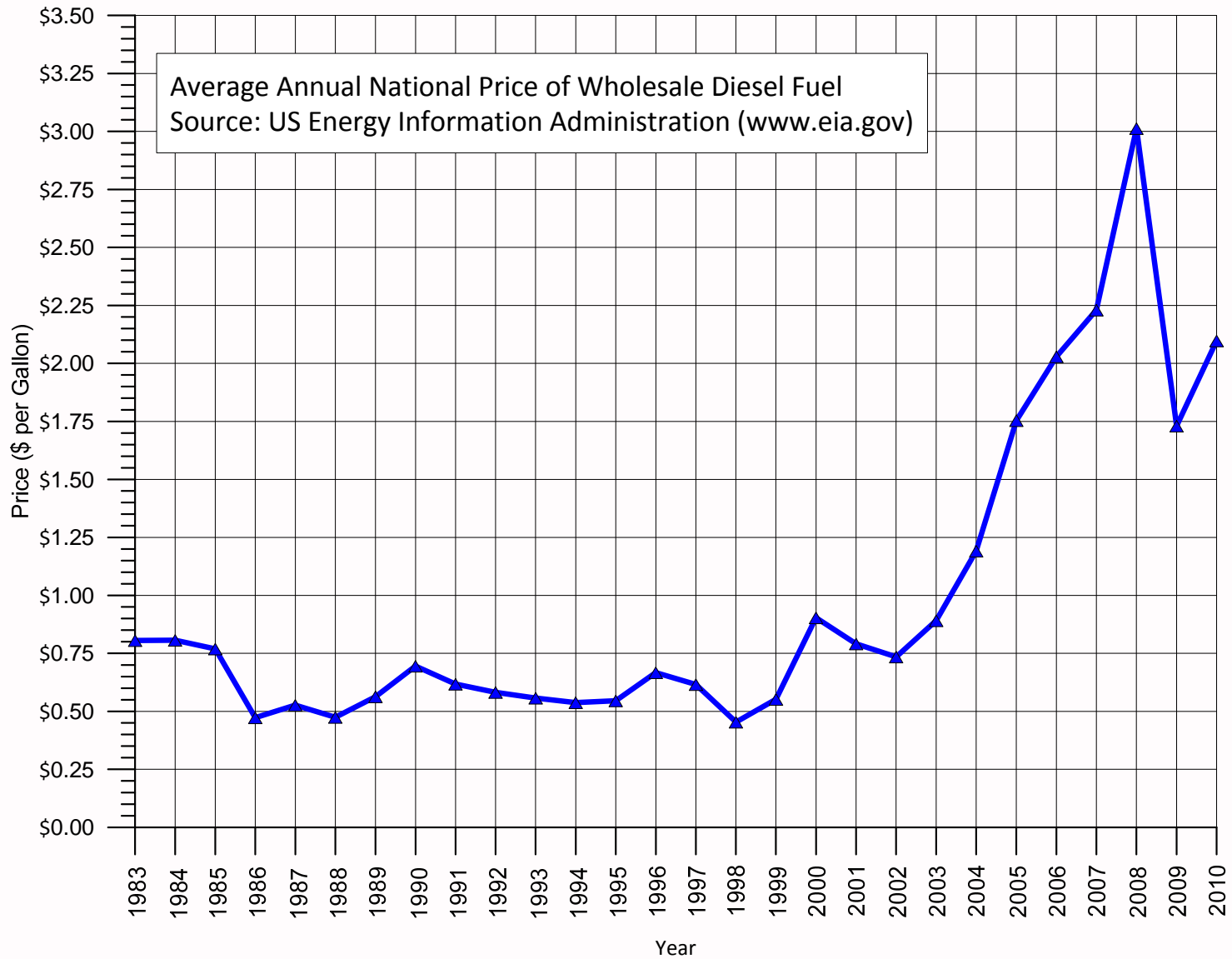


Construction Cost Increases...

