



Model Local Laws to Increase Resilience

Developed pursuant to the Community Risk and Resiliency Act (CRRA)



Rossana Rosado, Secretary of State

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Department
of State



New York State Department of State

Office of Planning, Development, and Community Infrastructure

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Publication Date: June 2019

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How to use the Model Local Laws

Model local laws should be viewed as examples to help local government officials interested in addressing resiliency issues in their municipal code. The model local laws have been compiled for information purposes and are not intended to be viewed as the only way to address resiliency to climate change and extreme-weather events. Models were developed from a variety of sources, including existing models, existing local laws, and a combination of sections from various laws assembled with professional expertise. Where existing laws have been adapted, that is noted, and endnotes provide links to the laws so they may be seen in context. A range of regulatory choices are provided, with some models consisting of simple changes to enhance resiliency aspects of typical local laws, and others that would constitute a comprehensive approach to a topic that may require more advanced administrative skills to be effective.

Readers are responsible for making their own assessments of the appropriateness of a model for their community, and how that model will be incorporated into their municipal code. These models are not intended to be adopted by a municipality verbatim, instead model local laws should be treated as a starting point for local law provisions that are molded to fit into an existing scheme of land use laws in your community. Local government officials that are considering the adoption of any of these models should seek the advice of their municipal attorney.

Most models are written as the language would appear in a municipal code book, without the trappings of a fully drafted local law. A municipal attorney should be consulted to properly frame the laws with the necessary language for the proper insertion into the municipal code either through amendments, deletions, and/or additions. Additionally, the municipal attorney will need to include an enacting clause, severability clause, and effective date, as well as ensure the municipality follows the proper procedure for adopting the local laws. For more information, refer to the Department of State publication, [Adopting Local Laws in New York State](#).

As most models could be adopted by either a city, town, or village, there is often a choice that is presented in brackets and italicized text [*e.g., city/town/village*]. There may also be blanks to be completed, such as by inserting the name of the local government or of a zoning district. There are other choices to be made, such as who is granted the authority to act (e.g., planning board or zoning board) and the extent to which the local government wishes to regulate something (e.g., setbacks of 50 feet or 100 feet).

To help guide communities in their choices, local law topics are introduced with a brief narrative, and resources that expand upon the topic are provided both in the narrative and in the endnotes. There are also text boxes that expand upon topics in the narrative or in the model local law itself.

Basic Land Use Tools for Resiliency



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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, as fulfillment of the Community Risk and Resiliency Act's requirement that DOS, in cooperation with NYSDEC, develop model local laws that include consideration of future risk due to sea-level rise, storm surge and/or flooding.

This publication does not establish any legally binding standards or criteria for state or local government to follow. Use of this guidance by a municipality should not substitute for consultation with an attorney working on behalf of the municipality.

1. Basic Land Use Tools for Resiliency

There are many tools available to local governments in New York State to regulate the use and development of land in accordance with a comprehensive plan. Basic tools include zoning, subdivision review, and site plan review. Statutory authority for municipalities to regulate development via zoning and special use permits, subdivision review, and site plan review is granted in New York State General City Law, Town Law, Village Law, and Municipal Home Rule Law.

Zoning can control the height of buildings, lot coverage, minimum distances (setbacks) from buildings to property lines or other features, the density of development, façade lines, building scale and bulk, allowable uses, requirements for certain uses, site access, utilities, parking, and more. The original intent of zoning was to avoid incompatible uses and nuisances, but it has developed into a powerful tool that can regulate the percentage of lot coverage and protect environmentally sensitive areas.

Carefully crafted land use laws can provide protection from erosion due to human actions; sea-level rise; storm surge; and flooding. Zoning allows the community to target regulations to areas at risk from damage. This can be done by creating discrete districts, amending existing districts, or by creating overlay districts that specifically address flooding issues. It can even be done by creating floating zoning districts with performance standards or specific criteria which would be applied in the event certain types of development were proposed.

Several basic tools can be used to reach the same goals. For example, to protect forested lands, which retain stormwater and reduce flood risks, the governing board of a municipality may:

- adopt a new subsection in the existing zoning law addressing woodland and forest protection and make those requirements applicable to all zones;
- draft similar protection language but add the new requirements only to specific districts through amendments to those chapters of the zoning law; or
- create a new chapter or subsection creating a “forest protection zone” and then amend the zoning map to show where the forest protection zone is located.

Without adequate zoning, development and redevelopment can continue in ways that place people, property, and critical infrastructure at risk from storm damage. Large structures in at-risk areas create damages, increase emergency costs, impact adjacent properties and are difficult to relocate or restore. Local coastal laws that establish setbacks based on rates of coastal erosion help secure community assets, reduce exposure to damages, and provide adaptive capacity for both human uses and environmental assets.

1.1 Zoning Districts

A zoning map divides a municipality into various land use districts, such as residential, commercial, industrial or manufacturing, or mixed-use districts. The zoning law or ordinance describes the permissible land uses in each of the various zoning districts identified on the zoning map, and the dimensional standards for each district, such as the height of buildings, minimum distances (i.e., setbacks) from buildings to property lines, and the density of development.

Landforms, historical development patterns, transportation, compatible uses, and available resources are a few of the factors that go into determining the list of allowed uses, whether they be as-of-right or by special permit, and how those uses might be developed. Another consideration should be how potential zoning changes can impact the resiliency of the community to prepare and respond to sea-level rise, storm surge, flooding and other natural disasters.

Zoning District Techniques	
TOOL	CONTEXT
Waterfront Zoning District	A district intended to enhance development deemed important to the waterfront, such as commercial, residential, and recreational uses and public access. It can reflect the cultural and historical heritage of a waterfront while it protects the visual, environmental and transportation links to and from the waterfront while emphasizing enhanced public access to the waterbody.
Waterfront Overlay District	A district of any shape or size that is superimposed over the underlying “base” zoning district(s) in order to protect a particular resource or guide development within a special area. The overlay district essentially adds to the base zoning requirements a layer of safeguards, standards, or incentives that may not be needed for the base zoning uses.
Transfer of Development Rights	A voluntary, incentive-based program that allows landowners in a “sending district” to sell development rights from their land to a developer for use in a “receiving district” as defined by the municipality. It usually involves maintaining density in one district by allowing density to be increased in other districts.

RESOURCES

Model Conservation Zoning District and Natural Resource Protection Standards. (2010). Lancaster County Planning Commission. ¹

Conservation Advisory Councils and Boards: A Guide to the Organization and Operation of Local Environmental Advisory Councils. (1997). Westchester County Environmental Management Council.²

Haeckel, I. and L. Heady. *Creating a Natural Resources Inventory: A Guide for Communities in the Hudson River Estuary Watershed*. (2014). Department of Natural Resources, Cornell University, and New York State Department of Environmental Conservation, Hudson River Estuary Program.³

Conserving Natural Areas and Wildlife in Your Community: Smart Growth Strategies for Protecting the Biological Diversity of New York's Hudson River Valley. (2008). New York State Department of Environmental Conservation.⁴

Town of Clinton Recommended Model Development Principles for Protection of Natural Resources in the Hudson River Estuary Watershed: Consensus of the Local Site Planning Roundtable. (2006). Town of Clinton et al.⁵

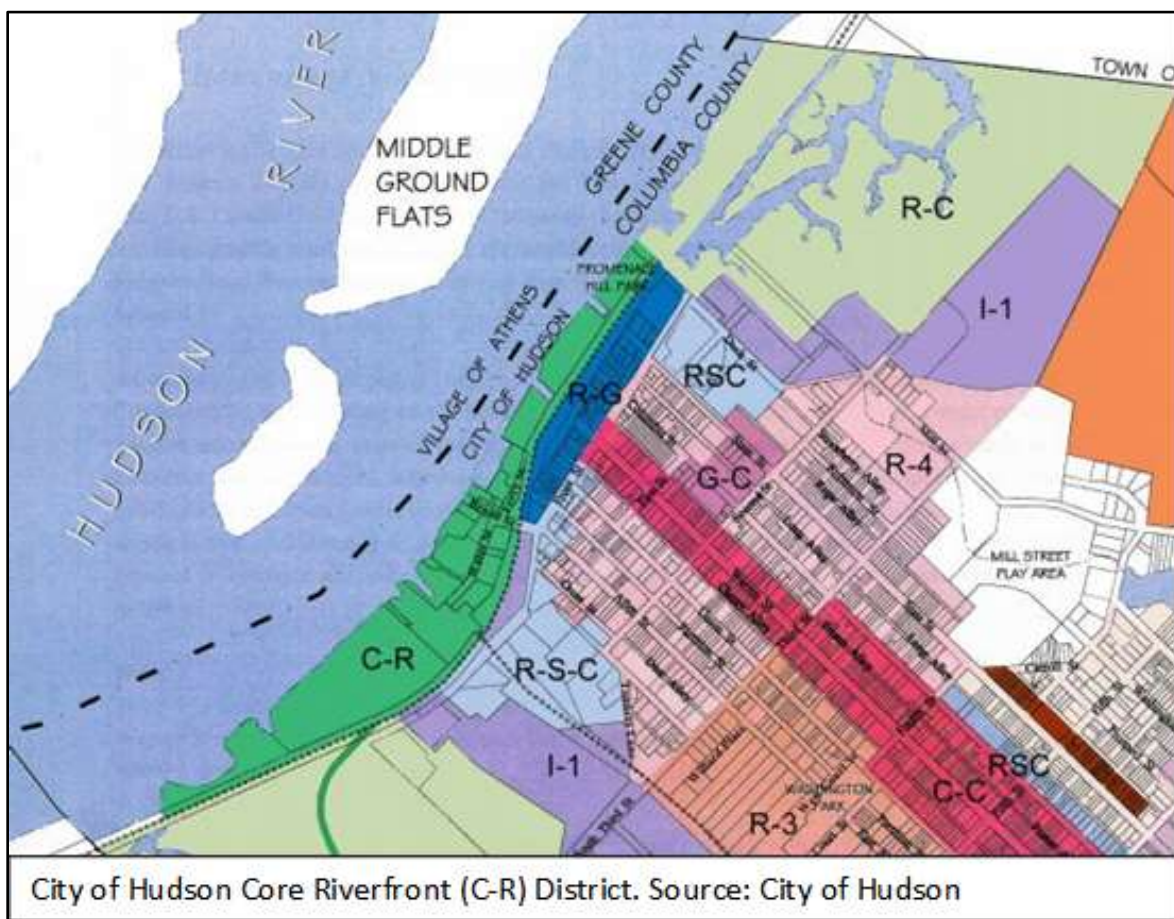
New York State Association of Conservation Commissions website at <http://www.nysaccny.org/>⁶

1.1.1 Waterfront Zoning District

A zoning district may be created that is located along the waterfront. The requirements can help the community achieve several goals, including:

- Enhancing commercial development important to the waterfront;
- Protecting existing views;
- Protecting and enhancing marine-related uses of the waterfront;
- Providing for maximum public benefit in new development or redevelopment of land while increasing public access to and from the waterfront;
- Eliminating or mitigating adverse environmental impacts; and
- Addressing the potential for flooding, coastal storm surge, or sea level rise.

The image below is a portion of the City of Hudson (NY) zoning map which shows the Core Riverfront (C-R) District, as well as the nearby Recreational Conservation (R-C) District and Riverfront Gateway (R-G) District.⁷ All three districts were added to the municipal zoning law in 2011, which states that the purpose of the C-R District is to “encourage a mixture of compatible uses at the riverfront; to provide access to the riverfront for water-dependent transportation and recreational uses and water-enhanced uses such as restaurants and publicly accessible walking and biking trails; to ensure that such uses are compatible; and to protect the visual, cultural, natural, ecological and historical resources of the City's core riverfront area.”⁸



The model below regulates a number of things, including uses on existing docks. Municipalities that wish to regulate the construction of docks, wharves, etc. may need specific authority, if located outside of Long Island. That authority may be achieved through the following methods:

- Adoption of a NYS Department of State-approved Harbor Management Plan (see Executive Law Section 922);
- Participation in the Hudson River Valley Greenway Compact (see Environmental Conservation Law Article 44);
- Inclusion by special legislation in Navigation Law Section 46-a.

The example below contains resiliency provisions in the standard for special uses. While the resiliency provisions may not be extensive, the law would establish a framework in which additional resiliency measures could be enacted to protect the riverfront.

USAGE

Amend the section of the municipal zoning law establishing zoning districts to include a new district and amend the municipal zoning map to show the location of the district. Amend use and dimensional standards to include requirements related to the new zoning district.

ADAPTED FROM THE FOLLOWING SOURCE

City of Hudson (NY) Municipal Code, Chapter 325 Zoning, Article III District Use Regulations and Attachment 1, Section 325-17.1 Core Riverfront C-R District⁹

LANGUAGE

Section X. Riverfront District (RD)

A. District purpose. The purpose of the Riverfront District is to encourage a mixture of compatible uses at the riverfront; to provide access to the riverfront for water-dependent transportation and recreational uses and water-enhanced uses such as restaurants and publicly accessible walking and biking trails; to ensure that such uses are compatible; and to protect the visual, cultural, natural, ecological and historical resources of the [city/town/village]'s core riverfront area.

B. Site plan approval. All new uses or change of uses in the Riverfront District will be subject to site plan approval by the Planning Board pursuant to [insert section number and title for site plan review].

C. Permitted uses. Subject to the bulk and area regulations of the Riverfront District, no building shall be erected, moved, altered, rebuilt or enlarged, nor shall any land or building be used, designed or arranged to be used, in whole or in part, for any purpose in the Riverfront District except the following:

- (1) Public docks and launches for pleasure or recreational watercraft.

(2) Public parks, including but not limited to public beaches, boat launch areas, and playing fields.

(3) Public and private recreation facilities and amenities, including but not limited to snack bar or cafe to service public parks, walking and biking trails, boat rental facilities, information kiosks.

(4) Tour, commercial, charter, and/or fishing boat operations.

(5) Boating instruction schools.

(6) Water taxis and ferries.

D. Special uses. Other than the permissible uses set forth in Paragraph C above and the accessory uses set forth in Paragraph E below, and subject to the bulk and area regulations of the Riverfront District, no building shall be erected, moved, altered, rebuilt or enlarged, nor shall any land or improvement thereon be constructed, altered, paved, improved or rebuilt, in whole or in part, for any purpose in the Riverfront District, except that the following special uses are permitted, subject to the approval of the Planning Board in accordance with *[insert section number and title for special use permit review]*. These uses are further subject to the regulations specified below and elsewhere in this chapter.

(1) Continuation of existing commercial dock operations for the transport and shipment of goods and raw materials, including loading and unloading facilities, and storage of such goods and raw materials, and associated private roads providing ingress and egress to or from such commercial dock operations, as such uses existed on the effective date of this law. Any existing commercial dock operation may continue to operate as a nonconforming use until such time as one or more of the actions or events specified in Paragraph D above is proposed to be undertaken. Where one of the actions or events specified in Paragraph D above is proposed, in addition to the provisions of *[insert section number and title for special use permit review]*, and as more fully set forth in Paragraph G(2) below, the Planning Board shall impose additional conditions on such use as may be necessary to protect the health, safety and welfare of residents living in close proximity to commercial docks and the public while recreating and using public facilities adjacent to commercial docks *[add the following if applicable, "as authorized in the Local Waterfront Revitalization Program"]*.

(2) A private causeway or private road that provides ingress to or egress from the property upon which a commercial dock operation is conducted as set forth in Paragraph G (2) below.

(3) Public and private marinas.

(4) Annual or private membership clubs providing private playgrounds, swimming pools, tennis courts, marina and boat launch facilities, related recreational buildings. [See *City of Hudson (NY) Zoning Law section 325-7, Paragraph B (3).*]¹⁰

(5) Railroad, public utility, radio and television transmission and receiving antennas, rights-of-way and structures necessary to serve areas within the [city/town/village].

(6) Multiple dwellings, hotels (not including rooming houses and boardinghouses) and motels.

(7) Telecommunications towers as provided for [insert section number and title for zoning provisions addressing telecommunications facilities].

(8) Eating and drinking places.

E. Accessory uses. Customary and accessory uses, including off-street parking as regulated in [insert section number and title for parking regulations], permitted accessory uses as provided for in [insert section number and title for accessory use section of the one-family residential district or include list here] and signs as regulated in [insert section number and title for supplementary sign regulations]. [Note that the City of Hudson provides for customary home occupations, professional offices or studios, private garages or carports, and household pets.]

F. Dimensional Standards. Dimensional standards for the Riverfront District are: [either provide a table as illustrated below or refer to a schedule of dimensional standards. The table below is based on the City of Hudson law. Consider adding a percentage for maximum impervious surface coverage; see discussion in section 1.2.3 Maximum Lot Coverage.]

District	Riverfront District
Minimum Required:	
Lot area:	
Total	6,000 square feet
Per dwelling unit	1,000 square feet
Lot width	100 feet
Lot depth	100 feet
Front yard	10 feet
Each side yard	10 feet
Rear yard	20 feet
Usable open space per dwelling unit	400 square feet
Off-street parking spaces per dwelling unit	1
Maximum Permitted:	
Lot coverage	30%
Building height:	
Number of stories	3
Feet	35 feet
Building length (feet)	-

Walls intersecting at an interior angle of more than 135° shall be considered one building wall. To be considered as a separate wall, any break in said plane shall have a minimum length and depth of at least 60 feet.

The Planning Board may approve a front yard setback that conforms with the prevailing building setback for the respective street on which a property is located.

G. Standards for special uses.

(1) For all uses allowed by special use permit, where the subject property abuts the water, the Planning Board shall consider the quality and extent of views from the adjacent public streets through the property to the water as well as the design and relationship of development to the waterfront as viewed from the water.

(2) Standards for commercial dock operations (including private roads providing ingress and egress to the commercial dock operations):

(a) Emissions of dust, smoke, gas, odor or air pollution, or by reason of the deposit, discharge or dispersal of liquid or solid wastes in any form in a manner or amount as to cause permanent damage to the soil or waters shall not adversely affect the surrounding area or create a nuisance. See [*insert section number and title of zoning section that prohibits uses in all districts*].

(b) In order to minimize nuisance noise from loading dock operations to residential receptors and nearby uses, noise shall be kept within the limits established in [*insert section number and title of zoning section that regulates noise*]. Control measures may include, as the Planning Board deems appropriate, the placement of noise-attenuating barriers and landscaping around loading docks.

(c) Loading or unloading operations at the docks and truck arrivals and departures shall be limited to the hours of 7:00 a.m. to 7:00 p.m. This limitation shall not apply to on-water operations by tugboats and barges.

(d) Truck engine idling is prohibited at loading docks.

(e) Artificial lighting facilities of any kind with light sources visible beyond the lot lines or which create glare beyond such lines are prohibited pursuant to [*insert section number and title of zoning section that prohibits uses in all districts*], subject to lightening devices deemed necessary for the public safety and welfare by federal, state or [*city/town/village*] authorities.

(f) Visual impacts associated with such operation shall be minimized. Corridors from a public street or tract of land that provide a direct and unobstructed view to the water from a vantage point within a public street, public park or other public

place shall be protected wherever possible. Outdoor storage of goods and raw materials shall be screened from the public view to the greatest extent possible.

(g) As far as practical, public access to and along the river shall be incorporated into site designs for conditional uses but shall not substantially interfere with the established uses on the property.

(h) In areas of annual flooding, floodplains and wetlands shall be preserved in their natural state to the maximum possible extent practicable to protect water retention, overflow and other natural functions.

(i) Loading and unloading operations at the docks shall be conducted in a manner designed to minimize adverse effects on water quality, fish and wildlife, vegetation, bank stabilization, water flow, and permitted uses on adjoining property.

(j) Construction, reconstruction or resurfacing of and other improvements to the dock operations (including private roads providing ingress and egress to the commercial dock operations) shall be performed in a manner which preserves natural features and drainways, minimizes grading and cut and fill operations, ensures conformity with natural topography, and retains natural vegetation and vegetative buffers around water bodies to the maximum extent practicable in order to prevent any increase in erosion or the volume and rate or velocity of sedimentation or surface water runoff prior to, during, and after site preparation and work.

(3) Standards for a private causeway or private road that provide ingress to or egress from the property upon which a commercial dock operation is conducted include in areas of annual flooding, floodplains and wetlands shall be preserved in their natural state to the maximum possible extent practicable to protect water retention, overflow and other natural functions.

(4) Special conditions for public and private marinas include the following:

(a) Docks and moored vessels must be situated so as not to interfere with the free and direct access to such waters from the property, wharf, dock or similar structure of any other person unless written permission is obtained therefor from such other person.

(b) Any application for a dock to be constructed at the end of a right-of-way will require written consent from all parties having an interest in the right-of-way.

(c) All docks 50 feet or longer in length must be equipped with a U.S. Coast Guard approved regulatory navigation light at the seaward end of the dock facility.

(d) As far as practical, public access to and along the river shall be incorporated into site designs for marinas.

(5) Special conditions for multiple dwellings, motels and hotels include the following:

(a) The design, scale, and appearance of units, structures, and the entire facility shall be compatible with present and potential uses of adjacent properties and structures.

(b) The size, scale or configuration of a proposed facility must be found not to create an undue increase in traffic congestion on adjacent and nearby public streets or highways.

(c) Structures and outdoor activities will be reasonably screened from adjacent properties. Landscaping and buffer zones will be provided to reduce noise, dust, and visibility.

(d) Outdoor lighting shall be contained on the site and shielded to assure that lighting is not visible from neighboring lots.

(e) There shall be no outdoor public address or music system audible beyond the limits of the site.

(f) The number of guest rooms may be limited to the availability of public water and sewage facilities.

(6) Special conditions for eating and drinking places include the following:

(a) There shall be no outdoor public address or music system audible beyond the limits of the site.

(b) The maximum customer capacity of the restaurant shall be calculated in order to determine potential sewage and kitchen waste disposal. A plan demonstrating how the disposal of sewage and kitchen wastes will be handled shall be provided.

(c) Structures and outdoor eating areas will be reasonably screened from adjacent properties. Landscaping and buffer zones will be provided to reduce noise, dust, and visibility.

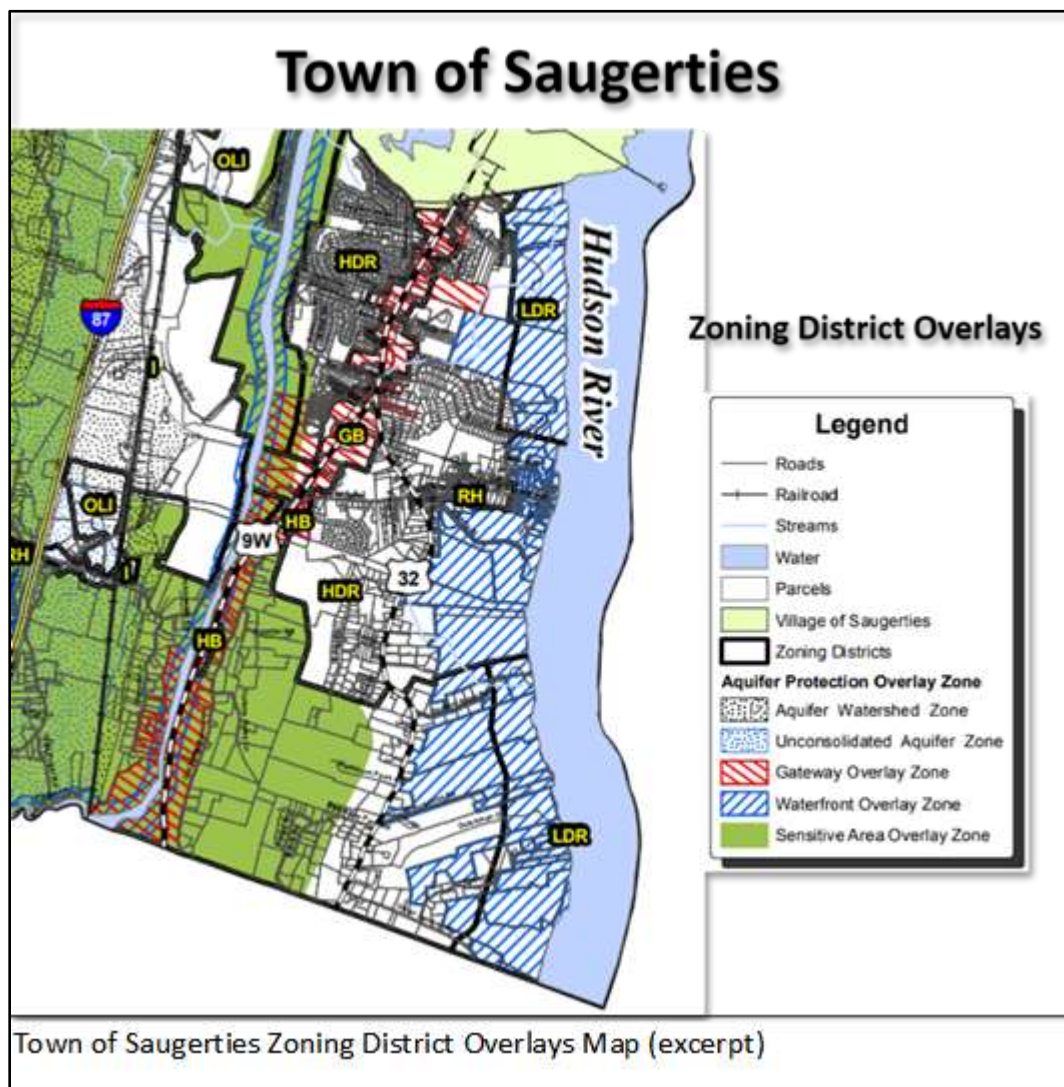
(d) Outdoor lighting shall be contained on the site and shielded to assure that lighting is not visible from neighboring lots.

G. Salt storage. The stockpiling or storage of road salt is not a permitted, conditional or accessory use.

1.1.2 Waterfront 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. The base zoning requirements still apply but overlay district standards apply in cases where the base and overlay requirements conflict.

Shown below is an excerpt from the Town of Saugerties zoning map, which shows several different overlay districts, including a Waterfront Overlay Zone along the Hudson River. The district, represented by the area within the blue slashes, overlays several districts like the Low Density Residential (LDR), Residential Hamlet (RH), and High Density Residential (HDR) districts.¹¹



Waterfront overlay districts can be designed to protect waterfront property for the community, promote high quality development sensitive to the unique environmental resources and enhance public enjoyment and use of the waterfront by having additional requirements for review and

approval of site plans. These requirements are based around ensuring that all development is done in a way that protects the waterfront for public use while protecting private and public property to the extent possible. This can be done by looking at current master plans, zoning and public vision.

The purpose of the following waterfront overlay district example is to protect and enhance the shoreline with a focus on improving water quality and preventing erosion. In the example below, a buffer strip is required to reduce soil erosion and runoff. A waterfront buffer might be larger.

RESOURCES

*Guidance on Natural Resiliency Measures.*¹²

USAGE

Identify the area(s) of the municipality that would be included in the Waterfront 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 and amend use and dimensional standards to include requirements related to the new zoning district.

ADAPTED FROM THE FOLLOWING SOURCE

Town of Saugerties (NY) Municipal Code, Chapter 245 Zoning, Article VI General Regulations, Section 245-26 Waterfront Overlay District¹³

LANGUAGE

Section X. Waterfront Overlay District

A. Purpose. The purpose of this district is to protect and enhance the shoreline, through protecting water quality and preventing erosion along the [____ River/Creek/Lake] within the [Town/Village/City of _____], by allowing property owners to enjoy their property and access to the waterfront while protecting the environmental and scenic quality of the shoreline from degradation. To further this purpose, this section establishes criteria to be followed by applicants in the design of projects and to be followed by the Planning Board as part of the site plan approval process as set forth in [insert zoning section]. All development in the Waterfront Overlay District will be reviewed on a case-by-case basis via the site plan review process to ensure appropriate layout and design of all properties.

B. Applicability and location.

(1) The Waterfront Overlay District is superimposed over the basic zoning districts as set forth on the [town/village/city] Zoning Map. The regulations presented in this section shall only apply to those lands located within the boundaries of the Waterfront Overlay District as overlaid on the [town/village/city] Zoning Map. In such overlay district,

proposed land uses are subject to the requirements set forth in this section, in addition to those requirements and standards ordinarily applicable to the underlying district. In case of conflict, the more restrictive regulation requirements shall apply.

(2) The following areas of the [town/village/city] are hereby designated as Waterfront Overlay Districts: properties or portions of properties located within [insert number of feet, such as 1,000] feet of the [_____River/Creek/Lake]'s mean-high-water mark. If any portion of the property is located within the boundaries of this overlay district, the entire property is subject to the regulations set forth in this section.

C. Effect on Schedule of Uses. All uses in a Waterfront Overlay District shall be subject to the site plan approval process, as set forth in [insert chapter or section number for site plan review]. As such, the Schedule of Uses is modified in this respect for lands contained in a Waterfront Overlay District.

D. Effect on Schedule of District Area and Bulk Regulations. All uses in a Waterfront Overlay District, except water-dependent uses, including docks, boathouses and storage sheds for water-related uses, shall have a minimum [insert number of feet, such as 150] feet setback from the mean-high-water mark.

E. Waterfront Overlay District standards. In addition to the standards set forth throughout this chapter, the following site plan review standards shall apply throughout a Waterfront Overlay District:

(1) General standards.

(a) There shall be no clear-cutting of trees. In addition, measures will be taken to protect and preserve as much mature vegetation as possible on the site, including but not limited to trees of six inches in diameter or more measured at 4 1/2 feet above grade.

(b) There shall be no destruction, damage or modification of, or interference with, the natural, scenic, topographic or physical features of the site.

(c) Landscaping and setbacks shall protect and be compatible with local and regional scenic quality, adjacent fish and wildlife habitats, freshwater wetlands and coastal waters.

(d) Structure height and bulk shall not detract from the natural topography and natural visual quality of the local area or region and shall be compatible with the site and the adjacent sites.

(e) Any new on-site sewage disposal systems must comply with [cite applicable standards, such as the county health or New York State Department of Health standards].

(f) Outdoor lighting shall be shielded to prevent glare hazard on the waterfront and adjacent properties.

(g) Existing trails shall be retained whenever possible.

(2) Shoreline vegetative buffer.

(a) Shoreline buffer strips of no less than [*insert number of feet, such as 100*] feet in width from the mean-high-water mark are required. Buffers shall consist of trees and shrubs for purposes of preserving the natural and aesthetic quality of the shoreline, protecting against shoreline erosion, providing a filter strip for stormwater runoff, and providing wildlife habitat.

(b) No more than [*insert percentage, such as 30%*] of vegetation within the buffer may be thinned during any five-year period. Thinning may be done to provide views of the water, but mature trees shall remain. Property owners may raise the tree canopy by trimming lower branches or top trees to slow growth to maintain their views of the [_____ *River/Creek/Lake*].

(c) The property owner may remove mature trees only if such trees are diseased or damaged. Such trees shall be replaced with appropriate species that will help protect water quality and prevent erosion.

(d) In the event that the shoreline is already cleared, such as former cropland, a buffer strip consisting of native vegetation that will help protect water quality and prevent erosion shall be reestablished.

(e) Limited access to the [*river/creek/lake*] may be created by a contiguous clear-cut opening in the buffer strip that does not exceed [*insert number of feet, such as ten*] linear feet in width. The pathway created should be constructed or surfaced to be effective in controlling erosion.

(3) Properties on steep slopes. The following standards shall apply to steep slopes (areas of greater than [*insert percent of grade, such as fifteen*] percent grade) at or near the water's edge that exceed fifteen feet in elevation measured from the high-water line or bottom of the slope, whichever is higher, to the top of the slope. "At or near the water's edge" shall mean within thirty feet of the mean-high-water mark.

(a) Building setbacks from the shoreline as specified herein shall be measured from the edge of the steep slope.

(b) No construction shall take place within [*insert number of feet, such as one hundred*] feet of the top edge of the steep slope. No land clearance or grading involving motorized equipment shall take place within [*insert number of feet, such as one hundred*] feet of the top edge of the steep slope.

(c) No vegetation shall be removed from the steep slope.

(d) Stairways or walkways constructed on the steep slope shall require a special use permit from the [*Planning Board/Zoning Board of Appeals*].

1.1.3 Waterfront Bluff Overlay District

One consequence of sea level rise and increased precipitation is the accelerated rate of erosion along beach or river bluffs. Historically, the nation’s shorelines have been receding at an average rate of slightly more than 1 foot per year,¹⁴ but local rates vary tremendously.

Municipalities may develop an overlay district where additional regulations are layered over the underlying district in an area along a waterfront bluff. The district can require buffers that will address current and future risk. Buffers can restrict the location of structures and protect the bluff from erosion due to the consequences of development such as clear-cutting and runoff. Buffers can ensure new structures are set back far enough inland from the bluff edge such that they will not be endangered by erosion over the life of the structure and will not drive the use of a hardening shoreline protective measures.

The Town of Lloyd (NY), home to the Walkway Over the Hudson, adopted a Waterfront Bluff Overlay District local law which emphasizes protection of the views to and from the bluff, while also protecting water resources and addressing erosion control. To reduce the number of structures perched at the edge of the bluff, the law provides close review of proposed development and minimization of vegetation removal. The law restricts cutting of trees with a diameter greater than 18 inches at 4 1/2 feet above grade, but communities could improve resiliency by preserving trees with an even smaller diameter.

USAGE

Identify the area(s) of the municipality that would be included in a waterfront bluff overlay district and provide a map showing those areas as an overlay to the municipal zoning map. Amend the section of the municipal zoning law which established zoning districts to include a new overlay district. See the Town of Lloyd overlay district for language related to other standards, requirements, and enforcement provisions.

Amend other sections of law as necessary to reflect the existence of the new overlay district, such as the definition section, bulk standards, and use standards. Supplement this law with additional restrictions from cutting trees greater than a specific diameter, as well as standards related to stormwater drainage.

Amend the general requirements section of the subdivision law to mention conformity to the overlay district provisions.

LOCAL LAW ADAPTED AS A MODEL

Town of Lloyd (NY) Municipal Code, Chapter 100 Zoning, Article V Overlay and Other District Regulations, Section 100-25 Waterfront Bluff Overlay District¹⁵ and Chapter 90 Subdivision of Land, Section 90-3 General Requirements¹⁶

LANGUAGE

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

Bluff Line - The bluff line is hereby defined as the line at the top bluff, cliff or steep slope rising from the *[insert name]* River shoreline or at the upper elevational limit of a slope of 20% or more above the *[insert name]* River shoreline.

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

Add the following to the zoning regulations:

Section X. Waterfront Bluff Overlay District (WBOD)

A. Authority and purpose.

(1) These regulations are enacted under the authority of §10 of the Municipal Home Rule Law, *[Article 2-A of the General City Law/Article 16 of the Town Law/Article 7 of the Village Law]* and Article 42 of the Executive Law of New York State, in order to protect and enhance the physical and visual environment of the *[City/Town/Village of ____]* and for the protection, order, conduct, safety, health and well-being of people and property within the *[City/Town/Village]*.

