

Longboat Pass Inlet Management Study



COASTAL PLANNING & ENGINEERING, INC.

Manatee County – Town of Longboat Key, Joint Commission Meeting
February 14, 2012



Overview

- Town of Longboat Key and Manatee County are working together with WCIND, FDEP, Corps and others to develop an Inlet Management Plan (IMP) for Longboat Pass.
- Joint management of Longboat Pass for navigation, beach nourishment and coastal protection.
- Delft3D modeling performed for better understanding inlet dynamics, effects on beaches and options to mitigate impacts.



Chapter 161.143, Florida Statutes

161.143 - Inlet management; planning, prioritizing, funding, approving, and implementing projects.

- (1) Studies, **projects**, and activities for the purpose of mitigating the erosive effects of inlets and balancing the sediment budget of the inlet and adjacent beaches **must be supported by separately approved inlet management plans** ... Such plans in support of individual inlet projects or activities must ... evaluate each inlet **to determine the extent of the inlet's erosive effect on adjacent beaches and, if significant, make recommendations to mitigate such ongoing erosive effects** and provide estimated costs for such mitigation.



WCIND Regional Model Study of Sarasota Bay (H&M, 2008)

- Jointly sponsored by the WCIND and FDEP.
- Included Case Study of Longboat Pass.
- Evaluations of the evolution of the pass over time, the effects of a changing tidal prism, and the effects of past sediment excavation.





Figure 1.1. Regional Coverage of Sarasota / Tampa Bays and Inlets System

WCIND Regional Model Study of Sarasota Bay (H&M, 2008)

- 5 recommendations based on historical data analysis and initial modeling of Longboat Pass:
 1. Reconsider alignment of authorized channel
 2. Use sand from navigation dredging for beach nourishment
 3. Modify GIWW dredging to address shoaling problems
 4. Manage erosion hotspots with nourishment and structures
 5. Sand tighten existing jetty on Anna Maria Island



Inlet Management Study of Longboat Pass and Adjacent Beaches (CPE, Oct 2011)

- Jointly sponsored by the Town of Longboat Key and Manatee County.
- Follow-on from the WCIND/FDEP regional study.
- Assess the impacts of Longboat Pass on both Anna Maria Island and Longboat Key beaches.
- Provide recommendations for improved management of the inlet and evaluate specific options for mitigating erosion.
- Coordination is ongoing.



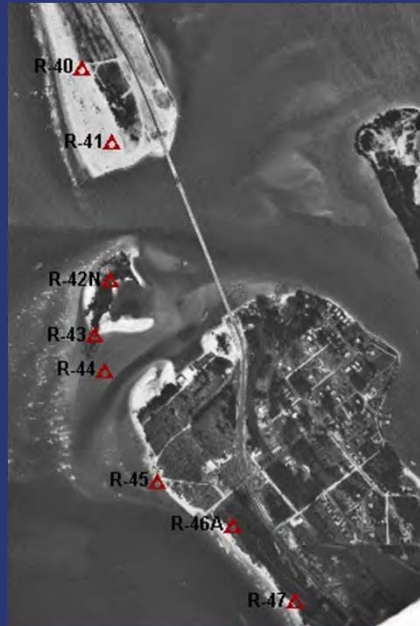
Longboat Pass Inlet Management



Historic Variability



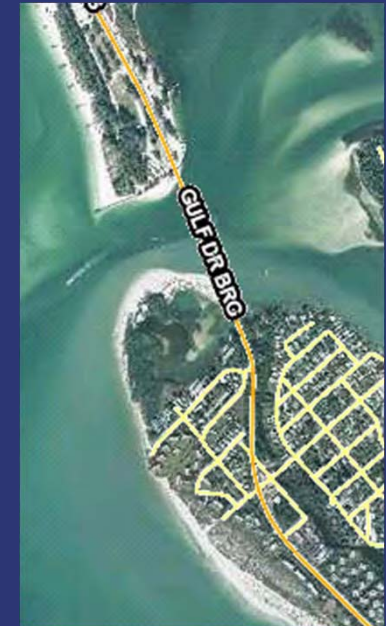
1952



1963



1977



2010

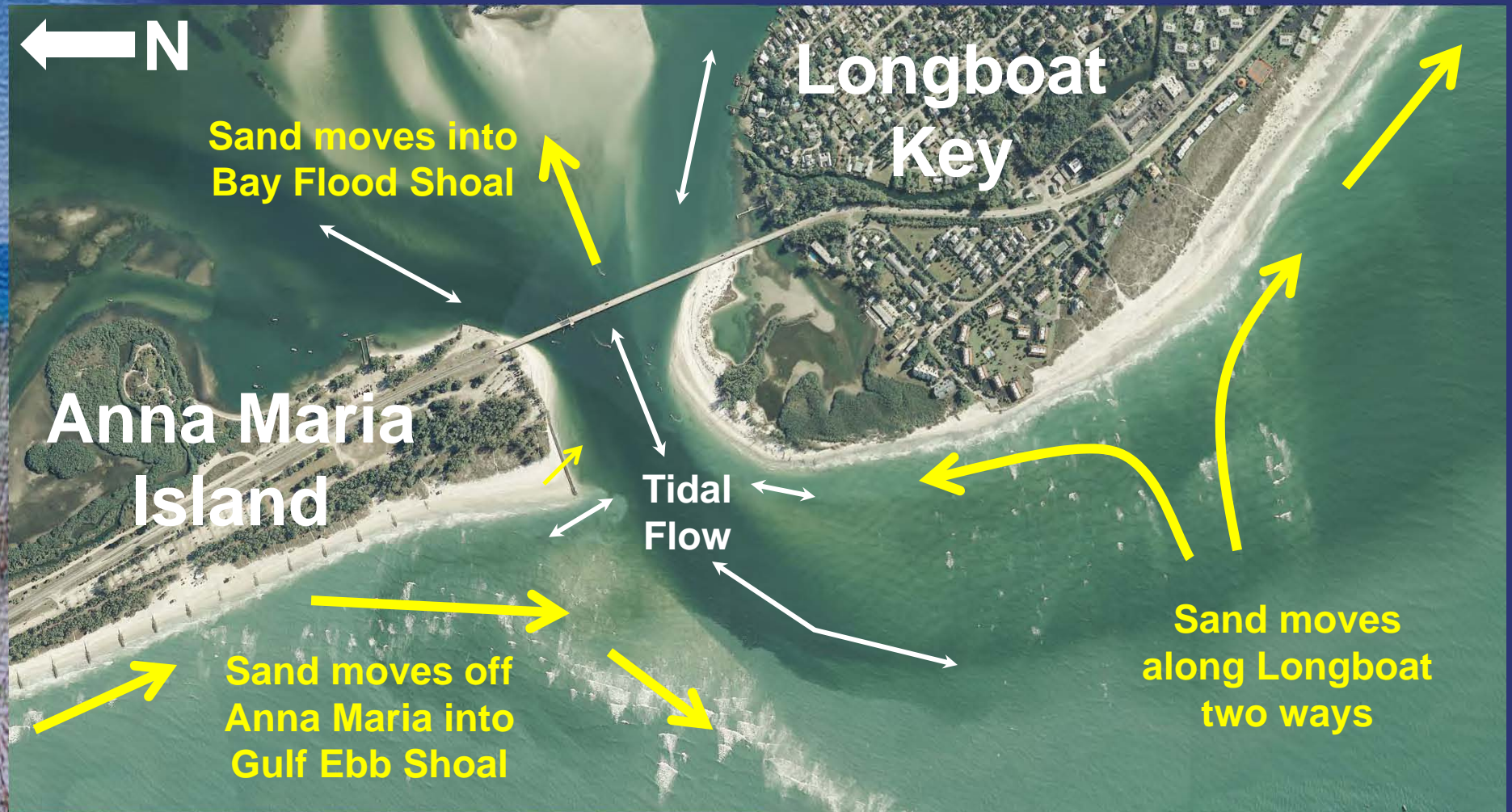
- Multiple municipalities affected
- Beach management challenges
- Dredging for navigation and beach nourishment

Navigation Dredging History

- Approximately 1,000,000 cubic yards of sand dredged for navigation since 1950
- Sand placed on Anna Maria Island (53%) and Longboat Key (47%)
- +20,000 cubic yards per year gained in channel since 1997



