

Coastal Shoreline Protection Measures



Rossana Rosado, Secretary of State

Andrew M. Cuomo, Governor





New York State Department of State
Office of Planning, Development, and Community Infrastructure
99 Washington Avenue
Albany, NY 12231-0001
<http://www.dos.ny.gov>

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The New York State Department of State (DOS) has prepared a collection of model local laws, in consultation with the New York State Department of Environmental Conservation (NYSDEC) and other stakeholders, that include consideration of future risk due to sea-level rise, storm surge and/or flooding as a result of climate change as required in the New York State Community Risk and Resiliency Act of 2014.

Municipal adoption of model local laws is intended to help local governments and their communities increase resiliency. This publication does not establish any legally binding standards or required criteria for state or municipal government to follow. Use of this guidance by a municipality is not a substitute for consultation with an attorney working on behalf of the municipality and municipal officials should consult with an attorney prior to adoption of any local law.

3. Coastal Shoreline Protection Measures

Coastal shorelines, those areas where the water meets the land, are inherently dynamic environments. A given shoreline may be stable for many decades, erode significantly in one season, and then remain stable in its new configuration for many decades.¹ Shorelines are shaped over time by winds, waves, tides and currents, as well as human activities. These forces interact to move sand, rock and other types of beach sediment from one place to another, causing shorelines to recede in one area and accrete, or expand, in another - a process called littoral transport, or "littoral drift."

Chronic erosion occurs in locations where littoral sediment supplies are insufficient to balance wave and current forces, or in areas where sediment transport is blocked by erosion control structures such as jetties, groins, breakwaters and bulkheads. Chronic or excessive erosion can cause water pollution and water quality degradation as well as damage to vegetation, natural coastal features and built structures.

Flooding occurs when strong winds and/or high tides drive water inland over shoreline protective structures, beaches, wetlands and/or through inlets, channels, and tributaries. In addition, heavy precipitation events can cause river levels to rise in inland areas and travel downstream, adding to the rise in coastal water level. Increasing sea levels will result in more frequent and extensive storm flooding even on days with calmer winds or tides. Over the long term, this will mean permanent inundation in some areas. (See *Chapter Four: Management of Floodplain Development*).

Building structures too close to the shore places them at greater risk to erosion and flooding. This often leads to costly and problematic erosion control and shoreline armoring measures, placing undue economic and environmental strain on communities. Zoning amendments that establish setbacks, special use permit requirements and other local regulatory measures can reduce the risk of damage to structures and preserve natural features critical to the resilience of coastal systems. While such measures do not eliminate risk due to erosion and flooding, they can provide a measure of safety and an opportunity for other adaptive measures in the future.

Coastal Ecosystems and Natural Protective Features

Coastal ecosystems are comprised of natural features such as dunes, bluffs, beaches, wetlands and nearshore areas. Article 34 of Environmental Conservation Law, known as the Coastal Erosion Hazard Areas (CEHA) Law, refers to these features as "natural protective features" because of the natural erosion, storm and flood protection they can provide to coastal communities.

- Beaches protect inland areas from flooding and erosion by dissipating wave energy that would otherwise be expended against the toe or face of bluffs and dunes or that would send storm waters spilling onto upland property.

- Beaches and dunes act as a reservoir of sand and other unconsolidated sediments that wash along the shoreline and form protective offshore sandbars and shoals that dissipate offshore wave energy.²
- Wide beaches with a gradual slope dissipate wave energy better than beaches that are steep or narrow.
- Dunes or bluffs located landward of a beach provide an additional layer of protection to uplands by absorbing wave energy.
- Coastal wetlands serve as a buffer to upland areas and provide flood protection and erosion control by absorbing flood waters and wave energy. (See *Chapter Two: Wetland and Watercourse Protection Measures*).

In addition to the functions listed above, natural protective features provide enhanced water quality, fish and wildlife habitat, and recreational opportunities. In developed areas or where development is desirable, zoning amendments and other local regulatory measures can help preserve natural protective features and their many benefits. Undeveloped areas with intact natural protective features and extensive fish and wildlife habitat and/or public recreation areas may be best protected through measures such as conservation area designation, conservation easements, and/or conservation zoning (See *Chapter One: Basic Land Use Tools for Resiliency*).

Coastal Erosion Hazard Areas (CEHA) Law

Article 34 of Environmental Conservation Law, known as the Coastal Erosion Hazard Areas (CEHA) Law, seeks to protect New York's built and natural shoreline environment from coastal hazards such as erosion and flooding. The CEHA law distinguishes between "natural protective feature areas" or NPFAs - areas that possess natural protective features including nearshore areas, beaches, dunes, and bluffs - and "structural hazard areas." The phrase "structural hazard areas" in this case refers to areas that are located landward of natural protective feature areas and that are receding at a long-term average annual recession rate of one foot or more per year. NPFAs are delineated on CEHA maps. Only beaches, bluffs, dunes, and nearshore areas are mapped and regulated.

Human activities such as development or modification of beaches, dunes, or bluffs can decrease, or completely remove the ability of these natural protective features to reduce erosion. CEHA restricts the siting of shoreline structures in areas designated under Article 34 to maintain the integrity of natural protective features and to reduce risk to shoreline communities. As coastal erosion increases and water levels rise, communities may wish to implement similar restrictions for non-CEHA shorelines using the authority granted by the State zoning enabling statutes, the New York State Constitution Article IX, or the Municipal Home Rule Law §10. Additional information on coastal erosion protection measures for both CEHA and non-CEHA areas is provided in sections 3.1-3.1.3 of this chapter.

RESOURCES

Coastal Risk Reduction and Resilience, USACE, September 2013³

Scenic Hudson, *Protecting the Pathways: A Climate Change Adaptation Framework for Hudson River Estuary Tidal Wetlands*. May 2016⁴

The Nature Conservancy, Coastal Resilience⁵

New York State Department of Environmental Conservation, Coastal Management⁶

3.1 Coastal Erosion

Coastlines are eroding along New York's Great Lakes, Long Island Sound, Hudson River, and Atlantic coast. Coastal erosion is a naturally occurring process that can place coastal development and shoreline environments at risk. While municipal zoning laws can help reduce and manage coastal erosion, the State has statutory jurisdiction over the management of the most highly erodible coastal environments. State authority to regulate these areas is contained in Article 34 of the Environmental Conservation Law and exercised through the Coastal Erosion Hazard Areas (CEHA) Permit Program.⁷

Article 34 of Environmental Conservation Law empowers the New York State Department of Environmental Conservation (NYSDEC) to identify, map, and regulate designated Coastal Erosion Hazard Areas (CEHAs). These are areas that the NYSDEC has identified as likely to erode within a 40-year period or that serve as natural protection against erosion or flooding. The purpose of the law is to minimize or prevent damage to these areas, including built-structures and natural resources, and to protect human life.

CEHAs are located along the shores of the Atlantic Ocean, Long Island Sound, Lake Erie and Lake Ontario. All CEHAs have mapped "Natural Protective Feature Areas" (NPFA) where human activities are limited or prohibited in order to preserve coastal ecosystems and the natural erosion and flood protection they provide. CEHAs that have areas with a long-term erosion rate greater than one foot per year also have mapped "Structural Hazard Areas" (SHA) where new construction is limited or prohibited.

Erosion protection or control structures are allowed within CEHAs if the project meets permitting requirements, but the preference of the State is to see non-structural or nature-based solutions instead of structural measures. Permits will not be issued for structures that would cause negative impacts such as increased erosion.

Examples		
Non-Structural Solutions	Nature-Based Solutions	Shoreline Hardening Structures
Shoreline Retreat Building Elevation	Vegetative Plantings Re-grading Geogrid	Rock Structures Concrete Walls Sandbags

See the NYSDEC *Coastal Management* web page⁸ and sections 3.4-3.4.2 of this chapter for more detailed information on shoreline hardening and alternative shoreline management measures.

Local Regulation of Coastal Erosion Hazard Areas

While NYSDEC has the authority to regulate CEHAs under Article 34, cities, towns and villages with mapped CEHAs may request NYSDEC assign that authority to them. If the authority is delegated, the municipality may review applications, issue permits, and conduct enforcement in these areas as part of a program to regulate its CEHA areas. These municipalities must submit to

DEC a certified copy of the erosion management local law or ordinance and all other local laws, ordinances, zoning regulations, subdivision and site plan approval regulations, or any other applications of police power that are elements of the local program and meet the additional requirements of 6 NYCRR 505.16(b)(1). The municipality must also submit an annual assessment of its program to the NYSDEC Coastal Erosion Management Program. NYSDEC provides a model local CEHA law for municipalities to adapt or modify that has been certified as meeting the minimum standards of section 505.17 of 6 NYCRR Part 500.⁹ See Section 3.1.1 of this chapter.

Out of 85 coastal municipalities that fall under CEHA jurisdiction, presently 37 municipalities have been delegated authority to administer their own CEHA. Twenty-four of the municipally-managed CEHA programs are in the marine area and 11 are along the freshwater coast. NYSDEC provides a list of communities that administer their own CEHA law on the NYSDEC website.¹⁰

Municipalities that have coastal areas which are subject to erosion but are not mapped CEHAs are encouraged to adopt or amend local laws that address the increased risk from sea level rise, storm surge, and coastal flooding (Section 3.1.3).

TOOL	DESCRIPTION
Coastal Erosion Hazard Area Management (Section 3.1.1)	This model local law from NYSDEC meets the minimum standards established for municipal assumption of responsibility for CEHA programs. It was last updated in 2009.
Alternative Coastal Erosion Hazard Area Management Model (Section 3.1.2)	An example of local refinement of the NYSDEC model for locally-delegated CEHA programs
Shoreline Protection Outside of Coastal Erosion Hazard Areas (Section 3.1.3)	Zoning language that can be used to regulate land use and development in areas with eroding coastlines that are not regulated by state law.

Communities that proactively reduce and manage erosion can lower their costs of flood insurance. The National Flood Insurance Program (NFIP) Community Rating System (CRS) is a FEMA program that provides discounts for communities that take measures that are beyond the minimum requirements of the NFIP. Flood insurance policies for structures within communities with over 500 CRS points receive a five percent discount on each insurance policy premium, and additional discounts for a lower CRS class that is achieved in part through accumulation of CRS points. A variety of credits are available pertaining to areas subject to erosion.

RESOURCES

How are coastal areas regulated by the CEHA Permit Program? NYS Department of Environmental Conservation, Coastal Management.¹¹

National Flood Insurance Program, Community Rating System: CRS Credit for Management of Coastal Erosion Hazards. (2006). FEMA.¹²

3.1.1 Coastal Erosion Hazard Area Management

In order for a municipality to receive the authority to regulate erosion hazard areas from the New York State Department of Environmental Conservation (NYSDEC) it must adopt an ordinance or local law that meets required standards and is certified by NYSDEC. NYSDEC continues oversight of a local CEHA program through review of an annual assessment form submitted by the municipality and through periodic community assessment visits.

Communities that have been delegated authority to administer CEHA programs must use CEHA maps developed by NYSDEC. These maps were created in the late 1980's and may be updated in the future. For more information on CEHA updates, please visit the NYSDEC web page on the CEHA map revision process.¹³

The model local law below was provided by NYSDEC and meets minimum standards established by the Coastal Erosion Management Regulations in 6 NYCRR Part 505. Before assuming responsibility for management of a CEHA area within the municipality, the municipality must submit its law to NYSDEC for certification. An earlier version of the model was prepared by the St. Lawrence/Eastern Ontario Commission to facilitate municipal participation in enforcing and administering CEHA.

USAGE

Adopt as a standalone provision in the municipal code, or as a new article within the municipal zoning code.

LANGUAGE

Article X. Coastal Erosion Hazard Area Management

1. INTRODUCTON

1.1 Enactment. Pursuant to the provisions of Article 34 of the New York State Environmental Conservation Law and Section 10 of the Municipal Home Rule Law, the [Town, Village, City] of _____, County of _____, State of New York, hereby enacts by local law # ___ of 19 __, this local law.

1.2 Title. This local law shall be known and may be cited as the [Town, Village, City] of _____ Coastal Erosion Hazard Area Law.

1.3 Effective Date. This local law shall take effect twenty (20) calendar days from ___, which is the date of this local law's adoption and filing pursuant to Section 27 of the Municipal Home Rule Law, or the date of filing the official maps, whichever is later.

1.4 Purpose. The *[Town, Village, City]* of _____ hereby assumes the responsibility and authority to implement and administer a coastal erosion management program within its jurisdiction pursuant to Article 34 of New York State Environmental Conservation Law. In addition, it is the purpose of this local law to:

- a. Establish standards and procedures for minimizing and preventing damage to structures from coastal flooding and erosion and to protect natural protective features and other natural resources.
- b. Regulate in coastal areas subject to coastal flooding and erosion, land use and development activities so as to minimize or prevent damage or destruction to manmade property, natural protective features, other natural resources, and to protect human life.
- c. Regulate new construction or placement of structures in order to place them a safe distance from areas of active erosion and the impacts of coastal storms to ensure that these structures are not prematurely destroyed or damaged due to improper siting, as well as to prevent damage to natural protective features and other natural resources.
- d. Restrict public investment in services, facilities, or activities which are likely to encourage new permanent development in erosion hazard areas.
- e. Regulate the construction of erosion protection structures in coastal areas subject to serious erosion to assure that when the construction of erosion protection structures is justified, their construction and operation will minimize or prevent damage or destruction to man-made property, private and public property, natural protective features, and other natural resources.

1.5 Findings. The *[Town, Village, City]* of _____ finds that the coastal erosion hazard area:

- a. Is prone to erosion from action of *[Lake Ontario, other]*. Such erosion may be caused by the action of waves, currents running along the shore, and wind-driven water and ice. Such areas are also prone to erosion caused by the wind, runoff of rain water along the surface of the land, or groundwater seepage, as well as by human activities such as construction, navigation and certain forms of recreation.
- b. Experiences coastal erosion which causes extensive damage to publicly and privately-owned property and to natural resources as well as endangering human lives. When this occurs, individuals and private businesses suffer significant economic losses, as do the *[Town, Village, City]* and the State economies, either directly through property damage or indirectly through loss of economic return. Large public expenditures may also be necessitated for the removal of debris and damaged structures and replacement of essential public facilities and services.

- c. Experiences erosion-related problems that are often contributed to by man's building without considering the potential for damage to property, by undertaking activities which destroy natural protective features such as dunes or vegetation, by building structures intended for erosion prevention which may exacerbate erosion conditions on adjacent or nearby property, and by water action produced by wakes from boats.
- d. Is the subject of programs which foster erosion protection structures, either with private or public funds, which are costly, often only partially effective over time, and may even be harmful to adjacent or nearby properties. In some sections of the [Town, Village, City], major erosion protection structures of great length would be required to effectively reduce future damages due to erosion.

1.6 Definitions

The following terms used in this local law have the meaning indicated, unless the context clearly requires otherwise.

- a. ADMINISTRATOR--The local official responsible for administering and enforcing this local law. The powers and duties of this position are more fully described in Section 5.3.
- b. BEACH--The zone of unconsolidated earth that extends landward from the mean low water line to the waterward toe of a dune or bluff whichever is most waterward. Where no dune or bluff exists landward of a beach, the landward limit of a beach is 100 feet landward from the place where there is a marked change in material or physiographic form or from the line or permanent vegetation, whichever is most waterward. Shorelands subject to seasonal or more frequent overwash or inundation are considered to be beaches.
- c. BLUFF--Any bank or cliff with a precipitous or steeply sloped face adjoining a beach or a body of water. The waterward limit of a bluff is the landward limit of its waterward natural protective feature. Where no beach is present, the waterward limit of a bluff is mean low water. The landward limit is 25 feet landward of the receding edge or, in those cases where there is no discernible line of active erosion, 25 feet landward of the point of inflection on the top of the bluff. (The point of inflection is that point along the top of the bluff where the trend of the land slope changes to begin its descent to the shoreline).
- d. COASTAL EROSION HAZARD AREA MAP--The final map and any amendments thereof issued by the Commissioner of the New York State Department of Environmental Conservation, which delineates boundaries of Coastal Erosion Hazard Areas subject to regulation under this law.
- e. COASTLINE AND COASTAL WATERS--The lands adjacent to the (Town's, Village's, City's) coastal waters is the coastline. Coastal waters are the Atlantic Ocean, the Long Island

Sound, Lake Erie, Lake Ontario, the St. Lawrence River, the Hudson River, the Niagara River, and their connecting water bodies, bays, harbors, shallows, and marshes.

f. DEBRIS LINE--A linear accumulation of waterborne debris deposited on a beach by storm induced high water or by wave action.

g. DUNE--A ridge or hill of loose, windblown, or artificially placed earth the principal component of which is sand.

h. EROSION--The loss or displacement of land along the coastline due to the action of waves, currents, wind-driven water, waterborne ice, or other impacts of storms. It also means the loss or displacement of land due to the action of wind, runoff of surface waters, or ground waters, or groundwater seepage.

i. EROSION HAZARD AREA--An area of the coastline which is a structural hazard area, or a natural protective feature area.

j. EROSION PROTECTION STRUCTURE--A structure specifically designed to reduce or prevent erosion such as a groin, jetty, revetment, breakwater, or artificial beach nourishment project.

k. EXISTING STRUCTURE--A structure and appurtenances in existence or one where construction has commenced or one where construction has not begun but for which a building permit has been issued prior to _____, 19_____, which is the effective date of this local law.

l. GRADING--A redistribution of sand or other unconsolidated earth to effect a change in profile.

m. MAJOR ADDITION--An addition to a structure resulting in a 25 percent or greater increase in the ground area coverage of the structure other than an erosion protection structure or a pier, dock, or wharf. The increase will be calculated as the ground area coverage to be added, including any additions previously constructed under a Coastal Erosion Management Permit, divided by the ground area coverage of the "existing structure" as defined in EXISTING STRUCTURE.

n. MEAN LOW WATER--The approximate average low water level for a given body of water at a given location, determined by reference to hydrological information concerning water levels or other appropriate tests.

o. MOVABLE STRUCTURE--A structure designed and constructed to be readily relocated with minimum disruption of the intended use. Mobile homes and structures built on skids or piles and not having a permanent foundation are examples of movable structures.

- p. NATURAL PROTECTIVE FEATURE--A nearshore area, beach, bluff, primary dune, secondary dune, or marsh, and its vegetation.
- q. NATURAL PROTECTIVE FEATURE AREA--A land and/or water area containing natural protective features, the alteration of which might reduce or destroy the protection afforded other lands against erosion or high water, or lower the reserve of sand or other natural materials available to replenish storm losses through natural processes.
- r. NEARSHORE AREA--Those lands under water beginning at the mean low water line and extending waterward in a direction perpendicular to the shoreline to a point where mean low water depth is 15 feet, or to a horizontal distance of 1,000 feet from the mean low water line, whichever is greater.
- s. NORMAL MAINTENANCE--Periodic replacement or repair of same-kind structural elements or protective coatings which do not change the size, design or function of a functioning structure. A functioning structure is one which is fully performing as originally designed at the time that normal maintenance is scheduled to begin. Normal maintenance of a structure does not require a Coastal Erosion Management Permit.
- t. PERSON--Any individual, public or private corporation, political subdivision, government agency, public improvement district, partnership, association, firm, trust, estate, or any other legal entity whatsoever.
- u. PRIMARY DUNE--The most waterward major dune where there are two or more parallel dunes within a coastal area. Where there is only one dune present, it is the primary one. Occasionally one or more relatively small dune formations exist waterward of the primary dune. These smaller formations will be considered to be part of the primary dune for the purposes of this local law. The waterward limit of a primary dune is the landward limit of its fronting beach. The landward limit of the primary dune is 25 feet landward of its landward toe.
- v. RECEDING EDGE--The most landward line of active erosion, or in cases where there is no discernible line of active erosion, it is the most waterward line of permanent vegetation.
- w. RECESSION RATE--The rate, expressed in feet per year, at which an eroding shoreline moves landward.
- x. REGULATED ACTIVITY--The construction, modification, restoration or placement of a structure, or major addition to a structure, or any action or use of land which materially alters the condition of land, including grading, excavating, dumping, mining, dredging, filling, or other disturbance of soil.

y. RESTORATION--The reconstruction without modification of a structure, the cost of which equals or exceeds 50 percent of the estimated full replacement cost of the structure at the time of restoration. Modifications, however, may be allowed if they do not exceed pre-existing size limits and are intended to mitigate impacts to natural protective features and other natural resources.

z. SECONDARY DUNE--The major dune immediately landward of the primary dune. The waterward limit of a secondary dune is the landward limit of its fronting primary dune. The landward limit of a secondary dune is 25 feet landward of its landward toe.

aa. SIGNIFICANT FISH AND WILDLIFE HABITAT--Those habitats which: are essential to the survival of a large portion of a particular fish or wildlife population; support rare or endangered species; are found at a very low frequency within a geographic area; support fish or wildlife populations having significant commercial or recreational value; or would be difficult or impossible to replace.

bb. STRUCTURAL HAZARD AREA--Those shorelands located landward of natural protective features and having shorelines receding at a long term average recession rate of one foot or more per year. The inland boundary of a structural hazard area is calculated by starting at the landward limit of the fronting natural protective feature and measuring along a line perpendicular to the shoreline a horizontal distance landward which is 40 times the long-term average annual recession rate.

cc. STRUCTURE--Any object constructed, installed or placed in, on, or under land or water including, but not limited to: a building; permanent shed; deck; in-ground and above-ground pool; garage; mobile home; road; public service distribution, transmission, or collection system; tanks; docks; piers; wharf; groins; jetties; seawalls; bulkheads; breakwaters; revetments; artificial beach nourishment; or any addition to or alteration of the same.

dd. TOE--The lowest surface point on a slope face of a dune or bluff.

ee. UNREGULATED ACTIVITY--Excepted activities which are not regulated by this local law include but are not limited to: elevated walkways or stairways constructed solely for pedestrian use and built by an individual property owner for the limited purpose of providing non-commercial access to the beach; docks, piers, wharves, or structures built on floats, columns, open timber piles, or other similar openwork supports with a top surface area of less than 200 square feet, or which are removed in the fall of each year; normal beach grooming or clean-up; maintenance of structures when normal and customary and/or in compliance with an approved maintenance program; planting vegetation and sand fencing so as to stabilize or entrap sand in primary dune and secondary dune areas, in order to maintain or increase the height and width of dunes; and routine agricultural operations including cultivation or harvesting, and the implementation of practices recommended in a soil and water conservation plan as

defined in Section 3(12) of the Soil and Water Conservation Districts Law provided, however, that agricultural operations and implementation of practices will not be construed to include any activity that involves the construction or placement of a structure.

ff. VEGETATION--Plant life capable of surviving and successfully reproducing in the area or region and which is compatible with the environment of the coastal erosion hazard area.

2. REGULATIONS

2.1 Areas. The Coastal Erosion Hazard Area is hereby established to classify land and water areas within the *[Town, Village, City]* of _____, based upon shoreline recession rates or the location of natural protective features. The boundaries of the Area are established on the final map prepared by the New York State Department of Environmental Conservation under Section 34-0104 of the New York State Environmental Conservation Law and entitled, "Coastal Erosion Hazard Area Map of the *[Town, Village, City]* of _____", including all amendments made thereto by the Commissioner of the New York State Department of Environmental Conservation pursuant to Section 34-0104 of the New York State Environmental Conservation Law.

2.2 Requirements. No person may engage in any regulated activity in an Erosion Hazard Area as depicted on the Coastal Erosion Hazard Areas Map of the *[Town, Village, City]* of _____, as amended, without first obtaining a Coastal Erosion Management Permit. No Coastal Erosion Management Permit is required for unregulated activities.

2.3 General Standards. A Coastal Erosion Management Permit will be issued only with a finding by the Administrator that the proposed regulated activity:

- a. Is reasonable and necessary, considering reasonable alternatives to the proposed activity and the extent to which the proposed activity requires a shoreline location.
- b. Is not likely to cause a measurable increase in erosion at the proposed site and at other locations.
- c. Prevents, if possible, or minimizes adverse effects on natural protective features and their functions and protective values, existing erosion protection structures, and natural resources.

2.4 Structural Hazard Area Restrictions. The following restrictions apply to regulated activities within Structural Hazard Areas:

- a. A Coastal Erosion Management Permit is required for the installation of public service distribution, transmission, or collection systems for gas, electricity, water, or wastewater.

Systems installed along the shoreline must be located landward of the shoreline structures.

- b. The construction of non-movable structures or placement of major non-movable additions to an existing structure is prohibited.
- c. Permanent foundations may not be attached to movable structures, and any temporary foundations are to be removed at the time the structure is moved. Below grade footings will be allowed if satisfactory provisions are made for their removal.
- d. No movable structure may be located closer to the landward limit of a bluff than 25 feet.
- e. No movable structure may be placed or constructed such that according to accepted engineering practice, its weight places excessive ground loading on a bluff.
- f. Plans for landward relocation of movable structures must be included with each application for a permit. Movable structures which have been located within a Structural Hazard Area pursuant to a Coastal Erosion Management Permit must be removed before any part of the structure is within 10 feet of the receding edge. The last owner of record, as shown on the latest assessment roll, is responsible for removing that structure and its foundation, unless a Removal Agreement was attached to the original Coastal Erosion Management Permit.

With the attachment of a Removal Agreement to the Coastal Erosion Management Permit, the landowner or the signatory is responsible for the landward relocation of movable structures. Removal Agreements may be made when the last owner of record and the owner of the structure are different with the approval of the [Town, Village, City] at the time the permit is issued.

- g. Debris from structural damage which may occur as a result of sudden unanticipated bluff edge failure, dune migration, or wave or ice action must be removed within sixty (60) days of the damaging event.
- h. Any grading, excavation, or other soil disturbance conducted within a Structural Hazard Area must not direct surface water runoff over a bluff face.

2.5 Nearshore Area Restrictions. Nearshore areas dissipate a substantial amount of wave energy before it is expended on beaches, bluffs, or dunes by causing waves to collapse or break.

Nearshore areas also function as reservoirs of sand, gravel, and other unconsolidated material for beaches. Sandbars, which are located in nearshore areas, control the orientation of incoming waves and promote the development of ice cap formations which help protect shorelines during

winter storms. The roots of aquatic vegetation in nearshore areas bind fine grained silts, clays, and organic matter to form a fairly cohesive bottom that resists erosion.

The following restrictions apply to regulated activities in nearshore areas:

- a. All development is prohibited in nearshore areas unless specifically provided for by this local law.
- b. Excavating, grading, mining, or dredging which diminishes the erosion protection afforded by nearshore areas is prohibited, except construction or maintenance of navigation channels, bypassing sand around natural and man-made obstructions and artificial beach nourishment, all of which require a Coastal Erosion Management Permit.
- c. Clean sand or gravel or an equivalent or slightly larger grain size is the only material which may be deposited within nearshore areas. Any deposition will require a Coastal Erosion Management Permit.