(2) The Waterfront Bluff Overlay District is hereby established. It is the purpose of the Waterfront Bluff Overlay District (WBOD) to afford priority to waterfront-compatible, well-designed uses and to control development in ways that protect and enhance the *[insert name]* River waterfront's natural, scenic and cultural resources. Further, it is the purpose of the WBOD to protect and preserve sensitive environmental areas; prevent soil erosion, sedimentation and slope failure due to removal of vegetation; protect and enhance, to the maximum extent possible, the scenic qualities of the *[City/Town/Village]'s* waterfront area by maintaining, creating and continuing the vegetative corridor of the *[insert name]* River region; prevent, to the maximum extent possible, the loss, alteration or diminution of public view of the *[insert name]* River and opposite shore; prevent activities which will cause water pollution; and to implement the policies and purposes of the *[City/Town/Village of ____]* comprehensive plan *[if the community has a local waterfront revitalization program, substitute Local Waterfront Revitalization Program in place of comprehensive plan]*. Further, it is the intent of the *[City/Town/Village of ____]* to protect and preserve the scenic resources of the *[City/Town/Village]*, to ensure that the benefits provided by the *[insert name]* River views will not be lost for present and future generations and to protect the broader public interest.

(3) The WBOD regulations are to be superimposed on the primary zoning district provisions and should be considered as additional requirements to be met by the applicant or developer, prior to project approval. If there should arise a conflict between

the provisions of the WBOD and the provisions of the underlying zoning district, the more restrictive shall apply.

(4) Regulated land use activities proposed in the WBOD, as defined by Chapter *[insert number]* of this Zoning Law, shall require site plan review and approval by the *[City/Town/Village of ____]* Planning Board, pursuant to the provisions of the WBOD and all other applicable sections of this Zoning Law. *[If the community has a local waterfront revitalization program, add: The Planning Board will at the same time review the proposed use for consistency with the policies and purposes of the Waterfront Revitalization Program, pursuant to specific provisions of the Waterfront Consistency Review Law.]*

B. Location, boundaries and maps.

(1) The location and boundaries of the *[City/Town/Village of ____]* Waterfront Bluff Overlay District shall be delineated on the Official *[City/Town/Village of ____]* Zoning Map on file in the *[City/Town/Village]* Clerk's office and the *[City/Town/Village]* Building and Zoning Department.

(2) The *[City/Town/Village of ____]* Waterfront Bluff Overlay District shall be mapped as that area from *[insert description of area]*.

C. Permitted uses. All uses permitted in the underlying zoning district are permitted in the WBOD, subject to applicable standards of the underlying zoning district and of the WBOD and subject to site plan review and approval.

D. Regulated activities. No person shall conduct any of the following regulated activities within the WBOD, unless such person has first applied for and obtained site plan approval by the Planning Board in accordance with the provisions of the WBOD and in accordance with all applicable provisions of the underlying zoning district. Other permits may be necessary from state or federal agencies pursuant to requirements of other state and federal laws.

(1) Construction of new residential structures or structural additions to or modifications of existing residential structures. This shall not include interior alterations, or normal and routine maintenance and repair of existing structures, provided that the use does not change.

(2) Construction of all new nonresidential structures or structural additions to existing nonresidential structures.

(3) A significant and substantial change in use of an existing nonresidential structure. A significant and substantial change in use shall be deemed to have occurred if there is:

(a) Any change in use affecting 2,000 or more square feet of an existing nonresidential structure;

(b) An increase of 50% or more in total square footage of an existing nonresidential structure;

- (c) An increase of 50% in water and sewer demand;
- (d) An increase of 50% in the generation of solid wastes;
- (e) An increase of 50% in required parking; or
- (f) Potential use of hazardous materials.

(4) Construction or placement of any new on-site sewage disposal system, including individual sewage disposal systems, septic tanks, septic drainage or leach fields.

(5) Filling or excavating activities in excess of 200 cubic yards of material.

(6) The cutting down of any trees over [*insert diameter of tree, such as 12 inches*] in diameter measured 4 1/2 feet above the base of the tree on any property within the district. Also included shall be any tree and vegetative clearing and removal activities that either directly or indirectly will cause soil to be exposed and subject to erosion. This shall not include normal and routine tree and shrub care and maintenance, including removal of only dead trees and vegetation.

(7) Discharge of stormwater associated with human activity and/or construction and placement of stormwater runoff systems.

(8) Permanent outside storage of materials and equipment on property within the district. This shall not include normal accessory residential storage activities.

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

(10) Construction of docks, boat launching facilities and fishing facilities, including associated parking areas.

(11) The construction, modification or restoration of erosion-protection structures within the district.

E. Exempt activities. The following activities are exempt from the provisions of the WBOD:

(1) Lawn care and maintenance.

(2) Home gardening activities.

(3) Normal and routine tree and shrub care and maintenance, including removal of dead vegetation. However, this shall not include any tree and vegetative clearing and removal activities that either directly or indirectly will cause the soil to be exposed and subject to erosion.

(4) Removal of structures.

(5) Repair and maintenance of existing structures.

(6) Replacement, repair and maintenance of faulty or deteriorated on-site sewage disposal systems, including individual sewage disposal systems, septic tanks, septic drainage or leach fields.

(7) Commercial agricultural activities, except those activities involving the construction or reconstruction of structures or the cutting down of any trees over [*insert diameter of tree, such as 12 inches*] in diameter measured 4 1/2 feet above the base of the tree. However, this shall not include any tree and vegetative clearing and removal activities that either directly or indirectly will cause the soil to be exposed and subject to erosion.

(8) Any actual or ongoing emergency activity which is immediately necessary for the protection and preservation of life, property or natural resources.

F. Development standards and review procedures during site plan review.

(1) General provisions

(a) Applications for site plan approval within the WBOD shall be made in writing to the Planning Board on forms available in the Planning Board office. Such an application shall be signed by the property owner and may 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 all of the information required by the site plan review provisions and the following additional information, specific to the WBOD:

[i] The location of all existing and proposed impervious surfaces such as roads, driveway, sidewalks, etc., on the property or within 100 feet of the proposed work site.

[ii] Existing and proposed contour levels for the property at two-foot contour intervals within 100 feet of the proposed work site or within the property limits. For purposes here, the term "work site" shall be defined as that area for which human disturbance activities are proposed.

[iii] The location of all proposed waterfront public access/recreation provisions, if applicable.

[iv] The location and types of all existing and proposed tree, shrub and vegetation masses, as well as all trees with a diameter of [*insert diameter of tree, such as 12 inches*] or more, measured 4 1/2 feet above the base of the tree within 100 feet of the work site or within the property limits.

[v] The location of fire and other emergency zones, including the location of the nearest water supply for fire emergencies.

[vi] For all new structures proposed, except accessory structures, a comprehensive scenic landscape protection report shall be provided. Such report shall include, at a minimum, information about existing and proposed vegetation, color of structures and landscaping proposed in order to protect, enhance and continue the vegetative corridor of the [insert name] River region. Color of structures and landscaping shall be an integral part of the report. The report shall include but not be limited to the following:

1. A detailed narrative description, with accompanying maps, sketches, photographs, simulations, etc., of how the proposed development or activity will provide a scenic buffer and blend into the landscape of the WBOD. Such information shall include a description of existing and proposed vegetation, proposed color of structures and proposed landscaping. The types of information that shall be included in this report are: a general description of the condition of existing trees and vegetation; the general location, size and species of trees to be preserved, and those to be removed; and the general location, size and species of proposed trees and other vegetation to be planted.

2. The report shall describe in a detailed narrative, and accompanied by any other pertinent maps, drawings or similar information, how the proposed development will be consistent with the scenic elements and aesthetic significance of any areas of Scenic Areas of Statewide Significance (19 NYCRR Part 602).

3. The report shall address the functional aspects of landscaping such as ongoing maintenance, drainage, erosion prevention, wind barriers and reduction of glare. Any plant material proposed shall be selected for its ability to survive the climate in the region, its structure, texture and color and for its ultimate growth. Plants that are indigenous to the area and others that will be hardy, harmonious to the design and of attractive appearance should be selected.

[vii] The location, design and size of all signs and lighting facilities.

[viii] The approximate locations and dimensions of areas proposed for neighborhood parks, playgrounds and other permanent open space.

[ix] Description and location of erosion control measures including proposed location of sediment sink/settling ponds and interceptor swales, etc.

[x] The location and design of all stormwater management facilities.

[xi] A drainage report including supporting design data and copies of computations used as a basis for the design capacities and performance of closed drainage facilities.

[xii] Record of application and approval status of all necessary permits from federal, state and county officials.

[xiii] A completed SEQR visual environmental assessment form.

(2) Development standards. Site plan approval to undertake any regulated activity within the WBOD shall not be issued by the Planning Board unless the applicant can adequately demonstrate to the Planning Board's satisfaction that:

(a) To the extent possible, structures, storage and parking areas shall be set back from the identified *[insert name]* River bluff ridgeline to reduce opportunities for erosion, sedimentation and slope failure and to protect the scenic qualities of the waterfront area by maintaining, creating and continuing the vegetative corridor of the *[insert name]* River region. Structures proposed below the bluff ridgeline shall make use of natural vegetation and topography and shall be designed in such a way as to enhance visual, scenic and cultural character of the *[insert name]* River waterfront area.

(b) The proposed land use activity will avoid excessive or unnecessary grading, indiscriminate earthmoving or the clearing of property and removal of trees and vegetation which would disfigure natural land forms.

(c) As appropriate to the type of proposed land use activity, the scenic landscape protection buffer measures should protect and enhance, to the maximum extent possible, the scenic qualities of the WBOD area, and the Scenic Areas of Statewide Significance by maintaining, creating and continuing the vegetative corridor of the *[insert name]* River region. While complete vegetative screening is not required, sufficient plant material shall be provided to protect, enhance and continue the vegetative corridor of the *[insert name]* River region.

(d) All proposed buildings and structures are to be clustered together to the maximum extent possible, where appropriate, and depending on the nature of the proposed activity, to ensure that the surrounding visual/natural environment is maintained as much as possible, to retain the quality and extent of view from adjacent public streets through the property to the *[insert name]* River, to save open space and to provide visual organization to the development.

(e) Excavations or cuts made to the steep slope associated with a bluff shall only be permitted where such activities involve bluff cuts made in directions that take advantage of the natural contours of the land or are at oblique angles to the shoreline in order to minimize erosion, control runoff and protect scenic

resources. Side slopes and other disturbed on-roadway areas must be stabilized with vegetation or other approved physical means. Completed paths, accessways or roadways must be stabilized and appropriate drainage provided. *[Note: the source law describes steep slopes as those with 15 percent gradient or greater. A municipality may wish to further restrict development of steep slopes. See Chapter 5 Stormwater Control Measures.]*

(f) Plants or other acceptable ground cover shall be reestablished in disturbed areas immediately upon completion of development activity so as to prevent uncontrolled erosion or slipping of soil or cause sediment to be discharged into the *[insert name]* River, wetlands or into the tributaries, or both, and in order to maintain the natural resource and scenic characteristics of the *[insert name]* River coastal area.

(g) Additional stormwater drainage associated with proposed construction (during and after construction) shall not cause erosion or siltation, contribute to slope failures, pollute surface waters or cause damage to or flooding of property. Drainage systems shall be designed and located to ensure slope stability. Best management practices shall be used to prevent erosion and the introduction of runoff contaminants from entering the waters within the WBOD.

[i] Runoff or other nonpoint pollutant sources from any specific development activity must not be greater than would be the case under natural conditions. Appropriate techniques to minimize such effects shall include but not be limited to the use of stormwater detention basin, rooftop runoff disposal, rooftop detention, parking lot and impervious surface storage and cistern storage systems.

[ii] Natural ground contours should be followed as closely as possible and grading minimized.

[iii] Extreme care should be exercised to locate artificial drainageways so that their final gradient and resultant discharge velocity will not create additional erosion problems.

[iv] The amount of time that disturbed ground surfaces are exposed to the energy of rainfall and runoff water should be limited.

[v] Natural protective vegetation should remain undisturbed if at all possible; otherwise, plantings should compensate for the disturbance.

[vi] The velocity of runoff water on all areas subject to erosion should be reduced below that necessary to erode the materials.

[vii] Sufficient ground cover should be applied to restrain erosion on that portion of the disturbed area undergoing no further active disturbances.

[viii] Runoff from a work site should be controlled to avoid transportation of sediment from the site.

[ix] The angle for graded slopes and fills should be limited to an angle no greater than that which can be retained by vegetative cover or other erosion control devices or structures.

[x] The length, as well as the angle, of graded slopes should be minimized to reduce the erosive velocity of runoff water.

(h) Any new parking lot or area, road, trail or bridge shall be so located, designed and constructed so as to minimize its visibility from the river and minimize alteration or destabilization of the soils.

Add the following to the general requirements section of the subdivision regulations:

X. Conformity to Zoning Code, Official Map and Comprehensive Plan. Subdivisions shall conform to the roads and parks shown on the Official Zoning Map of the [City/Town/Village]. Additionally, subdivisions shall be designed to ensure that subdivision development, including but not limited to the construction of dwellings and the roads therein, complies with the standards of the Waterfront Bluff Overlay District, properly conforms to the requirements of the [City/Town/Village] Zoning Code and shall be consistent with the Comprehensive Plan.

1.1.4 Transfer of Development Rights

Transfer of Development Rights, or TDR, is a land use regulation technique that can be used to advance the open space goals of the municipality without causing a financial burden to landowners or restricting needed development. The Department of State *Transfer of Development Rights* publication describes TDR as a zoning technique designed to preserve or protect natural or man-made property resources for the public's benefit.¹⁷ "A well thought out and administered TDR program ultimately generates development that is more cost-effective and efficient. The use of TDR reduces the prospect of litigation over preservation policies; it avoids the use of municipal funds to purchase land while helping to ensure preservation goals; importantly, it means that the municipality can increase its tax base but does not have to settle for less preservation than it really wants."¹⁸

"In essence, TDR permits all or part of the density potential (established in the local zoning law or ordinance) of one tract of land to be transferred to a noncontiguous parcel or even to land owned by someone else. The development rights become a separate article of property, which can be sold to a landowner whose property is better suited to greater densities. After selling the development rights, a landowner still retains title and all other rights to his land. These other rights permit farming, forestry, some recreational uses, and other non-intensive uses. In addition, the owner may sell or exchange the title to the land just as if the development rights had not been transferred."¹⁹ While the intent is very broad, TDR for natural resource protection means that development is prohibited on the designated property, but allowed in a more suitable location, in order to preserve open space and/or protect a natural resource that provides a valuable service, such as flood risk reduction.

"TDR involves attaching development rights (the right to develop land) to specified lands desired by the municipality to be kept 'undeveloped' and permitting these rights to be transferred from that land, so the development they represent may occur somewhere else. The rights are considered severable for the land ownership so that they may be sold. The 'somewhere else' would be lands for which more development and higher density would be acceptable."²⁰

When developing a local transfer of development rights law, the municipality will need to consider the overall land use policy of the community when designating both sending districts and receiving districts, as well as the potential environmental impacts of TDR. In addition, state statutes require municipalities to avoid creating a negative impact on the potential for development of low- or moderate-income housing as a result of TDR.

There are several variations of TDR programs. No variation has been singled out as a model for this chapter. For municipalities interested in TDR, keep in mind that local laws adopted in other states may not meet the requirements of the statutes in New York State. Also, many examples of TDR laws from communities on Long Island were adopted to implement the 1993 Long Island Pine Barrens Act.

Local TDR laws adopted by a New York State municipality will be highly specific to the needs, desires, and capacity of the municipality adopting it. The following are examples of communities in New York State with TDR Laws. Others may also exist.

- Town of Riverhead, adopted in 2018²¹
- Town of Lysander, adopted in 2008 and repealed in 2015.²²
- Town of Warwick, adopted in 2008²³
- Town of Clifton Park, adopted in 2005²⁴
- Town of Eden, adopted in 1977²⁵

RESOURCES

Transfer of Development Rights. (2010). New York State Department of State. ²⁶

Fact Sheet: Transfer of Development Rights. (2001). American Farmland Trust.²⁷

Siders, A. *Managed Coastal Retreat: A Handbook of Tools, Case Studies, and Lessons Learned.* (2013). Columbia Center for Climate Change Law Columbia Law School.²⁸

Otto, K. *Smart Growth through the Transfer of Development Rights.* (2010). New Jersey.²⁹

1.2 Height, Bulk, and Area Regulations

Height, bulk, and area regulations control the size and placement of structures on a building lot, as well as the dimensions of the lot itself. By controlling those factors, municipalities set the development capacity of designated areas. The following table is a summary of the techniques illustrated in this section that can be used to control development, with a goal of making the community more resilient to the effects of increased flooding and the effects of impervious surfaces, runoff, and pooling water.

Tool	Context
Minimum Lot Size	In flood-prone areas, it may be desirable to establish a higher minimum lot size to reduce the number of building lots that may be created, providing greater area for natural systems to process stormwater and reduce flood risk. This approach would ideally be combined with maximum lot coverage standards.
Maximum Building Height	Allows an increase in the maximum building height (with restrictions on ground-level uses) for buildings in a district where building elevation is necessary due to flood risk, enabling property owners to elevate existing buildings without the need for a zoning variance. Can also be used where a community implements a higher design flood elevation to allow new construction to accommodate the same amount of square footage as a non-elevated building that complies with prior maximum building height.
Maximum Lot Coverage	Specifies that the calculation of percentage of lot coverage includes impervious surfaces like driveways, accessory structures, and pools that can contribute to stormwater runoff.
Setbacks	Requires setbacks from water courses and water bodies in order to preserve shorelines and protect development from flooding, coastal storm surges, and sea-level rise. See examples in the <i>Coastal Shoreline Protection Measures</i> chapter.

1.2.1 Minimum Lot Size

Reducing development in flood-prone areas allows the natural landscape to absorb more floodwaters, reducing flood damage to structures and human life and providing a natural storm protective buffer. Through the zoning enabling statutes, local governments have the authority to limit development in the floodplain on the basis of risk to health, safety and welfare. For example, it may be desirable to have larger minimum lot sizes in some zoning districts to reduce the number of building lots and to protect natural resources which process stormwater runoff and reduce flood risk. Combining minimum lot size with additional zoning regulations, such as limits on the number of principal uses or a cap on maximum lot coverage, enhances the goal of limiting risk to persons and property.

Minimum lot size is established in the zoning law for each zoning district and is part of the calculation of buildable land for subdivision purposes. As minimum lot size is increased, the number of building lots allowed in a subdivision will decrease. Because larger minimum lot sizes can contribute to sprawl, cluster or conservation subdivision are alternative approaches to consider for some areas of a community. (See Section 1.5.7 of this chapter for more information.)

In addition to requiring conformance with zoning, planning boards are also charged with ensuring lots on a subdivision plat can be used safely for building purposes without danger to health or peril from flood, drainage or other hazards. (See Section 1.5 of this chapter for more information.) In fulfilling this duty, planning boards may require lots on subdivision plats to be larger than the minimum required by zoning in order to safely accommodate development.

USAGE

Amend the general standards and requirements provision of the subdivision law to include a statement relating to the need for buildable areas where the subdivision includes lots in the floodplain.

Amend the dimensional regulations of the municipal zoning law as they relate to the floodplain district.

ADAPTED FROM THE FOLLOWING SOURCE

City of Middletown (CT) Municipal Code, Section 46 Flood Area Managements Regulations, Section 46.06 Design Standards for Subdivision Proposals, Section 46.06.07³⁰

Town of Wheatland (NY) Municipal Code, Chapter 130 Zoning, Article II Zoning Map; District Regulations, Section 10-11 Floodplain and Residence Districts: Table of Dimensional Regulations³¹

LANGUAGE

Amend the general standards and requirements section of the subdivision law:

(X) All subdivision proposals shall be consistent with the need to minimize flood damage. All proposed lots shall have a minimum buildable area outside the natural (non-filled) 100-year floodplain. The buildable area shall be large enough to accommodate any primary structures and associated structures such as sheds, barns, swimming pools, detached garages, on-site sewerage disposal systems, and water supply wells, if applicable.

Amend the District Regulations – Area Schedule in the zoning law.

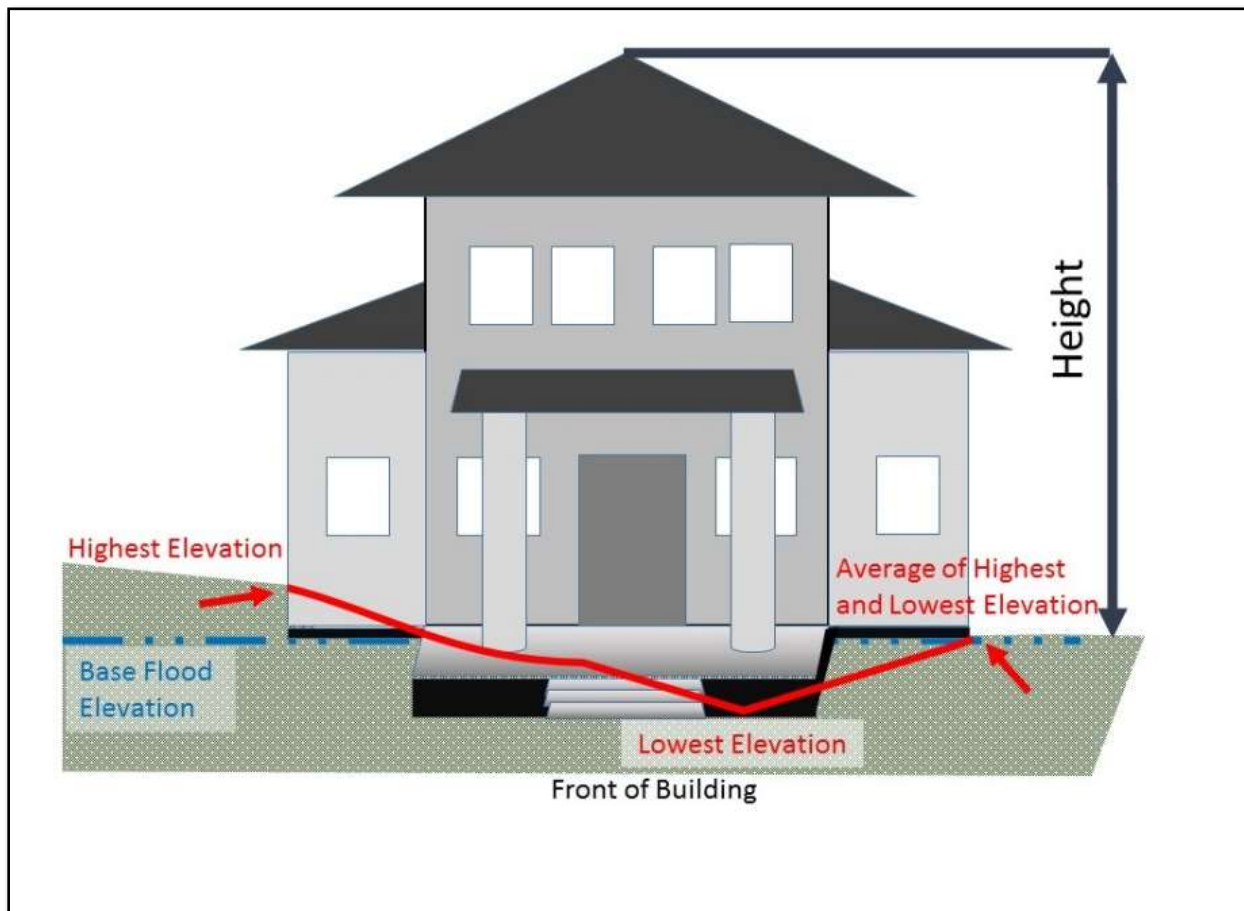
Floodplain and Residence Districts: Table of Dimensional Regulations	
Dimensional Provisions	Flood Hazard District (F-1)
Lot area, minimum	5 acres
Lot coverage, percent of total area occupied by main and accessory buildings	1 percent
Lot width, minimum	300 feet
Front Yard, minimum as measured from the street line	100 feet
Side Yard, minimum for one	50 feet
Side Yard, total for both on interior lot	100 feet
Side Yard abutting side street on corner lot, minimum	100 feet
Rear Yard, minimum	50 feet
Where public sewers are not available, no lot shall be built upon which has insufficient space for a private sanitary waste disposal system, as determined by the <i>[insert name of applicable health department]</i> .	

1.2.2 Maximum Building Height

Zoning laws typically establish a maximum building height based on the use or district in which the structure will be located. The height selected might factor into the availability of firefighting equipment, the circulation of air, access to sunlight, neighborhood character, protection of views, and impact on building density. Allowing taller buildings while limiting lot coverage is a way to maintain density and provide increased building square footage without increasing building footprints and the amount of impervious surfaces. Less impervious surface will reduce stormwater runoff, which contributes to flooding.

Following Superstorm Sandy in 2012 and other recent weather events, many municipalities received requests for permits to reconstruct buildings that were significantly damaged due to storm-related flooding or other hazards. Reconstruction in many areas involves elevation of the structure to comply with the building code and to reduce federal flood insurance premiums; however, elevation in compliance with the building code could result in a violation of the height restrictions of the zoning district, thus requiring homeowners to seek height variances from the zoning board of appeals.

The Town of Islip (NY) found that homeowners seeking to elevate their homes after Hurricane Sandy often required height variances from the Town of Islip zoning board of appeals. Height measurements at the time were taken from the ground level, which were often below FEMA's



flood lines. To address this, the Town of Islip amended the zoning law to relax height restrictions on dwellings located in FEMA-designated Special Flood Hazard Areas.

To address the potential burden on storm-damaged property, and to encourage pro-active elevation to avoid future storm damage, a municipality could provide for taller structures through an increase in height restrictions; a change in the way height is calculated; or a reclassification of buildings that will need elevation as legal non-complying buildings after the elevation.

BUILDING RELOCATION

In the context of sea level rise and flooding, the maximum height allowed can impact the cost or degree of difficulty of reconstruction of a storm damaged structure, the cost of relocation, and the amount of stormwater runoff. Smaller homes face fewer obstructions than larger or taller ones that could require detour around overpasses or the raising of utility lines, increasing the cost of relocation. The short-term economic disincentive for moving a structure could increase the likelihood the structure will stay in place and face repetitive damage, ultimately resulting in personal and societal costs associated with insurance and rebuilding.

RESOURCES

Engineering Principles and Practices for Retrofitting Flood-Prone Residential Structures. (2012). FEMA P-259.³²

USAGE

Add to the general provisions of the municipal zoning law an explanation of how to determine the building height of a single-family residence and any accessory structures in areas of special flood hazards. Select one of the two options provided to complete the explanation.

ADAPTED FROM THE FOLLOWING SOURCE

Town of Islip (NY) Municipal Code, Chapter 68 Zoning, Article 1 General Provisions, Section 68-3³³

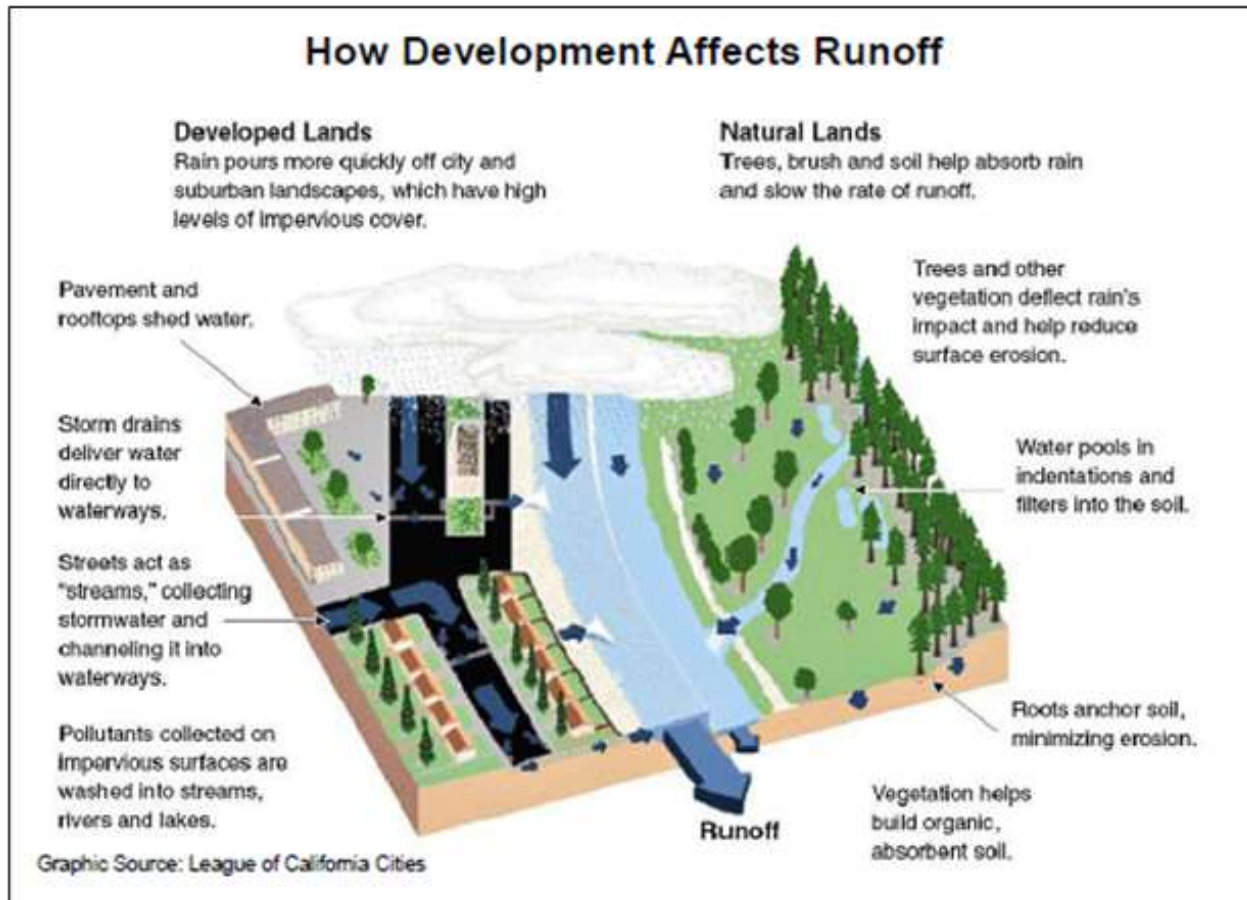
LANGUAGE

Building Height, Single-Family Residence. Unless otherwise stated, the building height for any single-family residence and any structure(s) accessory thereto is the vertical distance from the average grade of the ground at the base of the structure, or the average grade at the street, whichever is less, to the highest point of the roof, provided that chimneys, spires and similar permitted projections shall not be included in the height. Within an area of special flood hazard as defined by the [City/Town/Village of _____] Flood Damage Prevention Law, building height shall be measured from the average grade of the ground at the base of the structure or the

minimum elevation necessary to meet the prerequisites for federal flood insurance as determined by the National Flood Insurance Program/FEMA shown on any applicable Flood Insurance Rate Map. The [*Commissioner of Planning/Zoning Enforcement Officer/Building Inspector or his/her designee*] shall be responsible for any interpretations concerning average grade and/or base flood elevation.

1.2.3 Maximum Lot Coverage

Maximum lot coverage is a zoning standard that limits the amount of land in a developable lot that can be covered by buildings, structures and impermeable areas such as asphalt driveways and concrete patios. An impervious surface is land cover that cannot effectively absorb or infiltrate water, such as non-porous asphalt or asphalt sealants, non-porous concrete, roofing materials, and certain gravel surfaces used in roadways or parking lots. Some municipalities require a certain percentage of planting area, with the remainder available for pavement and buildings installed pursuant to zoning.



Source: <http://planning.westchestergov.com/images/stories/reports/FLOODGUIDE.pdf>

The “maximum lot coverage for structures” requirement ensures open space on a lot which helps to maintain a consistent land use pattern in residential neighborhoods, provides for adequate light and air to all properties, and prevents public nuisances like increased storm water runoff and other environmental hazards.

Lot coverage regulations vary on the types of impervious surface which is factored into the coverage equation. A less restrictive approach for residential properties would only be to count permanent structures such as homes, garages, porches, and sheds. A moderate approach would add to the list sidewalks, driveways, paved patios, sport courts, and other impervious surfaces.

The most inclusive approach would also include wooden or composite planked decks without spacing between the planks and impervious area underneath, ponds, and swimming pools.

Chapter 178 of the City of New Rochelle (NY) Zoning Law is dedicated to impervious surfaces. The purpose statement says:

Natural, pervious surfaces have a direct relationship to the health, safety and welfare of the community since the percolation of rainfall through soils reduces erosion and flooding, contributes to the replenishment of groundwater and groundwater ecosystems, provides for the removal of pollutants contained in surface waters, reduces the need for the public construction of storm drains, basins, and other off-site structures, provides a medium for the planting and maintenance of groundcover and trees, reduces heat and the need for air conditioning, absorbs air pollution, and adds to the aesthetic quality of the community. The covering of natural pervious surfaces with macadam, concrete, tiles, bricks, roofs, and other impervious surfaces for the creation of subdivisions and for residential and nonresidential development on private lots, even when dry-wells and other on-site storage and treatment systems are utilized, contributes to higher ambient temperatures and greater demand for energy, increased loss of habitat for insects, birds, and other wildlife, covering of productive topsoil, global warming and ozone depletion, water pollution, all of which adversely affect the inhabitants of the City of New Rochelle. Trees are recognized as being able to mitigate the negative effects described above.³⁴

New Rochelle requires applicants for building permits for new construction, building expansion, parking area, driveway, swimming pool, or other structures that will create or expand impervious surfaces by more than 200 square feet to get a permit specifying the allowed amount of impervious surface and the required environmental mitigation. Mitigation includes the planting of trees or, where technically impractical or impossible, the payment of fees to the City Tree Fund to defray the City's costs for acquisition, maintenance, and planting of trees elsewhere.³⁵

Other ways to minimize impervious surfaces may be accomplished by municipalities through local policies and road development standards. For example:

- Reduce required roadway widths
- Change requirements related to sidewalk widths and allow construction with permeable materials
- Reduce required driveway widths and consider requiring porous pavement or other permeable surfaces for some or all of the driveway
- Minimize the number and size of cul-de-sacs

USAGE

Insert into the definitions and general standards sections of a municipal zoning law, and into the schedule of dimensional regulations for each zoning district.

ADAPTED FROM THE FOLLOWING SOURCE

LANGUAGE

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

Building - Any structure over four feet high having a roof, self-supporting or supported by columns, walls, air pressure, or similar supports, which is affixed to the ground and intended for the housing or enclosure of persons, animals or chattel.

Diameter at Breast Height (DBH) - A standard measurement of trees made at 4 1/2 feet above ground level on the uphill side.

Impervious Surface - Any surface or material through which water will not flow under ordinary hydrostatic pressure and including structures, parking areas, driveways, sidewalks, terraces and paved areas.

Lot Coverage, Total - That percentage of lot area covered by the ground floor area of all buildings sited thereon, together with all other structures, including pavement and other impervious surfaces.

Structure - Anything constructed or erected, the use of which requires location in the ground or attachment to something having location in the ground. Included are buildings, swimming pools, parking garages, decks, paddle tennis courts, or any assembly of materials over four feet in height, but not anything requiring only simple paving or surfacing of the ground, such as parking lots, driveways or sidewalks.

