

*Photo on 13 June 2016*



## **Nags Head Shoreline Management Committee Meeting**

**13 September 2016**

# Project Schedule for the 2018 Re-Nourishment

<b>2016</b>		
Month 1	May	Initiate work
Mon 2-5	Jun- Sept	(1) Define the ideal (target) beach condition (2) Conduct borrow area survey & obtain borings (3) Develop renourishment requirements, dune stabilization alternatives, and initiate engineering studies
Mon 6-8	Oct-Dec	Design, cost estimates, field work, initiate permit liaison
<b>2017</b>		
Mon 9-13	Jan-May	(1) Prepare supporting environmental documents (2) Complete preliminary design (3) Pre-application meetings with regulatory & resource agencies
Mon 14	Jun	Submit permit applications with supporting documents
Mon 15-20	Jul-Dec	Permit liaison to secure permits in time
<b>2018</b>		
Mon 21-24	Jan-Apr	Receive permits / prepare plans and specifications, request bids, receive bids, select contractor, construction preparation
Mon 25-28	May-Aug	Construction and construction administration

# Planning Goal of the 2018 Re-Nourishment

## –To Define a “Target” Beach Condition

- Provide higher level of storm protection
- Provide wider recreational beach
- Adequately address south Nags Head erosion issue
- Integrate dune management plan into the renourishment design
- Replenish sand deficit in the “sand box”



# Project Scale for the 2018 Re-Nourishment

- 10-mile from MP 11 to 21
- Four reaches and two subreaches in Reach 3
- Minimum quantity = 1 million cubic yards (~19 cy/ft)
- Maximum quantity = 2.2 million cubic yards (~42 cy/ft)
- Fill density (# of cy per ft) varies from north to south

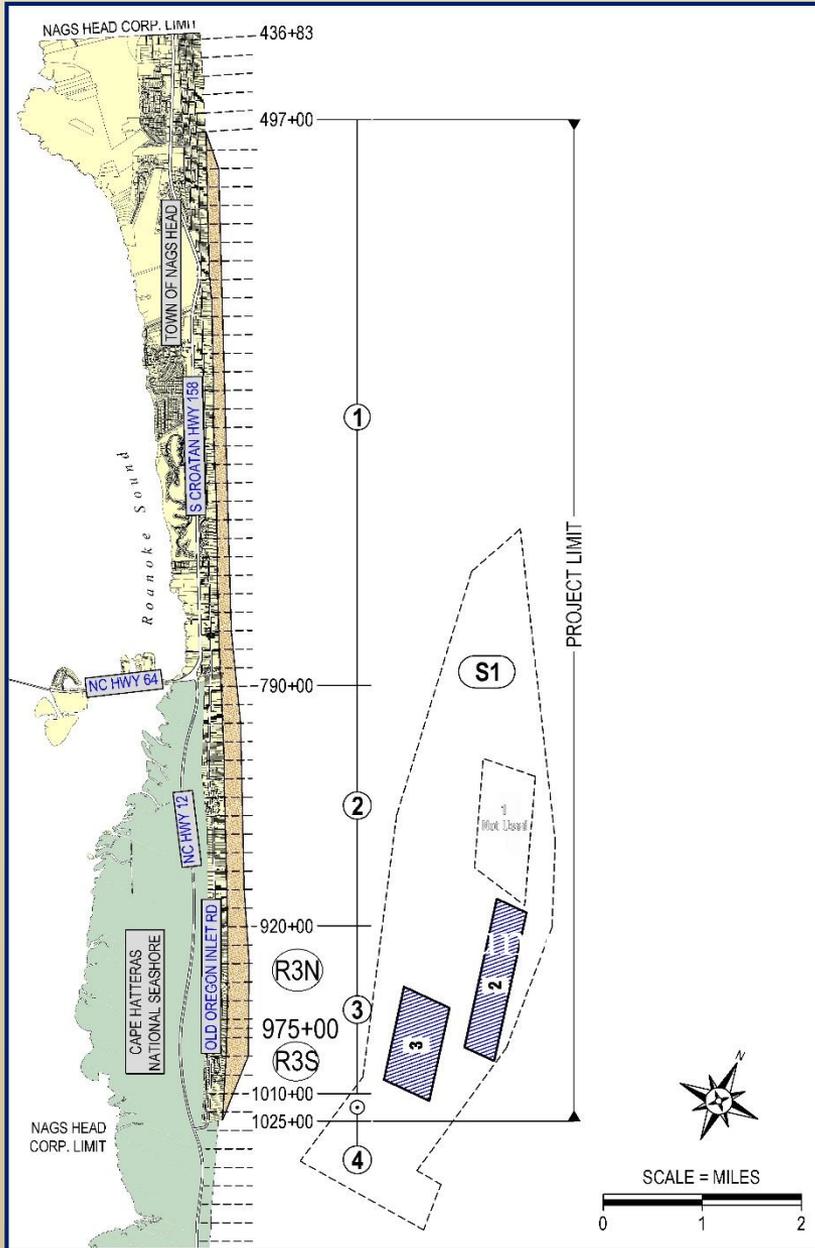


North Boundary near Bonnett St. (MP 11)



South Boundary near McCall Court (MP 21)