Longboat Pass Dynamics



Longboat Pass Area of Influence



Data SIO, NOAA, U.S. Navy, NGA, GEBCO

© 2012 Europa Technologies
Image © 2012 TerraMetrics

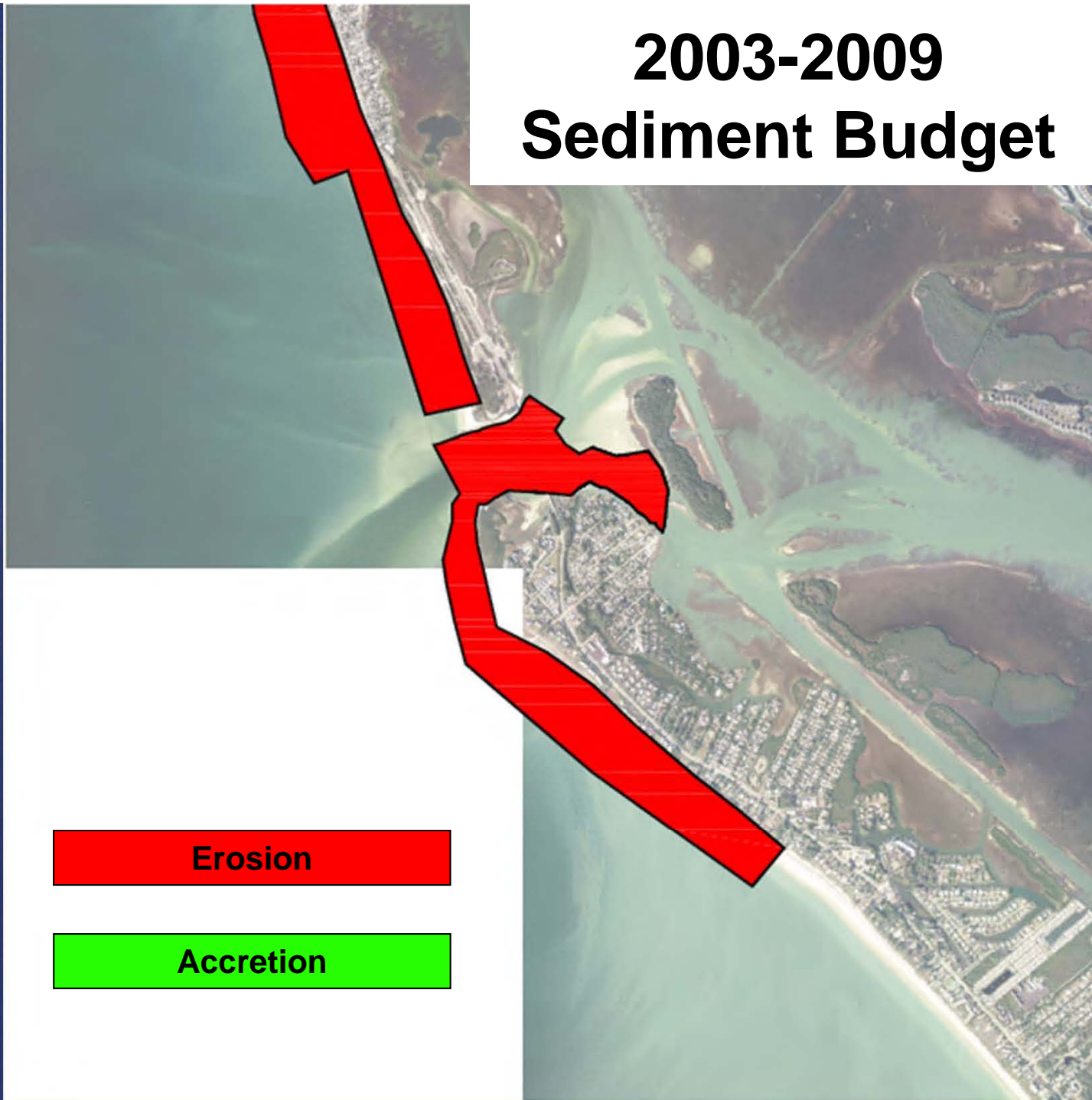
Google earth

Imagery Date: 12/1/2010 1998

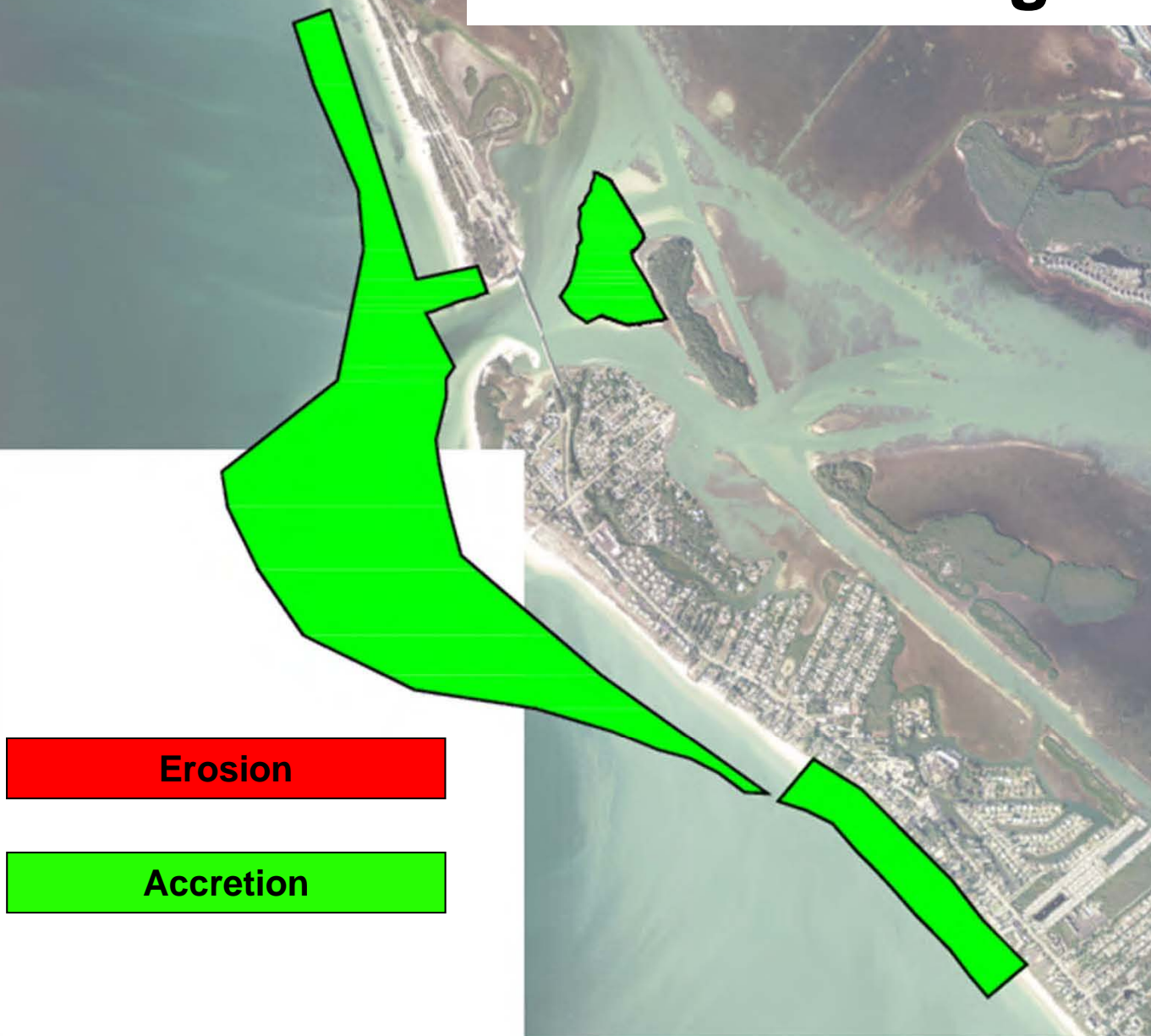
27°26'38.16" N 82°41'19.43" W elev 0 ft

Eye alt 27197 ft

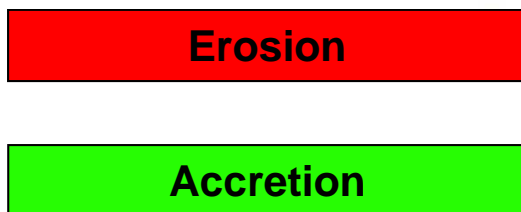
2003-2009 Sediment Budget



2003-2009 Sediment Budget



2003-2009 Sediment Budget



Alternatives Considered

- Many options considered in preliminary design meetings.
- 10 alternatives selected for initial modeling.
- Combined options and several additional modifications also evaluated.



