FIMP Reformulation Study Path Forward

- **Parallel Efforts**
  1. Identify Solution that is acceptable to DOI
     - Plan Identified
  2. Identify Solution that is acceptable to Local Sponsors
     - Meetings to Obtain Local Input on Plans
     - Supervisor's Meetings
     - Public Information Sessions
  3. Identify Solution that is acceptable within USACE

- **Identify Tentative Plan of Improvement: Oct 2010**
  - Plan that satisfies all 3 parties (USACE, DOI, Sponsor)
- **Draft Report & EIS: 2011/2012**
- **Reviews**
- **Final Report; submit recommendation to Congress**

Input Desired from Towns

Acceptability of Plan Features

- **Trade-offs in Project Objectives**
  Balancing Storm Damage reduction and Environment
- **Land and Development Management Linkages**
- **Climate Change Considerations**
  Local perspective, future conditions
- **Adaptive Management Considerations**

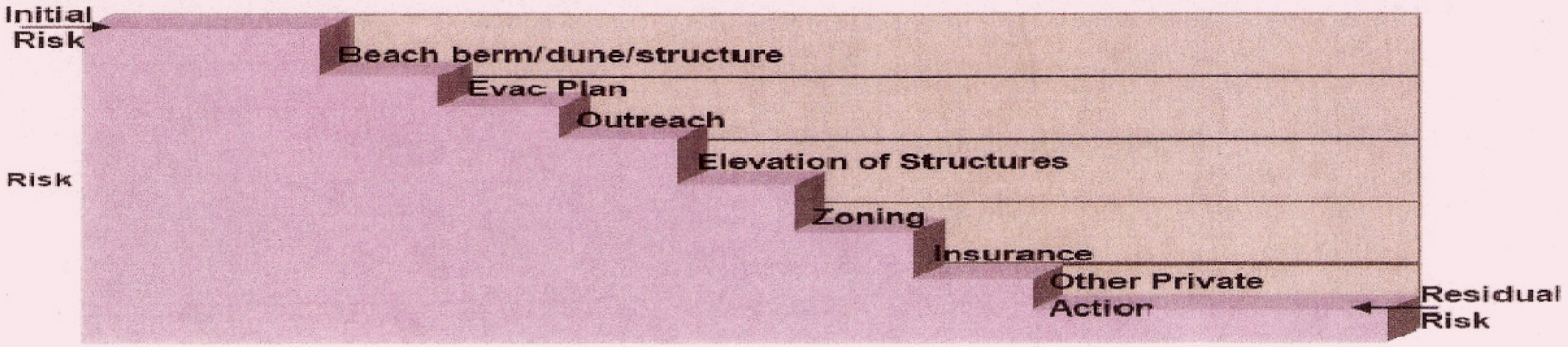
Residual Risk

The Big Picture of Flood Risk
Roles and Responsibilities

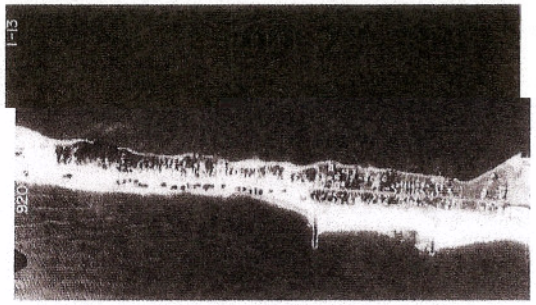
Effective Flood Risk Reduction is achieved when residents and all levels of government take preventive actions to reduce flood risk and consequences. "Structural" approaches, such as beachfill or walls, minimize flooding impacts.

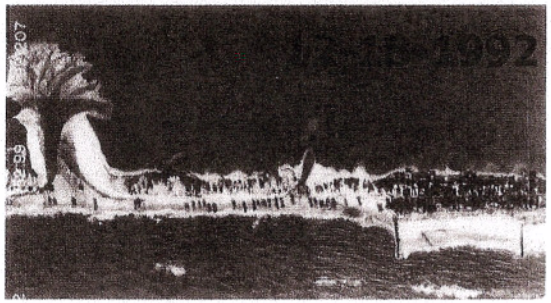
"Nonstructural" approaches, such as relocation or raising, remove the property from the floodplain..