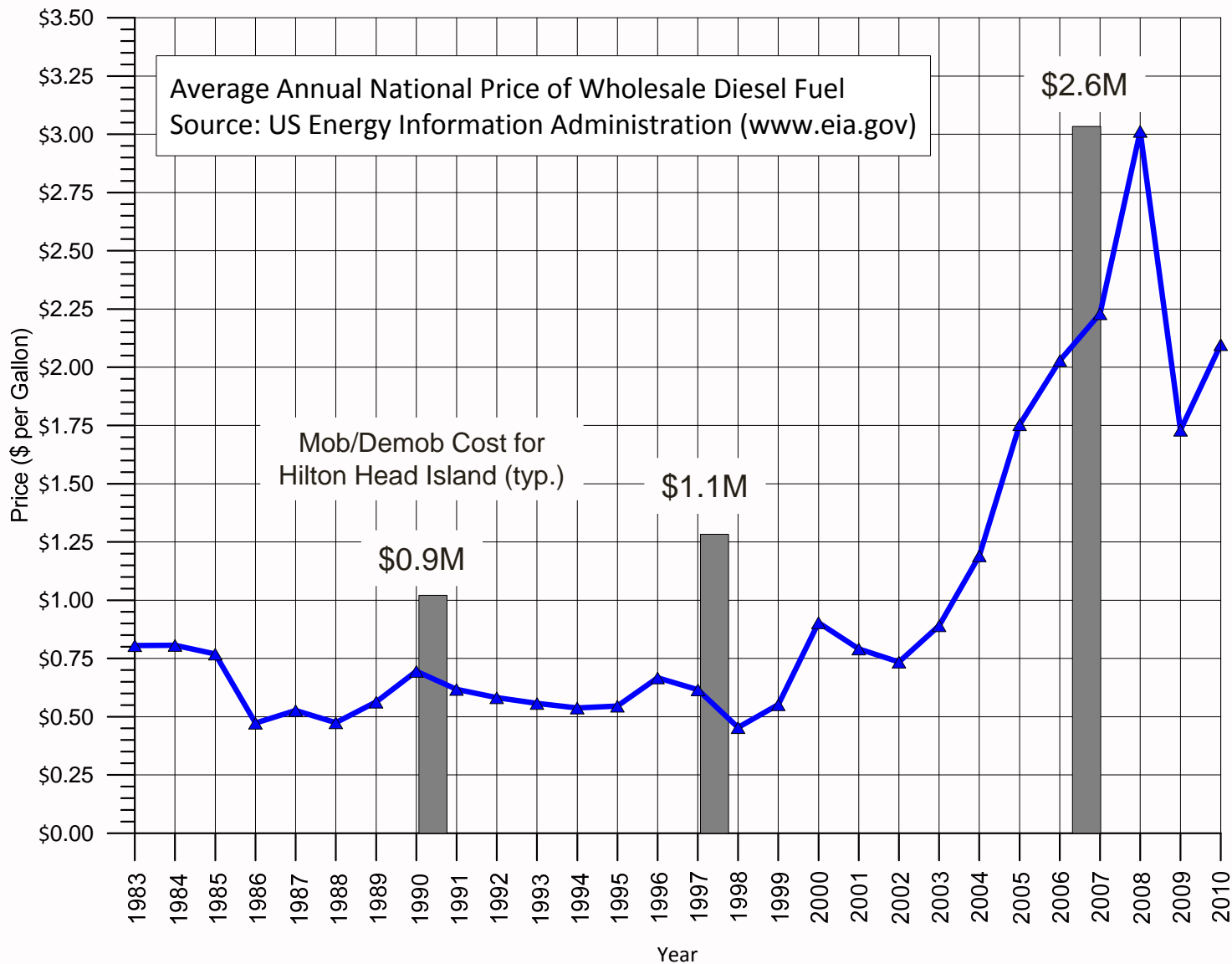
- Fuel prices
- Environmental constraints
 - Construction seasons
 - Access restrictions/buffers
 - Monitoring and Mitigation
- Reduced local sand supply
 - Increased distance to sand sources
- Periodic reduced competition in “dredge market”



