



Fire Island Inlet to Montauk Point Reformulation Study Downtown Montauk Overview



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Overview

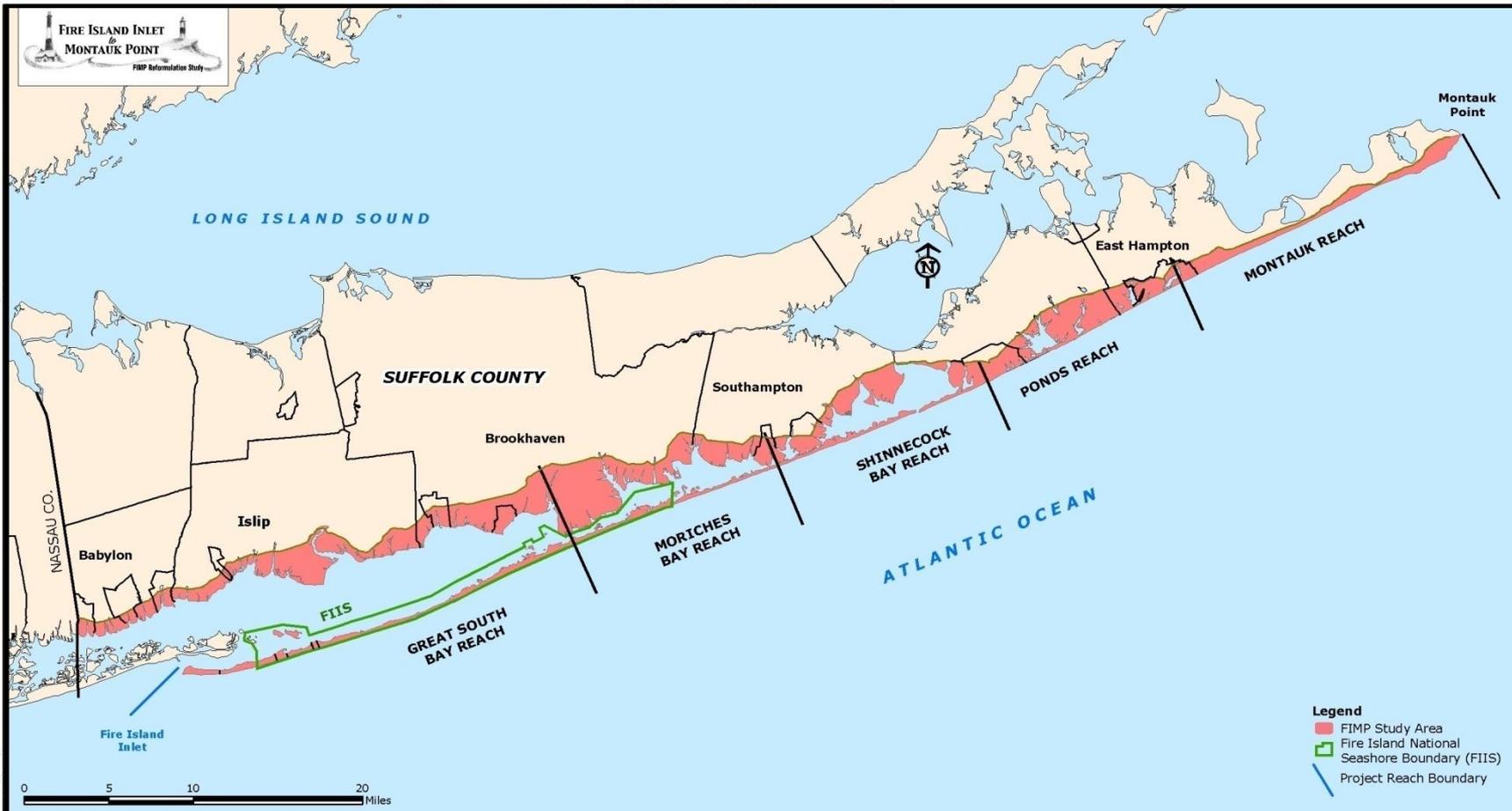
- **Background & Overview of FIMP**
 - ▶ Problems & Opportunities
 - ▶ TFSP (Tentative Federal Supported Plan)
 - ▶ Hurricane Sandy Changes & Overall Path Forward
- **Basics of Corps Coastal Planning**
- **Plans Previously presented for DT Montauk**
 - ▶ Plans & Town Resolution
- **Updates to the Overall & Stabilization Strategy**
- **Stabilization Project Recommendations**
 - ▶ Stabilization Plan overview & details
 - ▶ Project economics
 - ▶ O&M & local sponsor requirements
- **Reformulation Status**
- **Path Forward, Next Steps**