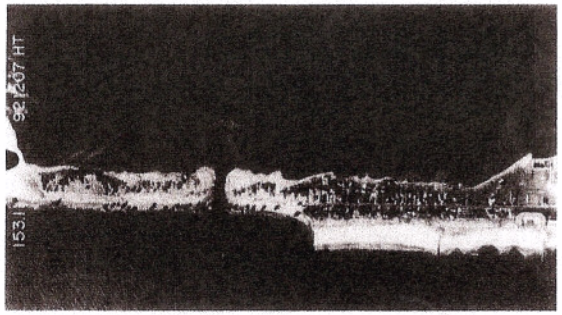
Land management policies implemented through zoning and regulations such as CEHA discourage development in flood-prone or hazard areas.



Westhampton Breach Evolution







Breach Physical Effects

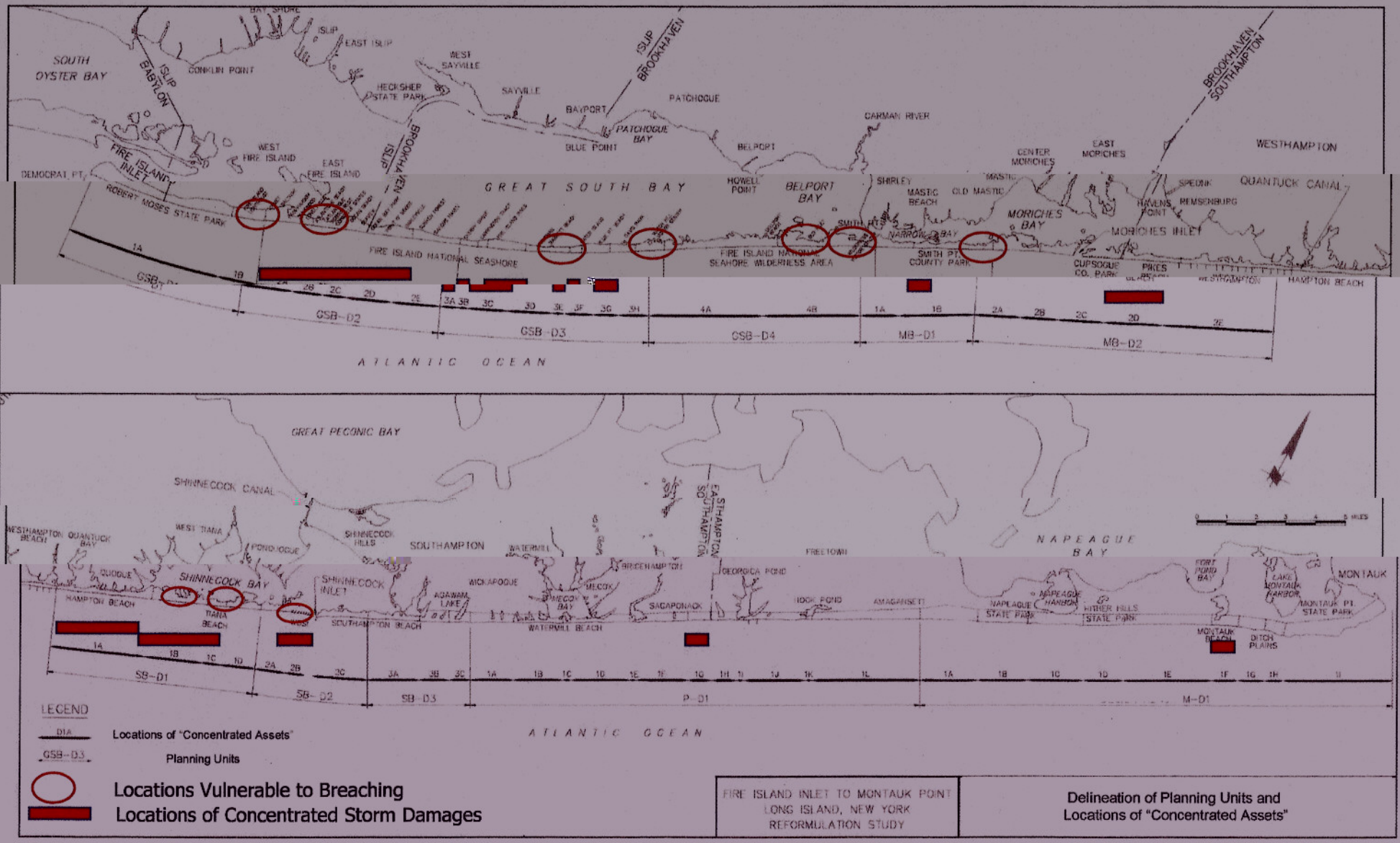
Hydraulic Effects

- Altered Bay Circulation Patterns
- Changed Water Quality
- Increased Tide Ranges
- Increased Storm Effects - surge and waves