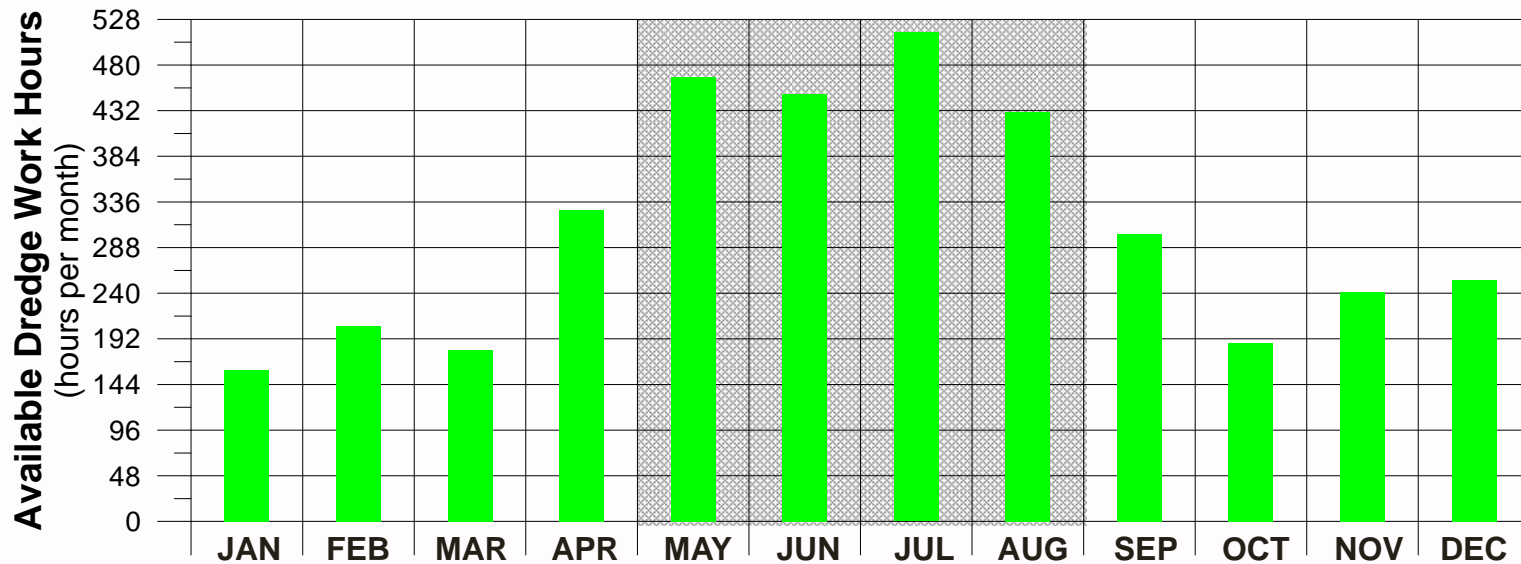
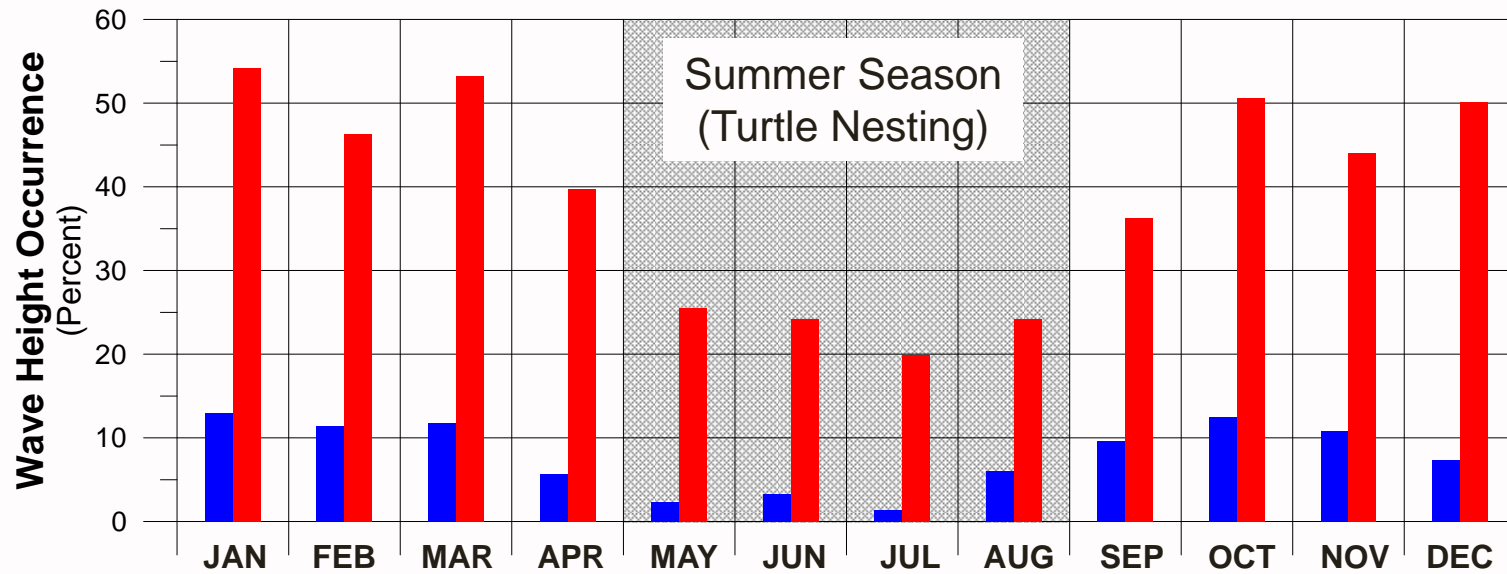
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Fuel (Diesel) Prices