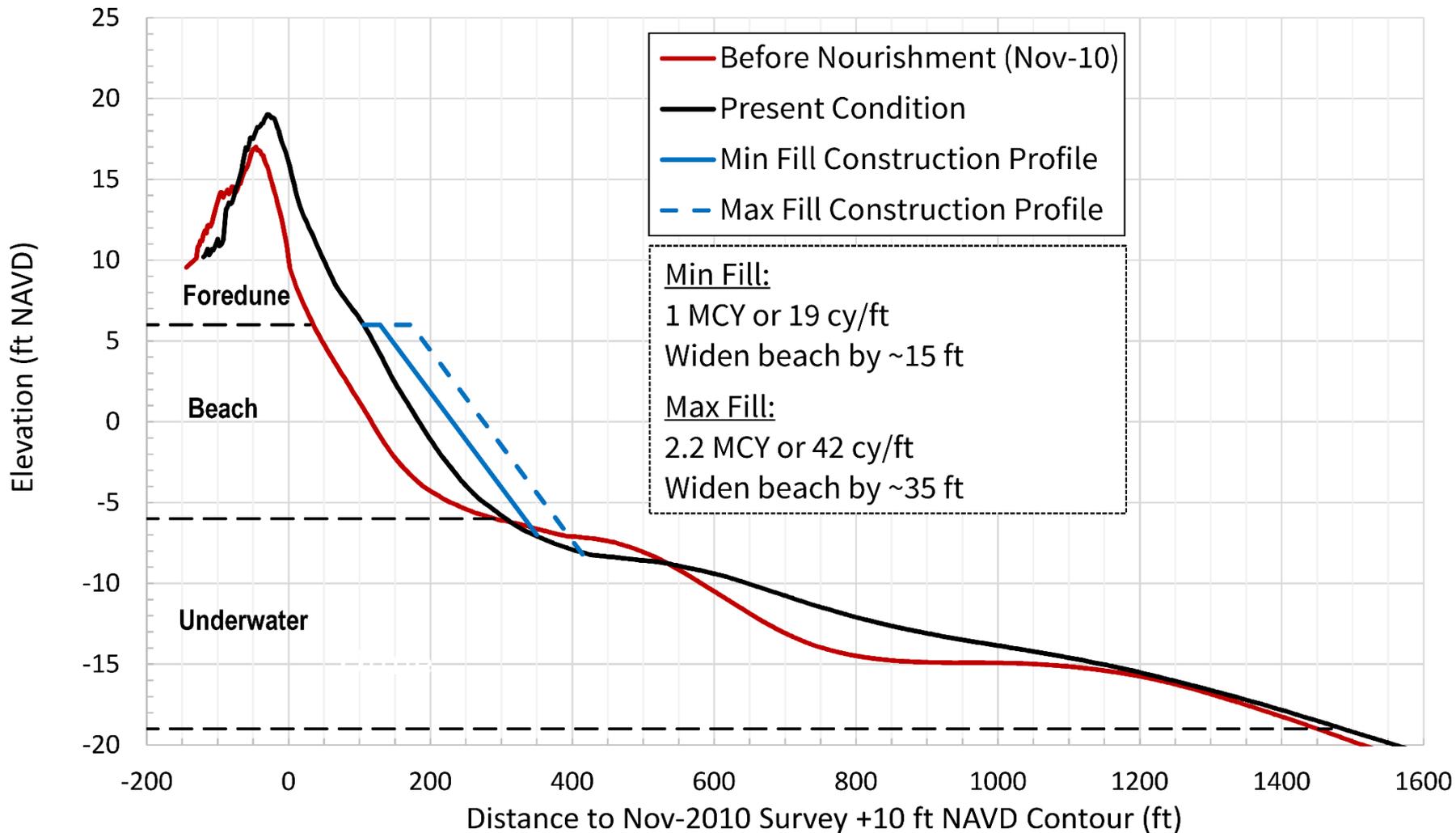
# Project Reaches and Subreaches



- R1 – MP 11 to 16.8  
497+00 to 790+00
- R2 – MP 16.8 to 19.2  
790+00 to 920+00
- R3 – MP 19.2 to 20.8  
920+00 to 1010+00
  - R3N – MP 19.2 to 20.2  
920+00 to 975+00
  - R3S – MP 20.2 to 20.8  
975+00 to 1010+00
- R4 – MP 20.8 to 21  
1010+00 to 1025+00

