

## **APPENDIX J - Land and Development Management**

### **I. Context of Land Management Considerations in the Stabilization Effort**

The Reformulation Study was undertaken to identify a long-term (50-year) plan to manage the risk of storm damages, while maintaining, enhancing or restoring the existing environment. USACE coordinated with project stakeholders to establish the approach to formulate, evaluate, and recommend coastal storm risk management projects for the study area under the reformulation effort. The team sought to identify opportunities to reduce storm damages through less intrusive measures, and in a manner which allows for restoration and enhancement of the natural coastal processes.

This Stabilization effort evolved from the collaborative approach undertaken in the larger Reformulation plan and incorporates coordinated and sustainable land management policies while affording expedited placement in the study area.

Land use and development management measures include regulations and policies that could manage the risk of storm damages to existing development in high risk areas and reduce development pressure in those areas. This summary of land management also includes a discussion of measures that could be implemented for the protection and advancement of threatened and endangered species. At-risk areas are those vulnerable to flooding, erosion or both. The Reformulation Study process developed land management recommendations for the study area which are applicable to the Fire Island study area addressed by this Stabilization project.

An examination of the with-out project conditions in the study area noted that the existing collection of land use regulations is only partially effective in addressing development and redevelopment in these at-risk areas, particularly in areas vulnerable to erosion. Conceivably, some alternatives implemented under this Project could exacerbate the land management problem. The following sections present a summary of the land-use regulations, the additional challenges and opportunities inherent with the alternatives considered (with more specificity on the proposed Stabilization Plan), and recommendations to more effectively address the development and redevelopment concerns in the hazard areas. This includes a summary of how the Stabilization project advances efforts to remove development from high risk areas through easements, and acquisition.

Since many land use authorities lie outside of the USACE authority, the recommendations identified in this appendix can only be implemented through joint efforts of the local sponsors.

## **II. Existing Land Management Authorities**

Within the study area, federal, state and county governments each have regulatory authority, and the local governments have regulatory jurisdiction with respect to land management, principally through zoning and through management of environmental features such as freshwater and tidal wetlands. In addition, FINS is administered by the NPS under the DOI, a federal agency with land use and environmental management authority.

In New York State, the primary responsibility for zoning land use regulations rests with local municipalities, including towns and incorporated cities or villages, under the system known as “home rule”. However, in the case of shorefront areas potentially subject to flooding or coastal erosion, and for Fire Island in particular, a number of other federal and state zoning and other land use regulations pertain, as described below.

### Fire Island National Seashore

When Congress enacted FINS-enabling legislation, the law mandated the Secretary of the Interior to establish federal zoning regulations. These regulations provide standards for local zoning to protect and preserve Fire Island, and they exist solely as an overarching law to which local ordinances must conform.

Federal zoning regulations provide a set of standards for the use, maintenance, renovation, repair, and development of property within FINS. NPS has established three districts within its boundary, which are: 1) the Community Development District; 2) the Seashore District; and 3) the Dune District. The Community Development District comprises 17 communities and encompasses the existing communities and villages. In the Community Development District, existing uses and development of single-family houses are allowed. The Seashore District includes all land in FINS that is not in the Community District. No new development is allowed in the Seashore District, but existing structures may remain.

The Dune District extends from Mean High Water (MHW) to 40 feet landward of the primary natural high dune crest which has been mapped by NPS. This district overlaps the other two districts. Only pedestrians, and necessary vehicles such as ambulances, are allowed in the Dune District. Like the Seashore District, existing legal structures may remain and may be repaired and maintained. The existing dune district was established based upon the dune condition in 1976 and adopted by Congress. The dune district has not been re-mapped, and presently is not an accurate representation of the existing dune. NPS developed federal zoning standards that became effective September 30, 1991 under 36 CFR Part 28. These set standards that local zoning must meet to be exempt from the condemnation authority of the Secretary of the Interior. Currently, there are no known plans to remap the dune district and standards are currently consistent with CEHA.

These standards include controlling population density and protecting natural resources, limiting development to single-family homes, and prohibiting any new commercial or industrial uses.