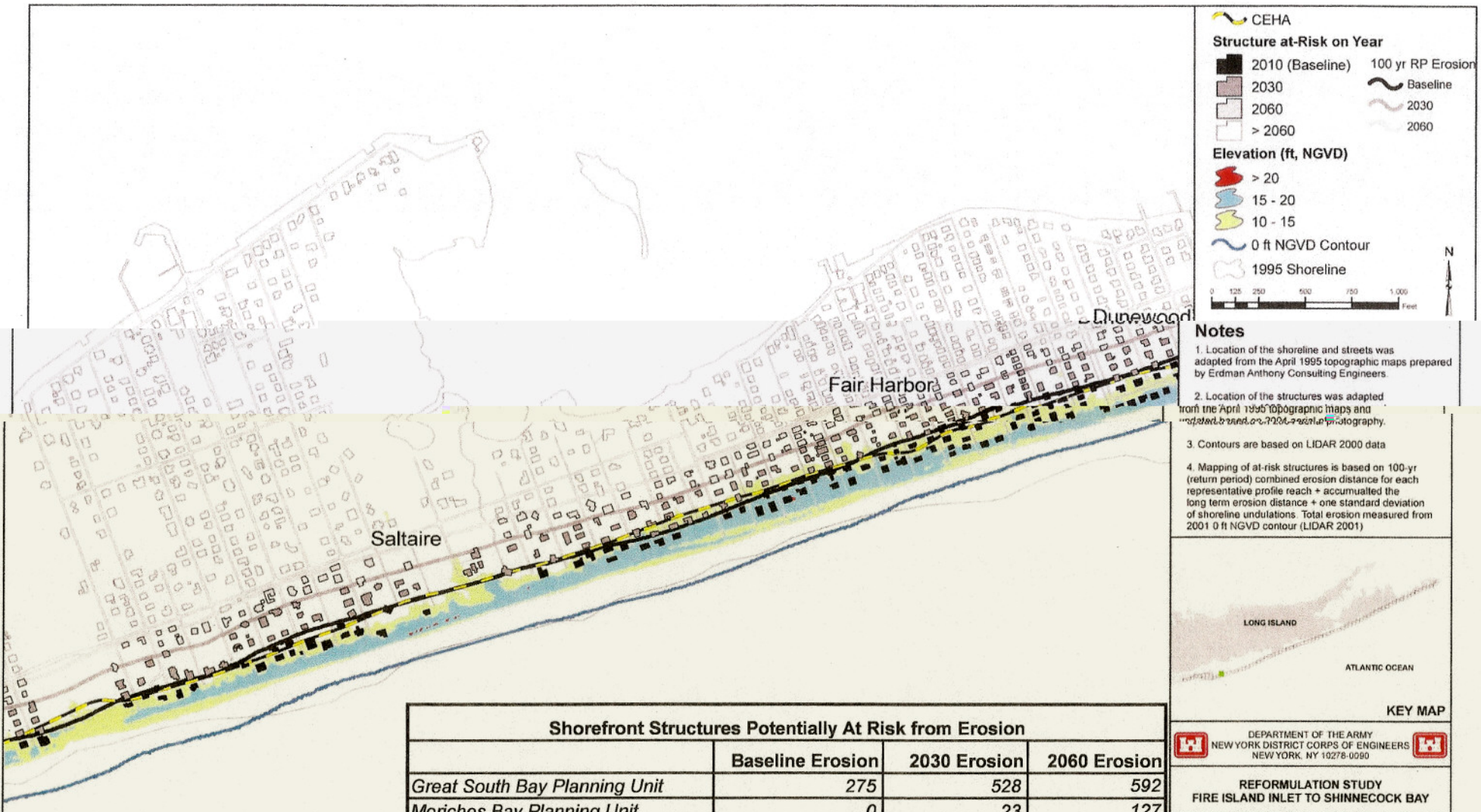
Sediment Transport

- Sediment Transport Into Bay
  (Platform for Island Migration)
- Bay and Ocean Shoal Creation
- Downdrift Erosion
- Breach Growth & Migration
- Increase in Shoaling at Existing Inlets