# Preliminary Design for Average Profile

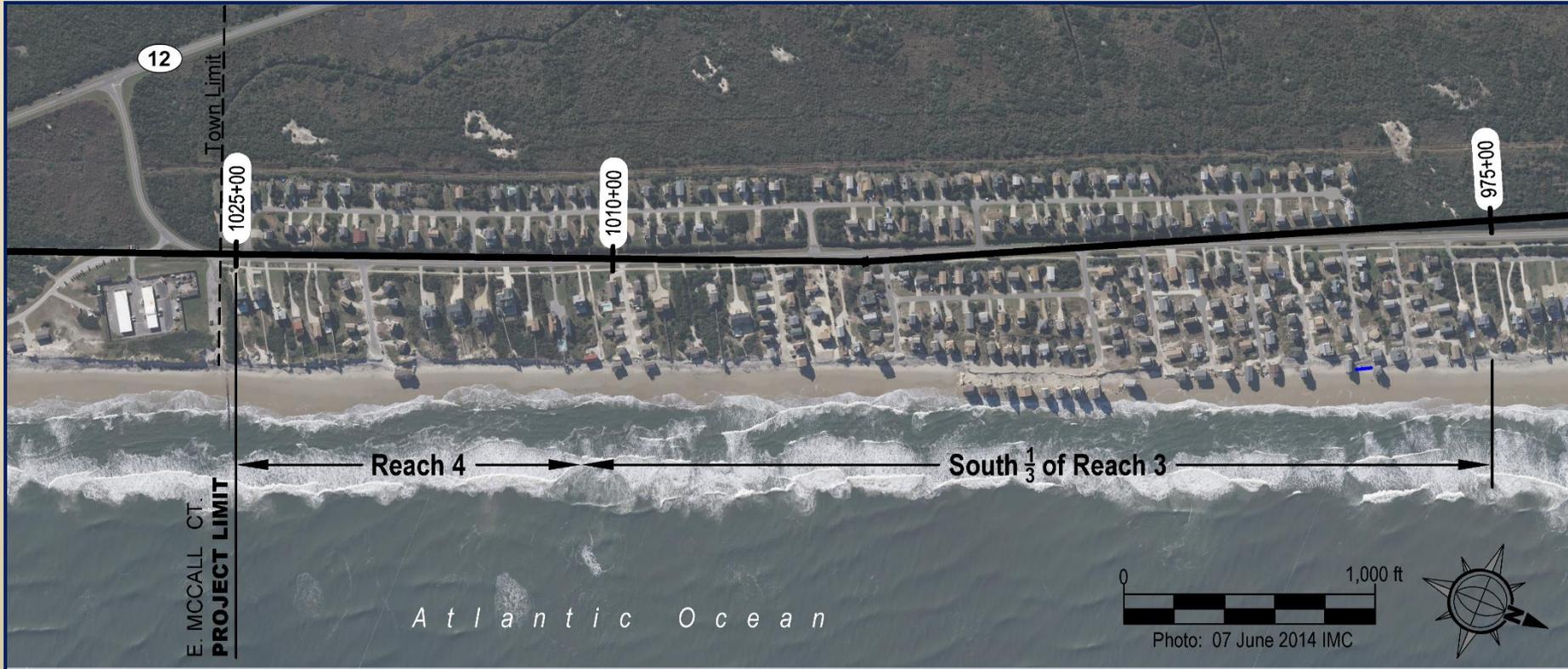
## Average Profile along Nags Head



# Planning Goal of the 2018 Re-Nourishment

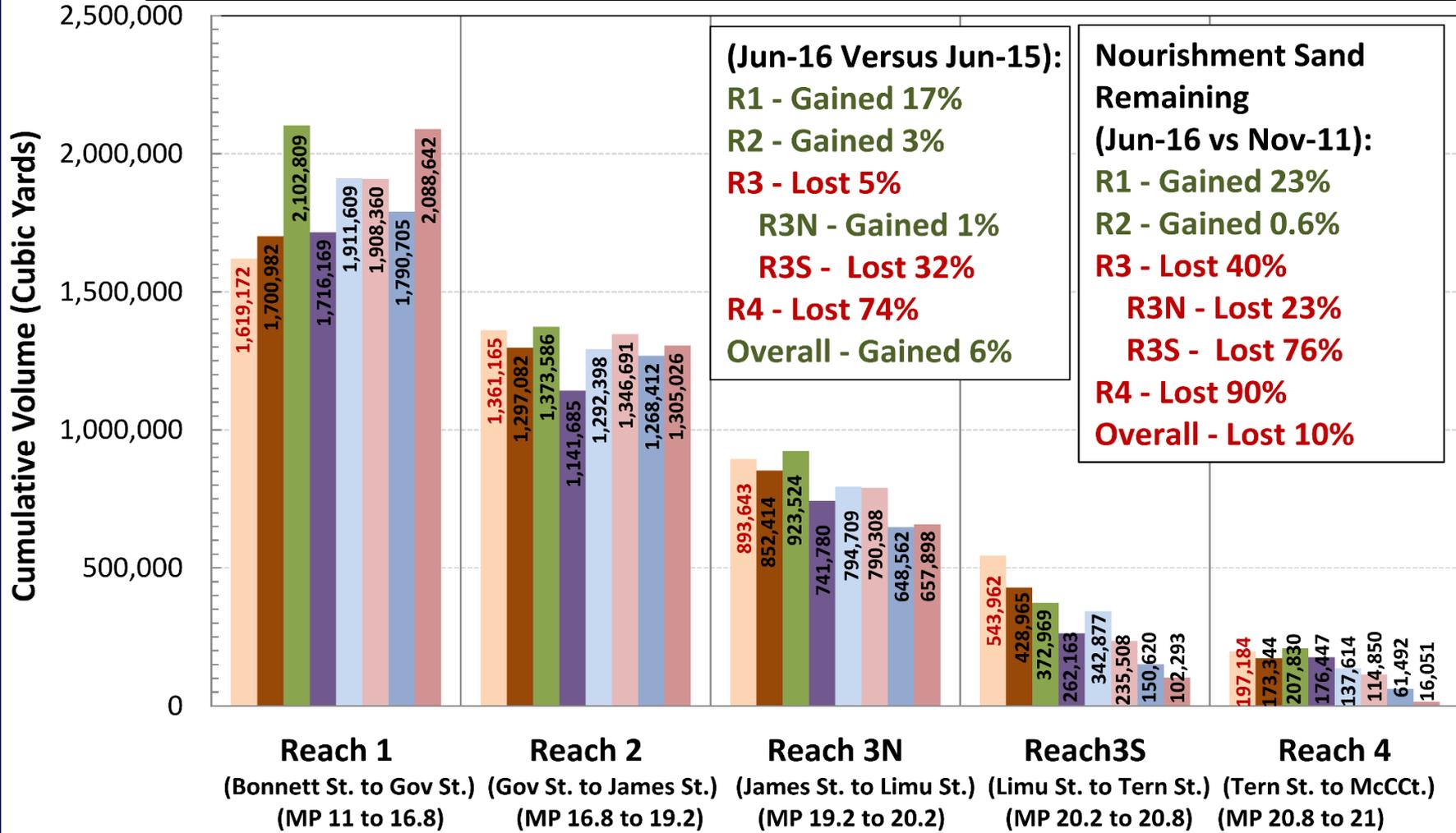
- Provide higher level of storm protection
- Provide wider recreational beach
- **Adequately address south Nags Head erosion issue**
- Integrate dune management plan into the renourishment design
- Replenish sand deficit in the “sand box”

# Subreaches in Reach 3

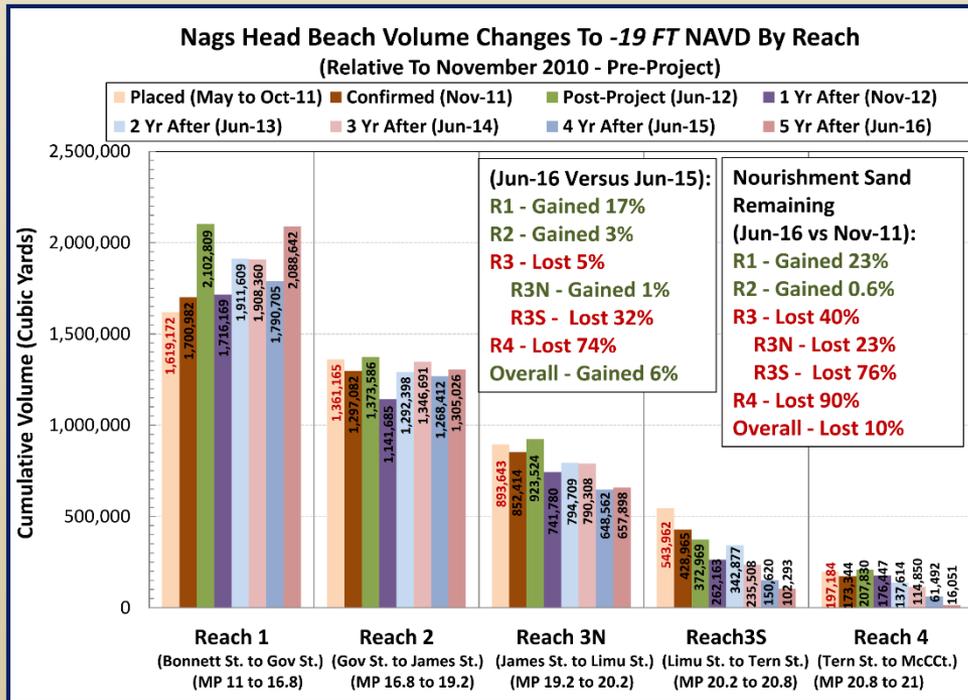


# Volume Analysis by Reach and Subreach

## Nags Head Beach Volume Changes To -19 FT NAVD By Reach (Relative To November 2010 - Pre-Project)



# Volume Loss along South Nags Head (June 2016 VS. Project Completion (Nov 2011))



- Reach 3N  
lost ~194,500 cy
- Reach 3S  
lost ~326,700 cy
- Reach 4  
lost ~157,300 cy

