Adaptive Management and Policy Solutions for Two Contentious Issues on Fort Myers Beach: Beach Nourishment and Beach Nesting Birds

Keith Laakkonen
Environmental Sciences Coordinator
Town of Fort Myers Beach

Beach Nourishment*- Part 1

- Estero Island Beach Restoration Project
- Beach Vegetation Management
- Easements and Vegetation Concern
- Plantings and Results

Estero Island Beach Island Restoration Project

- 1st Federal Authorization- 1970
- 8 beneficial spoil use projects from Matanzas Pass dredging 1960's – 2001
- 2nd GRR- 2001
- ECL established & DEP Permit issued- 2002
- 1st Interlocal signed- 2002
- Owners allowed to rescind easements- 2009
- Final Interlocal- 2010
- Construction- 2011
- Plantings- 2012

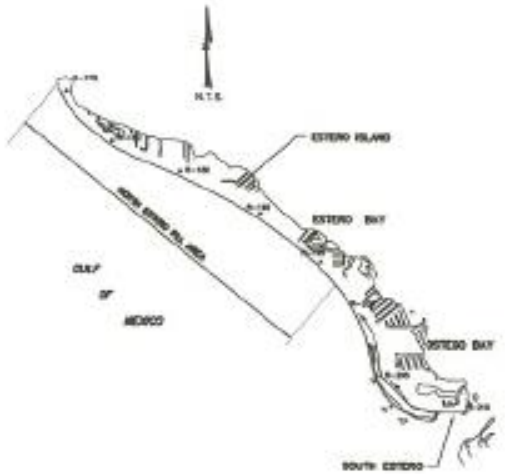
Permit Number 0173059-001-JC
Modification 0173059-004-EM
Permit Drawings REPLACED ON APRIL 20, 2005

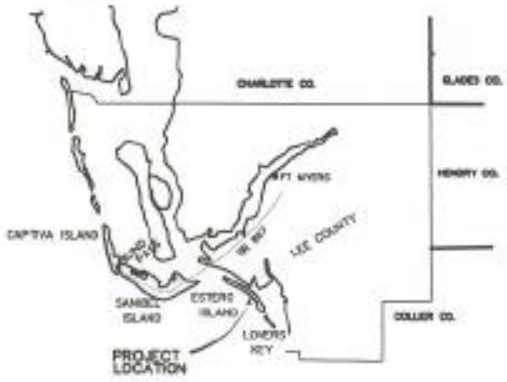
ESTERO ISLAND
BEACH RESTORATION PROJECT
LEE COUNTY, FLORIDA

BOARD OF LEE COUNTY COMMISSIONERS

DOUG ST. GERNY, CHAIRMAN
TAMMY HALL, VICE-CHAIRMAN
BOB JANES
RAY JUDAH
JOHN ALDEN

INDEX TO SHEETS





COASTAL PLANNING & ENGINEERING, INC.

ESTERO ISLAND
BEACH RESTORATION PROJECT
COVER SHEET

CS-1
SHEET 1 OF 27

I CERTIFY THAT THESE PLANS ARE IN COMPLIANCE WITH THE APPLICABLE SECTIONS OF 62B-41, F.A.C.

4-11-05
DATE

34857


May
thru
October

Beach Vegetation Management Developing and Implementing a Plan

Dune Management Plan

- Town Council directed staff to develop a plan for dune management. The plan would…
  - Serve as vegetation plan for EBIRP in concurrence with Town and Lee County Comp Plan
  - Provide incentive and flexibility for property owners
  - Provide reasonable assurance to DEP
    - The Plan was eventually permitted as an Area Wide Permit under F.S. Ch 161.053 (17)

Incentives for Property Owners (to sign an easement)

- Property owners can control and limit the spread of dune vegetation
- Increased protection from storm surge and erosion
- Increase in property aesthetics

Plan Components: Dune Height Management

- Dunes may be lowered by hand (shovels), no less than 18” total height
- Dunes may not be lowered during sea turtle nesting season or if listed species are present
- Sand must remain in immediate area on beach

Plan Components: Vegetation Control

- Mechanical raking allowed up to 2’ of vegetation
- Town would provide technical assistance, e.g. identification and training for management
- Control of sandspur, nicker bean, coin vine allowed
- Trimming will be similar to mangrove trimming in practice

Plan Components: Managed Beach Zone Specifications

- Town staff work with property owners to plan layout
- Managed Beach Zones align between properties
- Minimum 75% of property width
- Vegetation planting area- minimum 10’ wide
- If a property has sufficient vegetation, they are not required to have additional vegetation