2.6 Beach Area Restrictions. Beaches buffer shorelands from erosion by absorbing wave energy that otherwise would be expended on the toes of bluffs or dunes. Beaches that are high and wide protect shorelands from erosion more effectively than beaches that are low or narrow. Beaches also act as reservoirs of sand or other unconsolidated material for longshore littoral transport and offshore sandbar and shoal formation.

The following restrictions apply to regulated activities in beach areas:

- a. All development is prohibited on beaches unless specifically provided for by this local law.
- b. Excavating, grading, or mining which diminishes the erosion protection afforded by beaches is prohibited.
- c. Clean sand or gravel of an equivalent or slightly larger grain size is the only material which may be deposited within bench areas. Any deposition will require a Coastal Erosion Management Permit which may be issued only for expansion or stabilization of beaches.
- d. Active bird nesting and breeding areas must not be disturbed unless such disturbance is pursuant to a specific wildlife management activity approved in writing by the New York State Department of Environmental Conservation.
- e. *[Location for insertion of optional section allowing restoration of existing structures, damaged by non-erosion or flooding related causes, without a permit. See Addendum for specific language.]*

2.7 Dune Area Restrictions. Dunes prevent overtopping and store sand for coastal processes. High, vegetated dunes provide a greater degree of protection than low, unvegetated ones. Dunes are of the greatest protective value during conditions of storm induced high water. Because dunes often protect some of the most biologically productive areas as well as developed coastal areas, their protective value is especially great. The key to maintaining a stable dune system is the establishment and maintenance of beach grass or other vegetation on the dunes and assurance of a supply of nourishment sand to the dunes.

The following restrictions apply to regulated activities in dune areas:

a. All activities and development in dune areas are prohibited unless specifically provided for by this local law.

b. In primary dune areas:

(1) Excavating, grading, or mining of primary dunes is prohibited.

(2) Clean sand of a compatible type and size is the only material which may be deposited. Any deposition requires a Coastal Erosion Management Permit.

(3) All depositions must be vegetatively stabilized using species tolerant of the conditions at the site and must be placed so as to restore or increase the size of a dune or dune area.

(4) Active bird nesting and breeding areas must not be disturbed unless such disturbance is pursuant to a specific wildlife management activity approved in writing by the NYS Department of Environmental Conservation.

(5) Non-major additions to existing structures are allowed on primary dunes pursuant to a Coastal Erosion Management Permit and subject to permit conditions concerning the location, design, and potential impacts of the structure on the primary dune.

(6) Stone revetments or other erosion protection structures compatible with primary dunes will only be allowed at the waterward toe of primary dunes, and must not interfere with the exchange of sand between primary dunes and their fronting beaches.

c. In secondary dune areas:

(1) All depositions must be of clean sand of a compatible type and size, and all grading must be performed so as to increase the size of, or restore, a dune or former dune area.

(2) Excavating, grading, or mining must not diminish the erosion protection afforded by them.

(3) Non-major additions to existing structures are allowed on secondary dunes pursuant to a coastal erosion management permit.

(4) Permitted construction, reconstruction, restoration, or modifications must be built on adequately anchored pilings such that at least three feet of open space exists between the floor joists and the surface of the secondary dune; and the permitted activity must leave the space below the lowest horizontal structural members free of obstructions.

d. The restrictions of Section 2.10, Traffic Control, apply to dune areas.

e. [*Location for insertion of optional section allowing restoration of existing structures, damaged by non-erosion or flooding related causes, without a permit. See Addendum for specific language.]*

2.8 Bluff Area Restrictions. Bluffs protect shorelands and coastal development by absorbing the often destructive energy of open water. Bluffs are a source of depositional material for beaches and other unconsolidated natural protective features.

a. The following activities are prohibited on bluffs:

(1) All development unless specifically allowed by Subdivision 2.8 of this local law.

(2) Excavating or mining except when in conjunction with conditions stated in a Coastal Erosion Management Permit issued for minor alterations in construction of an erosion protection structure or for provision of shoreline access.

(3) The restrictions of Section 2.10, Traffic Control, apply to bluffs.

(4) Active bird nesting and breeding areas must not be disturbed unless such disturbance is pursuant to a specific wildlife management activity approved in writing by the New York State Department of Environmental Conservation.

(5) Soil disturbance that directs surface water runoff over a bluff face.

b. Activities specifically allowed under this Subdivision are:

(1) Minor alteration of a bluff done in accordance with conditions stated in a Coastal Erosion Management Permit issued for new construction, modification or restoration of an erosion protection structure.

(2) Bluff cuts done in accordance with conditions stated in a Coastal Erosion Management Permit issued for the provision of shoreline access. where:

- (a) Cut is made in a direction perpendicular to the shoreline.
- (b) Ramp slope may not exceed 1:6.
- (c) Side slopes may not exceed 1:3 unless terraced or otherwise structurally stabilized.
- (d) Side slopes and other disturbed non-roadway areas must be stabilized with vegetation or other approved physical means.
- (e) Completed roadway must be stabilized and drainage provided for.

(3) New construction, modification or restoration of walkways or stairways done in accordance with conditions of a Coastal Erosion Management Permit.

(4) Non-major additions to existing structures may be allowed on bluffs pursuant to a Coastal Erosion Management Permit.

(5) *[Location for insertion of optional section allowing restoration of existing structures, damaged by non-erosion or flooding related causes, without a permit. See Addendum for specific language.]*

2.9 Erosion Protection Structure Requirements. The following requirements apply to the construction, modification, or restoration of erosion protection structures:

a. The construction, modification, or restoration of erosion protection structures must:

- (1) Not be likely to cause a measurable increase in erosion at the development site or at other locations.
- (2) Minimize, and if possible, prevent adverse effects upon natural protective features, existing erosion protection structures, and natural resources such as significant fish and wildlife habitats.

b. All erosion protection structures must be designed and constructed according to generally accepted engineering principles which have demonstrated success, or where sufficient data are not currently available, a likelihood of success in controlling long-term erosion. The protective measures must have a reasonable probability of controlling erosion on the immediate site for at least 30 years.

c. All materials used in such structures must be durable and capable of withstanding inundation, wave impacts, weathering, and other effects of storm conditions for a minimum of 30 years. Individual component materials may have a working life of less than 30 years only when a maintenance program ensures that they will be regularly maintained and replaced as necessary to attain the required 30 years of erosion protection.

d. A long-term maintenance program must be included with every permit application of construction, modification, or restoration of an erosion protection structure. The maintenance program must include specifications for normal maintenance of degradable materials. To assure compliance with the proposed maintenance programs, a bond may be required.

2.10 Traffic Control. Motorized and non-motorized traffic must comply with the following restrictions:

- a. Motor vehicles must not travel on vegetation, must operate waterward of the debris line, and when no debris line exists must operate waterward of the waterward toe of the primary dune or bluff.
- b. Motor vehicle traffic is prohibited on primary dunes, except for officially designated crossing areas, and on bluffs.
- c. Pedestrian passage across primary dunes must utilize elevated walkways and stairways or other specially designed dune crossing structures.

3. EMERGENCY ACTIVITIES

3.1 Applicability. For the purposes of this section, emergency activities are those proposed actions designed to provide structural support to buildings and structures that have incurred or are in imminent peril of incurring structural damage or failure, and only where such failed buildings or structures would exacerbate erosion and increase scouring, battering, scraping action or damage to other buildings, structures and man-made protective features. Proposed actions must prevent, if possible, or minimize damage to natural protective features and other natural resources.

3.2 Notification to Administrator. Prior to the commencement of any emergency activity, the Administrator must be notified and must determine whether to grant approval pursuant to the provisions of this section. If circumstances warrant immediate action by a state or local agency and prior notice to the Administrator is not possible, then the Administrator shall be notified by that agency within 24 hours after commencement of the activity and must subsequently respond. The Administrator must always be notified in advance before any emergency activity is undertaken by any non-governmental entity. Notifications may be by certified mail, telegram, mailgram, facsimile, or other written form of communication.

a. A notification shall include the following information:

- (1) A description of the proposed action and the manner in which it is to be undertaken.
- (2) Location map and plan of the proposed action.
- (3) Reasons why the situation is an emergency.

b. Prior to issuing an emergency authorization, the Administrator shall:

- (1) Make a finding of emergency stating why the immediate action is needed and the consequences if the action is not immediately taken.
- (2) Determine that the building or structure is structurally unsound or in imminent peril of structural failure or harm if no remedial measures are undertaken. The Administrator may, in making such a determination, utilize the services and opinions of the Municipal Engineer, the Fire Marshall, the Building Department or other local official.
- (3) Determine that the proposed emergency activity is the minimum reasonably necessary to stabilize the building or structure.
- (4) Determine that the project will be carried out in a manner that will cause the least change, modification or adverse impact to life, health, property and natural protective features or other natural resources.

c. The Administrator shall issue a decision granting or denying the emergency authorization within 48 hours of receipt of the information required in subsection a of this section. Such decision shall be issued by and bear the name and signature of the Administrator and will specify the following:

- (1) Activity for which the authorization is issued.
- (2) Address and location where the activity is to be conducted.
- (3) Name and address of the authorized person.
- (4) Period of validity of the authorization.
- (5) Terms and conditions of the authorization.

d. The Administrator may authorize an emergency action or activity with reasonable conditions, including, but not limited to:

- (1) Removal of damaged structures or buildings or portions thereof that have failed

and are unsafe or likely to become air or water-borne debris tending to exacerbate erosion or cause damage to other buildings, structures or natural protective features.

(2) Removal of any material or building or structure constructed or placed without a building permit, Coastal Erosion Hazard Area Permit or any other required permit or variance.

(3) Restoration of any natural protective feature that was, may be, or is in fact disturbed by the emergency activities.

e. An emergency authorization may be issued for a term not to exceed thirty (30) calendar days. Such authorization may be renewed for one term not to exceed thirty (30) calendar days, provided the authorized person requests such renewal in writing at least five (5) days prior to the expiration date. On or before sixty (60) calendar days after the Administrator's original approval, the project must be concluded or the authorized person must file with the Administrator a complete application for any necessary permits and subject to all procedural requirements. All renewal requests shall be made to the Administrator and include reasons why the situation remains an emergency.

3.3 Improper Notification and Cessation of Unjustified Activities. If the Administrator determines that a regulated activity has been undertaken without a Coastal Erosion Management Permit and does not meet the emergency activity criteria, including notification requirements, then the Administrator will order the immediate cessation of the activity. Additionally, any emergency authorization issued under this section is subject to termination or suspension by the Administrator upon his determination that the proposed activity does not or no longer constitutes all emergency activity; violates the terms and/or conditions of the emergency authorization; are undertaken in a manner that does not minimize or prevent damage to natural resources and natural protective features. In such an event, the Administrator shall issue an order notifying the authorized person to cease the action. In addition, the Administrator may require:

a. Removal of any structure that was constructed or placed without a Coastal Erosion Management Permit, and

b. The return to former conditions of any natural protective feature that was excavated, mined, or otherwise disturbed without a Coastal Erosion Management Permit.

4. VARIANCES AND APPEALS

4.1 Variances from Standards and Restrictions. Strict application of the standards and restrictions of this local law may cause practical difficulty or unnecessary hardship. When this can be shown, such standards and restrictions may be varied or modified provided that the following criteria are met:

- a. No reasonable, prudent, alternative site is available.
- b. All responsible means and measures to mitigate adverse impacts on natural systems and their functions and values have been incorporated into the activity's design at the property owner's expense.
- c. The development will be reasonably safe from flood and erosion damage.
- d. The variance requested is the minimum necessary to overcome the practical difficulty or hardship which was the basis for the requested variance.
- e. Where public funds are utilized, the public benefits must clearly outweigh the long-term adverse effects.

4.2 Format and Procedure. Any request for a variance must be in writing and specify the standard, restriction, or requirement to be varied and how the requested variance meets the criteria of Section 4.1 of this local law. The burden of demonstrating that the requested variance meets those criteria rests entirely with the applicant.

4.3 Fees. Each variance request must be accompanied by the required fee or fees as established by the *[Town, Village, City]* legislative body under separate resolution.

4.4 Expiration. Any construction activity allowed by a variance granted by the Coastal Erosion Hazard Board of Review must be completed within one (1) year from the date of approval or approval with modifications or conditions. Variances expire at the end of this one (1) year period without further hearing or action by the Coastal Erosion Hazard Board of Review.

4.5. Coastal Erosion Hazard Board of Review. The _____ is hereby designated as the Coastal Erosion Hazard Board of Review and has the authority to:

- a. Hear, approve, approve with modification or deny requests for variances or other forms of relief from the requirements of this local law.
- b. Hear and decide appeals where it is alleged that there is error in any order, requirement, decision, or determination made by the Administrator in the enforcement of this local law, including any order requiring an alleged violator to stop, cease and desist.

4.6 Appeal. The Coastal Erosion Hazard Board of Review may, in conformity with the provisions of this local law, reverse or affirm, wholly or partly, or may modify the order, requirement, decision, or determination of the Administrator, including stop or cease and desist orders. Notice of such decision will forthwith be given to all parties in interest. The rules and procedures for filing appeals are as follows.

- a. Appeals must be filed with the Municipal Clerk within 30 days of the date of the adverse decision.
- b. All appeals made to the Coastal Erosion Hazard Board of Review must be in writing on standard forms prescribed by the Board. The Board will transmit a copy to the Commissioner of the New York State Department of Environmental Conservation for the Commissioner's information.
- c. All appeals must refer to the specific provisions of this local law involved, specify the alleged errors, the interpretation thereof that is claimed to be correct and the relief which the appellant claims.

4.7 Appeal to the Court. Any person or persons, jointly or severally aggrieved by a decision by the Coastal Erosion Hazard Board of Review or any officer, department, Board or Bureau of the [Town, Village, City], may apply to the Supreme Court for review by a proceeding under Article 78 of the Civil Practice Law and Rules.

5. ADMINISTRATION AND ENFORCEMENT

5.1 Coastal Erosion Management Permits. A Coastal Erosion Management Permit will be issued for regulated activities which comply with the General Standards (2.3), restrictions, and requirements of the applicable sections of this local law, providing the following is adhered to:

- a. The application for a Coastal Erosion Management Permit must be made upon the form provided by the Administrator and must include the following minimum information:
 - (1) A description of the proposed activity.
 - (2) A map drawn to a scale no smaller than 1:24,000, showing the location of the proposed activity.
 - (3) Any additional information the Administrator may require to properly evaluate the proposed activity.
- b. Each application for a Coastal Erosion Management Permit must be accompanied by the required fee or fees as established by the [Town, Village, City] legislative body under separate resolution.
- c. Permits will be issued by, and bear the name and signature of the Administrator, and will specify the:
 - (1) Activity or operation for which the permit is issued.
 - (2) Address or location where the activity or operation is to be conducted.

(3) Name and address of permittee.

(4) Permit number and date of issuance.

(5) Period of permit validity. If not otherwise specified a permit will expire 1 (one) year from the date of issuance.

(6) The terms and conditions of the approval.

d. When more than one Coastal Erosion Management Permit is required for the same property or premises under this local law, a single permit may be issued listing all activities permitted and any conditions, restrictions or bonding requirements. Revocation of a portion or portions of such consolidated permits will not invalidate the remainder.

e. A Coastal Erosion Management Permit may be issued with such terms and conditions as are necessary to ensure compliance with the policies and provisions of Article 34 of the Environmental Conservation Law, the Coastal Erosion Management Regulations implementing Article 34 (6 NYCRR Part 505), and the laws and policies of the *[Town, Village, City]*.

f. When an application is made for a Coastal Erosion Management Permit, variance thereto, or other form of approval required by this local law, and such activity is subject to other permit, variance, hearing, or application procedures required by another federal, state or local regulatory agency pursuant to any federal, state, or local law or ordinance, the Zoning Enforcement Officer shall, at the request of the applicant, consolidate and coordinate the application, permit, variance and hearing procedures as required by each regulatory agency into a single, comprehensive hearing and review procedure. However, nothing contained in this section shall be deemed to limit or restrict any regulatory agencies, which are properly a party to such a consolidated review proceeding, from the independent exercise of such discretionary authority with respect to the issuance, denial or modification of such permits, variances or other forms of approval as they may have been granted by law.

5.2 Bonds. The *[Town, Village, City]* may require a bond or other form of financial security. Such bond or security must be in an amount, with such surety and conditions as are satisfactory to the *[Town, Village, City]* so as to insure compliance with the terms and conditions stated in the Coastal Erosion Management Permit.

5.3 Administrator. The authority for administering and enforcing this local law is hereby conferred upon the Administrator. The Administrator has the powers and duties to:

a. Apply the regulations, restrictions, and standards or other provisions of this local law.

- b. Explain to applicants the map which designates the land and water areas subject to regulation and advise applicants of the standards, restrictions and requirements of this local law.
- c. Review and take appropriate actions on completed applications.
- d. Issue and sign all approved permits.
- e. Transmit written notice of violations to property owners or to other responsible persons.
- f. Prepare and submit reports.
- g. Perform compliance inspections.
- h. Serve as the primary liaison with the New York State Department of Environmental Conservation.
- i. Keep official records of all permits, inspections, inspection reports, recommendations, actions of the Coastal Erosion Hazard Board of Review, and any other reports or communications relative to this local law or request for information from the New York State Department of Environmental Conservation.
- j. Perform normal and customary administrative functions required by the *[Town, Village, City]*, relative to the Coastal Erosion Hazard Areas Act, Article 34 of the New York State Environmental Conservation Law, 6 NYCRR Part 505, and this local law.
- k. Have, in addition, powers and duties as are established in, or reasonably implied from this local law as are necessary to achieve its stated purpose.

5.4 Interpretation. The provisions, regulations, procedures and standards of this local law will be held to be the minimum requirements necessary to carry out the purposes of this local law.

5.5 Conflicts. The provisions of this local law will take precedence over any other laws, ordinances, or codes in effect in the *[Town, Village, City]* to the extent that the provisions of this local law are more stringent than such other laws, ordinances, or codes. A Coastal Erosion Management Permit issued pursuant to this local law does not relieve the permit applicant from the responsibility of obtaining other permits or approvals as may be necessary nor does it convey any rights or interest in real property.

5.6 Severability. The provisions of this local law are severable. If any clause, sentence, paragraph, subdivision, section or part is adjudged invalid by a court of competent jurisdiction, the effect of such order or judgment does not affect or invalidate any other provisions of this local law or their application to other persons and circumstances.

5.7 Environmental Review. All regulated activities are subject to the review procedures required by the New York State Environmental Quality Review Act (SEQRA), Article 8 of the New York State Environmental Conservation Law. The applicant may be required to submit information necessary for compliance with SEQR in addition to information required under this local law.

5.8 Violations and Penalties. A violation of this local law is hereby declared to be an offense punishable by a fine not exceeding \$250.00 or imprisonment for a period not to exceed six months or both. Each day's continued violation of this local law will constitute a separate additional violation. Nothing herein will prevent the proper local authorities of the [Town, Village, City] from taking such other lawful actions or proceedings as may be necessary to restrain, correct, or abate any violation of this local law.

6. AMENDMENTS

6.1 Procedure. The [Town, Village, City] legislative body may, on its motion or on petition, or on recommendation from the Planning Board, amend, supplement or repeal the provisions, regulations, procedures or standards of this local law.

When an amendment is duly proposed, the [Town, Village, City] legislative body must:

- a. Notify the Commissioner of the New York State Department of Environmental Conservation in writing of all proposed amendments and request the Commissioner's advice as to whether such amendment is subject to the Commissioner's approval, and if so, whether such amendment conforms to the minimum standards of a certified program.
- b. Issue public notice and conduct a hearing on all proposed amendments. The [Town, Village, City] legislative body, by resolution, must cause notice of such hearing's time, date, and place to be published in the official newspaper not less than 10* days prior to the date of the hearing.
- c. Refer to the proposed amendment at least 30 days prior to the public hearing, in writing to:
 - (1) The Planning Board, unless initiated thereby, for its review of the amendment and its report to the [Town, Village, City] legislative body of recommendations thereon, including a full statement of reasons for such recommendations.
 - (2) The County Planning Board for its review and recommendations pursuant to Article 12-B, Section 239 of the New York State General Municipal Law.

6.2 Commissioner Approval. After enactment the amendment must be sent to the Commissioner of Environmental Conservation for Certification.

6.3 Recording. After an amendment to this local law has: been initially reviewed and found to be in conformance by the Commissioner of the New York State Department of Environmental Conservation; completed the public hearing process and intergovernmental review; been finally approved and adopted by the [Town, Village, City] legislative body; and been certified by the Commissioner; the Clerk will as prescribed by Section 27 of the Municipal Home Rule Law:

- a. Record the amended local law in the Municipal Clerk's Minute Book and in the Recorded Book of Local Laws.
- b. File the amended local law within five days after adoption as follows:
 - (1) One copy in the Clerk's office.
 - (2) One copy in the Office of the State Comptroller.
 - (3) Three copies in the Office of the Secretary of State.
 - (4) One copy with the Commissioner of the New York State Department of Environmental Conservation.

**Villages and Cities are required to advertise five days prior to hearings. Towns are required to advertise ten days prior to hearings.*

ADDENDUM

The Coastal Erosion Management Regulations (6 NYCRR Part 505) contain provisions relating to the restoration of existing structures that are damaged or destroyed by causes not related to coastal flooding or erosion, without requirement for a permit. Because this provision may conflict with existing municipal ordinances or requirements, municipalities may not want to include it in any local erosion management ordinance enacted to carry out the purposes and policies of the Coastal Erosion Hazard Areas Act (ECL Article 34).

It is important to recognize that this provision allows the restoration of a pre-existing, non-conforming structure without obtaining a coastal erosion management permit, nor does it impose any time limit within which such restoration must be undertaken. However, 6 NYCRR 505.17(a) specifically allows municipalities to adopt programs that are more stringent than the minimum standards contained in the statewide regulations. Not including the exception for structures destroyed by other causes would be considered more stringent, hence allowable, under this allowance.

If you wish to allow the unregulated restoration of pre-existing non-conforming structures the following Sections should be inserted:

- 2.6(e) The restoration of existing structures, on beaches, that are damaged or destroyed by events not related to coastal flooding or erosion may be undertaken without a coastal erosion management permit.

2.7(e) The restoration of existing structures, on dunes, that are damaged or destroyed by events not related to coastal flooding or erosion may be undertaken without a coastal erosion management permit.

2.8(b)(5) The restoration of existing structures, on bluffs, that are damaged or destroyed by events not related to coastal flooding or erosion may be undertaken without a coastal erosion management permit.

3.1.2 Alternative Coastal Erosion Hazard Area Management Model

When seeking to have authority to regulate coastal erosion hazard areas delegated to it by the New York State Department of Environmental Conservation (NYSDEC), a municipality may choose to adopt a local law or ordinance that is structured differently or contains stricter standards than the NYSDEC model. For example, the law or ordinance could prohibit hard structures in Natural Protective Feature Areas (NPFA). This would be allowed so long as it meets minimum NYSDEC standards and is approved by the NYSDEC.

The Town of Brookhaven (NY) CEHA law on which this model is based has been found by NYSDEC to meet the minimum standards needed for a municipality to administer the State Coastal Erosion Hazard Area program. Brookhaven's CEHA law went further than the state model by expanding its definition of "regulated activities" to include any alteration of existing vegetation that would diminish said vegetation's protection of dunes and bluffs from erosion. The Brookhaven law also incorporates an exception, provided in the addendum of the state model CEHA law, which allows for the restoration of existing structures that were damaged or destroyed by events other than coastal flooding and erosion.

Language in this model relating to Structural Hazard Areas was adapted from the Coastal Erosion Hazard Area Management model presented in section 3.1.2 of this chapter. The Town of Brookhaven CEHA law does not address Structural Hazard Areas.

USAGE

Adopt as a standalone provision in the municipal code, or as a new article within the municipal zoning code.

ADAPTED FROM THE FOLLOWING SOURCE

Town of Brookhaven (NY) Municipal Code, Chapter 76 Coastal Erosion Hazard Areas.¹⁴

NYSDEC Coastal Erosion Hazard Area Management Model Local Law (see section 3.1.2 of this chapter).

LANGUAGE

Article X. Coastal Erosion Hazard Areas

A. Legislative intent.

(1) Purpose. The [*City Council/Town Board/Board of Trustees*] of the [*City/Town/Village of _____*] hereby declares its intent to establish a coastal erosion management program pursuant to its authority under Article 34 of the Environmental Conservation

Law, applicable to *[insert area of applicability, such as the town's north shore]*, in furtherance of this *[Council/Board]*'s ongoing policy of preservation, protection and enhancement of the *[City/Town/Village]*'s unique natural environment by implementing this program and through the regulatory framework for the *[City/Town/Village]*'s coastal areas as set forth herein below, which includes but is not limited to the following goals and objectives:

- (a) To establish standards calculated to minimize and/or prevent damage to existing structures from coastal flooding and erosion and to preserve natural protective features and/or other natural resources.
- (b) To regulate land use and development activities so as to minimize and/or prevent damage and/or destruction to existing physical improvements, natural protective features, other natural features and resources, and for the protection of human life.
- (c) To regulate new construction in environmentally sensitive areas, including but not limited to the siting of structures a safe distance away from areas of active erosion and away from reasonably anticipated impacts of coastal storms in order to prevent premature damage and/or destruction
- (d) To regulate the construction of erosion protection structures in coastal areas which are subject to serious erosion, in order to assure that, if justified, the construction and operation of such structures will minimize or prevent damage of or destruction to improvements thereto on private and public real property, natural protective features, and other natural resources.
- (e) To restrict public investment in services, facilities, or activities which are likely to encourage new permanent development in erosion hazard areas.

(2) Findings. This *[City Council/Town Board/Board of Trustees]* hereby finds and determines that the coastal erosion hazard areas:

- (a) Are prone to erosion from the action of the *[insert body of water, such as Long Island Sound or Atlantic Ocean]*. Such erosion may be caused by the action of waves, currents running along the shore, and wind-driven water and ice. Such areas are also prone to erosion caused by the wind, runoff of rainwater along the surface of the land, or groundwater seepage, as well as by human activities such as development, construction of shoreline armoring, navigation and certain forms of recreation.
- (b) Experience coastal erosion which causes extensive damage to publicly and privately-owned property and to natural resources as well as endangering human lives. When this occurs, individuals and private businesses suffer significant

economic losses, as do the municipal and the state economies, either directly through property damage or indirectly through loss of economic return. Large public expenditures may also be necessitated for the removal of debris and damaged structures and the replacement of essential public facilities and services.