NPS is not responsible for enforcing the federal zoning standards in the communities and villages, despite the presence of federal regulations. It is the responsibility of the local governments to maintain regulatory jurisdiction. The federal government ensures local compliance with the federal law by maintaining the power of condemnation; in cases where the law is not met, FINS has statutory authority to purchase and condemn the non-compliant building. While local zoning ordinances conform to standards issued by the Secretary of the Interior, the federal power of condemnation is suspended. In practice, this authority has been seldom exercised, and Congress has not given funding to FINS for this purpose in recent years.

### FEMA

Other agencies also have responsibility to affect land use regulation in the project area. An organization that indirectly affects land use regulation is the Federal Emergency Management Agency (FEMA). Any community seeking to register with the Federal Insurance Association, which allows homeowners to obtain flood insurance, must join FEMA's National Flood Insurance Program (NFIP). Participation in the NFIP requires a municipality to adopt a local floodplain management ordinance that regulates floodplain development and redevelopment following damage. The intent of the local ordinance is to reduce damage to buildings and property through the establishment of base flood elevations, building code requirements, and restrictions on allowable development in floodplain areas. Specific provisions include the requirement that the first finished floor or new construction must be elevated above the base flood elevation. All municipalities within the study area participate in the NFIP.

### USFWS

The Coastal Barrier Resources Act of 1990 established the Coastal Barrier Resources System (CBRA), which consists of specifically identified undeveloped coastal barriers on the United States coastline. The U.S. Fish and Wildlife Service (USFWS) is the responsible agency for administering CBRA. Coastal barriers include barrier islands, bay barriers, and other geological features that protect landward aquatic habitats from direct wind and waves. CBRA units are prohibited from receiving federal monies or financial assistance or insurance for new development in CBRA in areas. The CBRA, however, identifies exceptions to this restriction, including non-structural shoreline stabilization similar to natural stabilization systems; the maintenance of channel improvements, jetties, and roads; necessary oil and gas exploration and development; essential military activities; and scientific studies.

The Cooperative Endangered Species Conservation Fund (Section 6 of the Endangered Species Act) provides funding to States for species and habitat conservation actions on non-Federal lands. States and Territories must contribute a minimum non-Federal match of 25% for the estimated program costs of approved projects, or 10% when two or more States or Territories implement a joint project. A State must currently have, or enter into a cooperative agreement with the U.S. Fish and Wildlife Service (Service) to receive grant funds.

Four grant programs are available through the Cooperative Endangered Species Conservation Fund; they include the Conservation Grants, Habitat Conservation Plan Land Acquisition, Habitat Conservation Planning Assistance, and Recovery Land Acquisition Grants.

The Conservation Grants program provides financial assistance to States' projects that conserve listed species and species at-risk. Funded activities include habitat restoration, species status surveys, public education, and outreach, captive propagation and reintroduction, nesting surveys, genetic studies, and development of management plans. Project selection is generally conducted by Service Endangered Species staff in conjunction with the States. Funding is allocated by formula to the Service Regions based on the number of species covered in the cooperative agreements with the States within that Region. Regional offices then further allocate the funding to the States within that Region by formula or through a competitive process.

#### *Habitat Conservation Planning (HCP) Assistance Grants*

Through the development of regional Habitat Conservation Plans (HCPs), local governments incorporate species conservation into local land use planning, which streamlines the project approval process and facilitates economic development. The Habitat Conservation Planning Assistance Grants program provides funding to States to support the development of HCPs. Planning assistance grants may support planning activities such as document preparation, outreach, and baseline surveys, and inventories. The funding for the Habitat Conservation Planning Assistance Grants is competed for at the National level.

#### *Habitat Conservation Plan (HCP) Land Acquisition Grants*

The HCP Land Acquisition program was established by Congress in FY 1997. This program was designed to reduce conflicts between the conservation of listed species and land uses on specific parcels of land. Under this program, the Service provides grants to States for land acquisitions that are associated with approved HCPs. The Service considers the use of Federal acquisition dollars by States for habitat protection within and adjacent to HCP areas to be an important and effective mechanism to promote the recovery of threatened and endangered species.