Alternatives Selected for Modeling

1. No Action.
2. Terminal groin extension on Anna Maria Island.
3. Terminal groin on Longboat Key (a. single and b. double).
4. Terminal groin with single breakwater.
5. Terminal groin with Permeable Adjustable Groins on Longboat Key.
- 6a. Dredge channel in authorized location.
- 6b. Dredge channel to follow deep-water location.
- 6c. Dredge channel to intermediate location.
- 6d. Dredge channel to authorized with advanced maintenance.
7. Dredge GIWW Cut M-5.

Additions: Single large terminal groin, alternate structure locations, modified channel alignments, combinations of various components.



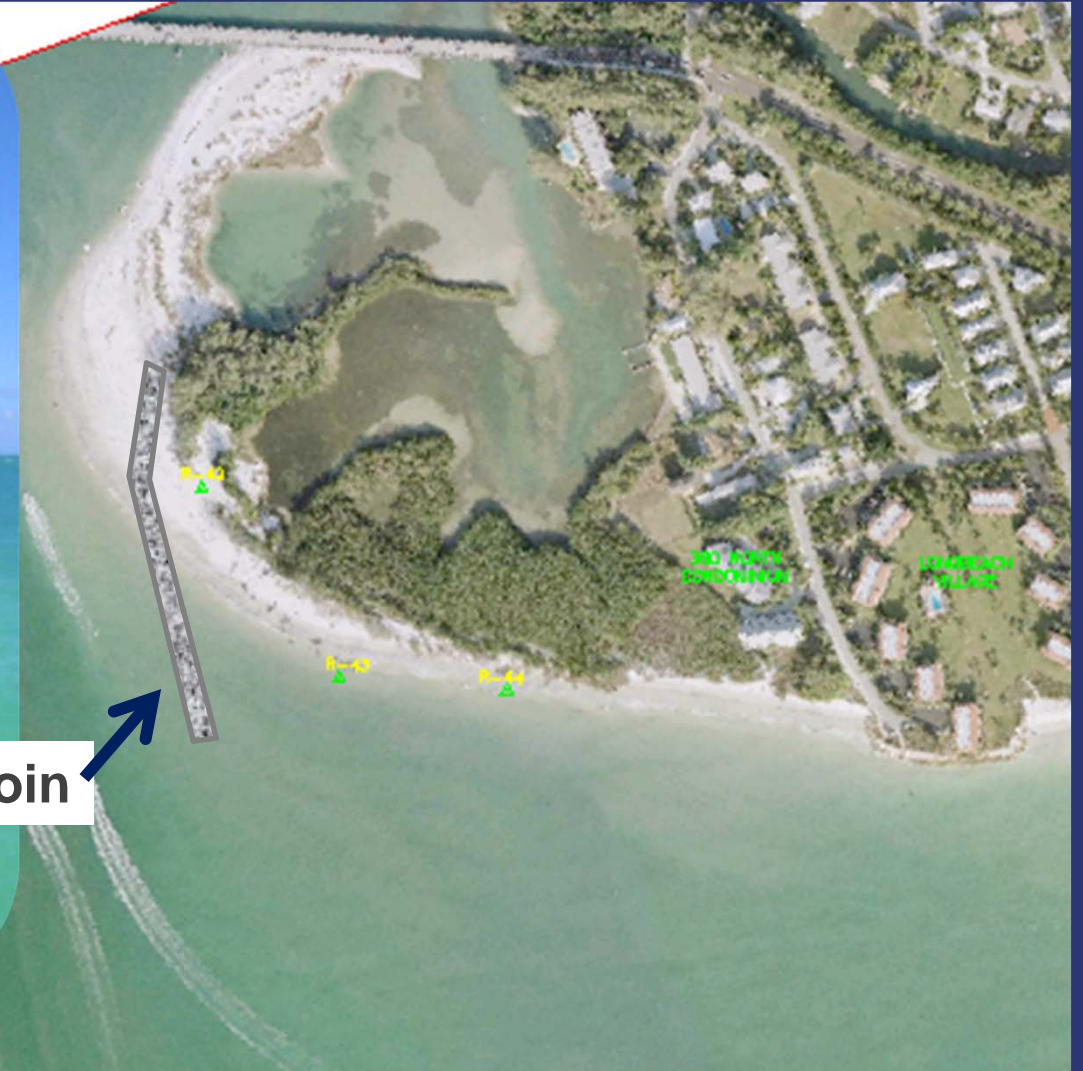
Anna Maria Island Jetty Sand Tightening + Extension



Longboat Key Terminal Groin

**Miami Beach
Example of Rubble
Mound Groin**

Terminal Groin



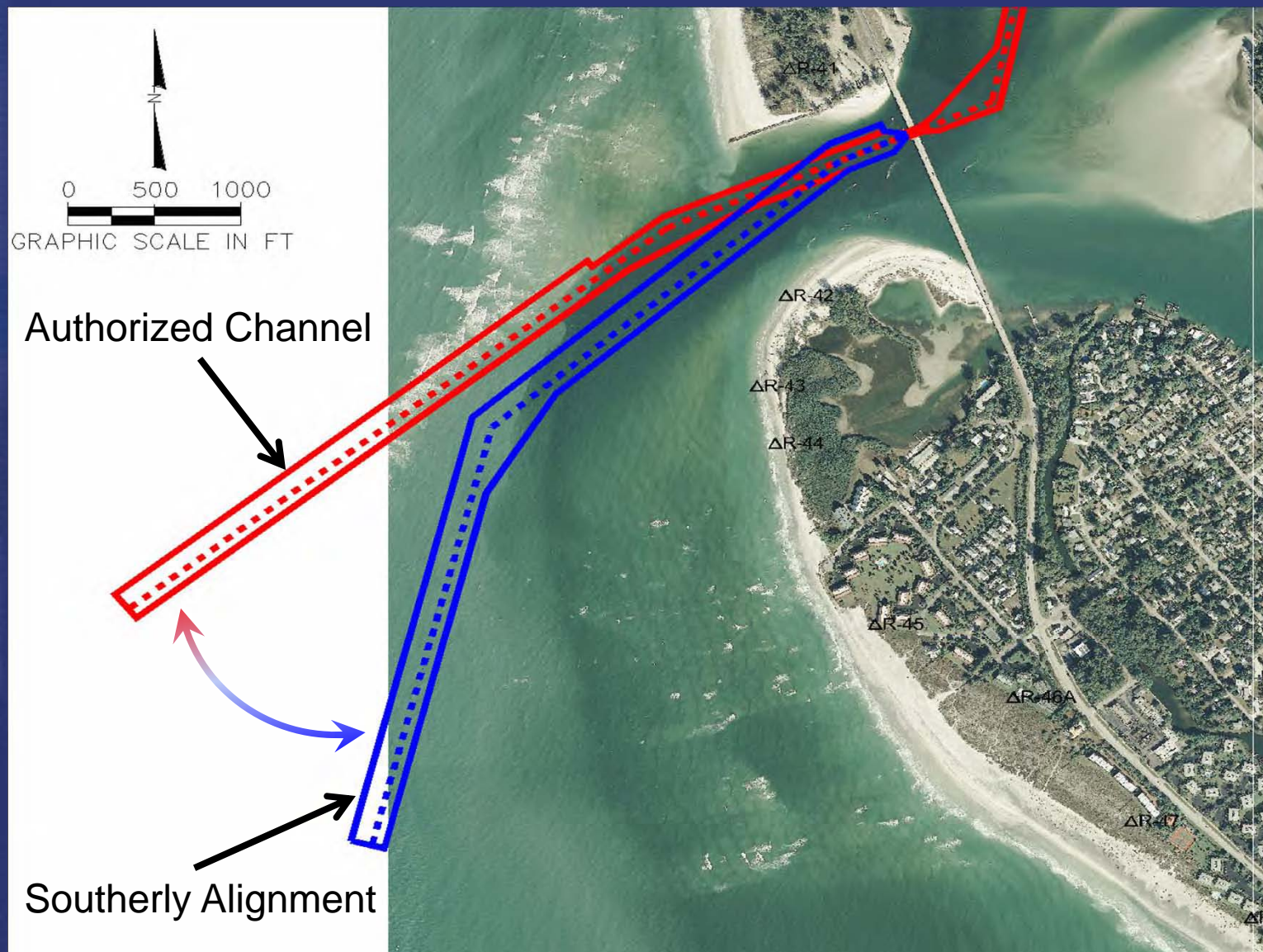
Longboat Key Terminal Groin + Breakwater