Shorefront Areas Vulnerable to Storm Damages



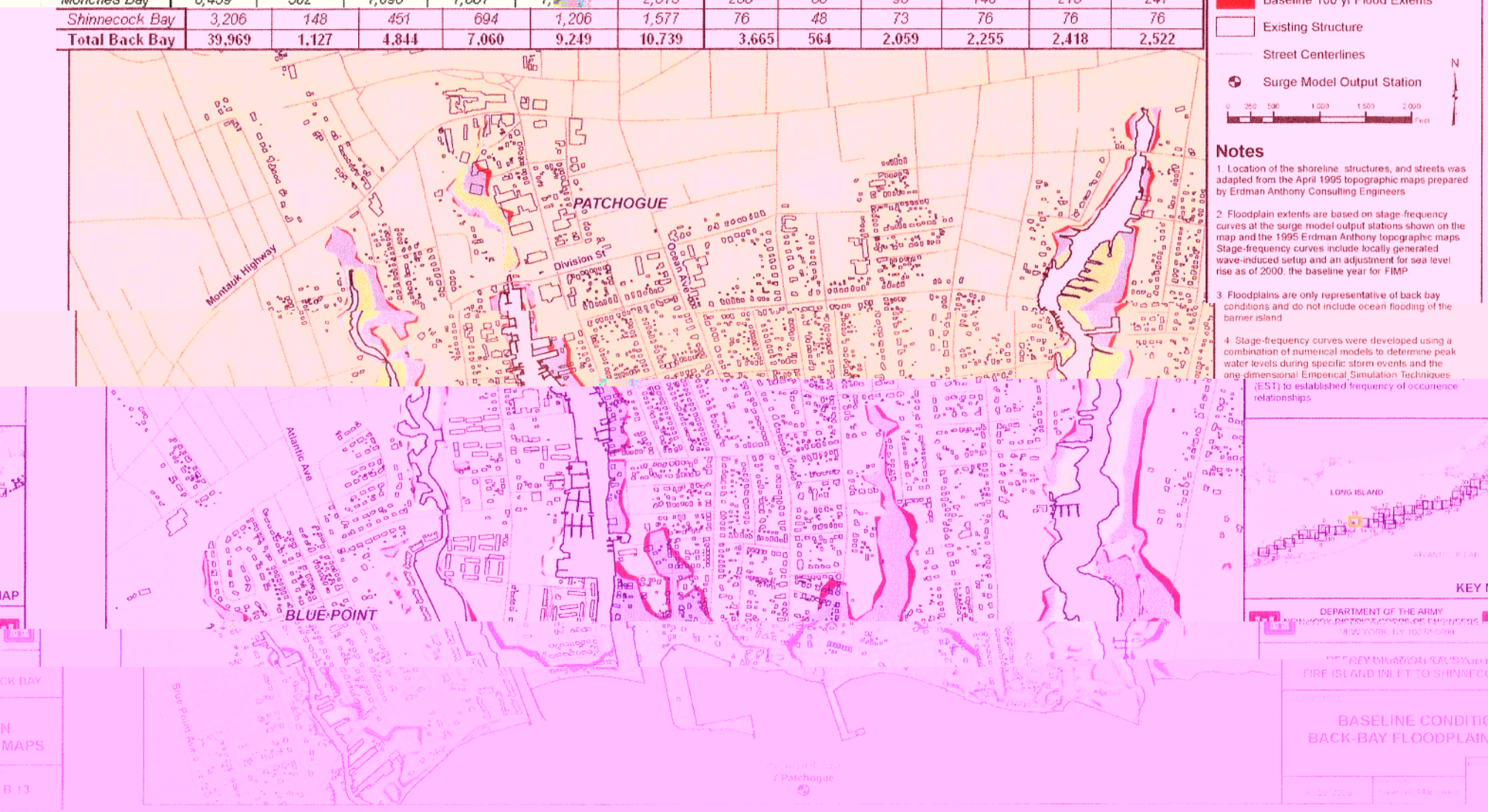
Shorefront Structures at Risk



Shorefront Structures Potentially At Risk from Erosion			
	Baseline Erosion	2030 Erosion	2060 Erosion
Great South Bay Planning Unit	*275*	*528*	*592*
Moriches Bay Planning Unit	*0*	*23*	*127*
Shinnecock Bay Planning Unit	*35*	*117*	*155*
Ponds Planning Unit	*38*	*147*	*178*
Montauk Planning Unit	***22***	***171***	***264***
Total System	**370**	**986**	**1,316**