Easements and Vegetation Concerns

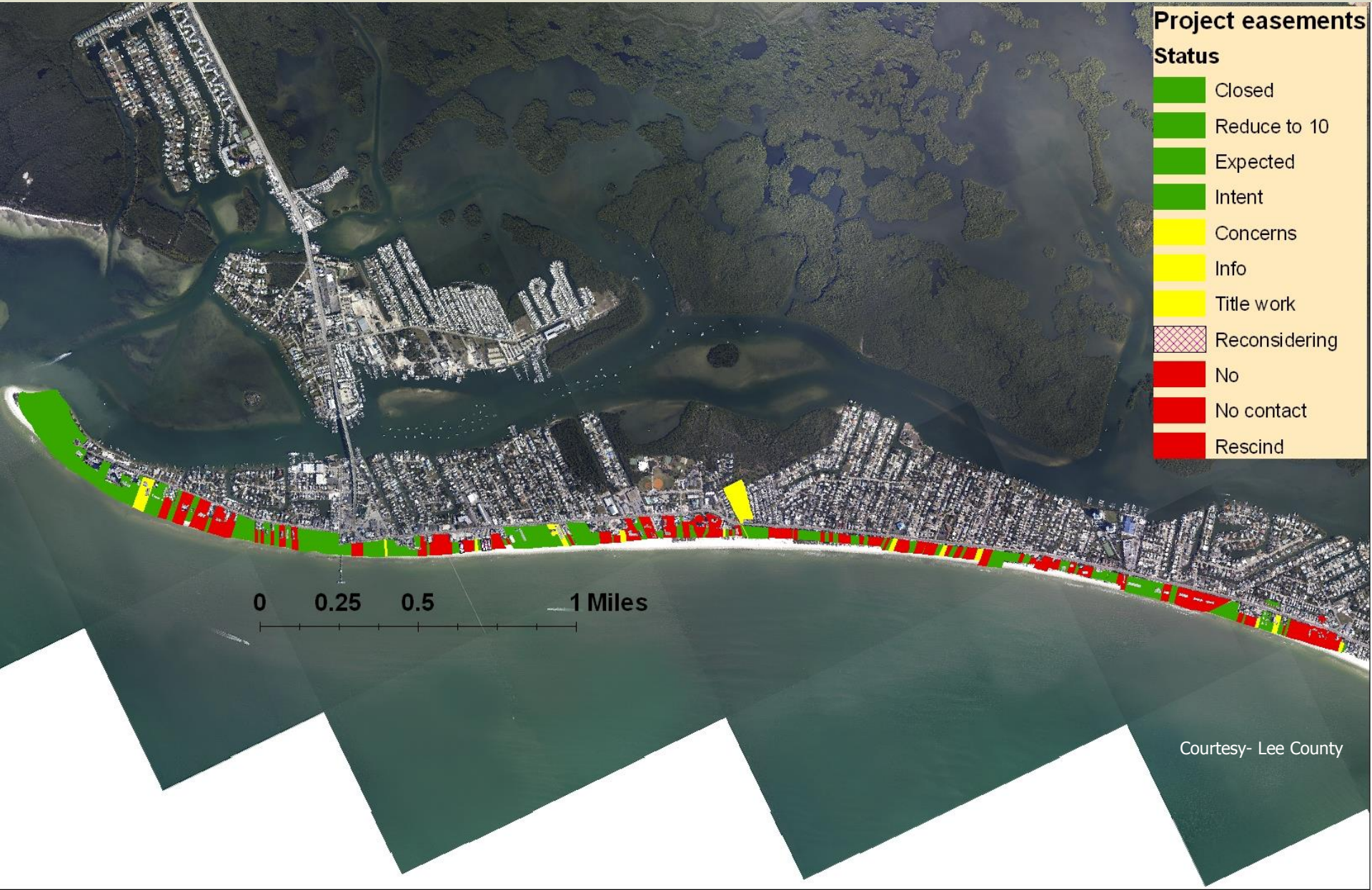
The Concerns…

- "many owners will be FORCED to accept huge sand dunes in front of their properties, with sea grass and other plantings on top of the dunes. We have a beautiful beach, so lets keep it that way."

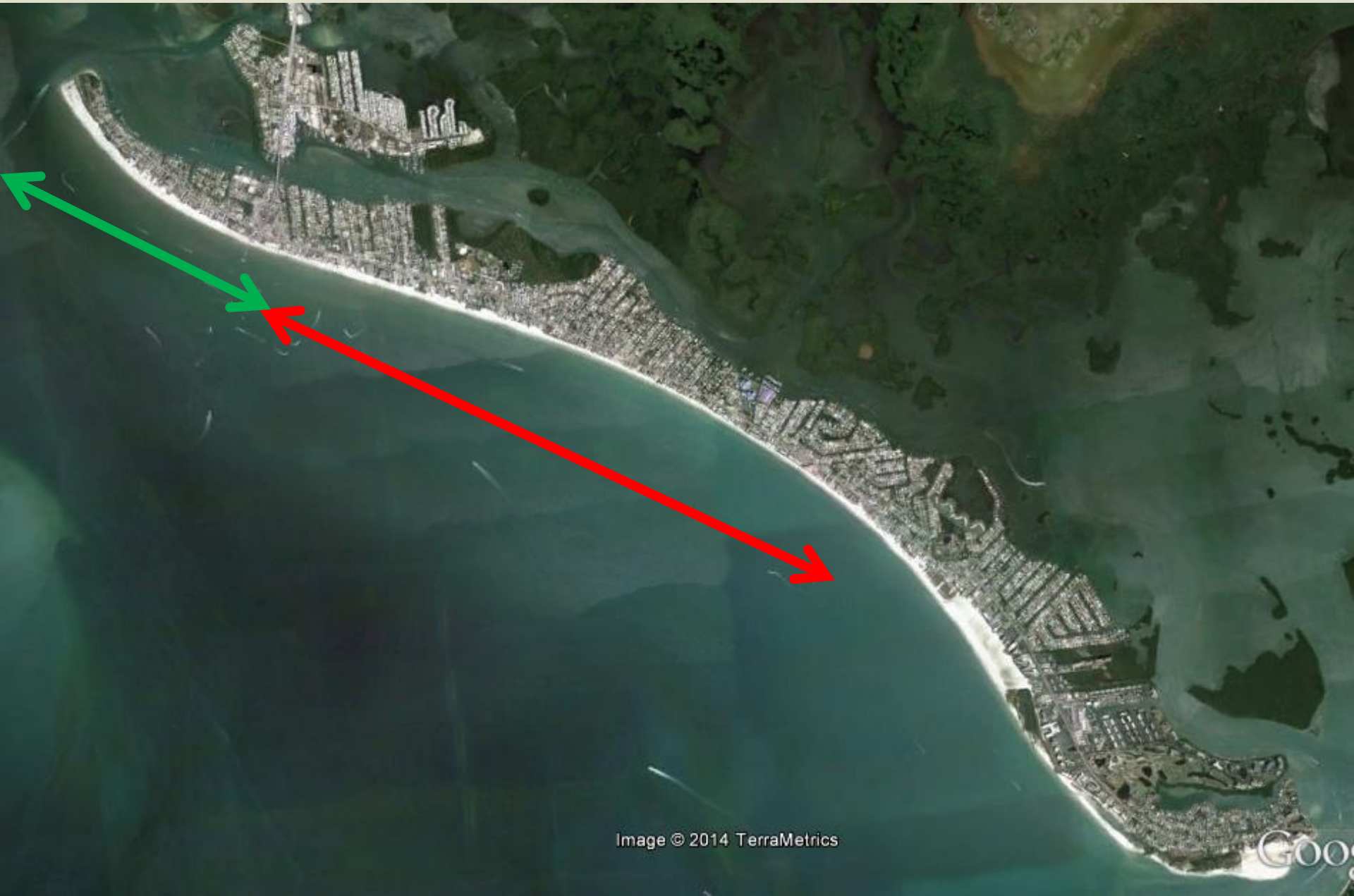
- "vegetation, unchecked, will grow, over time, and obscure the view of the Gulf and make walking to the beach difficult."