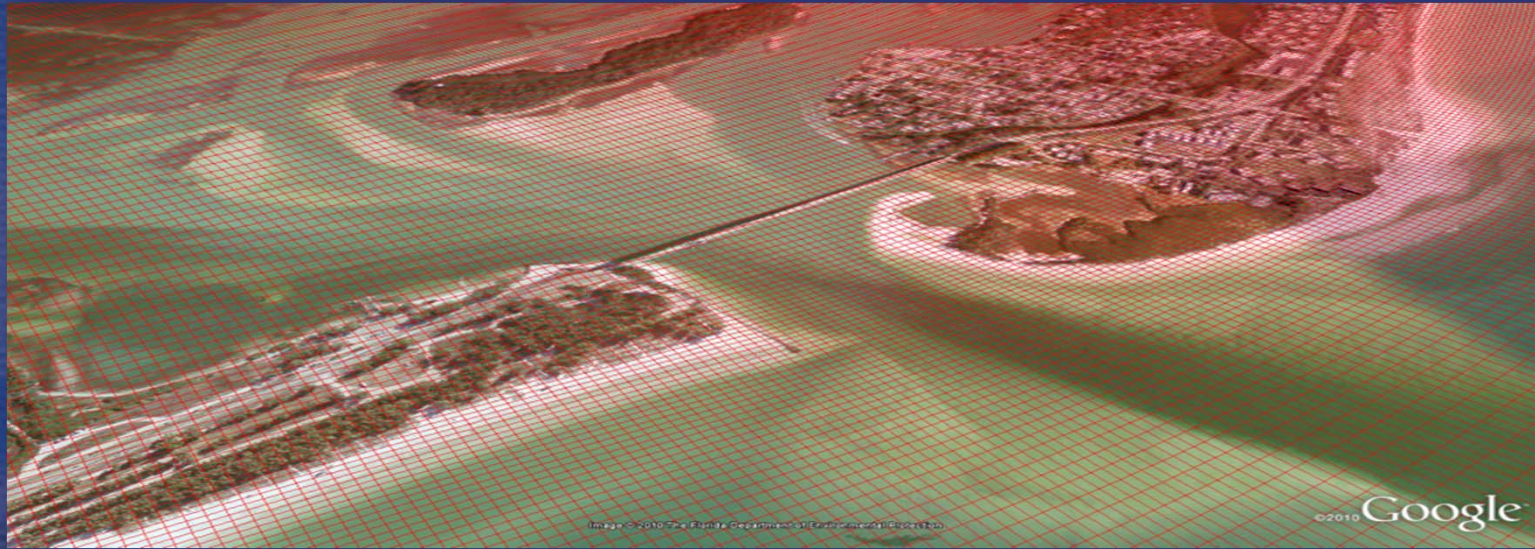
Longboat Key Terminal Groin + Permeable Adjustable Groins



Range of Channel Alignments



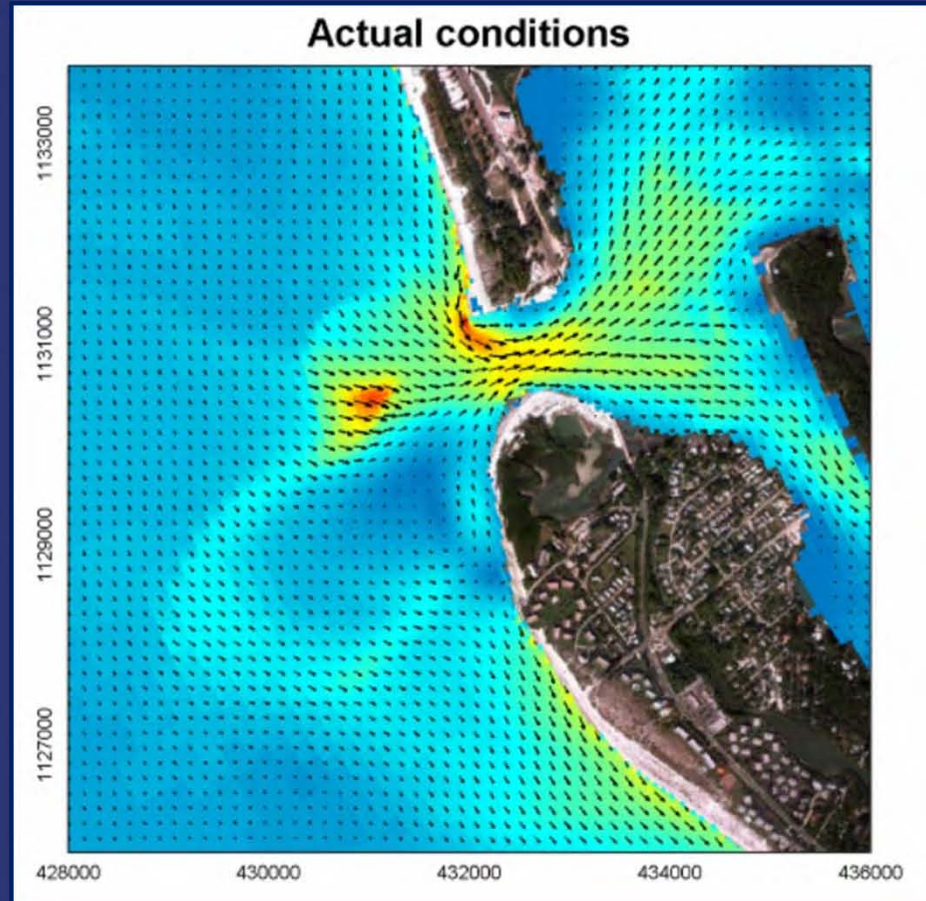
Delft 3D Modeling



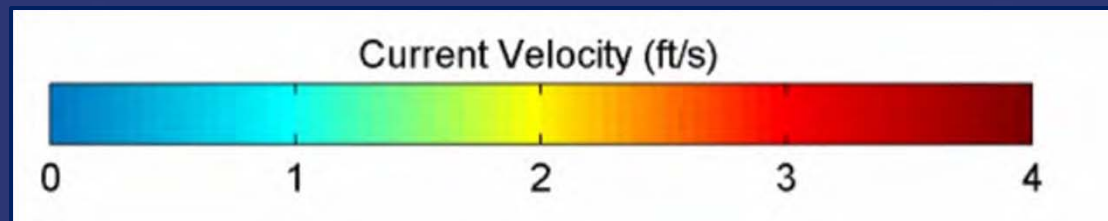
- Delft3D modeling of tides, flow, waves, sediment transport patterns and bathymetric evolution:
 - Model simulates representative waves and tides to drive the sediment transport.
 - Rigorous calibration effort to replicate the sediment transport along both beaches and within the inlet complex.
 - Simulate each alternative for comparison with the no action alternative.