- (c) Experience erosion-related problems that are often contributed to by man's building without considering the potential for damage to property, by undertaking activities which destroy natural protective features such as dunes or vegetation, by building structures intended for erosion prevention which may exacerbate erosion conditions on adjacent or nearby property, and by water action produced by wakes from boats.
- (d) Are the subject of programs which foster erosion protection structures, either with private or public funds, which are costly, often only partially effective over time, and may even be harmful to adjacent or nearby properties. In some sections of the [City/Town/Village], major erosion protection structures of great length would be required to effectively reduce future damages due to erosion.

B. Definitions. As used in this chapter, the following terms shall have the meanings indicated:

- (1) Administrator. The local official responsible for administering and enforcing this local law.
- (2) Apparent Low Water. The approximate average low water level for a given body of water at a given location, determined by reference to hydrological information concerning water levels or other appropriate tests.
- (3) Beach. The zone of unconsolidated earth that extends landward from the apparent low water line to the waterward toe of a dune or bluff, whichever is most waterward; where no dune or bluff exists landward of a beach, the landward limit of a beach shall be 100 feet landward from the place where there is a marked change in natural material or physiographic form, or from the line of permanent vegetation, whichever is most waterward; shorelands subject to seasonal or more frequent overwash or inundation shall constitute a beach.
- (4) Bluff. Any bank or cliff with a precipitous or steeply sloped face adjoining a beach or a body of water. The waterward limit of a bluff is the landward limit of its waterward natural protective feature. Where no beach is present, the waterward limit of a bluff is mean low water. The landward limit is 25 feet landward of the receding edge or, in those cases where there is no discernible line of active erosion, 25 feet landward of the point of inflection on the top of the bluff. (The point of inflection is that point along the top of the bluff where the trend of the land slope changes to begin its descent to the shoreline.)

(5) Coastal Erosion Hazard Areas (CEHAs). Those so identified and depicted on the final maps prepared by the State Department of Environmental Conservation, as amended by the Commissioner, pursuant to § 34-0104 of the Environmental Conservation Law, entitled "Coastal Erosion Hazard Area Map for the [name municipality and area]" and "Coastal Erosion Hazard Area Map" for [name municipality and area].

(6) Coastal Erosion Hazard Area Map. The final map, and amendments thereto as shall be issued by the Commissioner of the Department of Environmental Conservation, delineating boundaries of coastal erosion hazard areas.

(7) Coastal Erosion Management Permit. A written approval for the undertaking of any regulated activity within coastal erosion hazard areas as mapped by the Commissioner.

(8) Coastal Vegetation. Plant life capable of surviving and successfully reproducing and which is compatible with the natural environment of the designated coastal erosion hazard area(s).

(9) Coastal Waters. Include [name body of water, such as Long Island Sound and the Atlantic Ocean].

(10) Coastline. Lands adjacent to the [City/Town/Village]'s own coastal waters.

(11) Commissioner. The Commissioner of the Department of Environmental Conservation.

(12) Debris Line. A linear accumulation of water-borne debris deposited on a beach by high water or by wave action.

(13) Dune. A ridge or hill of loose, windblown or artificially placed earth, the principal component of which is sand, includes the primary dune and a secondary dune, if existent.

(14) Emergency. A natural or an accidental human-made event which presents an immediate threat to life, health, safety, property, or the environment.

(15) Emergency Activities. Those proposed actions designed to provide structural support to buildings or structures that have incurred or are in imminent peril of incurring damage and without which such buildings or structures may suffer such further failure as may cause them to exacerbate erosion, or increase damage to other buildings, or structures, or to natural or man-made protective features, by water- or wind-borne remnants and debris from such failed buildings or structures.

(16) Erosion. The loss or displacement of land along the coastline due to the action of waves, currents, wind-driven water, water-borne ice or other impacts of storms and/or

the loss or displacement of land due to the action of wind, surface runoff or groundwater seepage.

(17) Erosion Hazard Area. An area of the coastline which is a Structural Hazard Area and/or a Natural Protective Feature Area.

(18) Erosion Protection Structure. A structure specifically designed to reduce or prevent erosion such as a groin, jetty, revetment, breakwater or artificial beach nourishment project.

(19) Existing Structure. A structure and appurtenances in existence or one where construction has commenced or one where construction has not begun but for which a building permit has been issued prior to the effective date of this chapter. "Existing structure" also includes any structure or appurtenance which was initially constructed outside an erosion hazard area, but as a result of amendments to coastal erosion hazard area maps is located in an erosion hazard area.

(20) Functional Structure. A functioning structure is one, which is fully performing as originally designed.

(21) Grading. A redistribution of sand or other unconsolidated earth to effect a change in profile.

(22) Major Addition. An addition to a structure resulting in a twenty-five-percent or greater increase in the ground area coverage of the structure other than an erosion protection structure or a pier, dock or wharf. The increase will be calculated as the ground area coverage to be added, including any additions previously constructed under a coastal erosion management permit, divided by the ground area coverage of the existing structure as defined in "existing structure."

(23) Minor Addition. Any addition other than a major addition.

(24) Modification. A change in the size, design or function of a structure or erosion protection structure.

(25) Movable Structure. A structure designed and constructed to be readily relocated with minimum disruption of the intended use. Mobile homes and structures built on skids or piles and not having a permanent foundation are examples of movable structures.

(26) Natural Protective Feature. A near-shore area, beach, bluff, primary dune, secondary dune or marsh and its vegetation.

(27) Natural Protective Feature Area. A land and/or water area containing natural protective features, the alteration of which may reasonably be anticipated to reduce or

destroy the protection afforded nearby lands against erosion from natural high water, or result in the lowering of existing sand reserve(s), or natural materials available for natural replenishment of storm losses through natural processes.

(28) Near-Shore Area. Underwater lands beginning at the apparent low water line and extending waterward in a direction perpendicular to the shoreline to a point where apparent low water depth is 15 feet, or to a horizontal distance of 1,000 feet from the apparent low water line, whichever is greater.

(29) Normal Maintenance. Periodic replacement or repair of like-kind structural elements or protective coatings which do not result in the alteration of the size, design or function of an existing functional structure.

(30) Person. Any individual, public or private corporation, political subdivision, government agency, public improvement district, partnership, association, firm, trust, estate or any legal entity whatsoever.

(31) Primary Dune. The most waterward major dune where there are two or more parallel dunes within a coastal area. Where there is only one dune present, it is the primary dune. Occasionally one or more relatively small dune forms exist seaward of the primary dune. These smaller formations will be considered to be part of the primary dune for the purposes of this chapter. The seaward limit of the primary dune is the landward limit of its fronting beach. The landward limit of the primary dune is 25 feet landward of its landward toe.

(32) Receding Edge. The most landward line of active erosion, or in cases where there is no discernible line of active erosion, it is the most waterward line of permanent vegetation.

(33) Recession Rate. The average rate, expressed in feet per year, at which an eroding shoreline moves landward.

(34) Regulated Activity. The construction, modification, restoration or placement of a structure, major addition to a structure, or any action or use of land which materially alters the condition of land or the vegetation protective thereof including grading, excavating, dumping, mining, dredging, filling, other disturbance to the soils, or the alteration of existing vegetation protecting a bluff or dune area which diminishes said vegetation's protective quality applicable to a natural protective feature relating to erosion, such as the cutting (mowing) of grasses, the cutting or pruning or topping of shrubs and trees.

(35) Restoration. The reconstruction without modification of a structure, the cost of which equals or exceeds 50 percent of the estimated current full replacement cost thereof at the time of restoration. Modifications, however, maybe allowed if they do not

exceed preexisting size limits and are intended to mitigate the impacts to natural protective features and other natural resources.

(36) Secondary Dune. The major dune immediately landward of a primary dune, the seaward limit of which is the landward limit of its fronting primary dune, and the landward limit of which is 25 feet landward of its landward toe.

(37) Significant Fish and Wildlife Habitat. Habitats which:

- (a) are essential to the survival of a substantial portion of a particular fish or wildlife population;
- (b) support rare or endangered species;
- (c) are found at a very low frequency within a geographic area;
- (d) support fish or wildlife populations having important commercial or recreational value(s); or
- (e) that would be difficult or impossible to replace.

(38) Structure. Any fabricated object constructed, installed or placed in, on, or under land or water, including, but not limited to: building(s); shed(s); decks; swimming pools; garages; mobile homes; roads; public service distribution and transmission facilities, or collection system(s); tanks; docks; piers; wharfs; groins; jetties; seawalls; bulkheads; breakwaters; revetments; and any addition to or alteration of the aforesaid.

(39) Structural Hazard Area. Those shorelands located landward of natural protective features and having shorelines receding at a long term average recession rate of one foot or more per year. The inland boundary of a structural hazard area is calculated by starting at the landward limit of the fronting natural protective feature and measuring along a line perpendicular to the shoreline a horizontal distance landward which is 40 times the long-term average annual recession rate.

(40) Toe. The lowest point on a dune or bluff slope.

(41) Unregulated Activity. Activities not subject to regulation under this law, including but not limited to: elevated walkways and stairways constructed solely for pedestrian use and installed by an individual property owner(s) solely for noncommercial access to the beach; ordinary beach grooming and clean-up; ordinary and customary maintenance of structures and vegetation in compliance with an approved maintenance program; planting coastal vegetation; establishing sand fencing so as to stabilize or entrap sand in primary dune and secondary dune areas which are intended to stabilize and/or enhance dune dimensions or increase dune height; the implementation of practices recommended in a soil and water conservation plan as defined in Section 3(12) of the Soil and Water Conservation Districts Law, provided that agricultural operations and the implementation of practices as aforesaid shall not be construed to include any activity that involves the construction or installation of a structure(s).

(42) Vegetation. Plant life capable of surviving and successfully reproducing in the area or region and which is compatible with the environment of the coastal erosion hazard area.

C. Prohibitions. The following enumerated activities shall be prohibited in coastal erosion hazard areas:

(1) In near-shore areas:

- (a) Excavation, grading, mining or dredging which is reasonably anticipated to result in the diminution of erosion protection afforded by existing features of the near-shore area, unless specifically authorized by this chapter;
- (b) Construction of new structure(s) unless otherwise specifically authorized by this chapter;
- (c) Activities not otherwise authorized by this chapter.

(2) In beach areas:

- (a) Excavation, grading or mining which diminishes the erosion protection afforded by the beach as then configured;
- (b) Construction of new structure(s) unless otherwise specifically authorized by this chapter;
- (c) Disturbance to active bird nesting and breeding areas unless such disturbance is pursuant to an approved wildlife management activity as evidenced by a duly authenticated written approval by the Department of Environmental Conservation; and
- (d) Activities not otherwise authorized by this chapter.

(3) In primary dune areas:

- (a) Excavation, grading or mining of a primary dune;
- (b) Vehicular traffic except in areas specifically designated for dune crossing by vehicles;
- (c) The construction and/or installation of any new structure unless otherwise authorized by this chapter;
- (d) Disturbance to active bird nesting and breeding areas unless such disturbance is pursuant to an approved wildlife management activity as evidenced by a duly authenticated written approval by the Department of Environmental Conservation;
- (e) Activities not otherwise authorized by this chapter; and
- (f) Pedestrian traffic which causes sufficient damage to primary dunes to diminish the erosion protection afforded by them.

(4) In bluff areas:

- (a) Excavation, grading or mining except:
 - [i] The minor alteration of a bluff subject to such reasonable conditions as may be set forth in a coastal erosion management permit issued thereof; and
 - [ii] A bluff cut made in a direction perpendicular to the shoreline to provide shoreline access so long as: the ramp slope of the bluff cuts shall not exceed 1:6; the side slopes shall not exceed 1:3, unless terraced or otherwise structurally stabilized; side slopes and other disturbed non-roadway areas are stabilized with vegetation and/or other approved physical means; and completed roadways are stabilized with adequate drainage, all of which shall be subject to such reasonable conditions as may be set forth in the permit therefor.
- (b) Vehicular traffic;
- (c) All construction or installation of improvements unless otherwise authorized by the provisions of this chapter;
- (d) Disturbance of soil(s) which may be reasonably anticipated to result in the redirection of surface water runoff over a bluff face;
- (e) Disturbance to active bird nesting and breeding areas unless part of an authorized wildlife management activity, evidenced by a duly authenticated written approval by the Department of Environmental Conservation; and
- (f) All other activities unless otherwise authorized by the provisions of this chapter.

D. Structural Hazard Area Restrictions. The following restrictions apply to regulated activities within Structural Hazard Areas:

- (1) A Coastal Erosion Management Permit is required for the installation of public service distribution, transmission, or collection systems for gas, electricity, water, or wastewater. Systems installed along the shoreline must be located landward of the shoreline structures.
- (2) The construction of non-movable structures or placement of major non-movable additions to an existing structure is prohibited.
- (3) Permanent foundations may not be attached to movable structures, and any temporary foundations are to be removed at the time the structure is moved. Below grade footings will be allowed if satisfactory provisions are made for their removal.
- (4) No movable structure may be located closer to the landward limit of a bluff than 25 feet.
- (5) No movable structure may be placed or constructed such that according to accepted engineering practice, its weight places excessive ground loading on a bluff.

(6) Plans for landward relocation of movable structures must be included with each application for a permit. Movable structures which have been located within a Structural Hazard Area pursuant to a Coastal Erosion Management Permit must be removed before any part of the structure is within 10 feet of the receding edge. The last owner of record, as shown on the latest assessment roll, is responsible for removing that structure and its foundation, unless a Removal Agreement was attached to the original Coastal Erosion Management Permit.

With the attachment of a Removal Agreement to the Coastal Erosion Management Permit, the landowner or the signatory is responsible for the landward relocation of movable structures. Removal Agreements may be made when the last owner of record and the owner of the structure are different with the approval of the [Town, Village, City] at the time the permit is issued.

(7) Debris from structural damage which may occur as a result of sudden unanticipated bluff edge failure, dune migration, or wave or ice action must be removed within sixty (60) days of the damaging event.

(8) Any grading, excavation, or other soil disturbance conducted within a Structural Hazard Area must not direct surface water runoff over a bluff face.

E. Coastal erosion management permits. A permit shall be required for any of the following activities when proposed for sites located within a coastal erosion hazard area:

(1) In near-shore areas:

- (a) Excavation, grading and dredging activities performed in conjunction with the construction and/or maintenance of navigation channels; the bypassing of sand around natural and man-made obstructions; and artificial beach nourishment;
- (b) The deposit of clean sand or gravel so long as any such material is comprised of grains equivalent to or slightly larger in size to that of existing near-shore area sediments; and
- (c) The new construction, modification, or restoration of docks, piers, wharves, groins, jetties, seawalls, bulkheads, breakwaters, revetments, and artificial beach nourishment.

(2) In beach areas:

- (a) The deposit of clean sand or gravel so long as any such material shall be composed of an equivalent or slightly larger grain size than existing beach sand or gravel;
- (b) Minor additions to existing structures; and
- (c) The modification or restoration of docks, piers, wharves, boardwalks, groins, jetties, seawalls, bulkheads, breakwaters, revetments, and artificial beach nourishment.

(d) Exceptions. Docks, piers, wharves, or other similar water-access structures built on floats, columns, open timber, piles, or similar open-work supports having a top surface area of 200 square feet or less or docks, piers, wharves, or other structures built on floats and removed in the fall of each year are excepted from this permit requirement.

(3) In primary dune areas:

- (a) The deposit of clean sand, so long as composed of material which is of a compatible type and size to that of the existing sands, which deposits shall be vegetatively stabilized, within the time period specified in the permit, using species tolerant of existing conditions and placed in such a manner as to increase the size of and/or restore the dune or dune area;
- (b) Minor additions to existing structures;
- (c) New construction, modification, or restoration of stone revetments or other erosion protection structures compatible with primary dunes, provided they are located at the seaward toe of the primary dune and do not interfere with the exchange of sand between the primary dune and its fronting beach; and
- (d) New construction, modification, or restoration of elevated walkways or stairways.

(4) In secondary dune areas:

- (a) The deposit of clean sand of a compatible type and size to that existing so long as said deposit increases the size or restores the dune or former dune area;
- (b) Excavation, grading, or mining so long as no diminution of the erosion protection afforded by the secondary or primary dune may be reasonably anticipated to result;
- (c) Minor additions to existing structures; and
- (d) The construction of new structures, restoration, or modification of existing structures or major addition to an existing structure so long as built on adequately anchored pilings providing a minimum of three feet of open space between the unobstructed floor joists and dune surface.

(5) In bluff areas:

- (a) Minor alterations, excavation, mining and filling associated with the construction of an erosion protection structure;
- (b) Bluff cuts, so long as:
 - [i] Made in a direction perpendicular to the shoreline;
 - [ii] The ramp slope does not exceed 1:6;
 - [iii] The side slopes do not exceed 1:3 unless terraced or otherwise structurally stabilized;

- [iv] The side slopes and other disturbed non-roadway areas are stabilized with vegetation or other physical means; and
 - [v] The access roadway, if any, is stabilized and includes adequate drainage facilities;
- (c) Construction of walkways or stairways;
 - (d) Restoration or modification of existing walkways or stairways;
 - (e) Minor additions to existing structures.
- (6) Erosion protection structures requirements. The construction, modification or restoration of erosion protection structures, including the modification or restoration of existing erosion protection structure, excluding normal maintenance, subject to the following:
- (a) The proposed improvement(s) is not reasonably anticipated to result in a measurable increase in erosion at the development site or elsewhere;
 - (b) The proposed improvement(s) minimizes and/or prevents adverse effects upon natural protective features, and natural resources such as significant fish and wildlife habitats to the main extent practicable;
 - (c) Such improvement(s) are designed and constructed in accordance with generally accepted engineering principles and are demonstrably successful in controlling long-term erosion, or for which there is a reasonable probability of controlling erosion at the site for a period of at least 30 years;
 - (d) All materials used in such structures shall be durable and capable of withstanding inundation, wave impacts, weathering, and other effects of storm conditions for a minimum of 30 years. Component materials which have a working life of less than 30 years shall be subject to a program ensuring regular maintenance and/or replacement during a period of 30 years; and
 - (e) Where appropriate, the establishment of a long-term maintenance program for the new, modified or reconstructed erosion protection structure and/or improvement, including specifications for regular maintenance of degradable materials and replacement thereof.
- (7) Permits shall be issued only upon the Administrator's determination and findings that the proposed activity:
- (a) Is reasonable and necessary upon consideration of alternatives to the proposed activity and its proposed location;
 - (b) Is not likely to cause a measurable increase in erosion at the proposed site and/or at other related locations; and
 - (c) Prevents or minimizes, to the maximum extent practicable, adverse effects on:
 - [i] Natural protective features;
 - [ii] Their functions and protective values;

- [iii] Existing erosion protection structures; and
- [iv] Existing natural resources, including but not limited to significant fish and wildlife habitats and shellfish beds.

(8) Application. The permit application shall be on such form as may be promulgated by the Administrator, which shall include, at minimum, the following information:

- (a) A description of the proposed activity;
- (b) A map drawn to a scale no smaller than 1:24,000, showing the location of the proposed activity;
- (c) Any additional information deemed reasonably necessary by the Administrator to properly evaluate the proposed activity; and
- (d) Fee.

(9) Contents. Permits shall set forth the following elements:

- (a) The activity(ies) authorized;
- (b) The address or location of the proposed activity;
- (c) The name and address of the applicant;
- (d) Permit number and date of issuance;
- (e) The period covered by the permit, if not otherwise specified, shall be one year from date of issuance; and
- (f) Terms and conditions as the Administrator deems necessary to ensure compliance with Article 34 of the Environmental Conservation Law, its implementing regulations, (6 NYCRR Part 505) and other relevant provisions of the Code of the [City/Town/Village].

(10) Consolidated permits. When more than one coastal erosion management permit may otherwise be required for the same property and/or location pursuant to the provisions of this chapter, a consolidated permit may be issued for all such activities with conditions; revocation or annulment of one or more such authorized activity(ies) therein shall not invalidate other activities authorized by the consolidated permit.

(11) Coordination of review. When an application is made for a coastal erosion management permit, or other form of approval required by this chapter and such activity is subject to other permit hearings or approvals pursuant to any federal, state or local law or regulation, the Administrator shall, upon request of the applicant, consolidate and coordinate all required applications, permits, hearings and/or proceedings. Nothing contained herein shall be construed to limit or restrict any other governmental entity's jurisdiction.

(12) Security. The Town Board may require such security as it shall determine appropriate and necessary to insure satisfactory completion of the proposed improvements and/or activity(ies).

F. Exceptions. A permit, as otherwise required by this chapter, shall not be required for the following activities:

- (1) In near-shore areas: The normal maintenance of structures.
- (2) In beach areas:
 - (a) The normal maintenance of structures;
 - (b) The restoration of existing structures that are damaged or destroyed by events not related to coastal flooding and erosion; and
 - (c) Beach grooming or clean-up operations.
- (3) In primary dune areas:
 - (a) The normal maintenance of structures;
 - (b) The restoration of existing structures that were damaged or destroyed by events other than coastal flooding and erosion;
 - (c) Elevated walkways or stairways constructed solely for pedestrian use and built by or for an individual property owner or homeowners' association for the limited purpose of providing noncommercial access to the beach [*note that this exception may not be beneficial for all municipalities and see section 3.3.3 of this chapter*]; and
 - (d) Vegetative planting and sand fencing intended to stabilize or entrap sand in order to maintain or increase the height and width of dunes, provided that the vegetative plantings are native species tolerant to salt spray and sand burial, such as American beach grass.
- (4) In secondary dunes areas:
 - (a) The normal maintenance of structures;
 - (b) The restoration of existing structures that were damaged or destroyed by events other than coastal flooding and erosion; and
 - (c) Elevated walkways or stairways constructed solely for pedestrian use and built by or for an individual property owner or homeowners' association for the limited purpose of providing noncommercial access to the beach. [*Note that this exception may not be beneficial for all municipalities and see section 3.3.3 of this chapter.*]
- (5) In bluff areas:
 - (a) The normal maintenance of structures;
 - (b) The restoration of existing structures that are damaged or destroyed by events other than coastal flooding and erosion; and

- (c) Elevated walkways or stairways constructed solely for pedestrian use and built by or for an individual property owner or homeowners' association for the limited purpose of providing noncommercial access to the beach. [Note that this exception may not be beneficial for all municipalities and see section 3.3.3 of this chapter.]
- (6) In water and/or shore areas:
 - (a) Docks, piers, wharves, or other water-access structures built on floats, columns, open timber, piles, or similar open-work supports having a top surface area of 200 square feet or less; and
 - (b) Docks, piers, wharves, or other water access structures built on floats which are removed in the fall of each year.

(7) Vehicular and pedestrian travel, subject to the following restrictions:

- (a) No vehicles of any kind whatsoever may be driven on or over a bluff or primary dune, except at vehicle crossing areas designated by the [village/town/city];
- (b) Vehicle(s) shall not be driven on or over vegetation and/or vegetated areas; vehicles may be driven waterward of the debris line, or where no debris line exists, waterward of the waterward toe of the primary dune or bluff;
- (c) Pedestrians shall not traverse or walk across a primary dune except on elevated walkways, stairways or other dune crossing structures.

G. Exemption for emergency activities.

(1) Applicability. Emergency activities necessary to protect public health, safety or welfare, including the prevention of damage to natural resources, shall be exempt from the regulations set forth in this chapter so long as such emergency activities shall be undertaken in such manner as to avoid, prevent and/or minimize damage to natural protective features and other natural resources to the maximum extent practicable under the circumstances and shall comply with the requirements set forth in this section.

(2) Written notification. Written notice of contemplated emergency measures shall be provided to the Administrator at least two days prior to the commencement of such work by the person, governmental body or entity authorized and/or required to undertake such emergency measure(s), which notice shall include the following:

- (a) Description of the proposed action;
- (b) A location map and plan of the proposed action at a scale and in sufficient detail to fully disclose the nature and extent of the contemplated activity; and
- (c) The rationale for the determination characterizing the circumstances as constituting an emergency.

(3) Findings. Prior to issuing an emergency authorization or emergency permit, the Administrator shall determine that:

- (a) An emergency situation exists;
- (b) The proposed activity will result in the least impact to life, health, property, and natural resources as reasonably practicable under the circumstances; and
- (c) The proposed activity provides the necessary structural support to threatened building(s) and/or structure(s).

(4) Permit issuances. The Administrator shall grant or deny the emergency authorization and/or emergency permit within 48 hours of receipt of an application.

(5) Duration. Emergency authorization(s) and/or emergency permit(s) shall be limited to a duration of 30 days or less and may be renewed for a maximum of an additional 30 days; if project activities are not concluded within the maximum allowable 60-day period, the project proponent shall make application for a coastal erosion management permit in order to continue and/or complete the work previously authorized.

(6) Erroneous determination of emergency. In the event that the Administrator determines that regulated activity has been undertaken in the absence of circumstances which constitutes the existence of an emergency the Administrator may:

- (a) Order the immediate cessation of the activity;
- (b) Order the removal of any structure constructed or installed without authorization;
- (c) Order the restoration of the site and/or any natural protective feature(s) that was excavated, mined or otherwise disturbed.

H. Duties and powers of Administrator. The Administrator shall be charged with the following duties:

- (1) Enforce the provisions of this chapter;
- (2) Provide applicants with opportunity for review and explanation of the map(s) which designate the land and water areas subject to regulation by this chapter;
- (3) Review and approve, with or without modification(s) and/or condition(s), or deny permit applications;
- (4) Provide written notice of any violation(s) to the owner(s), tenant(s) or occupant(s) of property or premises located within designated coastal erosion hazard areas;
- (5) Prepare and submit reports to the [City Council/Town Board/Board of Trustees];
- (6) Perform compliance inspections;

- (7) Act as liaison with the Department of Environmental Conservation with respect to the implementation of the provisions of this chapter;
- (9) Maintain the official records of all permits, inspections, inspection reports, recommendations, actions of the Coastal Erosion Hazard Board of Review and any other reports or communications relative to the enforcement of the provisions of this chapter;
- (10) Perform normal and customary administrative functions authorized by the provisions of this chapter or relative to the provisions of Article 34 of the Environmental Conservation Law, and the implementing regulations set forth at 6 NYCRR Part 505;
- (11) Otherwise exercise the powers and duties conferred upon him/her by this article.