The HCP Land Acquisition program has three primary purposes: 1) to fund land acquisitions that complement, but do not replace, private mitigation responsibilities contained in HCPs, 2) to fund land acquisitions that have important benefits for listed, proposed, and candidate species, and 3) to fund land acquisitions that have important benefits for ecosystems that support listed, proposed and candidate species.

#### *Recovery Land Acquisition Grants*

Loss of habitat is the primary threat to most listed species and land acquisition is often the most effective and efficient means of protecting habitats essential for recovery of listed species before development or other land use changes impair or destroy key habitat values. Land acquisition is costly and often neither the Service nor the States individually have the necessary resources to acquire habitats essential for recovery of listed species. Recovery Land Acquisition grant funds are matched by States and non-federal entities to acquire these habitats from willing sellers in support of approved species recovery plans.

Because the existing HCP Land Acquisition Grants Program provides substantial funding for land acquisitions associated with HCPs, the Recovery Land Acquisition Grants Program will not be used to fund land acquisitions associated with permitted HCPs.

### NYS CEHA

In 1981, the Coastal Erosion Hazard Area (CEHA) Act, Article 34 of Environmental Conservation Law was enacted to provide for the identification and regulation of critical erosion hazard areas along New York's coastlines, in order to minimize damage from erosion. Article 34 established statutory authority for identifying these erosion hazard areas, restricting development in these areas, and establishing criteria for the development of a statewide Coastal Erosion Management (CEM) regulatory program. 6 NYCRR Part 505, Coastal Erosion Management Regulations, provides the framework and criteria which allow the State and local governments to administer a local CEM program that is consistent with Article 34 for affected shoreline communities. Under Article 34 and Part 505, CEHA consists of two separate jurisdictions, which include the Natural Protective Feature Area (NPFA), which is defined by the natural protective features (dune, beach, bluff and near shore areas) found along a particular stretch of shoreline, and the Structural Hazard Area (SHA), which is delineated landward of the NPFA along shorelines with a long term annual rate of shoreline recession greater than one foot per year.

Currently no SHA has been identified within the study area. Therefore, the terms CEHA and NPFA are used interchangeably throughout this report, because only the NPFA jurisdiction is applicable within the study area. However, SHA may be delineated within the project area in the future if technical data determines it to be appropriate.

CEHA jurisdiction extends from the seaward limit of the near shore area (1,000 feet seaward of mean low water or a water depth of 15 feet; whichever is greater) to the landward edge of the most landward natural protective feature. For most of the reformulation study area, the primary dune is the most landward natural protective feature. The primary dune extends 25 feet landward from the landward toe, as identified on the Coastal Erosion Hazard Area maps and is the landward limit of CEHA jurisdiction. Where the landward most natural protective feature is a bluff or a beach, the CEHA jurisdiction extends 25 feet landward from the crest of a bluff or 100 feet landward from the change of vegetation or physiographic form on a beach. Presently, all of the towns within the study area have in effect either a State CEHA program administered by the Department of Environmental Conservation or a certified local law administered locally. The Village of Saltaire, Ocean Beach, and the Town of Brookhaven administer the program under their local laws.

### NYS CMP

In 1981, the New York State Legislature enacted the Waterfront Revitalization and Coastal Resources Act (Article 42 of the Executive Law) to implement the State Coastal Management Program (CMP) at the state level. The CMP and Article 42 establish a balanced approach for managing development and providing for the protection of resources within the state's designated coastal area by encouraging local municipalities to prepare Local Waterfront Revitalization Programs (LWRPs) in accordance with state requirements.

### **III. Evaluation of Land Use and Development Implication of Coastal Storm Damage Features**

The existing collection of land use regulations do not effectively discourage development or restrict building and rebuilding in high hazard areas along the coast.

Conceivably, some features proposed for coastal storm risk management could create additional land development challenges or intensify those that already exist. Alternately, some features could reduce these pressures. The following presents the alternatives, and land-use challenges and opportunities associated with them.