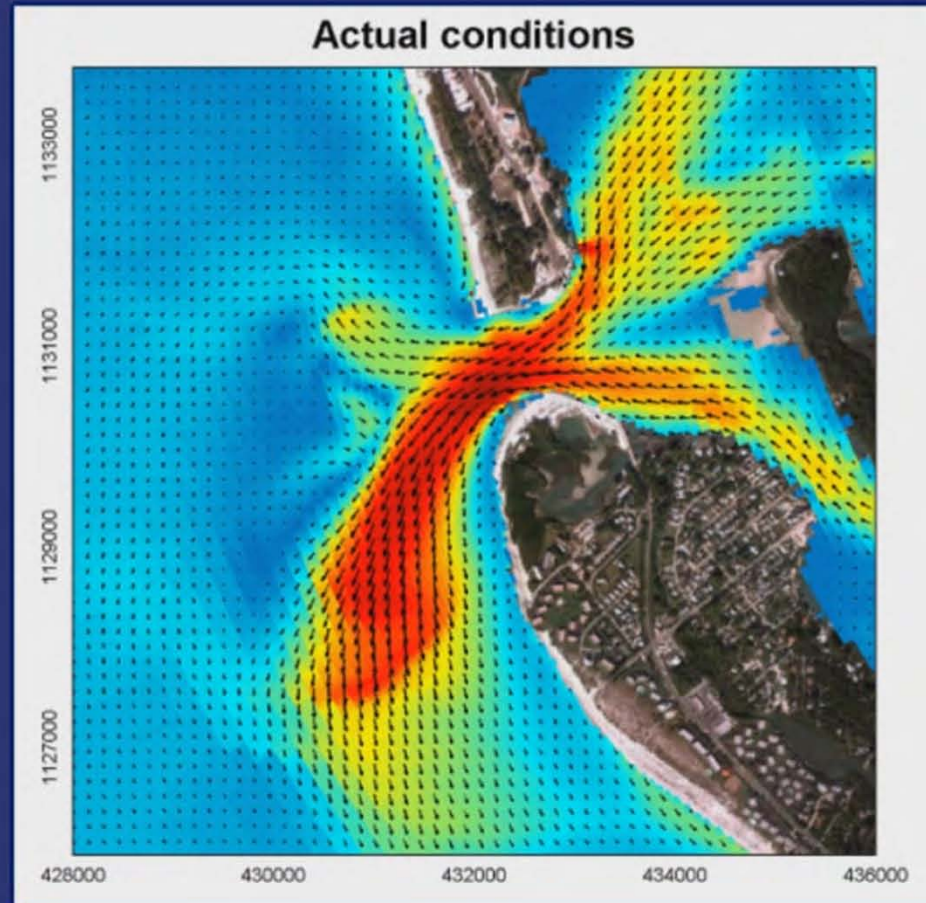
Longboat Pass Tidal Flow



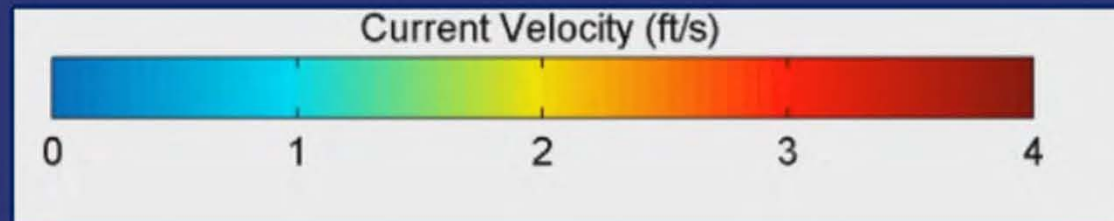
24 Hour
Video Loop



Longboat Pass Tidal Flow



Maximum
Flow of
Outgoing
Tide

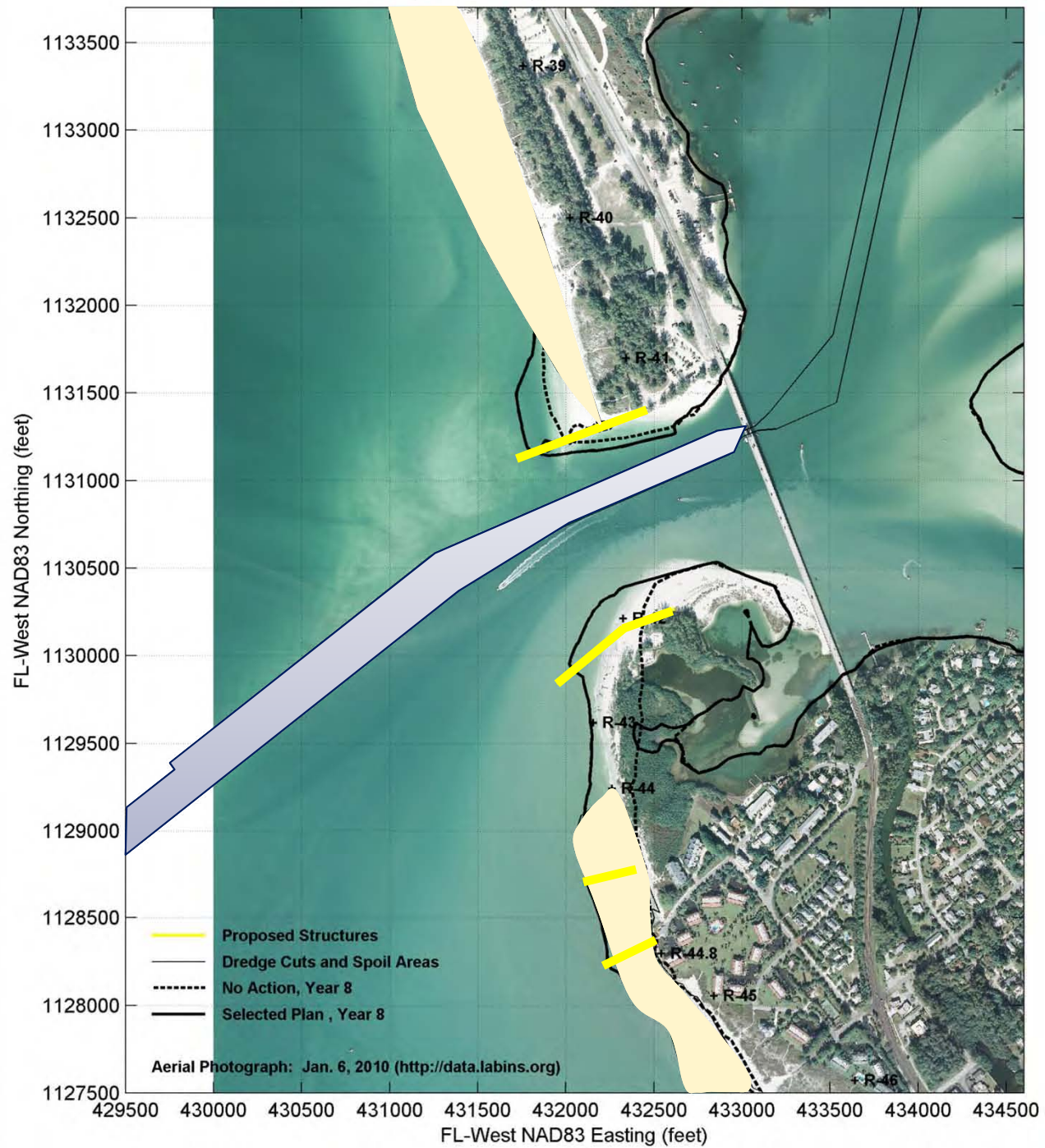


Study Findings

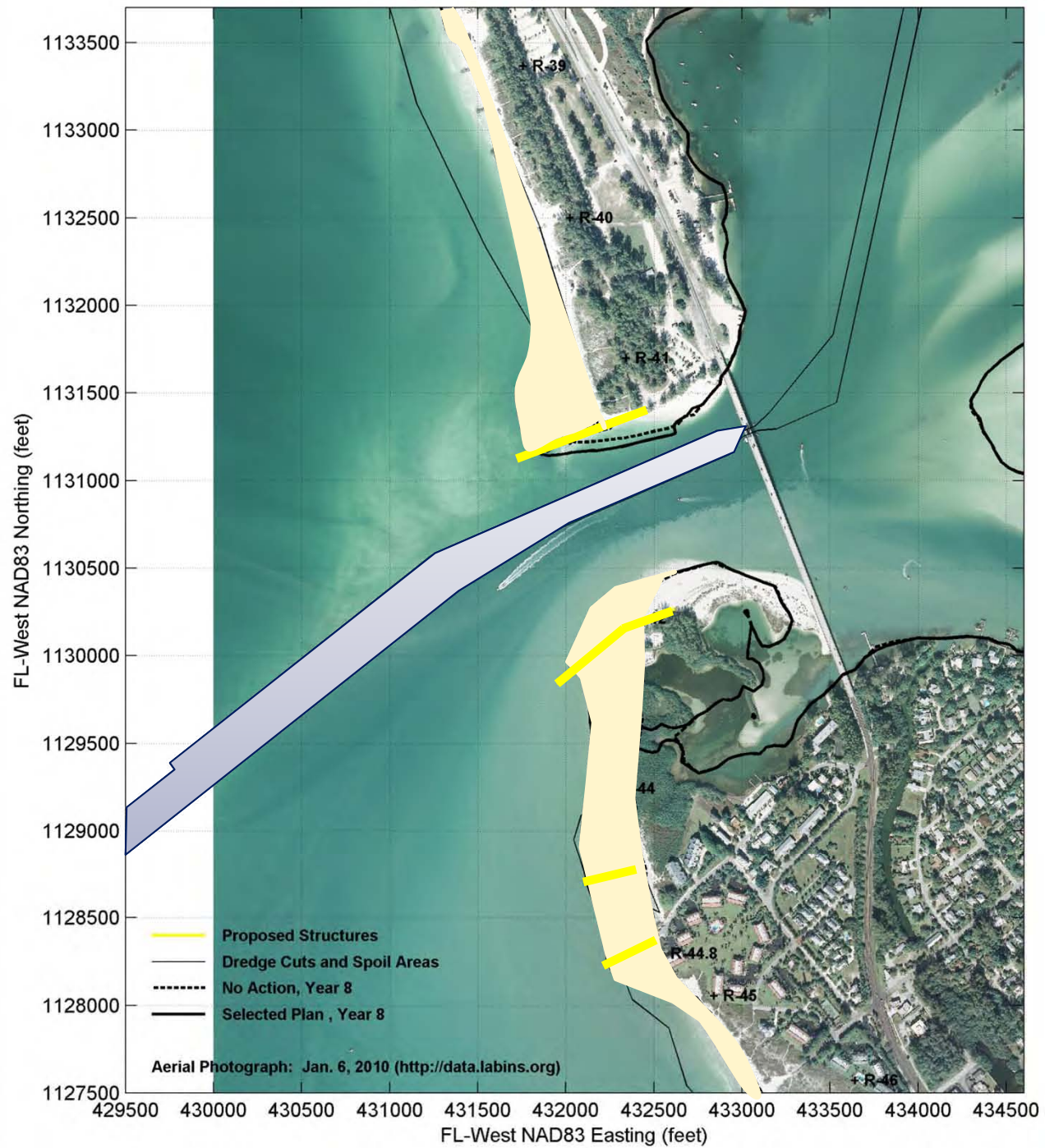
- A combination of alternatives was necessary to achieve the objectives of the plan:
 - Anna Maria Island terminal groin tightening and extension.
 - Longboat Key terminal groin.
 - Two permeable adjustable groins on Longboat Key.
 - Maintain the navigation channel in authorized position with advanced maintenance.
 - Share dredged sand 50/50.
 - Dredge GIWW Cut M-5.