Backbay Flooding, Stable Barrier Island Condition

	Mainland						Bayside Barrier Island					
		2 Year	10 Year	25 Year	100 Year	500 Year		2 Year	10 Year	25 Year	100 Year	500 Year
Project Reach	Buildings #	Floodplain Buildings	Floodplain Buildings	Floodplain Buildings	Floodplain Buildings	Floodplain Buildings	Buildings #	Floodplain Buildings	Floodplain Buildings	Floodplain Buildings	Floodplain Buildings	Floodplain Buildings
Great South Bay	30,324	477	3,297	4,705	6,049	6,647	3,331	458	1,893	2,039	2,126	2,205
Moriches Bay	6,439	502	1,096	1,661	1,994	2,515	258	58	93	140	216	241
Shinnecock Bay	3,206	148	451	694	1,206	1,577	76	48	73	76	76	76
Total Back Bay	39,969	1,127	4,844	7,060	9,249	10,739	3,665	564	2,059	2,255	2,418	2,522



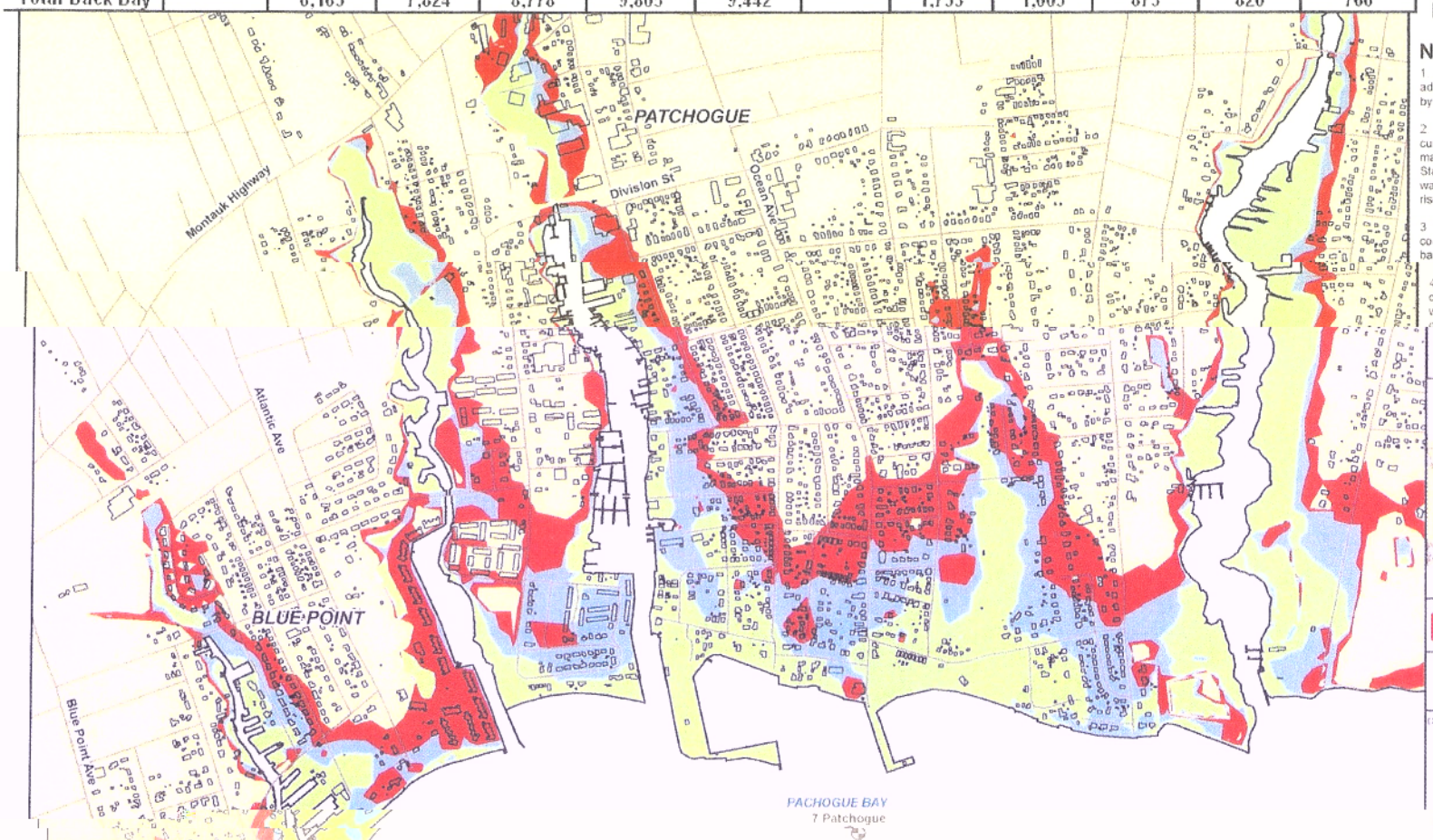
W/o New SLR Level

Backbay Flooding – Breach Condition

Project Reach	Mainland						Bayside Barrier Island					
	Buildings #	2 Year Floodplain Buildings	10 Year Floodplain Buildings	25 Year Floodplain Buildings	100 Year Floodplain Buildings	500 Year Floodplain Buildings	Buildings #	2 Year Floodplain Buildings	10 Year Floodplain Buildings	25 Year Floodplain Buildings	100 Year Floodplain Buildings	500 Year Floodplain Buildings
Great South Bay	30,324	5,873	9,644	11,730	13,664	14,027	3,331	2,140	2,772	2,809	2,906	2,955
Moriches Bay	6,439	1,096	2,117	2,840	3,571	4,050	258	123	216	243	256	257