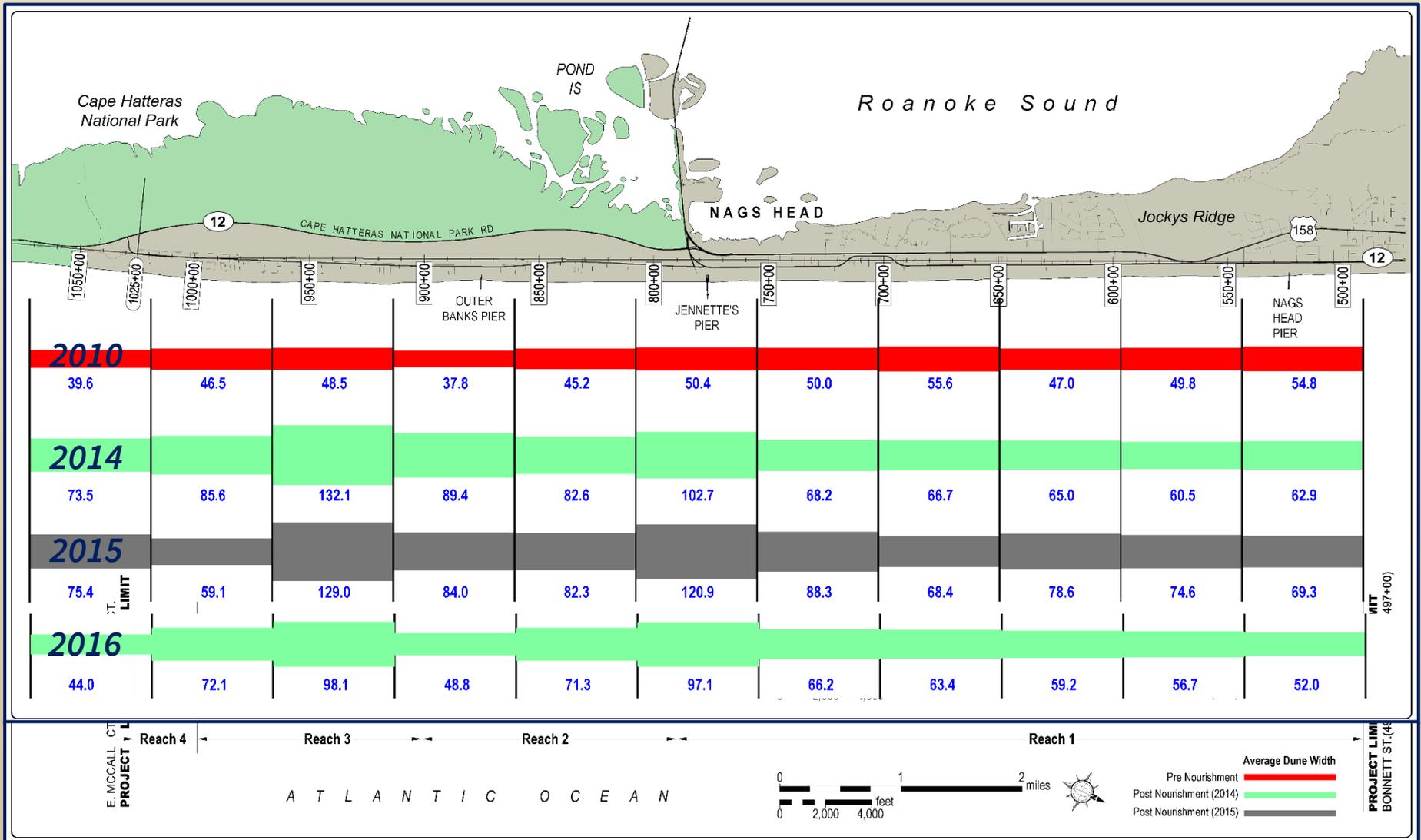
Reaches 3&4 Total lost ~678,500 cy

# Planning Goal of the 2018 Re-Nourishment

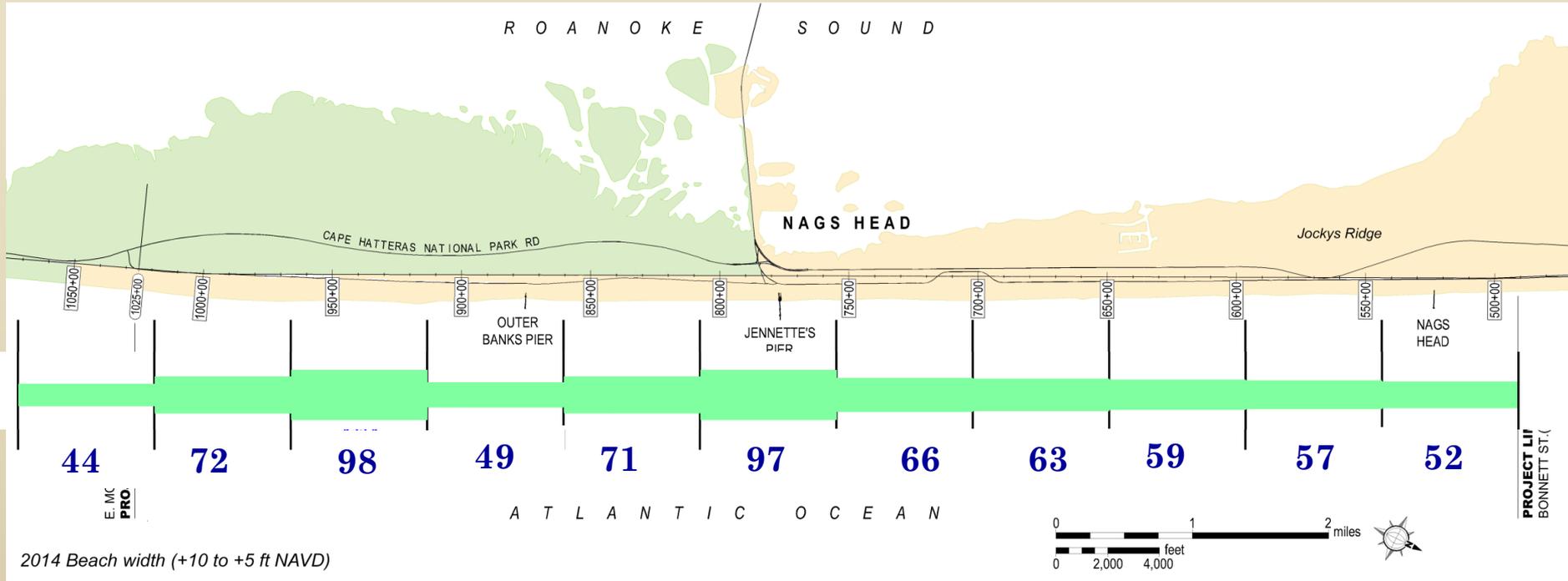
- Provide higher level of storm protection
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- Adequately address south Nags Head erosion issue
- **Integrate dune management plan into the renourishment design**
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# Nags Head Beach Width Before/After 2011 Project

From CSE 2014-2016 Monitoring Reports



# Dune Management Plan – Beach Width (June 2016)



One-mile average dry-beach width in June 2016 between the toe of dune and the edge of dry sand (between +10 and +5 ft NAVD).