Year 8 MLLW (-1.57' NAVD), No Action Scenario & Selected Plan

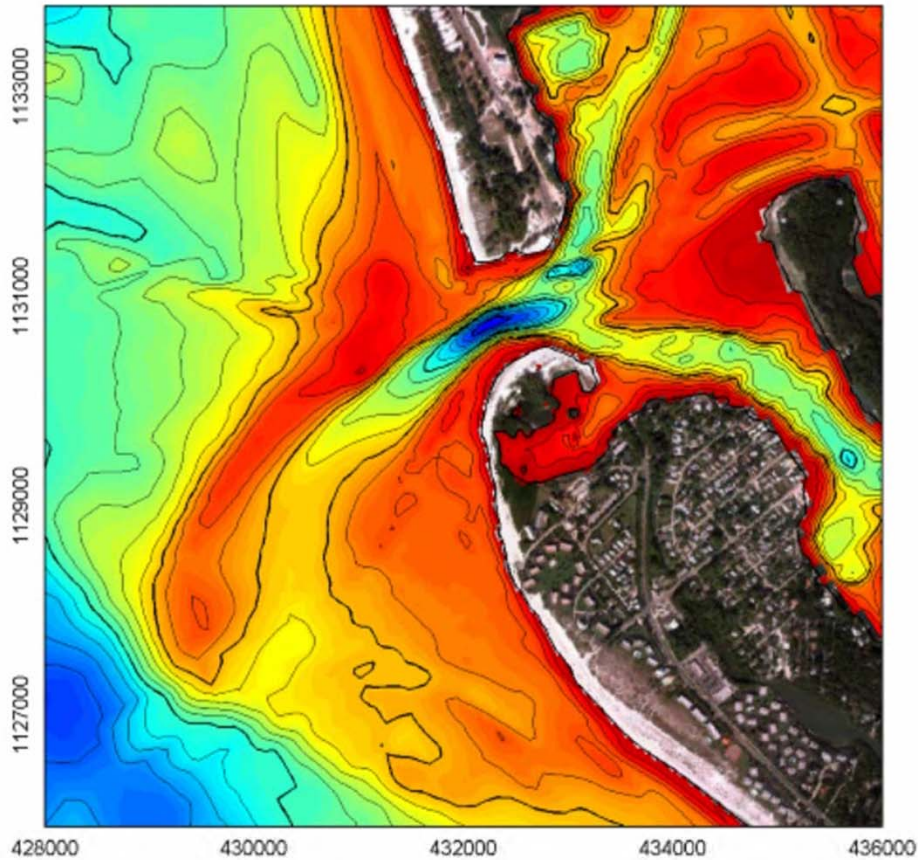


Year 8 MLLW (-1.57' NAVD), No Action Scenario & Selected Plan

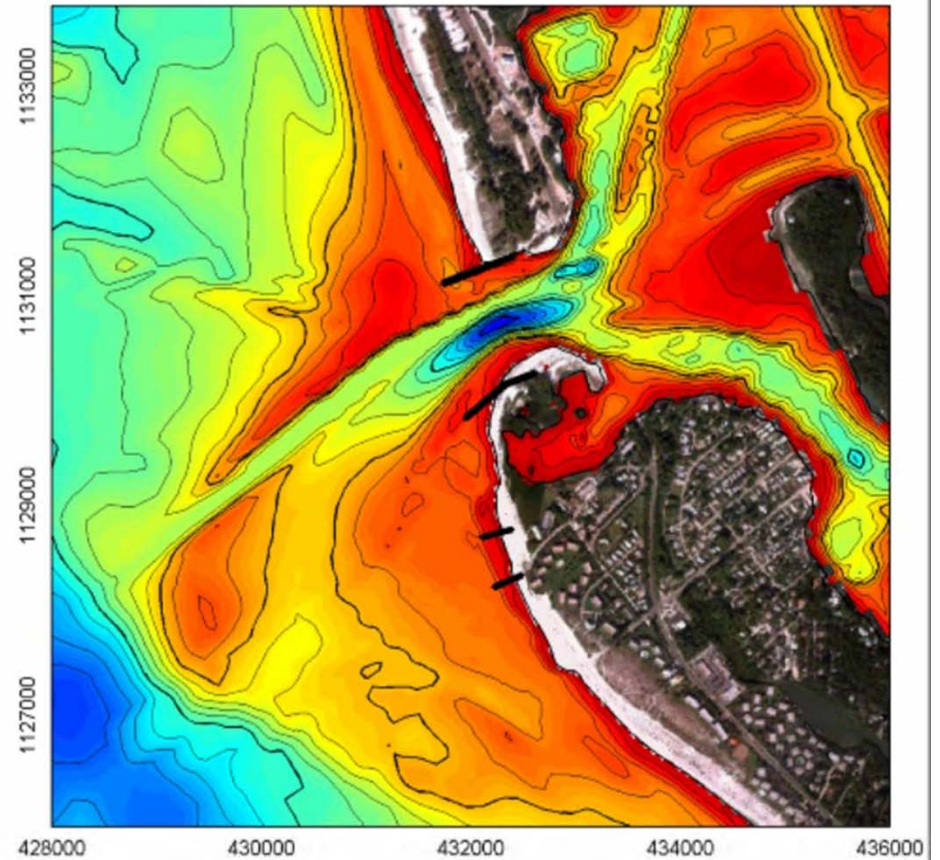


Longboat Pass Sand Movement (4 Years)