Shinnecock Bay	3,206	323	907	1,268	1,819	2,104	76	54	76	76	76	76
Total Back Bay	39,969	7,292	12,668	15,838	19,054	20,181	3,665	2,317	3,064	3,128	3,238	3,288

Increase in Number of Buildings Impacted in a Breach Open Condition

Total Back Bay		6,165	7,824	8,778	9,805	9,442		1,753	1,005	873	820	766



Legend

- Baseline 100 yr Flood Extents
- FVC 100 yr Flood Extents
- BOC 4 12 mo 100 yr Flood Extents
- Existing Structure
- Street Centerlines
- Surge Model Output Station

N

0 250 500 1,000 1,500 2,000 Feet

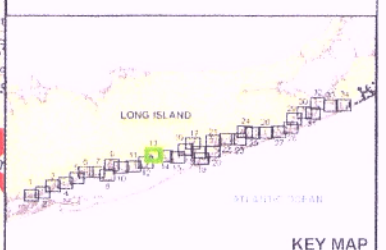
Notes

1. Location of the shoreline, structures, and streets was adapted from the April 1995 topographic maps prepared by Erdman Anthony Consulting Engineers.

2. Floodplain extents are based on stage-frequency curves at the surge model output stations shown on the map and the 1995 Erdman Anthony topographic maps. Stage-frequency curves include locally generated wave-induced setup and an adjustment for sea level rise as of 2000, the baseline year for FIMP.

3. Floodplains are only representative of back bay conditions and do not include ocean flooding of the barrier island.

4. Stage-frequency curves were developed using a combination of numerical models to determine peak water levels during specific storm events and the one-dimensional Empirical Simulation Techniques (EST) to established frequency of occurrence relationships.