Add to the General Standards section of the zoning law:

(1) Creation or expansion of impervious surface.

(a) On private property, no person who requires or will require a building permit for new construction, building expansion, parking area, driveway, swimming pool, or other structure shall be permitted to create impervious surface or to expand any existing impervious surface by more than 200 square feet, utilizing macadam, concrete, tiles or bricks with mortar, asphalt shingles, slate, plastic, or other similar impervious material, through the construction of buildings, carports, driveways, walkways, patios, pools, roadways, sidewalks, or other similar structures without first obtaining a permit from the [*Code Enforcement Officer/Building Inspector*] and without required mitigation as approved by the approval authority.

(b) Approval authority. Where the building permit approval process requires prior approval by the Planning Board, as in the case of site plans, subdivisions, and some special permit uses, the Planning Board shall be the approval authority. In all other

cases, where a building permit is required for construction, demolition, site work, or development, the [Code Enforcement Officer/Building Inspector] shall be the approval authority.

(c) Permit process. The permit to create or increase impervious surface by more than 200 square feet shall be part of the existing building permit application and approval process. The applicant shall provide a schedule precisely calculating the increased area of impervious surface on the parcel or lot for which the building permit is being sought, which schedule shall be clear enough to allow verification by Bureau of Buildings staff. The applicant shall also clearly calculate and summarize the total additional diameter of trees proposed to be planted. Plans submitted with the building permit application shall indicate where trees are proposed to be planted and shall identify species and DBH of proposed trees to enable Bureau of Buildings staff verification.

(d) Mitigation. To mitigate the negative environmental impacts associated with the creation or expansion of impervious surfaces, for every 200 square feet of impervious surface created or expanded or part thereof in excess of the first 200 square feet, the property owner shall plant one tree with a minimum DBH of two inches. Trees with a greater DBH may satisfy this requirement in a mathematically proportionate manner, so that, for example, a tree with four-inch DBH may be planted for 400 square feet of newly created or expanded impervious surface beyond the first 200 square feet. Such trees shall be planted in accordance with the specifications of the landscape nursery from which the tree(s) is purchased or of a licensed design professional.

Add to the Schedule of Dimensional Regulations for each district.

District/Use	Maximum Dimensional Requirements	
	Coverage	
	Buildings	Impervious Surfaces
General Commercial	100%	100%
Light Industry	60%	90%
Two-Family	30%	60%
One-Family Waterfront Residence	25%	45%
One-Family Residence	20%	35%

[A schedule of dimensional regulations or bulk standards chart will typically include other information, such as allowed density (dwelling units per gross acre), minimum lot frontage, front setback, side setbacks, rear setbacks, and height limits. The chart here is abbreviated to focus on lot coverage and impervious surface area.]

1.2.4 Setbacks

A setback is a minimum distance that a structure must be placed away from a property line or another structure. Setback distance is an important decision as it can determine the life of the structure and prevent costly shore protection measures down the line by property owners attempting to stop the natural process of coastal retreat. There are a variety of methods that can be used as the basis of a setback. While ideally, setbacks should take into consideration all factors comprehensively, it may be more straight-forward for local law development to identify a single component to establish as a basis of setback.

Municipalities may also wish to establish setbacks from natural features such as a river's mean highwater mark or the center of a stream by enactment of a separate local law, independent of the zoning regulations and the zoning variance process. When doing so, consideration should be given as to how local code enforcement officials can determine compliance with such standard. When drafting a local law that would establish setbacks from such features, the municipal attorney must draft the separate 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*.³⁷ The *Coastal Shoreline Protection Measures* chapter of these model local laws contains several model setback provisions that require supersession.

Model flood damage prevention laws that communities can adopt to join the National Flood Insurance Program (NFIP) are available from the NYS Department of Environmental Conservation. Flood damage prevention laws are typically separate from zoning and contain their own variance procedures. Such laws are enforced by a "Local Administrator" whose duties include reviewing subdivision and other proposed new development to determine whether building sites will be reasonably safe from flooding. If a proposed building site is located in an area of special flood hazard, all new construction and substantial improvements must meet the applicable standards contained in the construction standards section of the flood damage prevention law. The example below, which is adapted from a similar model from the State of Mississippi, would add to the construction standards section a paragraph describing the need for building sites to be setback from a special flood hazard area a distance that factors in the slope of the land. The *Management of Floodplain Development* chapter of these model local laws includes information about flood damage prevention laws and additional ways they can be enhanced to increase resiliency.

USAGE

Incorporate language into the local flood damage prevention law in the section generally presented under the heading “Construction Standards; General Standards; Subdivision and Development Proposals.”

ADAPTED FROM THE FOLLOWING SOURCE

City of Gulfport (MS) Flood Damage Prevention Ordinance (2008 Version), Article 5 Provisions for Flood Hazard Reduction, Section D Standards for Subdivision Proposals³⁸

Mississippi Emergency Management Agency Model Flood Damage Prevention Ordinance, Article 5 Provisions for Flood Hazard Reduction, Section F Standards for Subdivision Proposals and Other Proposed Development³⁹

LANGUAGE

Add the underlined language and table to the section of the flood damage prevention local law that establishes general standards for subdivision and development proposals:

5.1-1 SUBDIVISION AND DEVELOPMENT PROPOSALS

The following standards apply to all new subdivision proposals and other proposed development in areas of special flood hazard (including proposals for manufactured home and recreational vehicle parks and subdivisions):

(8) Each proposed lot must have a designated buildable site above the special flood hazard area (SFHA) as shown on the most current Flood Insurance Rate Map. The distance of the buildable pad or site above the SFHA shall depend on the slope of the ground and in accordance with the following table:

Distance from Special Flood Hazard Area	Minimum Slope from Special Flood Hazard Area to ground level at pad
20 feet	5.0 percent
30 feet	3.33 percent
40 feet	2.5 percent
50 feet	2.0 percent
60 feet	1.67 percent
70 feet	1.43 percent
80 feet	1.25 percent
90 feet	1.11 percent
100 feet	1.0 percent

1.3 Nonconformance

Adopting new land-use laws often leads to *nonconformance* for uses, structures or lots in existence at the time the new laws are adopted. “A nonconforming use is a use of property that was allowed under the zoning regulations at the time the use was established but which, because of subsequent changes in those regulations, is no longer a permitted use. A nonconforming structure is a structure that complied with zoning and development regulations at the time it was built but which, because of subsequent changes to the zoning and/or development regulations, no longer fully complies with those regulations.”⁴⁰ A non-conforming lot is one that was of lawful size at the time it was created but was rendered substandard in area by an increase in the minimum lot size requirements of the zoning.

The doctrine of nonconforming uses recognizes the implicit right of a property owner to continue to use his or her property as he or she has been doing in the past, however, the continuance of nonconforming uses “has been characterized by the courts as a ‘grudging tolerance’ of them, and the right of municipalities to adopt reasonable measures to eliminate or prohibit their expansion has been recognized.”⁴¹

Local laws can be enacted to extinguish nonconforming uses and structures, as well as substandard-sized lots. In developing local laws to extinguish them, a municipality must consider “the nature of the business of the property owner, the improvements erected on the land, the character of the neighborhood, and the detriment caused the property owner.”⁴²

Communities which embark on a rezoning, such as a town seeking to add resiliency components, may find that some resistance to the effort is driven by land owner uncertainty as to how the new law applies to property that is made nonconforming. Providing a nonconformance section will give landowners, local legislators, and administrative personnel clarity on how the new law applies.

In some cases, the desire may be to “hold the line” against further nonconformity, or to allow small changes in exchange for other concessions that would have a positive effect on the community. For example, in some lakeside communities consisting of tiny lots with inadequate stormwater control and wastewater disposal, municipalities allow summer camps to be rebuilt or converted to year-round homes. Rather than taking actions that might lead to disinvestment in lakeside structures and devaluation of lakeside property, the municipal strategy may be to encourage replacement of aging septic systems and require steps to reduce runoff. The NYS Clean Water Infrastructure Act of 2017 established the *State Septic System Replacement Fund* and allocated \$75 million to support the multi-year effort.⁴³

Two model local law provisions related to nonconformance are presented below. The first model local law (Section 1.3.1) would prohibit repairs to a flood-damaged structure that would equal or exceed 50% of the structure’s market value prior to the flood. The intent here is to discourage continued investment in structures in a flood-prone area. The model would also require flood insurance for the remaining nonconforming structures, making property owners responsible for compliance with the National Flood Insurance Program.

The second model (Section 1.3.2) would allow nonconforming structures in certain districts to be demolished and a new structure built without a variance or special use permit provided that the structure and lot on which it is situated comply with applicable maximum impermeable surface requirements. This provision is focused on decreasing stormwater runoff, rather than eliminating nonconforming structures.

1.3.1 Prohibit Substantial Improvements to Nonconforming Uses or Structures in Flood Prone Areas

Current and projected trends show increasing flood risk in New York. One factor in this increased risk will be increases in the frequency and severity of heavy-precipitation events, exacerbated by development. As land is covered with buildings or pavement, water runs off more rapidly and streams have higher flood peaks.

While many areas subject to flooding are shown on flood insurance rate maps, others are not due to assorted reasons, such as their small size or changed conditions since the map was prepared. This leaves many structures at risk for flood damage and without obligation for flood insurance.

The example below does not seek to actively phase out nonconforming uses or structures, but it does prohibit “substantial improvements” of nonconforming uses and/or structures. Most flood damage prevention laws define “substantial improvement” as any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the "start of construction" of the improvement. The term includes structures which have incurred "substantial damage," regardless of the actual repair work performed. The term does not, however, include either:

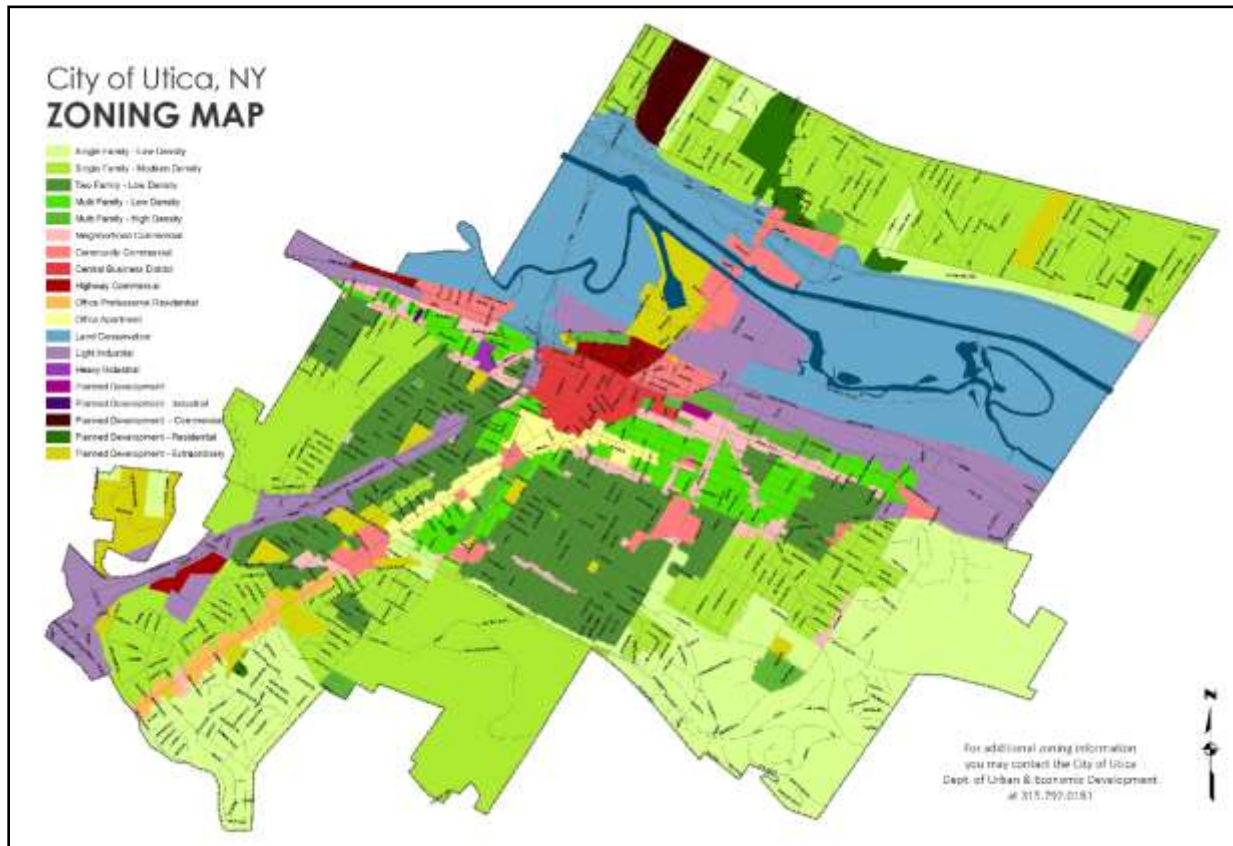
- (1) any project for improvement of a structure to correct existing violations of state or local health, sanitary, or safety code specifications which have been identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions; or
- (2) any alteration of a "Historic Structure," provided that the alteration will not preclude the structure's continued designation as a "Historic Structure."

Practically speaking, the model local law below would prohibit repairs to a flood-damaged structure that would equal or exceed 50% of the structure's market value prior to the flood. It is based on an ordinance adopted by the City of Utica in 1994 that made comprehensive revisions to city zoning, including creation of a Land Conservation District that encompassed the 100-year floodplain and floodway (see map⁴⁴).

The City of Utica's code lists a number of purposes for the district, such as protection of public health, safety and welfare; minimization of public and private property damage; minimization of the need for rescue and relief efforts at public expense; and putting potential home buyers, property owners, and tenants on notice that a particular piece of property is in a flood-prone area.

In recognition that some uses or structures within the newly formed district would no longer conform to the permitted uses in that district, the City of Utica included language describing the consequences for those uses, including the inability to make substantial improvements to nonconforming uses or structures. The City of Utica also included a provision requiring flood

hazard insurance, thereby making property owners responsible for meeting the requirements of the National Flood Insurance Program.⁴⁵



Source: City of Utica

The NFIP requires that if a community participates in the program, flood insurance is a prerequisite for receiving money from a federal agency or federally-supported financial programs, among which is mortgage loans regulated by the Federal Deposit Insurance Corporation and mortgages purchased by Fannie Mae or Freddie Mac. The mandatory purchase requirement applies to buildings located in Special Flood Hazard Areas (SFHAs) seeking such federal assistance. This requirement affects loans and grants for the purchase, construction, repair, or improvement of any publicly or privately-owned building in the SFHA.⁴⁶

USAGE

Add a new restriction and requirement to the zoning district regulations for a zoning district that includes large areas of land subject to periodic flooding, such as a district that encompasses a one-hundred-year floodplain.

ADAPTED FROM THE FOLLOWING SOURCE

City of Utica (NY) Municipal Code, Chapter 2-29 Zoning, Article IV District Regulations, Division 6 Land Conservation District, Section 2-29-255 Uses and/or Structures Rendered Nonconforming by the Adoption⁴⁷

LANGUAGE

A. Following the adoption of these provisions, any use or structure which is situated within the boundaries of the [*insert name of district, such as Land Conservation District or Flood Overlay Zone*] and which does not conform to the permitted uses specified for such district, shall be a nonconforming use or structure, regardless of its conformance to the district in which it is located without consideration of these provisions. Therefore:

- (1) Existing nonconforming uses and/or structures shall not be expanded.
- (2) Substantial improvements of nonconforming uses and/or structures will be not be allowed, irrespective of the cause for the need of the substantial improvements.
- (3) Uses and/or structures which continue to operate and/or exist within the boundaries of the one-hundred-year floodplain after nonconformance has been established will be required to obtain flood hazard insurance from the federal insurance administration. The [*City/Town/Village*] will simultaneously request a submission to rate on the structure to the Federal Emergency Management Agency. In the event the owners of structures or operations subject to this requirement fail to obtain flood hazard insurance within a reasonable period of time, the [*City/Town/Village*] shall secure such insurance and place the annual insurance premium costs as a lien against the title to the land and/or structure.

[Note: Liens placed on property may not be collected through taxation but may be collected at the time a property is sold, or through voluntary payment by the property owner who may be motivated by the need for a clean title.]

1.3.2 Nonconformance of Impermeable Surface Coverage

The establishment of a maximum percentage of impermeable surface coverage on a lot is one way of limiting the density of development and addressing stormwater runoff. This tool can be effective in areas that are already developed where the amount of impermeable surface increases over time as patios, sheds, basketball courts, parking pads and other amenities are added to residential lots. It can also be used where smaller lots are being redeveloped because of the desirability of the location, such as along lakes and rivers.

The Town of Skaneateles (NY) has adopted a set of minimum open space and maximum impermeable surface requirements to address stormwater runoff and to protect water quality of the town's surface waters, especially Skaneateles Lake.

According to town impermeable surface interim guidelines:⁴⁸

- The Minimum Open Space requirement specifies the amount of land to be retained as undeveloped green land (lawn, shrubs, trees, plantings, gardens and other forms of vegetated area) and limits the total amount of development that might occur on a lot. It varies from 80% to 30% of lot area depending on the district and land use. A typical residential lot with an 80% Minimum Open Space requirement could have a maximum of 20% of the lot developed or occupied by manmade improvements (house, garage, shed, walks and driveways).
- A portion of the 20% developable space must be below the Maximum Impermeable Surface requirement (typically 10% of total lot area). This requires the Town of Skaneateles and property-owner



to distinguish between improvements that are considered permeable (allowing water to penetrate into the ground) and those improvements that are impermeable (designed to shed water to adjacent areas). Guidelines help determine whether permeable paving systems, walls, mechanical pads, signs, pools, driveways and parking lots qualify as permeable or impermeable surfaces.

The Town of Skaneateles’ zoning law contains a variety of provisions relating to impermeable surface coverage. The strictest provisions apply in the Lake Watershed Overlay District where maximum impermeable surface coverage is 10%, except on lots which contain structures that are nonconforming as to impermeable surface coverage. The town allows legal nonconforming *lots* to be redeveloped by special use permit granted by the Planning Board, subject to applicable requirements, reduction of impermeable surface coverage on the lot to the maximum extent feasible, and use of practicable measures to minimize the impact of impermeable surface coverage on streams, lakes and groundwater.⁴⁹ If the proposed redevelopment would reduce impermeable surface coverage to bring the lot within compliance with zoning requirements, no special use permit would be required.

The town allows nonconforming *structures* to be demolished and a new structure built (to the same or lesser height and floor space and on the same or lesser footprint) without a variance or special use permit provided that the structure and lot on which it is situated comply with applicable maximum impermeable surface requirements. Especially interesting is the ability of the planning board to require mitigation if the structure and/or the lot on which it is situated do not comply with applicable maximum impermeable surface coverage requirements.⁵⁰

To illustrate the approach taken by the Town of Skaneateles:

A 10,000 sq. ft. lot that has 1,300 sq. ft. of impermeable surface coverage (ISC) is nonconforming where only ten percent ISC is allowed. That means the lot has 300 more square feet of ISC than allowed by zoning.

Formula	Example
Existing lot size x 10% = ISC allowed	10,000 x 0.10 = 1,000 sq. ft.
Existing ISC – ISC allowed = excess ISC	1,300 – 1,000 = 300 sq. ft.

The granting of a special use permit in Skaneateles would be conditioned upon the applicant obtaining either a conservation easement or making a monetary contribution to a fund. The mitigation amount is based on the additional square feet in size the lot would need to make the impermeable surface coverage meet guidelines. In this case, the amount would be an additional 3,000 sq. ft.

Formula	Example
(Existing ISC x 10) – existing lot size = additional land needed	(1,300 x 10) – 10,000 = 3,000 sq. ft
Land Needed x Prevailing Rate per sq. ft. = Payment for fund	3,000 x \$1.09 = \$3,270

The prevailing rate that Skaneateles uses is based on sales of vacant land (town-wide) for a rolling 5-year period to determine the cost of purchasing one acre of vacant land and is verified yearly. The model local law provisions below are based on the mitigation provisions in the Skaneateles zoning law. While they were developed for nonconforming structures and lots, they could be modified to apply to other cases where applicants are unable to meet municipal stormwater standards.

USAGE

To use this provision, a municipality must first incorporate requirements relating to maximum impermeable surface requirements into their zoning law. It must also create a fund to collect voluntary contributions related to mitigation measures and establish the value of the fair market cost to protect one acre of undeveloped land in a defined area.

Insert this language in the nonconforming lot and structure section of the zoning law, or into a new section of the stormwater chapter of the municipal code.

ADAPTED FROM THE FOLLOWING SOURCE

Town of Skaneateles Zoning Law, Section 148-12 Nonconforming Uses, Structures and Lots and Section 148-56 Definitions⁵¹

LANGUAGE

Insert the following definitions in the Definitions section of the zoning law:

Impermeable Surface: Any roofed or other solid structure or material covering the ground through which water does not readily penetrate, including but not limited to concrete, oil and stone, tar or asphalt pavement, or compacted gravel. Regardless of the construction materials, any area which is used for driveway or parking purposes, including disturbed grass, ground cover, or dirt, shall be considered impermeable. A deck with spaced boards at least 1/8 inch apart and a patio with a permeable paving system shall not be considered impermeable. [*The Skaneateles law included swimming pools in the list of things not considered impermeable.*]

Redevelopment: Any change, modification, rehabilitation, or alteration of a preexisting and nonconforming lot whose total calculation of impermeable surface currently exceeds the maximum permitted by [*this chapter/the Zoning Law*], which expands or alters the existing footprint of structure located thereon.

Section X. Redevelopment of nonconforming lots and structures.

- A. A nonconforming structure may be demolished and a new structure built to the same or lesser height and floor space and on the same or lesser footprint without a variance or special permit, provided that the structure and the lot on which it is situated comply with applicable

maximum impermeable surface requirements. If the structure and/or the lot on which it is situated do not comply with applicable maximum impermeable surface coverage requirements, the Planning Board shall require the applicant to reduce impermeable surface coverage on the property to the maximum extent feasible as a condition of the special permit. The Planning Board may also require mitigation as provided in Paragraph B below. In no event may the special permit allow an applicant to increase the nonconforming impermeable surface coverage.

- B. If an applicant for a building permit to expand the floor area ratio or demolish and rebuild a legally nonconforming structure would be unable to reduce maximum impermeable surface coverage on the lot sufficiently to bring a lot proposed for redevelopment into compliance with applicable maximum impermeable surface coverage limitations for conforming lots, such applicant must apply to the *[Planning Board/Zoning Board of Appeals]* for a special use permit. The *[Planning Board/Zoning Board of Appeals]* may condition any approval of such a special use permit on either, at the applicant's option:

(1) The use of mitigation measures that result in the permanent protection by conservation easement of 10 square feet of land in the same general area for each square foot of impervious surface coverage greater than the area required to bring the lot into compliance with applicable coverage limitations for conforming lots sufficient to offset any drainage or environmental impact that might occur as a result of the lot exceeding the applicable coverage limitations. The determination as to the appropriate location of such protected land shall be made by the *[Planning Board/Zoning Board of Appeals]* in consultation with the *[City/Town/Village]* *[Engineer/Environmental Conservation Commission/Open Space Committee]*. The applicant shall bear the expenses associated with establishing the conservation easement. The conservation easement shall satisfy the requirements of § 247 of the General Municipal Law and/or §§ 49-0301 through 49-0311 of the Environmental Conservation Law, and shall be filed and recorded in the County Clerk's office; or

(2) A monetary contribution, equal to the cost to protect 10 square feet of land with a conservation easement for each square foot of impermeable surface coverage greater than the area permitted to bring the lot into compliance with applicable coverage limitations for conforming lots, to the *[City/Town/Village]*'s *[insert name of fund]*, established to acquire development rights or conservation easements on undeveloped land to promote permanent protection of the lake *[add wetland, river or coast if desired]* and other natural resources, which monetary contribution shall be determined by resolution or local law adopted from time to time by the *[City Council/Town Board/Village Board of Trustees]* in an amount equal to the fair market cost to protect one acre of undeveloped land in the *[define area, such as by zoning district or watershed]*.

1.4 Zoning For Post-Disaster Activities

To become more resilient in event of a disaster, communities should undertake a planning process that includes pre-disaster planning and post-disaster implementation steps. This can help communities recover from disasters more quickly, a sign of resilience. By developing post-disaster plans and implementing local laws, municipal officials and the community-at-large can anticipate the special needs of the community following a disaster; establish expectations related to community services; and lay the groundwork for more resilient land use patterns.

As a starting point for communities interested in planning for post-disaster activities, the following publications should be consulted. Just keep in mind when reading them that the laws and government structure in New York differ from many other states and what works in one state may not be permissible in another.

- *Post-Disaster Redevelopment Planning: A Guide for Florida Communities.*⁵² A guide developed by the Florida Department of Community Affairs and Florida Division of Emergency Management presents a process for vulnerable communities to do pre-disaster planning and post-disaster implementation. It includes brief case studies of issues pilot communities faced during their planning process.
- *Planning for Post-Disaster Recovery: Next Generation.*⁵³ How-to guidance prepared by the American Planning Association through a cooperative agreement with FEMA. The report includes a model recovery ordinance for communities that want to enhance their disaster recovery planning before a disaster strikes, and domestic and international case studies that share recovery lessons.

Some of the techniques included in this model local law publication use a zoning technique called a “Special Use Permit.” Special uses are permitted uses subject to certain criteria in local regulations and review by a designated review board--usually the planning board or zoning board of appeals, but sometimes the local governing board or a special board. Generally, the more specific the criteria for review, the more effective the special use permit regulations will be. If the review criteria are satisfied, the special use permit must be granted. If the applicant fails to meet the conditions required by the regulations, the review board must deny the special use permit and provide reasons for denial in its decision. If the review board denies the special use permit without explaining its basis for denial, the board's decision will have increased likelihood of being overturned if challenged. Greater specificity in the criteria or standards by which members of review boards evaluate applications for special use permits make those regulations easier for review boards to administer and their decisions easier to defend if challenged.

The special use permit is often the zoning tool that review boards engage for applications in overlay zones or other districts in which zoning laws have been written to protect a sensitive resource from the effects of development. When contemplating the issuance of special use permits, review boards evaluate the conditions needed to permit or deny development within or in close proximity of a flood hazard, wetland, steep slope, coastal erosion, and other sensitive areas.

In this section, we present several model local law provisions that anticipate storm recovery.

Technique	Description
Temporary Emergency Dwelling Permits	Allows the placement of an emergency dwelling on a lot where a dwelling damaged by flood, fire, or other disaster is located with the grant of a special use permit or other administrative permit.
Emergency Staging Bases	Allows the use of property as an emergency staging facility for public utility service providers when a special use permit is granted.
Temporary Mobile Office Units	Allows for the temporary use of mobile office units to serve established businesses that supply critical services necessary for storm recovery in the event of an emergency declaration.
Design Requirements for Elevated Buildings	Allows for existing residences in designated zoning districts to be elevated, even when doing so will create a non-compliant building height or setback. Requires mitigation of the visual effects of the elevation.
Non-Conversion Agreements	Requires homeowners to affirm an understanding of the limitations on construction and use of the enclosed areas below elevated homes.
Phased Reconstruction Moratorium	Sets up a process for a temporary phased reconstruction moratorium on building permits and land use approvals that is triggered by an emergency declaration or a significant scale of damage to structures in the municipality.
Emergency Activities	Authorizes private property owners to take emergency action, in certain situations, to protect privately-owned structures in coastal erosion hazard areas from damage caused by coastal flooding or erosion. See the <i>Coastal Shoreline Protection Measures</i> chapter.

RESOURCES

Post-Disaster Redevelopment Planning: A Guide for Florida Communities. (2010). Florida Department of Community Affairs and Florida Division of Emergency Management.⁵⁴

Planning for Post-Disaster Recovery: Next Generation. (2014). American Planning Association.⁵⁵

1.4.1 Temporary Emergency Dwelling Permits

The community may experience a shortage of suitable temporary dwelling units following a natural disaster that causes widespread damage to housing units, such as a hurricane or flood. It may be that the quantity of available units is too low; the quality of available units is poor; or the location of the units too distant from work or school. For example, Hurricane Irene destroyed 57 homes and severely damaged 367 other homes in Schoharie County in 2011, representing almost twenty percent of the total housing stock within the six communities affected.⁵⁶

One solution to sudden housing shortages is to allow temporary housing units to be located on the same lot as the damaged property. This allows residents to keep close watch on their damaged property and work to repair it. It also reduces the effects of dislocation on children. For example, York County (SC) developed an application form for a temporary emergency dwelling permit and requires a site plan showing the proposed location of the temporary dwelling in relation to existing buildings and driveways. Part of the form requires the applicant to acknowledge certain requirements, such as:

- The applicant is in the process of repairing or rebuilding a permanent dwelling.
- The applicant occupied the permanent dwelling prior to the emergency and intends to occupy it once repaired.
- If a recreational vehicle is used, the vehicular license will be maintained.
- The temporary emergency dwelling will be maintained in a manner which will facilitate its removal.
- The unit will meet and maintain state requirements for water and wastewater connections and county requirements for temporary electrical service.⁵⁷

Prior to adopting the zoning changes to allow for emergency dwellings, the community should consider how it will handle circumstances where property owners do not vacate temporary emergency dwellings at the end of the permitted time.

USAGE

Add language to the general regulations that apply to all zoning districts or to the description of uses allowed by special use permit. If the Zoning Board of Appeals or Planning Board administers the permit, it should be treated as a special use permit; if the zoning enforcement officer issues the permit, it should be treated as an administrative permit.

Amend the schedule of uses to indicate in which districts a permit for an emergency dwelling may be granted. In doing so, consider whether you want to exclude property in the 100-year flood zone.

ADAPTED FROM THE FOLLOWING SOURCE

Village of Aurora (NY) Zoning Law, Article IV Use Regulations, Section 405 Special Conditions, P3 Emergency Dwellings⁵⁸

LANGUAGE

Section X. Temporary Emergency Dwelling Permits

- A. In the event that a dwelling is rendered uninhabitable by fire, flood, or by a similar natural or manmade disaster, the [Zoning Board of Appeals/Planning Board/Zoning Officer] may issue a permit that authorizes the placement of one temporary emergency dwelling upon the lot where said damaged dwelling is located. The [Zoning Board of Appeals/Planning Board/Zoning Officer] may waive such terms of the zoning law so as to allow the placement and use of such a dwelling upon the same lot as the damaged dwelling, for occupancy during the period that the damaged dwelling is being repaired or replaced.
- B. The following requirements must be met for a parcel to be considered for a temporary emergency dwelling permit:
- (1) A temporary emergency dwelling shall be permitted only if it is located on a lot that is [insert number of square feet, such as 10,000] square feet in area or greater.
 - (2) The principal use of the lot shall be residential and the principal structure on the lot shall be a detached single-family residential building.
 - (3) The principal structure on the lot is in the process of being repaired or rebuilt on that lot because a State or local state of emergency has been declared pursuant to Executive Law Article 2-B and the emergency was caused by a fire, flood, or other accident rendered the permanent dwelling uninhabitable.
 - (4) No more than one temporary emergency dwelling shall be permitted on any single parcel of record and shall be permitted only if a principal dwelling unit is located on the affected parcel or a principal dwelling unit is being constructed.
- C. An emergency dwelling shall meet the following specific standards:
- (1) It shall be a safe and healthful dwelling unit that meets all applicable building, fire, health or other codes.
 - (2) It must have running water and must be connected to a totally enclosed septic system or public sewer.
 - (3) It shall be served by the driveway that serves the principal dwelling.
 - (4) It shall be located in the rear or side yard only.
 - (5) It shall be maintained in a manner which will facilitate its removal by the expiration date of the permit.

(6) The owner or his agent must enter into a written agreement with the [city/town/village] to remove such structure upon expiration of the permit.

[If a recreational vehicle will be allowed, include the following:]

(7) A current vehicular license shall be maintained for any recreational vehicle used as a temporary emergency dwelling.

D. Removal:

(1) An emergency dwelling shall be removed within ten (10) days of the issuance of the Certificate of Occupancy for the repaired or replaced dwelling.

(2) The maximum length of time such an emergency dwelling may be on a lot is *[insert time frame, such as one year]*. One extension of *[one year]* making a total period of time of *[two years]* from the initial permit may be granted by the Zoning Board of Appeals in cases of documented hardship. The hardship must result from circumstances beyond the control of the applicant that prevent the applicant from complying with the requirements of this Section. An extension may be granted only once.

(3) No variance to the requirements of this Section, except as outlined in (2) above, may be granted.

E. To apply for a temporary emergency dwelling permit, the parcel owner shall submit a completed application on a form supplied by the *[Zoning Board of Appeals/Planning Board/Zoning Officer]*. The temporary emergency dwelling permit application shall be accompanied by:

(1) A site plan drawn to a scale large enough to allow determination of the following:

- a. The size and boundaries of the parcel;
- b. The size and location of access, including driveways and access easements, from the parcel to a county, state or public road;
- c. The approximate location and size of all existing structures on the parcel; and
- d. The proposed location and size of the temporary dwelling;

(2) A description of the proposed dwelling;

(3) A notarized statement signed by all owners of the parcel (excluding lien holders) setting forth the circumstances which necessitate the temporary dwelling.

F. Revocation of the permit. If the *[Zoning Board of Appeals/Planning Board/Zoning Officer]* determines that any of the requirements of this section have not been satisfied; if any of the conditions attached to the permit have not been met; or the grounds authorizing the permit

no longer exist, then the temporary emergency dwelling permit may be revoked after notice to the holder of the permit.

1.4.2 Emergency Staging Bases

Some storm events result in extensive damage to public utilities, and repairing the damages requires a large amount of material and equipment. Emergency staging facilities are established which may create temporary disturbances and inconveniences to the surrounding neighborhood. In recognition of the potential future need for temporary emergency staging facilities, a community could provide for their establishment through zoning. Through zoning, they can also define what can be stored on the site long-term, as well as establish requirements for site plan review.

In 2014, North Salem (NY) added zoning requirements related to public utility emergency staging facilities. The action was prompted by a request from New York State Electric and Gas (NYSEG)⁶⁰ to use property it owns to stage crews just before and after a storm. Finding other suitable locations in the area, such as the parking lot of a superstore, an airport, or fairgrounds, was difficult. The town recognized the need for such a facility and developed special use permit requirements that were adopted by the town board as zoning amendments to address material storage, buffers, landscaping, fencing, lighting, stormwater and the temporary nature of the use.

USAGE

Add to the list of definitions in the zoning law definitions for “public utility emergency staging facility” and “storage, open.”

Amend the section of the Zoning Law that describes uses allowed by Special Use Permits to add a section on Public Utility Emergency Staging Facilities. Grant authority to issue special use permits to a local board, such as the Zoning Board of Appeals or Planning Board.

Amend the schedule of zoning uses to indicate the district(s) in which public utility emergency staging facilities would be allowed by special use permit.