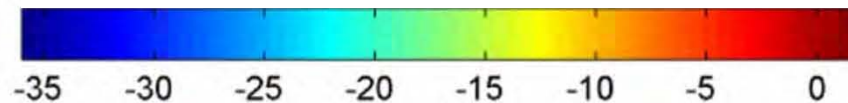
Existing Conditions



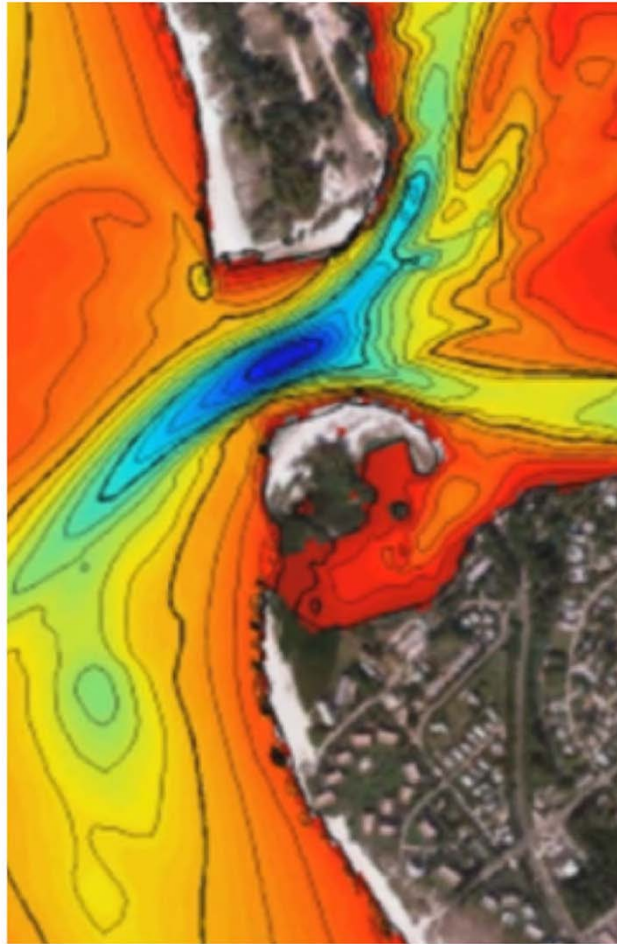
Combined Plan



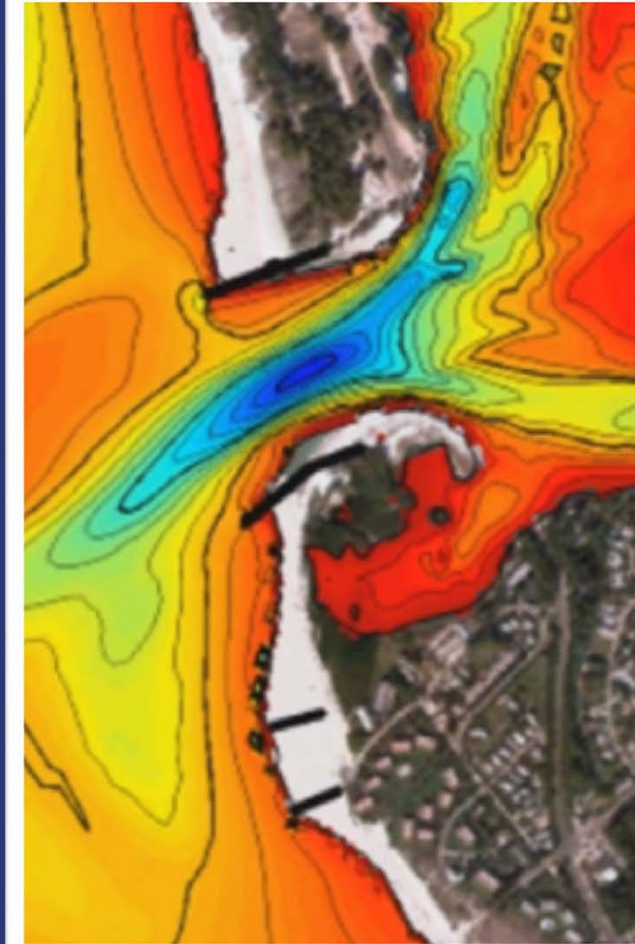
Water Depth (Feet)



Comparison of Results



Without Project



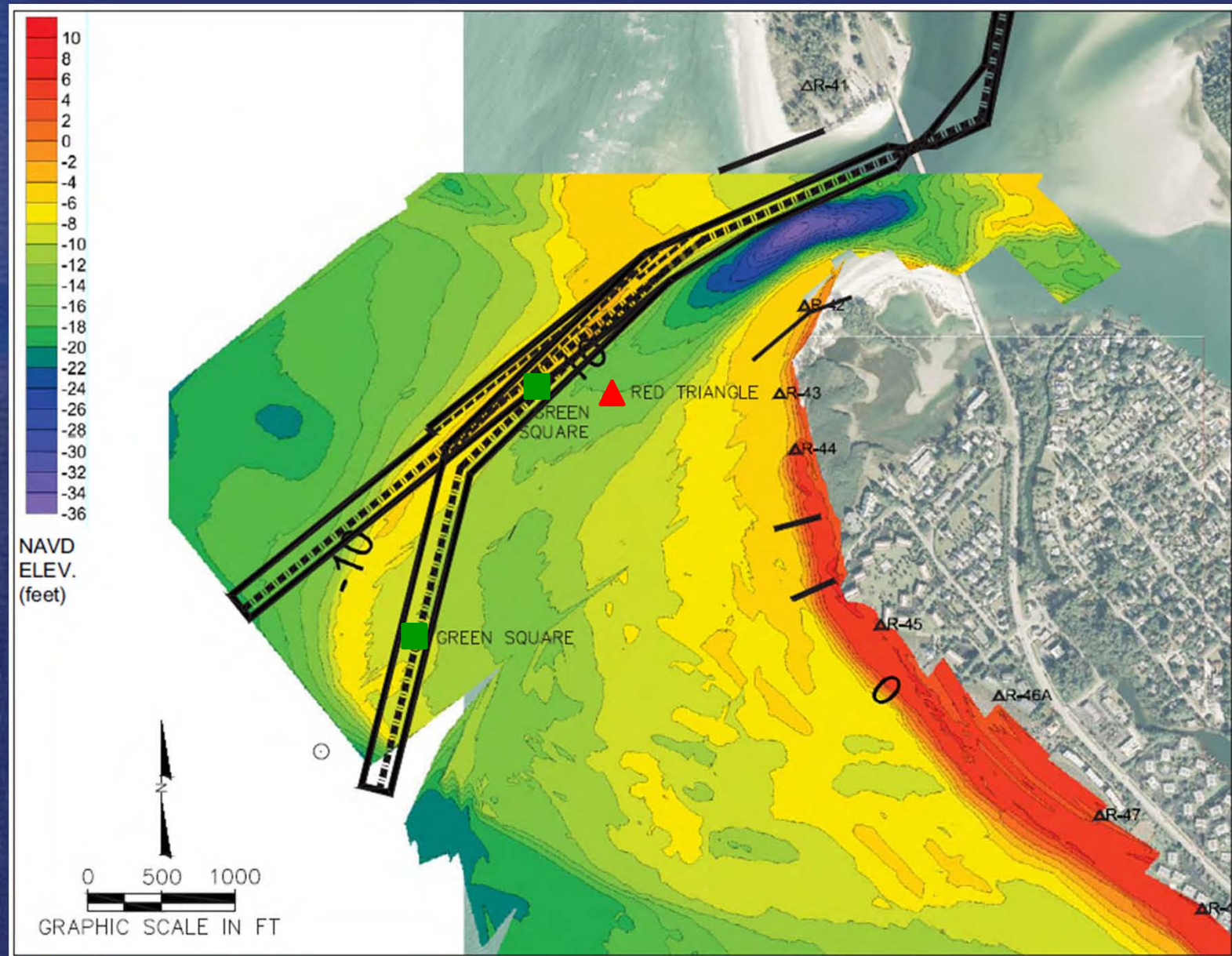
With Project

Recommendations (October 2011)