Breach Response. The breach response plans introduce some land use and development management challenges that would not be realized in the without project condition. Existing land management measures do not address rebuilding in breach locations, or locations that are likely to remain vulnerable to breaches in the future. Land and development management measures should consider the need for restricting redevelopment in locations that are likely to remain vulnerable to breaching and over washing, and these factors should be taken into consideration during regulatory permitting processes. Not only will this address reducing development at risk, but it is also important to facilitate continued breach response requirements, and can help provide a desirable habitat mosaic by maintaining an open bay to ocean connection.

Inlet Management. The inlet management plans do not introduce any specific land use and development management challenges.

Non-Structural. The non-structural plans could complement land use and development management opportunities that discourage development in high risk areas. A larger project benefit could be obtained by acquiring rather than retrofitting structures in some situations, including instances where 1) buildings are in sparsely developed areas, where habitat connectivity could be achieved, or 2) buildings are located at such low ground elevations that under future sea level rise conditions would be in the intertidal zone. If there is a local desire for structure acquisition rather than retrofit alternatives, these alternatives could consider if the additional costs for acquisition would be warranted to provide restoration of habitat to the underlying area.

Beachfill. Beachfill plans introduce both challenges and opportunities for land use management.

Along the shorefront area, the existing land management regulations that limit the investment in the primary dune have not proven effective. A number of structures exist within the dune, partially because they were constructed prior to the implementation of these regulations, and partially due to long-term changes in the dune position; therefore development continues to occur in the primary dune. In the absence of a project, it is likely that the number of pre-existing, non-conforming structures would be reduced as a result of storms that would destroy these buildings beyond repair, with the acknowledgement that additional buildings would be at risk, due to the long-term evolution of the dune position. With a beachfill project in place, it is much less likely that the structures in the CEHA would be destroyed, and would likely persist.

Additionally, incentive to develop these areas could increase once a beachfill and dune project reduces the likelihood of storm damages in the area. The stabilization of the shoreline with a beachfill and dune plan increases the need for effective land management measures which function properly to avoid an increase in the level of infrastructure that is at risk in these areas.

It must be noted that these beachfill plans also create opportunities to address existing development that is at risk, and opportunities for reducing the amount of development and infrastructure at risk, over time.

The alignment recommended for beachfill can influence the amount of development in high risk areas. Construction of a beachfill and dune project requires real estate. These easements preclude development in the footprint of the project. As described in the main text of this HSLRR, the Stabilization effort is proposed for a more landward alignment. This alignment requires easements, and acquisition of buildings, prior to construction, and reduces the number of structures in the high-risk area.

The Stabilization project will reduce development significantly within the high risk project areas. Forty two properties will be acquired in fee and removed from the erosion area. Six properties will be relocated to a lower risk area. More than six hundred properties will create perpetual easements where development is severely restricted. Greater detail of the real estate actions is provided within the Real Estate Appendix (Appendix G).

#### Groin Modification.

The groin modification alternatives do not directly present land management or development management challenges. However, the implementation of the groin modification alternative in the vicinity of Ocean Beach could increase the vulnerability of the existing development and would require measures to reduce the risks to existing development, and would require the relocation of public infrastructure which is at risk.

#### **IV. Land and Development Management Opportunities in Formulation**

The Reformulation effort investigated land management alternatives to reduce the exposure of people and property to erosive forces in the study area. A table was created that highlights all of the possible land and development management alternatives that could be implemented to address the existing land use challenges. This table, with supporting information, was considered by local municipalities and stakeholder groups at a series of meetings to develop recommendations for alternatives to address these challenges.

These meetings have identified that the biggest challenge is addressing building and rebuilding in erosion-prone areas. These discussions have resulted in a framework to address these concerns, which generally consider solutions that improve upon or modify the existing set of regulations that are presently in place, rather than the introduction of new land-use regulations.

An important outcome of this supplemental screening was the identification of the techniques that should be evaluated for possible inclusion for Federal implementation in the recommended

plan, and which techniques would be recommended for inclusion in a non-federally implemented Flood Plain Management Plan (FPMP) as a component of the overall collaborative plan. A number of the alternatives can be included in both. The USACE does not possess authority to modify or implement local land use regulations; this power rests at the municipal and state levels, and thus certain alternatives are assigned only to the FPMP. The following table below shows where (in terms of authority to implement) each alternative can be evaluated.