- "Every place the County puts sand; you will lose your property rights to the area forever. The State can and has taken land …and are now excluding the public from it"

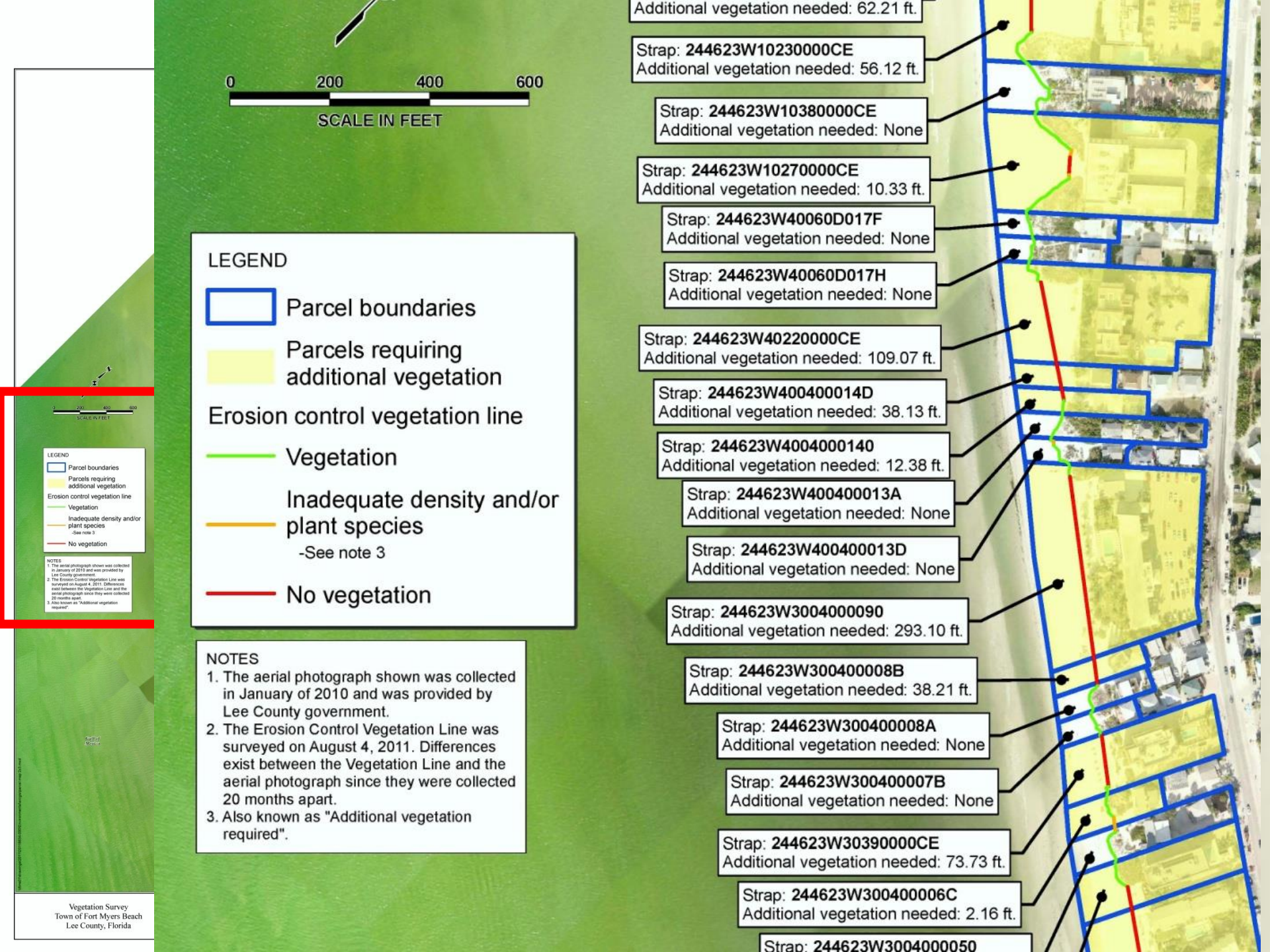
Easements- more red than green



4.6 Mile Federal Project -> 1.1 Mile Local Project

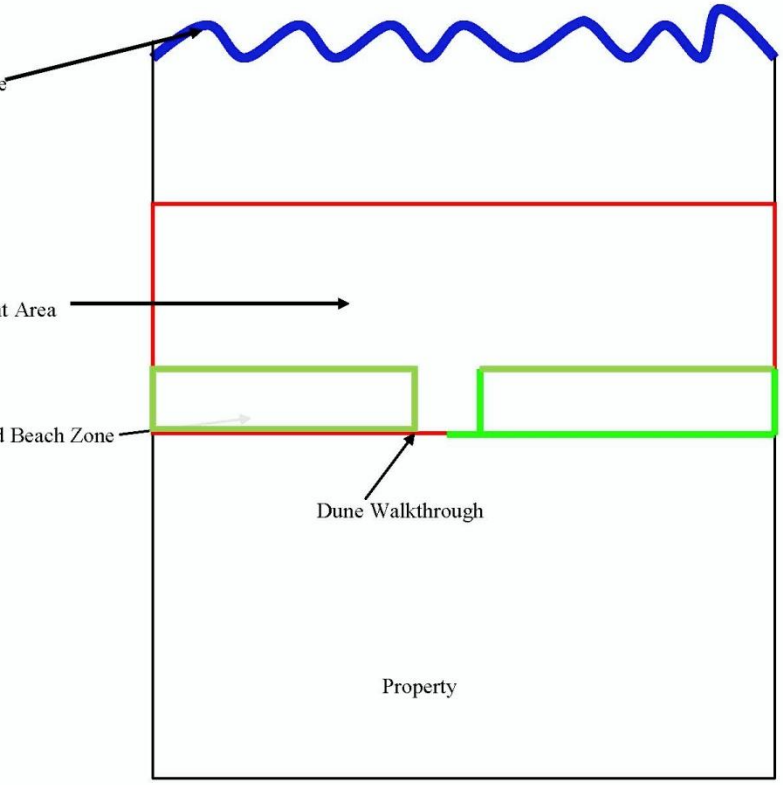



FORT MYERS BEACH RENOURISHMENT
EASEMENT STATUS 07 DEC 2009
<all other values>
no
rescind
expected 2005
discussing concerns
info
no contact
closed
reduce to 10-year
intent
N
E
S
W
January 2008 Aerials
S:\Marine\Beach_management\Estero\Easements\Easements_GIS.mdb
Courtesy- Lee County



Vegetation Survey
Town of Fort Myers Beach
Lee County, Florida


Legend
Vegetation Amounts
Vegetation
75% needed
Some needed
Likely sufficient
0
0.125
0.25
0.5
0.75
1
Miles



Plant Selection (Three Palettes)

Managed Beach Zone Alternative #1 "Sea Oat Dune"