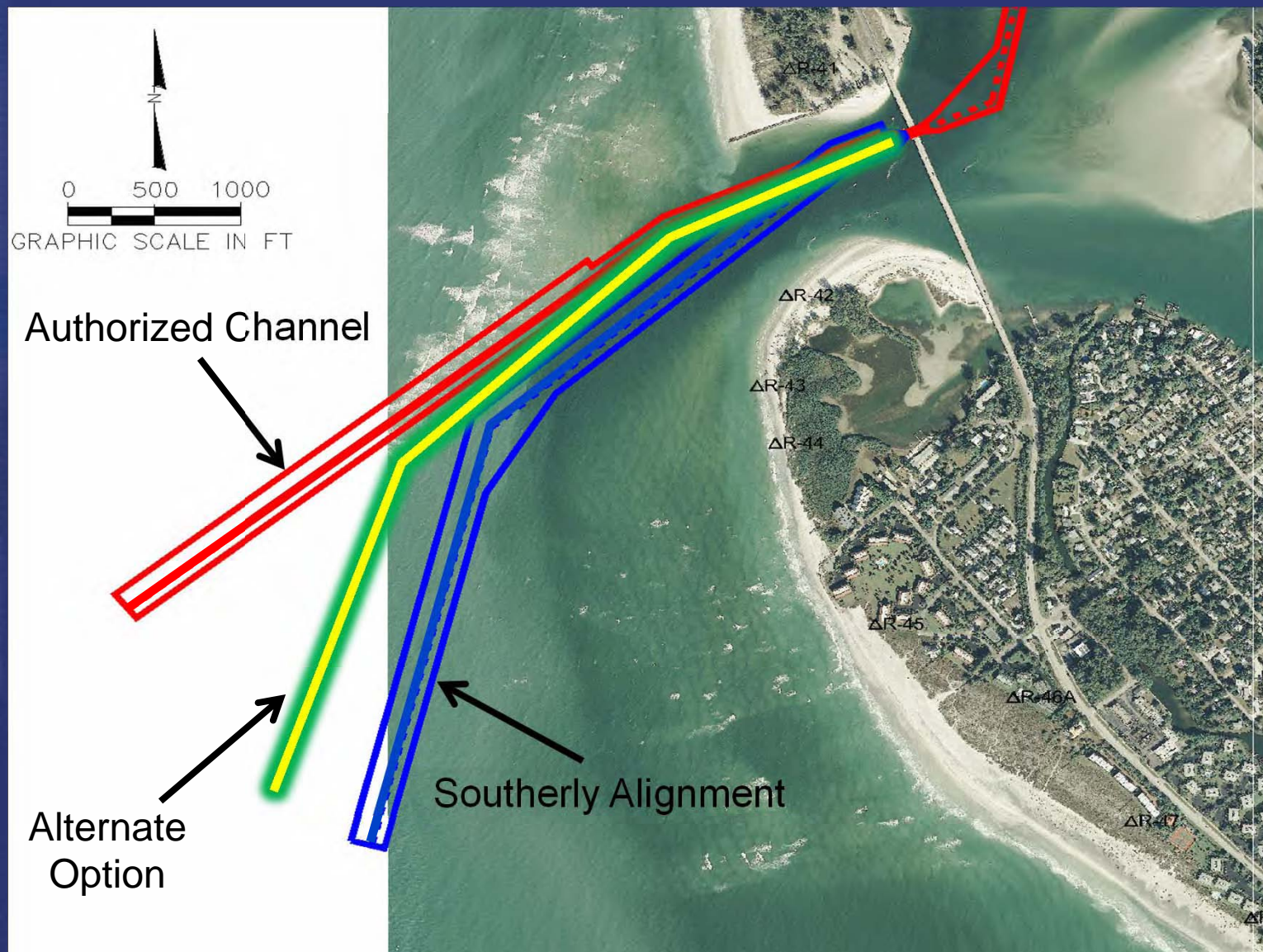
- Reconstruction and extension of the existing jetty at Coquina Beach.
- Construction of a new terminal groin on the north side of Longboat Key.
- Construction of two shore perpendicular, semi-permeable adjustable groins on the northern end of Longboat Key.
- Maintenance dredging of Longboat Pass within its authorized federal alignment.
- Place beach compatible sand on Coquina Beach and Longboat Key (50/50) at considerable cost savings compared to offshore sand sources.



Alternate Channel Consideration



Range of Channel Alignments



Current Status of Review

- Town and County reviewing and commenting on study findings.
- Additional modeling of alternative location for Longboat Key Terminal Groin.
- Additional modeling of alternative navigation channel alignment.
- Consideration advance dredging for reformation of northern swash channel.



Thank You!



Work Session Outcomes

1. Endorse the conceptual plan describing structures, channel alignment and beach nourishment.

- Direct staff to proceed with final design and permitting of the inlet study recommendations.



Work Session Outcomes (con't)

2. Seek matching cost share agreements with FDEP and WCIND regional project funds for construction of the proposed structures.



Work Session Outcomes (con't)

3. Encourage continued Federal participation in the maintenance of Longboat Pass, supplementing Congressional appropriations, if necessary with WCIND regional funds.



Work Session Outcomes (con't)

4. Work with WCIND and FDEP to characterize the joint Town/County study as an integral part overall Inlet Management Plan for Longboat Pass and seek FDEP cost sharing.





WS BCC JM
Inlet
Photos 2/14/12











Office of
**MANATEE COUNTY
ATTORNEY**

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Rodney C. Wade, Deputy County Attorney*
William E. Clague, Deputy County Attorney
James R. Cooney, Deputy County Attorney
Sarah A. Schenk, Deputy County Attorney*

MEMORANDUM

DATE: February 10, 2012

TO: Joe McClash, Commissioner At-Large, District 7

THROUGH: Tedd N. Williams, Jr., County Attorney *TNW 2/10/12*

FROM: Rodney C. Wade, Deputy County Attorney *Rodney C. Wade*

RE: **Beer Can Island a/k/a Greer Island – Legal Restrictions Imposed on Manatee County Stated in Deed**
RLS-12-027; CAO File 1017-198

BACKGROUND:

You have asked that I research Manatee County's title to Beer Can Island a/k/a Greer Island and determine whether the Deed is subject to restrictions or reservations which would impact the proposal of the Inlet Management Study of Longboat Pass and Adjacent Beaches.

DISCUSSION:

In Deed No. 25461 dated March 15, 1974, the State of Florida Board of Trustees of the Internal Improvement Trust Fund deeded to Manatee County in fee simple property commonly known as Beer Can Island or Greer Island. That deed was recorded in Manatee County Official Records Book 664, Page 731, et seq. This deed also included an access easement granted by Sarasota Bank and Trust Company, a state banking association, to the Trustees who included it with the transfer of the island to Manatee County.

The Deed contained the following restrictions:

1. The foregoing property shall be kept in its natural state in perpetuity and preserved as a natural wilderness recreational area and wildlife preserve. No man-made alterations shall be caused or structures of any kind constructed or placed

on said property other than in connection with the protection of the property from natural elements, and then only with applicable local, state and federal permits.

2. The use of motor driven wheeled vehicles shall be prohibited on the described property except for emergency, public or service vehicles performing official duties relating to public health, safety and welfare.

3. Should it be judicially established that the grantee has substantially violated the foregoing conditions, title to the said land together with the access easement hereinafter provided shall revert to the State of Florida Board of Trustees of the Internal Improvement Trust Fund.

The above-quoted language clearly sets out that Manatee County, as the new property owner, is to keep the property in a natural state as a wilderness recreational area and that no man-made alterations or structures are to be constructed on the property, other than those that are designed for protection of the property from the natural elements. This may be in conflict with the Longboat Pass Inlet Management Plan, as the construction of the proposed structures as outlined in that plan could violate the restrictions placed on the property by the Board of Trustees of the Internal Improvement Trust Fund of the State of Florida.

Greer Island is actually not an island, but rather it is an attached hook of land best reached by boat. It is affectionately known as "Beer Can Island" by the locals. It is an isolated stretch of beach in a tranquil spot to spot ospreys, herons, gulls and skimmers, pelicans, and other waterfowl wading at the surf line and stalking in the shoreline mangroves. It is also a popular place for water sports activity and sunbathing. The purpose of the legal restriction placed in the Deed by the State of Florida is to keep the area in a pristine and wild condition.

Having reviewed the Inlet Management Study of Longboat Pass and Adjacent Beaches prepared for Manatee County and the Town of Longboat Key, prepared by Coastal Planning & Engineering, Inc., October 11, 2011, it is questionable whether the terminal groins plus two permeable adjustable groins being placed on the island would meet the definition in the Deed of protecting the property from natural elements. The narrative included in the study indicates that the purpose of the man-made structures is accumulating sand on the adjacent area of Longboat Key. While I am not an engineer, it appears that the placement of the structures could actually result in damaging the island's beach by causing erosion of the head of the beach adjacent to the Longboat Pass outer channel. Further review by persons with appropriate expertise may be advisable.

Joe McClash, Commissioner At-Large, District 7
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February 10, 2012

CONCLUSION:

Deed No. 25461 from the Board of Trustees of the Internal Improvement Trust Fund to Manatee County for the purpose of conveying Greer Island ("Beer Can Island") to Manatee County and access easements are subject to the conditions that the property be kept in its natural state and that no man-made alterations or structures shall be constructed or placed on the property. A question exists as to whether the proposed structures are for the protection of the property from the natural elements and, as such, could violate the restriction.

This completes my response to your Request for Legal Services. Please contact me if you have any questions or if I can be of further assistance.

RCW/slm

cc: All County Commissioners

Ed Hunzeker, County Administrator

Joaquin Servia, Manager, Property Acquisition Division

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