**SUMMARY OF NON-STRUCTURAL TECHNIQUE EVALUATION**

NON-STRUCTURAL TECHNIQUE	RECOMMENDED FOR FURTHER EVALUATION UNDER:		
	FIMP Reformulation Plan	Non-Federal Flood Plain Management Plan	
	USACE*	State	Local
<b>Land Use and Regulatory Measures</b>			
Zoning/Land Use Controls		+	+
New Infrastructure Controls		+	+
Landform and Habitat Regulations		+	+
Construction Standards and Practices		+	+
Tax Incentives		+	+
<b>Building Retrofit Measures</b>			
Relocation	+	+	+
Elevation	+	+	+
Free-Standing Barriers (mainland only)	+		
Dry Floodproofing (mainland only)	+	+	+
Utilities Protection	+	+	+
<b>Land Acquisition</b>			
Purchase of Property	+	+	+
Exchange of Property		+	+
Transfer of Development Rights		+	+
Easements and Deed Restrictions	+	+	+
<b>Other</b>			
Wetlands Protection & Restoration	+	+	+
Vegetative Stabilization	+	+	+
Post-Storm Response Planning	+	+	+
* It is acknowledged that there are other Federal agencies (including the NPS, within the jurisdictional boundaries of FINS; FEMA; and USFWS) that have a Federal Role in these activities			

Participants agreed that land and development management alternatives that could be implemented to reduce development pressures, and the existing development in high hazard

areas, where retrofits are not applicable. The following outlines the recommended approach for addressing land management.

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.

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

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

Step 4: Establishment of post-storm response plans to guide recovery following major, catastrophic events.

**Step 1.** Improving the effectiveness of the existing land-use regulations through establishment of common funding, and improved implementation of the law, generally includes the following:

#### Update the Existing Dune District in FINS

The FIIS enabling legislation set the established dune location in 1978; this line does not reflect the current dune location. Effective implementation of the regulation would benefit from a common definition of the dune, and a common regulatory jurisdiction with the CEHA Program. The federal law should be revised to create the same definition of a dune and the same requirement as contained in CEHA for a 10-year remapping process. This common mapping would require the identification of an agreement on a common defining feature. Presently, the CEHA jurisdiction as identified on the CEHA maps is based upon the landward toe of the primary dune, plus 25 feet. The federal dune district is based upon the dune crest plus forty feet. Furthermore, the NYS process provides for a public hearing as input into the process, which is not a provision of the Federal dune district. Since the CEHA mechanism has been applied throughout the state, provides for public input, and is more current than the dune district, it is recommended that the provisions within the FIIS enabling legislation be changed to identify that the dune district have the same criteria as the CEHA jurisdiction, and be allowed to change with changes in the CEHA designation.

#### CEHA Improvements.

CEHA improvements include map updates, funding to adequately implement the program, and provisions for improved DEC monitoring of local implementation of CEHA. These improvements are described below:

Updating CEHA Maps across the FIMP Area. CEHA regulations require the review and remapping of the Coastal Erosion Hazard Areas every 10 years. Fire Island maps were completed 15 years ago and the area will be remapped after completion of the FIMI project due to the extensive changes in the dunes. Revisions following major man-made or natural events or major storms as well as routine revisions of CEHA scheduled every ten years are necessary to

provide local government and property owners the information they need to make informed decisions with respect to land management and also to effectively implement the CEHA program.