Sea oats	70%
Dune sunflower	15%
Dune panic grass	10%
Railroad vine	5%

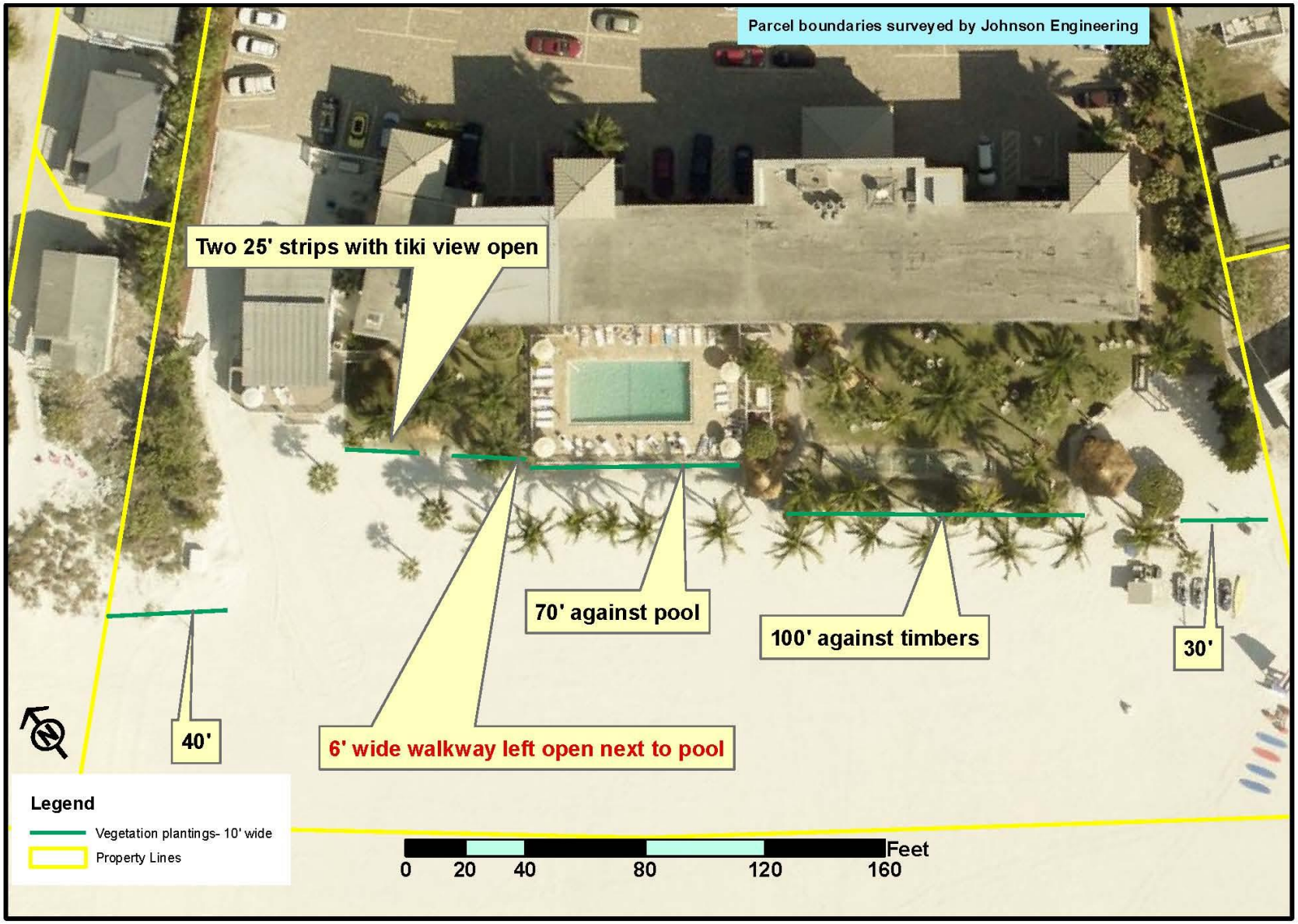
Managed Beach Zone Alternative #2 "Mixed Dune"

Sea oats	50%
Dune sunflower	20%
Dune panic grass	10%
Railroad vine	10%

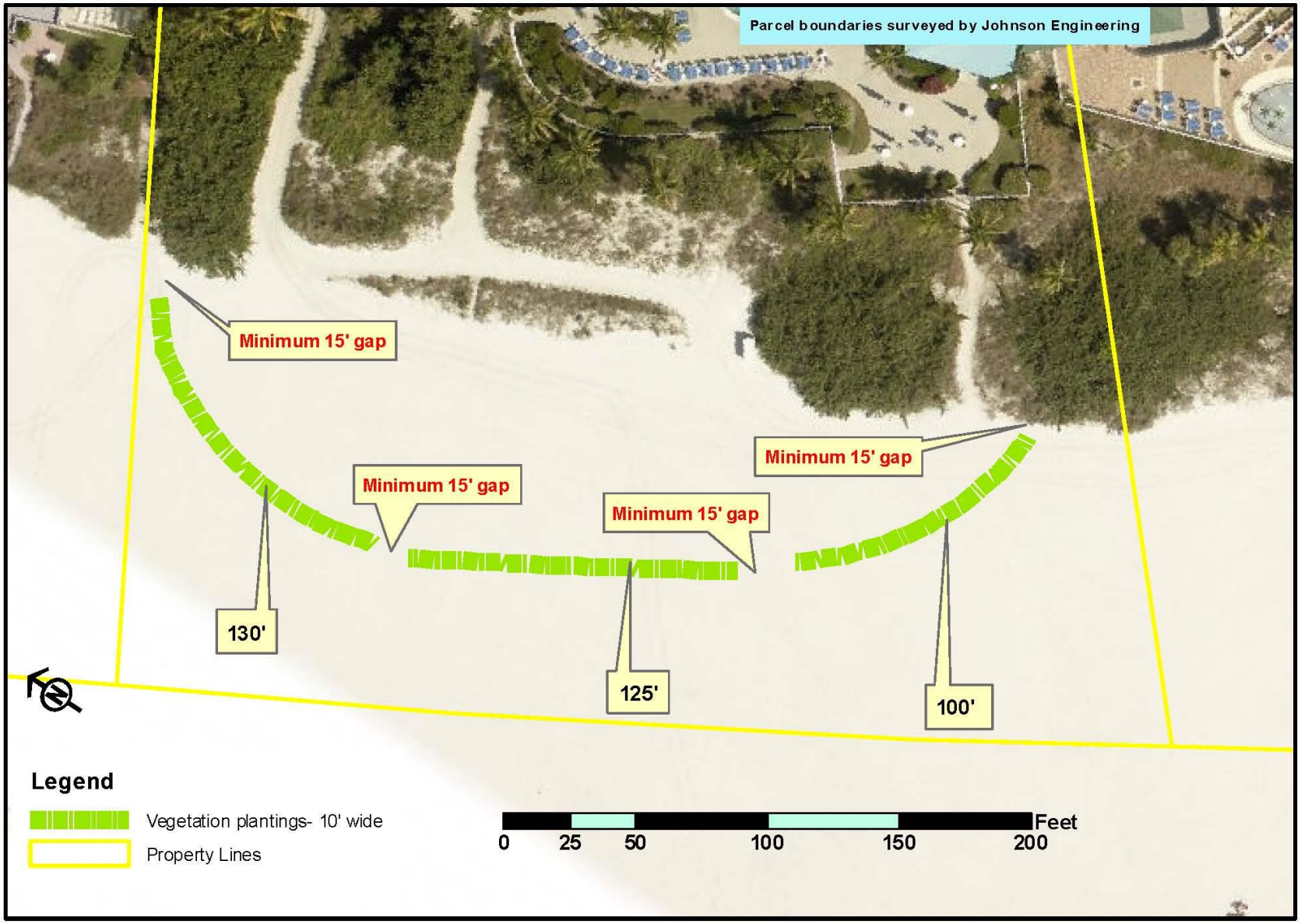
Managed Beach Zone Alternative #3 "Low Dune"