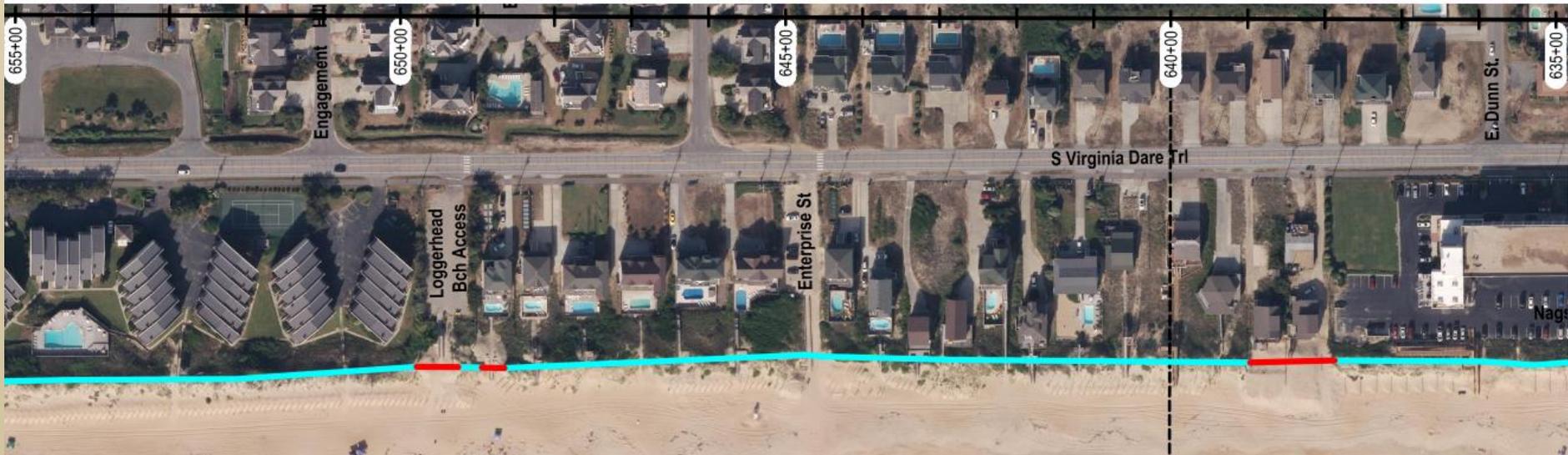
Reach 1: 52-97 ft

Reach 2: 49-97 ft

Reach 3: 49-98 ft

Reach 4: 45 ft

# Dune Management Plan – Dune Lines

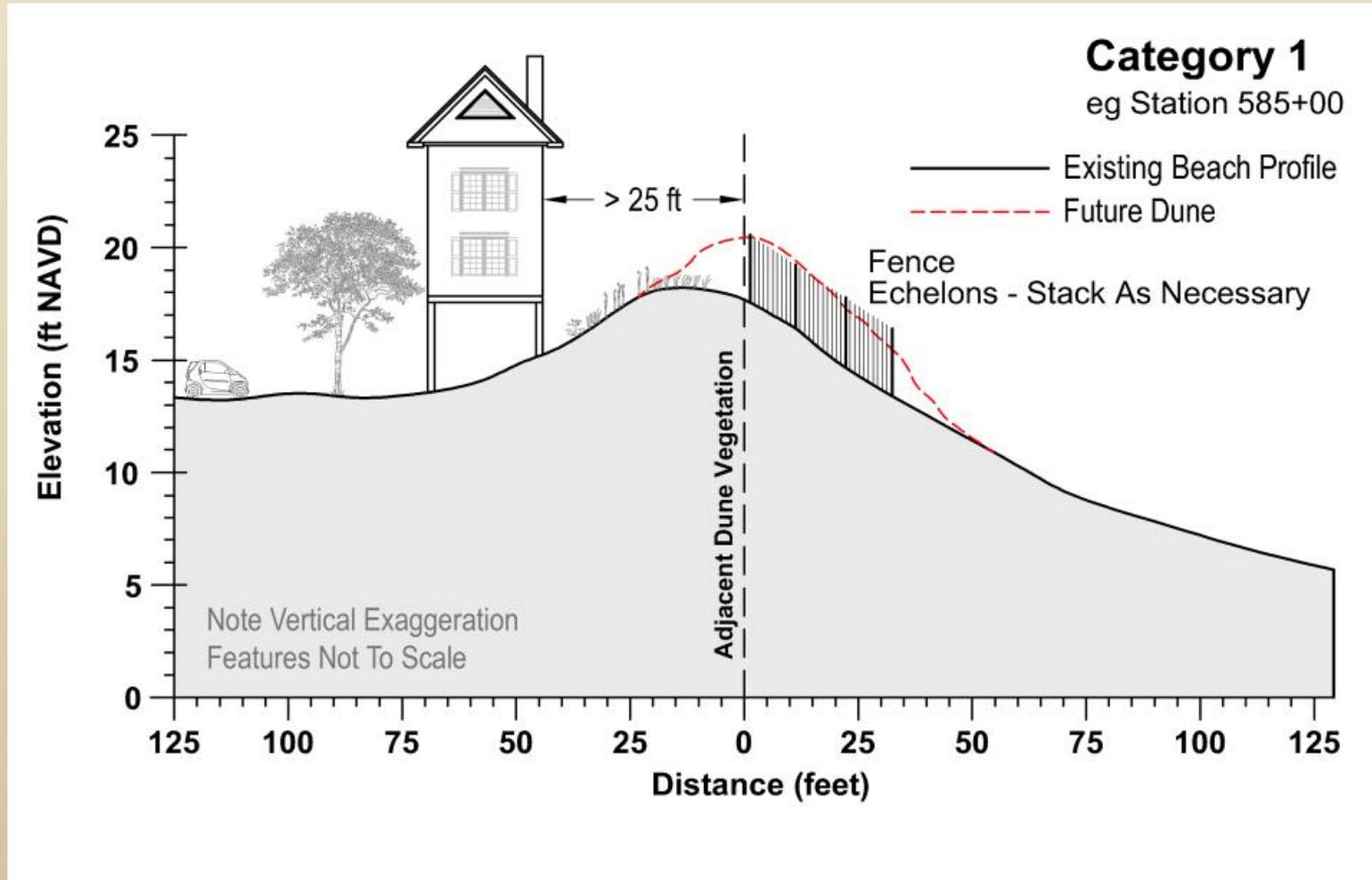


# Dune Management Plan – Category 1

Jun 2014