I. Appeals.

- (1) Coastal Erosion Hazard Board of Review. The [*Zoning Board of Appeals/Planning Board*] is hereby designated as the Coastal Erosion Hazard Board of Review and is hereby authorized to affirm and/or modify and/or annul any order, hear and decide appeals on the Administrator's interpretation of this chapter and to affirm the requirement, decision or determination of the Administrator, by written decision, after a public hearing, which shall be filed within five days in the office of the [*City/Town/Village*] Clerk, the office of the Administrator, and served by mail upon the applicant.
- (2) Appeals shall be filed with the Zoning Board of Appeals within 30 days of the date of filing in the office of the [*City/Town/Village*] Clerk of the order, determination or decision of the Administrator.
- (3) Appeals shall be in writing in such form as may be prescribed by the Board of Zoning Appeals, with a copy thereof simultaneously served upon the Administrator and shall include ground(s) upon which it is based, including but not limited to the relevant provisions of this chapter and/or the disputed interpretation thereof.
- (4) In making its determination the Zoning Board of Appeals shall take into consideration whether or not:
 - (a) A reasonable, prudent, alternative site(s) is available;
 - (b) All reasonable means and mitigation measures limiting adverse impacts on natural systems and their functions and/or values are incorporated into the activity's design;
 - (c) The structure or improvement is reasonably calculated to be impervious to flood and erosion damage;
 - (d) The relief requested is the minimum necessary to render the proposed activity viable; and

(e) The public benefit(s) clearly outweighs the long-term adverse effects, in a case where public funds are to be utilized for the proposed activity(ies).

J. Judicial review. Any person or persons, jointly or severally aggrieved by any decision/order of the Coastal Erosion Hazard Board of Review, or any officer, department, board or bureau of the [City/Town/Village] may apply to the Supreme Court for review by a proceeding under Article 78 of the Civil Practice Law and Rules, within 30 days of the filing of such order or decision in the office of the [City/Town/Village] Clerk.

K. Interpretation. The standards and criteria set forth in this chapter shall be deemed the minimum requirements necessary to satisfy the purposes and goals of this chapter.

L. Conflicts. The provisions of this chapter shall supersede any other local laws or ordinances to the extent that the provisions herein are more stringent. A coastal erosion management permit issued pursuant to the provisions of this chapter shall not relieve the applicant from any obligation to obtain any other permit(s) or approval(s) as may be required for the proposed activities and/or improvements.

M. Severability. The provisions of this chapter shall be severable. If any clause, sentence, paragraph, subdivision, section or part is adjudged invalid by a court of competent jurisdiction, and the effect of such order or judgment shall not affect or invalidate any other provisions of this chapter or its application to other persons and circumstances.

N. Environmental review. All activities regulated by this chapter shall be subject to review pursuant to the Environmental Conservation Law Article 8 (SEQRA).

O. Penalties for offenses. A violation of this chapter and/or the conditions or restrictions established in a coastal erosion management permit is hereby declared to be an offense punishable by a fine not exceeding \$250 or imprisonment for a period not to exceed six months, or both. Each day's continued violation shall constitute a separate additional violation. Nothing herein shall prevent the [City/Town/Village] from taking such other lawful actions or proceedings as may be necessary to restrain, correct or abate any such violation of the provision of this chapter.

P. Amendments. In the event that the [City Council/Town Board/Board of Trustees] shall consider or undertake to amend the provisions of this chapter, written notice shall be provided to the Commissioner of the Department of Environmental Conservation (NYSDEC) together with a request for his/her advisement as to whether or not such amendment is consistent with the minimum standards of a certified program. Upon the [City Council/Town Board/Board of Trustees]'s adoption of any amendment(s) to this chapter, said amendment shall be forwarded to the Commissioner of NYSDEC for certification thereof.

3.1.3 Shoreline Protection Outside of Coastal Erosion Hazard Areas

Virtually all of New York's coastlines are vulnerable to coastal hazards including flooding, storm surge, erosion, short-term water level changes and/or long-term sea level rise. Municipalities whose coastlines are not, or only partially, regulated under the NYS Coastal Erosion Hazard Areas (CEHA) Law can address erosion and other coastal hazards, establish coastal protection measures, and reduce risk to coastal communities by adopting or modifying their zoning laws (*see Chapter 1 Basic Land Use Tools for Resiliency*).



Structures built seaward, on top of, or immediately adjacent to natural coastal features such as dunes tend to exacerbate erosion and are vulnerable to storm damage.

Municipalities may extend coastal protection measures to areas of coastal erosion not regulated by State law using the authority granted by the State zoning enabling statutes, the New York State Constitution Article IX, or the Municipal Home Rule Law §10. One approach would be to amend the zoning law to include a coastal or shoreline overlay district. An overlay district is a district of any shape or size that is superimposed over the underlying "base" zoning district(s) to protect a resource (e.g., a river or historic area), address a special problem, or guide development within a special area. The overlay district essentially adds a layer of safeguards, standards or

incentives that may not have been considered for the base zoning uses. Base zoning requirements still apply, but they are superseded by overlay district standards in cases where base and overlay requirements conflict.

When adopting an overlay district, the municipality must:

- Identify the area(s) of the municipality that would be included in the overlay district and prepare a map showing those areas as an overlay to the municipal zoning map.
- Amend the section of the zoning law establishing zoning districts to include the new overlay district.
- Amend use and dimensional standards to include requirements related to the new zoning district.

The model presented below is adapted from the Town of Hamlin's Conservation Overlay District, which applies to smaller local streams and water bodies in addition to the Town's Lake Ontario shoreline. The model provides basic shoreline protections by establishing a vegetative buffer and giving a municipal planning board the opportunity to take a closer look at proposed development and other activities near the shoreline. As this model does not contain specific provisions addressing shoreline development in sensitive or high-risk areas, municipalities facing significant erosion, storm surge or flood hazard may wish to consider incorporating provisions from the shoreline management alternatives analysis (3.4) and setbacks (3.2) sections of this chapter.

Additional model laws to reduce flood risk to people and property are provided in *Chapter 4: Management of Floodplain Development*.

USAGE

Create a coastal or shoreline overlay district by preparing a map showing these areas as an overlay to the municipal zoning map. Amend the section of the zoning law establishing zoning districts to include the new overlay district and the requirements of that district. Add any needed definitions to the definition section of the zoning law.

ADAPTED FROM THE FOLLOWING SOURCE

Town of Hamlin (NY) Municipal Code, Chapter 520 Zoning, Article V Special Purpose Districts, Section 520-24 C/O District (Conservation Overlay)¹⁵

LANGUAGE

Section X. Shoreline Overlay District (S/O)

A. Statement of purpose.

(1) The purpose of the S/O District is to provide special controls to guide land development along water bodies in the [City/Town/Village of ____]. The district encourages planning and development of land which will protect and preserve sensitive environmental areas; protect such development and land from periodic flooding; minimize soil erosion, sedimentation and slope failure due to removal of vegetation, dredging, filling, damming or channelization; protect scenic views and natural character of the area; and prevent activities which will cause water pollution.

(2) The S/O District regulations are not intended to be substituted for other zoning district provisions. The requirements of an overlay district are to be superimposed on the primary zoning district provisions and are considered as additional requirements to be met by the applicant, prior to project approval.

B. Delineation of district boundaries.

(1) The location and boundaries of the S/O District shall be delineated on the Official Zoning Map of the [City/Town/Village of ____].

(2) The boundaries of the S/O District shall be as follows: *[describe boundaries, such as the landward boundary of the one-hundred-year flood zone]*.

C. Regulated activities. No person shall be issued a building permit or other necessary [city/town/village] permit to conduct any of the following regulated activities within the S/O District without first applying for and obtaining a shoreline development permit pursuant to the requirements of this section. Agricultural operations, provided that they are located within an agricultural district or have entered into an individual commitment pursuant to Article 25AA of the Agriculture and Markets Law, are not required to obtain a conservation development permit.

(1) Construction of new buildings or structures or additions to or modifications of existing buildings or structures.

(2) Construction or placement of any on-site sewage disposal system, including individual sewage disposal systems.

(3) Filling, cutting or excavation either on land or within a watercourse.

(4) Removal of natural vegetation.

(5) Discharge of stormwater and/or construction and placement of a private commercial or municipal stormwater runoff system.

(6) Outside storage of materials and equipment used in the conduct of a business.

(7) Construction of public or private roads, trails and bridges.

(8) Boat-launching sites and fishing access parking areas.

D. Additional regulations and requirements.

(1) Development standards and permit conditions.

(a) In approving, denying or placing conditions on an application for a shoreline development permit, the Planning Board shall consider the effect that the proposed regulated activity will have on the public health, safety and welfare and on the protection or enhancement of the fragile and environmentally sensitive lands within the district.

(b) No permit to undertake a regulated activity within the S/O District shall be issued by the Planning Board unless it determines that the proposed project complies with the following standards:

[i] The proposed activity provides adequate measures to prevent disruption and pollution of fish and wildlife habitats and coastal waters by construction activities, stormwater runoff, septic and sewage systems and any other activity on the site, including any activity that degrades water quality, increases temperature or turbidity, alters water depths, reduces flows or would adversely affect the fisheries' resources. Discharges of sewage or stormwater runoff containing sediments or chemical pollutants (including fertilizers, herbicides or insecticides) would adversely impact fish or wildlife species.

[ii] To the greatest extent practical, a natural vegetative buffer of 100 feet shall be retained adjacent to water bodies to absorb floodwaters, to trap sediments, to protect adjacent fish and wildlife habitats and to protect scenic qualities.

[iii] Site preparation, including stripping of vegetative cover or grading, shall be undertaken so that the amount of time that disturbed ground surfaces are exposed to the energy of rainfall and runoff water is limited. During construction, erosion protection measures such as temporary vegetation, retention ponds, recharge basins, berthing, silt traps and mulching shall be used to ensure that sedimentation is minimized and mitigated. Finally, disturbed soils shall be stabilized and revegetated.

[iv] Adequate measures shall be taken to minimize flooding and erosion hazards through nonstructural means and appropriate siting of structures. Long-term structural measures shall be used only upon demonstration that habitat and hydrologic factors will not be adversely affected.

[v] The project shall provide adequate measures to protect surface water and groundwater from direct or indirect pollution and from overuse.

[vi] Fill shall not encroach on floodway areas. All fill shall be compacted at a final angle of repose which provides stability for the material, minimizes erosion and prevents settlement.

[vii] Roads, trails and walking paths along water bodies shall be sited and constructed so they are not a source of runoff and sedimentation. Further, such roads, trails and walking paths shall be constructed and sited in such a manner as to maximize the visual opportunities on a water body while maintaining the scenic qualities of the water body.

[viii] Stormwater runoff shall not be directly discharged into wetlands, nor shall pollutants of any type be discharged into wetlands.

[ix] All wetland vegetation, including that within the one-hundred-foot buffer area, shall be maintained to the greatest extent practicable. Dredging, site construction or any development activity should not disturb wetlands either by direct removal of vegetation or substrate, by the alteration of adjacent slopes that would undermine the stability of the substrate or by filling or dumping any material, either directly or indirectly.

[x] Subsurface sediments shall be maintained to provide structural support for the soils of the wetlands.

[xi] The elevation of the wetland shall not be altered.

[xii] If bulkheading is required for filled land or for soil stabilization adjacent to a wetland, the bulkhead should be located upland from the wetland. Bulkheads should not block the surface and subsurface flow of freshwater to the wetland.

[xiii] No material shall be deposited onto a wetland.

[xiv] No part of a septic system, including the taper, shall be located within 150 feet of *[insert name of waterbody, such as Lake Ontario]* or wetlands adjacent to *[insert name of waterbody]*. This distance shall be measured from mapped edge, not the Shoreline Overlay boundary.

[xv] Access from uplands through wetlands to reach open waters should be above the wetlands on piers of sufficient height to allow light penetration and the movement of waters.

[vi] New structures shall be designed and constructed in accord with erosion control standards and stormwater control standards contained in Chapter 6 of the NYSDEC Stream Corridor Management Manual.

[xvii] Unnecessary obstruction of public and semipublic access to the waterfront shall be avoided.

(2) Shoreline development permit procedure.

(a) A shoreline development permit shall be required subject to the provisions of this section and prior to the issuance of any building permit for any regulated activity in the designated S/O District.

(b) Applications for shoreline development permits shall be made to the Planning Board on forms available in the office of the [*Building Inspector/Code Official/Zoning Enforcement Officer*]. Such an application shall be made by the property owner or his/her agent and shall be accompanied by any materials or information deemed appropriate by the Planning Board, including but not limited to a scaled site plan prepared and certified by a licensed engineer or land surveyor, that contains the following:

[i] A location plan and boundary survey of the property.

[ii] The location of all S/O District boundaries; designated [city/town/village] open space; [city/town/village], county, state or national parkland; or other similar areas within and/or adjacent to the property.

[iii] The location of all existing and proposed buildings, structures, utility lines, sewers, water and storm drains on the property or within 200 feet of the proposed work site.

[iv] The location of all existing and proposed impervious surfaces such as driveways, sidewalks, etc., on the property or within 200 feet of the proposed work site.

[v] Existing and proposed contour levels at one-foot intervals for the property.

[vi] The location of all trees having a caliper of three inches or more. In addition, important areas of vegetation, such as wetlands, shall also be shown.

[vii] A planting plan showing the location of all proposed new plantings and the integration of existing vegetation into the final site design.

(c) All nonresidential development shall show the location of all existing and proposed drainage patterns, drainageways, swales, etc., within and/or adjacent to the property.

(d) Where site plan review or special permit review coincides with the issuance of a shoreline development permit, the Planning Board may determine to combine the required minimum information into a single site plan.

(e) The Planning Board shall not issue a shoreline development permit without a determination from the Waterfront Advisory Committee (if applicable) that the proposed activity is consistent, to the maximum extent practicable, with the [City/Town/Village of _____] Local Waterfront Revitalization Program (LWRP). *[If the community does not have an LWRP, consider requiring a determination from a conservation advisory committee that the proposed regulated activity will not have a harmful effect on the public health, safety and welfare or negatively affect fragile and environmentally sensitive lands within the district.]*

(f) The Planning Board shall have the authority to approve or deny a shoreline development permit, subject to the standards contained in this section. Any permit issued in accordance with the provisions of this section may be issued with conditions. Such conditions, as are deemed necessary, may be imposed to ensure the preservation and protection of environmentally sensitive areas and to ensure compliance with the policies and provisions of this section. Every permit issued pursuant to this section shall contain the following conditions:

[i] The municipal building inspector, municipal engineer and/or other appropriate [city/town/village] official shall have the right to inspect the project from time to time.

[ii] The permit shall expire on a particular date.

[iii] The permit holder shall notify the building inspector or other appropriate [city/town/village] official of the date on which project construction is to begin, at least five days in advance of such date.

[iv] The shoreline development permit shall be prominently displayed at the project site during the undertaking of the activities authorized by the permit.

(g) Suspension or revocation of permits. The [*Building Inspector/Code Official/Zoning Enforcement Officer*] may suspend a permit (temporarily) until such time as the Planning Board reviews the suspension. The Board, upon recommendation of the Building Inspector or other appropriate [*city/town/village*] official and subject to a majority vote of the Board, may suspend or revoke a development permit issued in accordance with the provisions of this section where it has found evidence that the applicant has not complied with any or all terms or conditions of such permit, has exceeded the authority granted in the permit or has failed to undertake the project in the manner set forth in the final plans approved by the Board. The Planning Board shall set forth, in writing, its findings and reasons for revoking or suspending a permit issued pursuant to this section and shall forward a copy of the findings to the applicant.

(h) The [*city/town/village*] has authority to require posting of a performance bond to insure performance.

3.2 Coastal Setbacks

A coastal setback is a minimum distance that a built structure (not including structural shoreline protection measures such as groins and breakwalls) must be placed from a water's edge or other linear coastal feature.¹⁶ Deciding how long a setback should be is a significant decision. It can determine the likelihood of erosion or storm-related damage to a structure, and in turn, the structure's lifetime. Setbacks can also prevent or reduce the need for costly structural shoreline protection measures and allow for the natural landward migration of beaches, dunes and wetlands that would otherwise be lost along with the natural shoreline protection they provide (see introduction to this chapter). Well-designed coastal setbacks permit appropriate development outside of hazardous areas and preserve the flood and erosion protections provided by natural features.

Adaptation Tool Kit: Sea Level Rise and Coastal Land Use, prepared by the Georgetown Climate Center in 2011, describes three types of coastal setbacks: fixed, tiered, and erosion-based.¹⁷ These approaches differ in their methods for determining setback distance on a given lot. They can also be adapted and integrated to balance multiple considerations, as in the case of the erosion and lot depth-based setback (Section 3.2.4), which we are treating as a fourth type of coastal setback. The following is a brief description of the setback approaches presented in this chapter.

Setback Approaches Presented in this Chapter	
Technique	Description
Fixed Setback (Section 3.2.1)	A simple, though sometimes insufficient, measure of protection for shoreline structures and natural features where setback distance is based on the upland use, the seaward natural feature type, or some other consideration.
Tiered Setback (Section 3.2.2)	A more-flexible alternative to a fixed setback where the setback distance varies according to a variable such as the size of the building lot.
Erosion-based Setback (Section 3.2.3)	A science-based approach that uses erosion rate and the projected life expectancy of a given structure to determine the appropriate setback.
Erosion and Lot Depth-Based Setback (Section 3.2.4)	An approach that considers both average lot depths and coastal erosion rates to determine coastal setbacks.

When drafting a local law to establish a coastal setback and determining the appropriate setback distance, municipalities should, at a minimum, to do the following:

- Identify the coastal feature that structures and uses are to be set back from. Features that are particularly unstable or sensitive to development will require larger setbacks. As a practical matter, municipalities should also consider how setbacks will be measured and how local code enforcement officials can determine compliance with setback standards.
- Consider the type(s) of upland use, whether they represent critical community assets, their vulnerability to coastal hazards, and their potential to negatively impact natural features such as dunes, bluffs, and shoreline vegetation.
- Account for projected changes in water levels and/or erosion rates. Setbacks that do not account for changing water levels and/or erosion put communities at increased risk and could result in costly shoreline armoring projects that cause beaches and other natural features to diminish and eventually disappear.
- Allow for the landward migration of natural coastal features. As beaches erode and water levels rise, wetlands, dunes and beaches naturally shift further inland. Setbacks that maintain enough space to accommodate this landward migration of natural features and preserve their critical risk-reduction, wildlife habitat, water quality and public access benefits.
- Estimate the number of lots that may become unbuildable and the number of structures that may become nonconforming due to a setback and consider how this fits into the community's vision for its waterfront. See *Chapter One: Basic Land Use Tools for Resiliency* Section 1.3 Nonconformance and Section 1.5 Subdivision Regulations.

As indicated by the bullets above, the first step to establish a coastal setback is to identify the coastal feature that setbacks will be measured from. Municipalities often measure setbacks from the ordinary or mean high water mark. Mean high water line/mark is a feature used by the United States Army Corps of Engineers and other jurisdictions and is one of several base elevations used as a reference from which to reckon heights or depths.¹⁸ However, mean high water marks may shift over time, making them less reliable as long-term points from which to measure setbacks. The reach of waves and flood waters during a storm event may extend considerably farther landward than the ordinary or mean high water mark, especially in the context of stronger storms and sea level rise. Furthermore, the width of natural coastal features (e.g. beaches, dunes and bluffs) landward of the ordinary or mean high water mark varies considerably, as does the relative ability of these features to impede storm waves and flood waters.^{19,20}

Setbacks that are measured from the ordinary or mean high water mark may provide additional resiliency benefits when their length is extended to place structures well behind more reliable indicators of shoreline stability, such as the landward edge of natural coastal features or the first line of stable natural vegetation. Setbacks could also simply be measured from these features instead. Healthy natural coastal features can provide erosion and storm surge protection, benefits that are lost when structures are placed on or in front of them. The first line of stable natural vegetation is considered a particularly reliable indicator of shoreline stability, as it

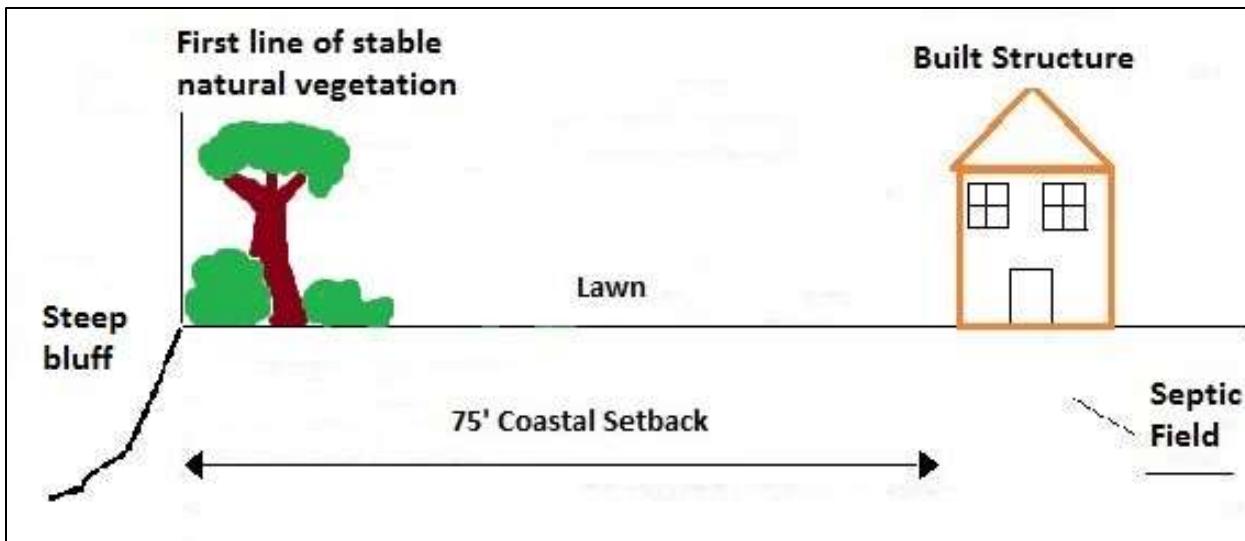
effectively marks the boundary between stable, vegetated upland areas and the dynamic sand, rock or tidal marsh shore. These features are typically observable both on the ground and using satellite imagery, however it should be noted that the first line of stable vegetation may shift landward over time in response to beach nourishment activities or water level changes. It may also be impacted by both natural actions (e.g., storm surge) and man-made activities such as excavation or clearcutting.

Mean High Water Mark: The US Army Corps of Engineers defines “mean high water mark” with respect to ocean and coastal waters, as “the line on the shore established by the average of all high tides. It is established by survey based on available tidal data (preferably averaged over a period of 18.6 years because of the variations in tide). In the absence of such data, less precise methods to determine the mean high water mark are used, such as physical markings, lines of vegetation or comparison of the area in question with an area having similar physical characteristics for which tidal data are readily available.”²¹

Historically, the mean high water line has been used as a proxy for the divide between private property and public trust lands. Generally, the dry sand areas are private property and the wet sand areas are public trust lands held by the state for public benefit, and for all members of the public to enjoy through a wide variety of public recreational uses.²² Setbacks that fail to account for rising water levels and the landward migration of natural features (e.g. wetlands, beaches and dunes), as well as structural shoreline management measures that impede this migration, can result in the diminishment and eventual loss of valuable public trust lands and the many benefits they provide (see Section 3.4 below).

When drafting a local law to establish a coastal or shoreline setback, the municipal attorney must draft the local law to include a provision superseding the State zoning enabling statutes in Town Law or Village Law (as appropriate), citing the authority to adopt local laws under the New York State Constitution Article IX and Municipal Home Rule Law § 10. Cities can only enact a local law superseding an inconsistent state statute if it is done as part of the city charter amendment process and follows favorable vote in a referendum. (The State statute must be one that may be amended by local law.)²³ Additional guidance regarding supersession of State statutes can be found in the Department of State publication, *Adopting Local Laws in New York State*.³⁷

A well-designed coastal setback is one of the best tools available to municipalities to increase the long-term resilience of coastal communities. Because shorelines are naturally dynamic, setbacks may need to be reassessed periodically to determine whether they still reflect current conditions and risks. To maximize their benefits for coastal resilience, setbacks can be paired with vegetative buffers (see Section 3.3.1) and maximum disturbance areas (see Section 3.3.2) as well as policies that promote natural and nature-based alternatives to structural measures for shoreline protection and management (see Sections 3.4-3.4.2).



This graphic depicts a theoretical 75' coastal setback measured from the first line of stable natural vegetation.

RESOURCES

Adaptation Tool Kit: Sea Level Rise and Coastal Land Use. Georgetown Climate Center (2011)²⁴

Rolling Easements. Climate Ready Estuaries, EPA (2011)²⁵

3.2.1 Fixed Setback

The local model law presented here establishes fixed setbacks from natural coastal features based on both the type of natural feature and the proposed upland use. When crafting a local law using fixed setbacks, the challenge is to identify a distance that will provide adequate protection of existing structures while considering the impact setbacks may have on the ability to locate new structures. For example, a fixed setback that allows permitting of new construction at a relatively short distance from a shoreline experiencing erosion and/or rising water levels could place those structures in jeopardy over the coming years. A large fixed setback that does not consider existing development patterns and lot sizes can result in unbuildable lots and nonconforming structures, especially where shorelines and building lots vary in their configuration.

When determining setback distance, municipalities should consider the characteristics of their shoreline, including the type, spatial pattern and intensity of development as well as the type, sensitivity, and protection afforded by natural coastal features. The larger the setback distance, generally, the more protection it provides for coastal ecosystems and communities. For largely undeveloped shorelines, it may be sufficient to preserve the existing vegetation as a buffer area. In built up areas with little natural shoreline, applicants may be required to plant vegetative buffers (Section 3.3.2).²⁶ Well-designed setbacks will permit appropriate development while providing effective shoreline protection.

When drafting a local law that would establish setbacks from natural features, the municipal attorney must include a provision superseding the State zoning enabling statutes in Town Law or Village Law (as appropriate), citing the authority to adopt local laws under the New York State Constitution Article IX and Municipal Home Rule Law § 10. Additional guidance regarding supersession of State statutes can be found in the Department of State publication, *Adopting Local Laws in New York State*.²⁷

USAGE

The setback standards can be added to the zoning law in a section on general provisions or additional land use regulations, or they can be incorporated into a more detailed overlay district addressing coastal erosion hazard areas or coastal floodplains. The setbacks should also be added to the schedule of dimensional regulations that apply to the district(s).

ADAPTED FROM THE FOLLOWING SOURCE

Superior Charter Township (MI) Zoning Ordinance, Article 14 Special Development Provisions, Section 14.05 Natural Features Protection²⁸ and Article 17 Definitions²⁹

LANGUAGE

Section X. Setbacks from Watercourses and Wetlands.

A. The standards of this section shall apply to all parcels proposed for development requiring review and approval of a site plan, subdivision plat, or planned unit development under this law or other [city/town/village] law. The standards of this subsection shall also apply to development of a private road under [*insert number and name of municipal section regulating private roads*].