Dune panic grass	40%
Dune sunflower	35%
Sea oats	15%
Railroad vine	10%

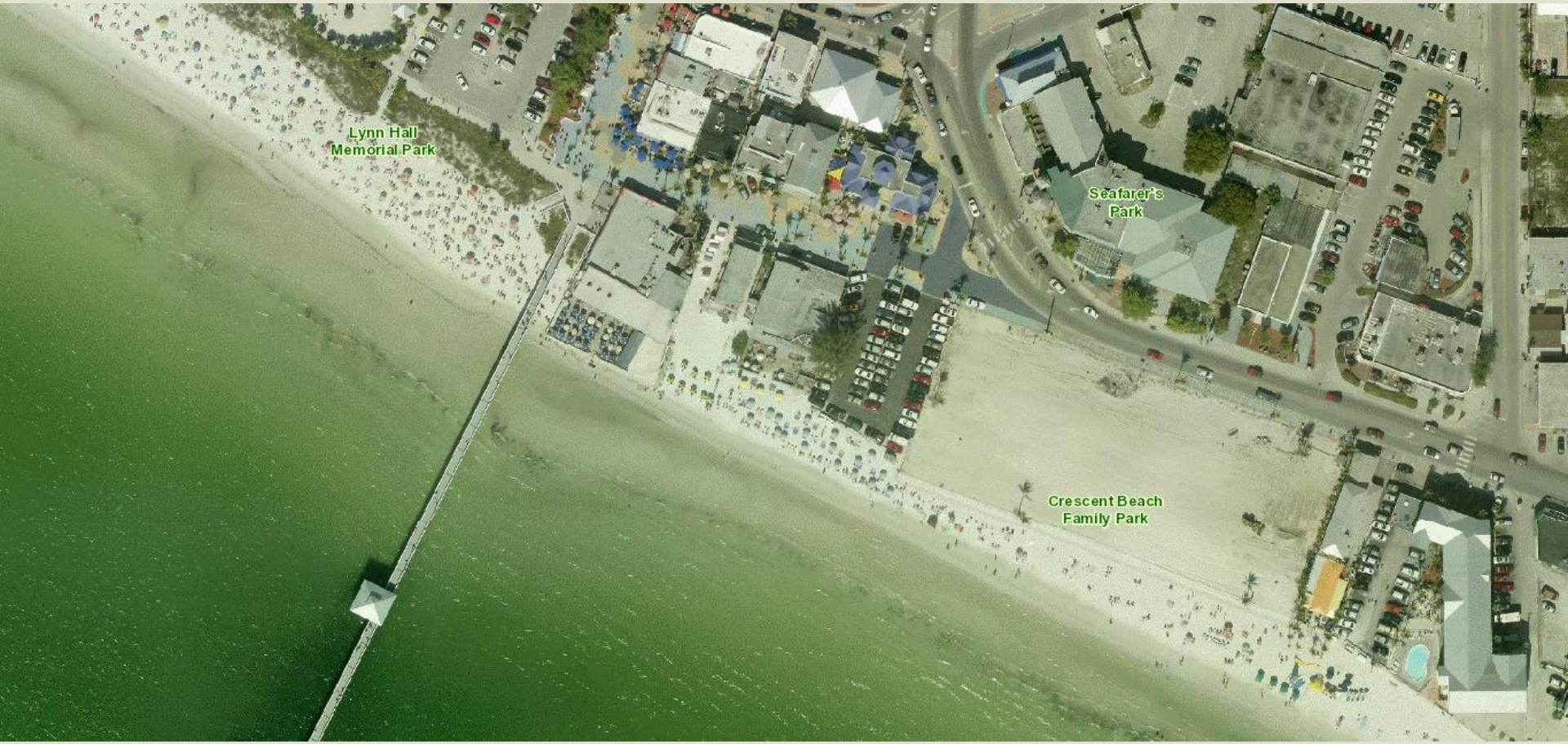
Town of Fort Myers Beach- Dune Management Plan
Managed Beach Zones to be Planted