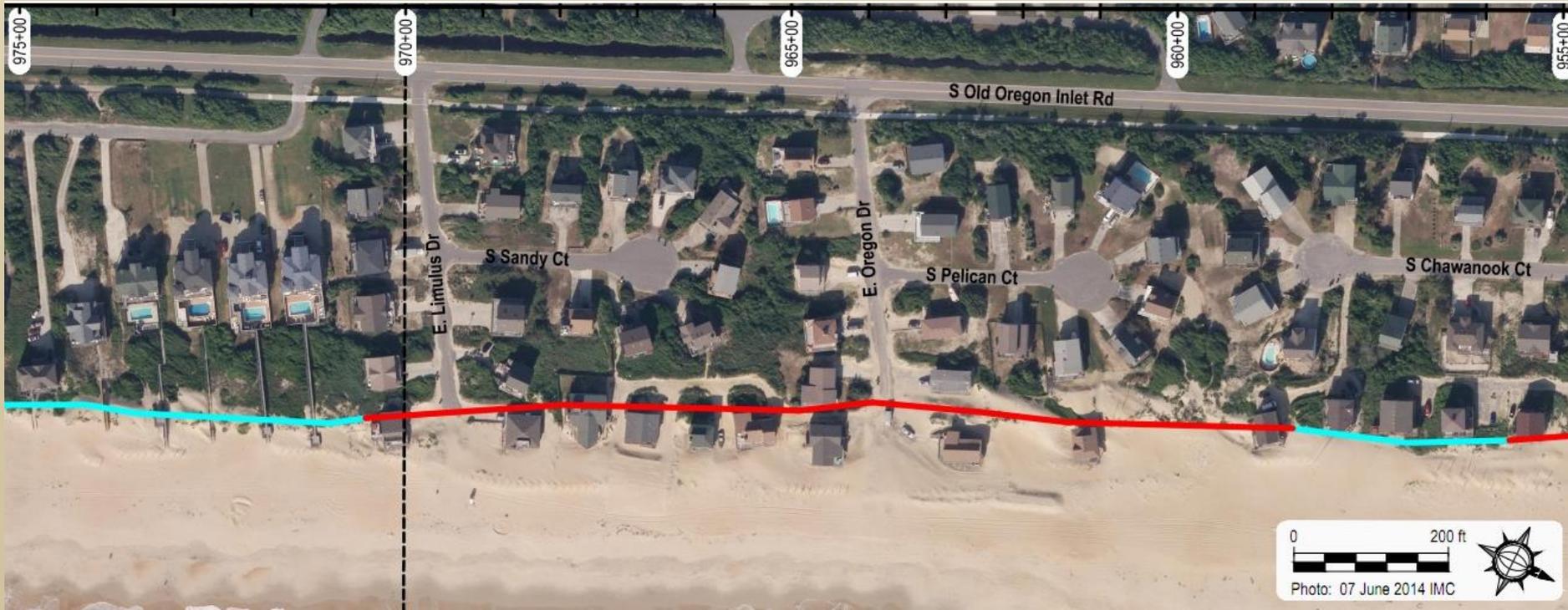


# Dune Management Plan – Category 1

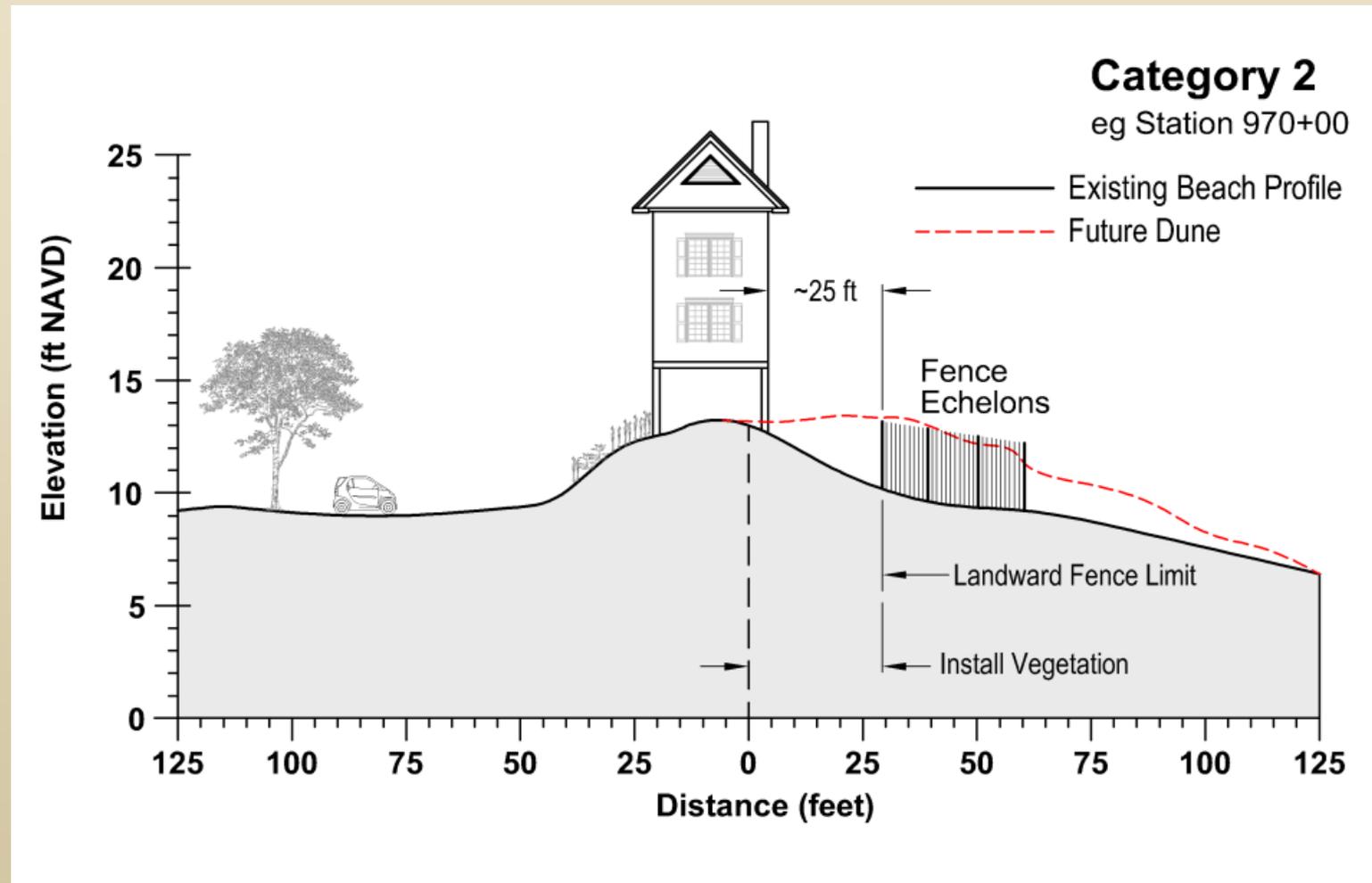


Place sand fencing close to the stable vegetation line,  
and re-vegetate bare areas