Improve DEC monitoring and support of local implementation of CEHA and establish adequate funding for effective implementation of CEHA. Based on State law, the DEC has delegated the implementation of CEHA to local communities who have requested this delegation and have met the requirements of state law and regulation. DEC monitors all delegated programs for compliance by collecting annual permitting information from each community so that any local deficiencies can be addressed. This review assists communities in assuring that their management of the program meets state requirements and results in the protection of the natural protective features that are instrumental in the protection of people and their properties. These reviews assist in the improvement of management and communication, assist in consistent implementation of the program, and where necessary, provide the State with information regarding whether a community's delegation needs to be withdrawn. The State provides detailed annual reviews for a small number of communities each year that are having issues in implementing their program. DEC also provides training to local communities as requested or needed for their proper implementation of the program. The State's CEHA program could be further expanded to provide more oversight of locally administered CEHA programs and more information about CEHA for municipalities that have chosen not to administer their own local CEHA program. This expanded program would allow for better technical and legal support for municipalities who administer their program which in turn would improve their effectiveness. It would also make non delegated coastal communities more aware of CEHA and the importance of its proper implementation. Effective implementation of this program is necessary regardless of any alternative implemented under FIMI.

Project will Provide Additional Funds for Threatened and Endangered Species Management. Construction Funds will be provided to fund additional surveying, monitoring and protection measures that are necessary to determine the distribution, abundance, condition and protection of federally-listed threatened and endangered species. The following management measures have been developed to confirm the assumed impact and, therefore, are a project cost.

1. Provide seasonal surveying of the entire project area to determine the presence or absence of listed species.
2. Provide localized management (e.g., protective fencing) of listed species as within the project area as appropriate.
3. Provide technical assistance to municipalities and other beach managers in the project area to prepare and implement endangered species management plans (Beach Management Plans). Beach Management Plans will be consistent with the Service's 1994 Guidelines for Managing Recreational Activities in Piping Plover Breeding Habitats on the U.S. Atlantic Coast to Avoid Take under Section 9 of the Endangered Species Act and the Service's 1997 Guidelines for Managing Fireworks in the Vicinity of Piping Plovers and Seabeach Amaranth on the U.S. Atlantic Coast. Beach Management Plans will address a wide range of issues including symbolic fencing for protection and management of listed species, beach raking, trash collection and beach

clean-ups, sand fencing, vegetation management, predator control, enforcement of pet laws and New York Coastal Zone Management rules, designating portions of beach as protected management zones for listed species, and the role of the local site managers in endangered species management.

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

CEHA Statutory changes. Make statutory and rule changes to enhance enforcement authority and provide indemnification by New York State for properly-administered local CEHA programs against takings claims (e.g.; Pine Barrens § 57-0123.6) to reduce the influence of potential litigation costs, including potential takings claims, on local program decision making. Presently, local municipalities are responsible for providing the legal defense in the instance where CEHA variance requests are taken to court. Often the cost of defending these lawsuits is comparable to the costs associated with acquiring properties, and beyond the means of the municipalities. State indemnification for properly administered CEHA programs would mitigate this issue.

Uneven application of CEHA variances procedures often results in inconsistent decisions and some which are contrary to the purpose and intent of the law. To remedy this, consideration could be given to the creation of a variance board which would hear all variances requests in this region and across the State. The makeup of the board should be led by DEC with a number of representatives from across the CEHA communities of the state. The Board could be broken down into two individual boards, one for the down state coast line and one for the upstate Great Lakes coast line.

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

Improved implementation of the land use regulations can help address inappropriate building and rebuilding in the primary dune. It is acknowledged however, that even with such improvements, these programs would benefit from a funding mechanism made available to purchase vacant developable property, or for acquisition of vulnerable shorefront structures. This could serve as a means to acquire properties when enforcement of the regulations establishes a “taking”, or in a broader application could be applied to reduce the number of structures within the CEHA and other high risk coastal locations that would be vulnerable to storm damages. Creation and application of an acquisition fund should be considered as a way that could create a model for addressing these issues.

Acquisition of structures as a stand-alone alternative was evaluated as a possible alternative along the shorefront. Analyses were undertaken to identify buildings falling within different hazard areas, and also at risk from storm damages. It should be noted that since CEHA maps the dune, regardless of the size and height that there may be structures within the CEHA (on the back crest of a high, wide dune) that are less vulnerable to damages than a similar structure on a low, narrow dune. In conjunction with this analysis, an extensive Real Estate analysis was undertaken to identify an approximate acquisition cost for structures which fall within the CEHA. In evaluating the acquisition alternatives, it became clear that acquisition could not be supported on NED analysis alone. The NED analysis evaluates the potential damages to a

building, whereas the costs to acquire a building must consider the value of the structure and the property.