KEY MAP

DEPARTMENT OF THE ARMY
NEW YORK DISTRICT CORPS OF ENGINEERS
NEW YORK, NY 10278-0090

REFORMULATION STUDY
FIRE ISLAND INLET TO SHINNECOCK BAY

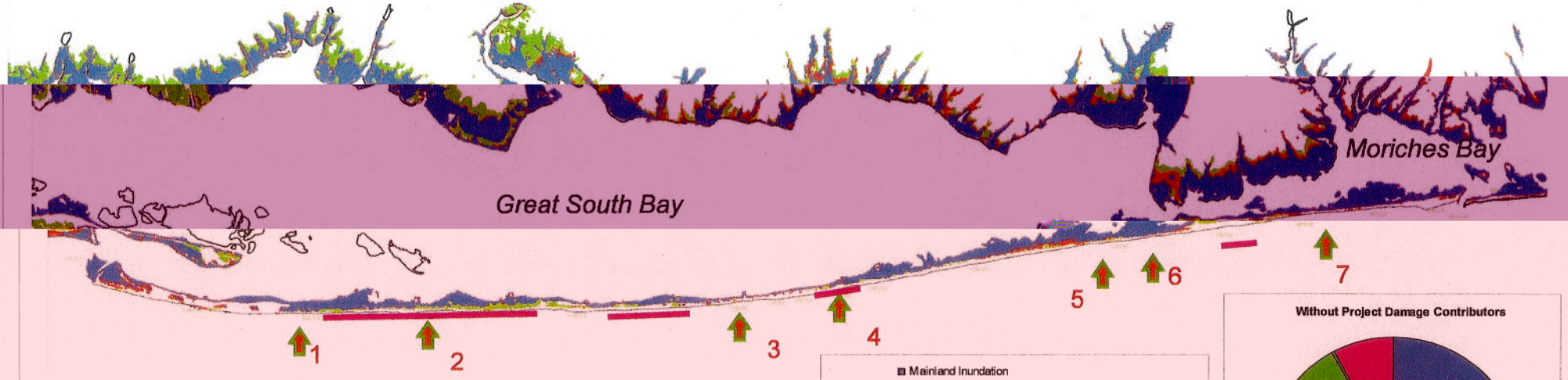
DRAWING TITLE

FUTURE WITHOUT PROJECT CONDITION
BACK-BAY FLOODPLAIN MAPS

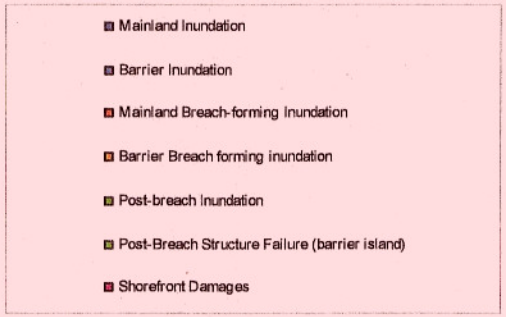
PLATE NO.