# Dune Management Plan – Category 2



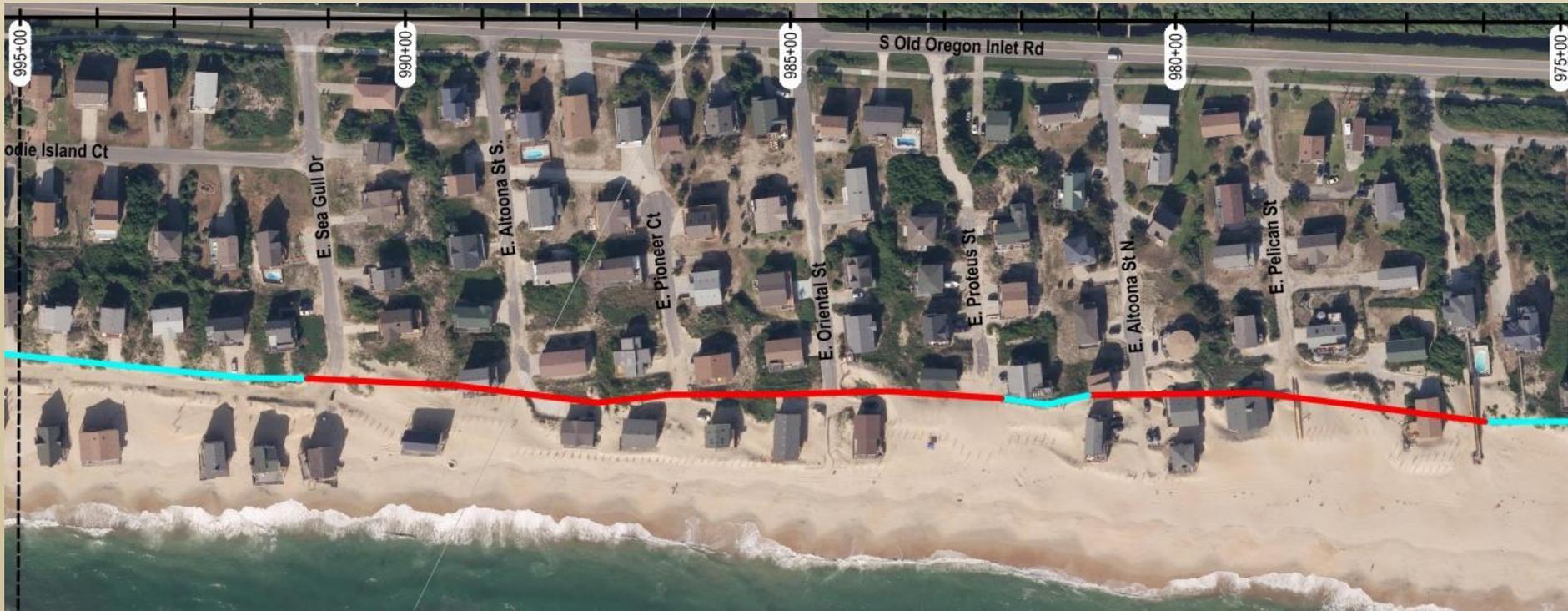
# Dune Management Plan – Category 2



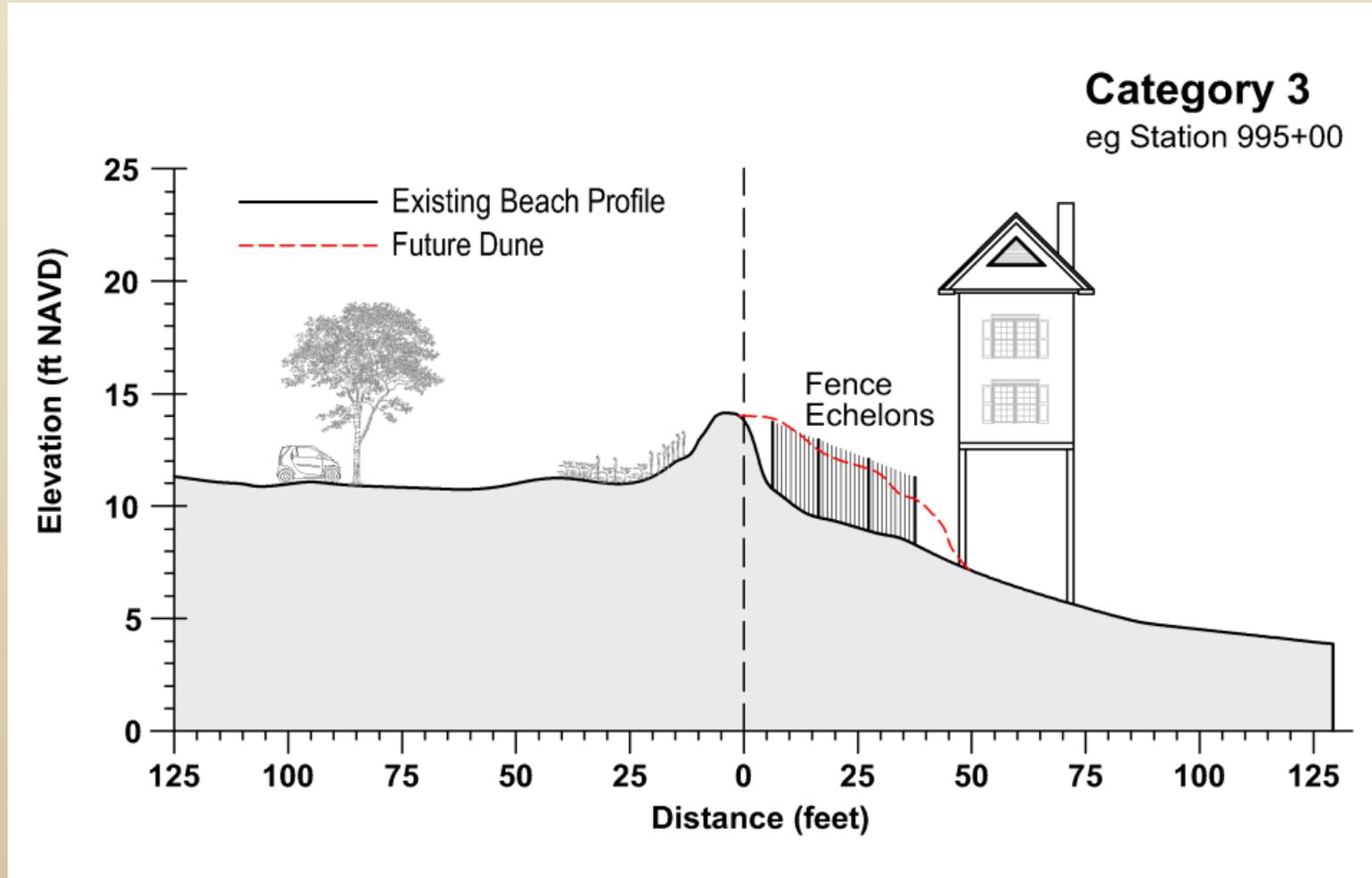
If the berm is >75 ft wide, place sand fencing 25 ft seaward of the structure and promote dune buildup via fencing and vegetation.

# Dune Management Plan - Category 3

Oct 2014



# Dune Management Plan – Category 3



Fencing should not be installed on the seaward side unless there is >75 ft of dry-sand beach seaward of the structure.