Within the study area, the Real Estate cost to acquire a structure was on average 4 to 5 times the value of the structure, which means that 25% of the real estate value is derived from the building. This cost differential makes it impossible to support acquisition on purely NED criteria, since it is impossible for the building to be damaged enough to offset the Real Estate costs. It should be noted that since the CEHA maps identify a primary dune as extending 25 feet landward of the landward toe regardless of the size and height that there may be structures within the CEHA (on the back crest of a high, wide dune) that are less vulnerable to damages than a similar structure on a low, narrow dune. It is possible that acquisition would also:

1. Provide additional habitat and recreational values by restoring the beach and dune to a more natural condition.
2. Provide cost savings if the volume of material required for nourishment could be lowered,
3. Provide benefits associated with having a sustainable solution that would effectively reduce the need for long-term maintenance beyond the project life.

Recognizing this, and recognizing that environmental benefits could accrue from acquisition of buildings and restoration of the land, selective acquisition is considered further in the context of restoration alternatives. Recognizing the benefits of providing a more sustainable, long-term plan for the area, this is also something that could be considered further as a measure to be implemented as part of the overall collaborative plan.

It is acknowledged that the scope of the acquisition plan could range from a plan to acquire properties when there is a determination of a taking, to a broader scope that would allow for the acquisition of structures from willing-sellers in high-risk areas, and could also include an acquisition plan for breach vulnerable areas. With this larger concept, there are a number of acquisition scenarios that could be developed as an incentive for increased participation. These are presented below.

*Voluntary sales with retained occupancy or lease-back programs.* In the past, FINS has purchased noncommercial residence at fair market value, reduced by up to 25% allowing for the right to no more than 25 years of retained occupancy, unless the house is destroyed. Federal leaseback programs are generally very restrictive but state, county or local programs may have provisions for retained occupancies or less restrictive lease-back arrangements. This type of program could encourage voluntary participation by landowners. Landowners who recognize the hazards presented by their location may find such programs attractive as it provides them a fixed sum upfront based upon a pre-storm appraisal and the opportunity to continue to use the structure for the term or until it is destroyed. It allows homeowners to spread their risks, as a post-storm value for a destroyed and eroded parcel would be far less. The advantage for the public is that while structures will remain on the dunes and continue to inhibit natural dune growth; this voluntary approach could substantially reduce the controversies around immediate condemnation, reduces acquisition costs by at least 25%, and particularly for the secondary line

of houses, will facilitate dune advancement over time, ultimately achieving a more sustainable dune.

The entity or entities that would be responsible for purchasing property must be determined. On Fire Island, this would logically be the National Park Service using federal appropriations. FEMA could also acquire property and is a potential source of funding for acquisition. In order to address regulatory issues, DEC, who has authority to purchase lands, could be the agency to acquire property. For other state purposes and in other locations, DEC, OGS, and OPRHP have authority to accept donations or purchase lands and would need access to the acquisition funds. For regional purposes, Suffolk County might be a logical body; having significant experience in recent years with acquisition of parcels from willing sellers. Current laws, policies and practices may need to be modified for the project to be viable. Unless modified, current NY State law requires that the benefiting municipality acquires lands necessary for construction of a project.

**Step 4.** Establishment of post-storm response plans to guide recovery following major, catastrophic events. It is acknowledged that no plan will reduce all risks. It is likely that over the project life, a storm will occur which will compromise the design, and result in damages. This could occur in areas that are protected, or areas that are not protected as a result of this project. New York State has suggested that they will require, as part of their Local Cooperation Agreements the development and implementation of local post-storm redevelopment plans. It is expected that these plans would be in place, and would provide direction for the rebuilding of communities in a more sustainable manner, which recognizes the storm risks. It is expected that New York State will oversee the creation of such plans, including their expected content and rationale.