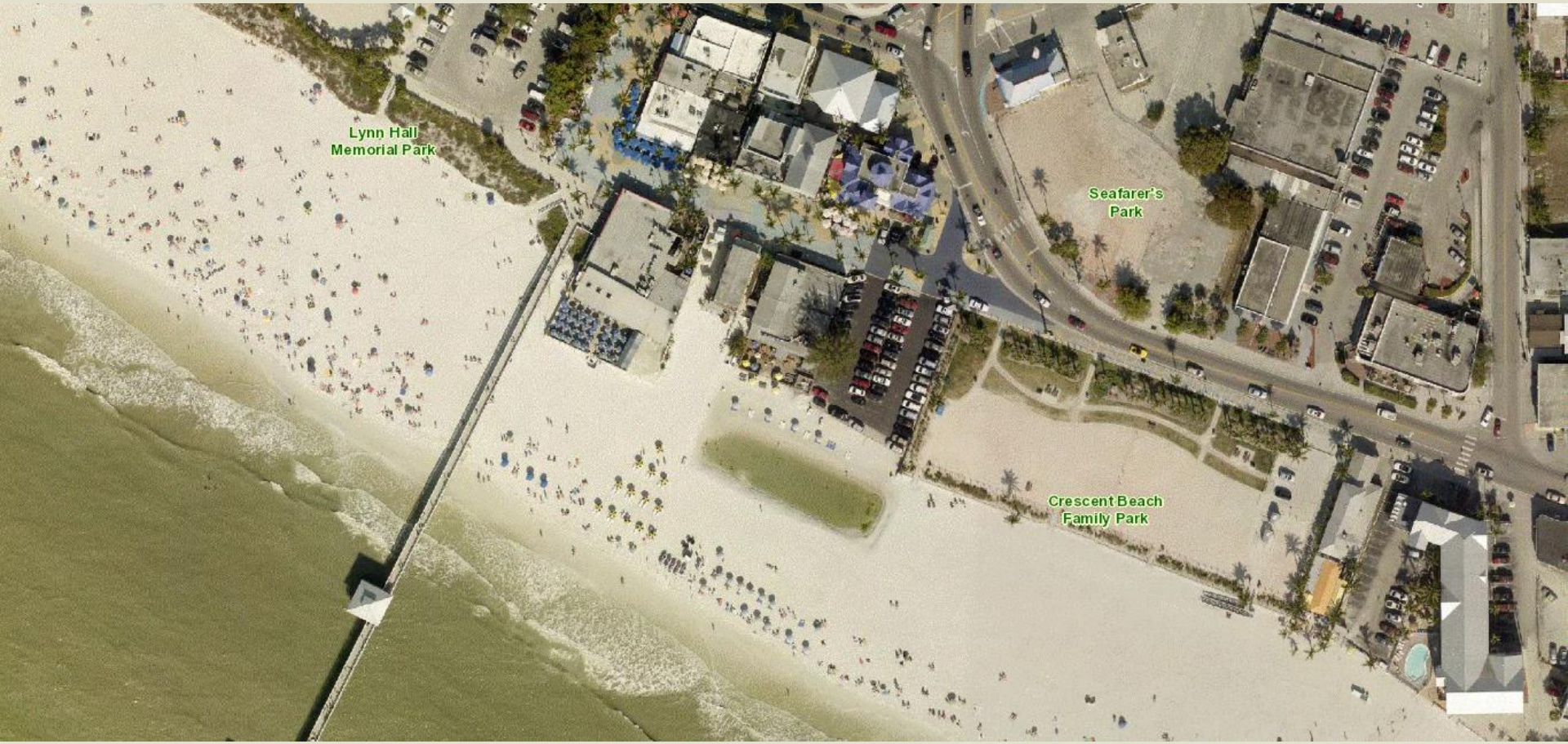


Town of Fort Myers Beach- Dune Management Plan
Managed Beach Zones to be Planted- Pink Shell



Plantings and Results

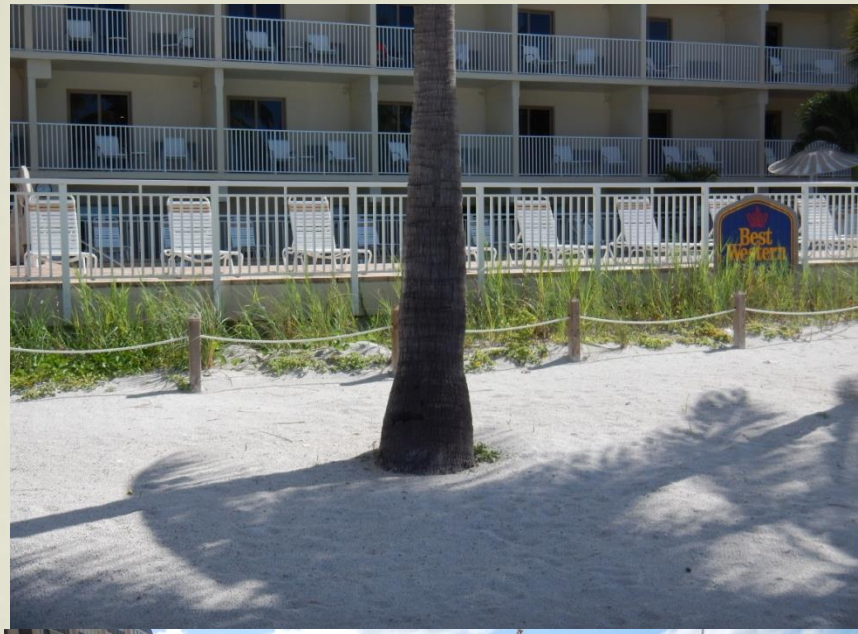

Lynn Hall
Memorial Park
Seafarer's
Park
Crescent Beach
Family Park


Lynn Hall
Memorial Park
Seafarer's
Park
Crescent Beach
Family Park


WARNING
ENVIRONMENTAL EXTORTION PIT
TO SIGN FOR BEACH SAND
MUST
GIVE PERMISSION TO CREATE A
15' WIDE DUNE – VEGETATION – BERM
AS A "FOREVER" PRESERVE, WITH
LIMITED ACCESS, LOCALLY AND
FEDERALLY ENFORCED SUBJECT
TO PENALTIES OF LAW IF AREA IS
TRESPASSED ON. THOSE WHO SIGNED
WILL LEARN THE UNTOLD TRUTH.

Beach Plantings

Beach Plantings




Estero Island
Beach Access
North #39


Estero Island
Beach Access
North #43

Beach-Nesting Birds- Part 2

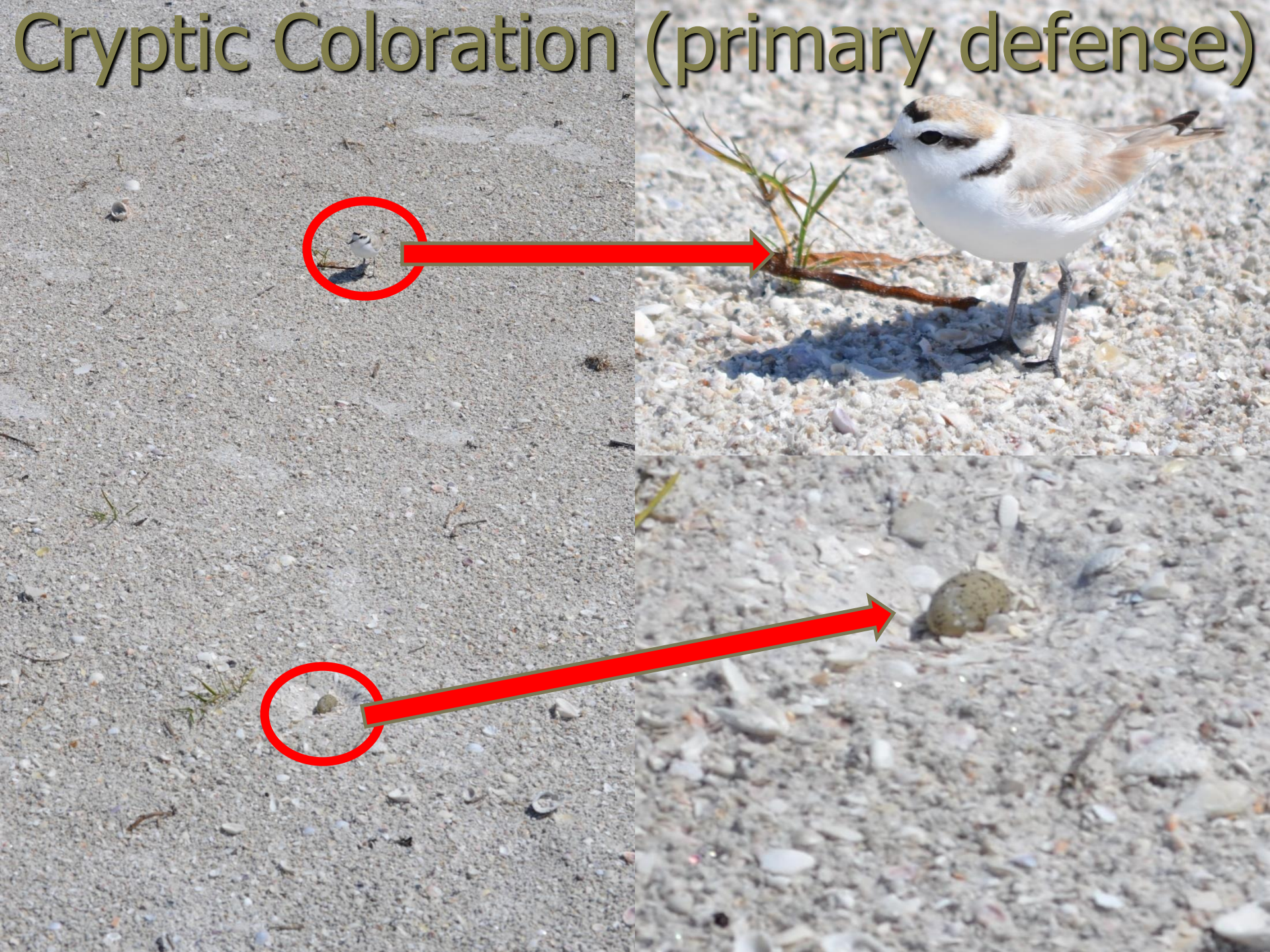
- Beach-Nesting Birds on Estero Island
- Coastal Change on Estero Island
- Regulatory Framework
- Vegetation Management
- Management Implications