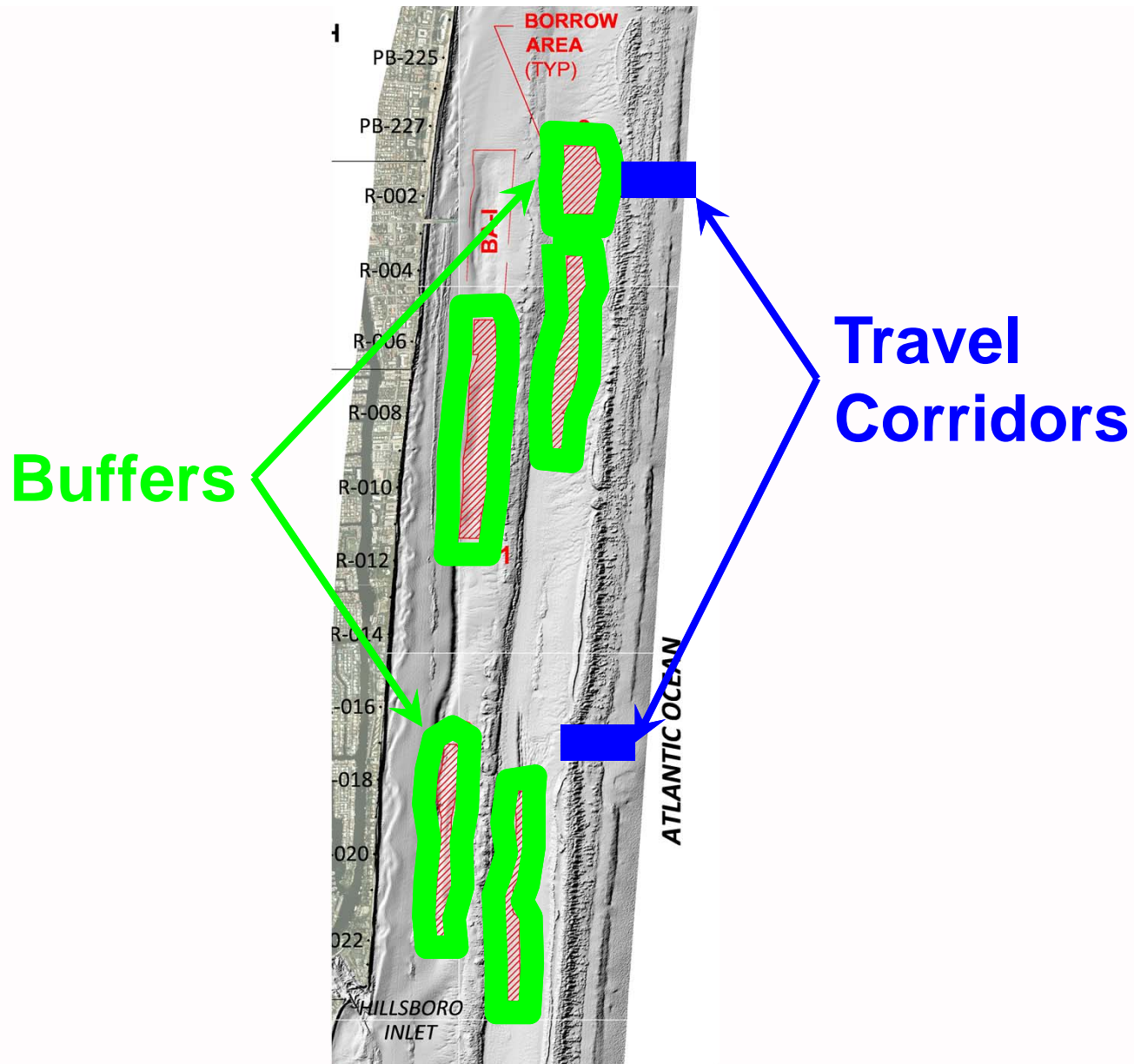


Fuel Prices and Historical Mob/Demob Costs



Environmental Constraints

- construction window

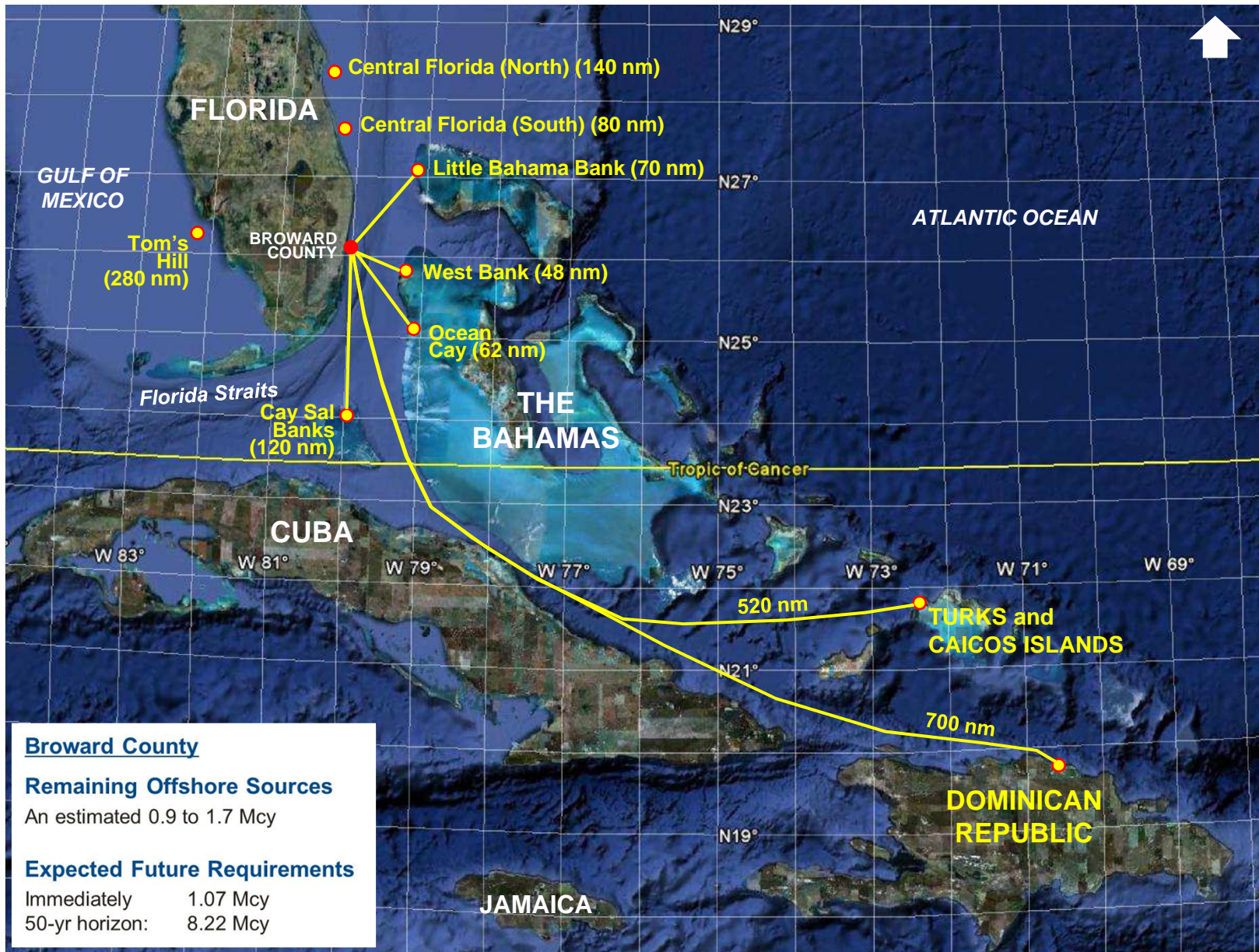


Environmental Constraints

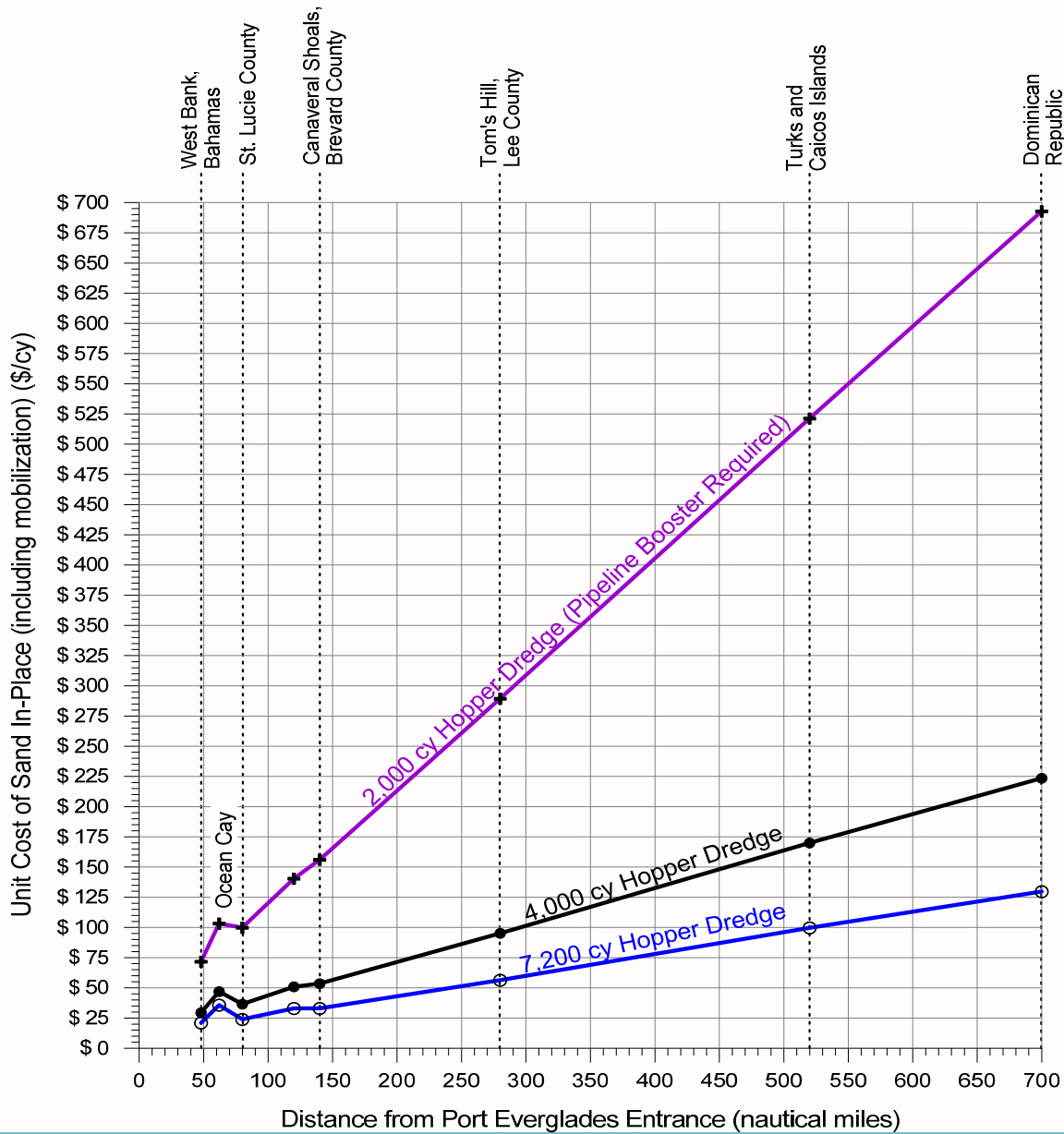
- resource buffers/access restrictions



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Potential Future Sand Sources for South Florida



Sand Cost vs. Distance to Source



Example

- Equivalent Projects
- 2.0 Mcy Nourishment
- Two Offshore Borrow Areas
- 2006 Project Constructed During Winter Season
- Significant variations in bid results from project to project

Bid Price	
1990	
Dredge Co. 1	\$ 9.14
Dredge Co. 2	\$ 13.00
Dredge Co. 3	\$ 10.29
1997	
Dredge Co. 1	\$ 9.20
Dredge Co. 2	\$ 9.89
Dredge Co. 3	\$ 8.89
Dredge Co. 4	\$ 9.63
2006	
Dredge Co. 1	\$ 16.64
Dredge Co. 2	\$ 21.75
Dredge Co. 3	\$ 22.52

millions of dollars

Effect of Dredge Market Conditions on Cost

Funding...