ADAPTED FROM THE FOLLOWING SOURCE

North Salem (NY), Chapter 250 Zoning, Article XIII Conditional Use and Special Permit Standards, Section 250-67 Public Utility Emergency Staging Facility⁶¹ and Article II Terminology, Section 250-4 Word Usage⁶²

LANGUAGE

Add the following definitions to the list of zoning definitions:

- (x) Public utility emergency staging facility. An installation used by a public utility, primarily on a temporary and short duration basis, to muster, park, stage, and deploy vehicles, crews, equipment and related supplies immediately prior to and during emergency conditions. Specifically excluding the permanent installation onsite of

collection, transmission and/or distribution facilities of any public utility, except that used to facilitate the purpose and operation of the emergency staging functions.

(y) Storage, open. Outside land areas used for the keeping of goods, wares or supplies ancillary to a principal use located within a building or structure on the same lot.

Section X. Public utility emergency staging facility

A. Intent.

(1) The intent of these regulations is to provide for and permit in a controlled manner temporary emergency staging facilities needed to better ensure a timely and efficient response to a natural disaster or other health and safety emergencies by public utility service providers. Land use activities associated with a temporary emergency staging facility are characterized by their short term (i.e., for the duration of an emergency condition) and need for a coordinated location to mobilize public utility crews in greater numbers than otherwise utilized to maintain standard daily operations. Such temporary emergency staging activities, which if permanent, would not otherwise be allowed by the underlying district. Such temporary use has no inherent rights within the zoning district in which located.

(2) The nature of the permitted temporary use shall be such that normally it will be in harmony with the general purposes of this chapter and in harmony with the appropriate and orderly development of the district in which it is situated and adjacent districts, and will not cause or result in:

(a) Contravention of the performance standards set forth in [*insert zoning section containing provisions relating to noise, vibration, traffic, etc.*].

(b) Dissemination of dust, smoke, gas or fumes, odor, noise, vibration or excessive light beyond the boundaries of the lot on which the use is conducted.

(c) Harmful discharge of waste materials into the ground, water or atmosphere or which constitutes a menace to persons, surrounding properties or plant growth by reason of fire, explosion or other physical hazard.

(d) Unusual traffic hazards or congestion due to the type or amount of vehicles required, or idling vehicles on site for prolonged periods.

(e) Dangerous conditions affecting the comfort, peace, enjoyment, health or safety of the community or abutting areas or tend to its disturbance or annoyance.

B. Location. A site for a public utility emergency staging facility and its access driveway shall be located no more than 2,000 feet from a full interchange with [*insert name of road*] as measured from the center line of the site's access driveway at the adjoining street to the center point of the full exchange. [*Alternatively, establish a different geographic description, such as proximity to a state highway.*]

C. Permitted uses and activities.

(1) During emergency events. The following limited uses and activities shall be permitted, in accordance with conditional use and site development plan approvals, during a period of an emergency event:

- (a) Temporary emergency staging activities of a public utility during a natural disaster or other health and safety emergency.
- (b) Emergency response support services within permanent and/or temporary buildings and structures, which may be constructed to support staging activities and to provide short-term shelter for logistic and field crew prior to and following deployment when at the facility.
- (c) Indoor and outdoor storage of materials and equipment utilized during an emergency event that which is associated with the deployment and support of emergency response crews.

(2) During nonemergency periods. The use of an approved emergency staging facility shall be limited to the following during nonemergency periods:

- (a) The use of any permanent buildings and structures shall be limited to storage of materials and equipment, which otherwise will not be used or deployed until a subsequent emergency event, including the replenishment or stocking of new emergency supplies and materials.
- (b) Any approved temporary buildings and structures used during an emergency event shall be promptly dismantled following conclusion of an emergency response and removed from the property or stored on site according to an approved operations and maintenance plan as required herein.
- (c) Outdoor storage of approved oversized materials brought to the site during a preceding emergency event, which materials were not deployed or ultimately needed in response to the emergency, and which are stored in an appropriate manner and location as indicated on the approved site development plan.

E. Prohibited uses and activities. To protect the surrounding neighborhood, adjacent properties and the orderly use and development otherwise permitted in the underlying zoning district, the following uses shall be strictly prohibited:

- (1) Uses and activities not specifically permitted above.
- (2) Nonemergency use, staging and storage activities (i.e., use and activities otherwise associated with regular maintenance or standard daily operations and services).
- (3) Utility installation and construction staging and storage unrelated to an active and ongoing response to an emergency event.
- (4) Bulk fuel storage used for vehicles and equipment.
- (5) Installation and use of temporary buildings and structures during nonemergency periods.

F. Supplemental bulk standards.

- (1) Maximum building coverage, including permanent and temporary buildings and structures shall not exceed [*insert percentage, such as 2%*] of the lot area.
- (2) No single building or structure shall exceed a gross floor area building footprint of [*insert size, such as 8,000*] square feet.
- (3) No single building or structure shall exceed one story and [*insert height, such as 20*] feet in height.
- (4) Maximum development coverage shall not exceed [*insert percentage, such as 30%*] of the lot area.
- (5) All buildings, structures, internal circulation driveways (except at point of street access) and staging activities shall be no closer than [*insert setback, such as 100*] feet to any property line.

G. Supplemental site design standards.

- (1) Abutting streets shall be of adequate capacity to handle safely and without undue congestion the traffic associated with the use to which access is given.
- (2) Access and service driveways shall be laid out in such a manner that connections with abutting streets on which the lot has frontage are located and designed so as to avoid unsafe conditions.
- (3) An adequately configured and designed internal circulation system shall be provided, including a surface treatment deemed acceptable by the Planning Board [*alternatively, the Zoning Board*]. Pervious surface material shall be used to the maximum extent practicable. Appropriate stormwater management controls shall be required.
- (4) Existing site vegetation shall be preserved to the maximum extent practicable, thereby minimizing site clearing and disturbance.
- (5) Buildings, structures and staging areas shall be located so as to minimize visibility from adjacent properties and abutting streets.
- (6) At minimum, perimeter screening and buffering, as approved by the Planning Board [*alternatively, the Zoning Board*], shall be provided and maintained within the area of applicable setbacks. The Planning Board [*alternatively, the Zoning Board*] may require expanded screening and buffering between any component of the site and adjoining properties, given the site proposed use, the use of adjoining parcels, and the natural topography and vegetative cover.

(7) The Planning Board [*alternatively, the Zoning Board*] may require security fencing be located around staging areas to address safety concerns given the temporary nature of the use.

H. An operations and maintenance plan shall be provided, which plan shall describe and detail how the site would be utilized and maintained during emergency and nonemergency conditions, including:

(1) Site staging operations.

(2) Location and containment of all materials and equipment storage.

(3) Safety measures to be employed to control the site, staging activities and the well-being of crew personnel and the surrounding neighborhood and adjacent land uses.

(4) Schedule for breakdown and site cleanup to be implemented following an emergency event.

(5) Schedule for ongoing site maintenance controls and measures.

(6) Copies of typical "Notices" to be sent to the Building Inspector at the onset of an emergency (at a time convenient) and within seven days of site cleanup following an emergency event utilizing the facility.

(7) A reporting component as deemed acceptable by the Planning Board [*alternatively, the Zoning Board*].

I. No permanent signs, except a single site identification sign with emergency contact information at the site entrance shall be permitted. The size of such sign shall not exceed four square feet and shall be placed at least 10 feet from any property line. Said sign shall not be illuminated.

J. Lighting during nonemergency events shall be minimized to that need for site safety and maintenance. All lighting, including during permitted emergency staging activities, shall not be directed on adjacent streets or properties. All lighting shall be directed downward and inward to the site so the light source is not visible from any adjacent property. Fully fixed shield lights with timing devices shall be utilized on light fixtures to control and direct the illumination pattern and to prevent spillage horizontally and/or across property lines.

1.4.3 Temporary Mobile Office Units

Natural or other disasters may result in damage to both residential and commercial property. When that property is for a business that is critical to disaster recovery, such as a building supply store, insurance agency, or engineer’s office, recovery may be complicated or delayed. In order to provide for the rapid return of such services, a safe and secure location will need to be secured until repairs can be made. A temporary mobile office unit may serve that function if allowed by a municipality’s zoning law.

The Town of Islip (NY) has an application for a temporary trailer/portable storage unit permit. Permits are valid for three months after issuance, with two renewals of three months each possible. They require such permits (other than storage units) to be in conjunction with a building permit, and for the unit to be insured.⁶³

The Town of Warwick regulates by special use permit temporary trailers typically associated with the supervision of construction trades on a site where a building permit has been issued. The town requires a performance bond to insure the proper removal of the temporary trailer office.⁶⁴

The Village of Brockport in Monroe County (NY) requires that temporary office trailers be located at least four feet from any property line or structure, except in residential districts where they must be at least ten feet from all property lines and/or any other structure on the property or an adjacent property.⁶⁵

USAGE

Add language to the general regulations that apply to all zoning districts or to the description of uses allowed by special use permit. If the Zoning Board of Appeals or Planning Board administers the permit, it should be treated as a special use permit; if the zoning enforcement officer issues the permit, it should be treated as an administrative permit.

Amend the schedule of uses to indicate in which districts a permit for a temporary mobile office unit may be granted. In doing so, consider whether you want to exclude property in the 100-year flood zone.

ADAPTED FROM THE FOLLOWING SOURCE

Town of Nags Head (NC) Municipal Code, Chapter 32 Storm Reconstruction, Section 32-5 Temporary Mobile Office Units⁶⁶

LANGUAGE

Section X. Temporary Mobile Office Units

A. Following the declaration of the [city/town/village] as a disaster area by the Governor of New York State or the [City Mayor or Manager/Town Supervisor or Manager/Village Mayor or

Manager] pursuant to New York State Executive Law Article 2-B, a self-contained mobile office unit shall be permitted on the site of the business requesting the mobile office unit subject to the following conditions:

- (1) The business requesting placement of the mobile office unit shall be an established business within the *[city/town/village]*.
- (2) The business requesting placement of the mobile office unit shall be involved in supplying critical services necessary for disaster recovery related to the construction or reconstruction of structures or infrastructure damaged by the disaster, including, but not limited to, insurance offices, engineers and surveyors and financial institutions.
- (3) The mobile office shall not be located closer than *[insert number of feet, such as four]* feet from any property line or structure.
- (4) The mobile office shall be removed within *[insert timeframe, such as seven days]* following the restoration of all utilities or upon issuance of a certificate of occupancy if repairs are needed to the building housing the business, however mobile office units shall not be on site for greater than *[insert timeframe, such as six months]* following declaration of the disaster.
- (5) The mobile office unit shall meet all applicable regulations including, but not limited to the state building code, flood and health regulations.

1.4.4 Building Elevation

While residential structures should be discouraged or prevented from locating in flood-prone areas, many already exist in such areas. Flooding in these areas is likely in the future given increased precipitation, sea-level rise, and the impacts of upland development. If such buildings are not currently elevated, they can be required to be elevated if they receive substantial damage in the future. Some home owners may even voluntarily decide to elevate their homes to reduce their risks from flooding and to lower their flood insurance premiums.



Despite the benefits to the home owners and the community of having homes elevated, elevation can provide esthetic challenges as well as temptations to use the extra space under the elevated structure in ways not permitted by the building code or flood damage protection laws. The model law provisions presented below include design requirements for elevated buildings, as well as agreements where homeowners acknowledge an understanding of the limitations on construction and use of the enclosed areas below elevated homes.

Special consideration should be given to historic resources within State and National Register listed historic district, or individually listed or eligible structures. Two of the key issues with elevating such structures are (1) preservation of structural integrity and character defining features, and (2) limiting total height of elevation so buildings maintain the historic character of the streetscape or individual setting.

Be aware that the elevation of a home may change the way that the number of stories is calculated according to the Residential Code of New York State (RCNYS). For example, elevation of an existing one- or two-family dwelling that formerly had two stories above grade *may* then

be considered to have three stories above grade, which would trigger the need for a sprinkler system. The Department of State Division of Building Standards and Codes has issued a technical bulletin explaining how to determine the number of stories above grade in elevated one- and two-family dwellings in flood hazard areas.⁶⁷

RESOURCES

Elevated Residential Structures. (1984). FEMA 54⁶⁸

Elevation Design Guidelines for Historic Homes in the Mississippi Gulf Coast Region. Mississippi Development Authority.⁶⁹

Technical Bulletin: Determination of Stories Above Grade in Elevated One- and Two-Family Dwellings in Flood Hazard Areas. (2013). NYS Department of State, Division of Building Standards and Codes⁷⁰

Recommended Residential Construction for Coastal Areas: Building on Strong and Safe Foundations. (2009). FEMA P-550, Second Edition.⁷¹

Coastal Construction Manual: Principles and Practices of Planning, Siting, Designing, Constructing, and Maintaining Residential Buildings in Coastal Areas (Fourth Edition). (2011). FEMA P-55.⁷²

Floodplain Facts #8: Enclosed Areas below the Flood Protection Level. (2009). Southern Tier Central Regional Planning and Development Board.⁷³

1.4.4.1 Design Requirements for Elevated Buildings

In order to preserve neighborhoods in flood hazard areas after Superstorm Sandy, New York City adopted special height and setback regulations for residential buildings existing on October 28, 2012, providing an alternative way to measure height in certain zoning districts, establishing design requirements for elevated buildings, and addressing how the elevated structures would be treated under the nonconformance provisions of the New York City zoning law.⁷⁴



The image on the left, provided by Larry Moss, an architect, Hazard Mitigation Specialist, and Historic Preservation Specialist, is a good example of design treatment. The brick elevation wall is in keeping with the modern-four square style of the house; the porch has open lattice work under it; the elevation wall and under-porch wall match the scale of the house; and landscaping elements disguise the height of the house.

The following model language is based on the New York City approach. While not suitable for every community, the concept could be adapted to fit the character of some zoning districts. Examples of elevated buildings that incorporate mitigating elements are available from the NYS Office of Historic Presentation and the Federal Emergency Management Agency (FEMA).

BASIC DESIGN PRINCIPLES FOR ELEVATED STRUCTURES

- 1) Retain the scale of the original house.
- 2) Retain the color of the original house.
- 3) Make the elevation height as small as necessary.
- 4) Disguise the height of the elevation:
 - Use landscaping elements to cover it.
 - Raise the grade at the house wall.
 - Paint the elevation wall a darker color.
- 5) Three feet of smooth surface (concrete, concrete block, stucco) is acceptable visually, but any hard, smooth surface greater than that should be covered with the same material as the upper body of the house.
- 6) A one-story porch, at grade level, can usually be added to provide a visual transition from the two- or three-story elevated house to the ground level.

Source: Larry K. Moss, Historic Preservation Specialist, NYS Office of Parks, Recreation, and Historic Preservation

USAGE

Add language to the general provisions of the zoning law if the intent is to apply throughout the municipality. To limit applicability, the language could be added instead to the description of the zoning district or zoning overlay district that applies to the 100-year flood zone. Or, for additional resilience, make the provisions apply to structures in the 500-year flood zone.

ADAPTED FROM THE FOLLOWING SOURCE

New York City (NY) Zoning Resolution, Article VI: Special Regulations Applicable to Certain Areas, Chapter 4 Special Regulations Applying in Flood Hazard Areas, Sections 64-431, 64-334, and 64-61⁷⁵ and Article I General Provisions, Chapter 2 Construction of Language and Definitions, Section 12-10 Definitions⁷⁶

LANGUAGE

Section X. Special height requirements for existing single- and two-family residences

A. Elevation of existing residences in [*zoning district _____*]. Single- and two-family residences existing on [*date*], may be vertically elevated, or reconstructed to a higher elevation, in order to raise the lowest horizontal structural member supporting the lowest floor containing habitable space, located at or above the adjoining grade as of [*date*], to flood-resistant construction elevation, and in doing so, may create a noncompliance as to height and setback to the extent that such lowest horizontal structural member is elevated or reconstructed to flood-resistant construction elevation. [*Note that alternative language could be used by a municipality to allow the properties to be elevated without being classified as non-complying structures. See Section 1.2.2 of this chapter.*]

B. Legal non-complying status. This section shall not preclude the construction of complying enlargements or other complying structures on the zoning lot. Buildings that were complying on [*date*], and vertically elevated or reconstructed to a higher elevation, pursuant to this Section, shall be considered legal non-complying buildings.

C. Alternative height measurement. Where flood-resistant construction elevation of single- and two-family residences is between six and nine feet above curb level, building height may be measured from a reference plane nine feet above curb level, provided that at least two mitigating design elements are provided. However, no mitigation shall be required where more than 50 percent of the street wall of a building is within three feet of the street line. For the purposes of this Section, a “street wall” is a wall or portion of a wall of a building facing a street, and a “street line” is a lot line separating a street from other land.

D. Mitigating elements include the following.

- (1) Porch. Where provided as a mitigating element, a porch shall have a finished floor at least six inches below the lowest occupiable floor and have a width at least 70 percent of the aggregate width of all street walls within 25 feet of the street line. The depth of the

porch must be at least five feet, and the porch may not be closer to the street line than five feet. Open porches shall count as one mitigating element and roofed porches shall count as two mitigating elements, provided that for such roofed porches, all structural elements shall have a minimum width or depth of at least three inches, and such roof shall have a depth of at least five feet measured perpendicular to the street wall and extend along at least 70 percent of the width of the street wall. A balcony directly above a porch and a trellis or arbor with structural members spaced no further than 30 inches on center that cover such porch may be considered a porch roof for the purposes of this Section.

(2) Stair direction change. Where provided as a mitigating element, stairs shall be constructed between grade and the lowest occupiable floor or porch, as applicable, which shall change direction at least 90 degrees in plan at a point no lower or higher than two feet from the beginning and end of the stair run.

(3) Raised front yard. Where provided as a mitigating element, the grade between the street line and street walls within 25 feet of the street line, and their prolongations, shall be elevated above curb level so that a line drawn midway between the street line and such street walls and prolongations is at least 18 inches above curb level at all points, except for pedestrian ways, vehicular access and off-street parking spaces. The area with final grade above curb level must be greater than 50 percent of the total area between the street line and street walls within 25 feet of the street line and their prolongations.

(4) Trees or shrubs at least three feet high. Where provided as a mitigating element, trees or shrubs that attain a height of at least three feet shall be provided between the street line and street walls within 25 feet of the street line and their prolongations. Planting beds shall be at least three feet wide in plan, measured parallel and perpendicular to the street line. The length of each planted area shall be measured by inscribing each planted area within a rectangle and measuring the longest dimension of such rectangle. The total length of planted areas shall be greater than 60 percent of the lot width and be planted to screen at least 50 percent of the length of the street wall.

1.4.4.2 Non-Conversion Agreements

Enclosed areas below the flood protection level are designed to be flooded and should not be converted to uses that are incompatible with the flood hazard. Conversion to finished living space, blockage of flood vents, or installation of unprotected equipment (appliances, heating/cooling equipment, plumbing fixtures, etc.) violates the conditions of the floodplain development permit.

For new construction, elevated structures, or substantially improved structures (which must comply with floodplain development standards), the enclosed areas below the flood protection level can only be used for parking of vehicles, building access, or limited storage. The interior portion shall not be partitioned, temperature-controlled, or finished into separate rooms.

Because these areas are intended to flood, storage should be limited to items that have a low damage potential or can be easily moved to the elevated portion of the building if there is a flood.⁷⁷



The municipality may require owners to sign non-conversion agreements to document their understanding of the limitations on construction and use of the enclosed area under an elevated structure. An example of a conversion agreement was developed by the Southern Tier Central Regional Planning and Development Board (STCRPDB) for the Town of Horseheads (NY).⁷⁸ STCRPDB suggests that the agreement be required as a condition of issuance of the final Certificate of Occupancy.

Enforcement of non-conversion agreements may result in up to 60 Community Rating System (CRS) points for Element ENL 3b (Enclosure Limits) of Activity 430 (Higher Regulatory Standards).

USAGE

Add a new subsection to the municipal flood damage prevention law section establishing standards for residential structures (generally 5.3)

ADAPTED FROM THE FOLLOWING SOURCE

Village of Freeport (NY) Municipal Code, Chapter 87 Flood Damage Prevention, Section 87-16 Standards for all Structures.⁷⁹

Higher Floodplain Development Standards: Recommendations for the Town of Horseheads. (2015). Southern Tier Central Regional Planning and Development Board.⁸⁰

FEMA. *Model Acknowledgement of Conditions for Mitigation of Property in a Special Flood Hazard Area with FEMA Grant Funds.*⁸¹

LANGUAGE

Add to a new paragraph (4) to section on Certificate of Compliance (Generally Section 4.4-7 of the municipal Flood Damage Prevention Law):

(4) For any fully enclosed area below the lowest floor elevation in which the interior height is more than 4 feet, a signed non-conversion agreement prohibiting the conversion of the area below the lowest floor to a use or condition contrary to the building's originally approved design, shall be presented as a condition of issuance of the final Certificate of Occupancy. This agreement must give the [City/Town/Village of _____] the right to periodically enter and inspect the enclosed area.

Add to the end of paragraph (3) in section on Construction Materials and Methods (Generally Section 5.2-2 of the municipal Flood Damage Prevention Law):

Enclosed areas below the lowest floor shall not be subsequently modified or used in a manner that renders the enclosure non-compliant with the requirements of this section.

Add a new Sub-Section under Residential Structures (Generally Section 5.3 of the municipal Flood Damage Prevention Law):

Section 5.3-2 Non-Conversion Agreement.

The following standards shall apply to residential structures in areas of special flood hazard as follows:

(1) Any owner who has applied for a permit to construct or elevate a structure on a property located in the areas of special flood hazard must enter into a non-conversion agreement with the [insert name of municipality].

- (2) Such agreement shall be signed by the owner prior to the issuance of any building permits and recorded by the owner with the *[insert name of County]* Clerk's office. *[Alternatively, in the office of the building inspector/code enforcement officer].*
- (3) With this agreement the owner shall agree that all construction below the allowable lowest floor will meet all requirements of the National Flood Insurance Program; shall be in compliance with all local, county, state, and federal laws rules and regulations; and will allow upon consent inspection by the *[insert name of building department, such as Department of Buildings]* to verify such conditions continue to exist.
- (4) Content of Notice of Agreement. The notice shall include the name of the current property owner (including book/page reference to record of current title, if readily available), The floodplain development permit number, a legal description of the property, and the following notice of flood insurance requirements:

"This property has received Federal hazard mitigation assistance. Federal law requires that flood insurance coverage on this property must be maintained during the life of the property regardless of transfer of ownership of such property. Pursuant to 42 U.S.C. §5154a, failure to maintain flood insurance on this property may prohibit the owner from receiving Federal disaster assistance with respect to this property in the event of a flood disaster. The Property Owner is also required to maintain this property in accordance with the flood plain management criteria of Title 44 of the Code of Federal Regulations Part 60.3 and the *[City/Town/Village]* Code."

1.4.5 Phased Reconstruction Moratorium

As shown by Tropical Storm Lee, Hurricane Irene, and Superstorm Sandy, weather-related and other disasters can have a significant impact on municipal infrastructure and private property. They can strain the ability of municipal officials to meet the high demand for services of all types, including the inspection of buildings and issuance of building permits. Municipalities are then faced with determining how to allocate time and resources to focus on activities most important to immediate storm recovery needs.

Given limited municipal resources, municipalities should prioritize applications and inspection needs in the aftermath of a natural disaster. That can be done through enactment of a Phased Reconstruction Moratorium local law. The enactment of a moratorium would constitute a change to the zoning law and should be undertaken with the same deliberateness of other zoning changes.

This Phased Reconstruction Moratorium model local law addresses post-disaster situations and describes temporary changes in land use administration and its effect on approvals. The provisions of the law would remain dormant until a pre-determined happening, such as a Proclamation of Local Disaster or a finding by the Local Administrator that a minimum amount of structures have received major damage or have been destroyed. By proactively enacting this law, the municipality avoids the need to gather board members and conduct a deliberate and slow legislative process in the wake of a storm.

If there are no procedures in place for differentiating between the types of permit applications and when they will be processed, local government staff could be overwhelmed and the critical permits that need to be processed for recovery to advance could be delayed. A moratorium may provide for rapid disaster repairs while maintaining a reasonable amount of time for permitting officials and property owners to assess the situation and make smart redevelopment decisions. The moratorium may be based on the degree of damage to the individual structure. Post-disaster moratorium is a useful tool to maintain the quality of reconstruction.

When citing the authority for enactment of the local law the municipality should cite the New York State Constitution Article IX and Municipal Home Rule Law §10. They may also cite New York State Executive Law Article 2-B, which provides for the creation of emergency management plans to minimize the effect of disaster by identifying local ways to prevent disasters, coordinate resources and manpower after disasters, and provide for recovery and redevelopment after disasters. When creating such plans, cities, towns and villages are encouraged to be consistent with county disaster preparedness plans.

In enacting the provisions of this floating zone chapter, each municipality should inquire into county or local comprehensive emergency management plans to ensure consistency and cooperation.

A word of caution. Because provisions of the model moratorium temporarily restrict the approval of preliminary and final subdivision plats, the model local laws should provide for the

supersession subdivision statutes and the suspension of timeframes for decision-making on such plats by the planning board. This is done to avoid a default approval and in recognition that administrative support for the planning board may be engaged in storm recovery activities. For additional information about moratoria, please see the New York State Department of State publication, *Land Use Moratoria*.⁸²

Preliminary Damage Assessment Team

A Preliminary Damage Assessment Team typically consists of a combined team of local, State and Federal engineers, that inspects damaged facilities and infrastructure and develops an estimate of the cost required to restore the facilities to their pre-disaster condition.

According to the New York State Comprehensive Emergency Management Plan, many state agencies have the resources and capabilities to support the preliminary damage assessment process. If activated, the request and utilization of those resources will be coordinated through the State Emergency Operations Center and Function Groups and communicated through Agency Departmental Operations Centers.⁸³

USAGE

Adopt as a new chapter in the zoning section of the municipal code.

ADAPTED FROM THE FOLLOWING SOURCE

Nags Head (NC) Municipal Code, Chapter 32 Storm Reconstruction⁸⁴ and Chapter 48 Zoning, Article XX Hurricane and Storm Reconstruction and Redevelopment; General Use Standards for Ocean Hazard Areas⁸⁵

Hillsborough County (FL) Municipal Code, Chapter 22 Emergency Management and Emergency Services, Article III Reconstruction Following Emergencies⁸⁶

LANGUAGE

Chapter X Phased Reconstruction Moratorium

Section 1: Title

This local law establishes a Phased Reconstruction Moratorium on the issuance of building permits, land use approvals, and variances in the immediate aftermath of a natural or other disaster. The local law sets up a procedure to orderly address the construction and reconstruction of structures based on the condition of damaged or destroyed properties.

Section 2. Authority

This moratorium is enacted by the [City/Town/Village of _____] pursuant to its authority to adopt local laws under the New York State Constitution Article IX and Municipal Home Rule Law § 10. To the extent that any provisions of this local law are different from applicable provision(s) in the New York State [General City Law/Town Law/Village Law], amendments thereto, and any applicable charter, the [City/Town/Village of _____] hereby declares its intent to supersede the section(s) of that New York State Law, to the extent permitted by the New York State Municipal Home Rule Law and the Statute of Local Government through adoption of a local law. Also, New York State Executive Law Article 2-B authorizes certain emergency actions which can be taken by the chief executive officer of the [City/Town/Village] following proclamation of a local state of emergency.

Section 3. Purpose and Intent

A. The [City Council/Town Board/Village Board of Trustees] finds that the effects of periodic natural or other disasters, such as flooding, may present a serious threat to the lives and property of the residents of the [City/Town/Village of _____]. Thus, in order to protect the health, safety, and welfare of the people and property of the [City/Town/Village] in local emergency situations; and for the purposes of preventing material losses and reducing the cost to the public of rescue and relief efforts caused by the unwise occupancy of areas subject to these disastrous effects; the provisions of this chapter are necessary.

B. Following a natural disaster or other disaster, sufficient time must be provided to conduct a damage assessment, classify and categorize damage to individual structures, and perform other emergency and disaster recovery efforts. The purpose of the Phased Reconstruction Moratorium is to encourage construction and reconstruction in an orderly or appropriate matter following natural disasters or other disasters that cause destruction or loss of private and public property, damage to public facilities, and injury to and loss of human life in certain locations within [city/town/village]. The Phased Reconstruction Moratorium seeks to control the issuance of building permits and other land use approvals in order to manage the location, timing, and sequence of reconstruction and repair of damaged structures.

Section 4. Definitions

The following words, terms and phrases, when used in this chapter, shall have the meanings ascribed to them in this section:

Chief Executive. The [mayor/city manager OR supervisor/town manager OR mayor/village manager].

Destroyed Structure. A structure that is a total loss or damaged to such an extent that repairs are not technically or economically feasible. The indicator for this category is if the cost of repairing the structure exceeds 50 percent of the replacement cost of the structure at the time of damage or destruction.

Major Damaged Structure. A structure that can be made habitable with extensive repairs. Damage may include foundation, roof structure, and major structural components. The

indicator for this category is if the cost to repair is greater than twenty (20) percent and up to and including fifty (50) percent of the replacement cost at the time of damage.

Minor Damaged Structure. A structure that can be made habitable in a short period of time with minimal repairs. Damage may include doors, windows, floors, roofs, mechanical systems, and other minor structural damage. An indicator for this category is if the cost to repair is less than or equal to twenty (20) percent of the replacement cost at the time of damage.

Natural or Other Disaster. The occurrence or imminent threat of wide spread or severe damage, injury, or loss of life or property resulting from any natural or man-made causes, including, but not limited to, fire, flood, earthquake, hurricane, tornado, high water, landslide, mudslide, wind, storm, wave action, explosion, or radiological event.

Preliminary Damage Assessment Team. A Preliminary Damage Assessment Team typically consists of a group of local, state, and federal engineers who inspect damaged facilities and infrastructure and develop an estimate of the cost required to restore facilities to their pre-disaster condition.

Proclamation of Local State of Emergency. Pursuant to New York State Executive Law 2-B Section 24(1), a proclamation by the chief executive in the event of a disaster or in the event of reasonable apprehension of immediate danger thereof and upon a finding that the public safety is imperiled thereby, such chief executive may proclaim a local state of emergency within any part or all of the territorial limits of such local government.

Replacement Cost. Replacement cost means the actual cost to repair, reconstruct, rebuild or replace a damaged structure. For purposes of this ordinance, the replacement cost shall be compared to the structure's building value contained in the most recent assessment roll taking into account the municipality's uniform percentage of value to determine the full market value.

Section 5. Designation of Local Administrator

The [city/town/village] [*insert title, such as Code Enforcement Official*] is hereby appointed the Local Administrator to administer and implement this chapter by granting or denying building permits, certificates of occupancy, and other actions authorized by the New York State Uniform Fire Prevention and Building Code in accordance with this Chapter. The Code Enforcement Official shall be a certified code enforcement official.

Section 6. Powers and Duties of Local Administrator

A. The Local Administrator or his or her agent shall conduct rapid evaluations of buildings in the area affected by the natural or other disaster and complete an evaluation form for each building. He or she may be assisted by a Preliminary Damage Assessment Team.

B. The Local Administrator shall categorize the buildings as 1) minor damaged structures, 2) major damaged structures, and 3) destroyed structures.

C. The Local Administrator shall advise the Chief Executive Officer when the combined number of major damaged structures and destroyed structures exceeds *[insert number or percentage]*, such as *[one hundred structures or thirty percent]* of structures.

[In municipalities with many multi-family structures, the municipality may want to specify the number or percentage of multi-family housing units.]

D. The Local Administrator shall enforce the moratoria provisions in accordance with this Chapter.

Section 7. Applicability

A. The provisions of this chapter shall apply upon the occurrence of the following:

(1) The *[city/town/village]* is proclaimed a disaster area by the Chief Executive of *[city/town/village]* pursuant to Executive Law 2-B; or

(2) At least *[insert number or percentage of]* structures in the *[city/town/village]* have received major damage or have been destroyed as determined by the Local Administrator.

B. The provisions of this chapter relating to the initial phase of the moratorium shall apply to all structures and the lots upon which they are located within the *[city/town/village]*. Phase Two shall limit land use approvals related to all structures categorized as major damaged or destroyed pursuant to Section 6 and the lots upon which the structures are located. Phase Three shall apply limit land use approvals related to all structures categorized as destroyed and the lots upon which the structures are located. Following the proscribed time frame the Phased Reconstruction Moratorium shall end.

C. Phased Reconstruction Moratorium may be enacted multiple times provided one of the occurrences described in Paragraph A are met.

Section 8. Notice

A. Public notice of the effective date of the Phased Reconstruction Moratorium shall be conspicuously posted at the *[City/Town/Village Hall]*, in a newspaper of general circulation in the area affected by the moratorium, and on the local government's web page if one exists. Such notice shall clearly identify the properties subject to the Minor Damaged, Major Damaged, and Destroyed Structure Moratorium. The public notice shall also specify the exact nature of the development permits that are temporarily held in abeyance.

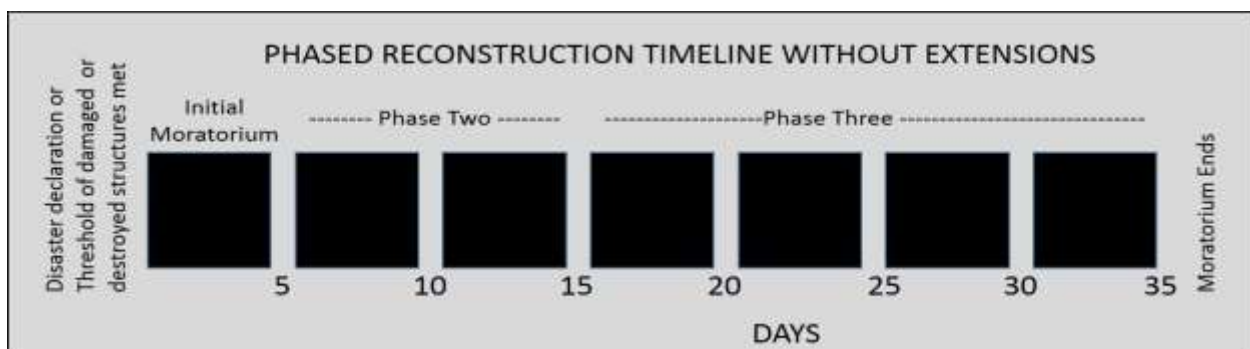
Section 9. Phases and Duration of Moratoria

The Phased Reconstruction Moratorium shall consist of three phases which initially apply to the entire [city/town/village]. Each subsequent phase removes restrictions on certain categories of structures and the lots on which they are located based on the level of damage sustained by the structure. There is a minimum length of time the first phase is in effect, which can be extended, modified, replaced, or terminated by the [City or Common Council/Town Board/Village Board of Trustees] upon a finding that the extension, modification, replacement, or termination is necessary for the protection of lives, safety, and property or is needed due to the inability of the [city/town/village] to maintain acceptable levels of public order and services. Each subsequent phase takes effect based on a prescribed timeline designed to allow municipal officials to prepare for an additional demand for services.

A. Phase One - Initial Moratorium. The initial moratorium shall be in effect for a minimum period of [insert number of days, such as five] days throughout the [city/town/village]. During this period, no building permits shall be issued nor shall any applications for building permits, subdivision plats, site plans, special use permits, variances, or rezoning requests be accepted or reviewed. This [city/town/village]-wide moratoria is intended to allow municipal officials to focus on damage assessment and disaster recovery. Existing building permits and land use approvals shall remain in force and effect throughout the initial moratorium for lots and the structures on them that were not damaged or destroyed by the disaster.