Beach Nesting Birds (BNB's)

Beach-Nesting Bird Traits

- Nest directly in the sand in a small scrape that the birds dig
- Habitat preference for minimally vegetated beach and minimal slope
- Eggs and chicks are cryptic to camouflage with sand
- Defend nests/chicks by distraction or active defense

Cryptic Coloration (primary defense)



Threats to Beach-Nesting Bird's…

- Development and loss of habitat (*OBVIOUSLY*)
- Storm events (e.g. TS Debby 2012)
- Climate change; especially Sea Level Rise
- ***Disturbance***
- ***Predators***

Disturbance

Activities that cause the birds to change their behavior (fly, run or walk away, or vocalize)

- Death of eggs/young due to exposure
- Increased nest predation
- Increased energy expenditure

Disturbance

Beach-Nesting Bird Survey and Protection

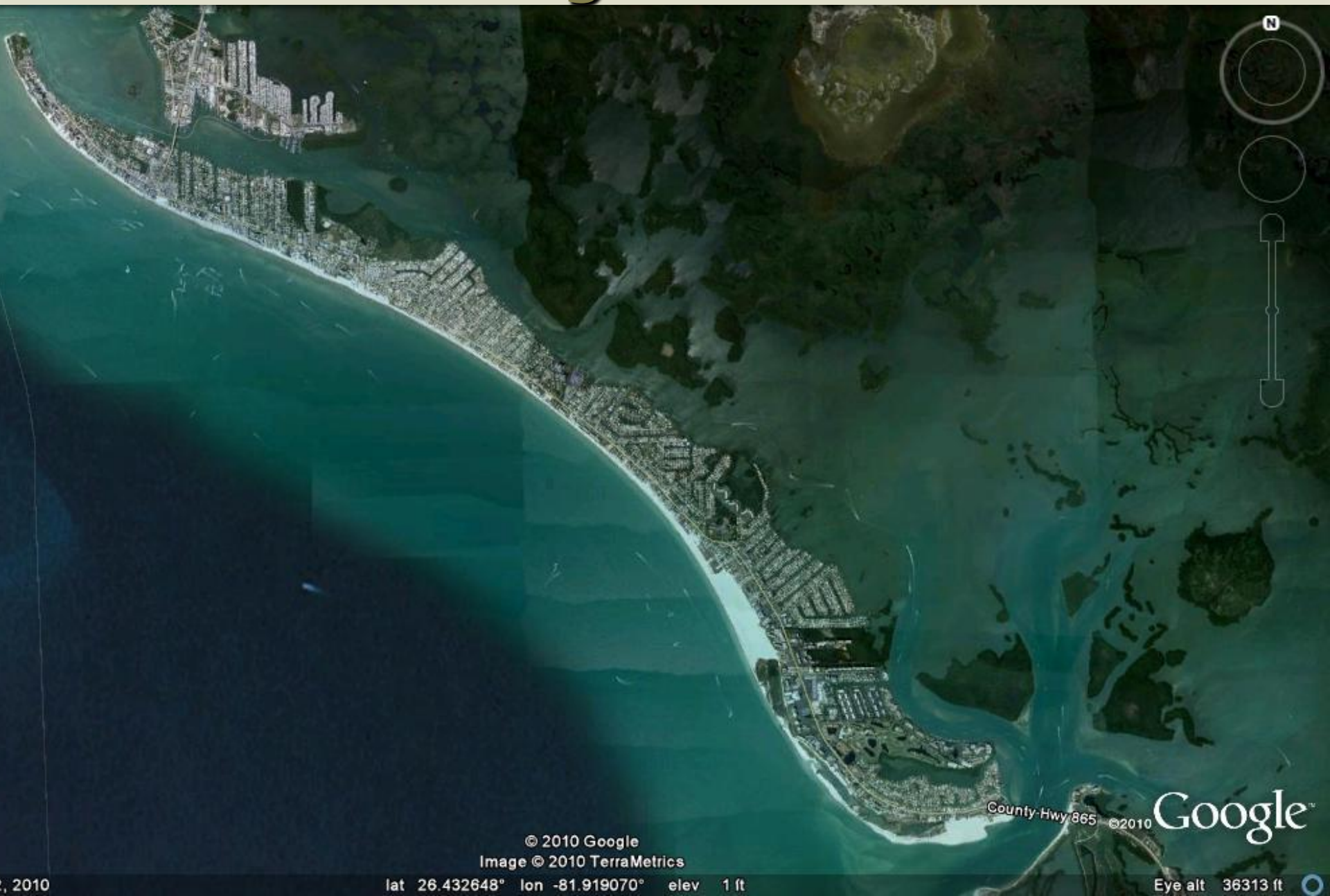
- Town staff partner with FWC to monitor the beach, observe behavior, and GPS scrapes
- When nests are found, nests are posted with buffer to reduce disturbance