- **Reduced Local Tax Revenues**
- **Reduced State Cost- Sharing**
- **Uncertainties with Federal Funding** (*Earmarks?*)

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**

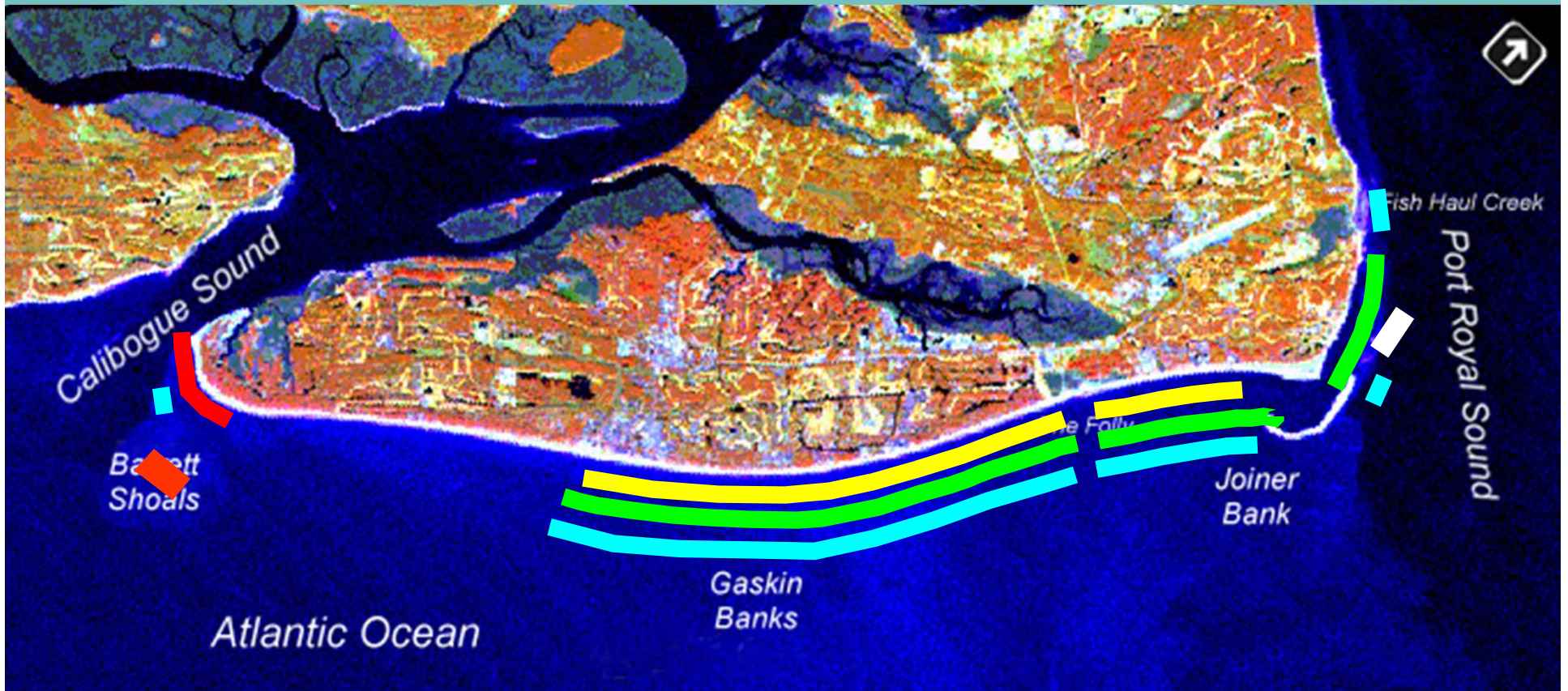


Program Foundation

- **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

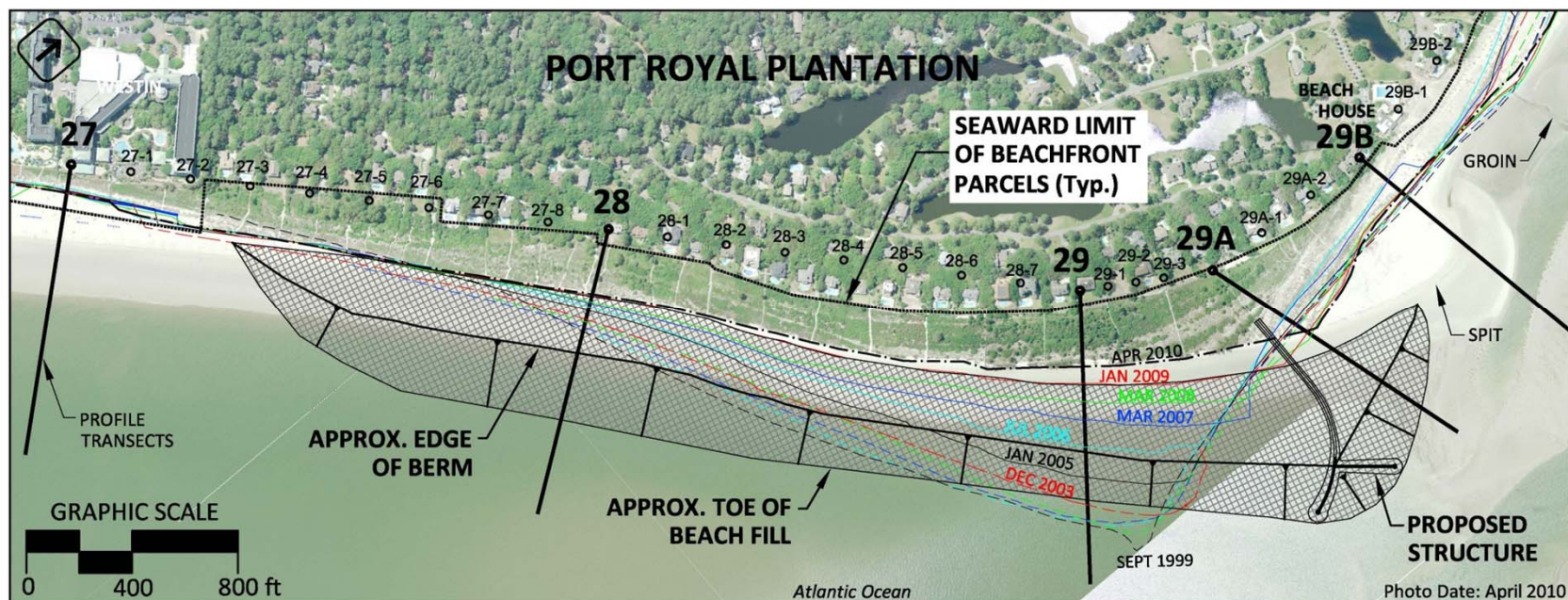
2006/07-Atlantic-Port Royal-South Beach Renourishment



Program Summary

- **Approximately 7.5 MCY placed**