B. Phase Two. After expiration of the initial moratorium, building permits may be issued and any applications for building permits, subdivision plats, site plans, special use permits, variances, or rezoning requests may be accepted or reviewed for any structure or lots not categorized as a major damaged structure or destroyed structure. When a building permit is issued, minor damaged structures can be repaired to their original condition, subject to current building and zoning codes.

C. Phase Three. Commencing [insert number, such as 10] days following the expiration of the initial moratorium, building permits may be issued and any applications for building permits, subdivision plats, site plans, special use permits, variances, or rezoning requests may be accepted or reviewed for any structure or lot not categorized as a destroyed structure. When a building permit is issued, major damaged structures can be stabilized or repaired to their original condition, subject to current building and zoning codes.



D. Expiration of Phased Reconstruction Moratorium. Commencing [insert number, such as 30] days following the expiration of the initial moratorium, the Phased Reconstruction Moratorium

shall no longer be in effect. Building permits may be issued and any applications for building permits, subdivision plats, site plans, special use permits, variances, or rezoning requests may be accepted or reviewed. Destroyed structures may be rebuilt in compliance with zoning, building, flood damage prevention laws, and all other applicable laws.

Section 10. Emergency Repairs and Activities Exempt from this Chapter

A. No construction or reconstruction activity may be undertaken without a building permit while the Phased Reconstruction Moratorium is in effect, except for emergency repairs or activities required to protect the public health, safety, and welfare.

B. Emergency repairs or activities include repairs necessary to prevent injury, loss of life, imminent collapse or other additional damage to the structure or its contents. This may include temporary roof repairs to avoid further water damage; removal of drywall; minor repairs to steps; temporary shoring up of a structure to avoid imminent collapse; repairs to potable water, waste water, power and communications facilities; emergency stabilization of roadways; repairs to police, fire and medical facilities; repairs to essential governmental facilities; debris removal; and stabilization or removal of structures about to collapse.

[The State's Comprehensive Management Plan suggests emergency work can be either Category A, which is debris removal, or Category B, which involves emergency protective measures, such as sandbagging, erecting warning devices and search and rescue.⁸⁷]

[If the municipality provides for emergency dwelling on the lot or for temporary mobile office units, they should be included in the exemptions.]

C. Nothing in this article shall be construed to exempt New York State and federal permit regulations.

Section 11. Interpretation and Conflict with Other Laws

A. In their interpretation and application, the provisions of this chapter shall be held to be minimum requirements, adopted for the promotion of the public health, safety and welfare. Whenever the requirements of this chapter are at variance with the requirements of any other lawfully adopted rules, regulations or ordinances, the most restrictive or that imposing the highest standards shall govern.

B. This article shall supersede any other land development regulations regardless of when they were adopted. If any phrase or portion of this article is held invalid or unconstitutional by any court of competent jurisdiction, such portion shall be deemed a separate, distinct and independent provision and such holding shall not affect the validity of the remaining portion.

C. Pursuant to the New York Municipal Home Rule Law Section 22, the provision of this local law suspends any subdivision approval time requirements and also supersedes and suspends any "default approval" provision of the Subdivision statutes of *[General City Law Section 32, Town*

Law Section 276, Village Law Section 7-728] and the [City/Town/Village of _____] code which are inconsistent herewith.

Section 12. Penalties

A. Any person, firm, company or corporation who refuses to comply with or violates any section of this chapter, or the emergency measures which may be made effective pursuant to this chapter, shall be punished by a fine not to exceed [*insert amount of fine, such as \$500.00*]. Each day of continued non-compliance or violation shall constitute a separate offense. In addition to this penalty, any construction licensee of the [city/town/village] who violates any provision of this article or the emergency measures which are effective as a result of this article, shall be charged with said violation and have the matter heard before the appropriate administrative proceeding or court of law.

B. Nothing contained herein shall prevent the [city/town/village] from taking such other lawful action in any court of competent jurisdiction as is necessary to prevent or remedy any refusal to comply with, or violation of, this chapter or the emergency measures which may be made effective according to this chapter. Such other lawful action shall include but shall not be limited to, an equitable action for injunctive relief or an action at law for damages.

Section 13. Effective Date

Establishment of the Phased Reconstruction Moratoria constitutes an amendment of the [city/town/village] zoning law at the time the chapter is adopted. The provisions of such law shall not go into effect until such time as one of the occurrences in Section 7 Paragraph A has occurred.

1.5 Subdivision Regulations

The regulation of the subdivision of land is authorized by Town Law §277, Village Law §7-730, and General City Law §33. In authorizing subdivision review, the statutes require planning boards to “require that the land shown on the plat be of such character that it can be used safely for building purposes without danger to health or peril from fire, flood, drainage or other menace to neighboring properties or the public health, safety and welfare.”⁸⁸

Subdivision regulations govern the division of land and provide for adequate sewers, drainage, parks, streets, sidewalks, and lighting. They may also be used to conserve natural protective features, green infrastructure, and environmentally sensitive areas.

The design of a subdivision plat is constrained by the physical characteristics of the site. When reviewing a subdivision plat, the planning board considers the topography of the site, the slopes, drainage, land cover types, environmentally sensitive areas, soils and other factors such as roadway and sewer system capacities. For greater resiliency, it is a wise best management practice to ensure that developers design subdivision layouts in a manner that:

- Minimizes land disturbance (tree clearing, land grading, soil compaction);
- Avoids steep slopes, flood-prone areas and wetlands;
- Protects important natural areas and habitats;
- Limits impervious surfaces;
- Does not negatively impact public infrastructure;
- Does not overload the roadway system, and
- Provides effective stormwater control.

To address sea-level rise and increased flooding from more severe storm events, local subdivision review laws may need to be updated to reflect the potential for wetland migration, to reserve areas for inland migration of natural resource areas, or to increase the horizontal extent of the riverine floodplain to absorb floodwaters.

Open space or cluster development provides the most flexible approach to drawing lot lines, and the use of conservation easements, recreational or open space dedication, or proper land management would facilitate the location of physical development further away from hazards or sensitive resources. These approaches can be combined with clear methods of determining lot yields, including elimination of underwater lands from the calculation; and establishing setbacks from waterbodies. (See *Wetland and Watercourse Protection Measures* chapter.)

Several techniques related to subdivision are presented. They should be coordinated with municipal zoning laws and supported by municipal plans.

Subdivision Techniques	
Technique	Description
Subdivisions in Flood Prone Areas	Prohibits the subdivision of land in flood prone areas for residential use while allowing residential uses on existing lots.
Consideration of Long-Term Risk	Enhances disaster resilience by incorporating provisions in local subdivision regulations to account for long term risk.
Drainage Improvements in a Subdivision	Requires subdivision applicants to make adequate provision onsite for stormwater runoff.
Protection of Natural Features in a Subdivision	Requires building lots on a subdivision plat to be laid out in a way that avoids impacts on natural features that would have increased flood risk, erosion, or additional stormwater runoff.
Subdivision Woodlands	Restricts land clearance activities prior to the approval of a subdivision plat.
Lot Yield Calculations	A method of calculating the number of allowed lots in a subdivision which subtracts land which is unsuitable for development or which provides important natural protective functions. The result is fewer lots, which provides greater ability to design a subdivision plat in a way that protects natural features that minimize risks from flooding and erosion.
Cluster Open Space and Conservation Development	Providing for or requiring more compact development of home sites in a subdivision in order to preserve important environmental or cultural features.
Environmental Constraint Disclosures	A consumer protection measure to alert potential buyers to environmental constraints on the land; and the impact of those constraints on subdivision plat design and construction costs.

RESOURCES

Subdivision Review in New York State. (2015) New York State Department of State⁸⁹

Subdivision Design and Flood Hazard Areas. PAS Report 584. American Planning Association.⁹⁰

1.5.1 Subdivision in Flood Prone Areas

The American Planning Association publication “*Subdivision Design and Flood Hazard Areas*” lists five general principles for mitigating flood hazards within subdivision design:

1. Maintain natural and beneficial functions of the floodplain.
2. Adopt a No Adverse Impact approach to floodplain management.
3. Avoid new development in the floodplain whenever feasible
4. Focus on data-driven decision making, using only the best available data to assess risk and inform decisions.
5. Consider future conditions of the floodplain, including development impacts and climate change.⁹¹

The National Flood Insurance Program does not prohibit new buildings, development or lots from being built in floodplains. Municipalities, however, may restrict land subject to flooding from being subdivided for residential or commercial development, or for any other use that may increase danger to life, health, or property or aggravate the flood hazard.⁹² The natural limitations of land, such as the existence of flood hazard areas, stream beds, wetlands, or steep slopes should be considered by the planning board in its review of a subdivision plat.

The approach below does not prohibit new residential uses on existing lots, assuming such uses can comply with building code requirements, nor does it make existing residential uses nonconforming or prohibit the use of the property.

USAGE

Insert text into the design standards of a standalone subdivision law or the section of the zoning law dealing with subdivision.

ADAPTED FROM THE FOLLOWING SOURCE

Town of Pendleton (NY) Municipal Code, Chapter 220 Subdivision of Land, Article V General Requirements and Design Standards for Major Subdivision, Section 220-27 Drainage improvements⁹³

Douglas County (OR) Municipal Code, Article 30 (FP) Floodplain Overlay, Section 3.30.440 Subdivision and Partitioning Proposals⁹⁴

LANGUAGE

X. Land subject to flooding. Land subject to flooding or land deemed by the [city/town/village] to be uninhabitable shall not be platted for residential occupancy nor for such other uses as may increase danger to health, life or property or aggravate the flood hazard. All lots approved only for nonresidential uses shall have the explanation "Not for residential use" printed on the face of the final survey map or plat.

1.5.2 Consideration of Long-Term Risk

To enhance disaster resilience, a municipality can incorporate provisions in local subdivision regulations to account for long term risk. For example, the local subdivision law can require that lots in flood prone areas include land of adequate size and elevation to provide building sites that will keep structures out of the floodplain and secure from erosion and storm surge, and can also require that such lots provide adequate space for future adaptation in flood or erosion prone areas.

The *Wetland and Watercourse Protection Measures* chapter of the Model Local Laws has examples of buffer requirements that would put distance between a structure and a flood hazard, and in the case of stream migration, provide a wider buffer to address shifts in the stream over time. Review of plats for this purpose should be coordinated with the local flood plain administrator. Before choosing this approach, the municipality should consider the potential costs associated with the utility services and infrastructure needed to serve flood prone building sites.

USAGE

Amend the design or general requirements standards of the subdivision law.

Amend the definitions section of the zoning law and the table of dimensional requirements.

ADAPTED FROM THE FOLLOWING SOURCE

Town of Watertown (CT) Subdivision Regulations, Section 5 Design Standards, 5.16 Requirements Regarding Flooding⁹⁵

Village of Homer (NE) Zoning Law, Article 13 Subdivision Design Standards, Section 13.05 Subdivision Design Standards; Lots⁹⁶

LANGUAGE

Amend the subdivision regulations by adding the following language to the design or general requirement standards.

A. Requirements regarding flooding. Land subject to flooding, as identified on the Federal Flood Insurance Rate Map (FIRM) on file with the [City/Town/Village] Clerk and Planning and Zoning Office, shall not be subdivided unless the following conditions are met:

- (1) The Planning Board determines that the proposed subdivision is reasonably safe from flooding. Such determination does not imply such land or uses permitted within the subdivision will be free from flooding or flood damage. When a proposed subdivision is all or partially in an Area of Special Flood Hazard as shown on the FIRM the Planning Board shall review the subdivision plan to assure that:

(a) All proposals are consistent with the need to minimize flood damage within the flood-prone area.

(b) All public utilities and facilities, such as sewer, gas, electrical, and water systems are located and constructed to minimize or eliminate flood damage.

(c) Adequate drainage is provided to reduce exposure to flood hazards.

(d) New and replacement water supply systems are designed to minimize or eliminate infiltration of flood waters into systems.

(e) New and replacement sanitary systems are designed to minimize or eliminate infiltration of flood waters into systems and discharges from the systems into flood waters.

(f) On-site disposal systems are located to avoid impairment of them or contamination from them during flooding.

(2) Applicants for subdivisions within Special Flood Hazard Areas shown on the Federal Flood Insurance Rate Map (FIRM) shall be required to submit within their applications the following additional materials:

(a) Elevation and flood profiles sufficient to demonstrate that the house sites will be completely free from the danger of flooding.

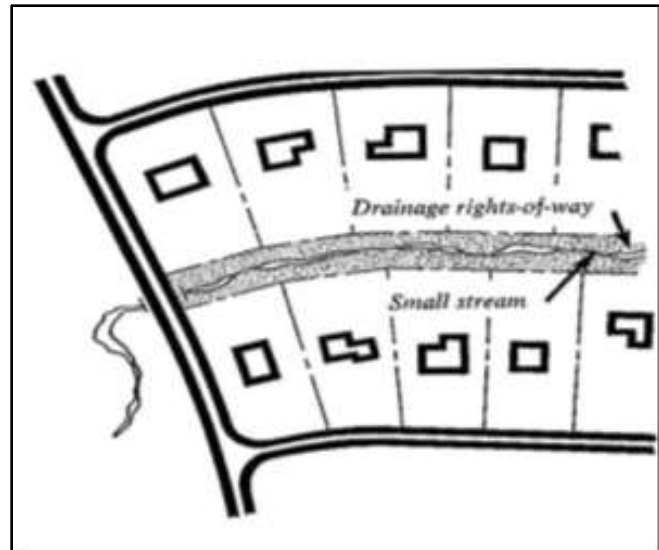
(b) The plat plan shall provide for an easement or right-of-way along the stream for a floodway if a stream flows through or adjacent to the proposed subdivision. The floodway easement shall be wide enough to provide for future enlargement of the stream channel as adjacent areas become more highly developed and run-off rates are increased.

(c) Materials demonstrating that the flood-carrying capacity shall be maintained with any altered or relocated portion of any water course.

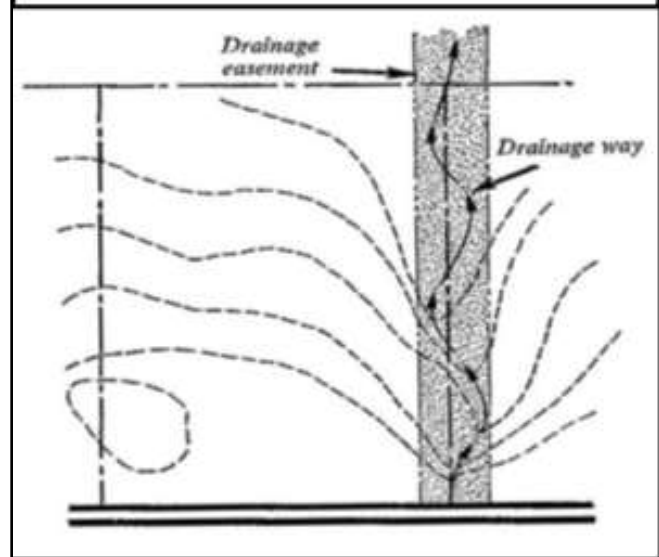
1.5.3 Drainage Improvements in a Subdivision

A subdivision plat with a drainageway or a small stream can present special problems. Lots should be laid out so that the drainage way will not be near the center of a lot. More desirable and usable lots can be created by letting the side lot line follow the center of the drainage way and by providing drainage easements on each side. The lot width can be increased to allow for the easement and still provide a suitable building site. This type of site should not be extensively graded if the water flow and runoff patterns as altered will be directed to neighboring properties or public streets.

When a small stream traverses a subdivision site, desirable lots can be created by providing a drainage right-of-way or easement on each side of the stream and backing the lots up to it. This treatment tends to preserve the stream bed in its natural state, provide continuous public or private open space and eliminates the need for costly and undesirable driveway culverts that would be required if lots were fronted on the stream. A drainageway at the back of the property may offer a more natural and sustainable stormwater management system for the property owner and the community, and the easement provides additional legal protection, which safeguards this environmentally sensitive area against disruption or encroachment. A municipality can include in its subdivision law a provision relating to drainage from storms or floods.



Above: Drainageway easement/right-of-way at back of building lot.
Below: Drainageway easement on side of building lot.
Source: Subdivision Review in New York State. (2015). New York State Department of State.



USAGE

Insert text into a stand-alone subdivision law or the zoning law section establishing general requirements and standards for subdivisions.

Town of Middleburgh (NY) Subdivision Regulations, Article IX General Requirements and Design Standards, Section F Drainage Improvements⁹⁷

LANGUAGE

Section X: Drainage Improvements.

The Planning Board may require that the applicant make adequate provision for storm or flood water runoff channels or basins. The storm water drainage system shall be separate and independent of any sanitary sewer system.

A. Removal of spring and surface water. The applicant may be required by the Planning Board to protect an existing stream bed, or to carry away by pipe or open ditch any spring or surface water that may exist either previous to, or as a result of, the subdivision. Preservation of natural watercourses and drainage patterns is generally preferable to the construction of drainage channels or the diversion of flow into other drainageways. Such drainage facilities shall be located in the road right-of-way where feasible, or in perpetual unobstructed easements of appropriate width, and shall be constructed in accordance with the town construction standards and specifications.

B. Accommodation of upstream drainage areas. Drainage facilities shall be large enough to accommodate potential runoff from the upstream drainage area, whether inside or outside of the subdivision, based on a fifty (50) year storm and assuming conditions of maximum potential development within the water shed. The applicant shall be responsible for submitting such computations to the Planning Board in sufficient detail to make possible the ready determination of the adequacy of the proposed drainage installations. Concentrated drainage from lots onto the road right-of-way shall not be permitted.

C. Effect on downstream drainage area. The Planning Board may also require a study of the effects of the subdivision on existing downstream drainage facilities. Where it is anticipated that the additional runoff incident to the development of the subdivision will overload an existing downstream drainage facility, the Planning Board shall notify the owner of such downstream facility and the [City Council/Town Board/Village Board of Trustees] of such potential condition and may withhold approval of the subdivision until provision has been made for the correction of said potential condition.

D. Drainage easements. Where a subdivision is traversed by a watercourse, drainageway, channel or stream, there shall be provided a storm water easement or drainage right-of-way conforming substantially to the lines of such watercourse, and of such width and construction as will be adequate for the purpose as required by the [name body] Committee, and in no case less than twenty feet in width. Where topography or other conditions are such as to make impractical the inclusion of drainage facilities within road right-of-way, perpetual unobstructed easements shall be provided for such across properties outside the road lines and with satisfactory access to the road. A note to this effect shall be shown on the Final Plat.

1.5.4 Protection of Natural Features in a Subdivision

Important natural features and areas such as undisturbed forested and native vegetated areas, natural terrain, riparian corridors, wetlands and other important site features, help to preserve a site's natural hydrology and water balance, and can act as a non-structural stormwater feature to promote additional filtration and infiltration. Municipalities can require that subdivision plats be laid out in a way that avoids interfering with the natural processes of a floodplain in order to avoid an increase in flood risk from erosion or additional stormwater runoff.

One way a municipality may avoid disturbance in such areas is to include in its subdivision law provisions related to the protection of natural features. These standards can apply to both new subdivisions and redevelopment of previously subdivided land. The language below represents an approach which is both simple and general. Protection of natural features could be strengthened by more detailed standards relating to specific natural features, such as those presented in the *Wetland and Watercourse Protection Measures* chapter of the Model Local Laws. The municipality may also authorize a cluster or "conservation" subdivision in which a subdivision applicant must avoid developing natural areas and environmentally sensitive areas by incorporating those areas into common open space on the subdivision plat.

RESOURCES

Better Site Design. (2008). Division of Water, NYS Department of Environmental Conservation ⁹⁸

Town of Clinton Recommended Model Development Principles for Protection of Natural Resources in the Hudson River Estuary Watershed. (2006). Town of Clinton et al⁹⁹

1.5.4.1 Design Standards to Protect Natural Features

The example below includes general design standards to protect natural features.

USAGE

Insert text as a new paragraph in the design standards section into a standalone subdivision law or the municipal section of the zoning law dealing with subdivision.

It could also be used in conjunction with conservation subdivision review.

ADAPTED FROM THE FOLLOWING SOURCE

Town of North Salem (NY) Municipal Code, Chapter 200 Subdivision of Land, Article III Design Standards and Required Improvements, Section 200-21 Natural Features¹⁰⁰

LANGUAGE

Section X. Natural features.

The planning and design of the plat, including related infrastructure, streets, drainage, parks and other improvements, shall provide for preservation of significant natural features of the tract as follows, provided that the Planning Board may approve plans which modify such natural features after consideration of the alternatives to such modification and the community benefits which may be achieved and when any required permission for modification has been obtained by the applicant from any regulatory agency having jurisdiction:

- A. By avoiding cuts or fills which result in potential soil erosion and excessive tree removal or which disturb water resources.
- B. By avoiding construction which results in relocation of or encroachment upon watercourses and water bodies.
- C. By avoiding filling or excavation of or encroachment upon wetlands, floodplains and other land subject to potential flooding.
- D. By avoiding removal of large isolated trees and mature woods and other desirable vegetation and removal of stone walls.
- E. By providing for preservation of wetlands, watercourses and water bodies and for the protection thereof by easement, reservation area or other controls to prevent excavation, filling or encroachment.
- F. By avoiding rock excavation by blasting which may cause unintended damage or injury to property or persons in the vicinity.

1.5.4.2 Subdivision Woodlands

Clearing of trees may occur in advance of a subdivision or site plan review proposal, eliminating trees and damaging undergrowth that played an important role in retaining stormwater; reducing flood risk; and providing wildlife habitat. Adoption of land clearance standards will provide more options later as a subdivision is platted, and potentially minimize the need for structural stormwater solutions. For example, subdivision and site plan review standards can require the retention of specified minimum-diameter trees on site or may require the replacement of any such trees that are removed with new trees of a specified minimum diameter.

Because land clearing may occur in advance of a subdivision or site plan review proposal, municipalities should consider adoption of a timber harvesting law to ensure sustainable site development. Applicants could be required to implement a selected harvest rather than land clear their property, thereby minimizing any environmental damage should the property later be developed.¹⁰¹ Because the objectives of land clearing differ from that of sustainable forestry management, review standards should be separate from a planned timber harvesting review process.

Land clearing standards can help reduce erosion and stormwater discharges and may help a municipality demonstrate compliance with the Phase II Stormwater requirements of the Clean Water Act. The Clean Water Act requires permits for stormwater discharges from land clearing that disturbs one or more acres.

RESOURCES

A Municipal Official's Guide to Forestry in New York State. (2005). New York Planning Federation, Department of Environmental Conservation, and Empire State Forest Products Association.¹⁰²

USAGE

Insert in the zoning section of the municipal code, including references to the requirements in the subdivision review and site plan review sections of the municipal code. Most effective if used in conjunction with required permits for timber harvesting.

ADAPTED FROM THE FOLLOWING SOURCE

Town of Corning (NY) Subdivision Law, Article IV Design Standards and Required Improvements, Section 4.12 Woodlands¹⁰³

LANGUAGE

Section X. Woodlands.

A. Woodlands as resource. Woodlands occur extensively throughout the [city/town/village], often in association with stream valleys and wet areas, poor and erodible soils, and moderate to

steep slopes. Woodland conditions within the [city/town/village] vary with respect to species composition, age, stocking, and health. Most woodlands in the [city/town/village] represent one or more of the following resource values:

- (1) Erosion Control. As soil stabilizers, particularly on moderate to steep slopes, thereby controlling erosion into nearby streams, ponds, impoundments and roads. A closely related function is their enhancement of ground water recharge.
- (2) Climate Moderation. As a means of ameliorating harsh microclimatic conditions, in both summer and winter.
- (3) Economic Value. As a source of wood products, i.e., poles, saw timber, veneer and firewood.
- (4) Habitat. As habitats for woodland birds, mammals and other wildlife.
- (5) Recreation. As recreation resources for pedestrians, equestrians, birders, photographers, artists and others engaging in similar outdoor activities.
- (6) Visual Buffers. As visual buffers between areas of development and adjacent roads and properties

B. Evaluation required. Because of their resource values, all woodlands on any tract proposed for subdivision or land development shall be evaluated by the applicant to determine the extent to which such woodlands should be designated partly or entirely as open space or buildable lands. Evaluation criteria may include:

- (1) Configuration and Size.
- (2) Present Conditions, i.e., stocking health and species composition.
- (3) Site Potential, i.e., the site's capabilities to support woodlands, based upon its topographic, soil and hydrologic characteristics.
- (4) Ecological Functions, i.e., in protecting steep slopes, erodible soils, maintaining stream quality and providing for wildlife habitats.
- (5) Relationship to woodlands on adjoining and nearby properties and the potential for maintaining continuous woodland areas.

C. Report required. The evaluation of the tract's woodlands shall be undertaken by a forester, landscape architect, horticulturist or another qualified professional acceptable to the [city/town/village]. This evaluation shall be submitted as a report and made a part of the application for a final plat, if requested by the [City/Town/Village] Planning Board. At a minimum, that report shall include one or more maps indicating boundaries and conditions of woodland areas accompanied by a report addressing the criteria in paragraph (1) above.

D. Standards. In designing a subdivision plat, the applicant shall be guided by the following standards:

(1) Over One Acre. Healthy woodlands exceeding one acre shall be preserved and designated as open space areas, the maximum extent possible. Proposed site improvements shall be located, designed and constructed to minimize the loss or degradation of woodland areas.

(2) Buffer Requirements. Subdivisions shall be designed to preserve woodland along roadways, property lines and lines occurring within a site such as streams, swales, stone fences and hedgerows. Such lines and the native vegetation associated with them shall be preserved as buffers between adjacent properties and between areas being subdivided within a property. Preservation shall include ground, shrub, understory and canopy vegetation.

(3) Sensitive Areas. Disturbance or removal of woodlands occupying environmentally sensitive areas shall be undertaken only when approved by the Board and on a limited, selective basis to minimize the adverse impacts of such actions. This shall include but not necessarily be limited to, vegetation performing important soil stabilizing functions on wet soils, stream banks and sloping lands.

(4) Clearing Restrictions. No clearing or earth disturbance (except for soil analysis for proposed sewage disposal systems) shall be permitted on a site before the completion of subdivision agreements. The determination of sight distance clearances along roadways shall be made graphically and not by clearing on-site prior to final plan approval.

1.5.5 Lot Yield Calculations

Lot yield calculations are used to determine the number of allowable lots in a subdivision application. Zoning dictates the density of development in each zoning district (for example, an R2 district may require a minimum lot size of 0.5 acre). The simplest calculation would be to divide the size of the parcel by the minimum lot size for the zoning district to get the number of allowed lots. For example, using a minimum lot size requirement of 0.5 acre in a 10-acre parcel to be subdivided would result in 20 half-acre lots. However, that simple calculation does not take into account roads and other infrastructure, or environmental constraints like wetlands and steep slopes.

In the absence of a state or local regulation prohibiting development of environmentally sensitive lands, a planning board has no authority to exclude environmentally sensitive lands from lot count computations or the buildable area on the site. This doesn't mean that sensitive land can be built upon; rather, it cannot be excluded from computing density or buildable area. As a result, the subdivision applicant may be entitled to more lots (i.e. higher density) than would be ideal from an environmental standpoint.¹⁰⁴ The overall number of lots in a cluster or conservation subdivision should be the same as for conventional subdivisions in the applicable zoning district.

Subtracting from density calculations land that is unsuitable for development or that provides an important natural protective function will reduce the number of allowed lots in a subdivision and protect natural features that minimize risks from flooding and erosion. It will also reduce developer's soft costs by eliminating potential lots that would require extra engineering to be buildable.

While not presented here, a sliding scale method of determining the number of lots in a subdivision can also be used. While more commonly applied as a means of preserving agricultural land, it could also be used to help preserve a site's natural hydrology and water balance. This approach tracks development of the original, or "parent" parcel. Examples can be found in the Town of Ogden (NY)¹⁰⁵ and Town of Seneca (NY)¹⁰⁶ zoning laws.

RESOURCES

Design Guidelines for Conservation Subdivisions in Wallkill, New York. (2009). Behan Planning Associates¹⁰⁷

Conservation Subdivision Handbook: A Guide for North Carolina Communities in the use of Conservation Design for Land Use Planning. (2011). Department of Forestry & Environmental Services, North Carolina State University. ¹⁰⁸

Conservation Subdivision. (2018) GREENPLAN, Inc.¹⁰⁹

1.5.5.1 Simple Density Calculation

The following approach may be taken to calculate the number of lots that may be created in either a conventional subdivision or cluster/open space subdivision. The description of unbuildable land could be expanded to include, for example, rock outcroppings of a certain size or other natural features.

USAGE

Insert text into a standalone subdivision law or the municipal section of the zoning law dealing with subdivision.

ADAPTED FROM THE FOLLOWING SOURCE

Town of Hornby (NY), Subdivision Regulations, Section 1.5 General Policy for Subdivision Design and Review¹¹⁰

LANGUAGE

Section X. Buildable Land Calculations.

A. Density of a subdivision is calculated on net acreage, not gross acreage, of buildable land according to the following guidelines:

(1) Unbuildable Land. To determine net buildable acreage, the applicant shall identify and subtract all acreage considered to be unbuildable as follows:

(a) Steep slopes [*insert percentage, such as 25%*] or greater;

(b) Areas within the Federal Emergency Management Agency designated one-hundred- and five-hundred-year floodplains and floodways;

(c) Wetlands, including New York State designated wetlands, those regulated by the US Army Corps of Engineers and those on the National Wetlands Inventory;

(d) Lands covered by water bodies;

(e) Stream corridors, defined for this calculation as [*insert number of feet, such as fifty feet, or use a methodology described in the Wetlands and Watercourses Chapter of the Model Local Laws*] setback from each streambank of any perennial or intermittent stream indicated in blue on the US Geological Survey topographic quadrangle map); and

(f) Hydric soils as mapped in the Soil Survey of [*insert county name*] County, New York, U.S. Soil Conservation Service, as revised. These are defined as Alden (Aa),

Atherton (At), Canandaigua (Ca), Carlisle (Cc), Chippewa (Ck), Edwards (Ed), Fluvaquents (FL), Kanona (Ka,A, KaB, KaC), Palms (Pa), Warners (We) and Wayland (Wn).

(2) Density calculation. The applicant shall then calculate the acreage that is determined to be buildable and apply the bulk density control schedule minimum square footage per dwelling units or principal buildings as defined in the [*City/Town/Village of _____*] Zoning Law to the net acreage. All density values shall be rounded to the nearest whole number of dwelling units or principal buildings.

1.5.5.2 Buildable Yield Formula

This calculation determines the buildable yield for a major subdivision. Once the amount of buildable land area is determined (the buildable yield), the zoning law and map must be consulted to determine the number of units which are allowed in the district in which the property is located.

USAGE

Insert text into a standalone subdivision law or the municipal section of the zoning law dealing with subdivision.

Add to the list of definitions in the subdivision and/or zoning law a definition for “buildable yield.””

ADAPTED FROM THE FOLLOWING SOURCE

Town of Bethlehem (NY) Municipal Code, Chapter 103 Subdivision Regulations, Section 103-25 Maximum density unit calculation for major subdivisions and Section 103-8 Terms defined ¹¹¹

LANGUAGE

Add the following definitions to the list of definitions in the [select one or both Zoning Law section ____ and/or Subdivision Law section ____]:

(x) Buildable yield is the maximum unit density for a proposed subdivision after deduction of constrained land areas.

Section X. Buildable Yield Calculation.

A. The maximum number of density units (i.e., units per acre or DU) shall not exceed the maximum allowable DU for a subdivision in the district in which the property is located. Any regulations contained in this chapter and in the zoning law restricting the number of dwelling units permitted in a subdivision shall apply. The calculation of buildable yield for a [major] subdivision shall be based on the formula herein. The buildable yield (BY) shall be used to determine the allowable density units per the area, yard and bulk charts in Section ____ of the Zoning Law.

B. The buildable yield (BY) calculation shall be determined by subtracting the constrained land areas of the property (New York State designated wetlands, US Army Corps of Engineers regulated wetlands, lands within the one-hundred-year floodplain area, and steep slope areas of greater than 20%) for which the applicant has not secured and has not submitted to the Planning Board permits or approvals that would allow development in such constrained land areas, as follows:

$$T - (W+F+S) = BY$$

Where:

T = Total acreage inside the boundary lines of the project parcel.

W = Total acreage inside the boundary lines of the project parcel and within a NYSDEC or USACOE regulated wetland (exclusive of any buffer area).

F = Total acreage inside the boundary lines of the project parcel and within the one-hundred-year floodplain area where the base elevations and flood hazard are determined exclusive of any flood area within a regulated state or federal wetland or wetland.

S = Total acreage inside the boundary lines of the project parcel and containing slopes of twenty percent (20%) or greater.

BY = Maximum number of acres that can be developed and that form the basis for determining the maximum number of residential dwellings that may be created per the area, yard and bulk chart.

C. The buildable yield calculation set forth in Paragraph B above shall be adjusted to include, in whole or in part, the constrained land area(s) for which the applicant has secured the necessary permits or approvals from applicable local, state or federal agencies authorizing development in such area(s) and has submitted copies of said permits or approvals to the Planning Board. If the parcel is not proposed for connections to central sewage disposal facilities, the plan shall also include an assessment and certification by a professional engineer as to the suitability of the soils to accommodate individual sewage disposal systems. The [*Planning Board/Department of Planning and Economic Development*], in its sole discretion, shall determine whether the plan is realistic and reflects a development pattern that could reasonably be implemented.

1.5.6 Cluster, Open Space and Conservation Development

As described in the Department of State's publication, *Subdivision Review in New York State*, a conservation subdivision is a type of cluster subdivision designed to permanently protect a large portion of a site with important environmental or cultural features, while compact building lots are clustered on the remainder of the land. In New York State, the cluster subdivision process is used to achieve conservation subdivisions; State statutes do not specifically mention conservation subdivisions.¹¹²

"As with cluster subdivisions, conservation subdivisions typically result in more compact development and can reduce the cost to the developer of installing and maintaining roadways, sewer lines, and other infrastructure. The approach to creating a conservation subdivision is one of building within and around the natural landscape rather than building on top of it. The environmental benefits of a conservation subdivision - where, for example, stream corridors, woodlands, fields, wildlife habitat, steep slopes and/or wetlands, are protected and storm water is managed entirely onsite - can be significant."¹¹³

"Cluster subdivision" is a technique authorized by State Statute whereby the local legislative body empowers the planning board, when approving subdivision plats, to modify the dimensional requirements of the zoning law to group or "cluster" structures or lots at a higher density on the most suitable portion of the land, leaving other areas open "to preserve the natural and scenic qualities of open lands."

A "conservation subdivision" is a type of cluster subdivision designed to permanently protect a large portion of a site with important environmental areas or cultural features, while clustering compact building lots on the remainder of the land.

Source of Definitions: NYS Department of State, *Subdivision Review in New York State*

Key benefits include preserving:

- Conservation areas on a development site;
- Natural hydrology and drainageways;
- Natural conservation areas and other site features;
- Topography, with reduced need for grading and land disturbance;
- Resilience, with reduced infrastructure needs and overall development costs; and
- Flexibility for developers to implement creative site designs including better stormwater management practices.