Daily Survey Transects


PLEASE KEEP OUT
TEMPORARY POSTING

Coastal Change on Estero Island

Coastal Change on Estero Island




1995-01
Image U.S. Geological Survey


Image © 2012 The Florida Department of Environmental Protection
2004-01


2007-08
Image USDA Farm Service Agency

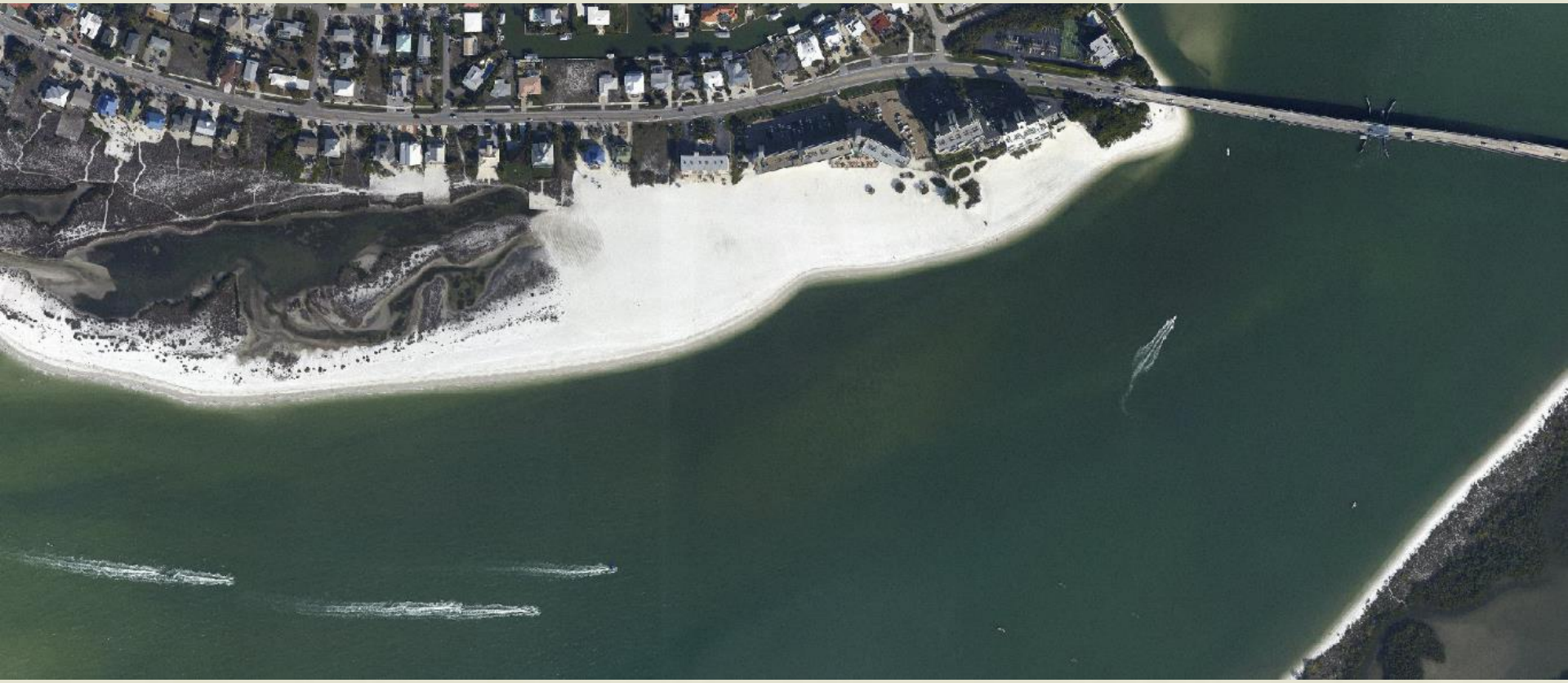

2012-04

Carlos Point
(Private upland properties)

Carlos Point 1998

Carlos Point 2005

Carlos Point 2008



Carlos Point 2013

Regulatory Framework

A “beautiful” raked beach

How Raking can impact BNB's

- Prevents nesting
- Equipment can crush eggs and chicks
- Harass adult birds, separate flightless young from family = increased predation

Regulations protecting Beach-Nesting Birds

- Federal- Migratory Bird Treaty Act- Prohibits **"Take"** of migratory birds
- State- 68A-27.004 F.A.C.- Prohibits harassment, molestation or **"Take"** of state listed species
- DEP regulates raking under Florida Beach & Shore Preservation Act, F.S. Ch.161
- Possession of a DEP permit for beach raking does not exempt from Ch. 68A F.A.C. or the MBTA.*

* Snowy Plover Working Group (2012)

Management Challenges

- Large amounts of preferred nesting habitat occur on private property due to raking
- **Property owners cooperation is needed for shorebird posting**
- Once raking ceases for posting, vegetation recruits
- DEP permits required for vegetation removal on beaches

Balance the needs of birds and the wants of people

- Recognize that beach raking is **functioning** as a habitat management technique
- Recognize nesting season and snowbird season
- Allow partners to post the area for birds and property owners to rake

Policy Solution

- After negotiations between TFMB, DEP, FWC, and private property owners, DEP issued an "Area-Wide" Permit to TFMB (per F.S. Ch 161.053 (17))

- Authorizes vegetation removal after BNB season with no mitigation requirement

- Town staff gain permission to post (after *more* negotiations with property owners)

Vegetation Management

Early Season-
vegetation absent due to raking

Mid Season- vegetation recruitment

End of Season-vegetation maximum extent

Vegetation Removal

17 acres and growing…

Management Implications

Raking Near BNB's (it can be done *carefully*)

Town & FWC staff intensively monitor before and during raking operations to assure no "take" (including disturbance)

Allows vegetation control to continue

Beach Vegetation and BNB's

- BNB's nest on naturally disturbed habitats
- SNPL have increased nesting after tropical cyclones due to overwash (Convertino et al., 2011)
- LETE nest in areas with low amounts of vegetation (Mazzocchi & Forys 2005)
- Anthropogenic disturbances can simulate natural processes

Acknowledgements and Thanks

- Lee County Natural Resources (Steve Boutelle)
- Condo of Carlos Pointe & Castle Beach
- Town Council
- Florida Department of Environmental Protection
- Florida Fish & Wildlife Conservation Commission
- Audubon Florida

References

- Convertino M., Elsner J., Muñoz-Carpena R., Kiker G., Fisher R., Linkov I. (2011) Do tropical cyclones shape shorebird habitat patterns? Biogeoclimatology of Snowy Plovers in Florida. PLoS ONE 6(1):p1

- Mazzocchi A. B. and E. A. Forys. (2005) Nesting habitat selection of the Least Tern on the Gulf Coast of Florida. Florida Field Naturalist 33:71-80.

- Powell, A. N. (2001). Habitat characteristics and nest success of Snowy Plovers associated with California Least Tern colonies. Condor 103:785–792.

- Snowy Plover Working Group (2012) Guidelines to minimize impacts of mechanical Beach Raking on beach-dependant bird specious along the Florida coast


Little Estero Island CWA
Carlos Pointe