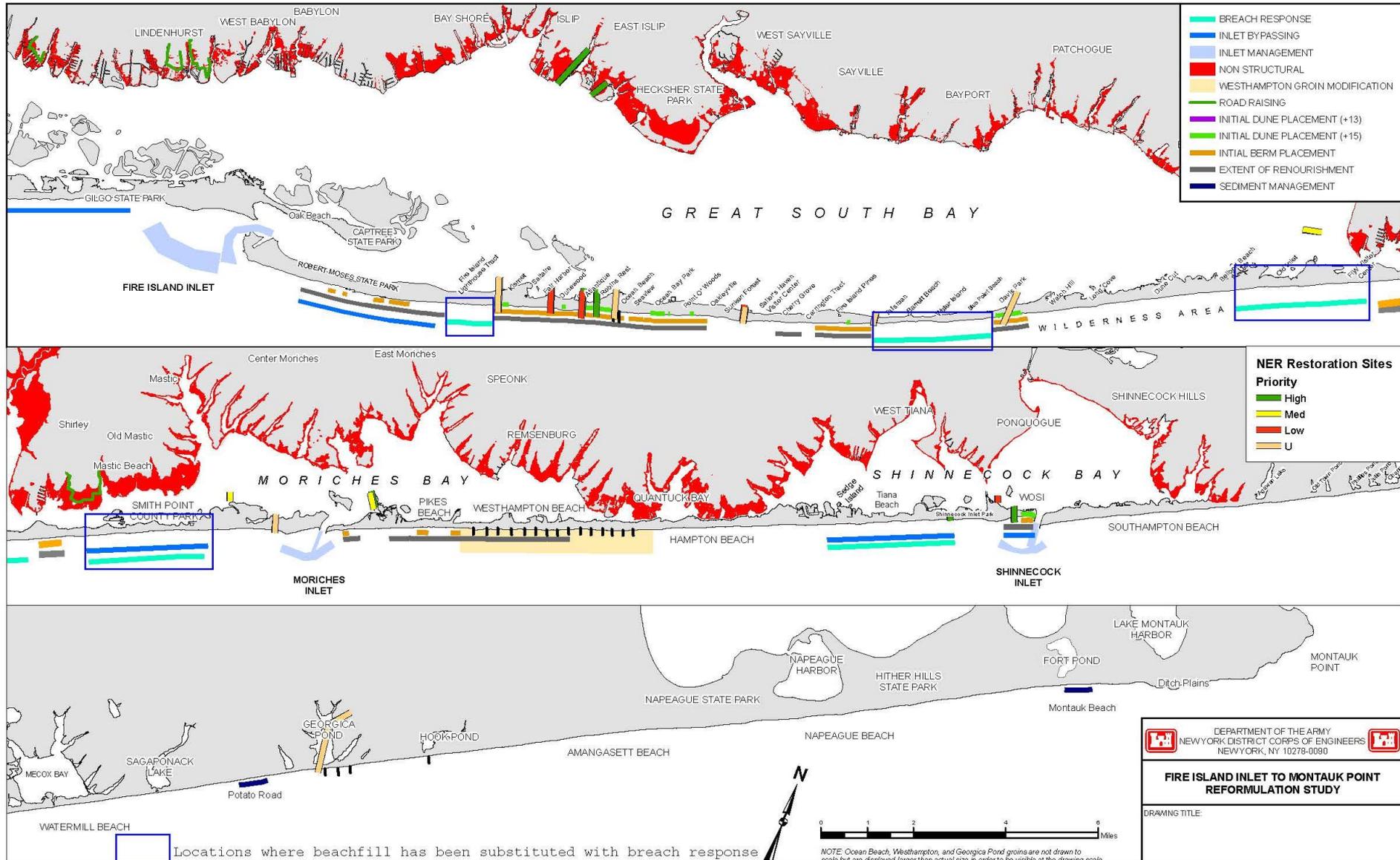
US Army Corps
of Engineers
New York District