"Along with reduced impervious surfaces, conservation design provides a host of other environmental benefits lacking in most conventional designs. These benefits reduce potential pressure to encroach on conservation and buffer areas because enough open space is usually reserved to accommodate these protection areas. As less land is cleared during the construction process, alteration of the natural hydrology and the potential for soil erosion are also greatly

diminished. Conservation design reserves 25 to 50 percent of the development site in conservation areas that might not otherwise be protected.”¹¹⁴

“A sound open space planning process can lay the foundation for a community’s application of conservation subdivision regulations. Foundations of the plan include:

- Inventory of natural and scenic resources for preservation - This may include identification of resources by the community through meetings, surveys or planning charettes; the inventory of environmental resources (such as significant wetlands and stream corridors); and integration of resource information identified by state or regional agencies (such as floodplains and productive agricultural lands) into the comprehensive plan for local systems.
- Open space plan or component of comprehensive plan - This includes the development of an open space plan and its components, which may include a community vision plan, recreation plan, bikeway plan, and farmland preservation plan.
- Recreation and trail planning - This includes the development of a recreational lands master plan or component of comprehensive plan, a recreational access plan for the disabled, a recreational facility plan for a neighborhood, or a system of trails (both intra- and inter-community). It may also include the assessment of the impact of new development on such resources, or the development of strategies for obtaining land or easements on land for recreation and trail purposes.”¹¹⁵

Once established, natural conservation areas must be protected during construction and managed after occupancy by a responsible party able to maintain the areas in a natural state in perpetuity. Typically, conservation areas are protected by legally enforceable deed restrictions, conservation easements, or a maintenance agreement.¹¹⁶

Sometimes, a municipality will allow higher densities than permitted under the regular zoning district as an incentive to keep new construction out of flood-prone areas.

The model language below is based on subdivision regulations from the City of Saratoga Springs (NY), which describes itself as the “City in the Country.” While the model addresses conservation subdivisions, the source regulations address both conservation subdivisions and cluster development with cluster development applied in more densely developed areas.¹¹⁷

RESOURCES

Arendt, Randall. *Enhancing Subdivision Value through Conservation Design*. (2001). Oncommonground.¹¹⁸

Local Open Space Planning Guide. (2004). New York State Department of State.¹¹⁹

Lacy, Jeffrey R.; Ritchie, Robert W; and Russell, Joel S. *Natural Resource Protection Zoning: The Green Side of Smart Growth*.¹²⁰

Subdivision Review in New York State. (2015) New York State Department of State. ¹²¹

New York State Stormwater Management Design Manual. (2015). NYS Department of Environmental Conservation.¹²²

Conservation Subdivision Handbook: A Guide for North Carolina Communities in the use of Conservation Design for Land Use Planning. (2011). Department of Forestry & Environmental Services, North Carolina State University.¹²³

USAGE

Insert text as a new section into a standalone subdivision law or the municipal section of the zoning law dealing with subdivision. The text would include authorization to review and approve cluster subdivision plats either at the developer’s option (discretionary cluster), at the municipality’s option (mandatory cluster), or a combination of both (optional in some areas but required in others such as rural zoning districts, flood-prone areas, or other natural resource areas).

ADAPTED FROM THE FOLLOWING SOURCE

City of Saratoga Springs (NY) Municipal Code, Chapter 241 Subdivision Regulations, Article IV Conservation Subdivision Regulations.¹²⁴ Omitted here are provisions related to submission requirements; permanent open space; and rural design and siting standards.

LANGUAGE

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

CLUSTER: A development design technique that concentrates buildings and structures on a limited area of a parcel to allow the remaining parcel area to be permanently left as open space.

CONSERVATION EASEMENT: A perpetual restriction on the use of land, created in accordance with the provisions of Section 49, Title 3 of the Environmental Conservation Law and/or Section 247 of the General Municipal Law, for the purposes of conservation of open space, agricultural land, and natural, cultural, historic, and scenic resources.

CONSERVATION SUBDIVISION: A pattern of development that places housing units on those portions of a property most suitable for development, while leaving substantial portions as undeveloped open space. Such subdivisions may include a variety of lot sizes, ranging from large farms or estate lots to lots similar in size to those found in hamlet or village settings.

CONSTRAINED LAND: As used in the conservation subdivisions, land classified as wetlands, watercourses, 100-year floodplains, and slopes over twenty-five percent (25%) (2,000 square feet or more of contiguous sloped area).

CONVENTIONAL SUBDIVISION: Any subdivision that is not a clustered or conservation subdivision and that satisfies the area requirements in [insert article number] of the Zoning ordinance.

Chapter X. Conservation Subdivision Regulations

Section 1. General Regulations

A. Purpose and Applicability:

(1) The purpose of this article is to achieve a balance between well-designed residential development, meaningful open space conservation, and natural resource protection by requiring conservation subdivisions instead of conventional subdivisions.

(2) These regulations apply to all properties within the [insert rural and/or conservation zoning districts in the municipality] Districts, which encompass most of the area described in the [City/Town/Village of _____] Comprehensive Plan as the [insert references to rural and natural resource areas]. The use of conservation subdivisions is intended to preserve tracts of environmentally and scenically significant undeveloped land in the [insert references to rural and natural resource areas] part of the [city/town/village], including road corridors and buffers, in order to maintain the historic settlement pattern and implement the Comprehensive Plan's vision. Conservation subdivisions result in the preservation of contiguous open space and important scenic and environmental resources, while allowing compact development, more walkable neighborhoods, and more design flexibility than conventional subdivisions. Conservation subdivisions must satisfy the

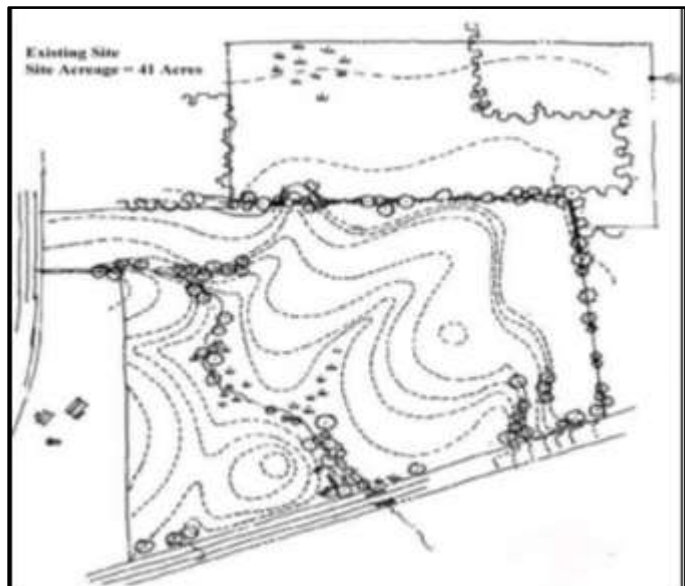
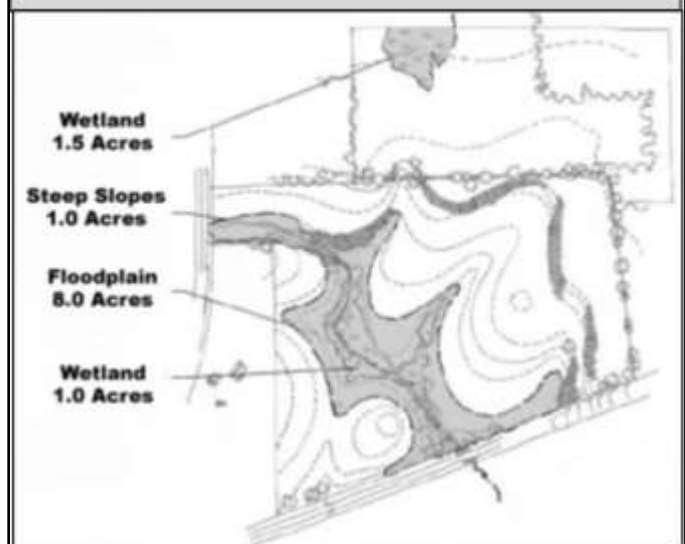


Figure IV.1a Existing Conditions Site Boundary



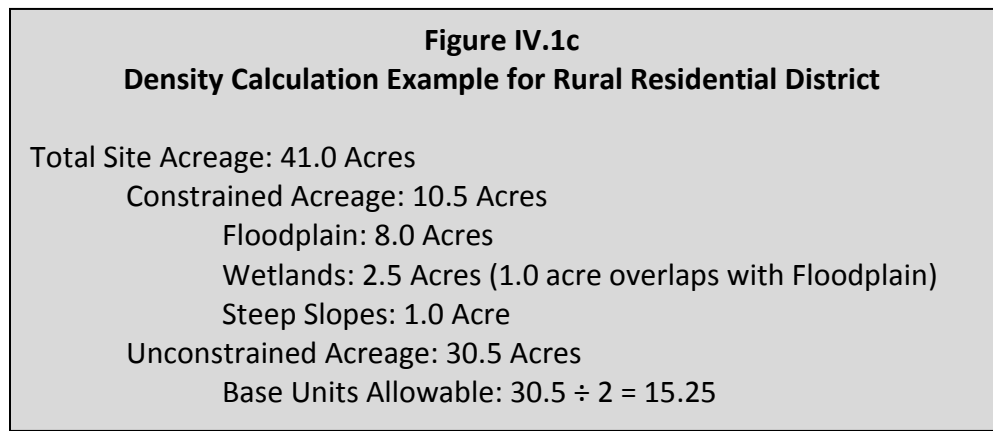
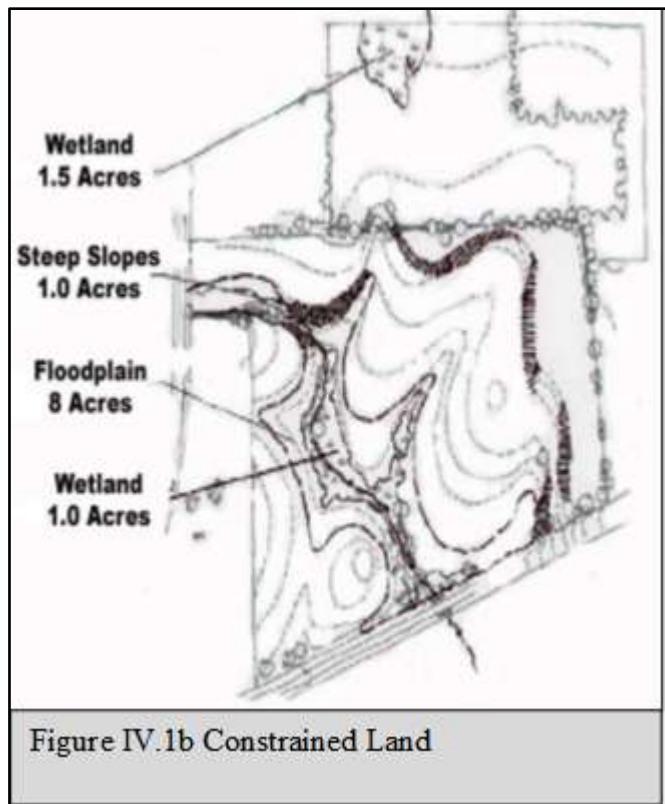
standards in Sections 1, Paragraphs B, C, and D herein. The procedure for approving conservation subdivisions is described in Section 2. Graphics in these regulations are included for illustrative purposes only.

B. Standards for Conservation Subdivisions:

(1) **Density Calculation.** The maximum density allowed for residential units is calculated by a formula based upon the acreage of unconstrained land on the property.

(a) To determine unconstrained acreage, subtract from the total or gross acreage of the proposed development parcel, the acreage of constrained land.

(b) To determine the number of allowable residential units or “base density” on the site, divide the unconstrained acreage by the allowable number of acres per unit required within the zoning district. Round down fractional units of 0.5 or less and round up fractional units greater than 0.5. Figure IV.1a through Figure IV.1c illustrates a density calculation on a site in a hypothetical conservation subdivision in a [insert name(s) of rural or conservation zoning district in the municipality] District.



(c) The base density in Paragraph B(1)(b) may be increased by up to twenty percent (20%) at the sole discretion of the Planning Board if permanent public access will be granted to the protected open space land and any associated improvements as described in Section 1 Paragraph C below.

(d) The density permitted by this section shall not be reduced as a result of the conservation analysis required in Section 1 Paragraph B(2) below, or as a result of the reservation of parkland during the subdivision process.

(2) Conservation Analysis.

(a) As part of a preliminary subdivision plat application procedure, an applicant shall prepare a conservation analysis, consisting of inventory maps, description of the land, and an analysis of the conservation value of various site features. *[The municipality should develop a conservation analysis checklist. See the City of Saratoga Springs law for an example.]* The conservation analysis shall show lands with conservation value, including but not limited to the following:

[i] Constrained land;

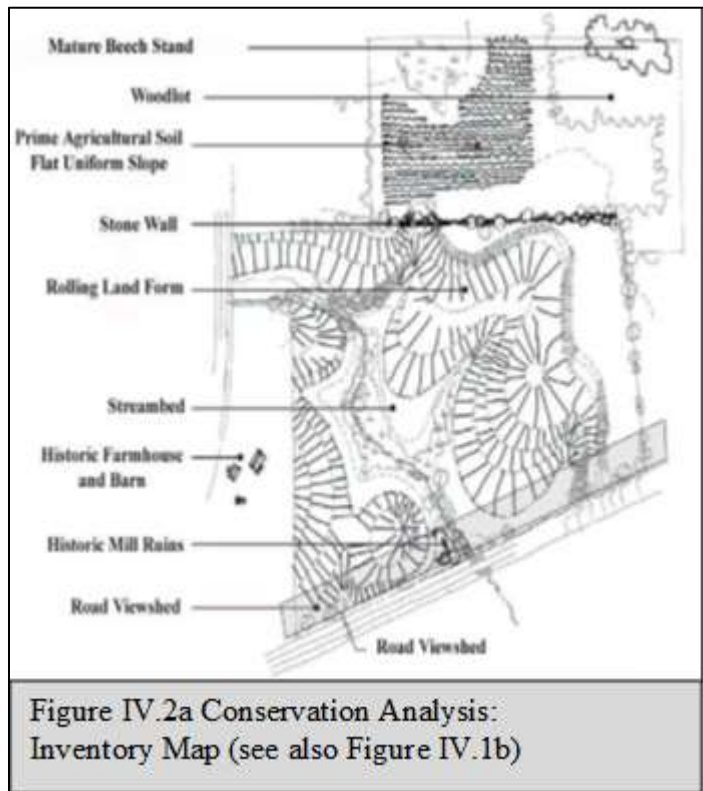
[ii] Open space and recreational resources described in the *[City/Town/Village of _____] Open Space Plan;*

[iii] Buffers to provide an area for installation of screening to obscure and enhance the view of new development from adjoining parcels; and

[iv] Land exhibiting present or potential recreational, historic, ecological, agricultural, water resource, scenic or other natural resource value.

(b) The conservation analysis shall describe the importance and the current and potential conservation value of all land on the site. In the course of its initial preliminary subdivision plat review, the Board shall indicate to the applicant which of the lands identified as being of conservation value are most important to preserve.

(c) The outcome of the conservation analysis and the Planning Board's determination shall be incorporated into the approved preliminary subdivision plat showing land to be permanently preserved by a conservation easement. The preliminary subdivision plat shall also show preferred locations for intensive development as well as acceptable locations for less dense development.



(d) The Planning Board shall make the final determination as to which

land has the most conservation value and should be protected from development by conservation easement. Whenever the Board approves a plan with protected open space, it shall make written findings identifying the specific conservation values protected and the reasons for protecting such land (the "conservation findings"). The Planning Board shall deny an application that does not include a complete conservation analysis sufficient for the Board to make its conservation findings.

(e) The preliminary subdivision plat shall show the following as land to be preserved by conservation easement:

- [i] An amount of land no smaller than the total amount of constrained land identified in the analysis in Section 1 Paragraph B(2); and
- [ii] In the *[insert name of rural or conservation zoning district]* District, at least fifty percent (50%) of the land not preserved in Section 1 Paragraph B(2). In the *[insert name of residential district]* at least thirty-five percent (35%) of the land not preserved in Section 1 Paragraph B(2).

(f) If, based upon the conservation analysis, the Planning Board determines in its conservation findings that there is no reasonable basis for requiring a conservation subdivision; the Planning Board may approve a conventional development of the site. In order for the Board to make such a determination, the applicant must demonstrate at least one of the following:

- [i] The land contains no substantial resources with conservation value; or
- [ii] The acreage is too small to preserve a substantial amount of land with conservation value (this criterion shall not be evaded by piecemeal subdivision of larger tracts); or
- [iii] The lot configuration is unique and precludes preservation of a substantial amount of land with conservation value; or
- [iv] That there are extraordinary circumstances unique to the parcel that demonstrates that conventional subdivision is in the best interest of the adjacent neighborhoods.



Figure IV.2b Conservation Analysis: Sample Preliminary Plan

(g) An approval of a conventional subdivision shall refer to the conservation findings and may be conditioned upon the protection by conservation easement of portions of the site identified in the conservation analysis and findings as having conservation value.

(3) Types of Development in a Conservation subdivision. The allowable residential units may be developed as single-family or two-family residences. Within a conservation subdivision, a maximum of *[indicate percentage, such as 25%]* of the units may be placed in structures containing two units.

(4) Lot Sizes in Conservation Subdivisions. There shall be no minimum lot size in a conservation subdivision. The Planning Board shall determine appropriate lot sizes in the course of its review of a conservation subdivision based upon the purposes and design criteria established in this Article. In order to permit a clustered lot configuration, wells and septic systems may be located in areas of protected open space, provided that necessary easements are provided for maintenance of these facilities.

(5) Other Area and Dimensional Requirements

(a) There shall be no required area, bulk, or dimensional standards in a conservation subdivision, except that where such subdivision abuts an existing residence in a residentially zoned area, a suitable buffer area with suitable screening shall be required by the Board. This buffer shall be at least the same distance as the minimum rear or side yard setback in the district in which the abutting land is located.

(b) The applicant shall specify dimensional requirements for a proposed conservation subdivision by identifying setbacks and other lot dimensions to be incorporated into the final subdivision plat.

(6) Conservation Subdivision of a Portion of Larger Tract. The Planning Board may entertain an application to develop a portion of a parcel if a conservation analysis is provided for the entire parcel and the approval to develop a portion of the parcel is not a basis for the applicant or successor in interest to subsequently request an exception under Section 1, Paragraph B(2) of this Article for the remainder of the parcel.

(7) Conservation Subdivision Design Guidelines. Lots shall be arranged in a manner that protects land of conservation value and facilitates pedestrian and bicycle circulation. The lot layout shall to the extent feasible comply with the design guidelines in Section 1, Paragraph D of this Article. Permitted building locations or areas (“building envelopes”) shall be shown on the final subdivision plat.

(8) Permanent Open Space. *[Omitted, see City of Saratoga Springs Subdivision Regulations]*

(9) Rural Design and Siting Standards. *[Omitted, see City of Saratoga Springs Subdivision Regulations]*

Section 2. Procedures for Review of a Conservation Subdivision

A. Review Process

(1) The conservation subdivision review process may involve the following two steps with an optional sketch plan review:

(a) Preliminary subdivision plat review

(b) Final subdivision plat review

(2) Optional sketch plan review. An applicant may request a sketch plan discussion with the Planning Board prior to the applicant making any formal subdivision submission.

(a) The submission of a sketch plan is an option available to the applicant. It is a pre-application procedure. The applicant may exercise this option for a pre-application discussion for the purpose of seeking advice and direction.

(b) During the sketch plan discussion, the applicant and the Planning Board may discuss the possible requirements of the project in relation to standards for street improvements, grading, drainage, sewerage, water supply, fire protection and similar aspects, as well as the availability of existing services and other pertinent information.

(3) Preliminary subdivision plat review. Review of a preliminary plat is mandatory for conservation subdivisions containing four or more lots.

(a) The preliminary subdivision plat shall be reviewed by the Planning Board, which shall hold a public hearing and make its conservation findings as required by [*insert article number*], Section 1, Paragraph B.2. The notice and hearing procedures shall be the same as those for a conventional subdivision contained in [*site section number*]. In order to approve a preliminary subdivision plat, the Planning Board must find that it complies with all relevant provisions of the Zoning Ordinance.

(b) SEQRA compliance for the preliminary subdivision plat shall be the same as required by these regulations for a preliminary subdivision plat application for a conventional subdivision.

(c) Preliminary subdivision plat approval shall expire one (1) year from the date of approval if final plat approval has not been granted. Upon a written request from the applicant, the Board at its discretion may grant an extension of the approval. The length of the extension will vary depending on the basis of the request made.

(4) Final subdivision plat review. The procedure for final subdivision plat review, including notice and hearing procedures, shall be the same as those for a conventional subdivision plan contained in [*site section number*]. In order to approve a final subdivision plat, the Planning Board must find that it is consistent with the preliminary subdivision plat and complies with all relevant provisions of the Zoning Ordinance.

(a) SEQRA compliance for the final subdivision plat shall be the same as required for a conventional subdivision plat. Final subdivision plat approval shall expire one (1) year from the date of the approval. Upon a written request from the applicant, the Planning Board at its discretion may grant an extension of the approval. The length of the extension will vary depending on the basis of the request made.

1.5.7 Environmental Constraint Disclosures

Local officials are occasionally asked by new property owners to make exceptions for their property by not enforcing land use laws or by somehow curing a problem discovered after the property was purchased. Most prospective buyers do not take the time (or know how) to investigate whether a property is subject to a hazard. In many cases a property may not be near a stream or shoreline; past flooding may have been minor; or there may be no history of flooding since the area was settled. As a result, many people are caught by surprise when their property is flooded. One of the best times to learn of a flood hazard is at the time when the purchase of property is being considered. The result may be avoidance of the flood prone areas; awareness of higher flood insurance premiums; fewer headaches for municipal officials; and more resilient construction.¹²⁵

In New York State, sellers are required to either provide a form disclosing environmental constraints on their property, such as the presences of floodplains or wetlands, or provide a \$500 credit toward the purchase price.¹²⁶ Municipalities may not require real estate agents to make those disclosures in their real estate listings. However, municipalities may provide other avenues for that information to be discovered by prospective purchasers. The model law provides two ways to provide notice to prospective buyers: a note on the subdivision plat and a notification covenant attached to the deed.

Municipalities may require a number of items to be shown on a subdivision plat, such as streets, water supply and sewage disposal systems, street lights, electric lines, telecommunication cables, lot lines, topographic lines, and drainage ways. More recently, to alert prospective lot owners and head off potential conflicts between neighbors, some municipalities have required subdivision plats to indicate the presence of adjacent land that is part of a working farm. A similar consumer awareness and protection action a municipality can enact is a requirement that the applicant for a subdivision of land show the presence of flood hazard areas on the subdivision plat, with accompanying base flood elevations.

Municipalities may also establish various requirements regarding deeds for lots created by the subdivision, such as submission of a draft of all proposed restrictions which will become covenants in the deed for the lots. For example, deeds may disclose drainage easements, paper streets (streets that may be built in the future), or nearby farm operations. In the model below, the deed must note the existence of special flood hazard areas and coastal erosion hazard areas.

Requiring the types of disclosures above may qualify a community participating in the Community Rating System for credit points under the category of initiatives that will reduce future flooding damages. (See the *Management of Floodplain Development* chapter of the Model Local Laws for more information on the Community Rating System.) With enough credit points, flood insurance premiums for the residents in the community may be reduced.

USAGE

Insert text into the municipal subdivision law or the section of the municipal zoning law dealing with subdivision.

Paragraphs X and Y should be added to the section which lists items which must appear on a subdivision plat.

Paragraph Z should be added to the requirements for final plat approval.

ADAPTED FROM THE FOLLOWING SOURCE

Gallatin County (MT) Subdivision Regulations, Section 10: Flood Hazard Evaluation¹²⁷

Maine Model Floodplain Management Ordinance (ME), Article IX Review of Subdivision and Development Proposals¹²⁸

LANGUAGE

Add to Section of Subdivision Law listing what must appear on subdivision plat

X. Flood hazard data. The preliminary and final plats of all new subdivisions within any land located in a 100-year floodplain shall show the Base Flood elevations and the limits of the 100-year floodplain based on where the Base Flood elevations intersect surveyed ground elevations. The municipal Floodplain Administrator may require additional flood data and flood hazard notes to be shown on the final plats or other applicable development document (final site plan, covenants, etc.). Such information includes, but is not limited to, the elevation of the existing ground, flood water depth, lowest permissible floor elevations, and the boundary of the 100-year floodplain and floodway through the subdivision.

Y. Construction standards in Special Flood Hazard Areas. Where any portion of a proposed subdivision lies within a special flood hazard area, the subdivision plat shall include a notation stating that structures on any lot in the development having any portion of its land within a Special Flood Hazard Area, are to be constructed in accordance with the development standards of the Municipal Flood Damage Prevention Law. The note shall clearly articulate that the [City/Town/Village] may enforce any violation of the construction requirement.

Add to Section of Subdivision Law on Final Plat Approval

Z. Covenants. The [City/Town/Village] Planning Board shall have the authority to require that the applicant or owner execute covenants as it may deem to be required in order to notify prospective buyers that a lot is in a special flood hazard area as determined by the Flood Insurance Rate Map in effect on the date the deed is filed [optional: or in a coastal erosion hazard area as determined by the New York State Department of Environmental Conservation], and such lot may be subject to federal, state and local regulations on limitations regarding construction and flood insurance. Said covenants shall be recorded in the office of the [_____] County Clerk and constitute a covenant running with the land. Such covenant or agreement may be modified or released only as set forth in said covenant or agreement or by the Planning Board.

1.6 Site Plan Review

While subdivision review can be used to control the division of land and the layout of new lots, site plan review is a technique that allows local review boards to review the development of individual lots. When reviewing site plans, local review boards may be given authority to look at parking, means of access, screening, signage, landscaping, architectural features, location and dimensions of buildings, adjacent land uses and physical features meant to protect adjacent land uses as well as any additional elements specified in a local law.

With proper authorization, review boards can also consider vulnerability to disaster, stormwater control, erosion control, future conditions, lighting, and public service needs. They may also incorporate flood mitigation requirements into conditions placed on site plan approval.

Site plan review may also be a vehicle for applying natural resource protection standards. For example, the Town of Coxsackie zoning law contains natural resource protection standards that address steep slopes, watercourses, wetlands, and wildlife habitat.¹²⁹ The standards apply to all development activities within the Town after the effective date of the law, except land alteration activities that improve single-family or two-family residential lots in single lot ownership, or minor subdivisions (generally 5 or fewer lots on existing streets).

Municipal authorization for site plan review is contained in Town Law 274-a, Village Law 7-725-a, and General City Law 27-a.

RESOURCES

Recommended Residential Construction for Coastal Areas: Building on Strong and Safe Foundations (Second Edition). (2009). FEMA P-550.¹³⁰

Coastal Construction Manual: Principles and Practices of Planning, Siting, Designing, Constructing, and Maintaining Residential Buildings in Coastal Areas, FEMA P-55 (2011)¹³¹

National Flood Insurance Program, Floodplain Management Bulletin: Historic Structures. FEMA P-467-2 (May 2008)¹³²

1.6.1 Stormwater Site Design Plans

Stormwater management is another issue that can be addressed through site plan review. Municipalities may consider the extent to which the proposed site plan addresses higher volumes of stormwater that result from buildings, walkways, parking, roads and other impermeable surfaces. As alternatives or in conjunction with structural solutions, site design practices that can avoid or reduce the impacts of stormwater fall into three categories:

Preservation of Natural Features and Conservation Design: Preservation of natural features includes techniques to foster the identification and preservation of natural areas that can be used in the protection of water resources. Conservation design includes laying out the elements of a development project in such a way that the site design takes advantage of a site's natural features, preserves the more sensitive areas and identifies any site constraints and opportunities to prevent or reduce effects.

Reduction of Impervious Cover: Reduction of impervious cover includes methods to reduce the amount of rooftops, parking lots, roadways, sidewalks and other surfaces that do not allow rainfall to infiltrate into the soil, in order to reduce the volume of stormwater runoff, increase groundwater recharge, and reduce pollutant loadings that are generated from a site.

Use of Natural Features and Source Control for Stormwater Management: Use of natural features for stormwater management includes design strategies rather than structural stormwater controls to help manage and mitigate runoff. Source control for stormwater management includes elements to mitigate or manage stormwater in a natural or lower-impact manner.¹³³

Additional examples of model local law provisions may be found in the *Stormwater Control Measures* chapter.

RESOURCES

Stormwater Management Guidance Manual for Local Officials. (2004). NYS Department of Environmental Conservation.¹³⁴

New York State Stormwater Management Design Manual. (2015). NYS Department of Environmental Conservation.¹³⁵

Draft Green Infrastructure Guide. (2015). City of Newburgh Conservation Advisory Council.¹³⁶

Better Site Design. (2008). Division of Water, NYS Department of Environmental Conservation.¹³⁷

USAGE

Insert text in section of zoning law or separate site plan review law which lists the requirements for a site plan.

LANGUAGE

Section X. Stormwater Site Design Practices; uses, restrictions, and regulations.

A. Site Plan and special use permit applications to the [*insert name of board reviewing such applications, such as the Planning Board*] shall be subject to review and approval for conformance to stormwater site design practices.

B. The site owner/applicant/designer shall submit a Stormwater Site Design Plan (SSDP) to the [*Planning Board*]. The standard used to meet the requirements of this local law shall be the *New York State Stormwater Management Design Manual* (NYSSDM). The applicant shall submit a conceptual SSDP to the [*Planning Board*] for review and conceptual approval prior to the submission of the actual site plan or plans associated with a special use permit.

The conceptual SSDP shall include a narrative outlining the how the conceptual SSDP addresses the initial steps in the process for stormwater site planning and practice as expressed in the NYSSDM, including Step 1 Site Planning, Step 2 Determine Water Quality Treatment Volume (WQv), and Step 3 Apply Runoff Reduction Techniques and Standard SMPs with RRv Capacity to Reduce Total WQv.

C. Where such practices are deemed applicable and practical to the site by the [*Planning Board*], the final SSDP shall incorporate the practices and techniques listed below.

- (1) Practices for preservation of undisturbed areas and buffers; reduction of clearing and grading; locating development in less sensitive areas; open space design, soil restoration, roadway reduction, sidewalk reduction, driveway reduction, cul-de-sac reduction, building footprint reduction and parking reduction.
- (2) Techniques for green infrastructure and standard stormwater management practices with Runoff Reduction Volume capacity incorporating conservation of natural areas, sheetflow to riparian buffers or filter strips, vegetated open swales, tree planting or tree box, disconnection of rooftop runoff, stream day-lighting, rain gardens, green roofs, stormwater planters, rain tanks/cisterns, porous pavement, infiltration practices, bioretention practices and or dry swales (open channel practices).

A narrative addressing the listed practices and techniques shall accompany the final SSDP for review and approval by the [*Planning Board*], and also outline how the final SSDP addresses the following steps in the process for stormwater site planning and practice as expressed in the NYSSDM: Step 4 Determine the minimum RRv required and Step 5 Apply Standard Stormwater Management Practices to Address Remaining Water Quality Volume.

D. The [Planning Board] shall review the final SSDP and narratives and determine whether or not the SSDP conforms to the purpose and intent of the local law.

E. The [City/Town/Village] may retain an engineer to review and make recommendations to the [Planning Board] regarding runoff reduction criteria, water quality volume, application of stormwater management practices, peak rate control practices and whether or not quantity control requirements have been met. The [City Council/Town Board/Village Board of Trustees] shall establish a fee schedule related to such review.

1.6.2 Encroachments on Drainageways

Planning board review should include the potential for offsite impacts such as localized flooding. Localized flooding can result from even minor storms. Runoff overloads drainageways and flows into streets and low-lying areas. Sewers back up; yards are inundated; and basements or first floors are flooded. Damage may even occur to sidewalks, streets, and other public property.

Many lots have utility or drainage easements designed to carry surface water away from the buildings and to the street, storm sewer, or other drainage facility. To function properly, drainage easements must be kept open. Unfortunately, many property owners do not know that drainage easements exist or understand why they are needed. They install garages, playsets, sheds, planters, stone walls, fences, or swimming pools in the drainage easements, disrupting the drainage pattern and pushing surface water onto other properties.

Municipalities may address the problem of encroachment in easements through education, regulation, and enforcement.

RESOURCE

Reducing Damage from Localized Flooding: A Guide for Communities. (2005). FEMA 511.¹³⁹

Site Plan Review. (2012). New York State Department of State.¹⁴⁰

USAGE

Insert text in section of zoning law which regulates encroachments. If encroachments are not addressed separately, add to a section in the zoning law on supplemental uses or accessory uses.

ADAPTED FROM THE FOLLOWING SOURCE

Orland Hill (IL) Municipal Ordinance, Title 15 Land Usage, Chapter 152 Fences¹⁴¹

LANGUAGE

A. Encroachments on drainageways. No structure may be erected without complying with the following:

(1) Construction. No structure or barrier shall be constructed in such a manner as to impede or alter the natural surface water drainage of the property upon which the structure or barrier is constructed or any adjoining property. The bottom of the structure or barrier shall be a minimum of three inches above the drainage area.

(2) Enforcement. If the [Code Enforcement Officer or Building Inspector] considers a structure or barrier to be a public safety hazard, either prior to, during, or after construction or placement he or she may issue a stop work order. The property owner may appeal the stop work order and the

[*Code Enforcement Officer's or Building Inspector's*] interpretation that the structure or barrier constitutes a public safety hazard to the Zoning Board of Appeals. If the Zoning Board of Appeals upholds the decision of the [*Code Enforcement Officer or Building Inspector*], they may direct that such structure or barrier be removed or reinstalled in compliance with Paragraph X(1).

1.7 Local Road Standards

Transportation infrastructure including roads, bridges and culverts often require costly repairs or replacements if damaged by extreme weather events. With a changing climate, the Northeast is experiencing more frequent heavy precipitation events, increasing the risk of failure for transportation infrastructure, especially assets nearing the end of their design life. To reduce such risk and increase resiliency, transportation infrastructure replacements should be built to the most current engineering standards and appropriate design flows. “Resiliency” is defined as “the ability to anticipate, prepare for, and adapt to changing conditions and withstand, respond to, and recover rapidly from disruptions.”¹⁴²

Municipalities should consider incorporating current and resilient design standards into their transportation infrastructure engineering approaches through adoption of road design standards. Such design standards should be appropriate to the location and needs. A local roads classification system based on traffic volume such as average daily traffic (ADT) counts, can help determine appropriate design standards to use. For these purposes and in general, low volume roads are defined by the Cornell Local Roads Program as having a current Average Daily Traffic (ADT) count of 400 vehicles per day or less. Roads with a greater than 400 ADT count are considered high volume roads. By adopting appropriate standards for low- and high-volume roads, a local government can assure consistent design approaches.

In addition to having a set of design standards to improve the flood resiliency of transportation infrastructure, municipalities should consider adopting such design standards for the additional benefits standards they can bring, such as greater overall safety for the general public, improved planning and scheduling, reduced future impacts to transportation assets and the ability to provide consistent information to the public. In addition, reasonable design standards can be used to help identify where such design standards are not met and develop transportation infrastructure management plans to address these conditions.