B. The following minimum setbacks from wetlands and watercourses shall be required for the purpose of protecting groundwater recharge and inflow areas, protecting the quality of receiving surface waters, and minimizing erosion and siltation:

(1) Setback from watercourses. A minimum open space setback of [*insert number of feet, Superior Charter Township uses fifty*] feet shall be maintained from the ordinary high-water mark [*consider using a more reliable, alternative feature*] of any waterway or any body of surface water having definite banks, a bed and visible evidence of a continued flow or continued occurrence of water.

(2) Setback from wetlands. A minimum open space setback of [*insert number of feet, such as one hundred fifty*] feet shall be maintained from the boundary or edge of any wetland, as defined and regulated in [*insert number and name of municipal section regulating wetlands*]. Where a residential development subject to this section includes common open space areas, the boundaries of individual single-family residential lots shall be located entirely outside of required wetland setback areas.

C. Standards for such open space setback areas. The following standards shall apply to all open space setback areas required under this Section:

(1) Detention basins and similar stormwater management facilities may be constructed within a required setback, provided that appropriate replacement plantings are provided and maintained.

(2) Docks and similar waterfront structures may be constructed within a required setback, subject to [city/town/village] law and state regulations.

(3) Trails, paths, boardwalks, dune walkovers and similar passive recreational improvements may be constructed within a required setback, provided that appropriate measures are taken to minimize soil erosion.

(4) The following activities shall be restricted within any open space setback area required under this Section:

(a) Removal of trees and other vegetation shall be limited to removal of invasive or poisonous species and dead or diseased trees, and minimal land clearing and grubbing for activities permitted by this Section.

- (b) Fences may be placed within required setback areas, provided that no fence shall impede surface drainage or water flow.
 - (c) No road, driveway, sidewalk or similar improvement shall be located in a required open space setback, except to cross in a more or less perpendicular direction for the purpose of providing access to the property from an adjacent street right-of-way.
- (5) The following activities shall be prohibited within any open space setback area required under this Section:
- (a) Drainage by ditching, underdrains, or other systems.
 - (b) Deposition of any materials, including soil, compost, gravel, garbage, concrete or asphalt debris, and other fill materials.
 - (c) Removal of soils or minerals.
 - (d) Construction or relocation of any parking lot, ground sign, dwelling, building, or other permanent structure.
- (6) Before development, land clearing, filling, or any property alteration, the developer or builder shall provide and maintain suitable barriers such as snow fencing, cyclone fencing etc., to protect open space setback areas required under this subsection.

3.2.2 Tiered Setback

A zoning law which intends to protect coastal ecosystems and built structures along a shoreline may establish a coastal setback that varies with particular factors, such as lot size and shoreline type. This approach, known as a tiered setback, gives municipalities the flexibility to match setback requirements to local shoreline conditions, including both the natural and built environment. Such an approach may adequately protect shoreline communities while avoiding problems that can result from a one-size-fits-all setback policy.

When determining setback distance, municipalities should consider the characteristics of their shoreline, such as the type and intensity of shoreline development as well as the environmental sensitivity and risk reduction benefits of coastal ecosystems. The Town of East Hampton, from whose code this model is adapted, undertook a comprehensive assessment of its shorelines and used the information collected to determine the appropriate setback for its different sections, or “reaches,” of shoreline (see the discussion in Section 3.4.3 of this chapter on the use of shoreline reach analysis to designate overlay zones). This model law includes language rather specific to East Hampton shorelines, however it was retained to provide readers with an example of how regulations can be tailored to specific stretches of shoreline. This approach may be especially beneficial for communities whose shorelines vary in their natural characteristics and development patterns.

Lot size is an important aspect of shoreline development to consider when determining a setback. For smaller lots, setbacks can render a significant amount of the lot unbuildable. Larger lots, on the other hand, can accommodate larger setbacks and vegetative buffers (see Section 3.2 of this chapter) without precluding construction activities. East Hampton’s solution was to establish a tiered setback where the setback distance increases with lot size.

Some existing structures may become nonconforming following amendments to zoning setbacks. The municipality should examine its existing zoning law to see if any changes may be necessary to address reconstruction or expansion of nonconforming structures in areas where significant erosion and sea level rise is occurring.

When drafting a local law that would establish setbacks from natural features, the municipal attorney must draft the local law to include a provision superseding the State zoning enabling statutes in Town Law or Village Law (as appropriate), citing the authority to adopt local laws under the New York State Constitution Article IX and Municipal Home Rule Law § 10. Additional guidance regarding supersession of State statutes can be found in the Department of State publication, *Adopting Local Laws in New York State*.³⁰

These setbacks may also be incorporated into a more detailed law addressing shoreline erosion and/or rising water levels. Consider also incorporating setbacks related to wetlands and watercourses (see *Chapter 2: Wetland and Watercourse Protection Measures*).

USAGE

The setback standards can be added to the zoning law in a section on general provisions or additional land use regulations, or they can be incorporated into a more detailed overlay district addressing coastal erosion hazard areas or coastal floodplains. In either case they should be accompanied by a supersession clause to provide local authority for establishing coastal setbacks. Add the setbacks to the schedule of dimensional regulations that apply to the district(s).

ADAPTED FROM THE FOLLOWING SOURCE

Town of East Hampton (NY) Municipal Code, Chapter 255 Zoning, Article IV Protection of Natural Resources, Section 255-4-40³¹ and Section 255-4-45,³² and Article I General Provisions, Section 255-1-20³³

LANGUAGE

Section X. Setbacks from natural features

A. Definitions.

- (1) Bluff. A bank or cliff with a precipitous or steeply sloped face lying landward of a beach or body of water and having a bluff line at least two feet higher than its base or toe. A bluff may extend across all or part of a parcel. For the purposes of this chapter, a bluff shall not be considered to encompass barrier sand dunes.
- (2) Bluff line. The natural land contour running along the top of a bluff beyond which to landward the natural land contours resume a gradual slope.
- (3) Coastal structure. Every coastal erosion control structure plus all caissons, catwalks, docks, floating docks, floats, piers, pilings, wharves and other fabrications designed to give access to or through, permit work on or in or facilitate the use of any wetland, barrier dune, bluff or water body. Moorings shall not be included in this definition. Compare "coastal erosion control structure."
- (4) Dune crest. The highest line or ridge along the top of the barrier dune.
- (5) Lot area. The total horizontal area contained within and enclosed by the outer boundary lines of any lot; provided, however, that, for any purpose for which it must be calculated under the provisions of this chapter, "lot area" shall not include the following:
 - (a) That portion of a lot which is underwater land.

- (b) That portion of a lot which lies in, on or under any street, right-of-way, common driveway easement or access easement.
 - (c) That portion of a lot which is burdened by a private easement prohibiting the erection of buildings.
 - (d) That portion of a lot which lies seaward of the bluff line or primary dune crest, except in those areas designated in § 255-4-40C where lot area shall exclude that portion of the lot that is seaward from the base of bluff.
 - (e) That portion of a lot which is beach, wetland or watercourse, as defined herein.
- (6) Pervious driveway. A driveway or walkway composed of cinders, gravel, stone, shells, chips or similar material, with or without a marl base, which is at least partially permeable to rainwater and snowmelt.
- (7) Reconstruction. The removal and replacement, in place and in kind, of all or a substantial part of a preexisting building or structure. The rebuilding in place and in kind of all or a substantial part of a building or structure which has been damaged or destroyed shall be included in this definition. If the cost of the work in question exceeds fifty percent of the full replacement cost of the structure as estimated by the Building Inspector, it shall be deemed to involve a substantial part" of the building or structure. [Consider providing an appeals procedure.]

B. Coastal setbacks and other restrictions. The following minimum setbacks or other restrictions shall apply to all lots, lands, uses, activities, and structures within the [*city/town/village*]. Where a structure, activity or use is subject to one or more of the setbacks set forth in this article, it shall comply with each such applicable setback. These setbacks or other restrictions shall apply whether or not the particular lot, land, use, activity, or structure requires a [*insert the type of local permit required, such as a natural resources special use permit*] for approval but are subject to certain exceptions set forth in Paragraph C below.

- (1) Seaward face of bluff or dune. No building or other structure shall be erected, constructed, placed, enlarged or reconstructed on a bluff or seaward of the bluff line or dune crest.
- (2) [*Insert name of body of water, such as Atlantic Ocean/Lake Erie/Lake Ontario*]; generally. Along the [*Insert name of body of water*], no building or other structure shall be erected, constructed, placed, enlarged or reconstructed within [*insert number of feet, such as 100*] feet of the bluff line or dune crest or, where no bluff line or dune crest exists, within [*insert number of feet, such as 100*] feet of the landward boundary of the beach.
- (3) [*Insert name of body of water, such as Atlantic Ocean/Lake Erie/Lake Ontario*]; specifically. For properties including [*specify area, such as Highway _____ from _____ to _____*], due to the unusual geologic conditions existing

thereon, including the presence of a predominately steep and vegetated bluff rising immediately from the base of the bluff (rather than the bluff line), no building or other structure shall be erected, constructed, placed, enlarged or reconstructed within [insert number of feet, such as 150] feet of the bluff line or dune crest or, where no bluff line or dune crest exists, within [insert number of feet, such as 150] feet of the landward boundary of the beach.

(4) Outer bays and harbors. Along the shorelines of [insert name of harbor/bay/sound/creek], no building or other structure shall be erected, constructed, placed, enlarged or reconstructed within the following distances of the bluff line or dune crest or, where no bluff line or dune crest exists, within the following distances of the landward boundary of the beach:

(a) On lots having a lot area of less than [insert number of square feet, such as 30,000] square feet: [insert number of feet, such as 75] feet.

(b) On lots having a lot area of less than [insert number of square feet, such as 30,000] but greater than or equal to [insert number of square feet, such as 80,000] square feet: [insert number of feet, such as 100] feet.

(d) On lots having a lot area of [insert number of square feet, such as 80,000] square feet or more: [insert number of feet, such as 150] feet.

(e) Notwithstanding the foregoing, on lots having a lot area of less than [insert number of square feet, such as 80,000] square feet, an addition to a legally preexisting structure that is situated landward of the existing structure, the required setback shall be [insert number of feet, such as 50] feet.

(5) Inner harbors. Along the shorelines of [insert name of creek, harbor, lake] and the tributaries thereto, no building or other structure shall be erected, constructed, placed, enlarged or reconstructed within the following distances of the bluff line or dune crest or, where no bluff line or dune crest exists, within the following distances of the landward boundary of the beach:

(a) On lots having a lot area of less than [insert number of square feet, such as 40,000] square feet: [insert number of feet, such as 50] feet.

(b) On lots having a lot area of [insert number of square feet, such as 40,000] square feet or more: [insert number of feet, such as 100] feet.

(6) Clearing. The clearing of vegetation or the establishment of turf, lawn or landscaping shall not be undertaken within [insert number of feet, such as 50] feet of the bluff line or dune crest or, where no bluff line or dune crest exists, the landward boundary of the beach.

(7) Sewage disposal devices. No sewage disposal device or structure shall be constructed, placed, or installed within one hundred fifty feet of the upland boundary of a wetland or waterway. Sewage disposal devices shall include but not be limited to septic systems, sanitary rest rooms, and holding tanks.

C. Exceptions to setbacks. The following structures, uses, and activities shall not be required to conform to the minimum setbacks from natural features or other prohibitions which are specified in this section, to the extent set forth below:

(1) Coastal structures. The wetland, bluff line, and dune crest setbacks contained in Paragraph B hereof shall not apply to any coastal structure for which a natural resources special permit is issued pursuant to *[insert section number of natural resources section]* hereof.

(2) Pervious residential driveways. The wetland setbacks contained in Paragraph B hereof shall not apply to a pervious driveway or walkway serving residential property. Any such driveway or walkway shall, however, be set back as great a distance as practicable from the upland boundary of all wetlands.

(3) Subdivision access. The wetland setbacks contained in Paragraph B hereof shall not apply to a street or common driveway serving lots in a subdivision approved by the Planning Board, provided that the Planning Board makes an express finding in its resolution approving the subdivision that, pursuant to this subparagraph, there is no feasible way to provide the lots served by the street or common driveway with suitable access if the wetland setbacks contained in Paragraph B hereof are required to be met, and provided further that a natural resources special permit is obtained for the street or common driveway pursuant to *[insert section number of natural resources section]* hereof. Wherever such setback relief is granted by the Planning Board, it shall be the minimum relief necessary to provide safe and reasonable access to the lots in question.

(4) Marinas and other uses in the *[insert name of commercial district along the waterfront, such as the Waterfront District]*. The wetland setbacks contained hereof shall not apply to any structure on a lot in the *[insert name of waterfront district]* District or to any structure which is part of a lawfully existing marina or recreational marina in any district, provided that the structure is either water-dependent in that it is used for the servicing of boats, the unloading of fish, or the like, or for some other reason cannot feasibly be located landward of the otherwise applicable setback line.

(5) Reconstruction of nonconforming structures. The reconstruction of legally pre-existing nonconforming buildings and structures shall be exempt from the setback requirements of this section only as set forth below:

(a) Reconstruction of a nonconforming building or structure shall require the issuance of a [*insert name of required special use permit, if applicable*] permit if required pursuant to [*insert section on special use permits, if applicable*].

(b) Reconstruction of a nonconforming building or structure is exempt from compliance with the bluff line or dune crest setback requirements of this section if such reconstruction is the result of accidental cause, including fire. "Accidental cause" shall not include flooding or erosion.

3.2.3 Erosion-Based Setback

The 2019 New York State Hazard Mitigation Plan reports that shorelines in the Northeast, including New York State, are estimated to be receding at an average rate of 1.18 inches per year.³⁴ However, the rate of erosion at a given location may be far greater than this regional average. Erosion rate is highly influenced by the immediate environment, including local geology and the presence of inlets or engineered structures. Erosion rates vary widely by location, season and year, often in dynamic and unpredictable ways. A major storm could erode a coastal shoreline inland 100 feet or more in a day, only to be followed by accretion (buildup of sediment) over the next decade.³⁵

Coastal erosion increases the risk of flooding to nearby coastal communities. A 2009 joint study by the Woods Hole Sea Grant, Barnstable County (MA) Cape Cod Commission and Cape Cod Cooperative Extension, and the University of Hawaii Sea Grant³⁶ determined that making coastal or waterfront buildings and occupants more resilient to coastal hazards required consideration of a building's elevation and siting, and that both considerations needed to account for present and future floodplain and storm-related conditions. This includes projected increases in base flooding elevation, inundation limits and coastal erosion.

Image at right: Eroding bluffs such as the one pictured here provide less protection from storms and put nearby structures at risk.

The 2009 study was the basis for a *Model Coastal Floodplain Development Bylaw* that features setbacks based on erosion rates. An erosion-based setback is a science-based approach that relates setback requirements to erosion projections and sea level rise. Erosion-based setbacks calculate setback distance based on the average erosion rate for the area and the projected life of the proposed structure. For example, if a given shoreline is receding at an average rate of 1 foot/year and the projected life expectancy of a structure is 100 years, the calculation 1 foot X 100 years results in 100 feet, the minimum distance a structure should be set back to ensure a reasonable level of



protection over the next 100 years. This method of determining setbacks recognizes that shorelines are naturally dynamic and shifting, but that a basic understanding of the influence of erosion on a given area can help determine where structures may be safely placed for the foreseeable future.

Calculated erosion rates may be available for some locations, but oftentimes a municipality or applicant will need to hire an expert to determine erosion rates. To find such an expert, a community can check with agencies like the New York State Department of Environmental Conservation or United States Geological Survey, or organizations such as the County Soil and Water Conservation Service or county planning agency. Determining local erosion rates is a practical and useful step for coastal communities to take, especially those experiencing significant erosion. A number of communities in New York have used local erosion rates to guide their coastal regulations, and more are beginning to do so. State funding to calculate erosion rates may be available, including through the Local Waterfront Revitalization Program (LWRP) for participating municipalities.

Methods for estimating the life expectancy of a structure and determining the appropriate multiplier to use in setback calculations vary. The *Model Coastal Floodplain Development Bylaw* cited and discussed above drew from a study of the average life expectancy of buildings in coastal areas around the United States, which considered the Federal Emergency Management Agency (FEMA) Coastal Construction Manual and a study³⁷ done for the Federal Insurance Administration to establish reliable estimates for the life of residential coastal structures. In North Carolina, the life of the structure is based on a 30-year mortgage.³⁸ The County of Kauai, Hawaii requires using a 70-year multiplier for small buildings and a 100-year multiplier for larger buildings proposed on lots with an average lot depth of greater than 160 feet. A municipality's estimate of the life expectancy of a structure will greatly influence its setback policies and the long-term erosion and flood risk posed to coastal structures.

The natural unpredictability of shorelines led the authors of the *Model Coastal Floodplain Development Bylaw* to include a requirement that all new construction and substantial improvements shall be located a minimum of 40 feet landward of the first line of stable natural vegetation. The narrative of the law explains,

“Often, bylaws require that construction be located landward of the reach of mean high tide, however mean high tide does not indicate stability. Dry sandy beaches landward of mean high tide are highly dynamic, normally eroding or narrowing in winter and becoming wider in summer. Short-term storm fluctuation in dry beach width is more critical, allowing storm waves and flood waters to inundate farther landward. The 40-foot additional buffer is necessary to accommodate a safety/design buffer for a storm erosion event and a margin to allow a homeowner sufficient time to consider alternatives to coastal armoring.”³⁹

USAGE

Setback standards can be added to the zoning law in a section on general provisions or additional land use regulations, or they can be incorporated into a more detailed overlay district addressing coastal erosion hazard areas or coastal floodplains. In either case they should be accompanied by a supersession clause to provide local authority for establishing coastal setbacks.

Add the setbacks to the schedule of dimensional regulations that apply to the district(s).

ADAPTED FROM THE FOLLOWING SOURCE

Woods Hole Sea Grant, Barnstable County (MA), and UH Sea Grant Model Coastal Floodplain Development Bylaw⁴⁰ [*Note that this model bylaw is currently under revision and will be updated sometime in 2020*].

LANGUAGE

Add the following definitions to the list of zoning definitions in the municipal code:

Coastal Bank. The seaward face or side of any elevated landform, other than a coastal dune, which lies at the landward edge of a coastal beach, land subject to tidal action, or other wetland.

Coastal Beach. Unconsolidated sediment subject to wave, tidal and/or coastal storm action which forms the gently sloping shore of a body of water and may include tidal flats. Coastal beaches extend from the mean low water line landward to the dune line, coastal bank line or the waterward edge of existing man-made structures, when these structures replace one of the above lines, whichever is closest to the waterbody.

Coastal Dune. Any natural hill, mound or ridge of sediment landward of a coastal beach deposited by wind action or storm overwash. Coastal Dune also means sediment deposited by artificial means and serving the purpose of storm damage prevention or flood control.

Coastal Floodplain. Coastal resource managers use certain terms interchangeably to reference the area considered to be the coastal floodplain. The following terms and resource areas are synonymous and equal the coastal floodplain: a) Land Subject to Coastal Storm Flowage, and b) The sum of V-Zone, Coastal A-zones, AO-Zones, and tidally influenced A-Zones.

Coastal Resources: Coastal resources include barrier beaches, coastal beaches, coastal dunes, rocky intertidal shores, tidal flats, land subject to 100 year coastal storm flowage, coastal banks, land containing shellfish, lands subject to tidal action, and lands under an

estuary, salt pond or certain streams, ponds, rivers, lakes or creeks within the coastal zone that are anadromous/catadromous fish runs.

Water Dependent. An activity or use which can only be conducted on, in, over or adjacent to a water body because such activity requires direct access to that water body, and which involves, as an integral part of such activity, the use of the water.

Add the following to the zoning regulations:

Section X. Development Standards for use and activity in the [*insert name of designated area, if applicable, such as "Coastal Floodplain District" or "Coastal Erosion District"*].

Any allowed use or activity within the boundaries of the Coastal Floodplain District [*adjust language or insert other local law as applicable*] shall meet the following standards in addition to all other applicable provisions of this local law:

A. Setback from Coastal Beach, Coastal Dune, and Coastal Bank Resources [*or substitute "coastal resources"*]. All new buildings and structures located adjacent to the [*insert name of waterbody(s)*] shoreline shall be setback from the landward edge of the landward most coastal resource 70 times the average annual erosion rate for buildings <5,000 square feet, and 100 times the average annual erosion rate for buildings >5,000 square feet. The erosion rate shall be calculated over the longest time frame available, but not less than 50 years, unless it is demonstrated that a different time frame is more appropriate in reflecting current and future shoreline conditions. If other standards apply, the stricter of the standards shall be adhered to.

B. Setback to Coastal Bank.

- (1) New Development: The setback from the top of the coastal bank for all new non-water dependent development shall be at least 70 times the average annual erosion rate of the bank or 100 feet, whichever is greater. The average annual rate of erosion shall be determined by averaging the erosion over the previous 70-year period at a minimum or other time frame determined by the permit issuing authority to appropriately reflect current and future shoreline conditions.
- (2) Reconstruction/Renovation: Redevelopment shall be designed to have no adverse effect on the height, stability, or the use of the coastal bank as a natural sediment source to beaches, dune, barrier beaches and sub-tidal areas. All coastal banks are sediment sources to one degree or another for beaches, dunes, barrier beaches, salt marshes and/or near- or off-shore areas. Every feasible effort shall be made to reduce impacts to the resource, such as to maintain the same footprint or relocate structures landward.
- (3) Water-dependent marine infrastructure or public recreation facilities exception: The setback from the top of the coastal bank for all new water-dependent marine

infrastructure [*or public recreation facilities*] shall be as far landward as feasible and shall be designed to minimize impacts to the greatest extent feasible.

C. Setback to stable natural vegetation. All new construction and substantial improvements shall be located a minimum of 40 feet landward of the first line of stable natural vegetation.

D. Accommodating the migration of coastal resources in response to relative sea level rise. Activity within the 10-year coastal floodplain shall not impede the landward migration of coastal resources in response to relative sea level rise [*for a freshwater body, substitute "rising water levels"*], therefore:

- (1) No new construction shall be allowed;
- (2) No fill shall be placed except for the purposes of beach or dune nourishment and shoreline restoration activities; and,
- (3) Any redevelopment and other activities shall be located and designed so as not to impede the landward migration of coastal resources.

E. Flood water flow characteristics. Activity shall not increase the elevation or velocity of flood waters or increase flows due to a change in drainage or flow characteristics (e.g. change in direction) on the subject site, adjacent properties, or any public or private way.

F. Inter-tidal aquatic vegetation. No destruction or impairment of inter-tidal aquatic vegetation is permitted.

G. Repair or replacement of existing foundations. Existing foundations may be repaired, unless the work replaces the foundation in total, replaces the foundation so as to constitute new construction, or constitutes a substantial repair of a foundation, which is defined as a repair to greater than 50% of its total linear distance as measured around the foundation perimeter. In such events, the foundation shall be brought into compliance with the applicable provisions of the development standards for the flood zone within which the activity takes place.

H. Datum. The most recent applicable datum available for the site shall be used to determine the base flood elevation, and all other construction required elevations.

3.2.4 Erosion and Lot Depth-Based Setback

Erosion-based setbacks can be integrated with multiple additional considerations to make them more versatile and effective in the long term. For example, adding a minimum setback from an identifiable feature such as the first line of stable vegetation can make an erosion-based setback more secure by buffering against outlier storms and the possibility of underestimated erosion rates (see Section 3.1.3). In addition, lowering the minimum coastal setback requirement for small lots may help prevent too many lots from becoming unbuildable due to setback requirements, thereby avoiding potential lawsuits and community opposition (see Section 3.1.2).

The County of Kaua'i in Hawaii effectively integrated these considerations into its coastal setback law by establishing two standards for a setback determination based on average lot depths, building footprints, and annual erosion rates. The County's objective was to reduce the impact of coastal erosion and hazards to property, life, and coastal resources. It also wanted to avoid structural shoreline protection measures. The County of Kaua'i website has shoreline setback forms and applications, ordinances, and setback determinations. It also has links to videos where the county staff and Hawai'i Sea Grant Extension Agent discuss the placement of buildings to account for natural beach action and sea level rise.⁴¹

To provide a strong basis for this kind of setback, a municipality should use, if available, the long-term erosion rate for the designated area or commission a study to determine the rate (see Section 3.2.3 for information on determining erosion rates). Such rate should incorporate, where applicable, current predictions of water level changes.

When drafting a local law that would establish setbacks from natural features, the municipal attorney must draft the local law to include a provision superseding the State zoning enabling statutes in Town Law or Village Law (as appropriate), citing the authority to adopt local laws under the New York State Constitution Article IX and Municipal Home Rule Law § 10. Additional guidance regarding supersession of State statutes can be found in the Department of State publication, *Adopting Local Laws in New York State*.⁴²

USAGE

Add setback standards to the general provisions of the municipal zoning law or related land use regulations or incorporate the setbacks into a more detailed overlay district addressing coastal erosion hazard areas or coastal floodplains.

Add the setbacks to the schedule of dimensional regulations that apply to the district(s).

ADAPTED FROM THE FOLLOWING SOURCE

Kaua'i County (HI) Ordinance No. 979-2014⁴³

LANGUAGE

Add the following definitions to the zoning law:

ANNUAL COASTAL EROSION RATE means the annual rate of coastal erosion as estimated by a qualified professional.

AVERAGE LOT DEPTH means the measurement obtained by adding the lengths of the two sides of a lot which are at or near right angles with the shoreline, or the seaward boundary of the lot that runs roughly parallel to the shoreline if the property is not abutting the shoreline, to the length of a line obtained by drawing a line from a point in the center of the seaward side of the lot to a point in the center of the landward side of the lot and dividing the resulting sum by three. For irregularly shaped lots including flag lots, triangular parcels, lots on peninsulas, and/or lots having ocean, lake or river on two or more sides of the lot, the average lot depth will be determined by the Zoning Enforcement Officer.

BUILDING FOOTPRINT shall mean all parts of a main building (excluding roof overhangs) that rest, directly or indirectly, on the ground, including those portions of the building that are supported by posts, piers, or columns. Building footprint also includes attached garages, covered carports, bay windows with floor space, patio, decks, cantilevered decks, spas, and in-ground swimming pools.

SHORELINE means the upper reaches of the wash of the waves, other than storm and seismic waves, [*add if a tide is present “at high tide”*] during the season of the year in which the highest wash of the waves occurs, usually evidenced by the edge of vegetation growth, or the upper limit of debris left by the wash of the waves.

Add the following section to the article for each zoning district in which it will apply:

X. Shoreline Setback. All structures on lots in the [*insert name of designated area, such as “coastal erosion district” or “coastal floodplain district”*], shall be subject to a shoreline setback requirement.