Fire Island Inlet to Montauk Point, New York Reformulation Study

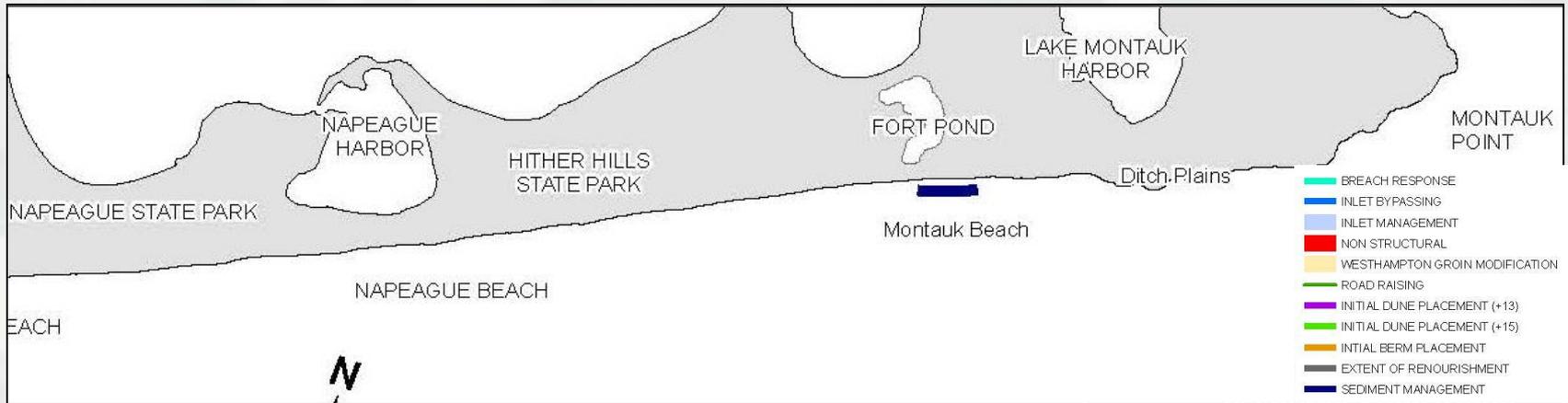


Study Purpose: The Fire Island Inlet to Montauk Point Reformulation (FIMP) Reformulation Study is being undertaken to identify a long-term solution to reduce the risk of coastal storm damages in the study area in a manner which considers the risks to human life and property, while maintaining, enhancing, and restoring ecosystem integrity and coastal biodiversity.

Tentative Federally Supported Plan (Pre-Sandy)



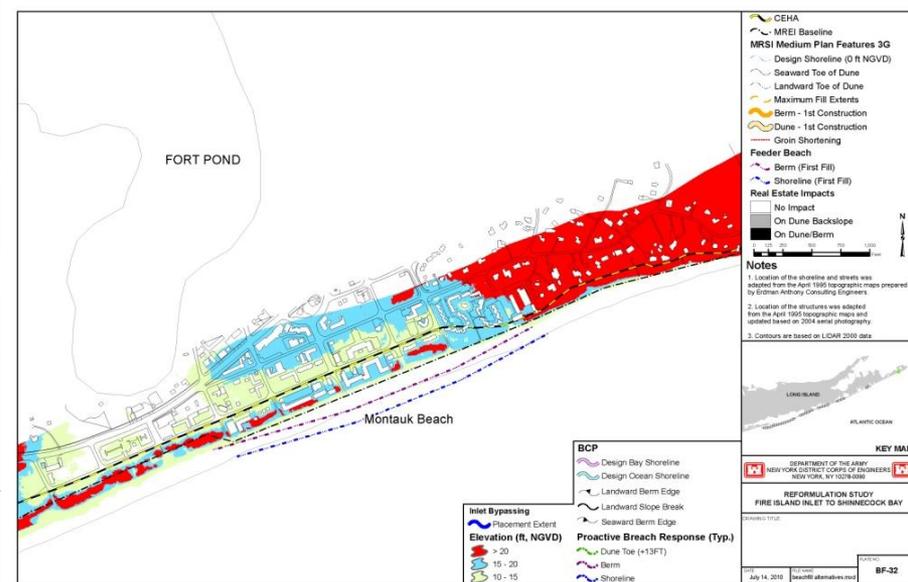
Shorefront Component Montauk



TFSP Shorefront components include:

Sediment Management Feature at Downtown Montauk

- Maintain Alongshore Transport and offset long-term erosion
- Renourishment Feature
- 120,000 CY of sand every 4 years
- Widens the existing beach



Hurricane Sandy

October 29, 2012



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TFSP Adjustments

Plan Adjustments Due to Sandy:

- Revised Beachfill Alignment & Extent on Fire Island
- Reconsideration of Barrier Island Breach Response
- Reconsideration of Downtown Montauk
- Update of Restoration / Nature Based Features
- Updating Quantities, Costs, Benefits of Plan

Sandy Legislation (P.L. 113-2)

- Sandy Supplemental provides for a cost-sharing Formula at 100% Federal cost for initial construction
- Funds remain available until expended



Path Forward:

- Local Sponsor Agreement on Plan (received 6/14/2013)
- Update Tentative Federal Selected Plan
 - ▶ Specifics:
 - Downtown Montauk
 - Fire Island Refinements
 - Breach Response Protocols
 - Nature-Based Features / Restoration Alternative
 - ▶ Quantities, Costs, Benefits
- Reaffirm Support (NYS, DOI, USACE)
- Stabilization Spin-off Efforts
- Draft Reformulation Report & EIS



USACE Coastal Basics

- “Corps Projects” are really joint “Corps, State, Municipal Projects”; Projects are planned and implemented with Local Sponsors. Each partner must support the plan & has a role.
- For Federal participation, must show benefits exceed costs.
- Benefits must contribute to National Economy (National Economic Development / NED Benefits)
- Select plan which maximizes benefits relative to costs.
- For Federal funds to be spent, the beaches must have Public Access that is open to all on equal terms



NED Benefit Categories

1. **Physical damages to built environment and Land loss**
2. **Reduced maintenance cost to existing protection works**
3. **Reduced emergency costs**
4. **Increased recreational use/reduced overcrowding ***
6. Use of unemployed or underemployed labor
7. Changes in shore process and equilibrium conditions
8. Prevention of loss of historic and scenic aspects
9. **Accretion or erosion of downdrift shores**

*** Recreation Benefits are incidental. Cannot be more than 50% of total benefits, cannot have features specifically for recreation**



Planning Process

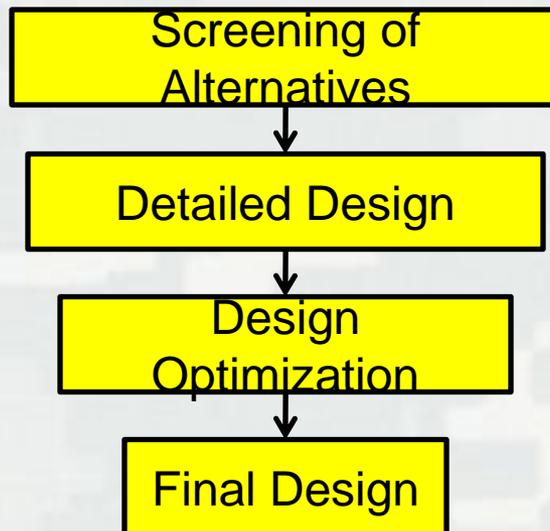
An iterative evaluation of alternatives to identify a recommended solution

This evaluation included a 3-phase planning process that included

Phase 1 Initial Screening: Considers the effectiveness of alternative measures

Phase 2 Design and Evaluation: Evaluates the cost and economics of alternatives

Phase 3 Plan Optimization: Evaluated the combinations of alternatives as plans



Preliminary Alternative Analysis Presented Fall 2013

Presented preliminary alternatives

- ▶ Costs & economics unknown at time
- ▶ Final plan not selected

Alternatives:

- ▶ Conventional Beachfill
- ▶ Setback beachfill (requires acquisition)
- ▶ Renourishment / Feeder Beach (TFSP)
- ▶ Buried rock revetment with beachfill
- ▶ Beachfill with groins



From Fall to Now, Changes

Two Major Changes:

1. Town-Identified Options
2. Stabilization Approach Redefined



Resolution

East Hampton Town Resolution, 10/17/2013

Identified three preferred options:

- ▶ Sand-only Option
- ▶ Rock and Sand Option
- ▶ Geotextile Tube Technology



Stabilization Approach

Concept of Stabilization is unique, uncommon

Initial concept as presented in Fall:

- ▶ Stabilization would fast-track implementation of FIMP
- ▶ Implement long-term recommendations in advance of overall
- ▶ Rely on Project Costs & Economics over 50 years

Based upon Washington-level consultation

(USACE and Federal Partners)

- ▶ Stabilization as separate, standalone effort
 - Separate Costs, Economics, and Purpose, 1-time Action
- ▶ Reformulation as a separate follow-up effort
 - Long-term recommendations



Summary of Town Options

Town preferred options largely fit into FIMP Reformulation, long-term strategy

- ▶ Plans require long-term renourishment to be effective
- ▶ Overall FIMP gains efficiencies by constructing as a system, one dredge to do multiple operations



Cost Considerations

- Considerations:
 - ▶ Dredge Mob / Demob costs are high (\$4 Million)
 - ▶ Costs can be reduced if done in combination
 - ▶ Expected erosion rates are high
 - Short length of shoreline erodes more rapidly
 - Extent to which the project “bumps out” from adjacent areas
 - ▶ Beachfill with structures
 - Higher initial costs
 - Reduces the width of berm required
 - Reduces the volume required for renourishment



Identifying A Stabilization Alternative

Stabilization as a Separate, Standalone Effort

- Separate Costs, Economics, and Purpose, 1-time Action

Considered

- Geotextile reinforced dune options
- Smaller scale project
- Project could be implemented by trucking
- Compatible with potential long-term recommendations
- Consistent with Town's Additional requested option



Stabilization Alternative

- Geotextile Reinforced Dune (+13.5 ft) & Berm
- Developed as a Stabilization Alternative
 - ▶ One-Time Action, can be implemented quickly
 - ▶ Volume of Fill that does not require dredge, ~45,000 CY
- Provides Lower level of risk reduction
- Designed to bridge the gap until Reformulation Implemented



Geotextile Reinforced Dune & Berm



Reinforced Dune & Berm Section

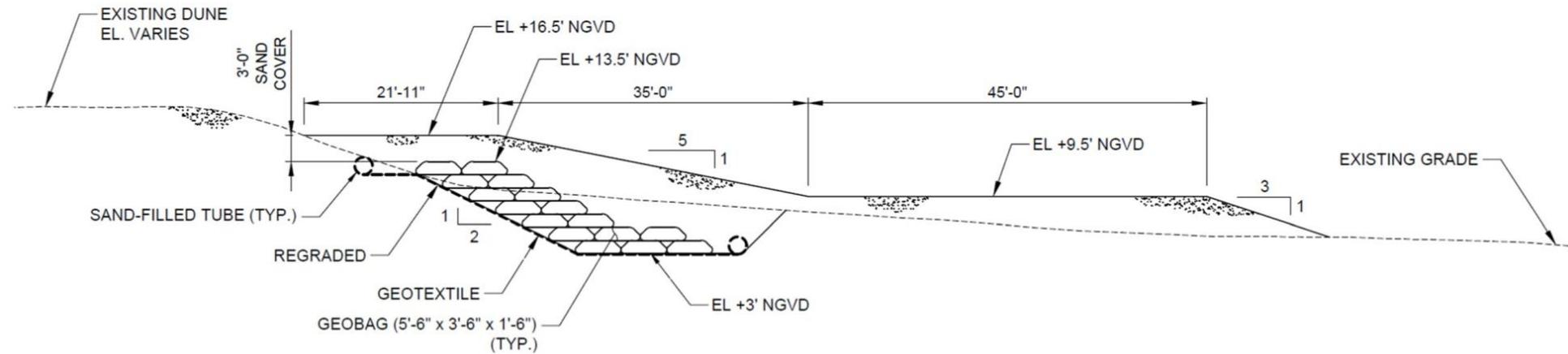


Figure 5: Reinforced Dune Typical Section



Geotextile Reinforcement

Many options available

Selected Mac-Bag (Maccaferri) for use

(Construction Specs would allow equivalent design)

Dimensions filled = 5.5' x 3.5' x 1.5'

Each Filled Bag = 2.4 Tons

History of performance (several decades)