- **Approximately 5.5 MCY remain**
- **Atlantic shorefront is ~200 wider, on average, than pre-1990 conditions**
- **Cumulative Construction Cost To-Date: ~\$35 Million**

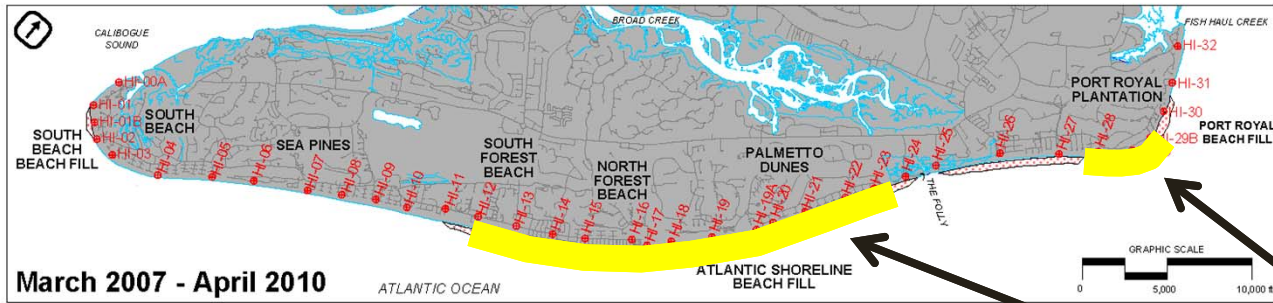




- **Beach Nourishment with Shore Stabilizing Structure**
- **Stabilize High Rate of Erosion at Heel and Incorporate Area into Future Renourishment Projects**

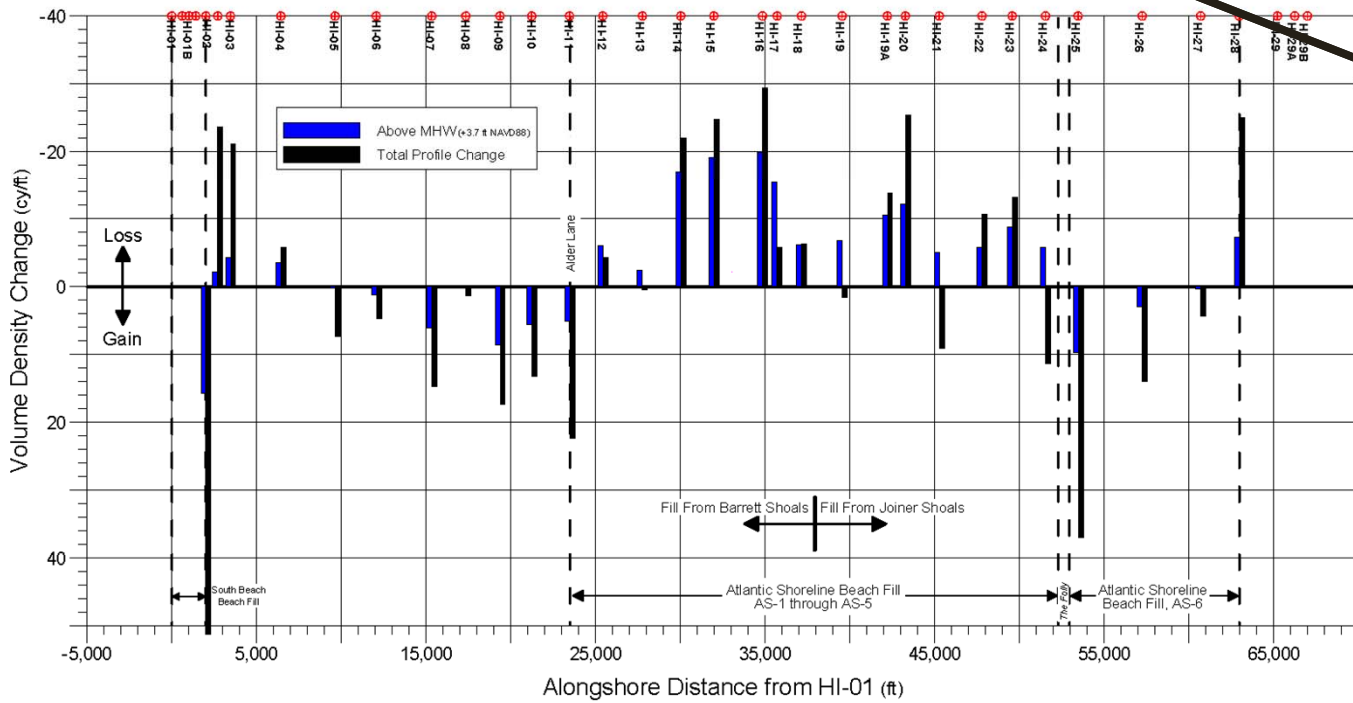
Proposed Plan of Action to Address Heel Shoreline Erosion