While there is a limited role for the Corps' in the implementation of the land and development management measures, it is acknowledged that this is an integral component of any plan. It is important to ensure that adequate provisions are in place for the project to perform as expected, and does not result in increased development that is at risk. It is advised that the above land and development management measures be considered further in conjunction with the alternative plans, to ensure the functioning of the project, and to consider the longer-term sustainability of the project.

## **V. Consideration of the life cycle management of Reformulation Plans.**

The FIMI was developed with a 20-year project life as a stand-alone, one time placement event. This plan does not include provisions for renourishment within the project life.

The integration of land and development management regulations identifies improvements in the application of land use regulations, acquisition planning, and post-storm response planning that could help to reduce the infrastructure at risk along the shorefront.

With this as a component of the overall plan, there are several approaches which could be undertaken in the life-cycle management of the project to achieve this. The options that have been identified include:

1 – A scheduled reduction in the scale of protection for the beachfill in a timeframe that coincides with the acquisition planning. Under this scenario a beachfill plan would be planned to be maintained for a shorter period of time, over which purchase of property would be offered to shorefront structures at risk. After this period of time, the scale of protection would be reduced. The benefit of this approach is that the reduction in protection is not dependent upon the acquisition occurring.

2 – A scheduled relocation of the proposed line of protection that coincides with the acquisition planning. Under this scenario, the beachfill plan would be linked with the proposed acquisition plan. After a period of time, the footprint of the project would be maintained in a more landward location on a scheduled timeframe. The difficulty with this initiative is that the movement of the dune on a prescribed timeframe would require guaranteed acquisition, and could not be guaranteed with a willing-seller program.

3 – Adaptive Management. Under this scenario, the beachfill plan and the acquisition plan could proceed independently. On a periodic basis, the constructed project would be revisited to identify if opportunities exist for adjustment of the maintained profile based upon the relative success in implementing the acquisition plan.

Under any of these scenarios, it is important to 1) identify the time scale that would be necessary for the implementation of alternatives, and 2) identifying the effect that these changes would have on project economics.

It is recognized that the acquisition of shorefront property through a willing-seller program is not an instantaneous action, particularly with consideration for acquisition strategies that could allow for a homeowner to sell their property but be allowed to continuously use the property. Along the shorefront, consideration must be given for: the funding availability for acquisition, the timing of interest in selling, and the staffing to process these acquisitions.

The challenge with developing a plan that integrates the land management and acquisition for the project is the uncertainty that exists. These elements introduce uncertainty to a situation that is already uncertain due to the complexities projecting the functioning of the inlets, and the unknowns regarding future climate change. With all these uncertainties it is suggested that the implementation of the project adopt an incremental adaptive management approach. This approach would establish 1) data collection that would be implemented, 2) modeling efforts to analyze the data, and 3) an adaptive management framework that would establish the overall objectives, and the adaptations to the plan that could be accomplished with the project. This adaptation strategy is based upon the concept that with the passage of time the trends become established and more appropriate strategies can be executed. It is expected that this adaptation strategy would require a periodic review of the project execution and recommendations for the adaptation of the project, based upon the findings.

## **VI. Stabilization Effort consistency with Land Management Recommendations of the Reformulation Study and the Stakeholders**

As described in the main text of this HSLRR, the Stabilization effort is being undertaken in response to the highly vulnerable condition following Hurricane Sandy's erosive forces, where expedited action is needed to stabilize this area.

Consistent with the goals of the larger Reformulation effort, the Stabilization project emphasizes land management efforts to discourage building in high risk areas. Although USACE authority in land management decisions is limited to recommendations and complementary actions such as non-structural and acquisition actions, the Stabilization effort implements several actions consistent with sound land management policy. The following summaries detail the consistency of the Stabilization effort.

### Acquisition

The Stabilization effort proposed for a more landward alignment. This alignment requires acquisition of buildings, prior to construction, and reduces the number of structures in the high-risk area.

### Limiting Development

The Stabilization project will reduce development significantly within the high risk project areas. Forty one properties will be acquired in fee and removed from the erosion area. Six properties will be relocated to a lower risk area. Approximately 689 properties will create perpetual easements where development is severely restricted. Greater detail of the real estate actions is provided within the Real Estate Appendix.