(1) Shoreline determination. The Zoning Enforcement Officer shall determine the location of the shoreline based on the description provided in Section [*insert section number of zoning definitions*].

(2) The shoreline setback shall be measured from the shoreline based on the following calculations:

(a) For a lot with an average depth of one hundred sixty (160) feet or less, the shoreline setback line shall be established based on the average depth of the lot

as provided in Table 1, or at the option of the applicant, upon a coastal erosion study as provided in Table 2.

Table 1							
If the average lot depth is:	100 feet or less	101 to 120 feet	121 to 140 feet	141 feet to 160 feet	161 feet to 180 feet	181 to 200 feet	More than 200 feet
Then the minimum setback is:	40 feet	50 feet	60 feet	70 feet	80 feet	90 feet	100 feet

(b) For a lot with an average depth greater than 160 feet, the coastal shoreline setback is based on the building's footprint and a coastal erosion study. See Table 2. In no case will the setback distance be less than those in Table 1.

Table 2		
For structures with a building footprint that is:	Less than or equal to 5000 square feet	Greater than 5000 square feet
Then the setback distance is:	40 feet plus 70 times the annual coastal erosion rate	40 feet plus 100 times the annual coastal erosion rate

[Note that 70 years is considered the average life of a building.⁴⁴]

3.3 Basic Protections for Dunes, Beaches and Coastal Vegetation

Beaches, dunes and coastal vegetation are essential coastal resources. They provide important wildlife habitat, economic and recreation opportunities, as well as protection against erosion, flooding and storm surge, earning them the title “natural protective features.” Beaches deliver the first line of defense against coastal flooding and storm surge by acting as a buffer against flood and wave impacts. Dunes provide a second line of defense, particularly during storm events when waves are higher and reach further inland. Coastal vegetation stabilizes dunes and provides a third line of defense by reducing the force of waves and water. In addition to providing protection from storm events, healthy beach-dune systems also naturally recover from them over time. More information on the ecology and protective functions of coastal ecosystems can be found in the introduction to this chapter.

The keys to stable, healthy beaches and dunes are the presence of coastal vegetation and dependable supplies of sand. High, vegetated dunes are healthier and more stable than low, un-vegetated dunes. This is because coastal vegetation stabilizes sand already present in the system and captures additional windblown sand, increasing the size and stability of dunes over time and providing better protection for coastal communities. In turn, healthy dunes with abundant sand naturally replenish nearby beaches, preventing the need for costly beach nourishment projects.



The structures pictured here are contributing to coastal vegetation loss and erosion due to their placement directly adjacent to and on top of the vegetated dune.

Human disturbance can destroy coastal vegetation and cause sand to leave beach-dune systems, leading eventually to their loss. To discourage this outcome, municipalities can put regulations in place to restrict development, vegetation removal, harmful landscaping methods, or altering of sand dune fences that help keep sand in the system.⁴⁵ Coastal setbacks that require built structures to be set back from natural coastal features such as the first line of stable vegetation are an excellent tool for protecting coastal vegetation, beaches and dunes (see Sections 3.2-3.2.4). A complementary technique is to establish a coastal vegetative buffer between natural coastal features and adjacent development. This is a designated area where natural and native vegetation must be protected or restored. A coastal vegetative buffer paired with a coastal setback can be a highly effective, comprehensive approach to safeguarding coastal resources and communities, providing numerous benefits including enhanced water quality, wildlife habitat, scenic value, and erosion and flood control (see Section 3.3.1).⁴⁶ Another option that could complement coastal setbacks and vegetative buffers is to establish a “maximum disturbance area” that limits disturbance of coastal vegetation by permitting only a specified proportion of a building lot to be disturbed. Proportionately larger disturbance areas may be permitted on smaller lots in order to keep them buildable (see Section 3.3.2).

In addition to the techniques mentioned above, avoiding and minimizing the construction of shoreline hardening or “armoring” structures helps prevent excessive erosion and keeps beaches and dunes healthy. The placement of hard structures such as seawalls, bulkheads, groins and jetties starve adjacent areas of sand naturally supplied by breaking waves and shoreline currents. This has the effect of destabilizing sand dunes and reducing their ability to absorb wave energy (see Sections 3.4-3.4.2 for information on alternative shoreline management options).

In areas where beach access is permitted, natural coastal features can be protected by carefully designed dune walkovers. Walking over dunes tramples coastal vegetation and destabilizes dunes, creating bare depressions in the sand which expose the area to winds that blow the sand away. Public access should be via well-placed and well-designed dune walkovers (e.g., stairs and boardwalks) and be included as part of any significant new shoreline development (see Section 3.3.3).

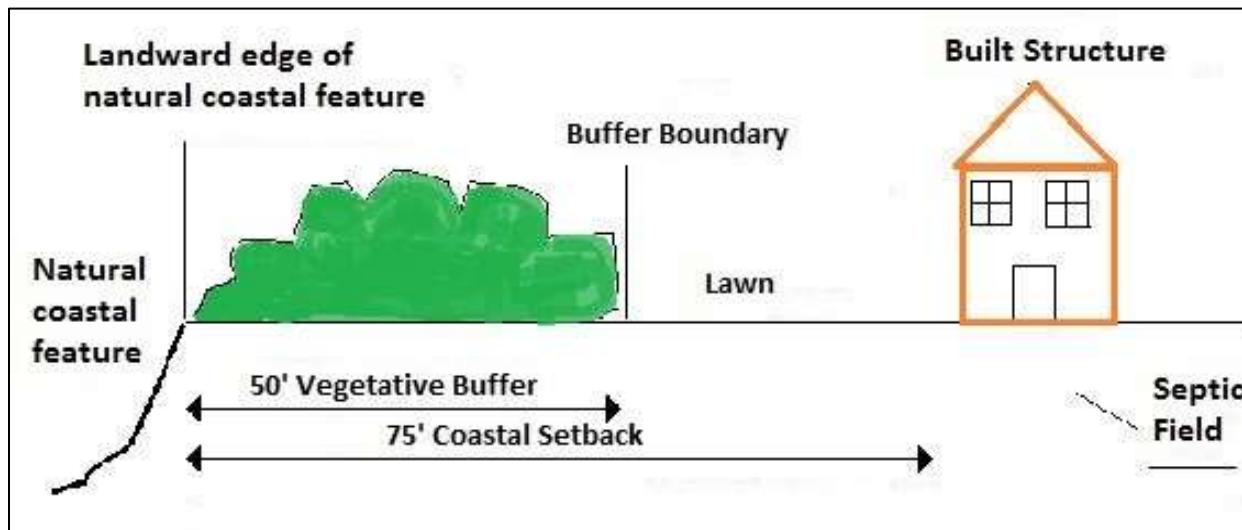
Basic protections for dunes, beaches, and coastal vegetation in this section include the following:

TOOL	DESCRIPTION
Coastal Vegetative Buffers (Section 3.3.1)	Maintains strips of natural vegetation between natural coastal features and coastal development, thereby increasing resilience, reducing risk and delivering many co-benefits.
Maximum Disturbance Area (Section 3.3.2)	Limits disturbance to natural vegetation by setting a site disturbance threshold which varies with lot size.
Design Standards for Dune Walkovers (Section 3.3.3)	Minimizes the negative impacts of dune walkovers by requiring compliance with certain design standards.

3.3.1 Coastal Vegetative Buffers

Vegetative buffers are commonly used to protect the health and resilience benefits of wetlands and watercourses (see *Chapter 2: Wetland and Watercourse Protection Measures*). A coastal vegetative buffer applies this same technique in the context of coastal shorelines. A coastal vegetative buffer is an area that is, or will be, vegetated with native shoreline species and which acts as a natural transition zone between coastal shorelines and adjacent upland development.⁴⁷ Whereas a coastal setback establishes a minimum distance between natural coastal features (e.g. beaches, dunes and bluffs) and built structures, a vegetative buffer establishes a natural area adjacent to and landward of natural coastal features that must be retained in, or restored to, a natural vegetative condition. Coastal vegetative buffers effectively complement coastal setbacks (see Sections 3.2-3.2.4) by maintaining a strip of native vegetation within the setback in perpetuity. Coastal vegetative buffers add a layer of long-term protection for natural coastal features and native vegetation as well as upland structures. The width of the buffer is determined by the municipality. In general, the wider the buffer the more habitat, resilience, and water quality benefits it provides.⁴⁸

In addition to the benefits already mentioned, coastal buffers also help ensure that coastal features such as beaches, dunes and wetlands have room to migrate landward with erosion and rising water levels.⁴⁹ Municipalities can use erosion and/or sea level rise rates to determine appropriate buffer zones just as they would for coastal setbacks (see Section 3.2). Larger buffers could be required where there is sufficient buildable space, where there are important natural resources (e.g. wildlife habitats or natural protective features), and for larger-scale development projects.



Coastal setbacks and vegetative buffers are powerful complementary tools for increasing coastal resilience. Image adapted from the Rhode Island Coastal Zone Council.⁵⁰

Coastal vegetative buffers provide numerous benefits and are a best management practice for the protection of:

- Water Quality: Vegetative buffers along “coastal water bodies can be effective in trapping sediments, pollutants (including oil, detergents, pesticides, herbicides, insecticides, wood preservatives and other domestic chemicals), and absorbing nutrients (particularly nitrogen) from surface water runoff and groundwater flow.”⁵¹
- Coastal Habitat: Coastal vegetative buffers provide “cover from predation and weather, and habitat for nesting and feeding by resident and migratory species.”⁵²
- Scenic and Aesthetic Quality: Coastal vegetative buffers enhance and protect scenic and visual aesthetic resources along the coast. Coastal vegetative “buffers also preserve the natural character of the shoreline, while mitigating the visual impacts of coastal development.”⁵³
- Erosion Control: Coastal vegetative buffers “provide a natural transition zone between the open coast, shoreline features and upland development.”⁵⁴ Natural vegetation within a coastal vegetative buffer “helps to stabilize the soil, reduces the velocity of surface water runoff, reduces erosion of the soil by spreading runoff water over a wide area, and promotes absorption and infiltration through the detrital (leaf) layer and underlying soils.”⁵⁵ Extensive root systems often associated with buffer vegetation also help prevent excessive shoreline erosion from large waves and during coastal storm events by stabilizing underlying soils.
- Flood Control: Coastal vegetative buffers “aid in flood control by reducing the velocity of runoff and by encouraging infiltration of precipitation and runoff into the ground rather than allowing runoff to flow overland and flood low lying areas.”⁵⁶ In addition, coastal vegetative buffers often occupy the flood plain itself and thus add to coastal flood protection and wave attenuation, similarly to riparian buffers in riverine or lake environments.

USAGE

Incorporate into the performance standards section of a municipal zoning law or incorporate into the list of shoreline protection and erosion prevention measures required in specific districts.

ADAPTED FROM THE FOLLOWING SOURCE

Town of Coxsackie (NY) Municipal Code, Part II: General Legislation/Zoning, Article III Districts, Boundaries and Regulations, Section 201-10 WR -Waterfront Residential District⁵⁷

Rules and Regulations of the State of Georgia, Rule 391-3-7.05 Buffer Variance Procedures and Criteria⁵⁸

The Rhode Island Coastal Zone Buffer Program, adopted in 1994 by the Rhode Island Coastal Resources Management Program.⁵⁹

LANGUAGE

Section X. Coastal Vegetative Buffers

A. Purpose [*omitted*].

B. Coastal Vegetative Buffers

(1) Coastal Vegetative Buffers. A coastal vegetative buffer of native flora in an undisturbed state shall be maintained on each parcel or lot between the landward edge of the furthest landward feature and a point [*insert number of feet, such as 35*] feet from and perpendicular to the landward edge of the furthest landward feature. In cases where native flora (vegetation) does not exist within the coastal vegetative buffer, the Planning Board may require restoration efforts which include, but are not limited to, replacing the vegetative strip with native plant species.

(2) Coastal vegetative buffers shall remain covered with native flora and in an undisturbed state in order to promote a goal of preserving, protecting, and restoring of ecological systems. However, the [*Town/Village/City*] may permit minor alterations to the vegetative buffer by special use permit in accordance with the following requirements:

(a) No clear-cutting shall be allowed.

(b) Trees may be removed if the applicant can demonstrate one or more of the following conditions:

- [i] It is clearly necessary for traffic safety.
- [ii] It is clearly necessary for the development of an approved principal or accessory use or building, street, sidewalk, paved area, driveway, stormwater facility, utility or sewage system.
- [iii] It is within 25 feet of the foundation of an approved structure.
- [iv] It is diseased, dead or poses a clear danger to a structure, utility or public improvement.
- [v] It is related to agricultural activities, such as orchards or cultivation activities.

(c) Existing soil and organic matter shall not be altered or disturbed within the coastal vegetative buffer.

- (d) No structures shall be permitted within the coastal vegetative buffer, with the exception of docks, boat ramps, pump houses, pervious walkways, and elevated walkways which provide the property owner with reasonable access to the water. Park-related furnishings (benches, picnic tables, pavilions, refuse containers, etc.) and vehicular parking areas shall be permitted, if associated with public recreation areas or public access to the shore.
- (e) No unsightly, offensive, or potentially polluting material, including but not limited to lawn clippings, leaves, garbage, refuse containers, junk cars, junk appliances, or toxic materials, may be dumped or stored within the coastal vegetative buffer. The vegetative buffer shall not contain commercial or industrial storage or display, manufacturing or processing activity, loading and unloading areas or vehicular parking areas.
- (f) For new construction, where there is no preexisting natural vegetation, developers shall provide native vegetation which shall screen the proposed development from the water. The width of this revegetated buffer should be at least 35 feet from the landward edge of the furthest landward feature. The plant material should consist of indigenous trees and shrubs appropriate to shoreline habitats.
- (g) For new construction, reasonable efforts shall be taken during construction to ensure that trees protected by this section are not accidentally injured or removed, including root compaction by equipment or change in grade level. The developer shall replace any protected trees which are destroyed or injured with mature trees of similar diameter.

C. Waivers. The planning board may waive the coastal vegetative buffer requirements only where the applicant provides reasonable evidence that impacts to the coastal vegetative buffer have been avoided or minimized to the fullest extent practicable and only in the following cases:

- (1) The shoreline feature from which the coastal vegetative buffer is to be measured accounts for 50 percent or more of the lot.
- (2) The project involves minor alterations to a preexisting structure.
- (3) The project involves the construction or repair of an existing infrastructure project or a structure that, by its nature, must be located within the vegetative buffer. Such structures include docks, boat ramps, pump houses, pervious walkways and elevated walkways which provide the property owner with reasonable access to the water, and stabilization of areas of public access to water.
- (4) The project will result in the restoration or enhancement to improve water quality and/or aquatic habitat quality.

- (5) Vegetative buffer intrusion is necessary to provide reasonable access to a property or properties.
- (6) The intrusion is for gravity-flow sewer lines that cannot reasonably be placed outside the vegetative buffer, and stream crossings and vegetative disturbance are minimized.
- (7) Crossing for utility lines, including but not limited to gas, liquid, power, telephone, and other pipelines, provided that the number of crossings and the amount of vegetative disturbance are minimized.
- (8) Recreational foot trails and viewing areas, providing that impacts to the vegetative buffer are minimal.

3.3.2 Maximum Disturbance Areas

One way for municipalities to conserve coastal vegetation and maintain its benefits is to establish a “maximum disturbance area.” This restriction limits disturbance of natural vegetation to a threshold proportion of the lot, beyond which any additional disturbed areas must be restored and revegetated with native vegetation. In order to not prohibitively restrict use or development of smaller lots, small lots may be allowed proportionately larger disturbance areas.

For a higher level of protection for coastal vegetation and natural coastal features, municipalities may pair the maximum disturbance area requirement with additional shoreline and coastal vegetation protection measures, including the coastal vegetative buffer presented in the following section.

The disturbance of vegetation is among the restrictions the State of Maine’s Mandatory Shoreland Zoning Act requires municipalities to include in mandatory locally-adopted land use controls for shoreland areas.^{60, 61}

USAGE

Add to the general provisions of the municipal zoning law a section on additional land use regulations or incorporate the maximum disturbance provisions into provisions relating to a district or overlay district that addresses coastal erosion hazard areas or coastal floodplains.

ADAPTED FROM THE FOLLOWING SOURCE

Town of Southampton (NY) Municipal Code, Chapter 330 Zoning, Article IX Coastal Erosion Hazard Adjacent Areas, Section 330-46.3 Native vegetation and natural vegetation protection standards⁶²

LANGUAGE

X. Maximum disturbance areas. All regulated activities and development in the [insert name of district or zone] shall comply with the following conditions:

- (1) For residential lots and tracts, the total area of clearing or other disturbance of natural vegetation or natural grades ("site disturbance") shall not exceed the greater of the following area in square feet or percentages of total lot size:

Lot Size (square feet)	Maximum Disturbance Greater of:
1 to 15,000	50% of lot
15,001 to 30,000	7,500 sq. ft. or 40% of lot
30,001 to 60,000	12,000 sq. ft. or 35% of lot

60,001 to 90,000	21,000 sq. ft. or 25% of lot
90,001 to 140,000	22,500 sq. ft. or 20% of lot
140,001 to 200,000	28,000 sq. ft. or 15% of lot
200,001 or greater	30,000 sq. ft. or 10% of lot

(2) Landscaping within the approved site disturbance area shall be at the discretion of the owner or occupant and not subject to regulation under this chapter. At the request of the *[Enforcement Officer/Code Official]*, the owner shall deliver a survey by a licensed surveyor identifying the limits of site disturbance and the amount and percentage of the lot cleared or disturbed.

(3) Where two residential parcels are merged in the same name and title after the effective date of this chapter and contain only one single-family residence, the maximum allowable site disturbance shall not exceed one and a half times the amount set forth in Paragraph (1) above.

(4) For nonresidential lots or tracts proposed for development, the amount of site disturbance shall not exceed fifty percent of the area of the lot or tract.

(5) Structural pedestrian walkways or accessways over dunes or bluffs and permeable driveways located landward of the applicable dune set back line shall be excluded from site disturbance calculations.

(6) Any and all applications for a *[insert permit type, if applicable]* permit or building permit within the *[insert name of zoning or overlay district, if applicable]* District shall include native revegetation and restoration measures sufficient to meet the standards set forth below:

(a) The limits of site disturbance shall be identified.

(b) The applicant for a permit shall have the proposed building and/or structure and the areas to be disturbed staked by a licensed surveyor in accordance with the survey. In addition, stakes shall be installed marking the perimeter of the area to be disturbed.

(c) Each application for development shall include a revegetation and restoration plan, which utilizes native vegetation and which revegetates and restores areas that are temporarily cleared or disturbed beyond the limits set forth in Paragraph (1) above during development activities, or are required to be revegetated in connection with a permitted expansion of a lawfully preexisting nonconforming principal residence.

(d) Revegetation and restoration shall, to the maximum extent possible, result in the reestablishment of the native vegetation association which existed prior to site disturbance.

(e) Native vegetation authorized and approved by the Chief Environmental Analyst [*or insert equivalent authority*] shall be used for revegetation and restoration purposes.

(7) The provisions of this section do not apply where the natural vegetation on a lot or tract has been substantially disturbed as a result of agricultural land uses prior to the effective date of this section of law; provided that such previously disturbed lands (or any portions thereof) that are left to revert to natural vegetation for a period of five years shall be subject to the provisions of this section.

3.3.3 Design Standards for Dune Walkovers

Providing access to public beaches through well-designed dune walkovers is critical to prevent dunes from being destabilized by foot traffic. However, hard structures such as dune walkovers starve adjacent areas of sand. Therefore, private dune walkovers should be limited or prohibited when sufficient public access is already available nearby. To control the placement of dune walkovers, a municipality may enact a law prohibiting the construction of dune walkovers where the structures do not currently exist and prohibiting reconstruction where they have been damaged beyond use.

Design standards for private dune walkovers can help minimize impacts to dune systems where there are no feasible alternatives for public access to the beachfront. An example of this application can be seen in the Town of Salisbury (MA) Beach Dune Walkover Access Design Standards.



Dune walkovers at Southwick Beach State Park on Lake Ontario in Jefferson County⁶³

USAGE

Add to the shoreline or environmental protection section of the municipal zoning law or add new numbered paragraphs to the general standards for construction in the Coastal High Hazard Areas section of the existing municipal flood damage prevention law (generally Section 5.1-1). Coastal High Hazard Areas includes zones designated on the flood insurance rate map (FIRM) as Zone V1-V30, VE and V.

ADAPTED FROM THE FOLLOWING SOURCE

The Town of Salisbury (MA), Beach Dune Walkover Access Design Standards⁶⁴

LANGUAGE

Section X. Design Standards for Dune Walkovers

A. Legislative intent. The intent of these standards is to provide a means of balancing the need for beach access with protecting the coastal dunes, which in turn will help to maintain the dune's function of storm damage protection and flood control.

B. Applicability. The following design standards apply to all properties located within the [*insert name of zoning district*] and shall be applied by the [*Planning Board/Zoning Board of Appeals/Conservation Commission*] when reviewing special use permit applications for the installation of new access across coastal dunes, as well as for repairing or replacing substantially reconstructed or substantially damaged walkways across coastal dunes.

C. Requirements and procedures.

(1) Applicants wishing to obtain a Dune Walkover Special Use Permit must follow the procedures for obtaining a special use permit under section [*insert section number dealing with special use permits*] of the [*City/Town/Village*] municipal code.

(2) In addition to other requirements pertaining to special use permit applications, applications must submit an engineered drawing of the stairs to be permitted, drawn to scale. Stairs must be designed to meet the Dune Walkover Design Standards listed under General Design Standards contained in Paragraph D.

D. General Design Standards.

(1) Wherever possible, existing public access maintained by the State of New York or the [*County/City/Town/Village of _____*] shall be preferred over private access. Therefore, the preferred access to the beach will be via the public access for properties that directly abut or are adjacent to these access ways.

(2) Wherever possible, common or shared access servicing multiple properties will be encouraged.

(3) Site conditions will help identify if an elevated boardwalk is preferred over an at grade access. This will be determined upon the size of the dune and the slope of the seaward dune face. Dunes that are relatively small in height and that have a gradual seaward dune face may be suitable for an at-grade access. If the site is suitable for an at-grade access it shall be no wider than 36 inches and the alignment shall be well marked. The direction or approach of the at-grade access will be determined based upon site conditions. Generally, the approach should be to the southeast at a 45-degree angle to the shore.

(4) Where site conditions require an elevated boardwalk the following standards shall be employed:

(a) The height from the dune surface (sand) to the lowest horizontal part of the boardwalk (excluding piles or other vertical supports) shall be a minimum of 18

inches for retrofitted boardwalks and a minimum of 24 inches for new boardwalks or as high as it is wide, whichever is appropriate. No skirts, lattice or similar trim components will be allowed. The design height above the dune shall also consider the height of the adjacent dunes.

- (b) The maximum width of the boardwalk shall be 36 inches.
- (c) All boardwalk decking shall have a minimum of one inch spacing.
- (d) The boardwalk shall be designed to allow modifications as the dune grows in height and width.
- (e) The boardwalk shall be designed with removable or breakaway sections, especially for those areas where the boardwalk or stairs from the boardwalk are located on the most seaward face of the dune or on the beach.
- (f) The approach or direction of the boardwalk from the private property to the beach will be determined based upon site conditions.
- (g) No risers will be allowed on stairs.
- (h) Vertical supports shall be pilings or posts that are driven and are not to be encased in concrete or other footings. No heavy equipment or machinery shall be used to install the vertical supports.
- (i) Vertical supports are not to be installed in dune slopes that are steeper than 30 degrees.

E. Maintenance. Beach access stairs must be operated and maintained as required, including the removal of beach stairs in the winter, and their storage in a suitable location. No portion of a privately-owned boardwalk or stairs that is removed on a seasonal basis shall be stored on state, county, or municipal property or on any portion of a vegetated dune. It is recommended that removed portions of the boardwalk or stairs be stored on portions of the boardwalk that are not removed.

3.4 Shoreline Management Alternatives

With more-frequent severe storms, volatile precipitation patterns and accelerating erosion rates and sea-level-rise, municipalities can increase their coastal resilience by regulating shoreline management, or stabilization, measures in designated zoning or overlay districts.⁶⁵ Shoreline management measures are typically used to reduce an upland area's flood or erosion risk, or to stabilize an eroding shoreline. The measures generally fall into three categories: (1) natural or non-structural, (2) nature-based, and (3) structural.

Non-Structural Measures and Natural Features

- **Description:** Non-structural measures include measures which make built structures more resilient to coastal hazards without the use of shoreline "hardening" structures. This may include building elevation and floodproofing as well as siting or moving structures out of hazardous areas, all of which help conserve natural features. Natural features are landforms created by physical, geological, biological, and chemical processes of the environment. They are complex systems existing in dynamic equilibrium, meaning that continual change and fluctuation are fundamental to their health and function. Natural features can mitigate flooding and erosion impacts by acting as porous barriers, providing topographic roughness that reduces water velocity, allowing for storage and absorption of water, stabilizing sediment, or by supplying sediment to other natural features. Development that impedes the dynamic characteristics of natural features can lead to their degradation and loss. Because non-structural measures allow natural coastal processes to continue unimpeded, on-site or down drift erosion and other impacts to adjacent areas are generally minimal as compared to structural measures.
- **Examples:** Barrier islands, reefs, sand dunes, bluffs, beaches, stream banks, wetlands, and coastal vegetation. Other examples of non-structural measures are building elevation, floodproofing, open space preservation, and re-grading slopes to reduce bank failure and support native vegetation.
- **Maintenance:** Absent human influence, natural features are self-sustaining and require little or no maintenance. Certain restoration activities may require more maintenance.

Nature-Based Features

- **Description:** Nature-based measures, or nature-based features (NBF), are shoreline management techniques that integrate structural components with living material and natural substrate designed to emulate natural features and processes. NBF provide services/benefits such as erosion and stormwater management, flood risk reduction and water quality improvement, as well as secondary benefits such as habitat, improved aesthetics and carbon sequestration. Nature-based approaches may not be appropriate in areas with high wave energies.
- **Examples:** Sediment nourishment, bank stabilization using vegetation, living shoreline approaches (e.g., sill-protected wetlands), and other measures.
- **Maintenance:** NBF may require routine maintenance to reliably provide the intended benefits (e.g., hazard risk reduction and ecological benefits). However, NBF typically

require more upfront maintenance until vegetation/natural features are established. NBF can often be adapted over the course of time without need for complete removal and reconstruction.