Allows for construction to desired sizes & slopes

Functions as a revetment, not 1 continuous structure

Relatively easy to Replace individual bags



Installation



Figure 6: Mechanical Fill/Placement of Geobags



Hydraulic Fill/Placement of Geobags

Installation Examples

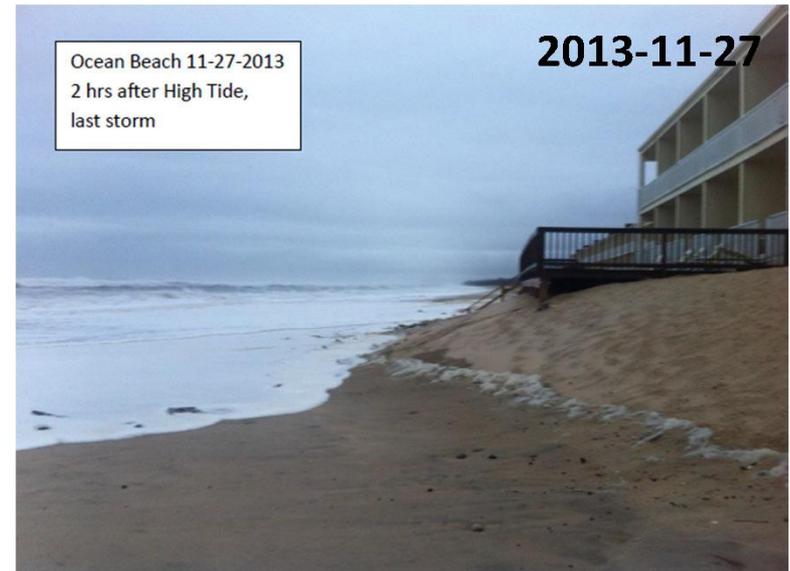


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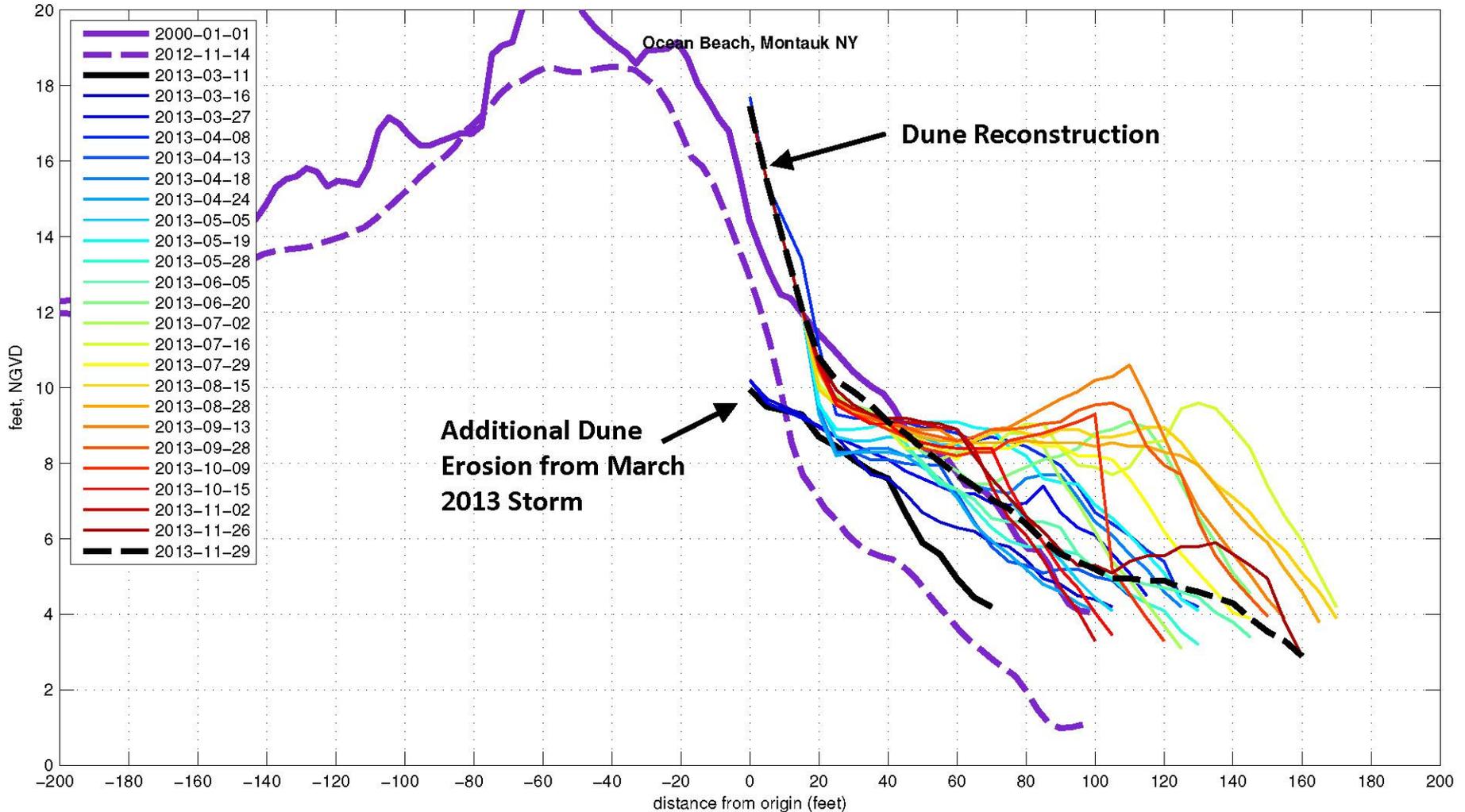
Estimated Cost