Several options for highway standards are available to municipalities in New York State. To incorporate resiliency, the following standards explained below, are recommended:

- New York State Department of Transportation (NYSDOT) Highway Design Manual, Chapter 4 and Chapter 8;¹⁴³
- NYSDOT Bridge Manual¹⁴⁴
- Cornell Local Roads Program Highway Standards for Low-Volume Roads in New York State¹⁴⁵ or
- Or equivalent locally developed municipal-specific standards.

NYSDOT Highway Design Manual

The NYSDOT Highway Design Manual (HDM) provides requirements and guidance on highway design methods and policies which are as current as practicable and assures uniformity of design practice consistent with the collective experience of the NYS Department of Transportation (NYSDOT), the American Association of State Highway and Transportation Officials (AASHTO), and the Federal Highway Administration (FHWA). The

objective of the design process is the construction of highways which provide adequate safety and convenience to all highway users while maintaining proper balance among highway functional classifications, environmental concerns and fiscal restraints. The HDM was developed taking into consideration national references. Portions of the manual may be superseded by subsequent Official Issuances of the NYSDOT. The HDM Chapter 4 is titled “Design Criteria & Guidance for Bridge Projects on Low Volume Highways” and Chapter 8 is “Highway Drainage.”

NYSDOT Bridge Manual

The NYSDOT Bridge Manual (BM) provides guidance for decisions in the bridge project process, documents or references policies and standards that need to be considered and provides a commentary on good bridge engineering practice. The manual is intended to provide assistance to designers to ensure that “quality” bridges are constructed. “Quality” bridges are durable, economical, aesthetically pleasing, safe, and environmentally sound. Although the manual provides guidance on design procedure, many subjects presented only highlight criteria and practice. A complete analysis and design to produce a safe, economical and maintainable structure is the responsibility of the designer. This manual applies to all bridges constructed under contracts with the NYSDOT. In addition, its use is encouraged for all bridges in New York State.

The NYSDOT BM was developed taking into consideration national references. Bridge designers consider these references and their provisions where applicable.

Highway Standards for Low-Volume Roads (LVRs) in New York State

Using a set of standards originally developed in 1992 by the NYS Local Roads Research and Coordination Council, the Cornell Local Roads Program (CLRP) developed a full set of standards for roads. *The Manual: Guidelines for Rural Town and County Roads* was developed specifically for classification and management of low-volume roads (i.e., less than 400 average number of vehicles per day, also known as “average daily traffic” or ADT) in New York State. These guidelines establish appropriate standards for speed, construction and maintenance which are consistent with the needs and uses of these low-volume roads (LVRs). The Highway Standards for LVRs in NYS can be adopted by any municipality or agency but are not recommended on highways with more than 400 ADT. The standards include common options used by municipalities in New York State.

Locally Developed Municipal-Specific Standards

A municipality may elect to develop its own standards and adopt them as the official municipal policy. They must be legally sufficient so as to survive a legal challenge. The municipality should have the standards developed by a Professional Engineer and reviewed by the municipal attorney. A municipality may elect to use portions of the above standards but should include an order of precedence to avoid any potential conflicts.

Which Standard to Use

Unless a municipality develops its own standards, it should choose among the standards listed below. For roads with more than 400 average number of vehicles per day (400 ADT), the NYSDOT Manuals are the standards that should be followed. Local governments can adopt standards for low-volume and high-volume roads.

Traffic Volume	Closed Drainage/Culverts/Ditches	Bridges
≤ 400 ADT	<ul style="list-style-type: none">• NYSDOT Highway Design Manual (Chapter 4 and 8), or• Highway Standards for Low Volume Roads (Cornell Local Roads Program)	NYSDOT Bridge Manual
> 400 ADT	<ul style="list-style-type: none">• NYSDOT Highway Design Manual (Chapter 8)	NYSDOT Bridge Manual

Note: It is acceptable to add municipal specific options in highway standards if reviewed and properly vetted.

Implementation Process for Roadway Standards

Having standards will provide consistent requirements for new construction of roads, bridges and culverts. The standards will also support the development of a transportation infrastructure management plan and consistency in repairing deficiencies in construction. Requiring that such a plan be followed would reduce the risk of future damages to transportation assets, provide greater overall safety for the traveling public and provide consistent information to the public.

Standards should be adopted by local law. As with any legislation, a public hearing must be held prior to adoption. Additionally, the law should be reviewed for legality, completeness and proper language by the municipal attorney. After the law is passed by the county, city, town, or village, it must be filed with the New York State Department of State. Instructions and necessary forms for filing local laws are available online from the New York State Department of State. For more information, the municipality may contact the Cornell Local Roads Program.

Following adoption, the following implementation process is recommended:

- Classify local roads by volume. Additional classifications evaluating factors such as types of vehicles, land use, and seasonality of use are further refined in the cited standards.
- Determine existing conditions of pavement, roadside, signs, drainage, and alignment.
- Identify what work needs to be completed to meet adopted highway standards.
- Rank the needs and prioritize the work.
- Develop and implement an action plan.
- Identify funding needs and obtain funding.

The model local law presented here will be useful to municipalities that are considering adopting and incorporating resilient design standards into their engineering infrastructure approaches for their local roads, including low-volume roads. Adopting the design standards referenced hereby will help municipalities increase infrastructure resilience.

This model local law and background narrative was prepared by the Cornell Local Road Program, NYS Department of Transportation, and NYS Department of State.

RESOURCES

Guidelines for Geometric Design of Very Low-Volume Local Roads. AASHTO.¹⁴⁶

Manual: Guidelines for Rural Town and County Road. Local Roads Research and Coordination Council.¹⁴⁷

A Policy on Geometric Design of Highways and Streets (known as the *AASHTO Greenbook*). AASHTO.¹⁴⁸

Guidelines for Geometric Design of Very Low-Volume Local Roads (ADT ≤400), 1st Edition. AASHTO.¹⁴⁹

Local Roads Research and Coordination Council Manual: Guidelines for Rural Town and County Roads. Cornell Local Roads Program.¹⁵⁰

Highway Standards for Low-Volume Roads in New York State. Cornell Local Roads Program.¹⁵¹

Resilience and Transportation Planning. (2017). Federal Highways Administration. FHWA-HEP-17-028.¹⁵²

USAGE

While road standards may be adopted by regulation or resolution, it is strongly recommended that they be passed as law.

ADAPTED FROM THE FOLLOWING SOURCE

Model prepared by the NYS Department of Transportation in cooperation with the Cornell Local Roads Program.

LANGUAGE

Section 1. Legislative purpose.

The [*County/City/Town/Village*] hereby enacts this local law for the purpose of adopting design standards for transportation infrastructure including [*insert as appropriate - highways, roads, culverts, bridges, drainage systems*] on its local roads including low-volume roads. While there

are generally accepted standards for the design rehabilitation and repair of roads, bridges, culverts and drainage systems on high-volume roads, there are no such comparable standards for roads, bridges, culverts and drainage systems for low-volume roads. Adopting standards that support the design of resilient transportation assets for local roads including low-volume roads could result in greater overall safety for the general public and reduce future impacts to transportation assets. The [County/City/Town/Village] recognizes that resilient design standards should be incorporated as appropriate to the location and needs. A local roads classification system based on traffic volumes defined in Section 3 below will help determine appropriate standards to use.

In addition to having a set of standards to improve the flood resiliency of local transportation infrastructure, the [county/city/town/village] is adopting such standards (per Section 2) for added benefits such as improving planning and scheduling transportation infrastructure improvements, reducing impacts to the traveling public and providing consistent information to the public. In addition, reasonable standards will be useful to help define deficiencies and develop transportation infrastructure management plans.

The increase in heavy precipitation and flooding events is subjecting transportation assets to greater hydraulic stressors, resulting in greater need for maintenance, repair and/or replacement of infrastructure. Given the need to manage this risk, it is incumbent upon the [County/City/Town/Village] to target investments to the most applicable, practical and cost-effective solutions using consistent engineering standards and a risk-based engineering approach.

Section 2. Adoption of Standards.

The [County/City/Town/Village] hereby adopts by reference the following standard(s): *[select as appropriate - New York State Department of Transportation (NYSDOT) Highway Design Manual (Chapter 4 and Chapter 8); NYSDOT Bridge Manual; Highway Standards for Low-Volume Roads in New York State, 2017, Cornell Local Roads Program; or equivalent locally developed municipal-specific standards.]*

Section 3. Classification of Local Roads by Volume.

The [County/City/Town/Village] [identify position of Responsible Official] in consideration of the best interests of the [County/City/Town/Village], may classify one or more (or all) roads, or portions thereof, as one of the following types of roads by volume meaning “average daily traffic” (ADT): either less or equal to (\leq) 400 ADT (low-volume), or greater than ($>$) 400 ADT (high volume).

The classification of any road or designated portion thereof shall be based on available data or the working knowledge and records of the [County/City/Town/Village] [highway superintendent/director of public works]. Upon the classification of any road or portion thereof by the [County/City/Town/Village] [Responsible Official], such designation shall be filed in the office of the [County/City/Town/Village] clerk and a copy shall be presented to each member of the [County Legislature/City Council/Town Board/Village Board of Trustees] by the

[County/City/Town/Village] clerk within 10 days of such filing. Such designation shall be accompanied by a finding by the [Responsible Official], which shall contain the information upon which the [Responsible Official] relied when designating such road or portion thereof. The [County Legislature/City Council/Town Board/Village Board of Trustees] may at a [County Legislature/City Council/Town Board/Village Board of Trustees] meeting following the filing of such designations adopt a resolution accepting such designations. Upon the adoption of such resolution, the road or roads or portion thereof shall be classified as determined by the [County/City/Town/Village] [Responsible Official] and such [County/City/Town/Village] [Responsible Official] shall take into consideration the guidelines for designing, repairing and constructing transportation infrastructure [insert as appropriate - roads, bridges, culverts, drainage systems or portion thereof] as set forth in section two of this local law.

Section 4. Traffic Volumes and Standards.

The following tables and accompanying data shall be used as guides by the [County/City/Town/Village] [Responsible Official] to assign adopted standards of Section 2 to local roads in the [County/City/Town/Village]. Such standards shall be used to enable the [County/City/Town/Village] [Responsible Official] to determine the guidelines he or she may follow to enable him or her to determine the manner in which low-volume rural roads may be designed, maintained and operated.

Road Traffic Volumes	Standards: Closed Drainage/ Culverts/Ditches	Standards: Bridges
≤ 400 ADT	<ul style="list-style-type: none"> • NYSDOT Highway Design Manual (Chapters 4 and 8) • Highway Standards for Low Volume Roads, Cornell Local Roads Program 	NYSDOT Bridge Manual
> 400 ADT	<ul style="list-style-type: none"> • NYSDOT Highway Design Manual (Chapter 8) 	NYSDOT Bridge Manual

Section 5. Certification by Others.

All roadways to be adopted by the [County/City/Town/Village] shall be certified that they are in compliance with these standards by a professional engineer licensed to practice in New York State.

Section 6. Acceptance of Roadways.

Before a roadway is to be adopted by the [County/City/Town/Village], a set of as-built plans approved by the project engineer shall be submitted to the [County/City/Town/Village] [Responsible Official]. Approval by the [County/City/Town/Village] [Responsible Official] that the road project including roadways, culverts, bridges, drainage systems and appurtenances meets the above standards then in effect shall be required prior to acceptance by the [County Legislature/City Council/Town Board/Village Board of Trustees]. The [County/City/Town/Village]

reserves the right to not to accept any roadway project, notwithstanding that all portions of these standards have been met.

Section 7. Discontinuance.

The [*County Legislature/City Council/Town Board/Village Board of Trustees*] may adopt a local law discontinuing such design standards contained in Section 2 and such road classifications contained in Section 3 in the event it determines such discontinuance to be in the public interest.

Endnotes

- ¹ *Model Conservation Zoning District and Natural Resource Protection Standards*. (2010). Lancaster County Planning Commission. Retrieved 12/11/18 from <http://www.lancastercountypanning.org/DocumentCenter/Home/View/154>
- ² *Conservation Advisory Councils and Boards: A Guide to the Organization and Operation of Local Environmental Advisory Councils*. (1997). Westchester County Environmental Management Council. Retrieved 12/13/18 from <https://clctrust.org/wp-content/uploads/2018/03/CAC-Guide.pdf>
- ³ Haeckel, I. and L. Heady. *Creating a Natural Resources Inventory: A Guide for Communities in the Hudson River Estuary Watershed*. (2014). Department of Natural Resources, Cornell University, and New York State Department of Environmental Conservation, Hudson River Estuary Program. Retrieved 12/11/18 from http://www.dec.ny.gov/docs/remediation_hudson_pdf/nriall.pdf
- ⁴ *Conserving Natural Areas and Wildlife in Your Community: Smart Growth Strategies for Protecting the Biological Diversity of New York's Hudson River Valley*. (2008). New York State Department of Environmental Conservation. Retrieved 12/11/18 from http://www.dec.ny.gov/docs/remediation_hudson_pdf/hrebch.pdf
- ⁵ *Town of Clinton Recommended Model Development Principles for Protection of Natural Resources in the Hudson River Estuary Watershed: Consensus of the Local Site Planning Roundtable*. (2006). Town of Clinton et al. Retrieved 1/30/19 from http://www.dec.ny.gov/docs/remediation_hudson_pdf/hrewbsdclin.pdf
- ⁶ New York State Association of Conservation Commissions Website at <http://www.nysaccny.org/>
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Wetland and Watercourse Protection Measures



The Rondout Flood. Source: Chris Bower

Rossana Rosado, Secretary of State

Andrew M. Cuomo, Governor



Department
of State



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Publication Date: June 2019

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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.

2. Wetland and Watercourse Protection Measures

Communities can increase their resilience to flooding by protecting watercourses, floodplains, wetlands, and the marine coast. An important first step is education and conversations with community stakeholders. Municipal, watershed, and coastal planning can be used to identify and prioritize community assets and establish non-regulatory strategies for conservation and for identification of the most suitable locations for community growth. In addition, municipalities can adopt local laws to define wetlands; and regulate activities that may affect floodplains, watercourses, marine coastal shorelines and freshwater and tidal wetlands and their buffers. These laws can address the need to absorb floodwater and reduce risk; and adjust to changes expected from increased precipitation, storm surges, and sea-level rise, such as the change in wetland character and function, inland migration of tidal wetlands, and increased risk of coastal flooding.

Watercourse and tidal flooding are both addressed in this chapter. Watercourse flooding is primarily caused by precipitation, while tidal or storm surge flooding is caused by inundation of seawater along the marine coast. During hurricanes, nor'easters, and other coastal storms the marine coast and its watercourses can be impacted simultaneously by tidal flooding, storm surge and precipitation.

Watercourse – A channel conveying water, such as a natural stream, river, or artificial channel.

Precipitation that is not absorbed by soil and vegetation is called stormwater runoff. Stormwater runoff is pulled by gravity into watercourse or drainage pathways that follow the topography, traveling towards a common waterbody within the watershed that could be as small as a pond or as large as an ocean. Flooding results when the flow of stormwater runoff is greater than the carrying capacity of nearby watercourses and waterbodies to which it drains.¹

Watercourse flooding usually involves a slow buildup of water and a gradual inundation of surrounding land. The presence of non-fragmented (intact) floodplains, wetlands, and forests contributes to a slower release of this stormwater buildup and helps to mitigate damaging peak flows. However, flash flooding, a quick overflow with high water velocities, can result from a combination of short-term intense precipitation events, presence of steep slopes, a short drainage, and a high proportion of impervious surfaces (e.g., buildings, roads, and parking lots) unable to absorb stormwater runoff.²

The extent of associated damage and risk from flooding is related to how land has been developed. As forests, wetlands, and natural areas are increasingly replaced by impervious surfaces, the land's natural ability to store and absorb precipitation decreases and stormwater runoff increases. In addition to the direct threat to homes and buildings, development in floodplains also displaces vegetation that naturally absorbs flood energy and stabilizes banks. The effect of these changes is to increase the severity of flooding.³ Coupled with changing

weather patterns, increased runoff into watercourses can change watercourse hydraulics and cause stream channels to erode. Channel instability poses threats to the built environment along watercourse corridors. Continued development also threatens the resiliency of coastal areas.

The following sections describe various local law techniques and approaches that steer development away from hazardous areas and from natural features that reduce flood risk.

2.1 Wetland Protection

The protection of freshwater and tidal wetlands is an important component of reducing the risk of flooding. In the freshwater environment wetlands, isolated wetlands, and headwater wetlands store water within the watershed, which reduces the quantity of water (peak flows) in streams thereby protecting adjacent and downstream property from flood damage. Functioning wetlands provide many other benefits in addition to flood risk reduction, including clean water and wildlife habitat.

Wetlands reduce flood impacts in several ways:

- Wetlands store and slowly release surface water, precipitation, and groundwater, reducing rapid runoff to watercourses.
- Wetlands serve as natural sedimentation areas and filter basins, controlling downstream erosion.
- In floodplain areas, wetlands and their specialized vegetation increase friction and the surface area of water, which slows floodwaters and reduces potential damage.

The ability of a wetland to reduce flooding depends on its landscape location, topography, soil type, soil moisture, and management. New York is thought to have lost 60% of its historic wetlands since 1780⁴, and given that one acre of wetland can typically hold one million gallons of water,⁵ tremendous stormwater storage capacity has already been lost. Loss of additional wetlands will cause or aggravate flooding, erosion, water quality, and quantity/supply problems and may pose a threat to the public health, safety, and welfare.

In the coastal marine environment, tidal wetlands provide additional benefits such as reducing energy from storm surge and wave action. Tidal wetlands are vulnerable to storm surge and increased nuisance tidal flooding caused by sea level rise and are at risk for loss unless soil is allowed time to accumulate or is added to raise wetland elevations or they are provided areas to migrate inland. Collectively, the Long Island Sound, Peconic, and South Shore estuaries lost, on average, 85 acres of native marsh annually from 1974 and 2005/2008.⁶

For more detailed information on how freshwater and tidal wetlands reduce flood risk, refer to the feature descriptions in the *Guidance on Natural Resource Measures*.⁷

Findings of Fact

Findings of fact explain the purpose of a local law to the public, landowners, and regulatory agencies. Findings for wetland laws describe why the municipality has chosen to regulate wetlands and may refer to local plans that establish the importance of wetlands in the community. Municipalities can use the findings section to highlight the importance of wetland protection to reduce flood risk as the climate changes.

Municipalities can add findings that specifically address climate change and the increased risk of flooding. For example:

“Municipalities throughout New York are already experiencing threats from climate change, including sea level rise, storm surge, and flooding. To protect public health and safety and to minimize the risk to existing development, investment, and public infrastructure, *[name of municipality]* seeks to promote the protection of natural systems that exist within the community that reduce flood risk.” *[Note that the reference to sea level rise and storm surge may not be relevant to all communities.]*

The Town of New Paltz wetland and watercourse law has several clear examples of flood-related findings, including this one on buffers:

The integrity of wetlands, waterbodies, and watercourses, and the maintenance of their full function and benefit, is inextricably linked to the presence of intact surrounding natural communities on adjacent buffer areas. Among the essential functions and values provided by riparian buffers is the control of flooding by slowing overland runoff and absorbing and storing substantial amounts of sheet flow, thereby assisting wetlands and watercourses in controlling flooding and gradually releasing flood flows to lower watersheds.

The wetland and watercourse law from the Town of Pawling also included several findings related to flooding in the section on legislative intent.⁸

Regulation of Wetlands

Although state and federal laws regulate activities in or near certain wetlands, not all wetlands are covered by these protections. New York regulates freshwater wetlands greater than 12.4 acres with a 100-foot adjacent area and certain wetlands of unusual local importance. The state also regulates mapped tidal wetlands. Tidal wetlands line much of the saltwater shore, bays, inlets, canals, and estuaries of Long Island, New York City, and Westchester County. They also line the Hudson River in Westchester and Rockland Counties upstream to the salt line. The U.S. Army Corps of Engineers requires permits for filling wetlands of any size that are classified as waters of the United States. In the Adirondack Park, wetlands as small as 1 acre are regulated. In New York State’s Hudson Valley region, it approximately 56% of freshwater wetlands are less than 12.4 acres or isolated, and likely not regulated by the state or federal government.⁹

Tidal wetlands can be regulated at both the state and local levels and this jurisdiction is concurrent as a DEC permit for a tidal wetland shall be in addition to, and not in lieu of, local permit requirements.

Freshwater wetlands may be regulated in several different ways:

- 1) a municipality has exclusive jurisdiction to regulate freshwater wetlands not regulated by the state; however, a wetland under 12.4 acres may be regulated by the state if it is deemed to be of unusual local importance;
- 2) the state may delegate all freshwater wetlands authority to a local government, provided it adopts a local wetland regulation law that is no less protective than state law and the state certifies that the municipality is capable of administering the local law; and
- 3) state law provides for concurrent local and State jurisdiction of freshwater wetlands and local governments can adopt freshwater wetland regulations already under the jurisdiction of the state if such local regulation is more protective of wetlands than the regulations in effect and no precertification by DEC required.

Many municipalities in New York State have used their home rule authority to complement state and federal programs by enacting local freshwater and tidal wetland laws and other local mechanisms such as wetland permits, zoning overlay districts, zoning setbacks, clearing and grading ordinances, and open space conservation to protect wetlands. Adoption of wetlands provisions in comprehensive plans, and application of environmental review pursuant to the State Environmental Quality Review Act (SEQRA), also help communities protect wetlands by providing policy and analysis in support of local laws.

Size of Regulated Wetlands	
Some, but not all, wetlands are protected by the state and federal regulations. To find out if a permit is needed for a specific project or activity, contact the regional Department of Environmental Conservation office or the Army Corps of Engineers.	
New York	Wetlands >12.4 acres with a 100-foot adjacent area, plus certain wetlands of unusual importance
U.S. Army Corps of Engineers	Wetlands of any size that are considered waters of the United States
Adirondack Park Agency	Wetlands as small as 1 acre

A community's approach to protecting wetlands may be influenced by the number of wetlands present in the jurisdiction; the ecosystem-based services those wetlands provide (e.g., flood protection, stormwater control, water treatment, and fish and wildlife habitat); the open space and aesthetic value of the wetlands; how the wetlands contribute to erosion control and protection of subsurface water resources; and what level of regulation is acceptable to the community.¹⁰

Establishment of Wetland Buffers

Communities may extend their protection efforts to land around the wetland, referred to as wetland buffers. Vegetated buffers can reduce the severity of water fluctuations and flooding due to storms by increasing the flood storage capacity of wetlands through better attenuation of stormwater runoff, tidal flooding, and storm surge before it reaches the wetland.¹¹ Buffers which restrict certain activities can help protect property from current flood hazards and future hazards associated with climate change.

Determining the size of the buffer and the activities allowed within it should be informed by the best available scientific information, as well as community challenges, goals, and capacity for enforcement. Some communities prohibit certain activities within wetland buffers, provide for permitted uses, or create a strict non-disturbance area around wetlands. Communities also vary in the size of required wetland buffers. The size of the buffer that is established may be influenced by the physical characteristics and function of the buffer area. For example, minimum buffers to prevent erosion on steep slopes should be greater than on level slopes (e.g., 150 feet versus 100 feet). Buffers should be larger in areas where pollutant filtration is an issue. For example, a minimum of 100 feet is recommended for effective nitrogen removal.¹² Even larger buffers are encouraged for wildlife habitat. In some communities, standard buffer distances have been replaced with variable buffer widths, which are determined on a case-by-case basis. Additional information on regulating wetlands and their buffers are included in the resource section.

Municipalities in New York State use a variety of local law techniques to regulate freshwater and tidal wetlands and to establish wetland buffer areas. Local laws should be equal to or exceed state and federal regulations. Key differences are how they define the wetlands and buffers they protect, and the land uses or management activities that are subject to the regulations (i.e., applicability).

The table below summarizes the variety of techniques provided in this and other chapters to protect wetlands and their adjacent buffers. All the techniques are flexible and can exempt specific types of activities from regulation (e.g., certain agricultural operations or collecting firewood).

A local wetland law is the most comprehensive approach, as all wetlands, regardless of size or location, play a role in reducing flood risk. It typically regulates more wetlands and more situations than other techniques. For example, it may regulate dredging, filling, dumping, vegetation removal, or building in wetlands as small as ¼ acre with a 100-foot buffer. (See Town of Pawling.)

Overlay zones are useful where wetlands are geographically limited, or where additional protection is desired for sensitive areas. For example, the Village of Trumansburg¹³ regulates wetlands in its overlay district as small as two acres for projects that require site plan review. In overlay zones that contain drinking water watersheds, the Town of New Castle regulates smaller wetlands and requires larger buffers than it does in its town-wide wetland and watercourse law.¹⁴

Local Wetland Law Options	
Technique	Description
Local Wetland Law	A Local Wetland Law is a resource specific law designed to address the gap in wetland protection afforded by state and federal regulations by applying to wetlands smaller than 12.4 acres, additional buffer areas, or regulating a broader range of human activities.
Wetland Conservation Overlay District	An overlay district adds standards to the base use and area requirements of the underlying zoning. The distinction from a local wetlands law is its application only to a district as defined on the official zoning map; would not apply to all land use and building approvals in the municipality. An overlay district could also be used in a town with a wetlands law, to increase protections in certain watersheds (e.g., Town of New Castle)
Wetlands Buffer	Supplemental regulations are part of the zoning law that applies standards to all lands as defined in the regulations.
Basic Zoning Tools	Wetland protection can be incorporated into zoning setbacks, subdivision regulations, and other basic zoning tools; for more information on these techniques, see the chapter, <i>Basic Land Use Tools for Resiliency</i> .

Supplemental zoning standards can be used simply to add buffers to federal wetlands in larger projects before the planning board (see Town of Coxsackie) or to require a permit for a range of activities in wetlands of any size (Town of Woodstock).

The table that follows summarizes a variety of existing local laws and how they regulate freshwater and tidal wetlands. For additional information, please refer to the text of the local law in question.

Local Wetland Protection Approach	Minimum Wetland Size	Size of Buffer or Regulated Area	Applicability	Technique
Town of Pawling (NY) Wetland and Watercourse Law ¹⁵	1/4 acre	100 ft; for wetlands surrounded by steep slopes, the buffer shall extend 100 ft from the top of the slope	Comprehensive. See Section 111-4 of the Town of Pawling law	Local Wetland Law
Town of Poughkeepsie (NY)	1/10 acre	25 ft for 1-5 acres, 50 ft for 5-9 acre, 75 for	Comprehensive. See Section 116-5 of the	Local Wetland Law

Local Wetland Protection Approach	Minimum Wetland Size	Size of Buffer or Regulated Area	Applicability	Technique
Aquatic Resource Protection Law ¹⁶		9-12 acres, 100 for more than 12 acres	Town of Poughkeepsie law	
Town of New Paltz (NY) Wetlands and Watercourse Protection Law ¹⁷	1/10 acre and vernal pools 100 sq. ft. or larger	50 ft from edge of wetland for wetlands 1/10 acre to < 1 acre; 100 ft for wetlands > 1 acre; 100 ft for quality vernal pool	Comprehensive. See Section 139-8 of the Town of New Paltz law	Local Wetland Law
Town of Philipstown (NY) Freshwater Wetlands and Watercourses Law ¹⁸	1/4 acre	land within 100 feet of the boundary of controlled wetland	Comprehensive. See Section 93-5 of the Town of Philipstown law	Local Wetland Law
Town of New Castle (NY) Wetlands Law ¹⁹	1/10 acre	100 ft	Comprehensive. See Section 137-3 of the Town of New Castle law	Local Wetland Law
Village of Trumansburg (NY) Wetland Conservation Overlay District ²⁰	2 acres	100 ft	Building projects that require site plan review, including 1- and 2-family buildings on a single lot	Wetland Overlay District
Town of New Castle (NY) Environmental Protection Overlay District ²¹	No minimum size	150 ft	Applies to certain drinking watersheds (i.e. Croton, Kensico, and Indian Brook Reservoirs)	Wetland Overlay District
Town of Coxsackie (NY) Natural Resource Protection Standards ²²	Federally regulated wetlands (as determined by the Army Corps of Engineers)	50 ft	All development activities except land alteration approved through subdivision or site plan review prior to effective date of law; or land alteration for development of single- or two-family residential lots in single lot ownership; or a minor subdivision	Supplemental Zoning Standards

Local Wetland Protection Approach	Minimum Wetland Size	Size of Buffer or Regulated Area	Applicability	Technique
Town of Woodstock (NY) Wetland and Watercourse Protection Standards ²³	No minimum size; excludes stormwater detention basins and artificial ponds < 0.1 acre	100 ft for wetlands > 0.1 acres, 50 ft for smaller wetlands	See Section 260-34C of the Town of Woodstock law	Supplemental Zoning Standards
Town of Ulysses (NY) Zoning Law ²⁴	Buffer areas apply to federally protected wetlands greater than one-tenth (0.1) acre	Varies from 0 - 100 ft based on zoning district	Depends on zone, primarily applies to structures or buildings	Simple Setbacks

RESOURCES

Local Wetland Regulations. (2013). Kingston, NY: Ulster County Planning Board.²⁵

McElfish, Jr., J.M., R.L. Kihslinger, and S.S. Nichols. (2008). *Planner’s Guide to Wetland Buffers for Local Governments.* Washington, DC: Environmental Law Institute.²⁶

Kusler, J. (2009). *Model Ordinances for Regulating wetlands, riparian habitats, and stream buffers.* Berne, NY: Association of State Wetland Managers.²⁷

Westchester County Model Ordinance for Wetland Protection. (1998). Westchester County Soil and Water Conservation District.²⁸

Wetlands Regulation Guidebook for New York State. (1993). EPA Region 2 EPA-902-R-004.²⁹

Tidal Wetlands Guidance Document: Living Shoreline Techniques in the Marine District of New York State. (2016). NYS Department of Environmental Conservation, Bureau of Marine Resources.³⁰

2.1.1 Simple Wetland Setbacks

Some wetland protection can be achieved through a standard tool of zoning – a setback requirement. It is a simple technique that prevents building too close to wetlands. The size of the regulated buffer should be increased for environmentally sensitive areas (e.g., shorelines and conservation districts), or areas of more intense use (e.g., industrial and business districts).

USAGE

Amend the sections in the municipal zoning law that describes the purpose, dimensional requirements, and general or development standards of a zoning district. Standards for the setback area, such as the preservation of vegetation (not included here), could be added to the design standards section of the zoning law.

ADAPTED FROM THE FOLLOWING SOURCE

Town of Ulysses (NY) Zoning Law, Article X – Design Standards for Conservation Districts, Section 212-62(A) Stream and Wetland Setbacks³¹

LANGUAGE

Amend the purpose statement of the zoning district by adding the following language:

Permanent and impermanent streams and wetlands are prominent features of the [*insert name of specific district(s)*] and the condition of these water bodies directly affects the health of [*insert name water body*] and the fauna and wildlife that depend on the water for sustenance. As such, it is the intent of this section to ensure the continued preservation and health of these water resources for current and future generations.

Add the following language to the description of dimensional requirements of the desired district:

(X) Setbacks from streams and wetlands. Buildings, structures, paved areas, or storage of construction equipment or machinery shall not be located within [*insert number of feet, such as fifty*] linear feet of the bank of any permanent or impermanent stream, and one hundred feet of any wetland. The [*insert name of review board, such a Planning Board or Conservation Commission*] may increase the setback from streams and wetlands by up to fifty percent if they determine that such an increase is necessary to protect water quality or to minimize the impacts of erosion and sedimentation. For the purposes of this section, a wetland is defined by both state and federal governing regulations, however wetland setbacks apply only to federally-protected wetlands greater than one-tenth (0.1) acre.

Add to the general or development standards section of the zoning district description:

(X) Prior to issuing a permit for proposed development that the Code Enforcement Officer or *[insert name of review board]* *[add the Zoning Board of Appeals if that board issues special use permits]* believes may encroach upon the buffer area, the permitting authority may require the applicant to provide a wetland delineation study to determine the wetland's exact boundaries and to evaluate potential impacts of development on said wetland.

2.1.2 Wetlands Buffer

Supplemental zoning standards can be adopted as additional requirements to underlying zoning district provisions to protect natural features and establish setback buffer areas and restrictions to activities within those buffers. Key purposes of these standards are the retention of wetlands in their natural state to preserve water quality, protect their water retention, and provide flood control functions. Like the other techniques in this chapter to protect wetlands, communities can define for themselves which and how wetlands and buffers are to be protected, and in what circumstances.

For example, the Town of Coxsackie Natural Resource Protection Standards apply a 50 -foot buffer around wetlands for certain projects that come before the planning board. The Town of Woodstock used the same mechanism to require a permit for a number of activities (e.g., construction, filling, dumping, and vegetation removal) that affect wetlands of any size.

USAGE

Incorporate into the performance standards section of a municipal zoning law.

ADAPTED FROM THE FOLLOWING SOURCE

Town of Coxsackie (NY) Municipal Code, Chapter 201 Zoning Law, Article VI Natural Resource Protection Standards, Section 201-49 Wetlands³²

LANGUAGE

Section X. Wetlands.

A. Purpose. It is the purpose of this Section to provide appropriate protection of the [City/Town/Village]'s wetland resources in order to protect wetland functions and values related to surface and ground water protection, wildlife habitat, and flood control. The requirement for buffer areas and the limitations on encroachment into wetlands and buffer areas are intended to be superimposed over the provisions of a zoning district where project review is required and shall be considered as additional requirements to be met by an applicant prior to project approval.

B. Geographic applicability of standards. These wetland protection standards shall apply in the following areas [*Note: see introduction and sidebar on defining wetlands*]:

- (1) All wetlands regulated by the NYS Department of Environmental Conservation (NYSDEC) and federal jurisdictional wetland areas within the [City/Town/Village].

(2) A protected buffer of *[insert number of feet, such as one hundred]* feet horizontal distance surrounding the boundary of any such wetland, with the exception of NYSDEC jurisdictional wetlands which have a one hundred foot buffer regulated by New York State, shall be subject to the provisions of this section.

C. Field delineation and wetlands report. All applicants shall be required to provide a wetland delineation and wetlands report for the review and approval of the *[City/Town/Village]* Planning Board.

(1) Applicants shall submit site specific field delineations, delineated by a qualified professional, indicating the location of all wetlands on the property.

(2) Delineations shall include NYSDEC regulated wetlands as well as jurisdictional and non-jurisdictional wetlands that meet the criteria for wetlands under federal standards.

(3) Delineation of wetland buffer areas shall include one hundred feet for NYSDEC regulated wetlands and *[insert number of feet, such as one hundred]* feet for all other wetlands.

(4) Under no circumstances shall published NYSDEC or National Wetland inventory maps be used as a substitute for field delineation. Applicants are encouraged to submit a field delineation and wetlands report as early in the development review process as possible.

(5) The wetlands report should include a marked wetland boundary, as described above; a map that accurately represents those boundaries; and a written report explaining how those boundaries were derived and why they are accurate.

(6) The *[city/town/village]* *[insert name of review board, such a Planning Board or Conservation Commission]* shall have the authority to invoke technical review by a qualified wetlands consultant, at the applicant's expense, of any field delineation and wetlands report.