● 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.

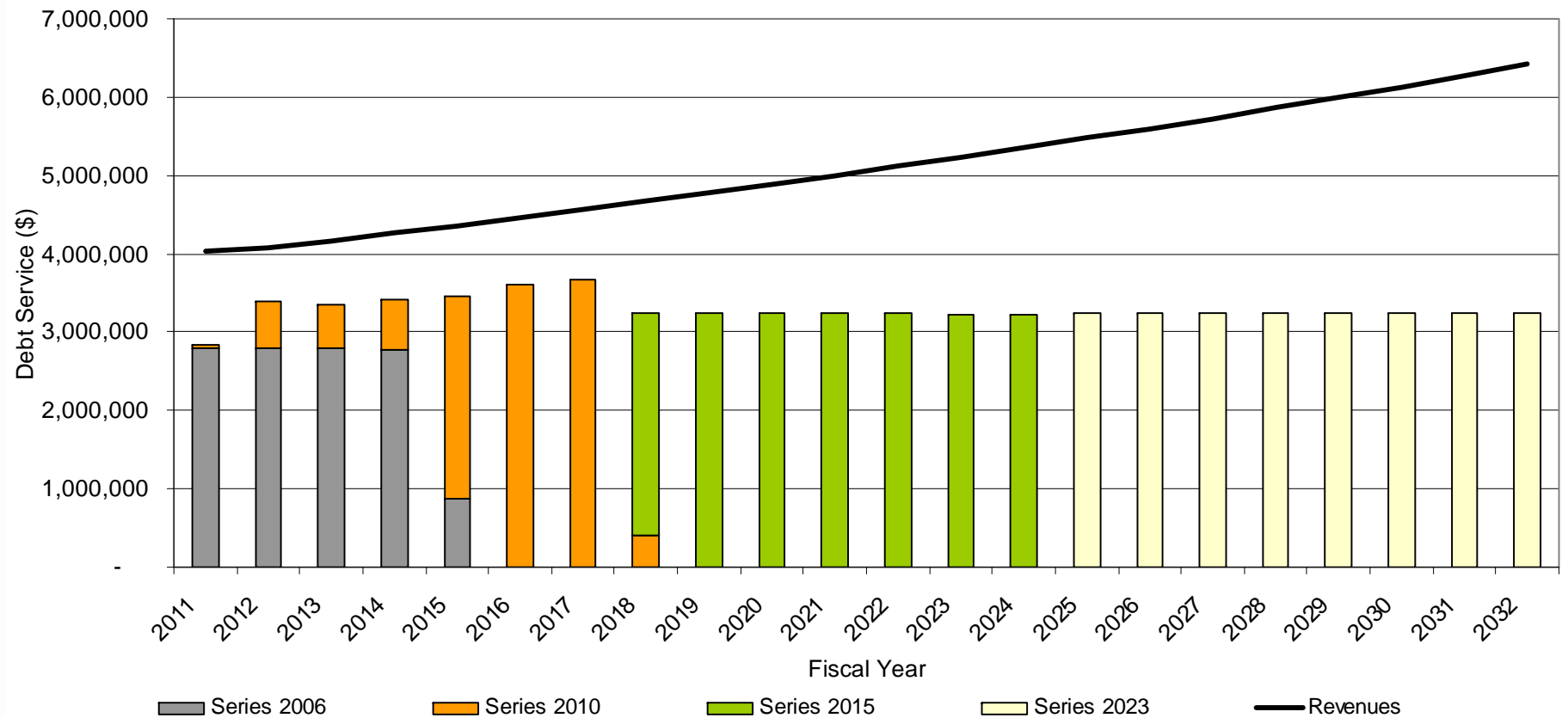


Fund Balance Levels

- 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.



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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