Reinforced Dune - Cost Estimate				
Project Length	3,100 ft			
Project Life	15 Years			
Discount Rate	3.50%			
CRF (First Construction)	0.087			
First Construction Quantities & Costs				
Item	Quantity		Parametric Estimate	
	Number	Unit	Unit Cost	Total Cost
Mob/demob	1	each	\$100,000	\$100,000
Excavation	22,851	cu.yd.	\$13	\$297,069
Sand Fill (Berm)	18,600	cu.yd.	\$35	\$651,000
Sand Fill (Dune)	26,483	cu.yd.	\$35	\$926,900
Furnish Sand Bags	14,171	each	\$70	\$992,000
Fill & Place Sand Bags	14,171	each	\$90	\$1,275,429
Geotextile Filter Layer	24,357	sq.yd.	\$15	\$365,357
	Subtotal			\$4,607,754
Contingency	20%			921,551
	Total Construction			\$5,529,305
E&D	7%			\$387,051.36
S&A	7%			\$387,051.36
Total Estimated First Construction Cost				\$6,303,408
Total Estimated First Construction Cost per Foot				\$2,033.36
Annualized Costs				
Annualized First Costs			\$547,293.82	
O&M	1.0%		\$63,034.08	
Total Estimated Annual Average Cost			\$610,327.90	
Total Estimated Annual Average Cost per Foot			\$196.88	

Ocean Beach



First Coastal – Ocean Beach



Expected Performance

Performance of Structure depends on beach condition

- Seasonal Variability & Long-Term trends
- First 5 years – approximately 25 yr design
- Year 6 – 15, reduces to 15 yr design

What does this mean?

- Not one typical storm – surge, waves, longevity

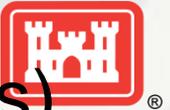
Recent nor'easters 2012 – 2014, 4-7 yr events (surge)

Irene ~6 year event, Sandy ~25 yr event (surge)



East Hampton / Montauk Benefit Analysis

- Benefits Included
 - ▶ Reduced Damages to Buildings and Contents
 - ▶ Reduced Erosion Downturn
- Benefits Excluded
 - ▶ Business Revenue Loss or Gain (not NED)
 - ▶ Tax Revenue Loss or Gain (not NED)
 - ▶ Recreation Use (excluded from emergency project)
- Benefits Not Quantified
 - ▶ Costs Avoided (local efforts / emergency costs)



East Hampton / Montauk Storm Damages

Erosion Problem

- Chronic Long-term erosion
- Beach condition is highly variable
- Storm Erosion Undermines Existing Structures
- Present Damages Low, Future Conditions Worsen Dramatically

Basics of Storm Damage Analysis

- Damage is Associated with Storm Events
- Larger Storms have increased surge and potential erosion.
- Continued Erosion Increases the extent of structure undermining and damage.
- Future storm damages are adjusted to project base year value (Present Worth based on 3.5% discount rate).
- Convert Costs and Benefits to Equivalent Average Annual Values based on Capital Recovery Factor