Structural Measures

- **Description:** Structural measures are shoreline management techniques that rely on physical structures and hardened materials placed on or near the shoreline to control or direct water and sediment movement. These structures are typically referred to as “erosion protection devices” or “erosion control devices.” Structural measures are designed to reduce erosion and/or flooding impacts to upland areas, but they often exacerbate erosion elsewhere. Furthermore, structural measures impede natural coastal processes such as the landward migration of natural features (e.g. wetlands, beaches and dunes), ultimately causing these features to be lost. The use of structural measures is known as shoreline “hardening” or “armoring.”
- **Examples:** bulkheads, revetments, breakwaters, seawalls, jetties, and groins.
- **Maintenance:** Structural measures should be regularly checked for degradation and damage. At the end of their useful life, they may require complete excavation, disposal of old material, and reconstruction.



April 2014



October 2014



October 2015



October 2018

Nature-based features are designed to emulate natural features and processes, allowing them to deliver multiple resilience benefits while avoiding the negative side effects of structural measures. Proceeding clockwise from upper left, the above photos illustrate the transformation of a Niagara River shoreline using a combination of nature-based features including rock toe protection, fiber logs and natural vegetation.

When sited and designed properly, non-structural and nature-based measures that utilize or imitate natural features can effectively reduce erosion and mitigate flood damage while improving water quality, promoting healthy ecosystem function and supporting near shore and aquatic habitats. Such measures can also accommodate the landward migration of natural features due to rising water levels, unlike structural measures. In light of their many benefits and advantages, non-structural measures that conserve and restore the resilience capacity of natural features should always be considered first. Where natural features and non-structural measures are not feasible, nature-based features should be considered next. As described above, both natural and nature-based features deliver better environmental outcomes and fewer negative side effects than traditional structural approaches. Natural and nature-based features are preferred by State and federal regulators for this reason. These approaches are not always appropriate, however, and a site characterization is necessary to determine the appropriate approach and design for a given location.

Structural approaches should be considered only where natural, non-structural and nature-based solutions will not provide the necessary level of protection for upland development, assuming the development is in fact appropriate for the site based on environmental factors and coastal hazards. Structural measures may be necessary to protect certain, more immobile assets, such as roads, bridges, and critical facilities, and to provide for water-dependent uses, but such measures should be avoided wherever possible. When structural measures are used, the project area should be limited to the smallest effective footprint.

Structural shoreline management techniques are problematic in that they exacerbate shoreline erosion and prevent the landward migration of natural features in response to rising water levels, leading to reductions in habitat, resilience and public access. Biologists and engineers have found that in addition to creating a physical barrier to water, these hardened structures reflect wave energy rather than absorb it, thereby adding to in-water turbulence and increasing erosion in front of, under and adjacent to the structure. Structural measures include constructed/engineered approaches such as vertical concrete, metal, or wooden bulkheads or seawalls, gabions (stone-filled wire baskets), shore-perpendicular jetties and groins, breakwaters, and revetments. Revetments, which are often made of riprap (loose rocks or stones), are sloped and reduce wave reflection as compared to that caused by vertical structures.

Negative Impacts of Structural Measures

- Increased erosion on neighboring properties, including nearshore areas.
- Reduced water quality
- Interruption of natural sediment processes
- Loss of land-water interface
- Habitat loss and diminishment of natural protective features (i.e. beaches, dunes, bluffs and nearshore areas)

Described below are two model local law approaches related to selection and approval of appropriate shoreline management measures. The first approach requires applicants to provide an analysis of the range of shoreline management measures and demonstrate the most appropriate measure. The second approach relies on municipal identification of different types of shorelines or “reaches” as a basis for regulating shoreline management measures within a specified area.

Approaches for Selecting Shoreline Management Measures	
TOOL	DESCRIPTION
Special Use Permit Alternatives Analysis (Section 3.4.1)	Applicants who want to install a shoreline management measure must apply for a special use permit. The process requires them to analyze and demonstrate why (a) taking no action or (b) using natural features or (c) nature-based features for shoreline management would be insufficient to protect their shoreline or waterfront structure from risks associated with flooding or erosion, thereby supporting (d) a structural measure.
Shoreline Reach Analysis to Designate Overlay Zones (Section 3.4.2)	Overlay zones are designated that describe where and to what extent structural shoreline management measures are permissible.

Laws regulating shoreline management measures can be paired with many of the other techniques discussed in this and other chapters of *Model Local Laws to Increase Resiliency*, such as coastal setback measures, coastal vegetation protection measures, dune walkovers, coastal protection overlay districts, and additional measures to reduce the risk of flooding and erosion.

State Regulation in Designated Coastal Erosion Hazard Areas

As discussed in detail in Sections 3.1-3.1.2 of this chapter, the New York State Department of Environmental Conservation currently regulates shoreline development and structures, including erosion control structures, in designated Coastal Erosion Hazard Areas (CEHA) through Article 34 of the Environmental Conservation Law, known as “CEHA.”⁶⁶ Municipalities should consult with staff of the CEHA Permit Program prior to enacting any shoreline management laws that would apply to land within a state-designated CEHA.

RESOURCES

Grannis, J. *Adaptation Tool Kit: Sea-Level Rise and Coastal Land Use*. (2011). Georgetown Climate Center.⁶⁷

A Guide to the Removal-Fill Permit Process, Appendix A Preparing the Alternatives Analysis. (2016). Oregon Department of State Lands.⁶⁸

Loughney Melius, Molly, et al. 2015 *California Coastal Armoring Report: Managing Coastal Armoring and Climate Change Adaptation in the 21st Century*. (2015) Stanford Law School.⁶⁹

Information for Preparing an Alternatives Analysis Under Section 404. (2014). United States Army Corps of Engineers.⁷⁰

City of Duvall Shoreline Master Program Update: Cumulative Impacts Assessment. (2012).⁷¹

King County Comprehensive Plan Update, Attachment A to Ordinance 17485, Chapter 5: Shorelines. (2012). King County (WA)⁷²

3.4.1 Special Use Permit Alternatives Analysis

The model law below allows a municipality to establish a preference for preserving or restoring natural features for shoreline management, with nature-based features as a secondary option. Applicants who seek to construct or substantially reconstruct a structural shoreline management measure would have to undertake an analysis of the preferred options and demonstrate why those options would be insufficient in protecting their shoreline or waterfront structure (e.g., residence) from risks associated with flooding or erosion.



Workers at Orient Point in Suffolk County installing native vegetation and jute matting to restore an eroded coastal bluff, which is also protected by boulders at the base, or “toe” of the bluff.

The model local law below asks the applicant to identify whether a proposed activity will result in an unavoidable loss of ecological habitats or unavoidable adverse impacts to a waterway, waterbody, natural resource or natural process.

Ecological habitat areas consist of areas of upland, intertidal or underwater lands providing distinct habitat types, such as mud flats, beds of submerged aquatic vegetation, marshes, beaches, dunes and maritime forest. Applicants would need to calculate the net gain or loss of such areas and their associated ecological communities to estimate the effects of proposed actions, then consider the projected results of one approach versus another approach.

Municipalities will benefit from environmental and engineering expertise when reviewing the analysis presented by applicants or applying the results of their own studies to the circumstances of specific applicants. The Special Use Permit Alternatives Analysis model local law includes language allowing the municipality to retain an engineer or other qualified professional to review and make recommendations regarding the shoreline management permit application, and to establish a fee schedule related to such review.

RESOURCES

"Informational Requirements for Practicable Alternatives Analysis for Projects Impacting Wetlands." (October 2014.) Wisconsin Department of Natural Resources.⁷³

USAGE

Identify the zoning district(s) where the municipality wishes to regulate shoreline management activities using an alternatives analysis. Add installation or restoration of shoreline management measures as a use permitted by special use permit and amend the district use schedule.

Add a new section describing standards related to shoreline management permits to the zoning article that addresses special use permits.

Add to the zoning law definitions and additional options for enforcement remedies.

ADAPTED FROM THE FOLLOWING SOURCE

Language was prepared by New York State Department of State staff with the assistance of staff from the New York State Department of Environmental Conservation, Hudson River National Estuarine Research Reserve and Hudson River Estuary Program. Some language was adapted from the Town of Brookhaven (NY) Municipal Code, Chapter 81 Wetlands and Waterways.⁷⁴

LANGUAGE

Add the following definitions to the definitions section of the zoning law:

DEVELOPMENT: The construction, excavation or clearing of vegetation for any building, structure or supporting infrastructure or utility. Development includes restoration, modification, or placement of any structure, or any activity on or use of land which materially alters the land condition, including clearing, grading, excavating, dumping, mining, dredging, filling, or other disturbance of soil.

ECOLOGICAL HABITAT AREAS: Ecological habitat areas consist of areas of upland, intertidal or underwater lands providing distinct natural features or habitat types, such as

mud flats, beds of submerged aquatic vegetation, marshes, beaches, dunes and maritime forest.

NATURAL FEATURES: Natural features are landforms created by physical, geological, biological, and chemical processes of the environment, and existing in dynamic equilibrium with environmental forces (e.g., barrier islands, sand dunes, stream banks, wetlands). Absent human influence, natural features are self-sustaining and require little or no maintenance to continue providing ecosystem and protective services/functions.

NATURE-BASED FEATURES (NBF): Shoreline management techniques incorporating living material and natural substrate/structures, such as wood or rock, and designed to emulate the environmental services provided by natural features and processes. NBF provide services such as erosion and storm water management, and flood risk reduction, as well as secondary benefits such as water quality improvement, natural habitat, improved esthetics and carbon sequestration. NBF are created by human design to reduce natural hazard risks while replicating and/or accommodating natural processes.

NON-STRUCTURAL SHORELINE MANAGEMENT MEASURES: Shoreline management measures that conserve or restore natural features and adapt development to dynamic natural processes to achieve risk-reduction as well as multiple co-benefits. Non-structural shoreline management measures include elevating, flood-proofing or relocating development.

SHORELINE MANAGEMENT MEASURES: Also known as shoreline stabilization measures, a suite of options to reduce risk of flood and/or erosion to upland areas by reducing or preventing shoreline erosion which may include natural features, nature-based features, and structural shoreline management measures. A shoreline management measure does not include commercial water dependent uses.

STRUCTURAL SHORELINE MANAGEMENT MEASURES: Shoreline management measures consisting of material designed and placed on or near the shoreline for the purpose of resisting erosion and/or flooding. These structures are typically placed vertical or perpendicular to a shoreline. Structural shoreline management often incorporates man-made material such as concrete, steel, aluminum, vinyl and pressure-treated wood, but may also employ stone or large tree trunks. Groins, jetties, breakwaters, bulkheads, seawalls, revetments, riprap, artificial and solid core dunes, engineered beaches, levees and berms are structural shoreline management measures.

WATER DEPENDENT USE. An activity which can only be conducted on, in, over or adjacent to a water body because such activity requires direct access to that water body, and which involves, as an integral part of such activity, the use of the water.

Add a new section to the special use permit standards for the applicable zoning district:

Section X. Shoreline management special use permit.

A. Findings. The [City Council/Town Board/Village Board of Trustees] of the [city/town/village] hereby finds that the construction or reconstruction of structural shoreline or stream bank management measures, including [*insert examples of structural shoreline management measures in use in the municipality, such as bulkheads, revetments, breakwaters, seawalls, jetties, and groins*] may have adverse effects on natural resources, natural processes and natural features that reduce flood and/or erosion risks, and that these adverse effects diminish safety and environmental quality for portions of the community and the adjacent water body in addition to direct, on site effects. The [City Council/Town Board/Village Board of Trustees] of the [city/town/village] therefore finds that proposals for actions involving excavation, material placement or construction on or near the shoreline in the [*insert name of zoning district*] must be considered in conjunction with natural feature or nature-based feature shoreline management approaches such as [*insert examples natural feature and/or nature-based measure in use in the municipality, such as wetlands, marshes, maritime forest, beach and bank, sill-protected wetlands, coir reinforced banks, shell bag reefs, and planted slopes*]. This consideration is critical to the avoidance or mitigation of problems associated with sediment loss, shoreline erosion and flooding along the [*insert name of watercourse, waterbody, beach, or waterfront area*] as well as other negative side effects of structural measures. Furthermore, the [City Council/Town Board/Village Board of Trustees] finds that these considerations can be addressed by incorporating an alternatives analysis into the special use permit requirements in order to better recognize the effects of structural shoreline measures on the environment and to evaluate whether more beneficial options are feasible and effective.

B. Purpose. The purpose of this section is to regulate the use and development on or adjacent to waterfront and shoreline natural resources in order to ensure that all shoreline management techniques shall be designed, located, and constructed or installed so as to minimize their potential adverse impacts upon the natural features found along a shoreline or stream bank, such as [*insert examples of natural features, such as beaches, dunes, bluffs, wetlands, floodplains and other natural habitats*] and that, whenever possible, shoreline management measures using natural or nature-based features will be employed.

C. Regulated Activities. The following activities shall require a shoreline management special use permit and shall comply with the requirements set forth in this section and Article [*insert number for special use permits*], as determined by the [Planning Board/Zoning Board of Appeals] as part of the special use permit process.

- (1) New construction of a shoreline management measure;
- (2) Substantial reconstruction of a structural shoreline management measure or nature-based feature measure amounting to greater than 50 percent of its replacement cost;
- (3) Enlargement of a shoreline management measure.

D. Jurisdiction of Other Agencies. A shoreline management special use permit approved by the [Planning Board/Zoning Board of Appeals] does not relieve the applicant of the necessity to obtain authorization or other permits from other necessary state and/or federal entities.

E. Application for shoreline management special use permit. Any person proposing to construct, substantially reconstruct, or enlarge a shoreline management measure must apply for a shoreline management special use permit on forms supplied by the [City/Town/Village]. Such application shall include:

(1) Complete project plans for the proposed activity, which shall include a stamped survey or plan certified by an engineer [*optional addition: architect, or landscape architect*] licensed or authorized to prepare such a plan under Title 8 of New York State Education Law. The following should be indicated in the project plan and/or survey, as applicable:

- (a) The location of all wetlands, including the date they were flagged, if different than the date of the survey, and by whom and their affiliation.
 - (b) The location of the construction area, the associated area that will be temporarily disturbed by construction, and any areas permanently disturbed.
 - (c) The locations, elevations, depth of excavation and specifications for all proposed draining, fill, grading, dredging and vegetation removal activities and the procedures to be used.
 - (d) The average or long-term rate of erosion of the shoreline in the immediate vicinity of the site of the proposed action and along the shoreline in both directions for a distance that is twice the waterfrontage of the lot whereupon the action is proposed. The methodology used to calculate the erosion rate shall be provided.
 - (e) The zoning district in which the project is proposed.
- (2) A completed full environmental assessment form (EAF) as required pursuant to the State Environmental Quality Review Act (SEQRA) regulations, 6 NYCRR Section 617.
- (3) Copies of all applicable federal, state, county, or [city/town/village] permits or proof of permit applications that are required for such work.
- (4) A statement of authority from the owner for any agent making application.
- (5) Documentation in the form of a narrative with visual and analytic support of all the alternatives required in subparagraph (c), below, including:

- (a) Clearly documented project purpose demonstrating the need for actions to reduce flood and/or erosion impacts and including the overall objectives of the project.
- (b) Project-specific objectives including the project context, circumstances, and needs which are specific to the project and should be used to evaluate potential alternatives for their appropriateness as it relates to the proposed action(s).
- (c) A clearly articulated range of alternative designs and sites and the ways in which they affect natural features, water quality, and erosion/flood control, including:
 - [i] No action;
 - [ii] Natural feature(s) conservation or other non-structural measure(s), and if appropriate, restoration of natural features, provided the applicant demonstrates the no action alternative insufficiently addresses flood or erosion risks;
 - [iii] Nature-based feature measure(s), provided the applicant demonstrates the no action or natural feature alternatives insufficiently address flood or erosion risks; and
 - [iv] Structural measure(s), provided the applicant demonstrates the no action, natural feature, and nature-based feature alternatives insufficiently address flood or erosion risks.
- (d) Documented evaluation of each alternative site, design and proposed action(s) and their effectiveness for addressing the overall and project-specific objectives.
- (e) A review of the approximate net gain or loss of ecological habitat area and associated function in each of the proposed alternatives.
- (f) An alternatives analysis outcome, clearly demonstrating how the applicant decided on the preferred management measure based on the project's objectives, the project's effect on natural resources and processes, and the project's effect on water quality and public health.
- (g) Analysis of the effects of each alternative on the following natural processes:
 - [i] Effects on natural sediment contribution from the site and longshore and cross shore sediment transport;
 - [ii] Effects on access to and from the water for living resources; and

[iii] Extent to which the proposed activity maintains or restores vegetation and habitat types characteristic of the natural site condition.

(6) If, after an alternatives analysis is conducted, the applicant determines that a structural measure(s) is found to best meet project purpose and objectives and no natural feature measure(s) or nature-based feature measure(s), or combination thereof, could be constructed and would be effective, the applicant must provide additional justification for structural measures including:

- (a) Details on how the use of natural feature measures or nature-based feature measures are not viable and will not be effective in the proposed location.
- (b) How the proposed structural measure(s) would be located, designed, and installed in a manner that minimizes the potential adverse impacts to natural resources and natural processes, avoids negative effects on adjacent and down drift areas, and provides for the conservation of vegetation and ecological habitat.
- (c) How the proposed structural measure(s) is practical and effective.

(7) If the proposed activity will result in an unavoidable loss of ecological habitats or unavoidable adverse impacts to a waterway, waterbody, natural resource or natural process, the applicant shall redesign the proposal to eliminate such impacts. If complete elimination of impacts is not possible the application shall specify mitigation measures to the proposed activity to minimize or eliminate said impacts to the extent reasonably possible and routinely replace resources which will be lost due to the proposed activity. There shall be no permanent adverse impacts to areas offsite.

F. Review fee. The *[Planning Board/Zoning Board of Appeals]* may retain an engineer or other qualified professional to review and make recommendations regarding the shoreline management special use permit application. The *[City Council/Town Board/Village Board of Trustees]* shall establish a fee schedule related to such review.

G. Notice and hearing. Applicants shall comply with the notice and hearing requirements set forth in Article *[insert number for special use permits]*. The following signage and additional notice requirements apply:

(1) Signage. For a period no less than *[insert number]* days prior to the public hearing on the shoreline management special use permit until such time the application is decided or withdrawn, the applicant shall conspicuously place along each road frontage of the property which is the subject of the application at least one sign containing the following information: the name and address of the applicant; a brief description of the proposed project; a phone number or internet address where more information about the project is available; and the date, time, and place of the public hearing. Proof of posting must be provided by the applicant.

(2) Notice. Owners of property within [*insert distance, such as 200 feet*] of the property which is the subject of the shoreline management special use permit application shall be notified of the application at least [*time period, such as 10 days prior to the public hearing*] by certified mail at the expense of the applicant. Property owners entitled to notice shall be those listed as owners on the record in the [*city/town/village/county*] Tax Assessor's office as of the date of mailing. The notice shall include the name and address of the applicant; a brief description of the proposed project; a phone number or internet address where more information about the project is available; and the date, time, and place of the public hearing. Proof of notice must be provided by the applicant (e.g. a receipt showing certified mail was sent).

H. Standards for approval. In considering the granting, conditional granting, or denial of any shoreline management special use permit, it shall be the policy of the [*Planning Board/Zoning Board of Appeals*] to:

(1) Safeguard, protect, and, preserve the vegetation and fauna of all wetlands and waterways by preserving, to the greatest extent possible, surface waters, wetland habitats, adjacent upland buffer areas, and the ability of fauna to move between such areas.

(2) Minimize, to the greatest extent possible, negative impacts to wetlands, waterways, natural resources and natural processes from disruption of natural sediment transport caused by new development and any proposed structures.

(3) Minimize negative impacts to the ecological integrity of the [*City/Town/Village*]'s wetlands, waterways, natural resources and natural processes to the greatest extent possible, whether on or off site. Based on the consideration of total acreage and type of wetland or natural feature affected, minimize negative impacts by:

(a) Providing adequate setbacks and buffer zones;

(b) Prioritizing natural features and non-structural measures where feasible, followed by nature-based features for flood and erosion management;

(c) Minimizing and if possible reducing the impacts of existing structural shoreline management measures; and

(d) Encouraging development in conformance with the natural protective features and topography of each site.

(4) Account for current sea-level rise projections as provided by the New York State Department of Environmental Conservation for the anticipated life of the shoreline management measure.

- (5) Provide for natural, seasonal variation in water levels and historic levels of periodic extreme storm conditions.
- (6) Avoid erosive effects of the proposed shoreline measure(s) on adjacent and down-drift areas and avoid or minimize erosion to the project property.
- (7) Minimize impacts that would reduce access to public trust lands and waters.
- (8) Minimize the potential cumulative negative effects of the approval, design, and construction of the management technique or, if applicable, the precedent set by the approval of the technique.
- (9) Consider existing management plans and environmental restoration or water-quality projects in the affected watershed or waterbody and assure the proposed action(s) are consistent with the priorities and constraints addressed in those plans and projects.
- (10) Evaluate and consider all comments from the public received during the application process and subsequent public comment period, and if merited, consider reasonably viable alternatives that reduce or mitigate the identified issues.
- (11) Verify that applications for approval by state and federal agencies whose jurisdiction overlaps with siting of project have been received and provided to the *[insert name of department, such as Code Enforcement or Building Department]* by application completion.
- (12) Impose conditions or constraints designed to carry out the intent of this chapter, which may include the imposition of restrictive covenants on the applicant's property and/or performance bonds. Such conditions or limitations shall be incorporated into the permit.
- (13) Impose conditions that will minimize and mitigate to the extent reasonably possible unavoidable loss of wetlands or adverse impacts to a waterway, waterbody, natural resource or natural process. Mitigation shall be maintained for the life of the permitted activity.
 - (a) If the unavoidable adverse effects of the proposed activity will be ongoing and not fully addressed by mitigation during the construction, substantial reconstruction, or enlargement of the shoreline management measure, the *[Planning Board]* may approve ongoing mitigation as a condition of the permit provided the applicant:
 - [i] Demonstrates the proposed mitigation will continually address ongoing adverse effects of the proposed activity; and

[ii] Provides a schedule for completion of mitigation activities and certifies agreement to adhere to the schedule, to the satisfaction of the [insert name of department, such as *Code Enforcement or Building Department*]; and

[iii] Demonstrates the capacity to carry out the ongoing activity for the life of the proposed activity or until such time as all adverse effects of the proposed activity are fully addressed, to the satisfaction of the [insert name of department, such as *Code Enforcement or Building Department*].

I. Upon satisfaction of the above standards required in Paragraph H, the [*Planning Board/Zoning Board of Appeals*] may grant the applicant a shoreline management special use permit to proceed with the proposed activities as modified by the [*Planning Board*], including any conditions or required mitigation. The permitted work may take place for a period of up to ninety (90) consecutive days and must be completed within one hundred-eighty (180) days following the date of approval by the [*Planning Board/Zoning Board of Appeals*].

(1) As a condition of approval, if adverse effects occur during the proposed activity which were not anticipated in the permit application, the applicant shall be required to develop and implement a mitigation plan to address the effects.

(2) In the event the applicant is unable to complete the mitigation activities within the permit period, the [insert name of official, such as *Chair of the Planning Board, Code Enforcement Officer, or Building Inspector*] may grant a thirty (30) day extension for completion of mitigation upon satisfactory written explanation from the applicant of why the proposed mitigation cannot be completed by the end of the permit period.

J. Violations. It shall be a violation to undertake any regulated activity without obtaining a permit as required under this section prior to any construction, excavation or land clearing, and/or to undertake any regulated activity that does not comply with the conditions set forth in the shoreline management special use permit. The [*City/Town/Village*] shall have the right to seek removal of any shoreline management technique constructed or installed without a permit described herein or built in violation of standards, restrictions, conditions or mitigation provisions established by a permit issued.

Amend the article of the zoning law dealing with Remedies and Penalties by adding the following paragraph:

(Y) Remedies and penalties for violations of the shoreline management special use permit.

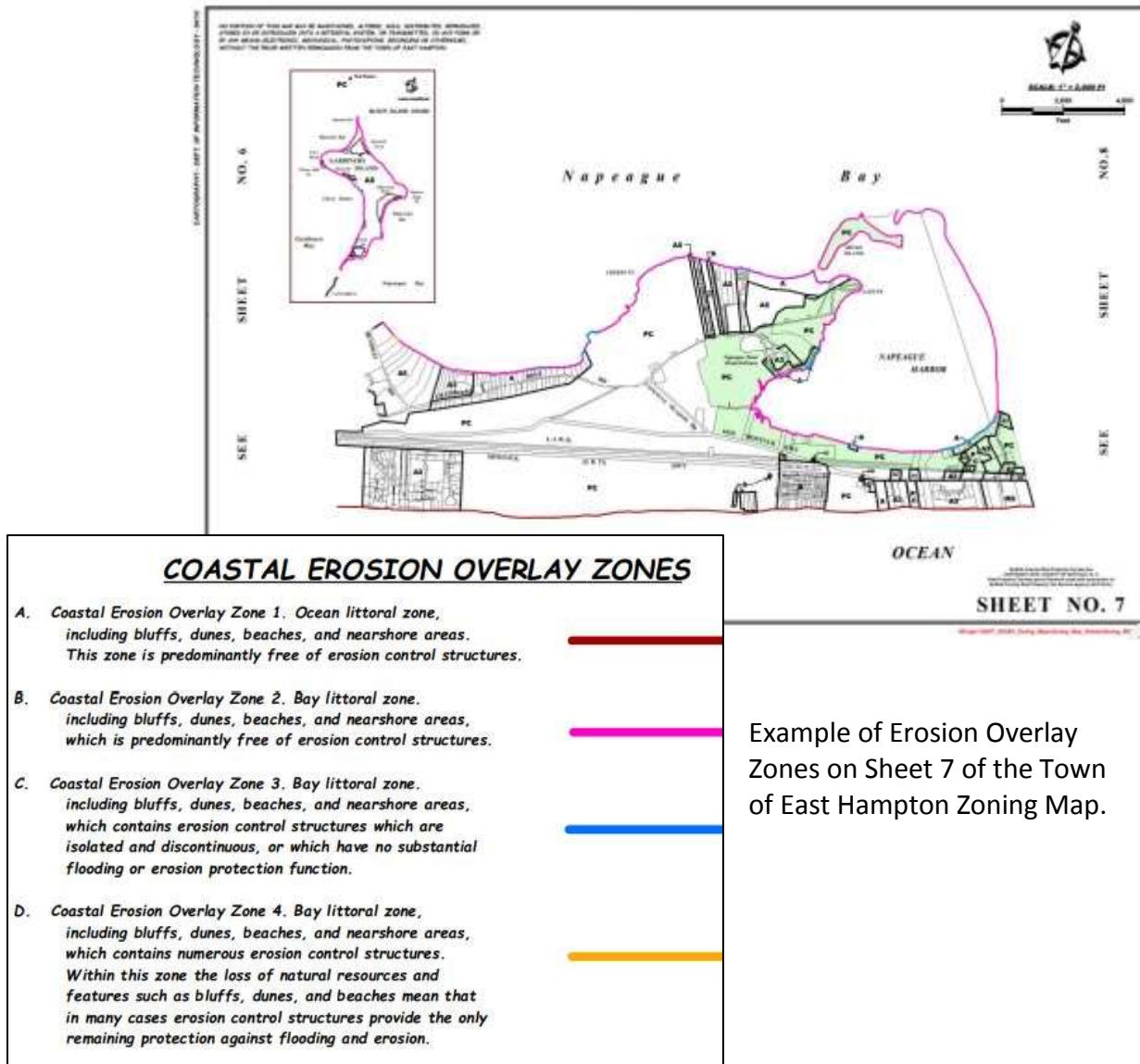
(1) Remedial actions. In addition to the remedies provided for in this section, any person or entity who or which shall violate any of the provisions of section [insert section number establishing shoreline management special use permits] entitled

"Shoreline management special use permit," shall undertake any necessary remedial action as required by the [City/Town/Village] in order to bring the subject property into conformance with section [*insert section number added for shoreline management special use permits*] of this Code or conditions and constraints imposed by the [Planning Board] upon an approved shoreline management special use permit.

