BEACH MANAGEMENT
PROGRAM SUSTAINABILITY

Christopher G. Creed, P.E.
ccreed@olsen-associates.com

and

Scott P. Liggett, P.E.
ScottL@hiltonheadislandsc.gov

24th Annual National Conference on 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
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
WHAT CAN AFFECT SUSTAINABILITY?

• Unplanned increases in construction costs
• Unexpected program needs
  • unplanned project(s)
• Decrease or elimination of funding
Construction Cost Increases…

Ex. Broward County Federal SPP

CPI
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”
Fuel Prices and Historical Mob/Demob Costs

Average Annual National Price of Wholesale Diesel Fuel
Source: US Energy Information Administration (www.eia.gov)

Mob/Demob Cost for Hilton Head Island (typ.)

$2.6M

$1.1M

$0.9M
Environmental Constraints
- construction window
Environmental Constraints
- resource buffers/access restrictions
Potential Future Sand Sources for South Florida

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
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

<table>
<thead>
<tr>
<th>Bid Price</th>
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<tbody>
<tr>
<td></td>
<td>1990</td>
</tr>
<tr>
<td>Dredge Co. 1</td>
<td>$ 9.14</td>
</tr>
<tr>
<td>Dredge Co. 2</td>
<td>$ 13.00</td>
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<tr>
<td>Dredge Co. 3</td>
<td>$ 10.29</td>
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<tr>
<td>Dredge Co. 4</td>
<td>$ 9.63</td>
</tr>
</tbody>
</table>

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*
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
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
Areas Most Likely to Need Future Nourishment

- Heel Shoreline
- North Forest Beach/Palmetto Dunes Shoreline
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

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<th>Debt Service ($)</th>
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<tbody>
<tr>
<td>2011</td>
<td>Series 2006</td>
</tr>
<tr>
<td>2012</td>
<td>Series 2010</td>
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<td>2031</td>
<td>Series 2015</td>
</tr>
<tr>
<td>2032</td>
<td>Series 2015</td>
</tr>
</tbody>
</table>

- **Series 2006**
- **Series 2010**
- **Series 2015**
- **Series 2023**
- **Revenues**
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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