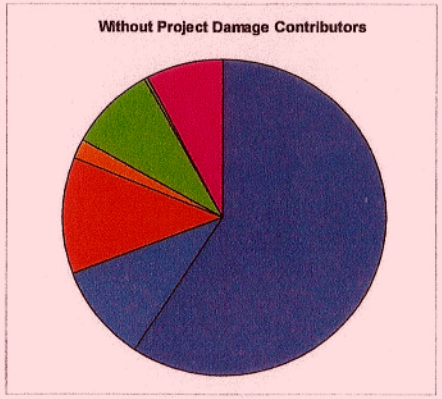
OCTOBER 2006 | Future Mapping | F-13

FIMP - Problem Summary



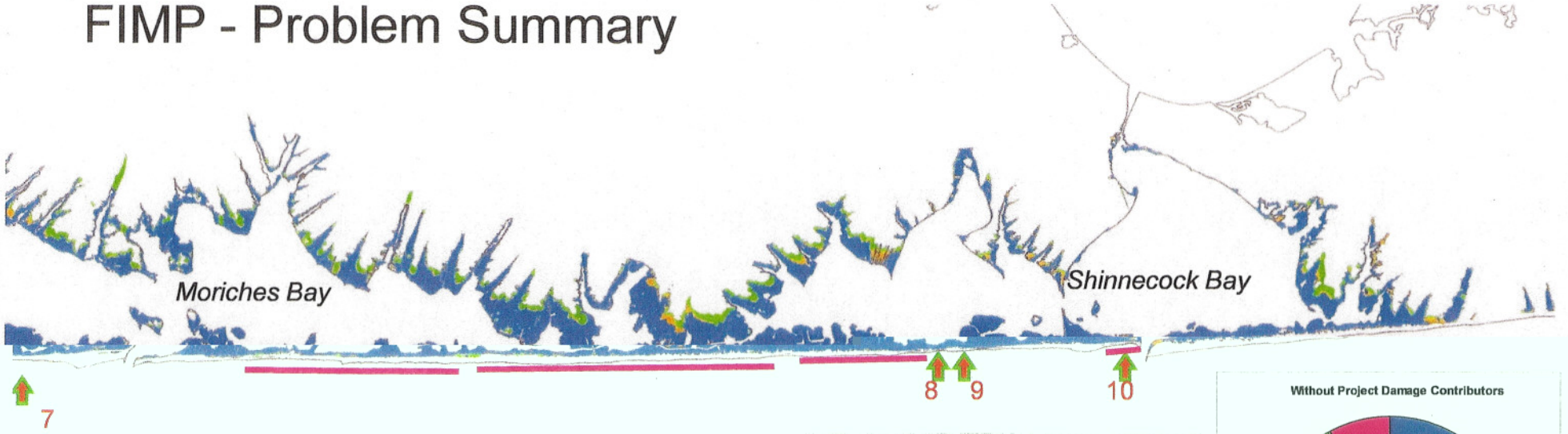
Breach Vulnerable Areas





Damage Category	Without Project Annual Damages	Great South Bay	Moriches Bay	Shinnecock Bay	Ponds Reach	Montauk Reach
Total Project						
Tidal Inundation occurring due to inlet conditions, and wave setup in back bay						
Mainland	55,834,500	32,403,700	14,379,500	9,051,300		
Barrier	9,423,300	9,414,300	2,400	6,600		
Tidal Inundation occurring due to the event resulting in breaching, and overwash						
Mainland	$11,035,500	6,483,500	3,618,700	933,300		
Barrier	$1,944,900	1,939,800	1,600	5,700		
Total Inundation	$78,240,200	50,241,100	18,002,200	9,996,900		
Damages (Inundation and Structural Failure) due to a breach remaining open						
Inundation	$8,292,700	5,660,500	1,469,600	162,600		
Structure Failure (barrier island)	$358,900	339,600		54,300		
Total Breach-Open	$8,651,600					
Shorefront Damages	$7,305,200	3,900,000	355,000	1,150,000	1,123,000	779,000
Total Storm Damage	$94,197,000	61,106,200	19,826,800	11,363,800	1,123,000	779,000

FIMP - Problem Summary



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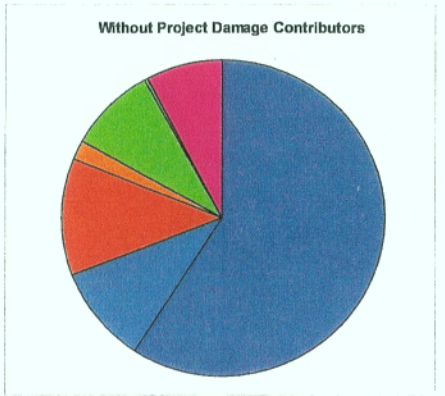

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Workshop Plan

Refer to Handout

Land & Development Management Alternatives

A framework to improve upon or modify the existing set of regulations that are presently in place, rather than the introduction of new land-use regulations.

Step 1: Improving the effectiveness of the existing regulatory program, by establishing a common funding source, establishing common and clearly communicated boundaries for regulated hazard areas, increasing training of local officials, and coordination to ensure consistent implementation across regulatory boundaries.

- CEHA Implementation Improvements, FIIS Dune District Alignment Changes

Step 2: Modification of statutes to allow for more effective implementation of the existing laws.

- CEHA Modification - Indemnification & Adjusting Penalties

Step 3: Establishing a funding mechanism to acquire vacant parcels, or buildings that are at risk

- Presently a non-Federal responsibility, based upon current policy

Step 4: The establishment of an entity or entities that would be responsible for various aspects related to land management and acquisition, and to fulfill the requirements of the local sponsor.

Step 5: Establishment of post-storm response plans to guide recovery following major, catastrophic events.

These measures are a necessary component of any plan. Structural Solutions must be linked to these land and development measures being implemented. The exact nature of this linkage has not been established.

Current Estimated Costs of Plan Features

- Inlet Management ($15 - $25 M)
- Breach Response ($6 - $12 M)
- Non-Structural Retrofits ($420 - $570 M) *Assuming 100% participation
- Beachfill ($140 - $160 M)
- Groin Modification ($7 – 10 M)
- Sediment Management Features ($3-5 M)
- Land and Development Management
- Restoration Alternatives ($6 – 15 M)

Cost Allocation

Project Costs

- Shared 65% Federal / 35% Non-Federal
- Non-Federal costs shared by State and locals