(2) Order of consent. Any person who violates any provision of section [*insert section number establishing shoreline management special use permits*] or the conditions and constraints imposed by the [Planning Board/Zoning Board of Appeals] upon an approved shoreline management special use permit may, in lieu of administrative and criminal sanctions, enter into an order of consent with the [City/Town/Village]. Such order may require restoration of the damaged wetland, waterway, natural resource or natural process [*and may include a payment to the local environmental trust fund called _____ in an amount determined by the City/Town/Village but not to exceed \$10,000*].

3.4.2 Shoreline “Reach” Analysis to Designate Overlay Zones

The model law presented below was adapted from a Town of East Hampton law that requires different setbacks for different shoreline types or “reaches.” A reach represents a section of shoreline that is relatively distinct in terms of its shoreline characteristics and orientation.



In enacting the law, the town described how its north and south shores have differing geography and geology with different weather exposures. The findings of the law describe how siting of development in the past often failed to consider potential damage from flooding, erosion, and coastal storms; and consequently, many homeowners built structures like groins and bulkheads which have had detrimental effects on adjoining beaches or neighboring properties and have often aggravated the erosion problems they were designed to prevent.⁷⁵

By preemptively determining where and to what extent shoreline armoring is necessary or permissible, municipalities may simplify decision-making during the permitting process and create a strong framework and justification for decisions.

In this example, four different overlay reaches or “zones” are created:

- (1) ocean coastal zone predominantly free of erosion control structures,
- (2) bay coastal zone predominantly free of erosion control structures,
- (3) bay coastal zone which contains erosion control structures which are isolated and discontinuous, or which have no substantial flooding or erosion protection function, and
- (4) bay coastal zone which contains numerous erosion control structures that in many cases erosion control structures provide the only remaining protection against flooding and erosion.

The focus of the model local law below is the identification and use of shoreline types as a basis for selecting shoreline management/erosion control structures. It is adapted from a provision in the Town of East Hampton municipal code. That code also includes specific standards related to natural resources special permits that include the following:

- No permits will be issued for any structure which would unduly interfere with tidal flow or marine life or habitat, or which would destroy other than the minimal practicable areas of beach vegetation, wetland vegetation, or eel grass.
- Applicants for new erosion control structures must demonstrate that erosion control on the project site cannot adequately be accomplished by means of a coastal restoration project with periodic nourishment or renewal of sand or other materials.⁷⁶

USAGE

Create a coastal erosion overlay district by preparing a map showing those areas as an overlay to the municipal zoning map. Amend the section of the zoning law establishing zoning districts to include the new overlay district and the requirements of that district. Add any needed definitions to the definition section of the zoning law.

ADAPTED FROM THE FOLLOWING SOURCE

Town of East Hampton (NY) Municipal Code, Chapter 255 Zoning, Article III Overlay Districts, Section 255-3-80 Coastal Erosion Overlay District⁷⁷

LANGUAGE

Add the following definitions to the zoning law:

Coastal Restoration Project: The deposit of sand or soil on a beach, dune, or the face of a bluff, in order to restore or replace similar material lost to erosion, and the management of such material by planting beach vegetation. This definition shall include the installation of snow fencing or permeable mesh fencing, the placement of biodegradable fabric mesh or biodegradable gels, and the installation of drains and pipes for the control of water runoff, if these devices are designed and used to allow vegetation to grow upon and stabilize the deposited materials.

Coastal Structures: Every coastal erosion control structure plus all caissons, catwalks, docks, floating docks, floats, piers, pilings, wharves and other fabrications designed to give access to or through, permit work on or in or facilitate the use of any wetland, barrier dune, bluff or water body. Moorings shall not be included in this definition. Compare "coastal erosion control structure."

Erosion Control Structure (or Coastal Erosion Control Structure): Every structure sited in or under any body of water, or on or near any shoreline, wetland, beach, or bluff adjacent thereto, which is designed to reduce, retard or prevent erosion of the shoreline or the silting or filling in of a natural or dredged harbor or channel. This definition shall be deemed to include all groins, jetties, seawalls, revetments, bulkheads, breakwaters, gabions, and riprap, as well as any other man-made fabrication or device, including one made of geotextile tubes or sandbags, which is designed to reduce, retard or prevent erosion and which is not included in the definition of "coastal restoration project" found herein. An "erosion control structure" shall constitute a "coastal structure" as defined herein.

Add the following to the zoning regulations:

Section X. Coastal Erosion Overlay District

A. Purpose. The purpose of the Coastal Erosion Overlay District is the protection of the [City/Town/Village of _____]'s natural shoreline and coastal resources. These features require protection because of their important flooding and erosion prevention functions, their scenic qualities, their value for public recreation and water access, and their value as wildlife habitat. The overlay district is divided into four coastal erosion reaches, each of which covers sections of the [city/town/village]'s coast which have similar features, characteristics, and storm exposures. The district establishes rules and standards for erosion control structures and projects, which may differ from one reach to the next.

B. Boundaries. The Coastal Erosion Overlay District shall encompass all lands [*add if applicable “, including underwater lands,”*] which are located within any of the following areas:

(i) landward of the mean high water line of any tidal waters within the [city/town/village], to a line which is [insert number, such as 200] feet landward of said mean high water line;

(ii) seaward of the mean high water line, to the contour line at which mean low water depth is 15 feet.

Add if municipal jurisdiction extends past the shoreline:

(iii) seaward of the mean high water line to a line which is [insert number, such as 1,000] feet seaward of the mean low water line of any tidal waters within the [city/town/village];

The overlay district shall consist of four coastal erosion reaches as shown on the [City/Town/Village of _____] Zoning Map. The coastal erosion reaches constituting the Coastal Erosion Overlay District shall be identified as follows:

(i) Coastal Erosion Overlay Reach 1: Ocean coastal reach, including bluffs, dunes, beaches, and nearshore areas. This reach is predominantly free of erosion control structures.

(ii) Coastal Erosion Overlay Reach 2: Bay coastal reach, including bluffs, dunes, beaches, and nearshore areas, which is predominantly free of erosion control structures.

(iii) Coastal Erosion Overlay Reach 3: Bay coastal reach, including bluffs, dunes, beaches, and nearshore areas, which contains erosion control structures which are isolated and discontinuous, or which have no substantial flooding or erosion protection function.

(iv) Coastal Erosion Overlay Reach 4: Bay coastal reach, including any remaining bluffs, dunes, beaches, and nearshore areas, which contains numerous erosion control structures.

C. Regulations. In addition to any other provisions of this chapter which may apply to them, lots, lands, buildings, structures, uses, and activities within the Coastal Erosion Overlay District shall be subject to the following restrictions and regulations:

(1) Coastal Erosion Overlay Reaches, generally.

(a) All buildings and other structures, except coastal structures, shall be located and constructed so as to minimize the damage to property and risk to human life which may be caused by flooding and erosion.

(b) All construction and related activities, including the clearing and grading of land, shall be undertaken in a manner which minimizes the damage caused to wetlands, beaches, bluffs, dunes, and vegetation growing thereon by flooding and erosion.

(2) Regulation of erosion control structures.

(a) In Coastal Erosion Overlay Reach 1:

- (i) The construction, placement, or installation of new erosion control structures is prohibited.
- (ii) The repair, reconstruction, or alteration of all lawfully existing erosion control structures shall require the issuance of a shoreline management special use permit.
- (iii) Notwithstanding the provisions of the foregoing Subsection (2)(a)(ii), the repair, reconstruction, or alteration of existing erosion control structures which are constructed perpendicular to the shoreline, such as groins and jetties, is prohibited. The construction, placement, or installation of any such new erosion control structure built perpendicular to the shoreline is also prohibited.
- (iv) Notwithstanding the provisions of the foregoing Subsection (2)(a)(iii), the alteration or removal of groins, jetties, or other existing erosion control structures constructed perpendicular to the shoreline is permitted upon issuance of a *[insert as applicable, building permit and/or shoreline management special use permit]* when such alteration would result in a reduction of the size or length of the structure and a public or environmental benefit. The Building Inspector/Zoning Enforcement Officer may consult with other *[city/town/village]* agencies and the *[City Council/Town Board/Village Board of Trustees]* to ensure that the alteration would result in a public or environmental benefit.

(b) In Coastal Erosion Overlay Reach 2:

- (i) The construction, placement, or installation of new erosion control structures is prohibited.
- (ii) Subject to the exception set forth in Subsection (2)(b)(iii) below, the repair, reconstruction, or alteration of existing erosion control structures is prohibited. This prohibition shall not apply to erosion control structures installed to ensure the safe navigability of boat channels. *[If applicable, add "The construction, repair, reconstruction, or alteration of any such structure shall require the issuance of a shoreline management special use permit."]*
- (iii) Notwithstanding the provisions of the foregoing Subsection (2)(b)(ii), the alteration or removal of groins, jetties, or other existing erosion control

structures constructed perpendicular to the shoreline is permitted upon issuance of a [insert as applicable, building permit and/or shoreline management special use permit] when such alteration would result in a reduction of the size or length of the structure and a public or environmental benefit. The Building Inspector/Zoning Enforcement Officer may consult with other [city/town/village] agencies and the [City Council/Town Board/Village Board of Trustees] to ensure that the alteration would result in a public or environmental benefit.

(c) In Coastal Erosion Overlay Reach 3:

(i) The construction, placement, or installation of new erosion control structures is prohibited.

(ii) Subject to the exception set forth in Subsection (2)(c)(iii) below, the repair, reconstruction, or alteration of existing erosion control structures which are constructed perpendicular to the shoreline, such as groins and jetties, is prohibited. This prohibition shall not apply to erosion control structures installed to ensure the safe navigability of boat channels. [*If applicable, add "The construction, repair, reconstruction, or alteration of any such structure shall require the issuance of a shoreline management special use permit."*]

(iii) Notwithstanding the provisions of the foregoing Subsection (2)(c)(ii), the alteration or removal of groins, jetties, or other existing erosion control structures constructed perpendicular to the shoreline is permitted upon issuance of a [insert as applicable, building permit and/or shoreline management special use permit] when such alteration would result in a reduction of the size or length of the structure and a public or environmental benefit. The Building Inspector/Zoning Enforcement Officer may consult with other [city/town/village] agencies and the [City Council/Town Board/Village Board of Trustees] to ensure that the alteration would result in a public or environmental benefit.

(iv) The repair, reconstruction, or alteration (including enlargement or reduction in size) of all other lawfully preexisting erosion control structures shall require the issuance of a natural resources special permit.

(d) In Coastal Erosion Overlay Reach 4:

(i) Subject to the exception set forth in Subsection (2)(d)(iv) below, the construction, placement, or installation of new erosion control structures shall require the issuance of a [insert as applicable, building permit and/or shoreline management special use permit].

(ii) Subject to the exception set forth in Subsection (2)(d)(iv) below, the alteration (including enlargement or reduction in size) of existing erosion control structures shall require the issuance of a [*insert as applicable, building permit and/or shoreline management special use permit*].

(iii) Subject to the exception set forth in Subsection (2)(d)(iv) below, the repair or reconstruction of existing erosion control structures shall require the issuance of a [*insert as applicable, building permit and/or shoreline management special use permit*]. If such structures are lawfully preexisting, repair or reconstruction may be authorized by means of an expedited administrative [*insert as applicable, building permit and/or shoreline management special use permit*] [*if applicable, add “, pursuant to” and the section of zoning relating to repair or reconstruction of coastal structures*].

(iv) Notwithstanding the provisions of the foregoing Subsection (2)(d)(i) through (iii) and subject to the exception set forth in Subsection (2)(d)(v) below, the repair, reconstruction, or alteration of existing erosion control structures which are constructed perpendicular to the shoreline, such as groins and jetties, is prohibited. The construction, placement, or installation of any such new erosion control structure built perpendicular to the shoreline is also prohibited. These prohibitions shall not apply to erosion control structures installed to ensure the safe navigability of boat channels. [*If applicable, add “Work on any such structure shall require the issuance of a building permit and/or shoreline management special use permit.”*]

(v) Notwithstanding the provisions of the foregoing Subsection (2)(d)(iv), the alteration or removal of groins, jetties, or other existing erosion control structures constructed perpendicular to the shoreline is permitted upon issuance of a [*insert as applicable, building permit and/or shoreline management special use permit*] when such alteration would result in a reduction of the size or length of the structure and a public or environmental benefit. The Building Inspector/Zoning Enforcement Officer may consult with other [*city/town/village*] agencies and the [*City Council/Town Board/Village Board of Trustees*] to ensure that the alteration would result in a public or environmental benefit.

3.5 Beach Erosion Control Districts

New York State Town Law Articles 12 and 12-A allow towns to establish special improvement districts.⁷⁸ Cities and villages are not granted this authority. A special improvement district (or special district) is a geographic area within which a town may charge special district taxes to raise revenue to fund special district services or functions to taxpayers in specific areas of the town. A town may create a special district to address beach erosion concerns and to prevent or alleviate damage resulting from the erosion.⁷⁹

One way of addressing beach erosion is through beach nourishment. Because state and federal aid for beach nourishment is not guaranteed, a beach erosion control district is a means for the town to fund beach nourishment. If carried out properly, beach nourishment produces a wide and gently-sloping beach that mimics the natural beach that might exist. A wider beach is beneficial for all beach stakeholders. It provides more protection to the dune and landward infrastructure, and also provides greater recreational and tourism opportunities. It is critical that nourished beaches aim to match the natural beach in terms of using sand of similar size, texture, and color.⁸⁰

The articles of Town Law referenced above provide guidance on the creation of a beach erosion control district, including among other requirements the need for a resolution authorizing the creation of the district and a description of the boundaries of the district.

In 2010 the Town of Southampton (NY) created two beach erosion control districts, Bridgehampton⁸¹ and Sagaponack.⁸² According to the town, the two beaches lost 125,000 cubic yards of sand per year for the preceding twenty years. If unabated, town documents predicted that the dunes and infrastructure would be damaged and destroyed. The town found that beach nourishment was the only method of restoration that would directly address the documented problem, provide predictable and consistent protection over the entire beachfront (including property with \$1.8 billion in assessed value within the six miles of these two beaches), and be acceptable to the environmental permit agencies.⁸³

The beach erosion control districts for Bridgehampton and Sagaponack beaches calculate special district taxes differently. For the Bridgehampton special district, taxes are based upon a parcel's linear waterfront footage. For the Sagaponack special district, taxes are based upon a combination of a parcel's linear waterfront footage and its assessed value. This means in the Sagaponack district a particular parcel's tax burden will change over time as its assessed value changes.

Following the example below adapted from the Town of Southampton, a town could draft a resolution to prepare a map, plan, and report related to a beach erosion control district. After public hearing and other required procedures are followed, it could adopt a resolution establishing the beach erosion control special improvement district.⁸⁴

RESOURCES

Opinion of the New York State Comptroller 96-21⁸⁵

USAGE

The Town Board adopts a resolution to prepare a map, plan, and report that describes the location of the proposed beach erosion control district. Thereafter, the Town Board would undertake those activities and take steps to establish a special improvement district pursuant to Town Law, including the adoption of a resolution establishing the district and its operating budget.

ADAPTED FROM THE FOLLOWING SOURCE

Town of Southampton (NY) Resolution 2010-848⁸⁶

LANGUAGE

Authorization to Prepare a Map, Plan, and Report for the Establishment of a Beach Erosion Control District known as the *[insert name]* Beach Erosion Control District

WHEREAS, the Town Board of the Town of *[insert name]* recognizes that certain areas within the Town have suffered severe coastal erosion as a result of *[state reason, such as the placement of an inlet jetty or groin]*, which has caused erosion to down drift beaches within the Town of *[insert name]* along the *[insert name, such as Atlantic]* coastline; and

WHEREAS, both past and recent weather events have caused these conditions to deteriorate; and

WHEREAS, the Board further recognizes that the erosion is such that it has, at times, threatened to severely damage both public and private structures as well as the beaches and protective dunes *[add or subtract shoreline features as relevant]* within the Town; and

WHEREAS, in fact, such erosion has triggered the need for emergency measures, including the declaration of States of Emergencies within the Town over the past several years, authorizing the emergency placement of sand at locations throughout the Town; and

WHEREAS, these conditions continue to deteriorate, posing a perpetual threat to property and to the health, safety, and welfare of citizens within the Town, necessitating emergency beach renourishment and capital improvements; and

WHEREAS, in an effort to arrest erosion, prevent further damage from such erosion, and provide residents with a financial source from which to supplement local, state, and federal resources,

the Town Board of the Town of [*insert name*] recommends the formation of a beach erosion control district, as provided for in Article 12-A of New York State Town Law, known as the [*insert name*] Beach Erosion Control District; and

WHEREAS, the creation of the [*insert name*] Beach Erosion Control District shall be based upon the preparation of a map, plan, and report; and

WHEREAS, the preparation of such map, plan, and report shall initially be funded as a Town charge, subject to possible reimbursement from any future assessment levied upon such beach erosion control district in conjunction with its establishment; now therefore be it

RESOLVED, that the Town Board of the Town of [*insert name*] hereby authorizes and directs the [*insert name of department*], the Town Engineer, the Tax Receiver, and any other appropriate Town Departments, to prepare such map, plan, and report attendant to the formation of the [*insert name*] Beach Erosion Control District, an improvement district; and be it further

RESOLVED, that such map, plan, and report shall specifically describe the location of the proposed [*insert name*] Beach Erosion Control District and any improvements or services proposed, and shall further indicate the maximum amount proposed to be expended within such district; and be it further

RESOLVED, that upon completion of such map, plan, and report, the Town Board shall direct the Town Attorney's Office to file such map, plan, and report with the Office of the Town Clerk; and be it further

RESOLVED that, within 10 days after the adoption of this resolution, the Town Clerk shall post and publish the following abstract:

ABSTRACT OF RESOLUTION

TAKE NOTICE, that on [*insert date*], the Town Board of the Town of [*insert name*] adopted a resolution directing the preparation of a map, plan, and report, at a cost of approximately [*insert cost*], attendant to the creation of the [*insert name*] Beach Erosion Control District, a special improvement district. This resolution was adopted subject to permissive referendum.

BY ORDER OF THE TOWN BOARD
TOWN OF [*insert name*], NEW YORK
[*insert name*], TOWN CLERK

3.6 Emergency Activities

In the aftermath of a severe storm, many property owners want to take immediate action to secure their property or to prevent further damage. Where existing laws, statutes and regulations affecting residents exist, the enacting authority from local, state, or federal government may have the authority to temporarily suspend or modify rule that hinder immediate action after an emergency declaration or proclamation is made.

At the state and federal level, a type of regulation called a “general permit” may be issued to allow many activities along the shoreline that have been determined not to have a significant impact on the environment.⁸⁷ In the absence of additional local regulations, a general permit issued by the state or federal government allows property owners to proceed with specific classes of activities to repair or stabilize properties. For example, after Hurricane Sandy activities included stabilizing existing dwellings, decks and walkways with temporary bracing and pilings; installing sandbags or sand cubes at the toe of damaged structures or eroded escarpments; regrading eroded dunes; in-kind/in-place repair of stairways; reconstruction of bulkheads and shoreline erosion structures that were functional before Hurricane Sandy; and repair or reconstruction of existing public roads, bridges, utilities and other public infrastructure.⁸⁸

At the local level, municipalities may proactively plan for emergencies by adopting local laws that suspend specific requirements. Examples of that approach are included in *Chapter One Basic Land Use Tools for Resiliency*. For example, the municipality may set up a process for a temporary phased reconstruction moratorium on building permits and land use approvals that is triggered by an emergency declaration (see Section 1.4.5). Another example would be to establish a process for permitting placement of an emergency dwelling on a lot where the existing dwelling was damaged by flood, fire, or other disaster (see Section 1.4.).

Local laws that regulate the kind of activities that could be undertaken after a storm, some which also require state or federal permits, may provide waivers or exemptions from normal local permitting process in emergency situations.

When crafting local laws to address emergency situations, local governments should address the following:

- Define what constitutes an emergency;
- Identify who has the authority to declare the emergency;
- Establish the basis for ending the emergency;
- List what permits or processes will be altered or suspended;
- Describe what actions can be taken while those permits/processes are not fully in place; and
- Identify any notifications that must be made to the city, town, or village in lieu of a permit application.

Endnotes

¹ *A Landowner's Guide to Protecting Shoreline Ecosystems.* (2014). Islands Trust. Retrieved 5/24/2019 from <http://www.islandstrust.bc.ca/media/282417/Landowners-Guide-September-draft-revised.pdf>

² Town of East Hampton (NY) Municipal Code, Chapter 255 Zoning, Article IV Protection of Natural Resources, Section 255-4-15 Legislative findings regarding the functions and benefits of natural resources. Retrieved 5/24/2019 from <https://ecode360.com/10414678>

³ *Coastal Risk Reduction and Resilience.* (September 2013). U.S. Army Corps of Engineers. Retrieved 5/24/2019 from https://www.usace.army.mil/corpsclimate/climate_preparedness_and_resilience/coastal-Risk-and-Reduction-and-Resilience/

⁴ *Protecting the Pathways: A Climate Change Adaptation Framework for Hudson River Estuary Tidal Wetlands.* (May 2016). Scenic Hudson. Retrieved 5/24/2019 from <http://www.scenichudson.org/sites/default/files/protecting-the-pathways.pdf>

⁵ Coastal Resilience. The Nature Conservancy. Retrieved 5/24/2019 from www.coastalresilience.org

⁶ *How are coastal areas regulated by the CEHA Permit Program?* NYS Department of Environmental Conservation, Coastal Management. Retrieved 5/24/2019 from <http://www.dec.ny.gov/lands/86541.html>

⁷ New York State Environmental Conservation Law, Article 34 Coastal Erosion Hazard Areas. Retrieved 5/24/2019 from <https://www.nysenate.gov/legislation/laws/ENV/A34>

⁸ Coastal Management. NYS Department of Environmental Conservation. Retrieved 5/24/2019 from <https://www.dec.ny.gov/lands/28923.html>

⁹ *New York Codes, Rules and Regulations.* Part 505 Coastal Erosion Management. Retrieved 5/24/2019 from [https://govt.westlaw.com/nycrr/Document/l4ebe020bcd1711dda432a117e6e0f345?viewType=FullText&originationContext=documenttoc&transitionType=CategoryPageItem&contextData=\(sc.Default\)](https://govt.westlaw.com/nycrr/Document/l4ebe020bcd1711dda432a117e6e0f345?viewType=FullText&originationContext=documenttoc&transitionType=CategoryPageItem&contextData=(sc.Default))

¹⁰ *Certified CEHA Communities.* NYS Department of Environmental Conservation. Retrieved 6/14/2019 from <http://www.dec.ny.gov/lands/86552.html>.

¹¹ How are coastal areas regulated by the CEHA Permit Program? NYS Department of Environmental Conservation, Coastal Management. Retrieved 5/24/2019 from <http://www.dec.ny.gov/lands/86541.html>

¹² National Flood Insurance Program, Community Rating System: CRS Credit for Management of Coastal Erosion Hazards. (2006). FEMA. Retrieved 7/3/2019 from http://www.fema.gov/media-library-data/20130726-1755-25045-9869/crs_credit_coastal_erosion.pdf

¹³ CEHA Map Revision Process. NYS Department of Environmental Conservation. Retrieved 6/4/2019 from <http://www.dec.ny.gov/lands/90934.html>

¹⁴ Town of Brookhaven (NY) Municipal Code, Chapter 76 Coastal Erosion Hazard Areas. Retrieved 5/24/2019 from <http://ecode360.com/8595615>

¹⁵ Town of Hamlin (NY) Municipal Code, Chapter 520 Zoning, Article V Special Purpose Districts, Section 520-24 C/O District (Conservation Overlay). Retrieved 6/24/2019 from <https://ecode360.com/14920073>

¹⁶ Grannis, J. *Adaptation Tool Kit: Sea-Level Rise and Coastal Land Use*. (2011). Georgetown Climate Center. Retrieved 5/24/2019 from http://www.georgetownclimate.org/files/report/Adaptation_Tool_Kit_SLR.pdf

¹⁷ Ibid.

¹⁸ Tidal Datums. National Oceanic and Atmospheric Administration. Retrieved 11/15/2019 from https://tidesandcurrents.noaa.gov/datum_options.html.

¹⁹ Model Bylaw for Effectively Managing Coastal Floodplain Development. (December 2009). Woods Hole Sea Grant, Barnstable County (MA), University of Hawaii Sea Grant. Retrieved 5/24/2019 from http://www.capecodcommission.org/resources/bylaws/Coastal_Floodplain_Bylaw_Dec2009.pdf?sm_au_=iVV40kKNQHNjNRMQ

²⁰ Higgins, Megan. *Legal and Policy Impacts of Sea Level Rise to Beaches and Coastal Property*. Sea Grant Law and Policy Journal, Vol. 1, No. 1 (June 2008). Retrieved 11/29/2019 from <http://nsglc.olemiss.edu/sglpj/Vol1No1/vol1no1.pdf>

²¹ Are You Planning Work in a Waterway or Wetland? (2014). US Army Corps of Engineers, New England District. Retrieved 9/26/2019 from <https://www.nae.usace.army.mil/Portals/74/docs/regulatory/Forms/WorkInWaterway2014.pdf>

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²³ Municipal Home Rule Law §37 (4). Retrieved 7/3/2019 from <https://www.nysenate.gov/legislation/laws/MHR/37>

²⁴ Ibid.

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