# Nags Head Incipient Dune Growth



# Review of a Previous Dune Construction Project at Nags Head After Hurricane *Isabel* (18 September 2003)

Dec 2003



April 2004



Post-*Isabel* Dune Building (FEMA)

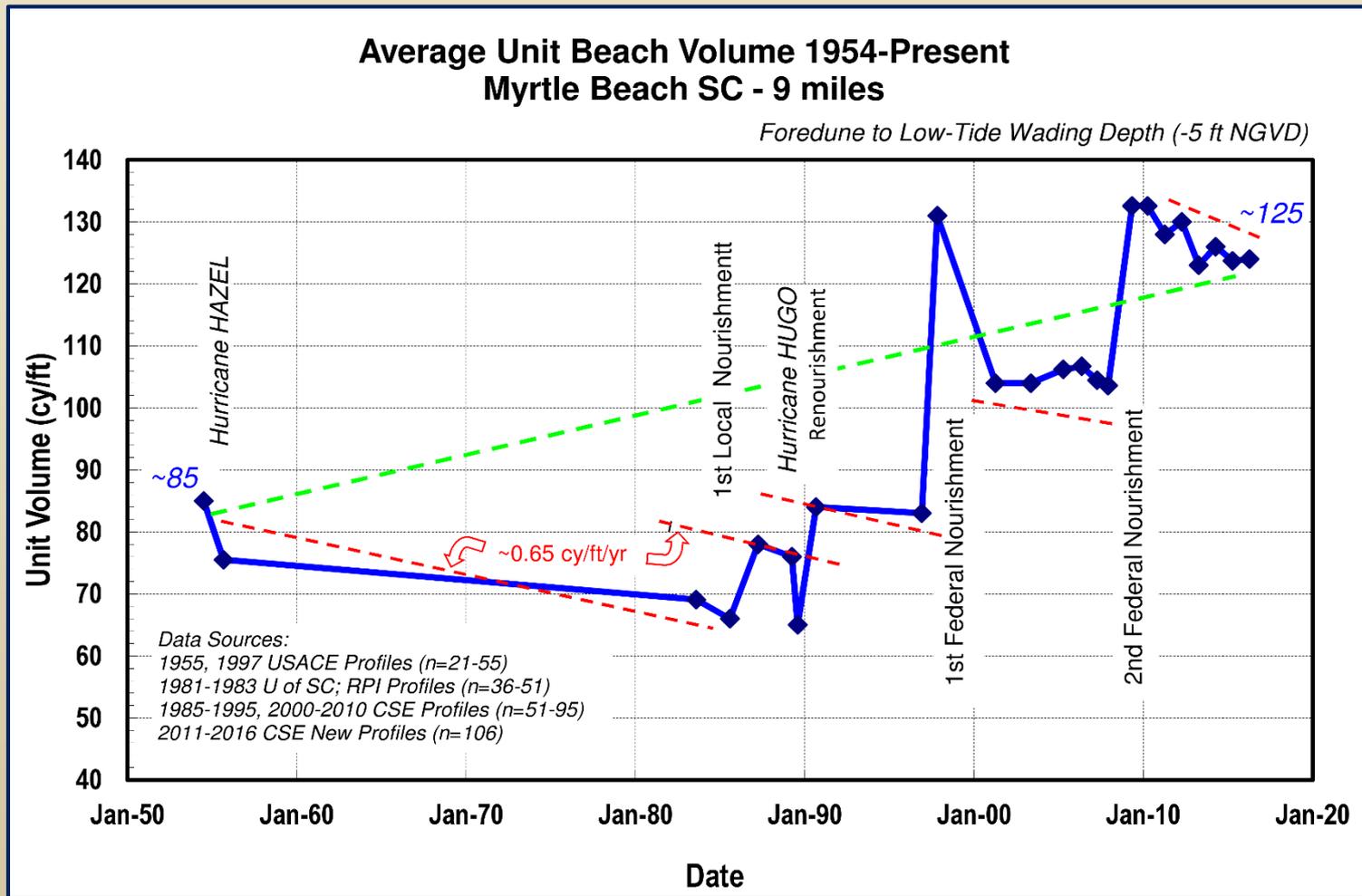


Nov 2010



May 2004

# Long-Term Shoreline Management Example – Myrtle Beach (SC)



Nourishment Volume: Total – 5 MCY

1986 – 850,000 cy

1990 – 400,000 cy

1997 – 2.25 MCY

2008 – 1.5 MCY



@ Low tide

March 1985



# Myrtle Beach 30-yr Improvement



February 1987



1<sup>st</sup> Locally  
Sponsored  
Nourishment  
In SC

March 1985



## Myrtle Beach – 30 yrs later

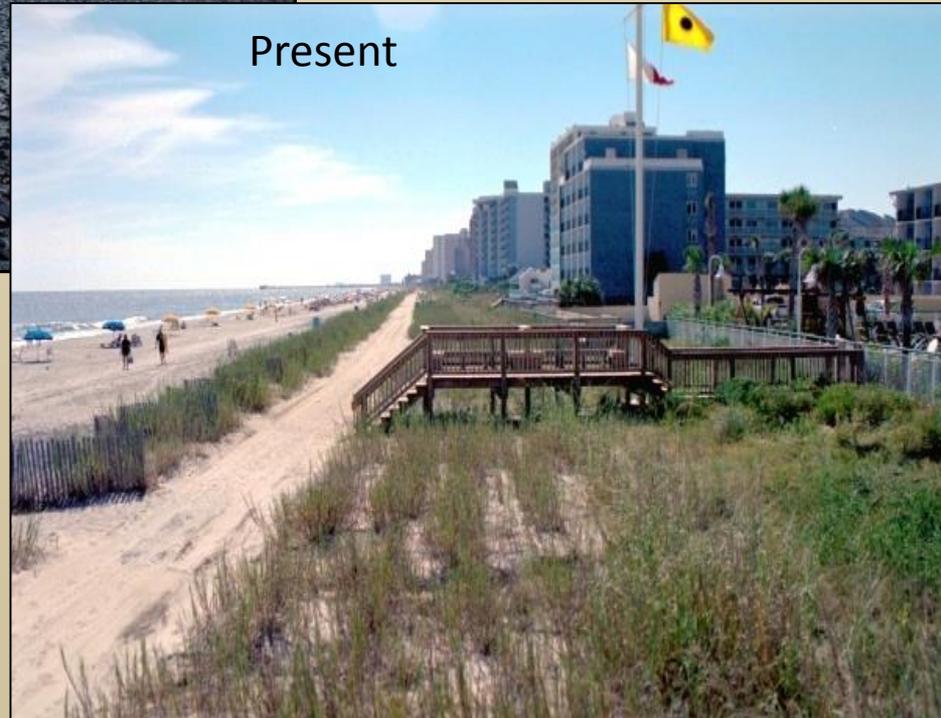
February 1987



Four Nourishment  
Events – 1986 to  
Present

Federal Project  
1997 - 2047

Present



- Seawalls Buried
- Protective Storm Berm
- 100 ft Wider Beach
- 100 Acres Beach habitat gained

# Myrtle Beach – 30 Years later



# Myrtle Beach – 30 Years later



# Discussion