East Hampton / Montauk Damage & Benefit Models

Dune Reinforcement – No Renourishment

- Period of Analysis - 15 years

Without Project Damages

- ▶ Annual Damage, 15 year Period - \$ 1,001,000

Estimated Benefits and Costs

	Stabilization Plan
Without Project Damages	\$1,001,000
With Project Damages	\$273,000
Damages Reduced	\$728,000
Costs Avoided	Not Quantified
Total Benefits	\$728,000
Total Annual Costs	\$610,000
BCR	1.2



Recap - Stabilization

Stabilization Approach Changed

- Based upon USACE & Federal Agency Determinations
- Stabilization Separate from Reformulation

Identified viable option for stabilization

- ▶ Short-term, geotextile reinforced dune & berm

Plan is viable as a stabilization, need to finalize

- Local Sponsor Support & Report Approval



Local Sponsor Responsibilities

- Support selected alternative in writing
- Enter into a cooperative agreement with DEC
 - ▶ Provide local cost share (none anticipated for initial construction)
 - ▶ Provide all necessary real estate to build and maintain project
 - ▶ Indemnify State and federal governments
 - ▶ Operate and maintain the Project
 - ▶ Maintain public access to Project area



Real Estate

- If property is privately owned:
 - ▶ Obtain fee title ownership of any parcels on which a hard structure will be built
 - ▶ Obtain perpetual beach easements for all areas where sand will be placed
- If property is publically owned:
 - ▶ Provide access agreement to State to allow State, Corps and their contractors access



Operation and Maintenance

(All O&M work at 100% local sponsor cost)

Administrative:

- Maintain public access to Project area
- Prohibit any excavation, alterations or construction
- Assure no drainage onto the beach
- Remove all trash and debris from beach
- Permit Corps and State access to Project
- Participate in an annual inspection with the Corps and State

Maintenance:

- Grade and reshape dune to original elevations to repair erosion (keep geotextile bags covered)
- Take measures to prevent sand from blowing onto streets and adjacent properties, including sand fencing as needed
- Conduct quarterly inspections and beach width measurements

Reporting:

- Maintain organized record of activities and costs of inspections and maintenance
- Provide annual report of inspections to Corps and State



Expected Maintenance

Permit Requirements require keeping bags covered

Presently bags covered with over 3 ft of Sand

Identified that exposure due to storm depends on beach condition

Storm intensity

A storm of 5 – 10 yr return period would likely expose bags, depending upon beach condition.



PL 84-99

Flood Control & Coastal Emergencies

Authority that exists that provides for Corps repair of project if design exceeded

Eligibility requires:

- ▶ Storm exceeds project design level
- ▶ Project has been maintained and inspected
- ▶ Damage to Project, repair is economically justified

If eligibility met (documented in a Report)

- ▶ Corps repairs to pre-storm conditions, 100% Fed



Next Steps Stabilization

- Local Sponsor Support of Stabilization Plan
- Final Optimization of Stabilization Plan Details
- Report Preparation & Approval, including NEPA
- Construction Agreement & Implementation



FIMP Reformulation

- Authorization & Funding Available
- Reevaluating Long-Term Alternatives
 - ▶ Analysis underway
- Overall Agency Support
- Report Preparation & Approval



Overall FIMP Reformulation Schedule

- Submit Draft HSGRR & EIS Fall 2014
- Sponsor Approves Draft PPA Spring 2015
- Submit Final HSGRR & EIS Summer 2015
- Final Report Approval Summer 2015

- ASA(CW) Approval to Execute PPA Fall 2015
- Execute PPA Fall 2015

- Ready to Advertise Contract #1 Winter 2015 (Contract #1 beach fill)
- Real Estate Certification Winter 2015
- Contract #1 Award Spring 2016
- Additional Contracts
(environmental; non-structural) Summer/Fall 2016



Downtown Montauk Stabilization Schedule*

- Local Sponsor Concurrence 30 Apr 14
- Prepare / Submit Draft HSLRR & EA 6 Jun 14 (*assumes current plan)
- Sponsor Approves Draft PPA 30 Jun 14
- Submit Final HSLRR & EA 9 Jul 14 (assumes 15-day public review)
- Final Report Approval 16 Jul 14

- ASA(CW) Approval to Execute PPA 14 Aug 14
- Execute PPA 12 Sep 14

- Ready to Advertise Contract 24 Sep 14
- Real Estate Certification 10 Oct 14
- Contract Award 21 Nov 14
- Notice To Proceed 12 Dec 14