D. Standards for wetlands protection. Consistent with the purposes of this Section, encroachment into wetlands and buffer areas is generally prohibited. If encroachment is unavoidable, then such encroachment(s) must:

(1) Not adversely affect the ability of the property to carry or store flood waters adequately;

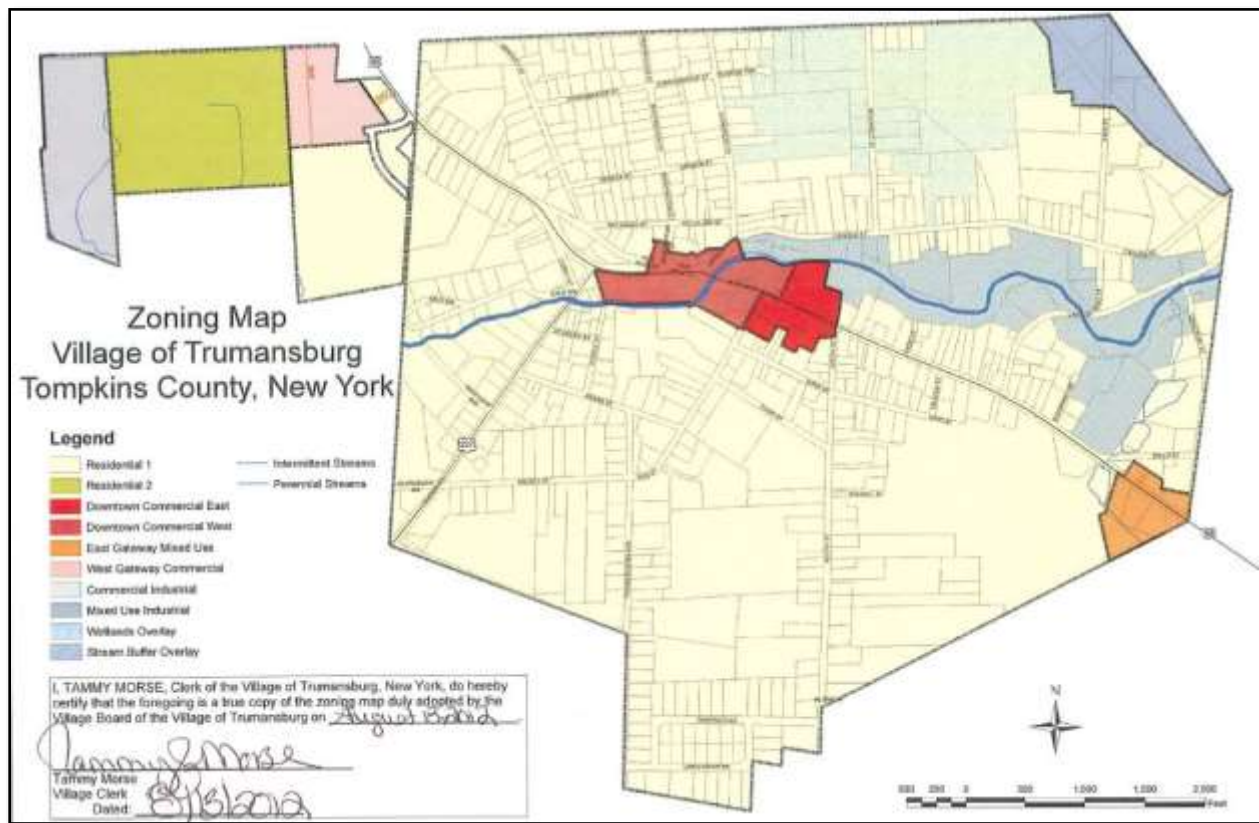
(2) Not adversely affect the ability of the proposed stormwater treatment system to reduce sedimentation in conformance with the substantive requirements of the NYSDEC State Pollutant Discharge Elimination System (SPDES) General Permit for Construction Activities most current version; and

(3) Include appropriate landscaping, stormwater treatment, stream buffering, and/or other mitigation measures that minimize the impact of the encroachment on wetland functions and values identified in the field delineation and wetland report.

2.1.3 Wetland Conservation Overlay District

Overlay Districts are commonly used to protect natural resources that are geographically limited and can be identified at locations shown on a zoning map. Additional standards for development or human activities can apply in an overlay zone in addition to the density, area, and use requirements of underlying zoning districts. Overlay districts are not commonly used for wetlands but may be appropriate in municipalities with limited wetland extent and to provide additional protection in sensitive areas.

The Village of Trumansburg Zoning Map³³ (below) illustrates both a wetland overlay district and a stream buffer overlay district.



USAGE

Identify the area(s) of the municipality that would be included in the Wetlands Overlay District and prepare a map showing those areas as an overlay to the municipal zoning map. Amend the section of the municipal zoning law that establishes zoning districts to include the new overlay district. This model local law is designed to be used in a community that also has site plan review.

ADAPTED FROM THE FOLLOWING SOURCE

LANGUAGE

Section X. Wetland Conservation Overlay District.

A. Purpose. The purpose of this section is to establish requirements for creating and maintaining buffers to protect fragile natural wetland areas within the [City/Town/Village of _____] where changes and/or development would be adverse to the environment, community values, public health, safety and general welfare of the [city/town/village], in accordance with the [City/Town/Village of _____] Comprehensive Plan.

B. Applicability and location. The Wetland Conservation Overlay District is superimposed over the basic zoning districts as set forth on the [town/village/city] Zoning Map. The regulations presented in this section shall only apply to those lands located within the boundaries of the Wetland Conservation Overlay District as overlaid on the [town/village/city] Zoning Map. In such overlay district, proposed land uses are subject to the requirements set forth in this section, in addition to those requirements and standards ordinarily applicable to the underlying district. In case of conflict, the more restrictive regulation requirements shall apply.

C. Wetland Buffer. A minimum setback of [insert number of feet, such as one hundred fifty] feet shall be required from the delineated boundaries of all wetlands of [insert number of acres, such as two] acres or more within the Wetland Conservation Overlay District. [Note: Other methods besides the size of the wetland can be used to determine whether a buffer should be required.]

(1) Prohibited uses within the wetland buffer.

(a) In the [insert name of zoning district, such as Residential 1] District, the following uses are prohibited in the wetland buffer area:

[list the uses permitted in that zoning district that you want to prohibit within the wetland buffer].

(b) In the [insert name of zoning district, such as Downtown Commercial] District, the following uses are prohibited in the wetland buffer area:

[list the uses permitted in that zoning district that you want to prohibit within the wetland buffer].

(c) [add additional districts and list of restricted uses as needed]

D. Site Plan Review in Wetland Conservation Overlay Districts. All proposed uses of land or structures in the Wetland Conservation Overlay District not existing as of the effective date of this section shall require site plan review unless exempted by the provisions of this section. Site plan review shall be conducted as set forth in [insert chapter or section number for site plan

review]. Site plan review conducted within a Wetland Conservation Overlay District shall include, in addition to any other requirements of law, additional project review criteria and additional submission materials.

(1) Submission Materials. In addition to any other materials required by law, the proposed site plan shall show the boundaries of any wetland as determined by field investigation. The [*insert name of board authorized to review site plans, such a Planning Board*] may require flagging and subsequent survey by a licensed land surveyor. The [*insert name of review board*] may consult and/or may require the applicants to consult with approved biologists, hydrologists, soil scientists, ecologists, botanists, legal counsel, engineers, or other experts necessary to make this determination.

(2) Site Plan Review Criteria. In addition to the standards set forth in the zoning law, the following site plan review standards shall apply throughout a Wetland Conservation Overlay District. Such review shall consider the impact of any proposed use of land or structures on:

(a) The ability of the wetland to filter harmful toxins, nutrients, and sediment from surface and stormwater runoff;

(b) The ability of the wetland to store floodwaters and reducing the magnitude of flood events;

(c) The ability of the wetland to provide valuable habitat for a diverse array of flora and fauna, including any existing rare, threatened, or endangered species;

(d) The ability of the wetland to maintain surface-water flow during dry periods;

(e) The impact of any excessive siltation resulting from surface runoff from construction sites, road, bridge, and pipeline construction and lack of erosion control on steep slopes;

(f) The impact of pollution by road salt and chemical pollution from parking lots and treated lawns;

(g) The impact of pollution by garbage, litter, and refuse; and

(h) The impact of a reduction in the flow of watercourses due to destruction of wetlands.

(3) Additional setback. The [*insert name of review board*] may, in reviewing any site plan within the Wetland Overlay District in accordance with paragraph (D) subparagraph (2), require a buffer area with greater setbacks where it determines that a greater setback is necessary to preserve the flood protection function or other functions of such a wetland.

(4) Exempt activities. The following activities shall be permitted within a Wetland Overlay District without a Site Plan Review provided they do not require the addition of structures, grading, fill, draining, or dredging:

(a) Normal ground maintenance including mowing, trimming of vegetation.

(b) Repair of existing decorative landscaping and planting native species.

(c) Repair of existing walkways, walls, and driveways.

(d) Public health activities, in emergencies only, of the [*list as appropriate the Local Department of Health, County Department of Health and/or New York State Department of Health*].

(e) Operation of existing dams and water control devices.

2.1.4 Local Freshwater Wetland Law

More than seventy municipalities in New York have adopted local wetland laws to protect the many benefits that wetlands provide. The recommended approach is to complement state laws and regulate smaller wetlands.³⁵ This approach maximizes the effectiveness of local wetland protection by giving municipalities more control over how wetlands are regulated within their boundaries and providing protection to wetlands and buffers not regulated by the state or federal government, such as smaller isolated wetlands or headwater wetlands. However, municipalities may choose to regulate all state identified freshwater wetlands in place of the New York State Department of Environmental Conservation.³⁶ Municipalities may also opt to regulate additional activities in state-designated wetlands, for example, by limiting vegetation removal in adjacent areas.³⁷ The Town of Pawling has provisions in both its wetland/ watercourse law and its zoning law that allow the planning board to deny the subdivision of any portion of a property which lies within a flood-prone area of any stream or drainage course. This use of similar provisions in zoning and subdivision laws provides coordination for project review and protects the community as well as future landowners in a subdivision from potential harm from flooding. For examples of similar provisions, refer to the *Basic Land Use Tools for Resiliency* Chapter and *the Management of Floodplain Development* Chapter.

Defining wetlands

The definitions section of a local wetland law defines key terms, including which wetlands and how much buffer will be regulated by the local law. Many communities use the federal definition of wetland, which defines wetlands based on its soils, plants, and hydrology. The definition will also include a size limit for regulatory purposes, which varies by community. The Town of New Paltz uses a succinct definition that refers to the Federal definition of wetlands:

WETLAND or FRESHWATER WETLAND - A regulated area that comprises hydric soils and/or is inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances does support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, vernal pools, wet meadows, fens and similar areas. For the purposes of this regulation, wetlands are defined in accordance with the methodology set forth in NYCRR Part 664 and in the 1987 Federal Wetlands Delineation Manual. Regulated wetlands do not include detention, infiltration and retention basins. A wetland must have an area greater than 1/10 acre to be a regulated area under this chapter.

Wetland Determination

The best approach to identifying the presence and extent of regulated wetlands on a site is an on-the-ground survey by a qualified wetland professional. Since few municipalities have qualified staff or volunteers to perform this function, many with wetlands laws choose to retain a wetlands inspector to conduct wetland determinations, site inspections, and other aspects of a local wetland protection law requiring professional expertise. The New Paltz Wetlands and

Watercourse Protection Law defines the professional requirements of the wetlands inspector, who is appointed by the Town Board: "A qualified wetlands inspector shall have a degree in a related field from an accredited college or university, a minimum of two years of delineation experience, and scientific knowledge about the biogeophysical structure, function, or interrelationships of terrestrial and aquatic/semiaquatic plant and animal communities."

Wetlands Map

Some municipalities create a reference wetland map for their local wetland laws while others define wetland by their characteristics such as physical location and vegetation type. The most widely available wetland map is the National Wetland Inventory (NWI), which includes wetlands of all sizes, but has not been completed in some parts of New York State. Neither the NWI maps (nor the NYSDEC Freshwater Wetland maps) will show all of the wetlands in a community. Due to inherent inaccuracies in wetland mapping, these maps often underestimate wetland area and omit smaller and drier wetlands. County soil surveys provide information that can help to predict additional wetlands in a community. On-site investigation is necessary to verify the presence of wetlands that might meet regulatory thresholds and to determine accurate wetland boundaries (see also wetland determination).³⁸

Wetland laws are often combined with watercourse and waterbody protection. Guidance on watercourse protection is provided later in this chapter.

USAGE

Typically adopted as a standalone local law that may include watercourse and waterbody protection. Similar provisions could be integrated into supplementation regulations for zoning.

ADAPTED FROM THE FOLLOWING SOURCE

Town of Pawling (NY) Municipal Code, Chapter 111 Freshwater Wetlands and Watercourse Protection³⁹

Town of Phillipstown (NY) Municipal Code, Chapter 93 Freshwater Wetlands and Watercourses⁴⁰

Town of Southampton (NY) Municipal Code, Chapter 325 Wetlands⁴¹

Town of Brookhaven (NY) Municipal Code, Chapter 81 Wetlands and Waterways⁴²

LANGUAGE

Chapter X. Wetlands and Watercourse Protection

Section 1. Title and purpose.

This chapter shall be known as the "Wetlands and Watercourse Protection Law of the [insert municipal name]." Its purpose is to regulate the dredging, filling, deposition or removal of materials, including vegetation; the diversion or obstruction of water flow; the placement of structures in, and other uses of, the ponds, lakes, reservoirs, natural drainage systems and wetlands located in the [insert municipal name]; and the requirement of permits therefor, providing for the protection and control of wetlands, waterbodies and watercourses.

Section 2. Legislative intent.

A. The [City Council/Town Board/Village Board of Trustees of _____] has determined that the public interest, health and safety and the economic and general welfare of the residents of the [insert name of municipality] will be best served by providing for the protection, preservation, proper maintenance and use of the [City/Town/Village]'s ponds, lakes, reservoirs, waterbodies, rivers, streams, watercourses, fresh [add if applicable and tidal] wetlands, natural drainage systems, and adjacent land areas from encroachment, spoiling, polluting or elimination resulting from population growth attended by commercial development, housing, road construction and/or disregard for natural resources.

B. The wetlands, waterbodies, watercourses, and buffer areas adjacent to wetlands and/or watercourses are valuable natural resources, which serve to benefit the entire [City/Town/Village] and the surrounding region by performing one or more of the following functions:

- (1) Providing drainage and flood control through hydrologic absorption, natural storage, and flood conveyance to lessen the danger of life and property caused by flooding and storms.
- (2) Preventing uncontrolled stormwater drainage.
- (3) Protecting subsurface water resources, watersheds, and groundwater recharge systems.
- (4) Providing a common linkage between aquatic systems (aquifers, floodplains, wetlands, lakes, rivers, embayments, ocean, etc.).
- (5) Preventing watershed diversion of groundwater or subsurface water.
- (6) Providing a critical living, breeding, nesting, and feeding environment for many forms of wildlife, including but not limited to mammals, wildfowl, shorebirds, rare species, especially endangered and threatened species, and other animals dependent upon the resources wetlands, waterbodies, watercourses, and buffers provide.
- (7) Treating pollution through natural biological degradation and chemical oxidation.
- (8) Controlling erosion by serving as sedimentation areas and filter basins, capturing silt and organic matter.
- (9) Providing sources of nutrients in fresh [add if applicable, brackish, and marine] water food cycles.
- (10) Serving as nursery grounds and sanctuaries for fish.
- (11) Providing recreation areas for hunting, fishing, boating, hiking, birdwatching, photography, camping, and other uses.

(12) Serving as an educational and research resource.

(13) Preserving natural resources and open space, which are integral to the character and the social and economic well-being of [*insert name of municipality*].

C. Buffer Areas adjacent to wetlands, waterbodies, and watercourses provide essential protection mitigating the impacts of activities taking place on surrounding lands.

D. The protection of wetlands, waterbodies, watercourses, and buffer areas is a matter of concern to the entire [*City/Town/Village*]. The establishment of regulatory and conservation practices for wetlands, watercourses, and buffer areas serves to protect the [*City/Town/Village*] by ensuring review and regulation of any activity on or along wetlands, watercourses, and buffer areas that might adversely affect the [*City/Town/Village*]'s citizens' health, safety and welfare.

E. Wetlands, waterbodies, watercourses, and buffer areas in the [*City/Town/Village*] and other areas form an ecosystem that is not confined to any one property owner or neighborhood. Experience has demonstrated that effective protection of wetlands, waterbodies, watercourses, and buffer areas requires consistency of approach to preservation and conservation efforts throughout the [*City/Town/Village*].

F. Loss of wetlands or any activity along waterbodies and watercourses and their buffer areas can cause or aggravate flooding, erosion, sedimentation, diminution of water supply and water quality for drinking and waste treatment and may pose a threat to the health, safety and welfare of the people of [*insert name of municipality*] and the surrounding region.

G. Regulation of wetlands, waterbodies, watercourses, and buffer areas is consistent with the legitimate interests of farmers to graze and water livestock, make reasonable use of water resources, harvest natural products of wetlands, waterbodies, watercourses, and buffer areas, selectively cut timber and fuel wood, and otherwise engage in the use of land for agricultural production.

H. The New York State Freshwater Wetlands Act, found in Environmental Conservation Law Sections 24-0101 et seq, authorizes local governments to establish their own procedures for the protection and regulation of NYSDEC designated wetlands lying within their jurisdiction. Part 665 of Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (NYCRR) contains regulations for local government adoption of Article 24 authority.

I. This chapter is enacted pursuant to the above-referenced law and any and all applicable laws, rules and regulations of the State of New York, and nothing contained herein shall be deemed to conflict with any such laws, rules or regulations.

J. It is the intent of this chapter to incorporate the consideration of wetlands, waterbodies and watercourse protection, as well as that of their buffer areas, into the [*City/Town/Village*]'s land use and development approval procedures.

Section 3. Definitions and word usage.

A. Except where specifically defined herein, all words used in this chapter shall carry their customary meanings. Words used in the present tense include the future, and the plural includes the singular. The word "shall" is intended to be mandatory.

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

Agricultural Activities: All activities directly related to the grazing, growing or raising of crops or livestock, including but not limited to horticulture and fruit production, which operates on 10 acres or more and produces average annual gross sales of agricultural products valued at \$10,000 or more. Timber harvesting, pond construction, drainage or permanent alteration of wetlands, waterbodies, watercourses or buffer areas is not included in agricultural activities.

Alteration of Vegetation: To change, move or disturb any vegetation, soil, drainageway, or other natural material or system within a wetland, watercourse, or buffer area in such a manner as to cause the death of the plant or to significantly reduce its natural function or benefit thereof to the ecosystem as defined by this chapter.

Applicant: Any individual or individuals, firm, partnership, association, corporation, company, organization or other legal entity of any kind, including municipal corporations, governmental agencies or subdivisions thereof, who has a request for a permit to conduct a regulated activity before the Code Enforcement Officer or who has an application pending pursuant to Section 6 of this chapter before the Planning Board.

Aquaculture: Controlled or partially controlled raising, breeding or growing, planting of aquatic or marine plant or animal life in any marine or aquatic hatchery or through on-bottom or off-bottom cultivation, and installing cribs, racks and other in-water structures for cultivating these products. It does not include filling, dredging, peat mining or the construction of any buildings or any water-regulating structures, such as dams.

Buffer Area: An area surrounding a wetland, waterbody, or watercourse that is also subject to the regulations of this chapter, determined as follows:

(1) For all wetlands, the "buffer area" shall extend to the greater of the following: [*insert number of feet, such as 100*] feet away from the edge of the wetland boundary, or, in cases where the wetland is bounded with a steep slope 25% or greater, the buffer shall extend [*insert number of feet, such as 100*] feet from the top of the steep slope.

(2) The "buffer area" of a watercourse shall extend to all adjacent surfaces for [*insert number of feet, such as 100*] feet as measured from the top of the bank of the watercourse.

[City/Town/Village] Engineer: A licensed professional engineer or firm designated by the [City/Town/Village] to make the determinations required to be made by an engineer under this chapter.

Clean Fill: Soil or earth free of all deleterious and/or organic matter and shall be composed of no more than 10% by volume of stone, rocks or boulders with their maximum size measuring no more than 12 inches in either length or diameter. It shall not include: (1) construction or demolition debris; (2) putrescible materials; (3) slag; (4) dredgings from waterways or water bodies; (5) more than 50% clay by weight.

Clear Cutting: A method of harvesting where seventy-five percent (75%) or more of the trees of six inches in diameter or greater at breast height (4 1/2 feet) on a controlled area on an applicant's land are to be removed.

Code Enforcement Officer: The individual(s) designated by the [City Council/Town Board/Village Board of Trustees] and charged with the enforcement of zoning, building and fire codes.

Complete Application: An application which has been declared to be complete by the [Environmental Director].

County SWCD: The [insert name] County Soil and Water Conservation District.

Date of Receipt of Complete Application: A complete application shall be deemed received by the [insert name of review board] on the date of the first regular meeting of the [insert name of review board] following the filing of the complete application and supporting plans with the [insert name of review board] by the Code Enforcement Officer pursuant to the provisions of Section 6 of this chapter.

Dams and Water Control Measures and Devices: Barriers used to obstruct the flow of water to raise, lower or maintain the water level in wetlands.

Deposit: To fill, place, eject or dump any material.

Environmental Director: The individual designated by the [City Council/Town Board/Village Board of Trustees] and charged with reviewing and evaluating the environmental impacts of all wetland permit applications as well as determining their "completeness" in accordance with the provisions of this chapter. [Alternatively, the Planning Board, Planning Director, or Code Enforcement Officer could be charged with making the determination of completeness.]

Flood-Prone Area: The channel of a watercourse and its adjacent areas subject to inundation by the one-hundred-year and five-hundred-year recurrence interval floods as shown on a FEMA flood hazard map. [Note: The community should research the definition of flood-prone

area in their zoning or other local laws to make sure they are consistent. This is a good practice for all definitions.]

Freshwater Wetlands Map: The [City/Town/Village of _____] Freshwater Wetlands and Watercourse Map prepared by [insert whom] dated [insert when], was produced [insert how] and is intended to be used as a guide. Final wetland/watercourse boundaries shall be determined by field investigation using criteria described in this chapter.

Material: Liquid, solid or gaseous substances, including but not limited to: soil, silt, gravel, rock, sand, clay, peat, mud, debris and refuse; any organic or inorganic compound, chemical agent or matter, including sewage, sewage sludge or effluent; and agricultural, industrial or municipal solid waste.

NYSDEC: The New York State Department of Environmental Conservation.

Permit or Wetland/Watercourse Permit: That form of [City/Town/Village] approval required by this chapter for the conduct of a regulated activity within any wetland, watercourse or buffer area.

Person: See "Applicant."

Planning Board: The duly appointed Planning Board of the [City/Town/Village]. *[If a different board is designated as the review board for the purposes of issuing wetlands or watercourse permits, add a definition for that board.]*

Project: Any action resulting in direct or indirect physical or chemical impact on a wetland, watercourse or buffer area, including but not limited to any regulated activity.

Remove: To dig, dredge, suck, bulldoze, dragline, blast or otherwise excavate or regrade, or the act thereof.

Repair: A customary, usual and normal activity to restore the sound and good state of a structure after decay, dilapidation, injury or partial destruction, and the routine maintenance necessary from time to time to keep a structure in a state of good repair.

6 NYCRR PART 665: NYS Codes, Rules and Regulations section relating to local government implementation of the Freshwaters Wetlands Act and statewide minimum land use regulations for freshwater wetlands.

SPDES General Permit for Stormwater Discharges from Construction Activities: A permit under the New York State Pollutant Discharge Elimination System (SPDES) issued to developers of construction activities to regulate disturbance of one or more acres of land, most current version.

State Environmental Quality Review Act (SEQRA): The law codified in Article 8 of the New York Environmental Conservation Law providing for environmental quality review of actions which may have a significant effect on the environment.

Stormwater Pollution Prevention Plan (SWPPP): A plan for controlling stormwater runoff and pollutants from a site during and after construction activities.

Structure: Anything constructed or erected, the use of which requires location on or underground or upon another structure or building having location on the ground. The word “structure” shall be construed as though followed by the words “or part thereof.” The term includes but is not limited to tennis courts and swimming pools.

Swale: A natural drainage path or vegetated channel used to transport water instead of underground storm sewers or concrete open channels.

Timber Harvesting: Any activity which may alter the physical characteristics of any forested land, including but not limited to any activity involving or associated with the cutting of trees, except that the following activities shall not be considered to be timber harvesting:

- (1) The routine maintenance of roads, easements and rights-of-way and the clearing of farm fence lines; and
- (2) The clearing of approved subdivision roads, site plans and public utility easements.

Waterbody: Any natural or artificial pond, lake, embayment, reservoir, or other area which usually or intermittently contains water and which has a discernible shoreline.

Watercourse: Any natural or artificial, permanent or intermittent, public or private waterbody or water segment, such as ponds, lakes, reservoirs, rivers, streams, brooks, estuaries, bays, harbors, oceans, waterways and the like that is contained within, flows through or borders on the [City/Town/Village].

Wetlands: Those geographic areas greater than one-fourth (1/4) acre defined in this chapter as brackish, freshwater, or tidal wetlands, but not including wetlands regulated by the NYSDEC or artificial wetlands. [Note: see introduction and sidebar on defining wetlands.]

Wetlands, Artificial: Any water body or wetland not part of a natural system with an area of 300 square feet or more and created for the sole purpose of recreation, aesthetics, biofiltration or stormwater management, including but not limited to ponds, vegetated swales, rain gardens, and the equivalent. Artificial wetlands will include the created water body or wetlands and any natural wetlands that, because of the created feature, become established within the area around the artificial wetland. Artificial wetlands remain artificial wetlands until such time that they become a sustainable ecosystem independent of anthropogenic activities or structures as determined by the Environmental Director.

Wetlands, Brackish:

(1) Lands and submerged lands commonly called "brackish or intermediate marshes," which occur along coastal rivers, streams, creeks, bays, lagoons and coves where fresh and saltwater mix, and which frequently form a transition zone or very narrow band between tidal and coastal fresh marshes. The vegetation of these marshes is highly varied due to the broad range of salinities characteristic of this coastal wetland type and often forms a continuum characterized by a gradual intermixing of tidal and fresh marsh plants. These lands and waters can occur at some distance inland from tidal watercourses and tidally flooded salt marshes and are commonly dominated by aquatic or semiaquatic vegetation of the following types, which depend upon intermittent permanent flooding or sufficiently waterlogged soils to give them a competitive advantage over other species:

(a) Emergent vegetation, including, among others, bulrush (*Scirpus robustus*), three square (*Scirpus americanus*), big cordgrass (*Spartina cynosuroides*), salt meadow grass (*Spartina patens*), spike grass (*Distichlis spicata*), purple loosestrife (*Lythrum salicaria*), soft-stemmed bulrush (*Scirpus validus*), spike rushes (*Eleocharis* spp.), water hemp (*Acnida cannabina*), Mock Bishop weed (*Ptilimnium capillaceum*), rose mallow (*Hibiscus moscheutos*), seashore mallow (*Kosteletzkya virginica*); and common reed (*Phragmites* spp.), provided that such common reed is underlain by bog, peat, hydric or saturated soils, or is inundated by brackish surface waters. Field indicators of wetland hydrology or inundation shall include, among others, visual observation of inundation, visual observation of soil saturation within 24 inches of the soil surface, water marks (e.g., silt or pollen lines), drift lines (e.g., deposits of water-borne debris), sediment deposits (e.g., sediment that settled out of standing water on plant bases or objects on the ground), staining or matting of soils, leaves or vegetation, drainage patterns in wetlands (e.g., braided channels in wetlands, scouring of debris, evidence of sheet flow), and local soil survey data (e.g., typical water table depths, durations, and soil series mapped in the county). Field indicators of bog, peat, hydric or saturated soils shall include characteristic hydric soil profiles, horizons, composition, color, texture, odor, moisture, taxonomy, and/or soil surveys.

(b) Brackish meadow vegetation, including, among others, sensitive fern (*Onoclea sensibilis*), halberd-leaved tearthumb (*Polygonum arifolium*), impatiens (*Impatiens capensis*), American germander (*Teucrium canadense*), marsh fern (*Thelypteris palustris*), soft-stemmed bulrush (*Scirpus americanus*), purple loosestrife (*Lythrum salicaria*), bristly foxtail (*Setaria geniculata*), purple gerardia (*Agalinis purpurea*) and slender goldenrod (*Solidago tenuifolia*).

(c) Scrub-shrub vegetation or woody vegetation typically less than six meters (20 feet) tall, including shrubs, young trees and trees or shrubs that are small or stunted because of environmental conditions, including, among others, groundsel-tree (*Baccharis halimifolia*), swamp rose (*Rosa palustris*), arrowwood (*Viburnum dentatum*), American elder (*Sambucus canadensis*) and black gum (*Nyssa sylvatica*).

(2) Lands and submerged lands commonly called coastal interdunal marshes which occur as low areas or swales in the dunes or barrier island, or occur as other coastal depressions landward of a rise that are not directly connected to open tidal water or tidal action, where fresh groundwater mixes with salt water and salt spray, and which are dominated by vegetation of the following types, which depend on irregular or permanent flooding or sufficiently waterlogged soils to give them a competitive advantage over other vegetation, including, among others:

(a) aquatic spikerush (*Eleocharis parvula*), Canada rush (*Juncus americanus*), rose mallow (*Hibiscus moscheutos*), three-square (*Spiraea americana*), salt-meadow grass (*Spartina patens*), switchgrass (*Panicum virgatum*), annual salt-marsh fleabane (*Pluchea odorata*), groundsel-tree (*Baccharis halimifolia*), annual salt marsh aster (*Aster subulatus*), seaside goldenrod (*Solidago sempervirens*) and common reed (*Phragmites* spp.), provided that such common reed is underlain by bog, peat, hydric or saturated soils.

Wetlands, Freshwater:

(1) Lands and submerged lands commonly called marshes, swamps, sloughs, bogs, and flats or other areas of permanent water retention fed by springs or natural drainage systems supporting aquatic or semiaquatic vegetation of the following types, which depend upon seasonal or permanent flooding or sufficiently waterlogged soils to give them a competitive advantage over other species, including:

(a) Hydric soils, including Canandaigua (Ca), Carlisle (Cc), Fluvaquents (Ff), Halsey (Ha), Hydraquents (Hy), Livingston (Lv), Medisaprists (Hy), Palms (Pc), Sun (Su), Wayland (Wy);

(b) Potential Hydric Soils (Soils found by field determination to contain hydric inclusions): Kingsbury and Rhinebeck (Kn), Linlithgo (Ln), Massena A (MnA), Massena B (MnB), Punsit (Pz), Udorthents (Ue), Fredon (Fr), Raynham Silt Loam (Ra);

(c) Wetland trees including, among others, red maple, (*Acer rubrum*), willows (*Salix* spp.), black tupelo (*Nyssa sylvatica*), black spruce (*Picea mariana*), swamp white oak (*Quercus bicolor*), red ash (*Fraxinus pennsylvanica*), American elm (*Ulmus americana*) larch (*Larix laricina*), Atlantic white cedar (*Chamaecyparis thyoides*), white ash (*Fraxinus americana*), and blue beach (*Carpinus caroliniana*);

(d) Wetland shrubs including, among others, alder (*Alnus* spp.), buttonbush (*Cephalanthus occidentalis*), bog rosemary (*Andromeda glaucophylla*), leatherleaf (*Chamaedaphne calyculata*), highbush blueberry (*Vaccinium corymbosum*), sweet perperbush (*Clethra alnifolia*), arrowwood (*Viburnum recognitum*, *V. dentatum*), winterberry (*Ilex verticillata*), dogwood (*Cornus* spp.), and inkberry (*Ilex glabra*);

- (e) Woodland herbaceous groundcovers and ferns, including, among others, skunk cabbage (*Symplocarpus foetidus*), Canada mayflower (*Maianthemum canadense*), cinnamon fern (*Osmunda cinnamomea*), sensitive fern (*Onoclea sensibilis*), royal fern (*Osmunda regalis*), marsh fern (*Dryopteris thelypteris*) and jack-in-the-pulpit (*Arisaema triphyllum*);
 - (f) Emergent vegetation, including, among others, cattails (*Typha* spp.), pickerelweed (*Pontederia cordata*), bulrushes (*Scirpus* spp.), arrow-arum (*Peltandra virginica*), arrowheads (*Sagittaria* spp.), reed (*Phragmites communis*), wild rice (*Zizania aquatica*), bur reeds (*Sparganium* spp.), purple loosestrife (*Lythrum salicaria*), swamp loosestrife (*Decodon verticillatus*) and water plantain (*Alisma plantagoaquatica*), provided that such common reed is underlain by bog, peat, hydric or saturated soils or is inundated by fresh surface waters;
 - (g) Rooted, floating-leaved vegetation; including, among others, water lily (*Nymphaea odorata*), water shield (*Brasenia schreberi*), and spatterdock (*Nuphar* spp.).
 - (h) Free-floating vegetation; including, among others, duckweed (*Lemna* spp.), big duckweed (*Spirodela polyrhiza*), and watermeal (*Wolffia* spp.);
 - (i) Wet meadow vegetation including, among others, sedges (*Carex* spp.), rushes (*Juncus* spp.), cattails (*Typha* spp.), rice cut-grass (*Leersia oryzoides*), reed canary grass (*Phalaris arundinacea*), swamp loosestrife (*Decodon verticillatus*) and spikerush (*Eleocharis* spp.);
 - (j) Bog mat vegetation; including, among others, sphagnum mosses (*Sphagnum* spp.), bog rosemary (*Andromeda glaucophylla*), leatherleaf (*Chamaedaphne calyculata*), pitcher plant (*Sarracenia purpurea*) and cranberries (*Vaccinium macrocarpon* and *V. oxycoccos*); and,
 - (k) Submergent vegetation; including, among others, pondweeds (*Potamogeton* spp.), naiads (*Najas* spp.), bladderworts (*Utricularia* spp.), wild celery (*Vallisneria americana*), coontail (*Ceratophyllum demersum*), water milfoils (*Myriophyllum* spp.), musk grass (*Chara* spp.), stonewort (*Nitella* spp.), waterweeds (*Elodea* spp.), and water smartweed (*Polygonum amphibium*).
- (2) Lands and submerged lands containing remnants of any vegetation that is not aquatic or semiaquatic that has died because of wet conditions over a sufficiently long period, provided that such wet conditions do not exceed a maximum seasonal water depth of six feet, and provided further that such conditions can be expected to persist indefinitely, barring human intervention;

(3) Field indicators of wetland hydrology or inundation shall include, among others, visual observation of inundation, visual observation of soil saturation within 24 inches of the soil surface, water marks (e.g., silt or pollen lines), drift lines (e.g., deposits of water-borne debris), sediment deposits (e.g., sediment that settled out of standing water on plant bases or objects on the ground), staining or matting of soils, leaves or vegetation, drainage patterns in wetlands (e.g., braided channels in wetlands, scouring of debris, evidence of sheet flow), and local soil survey data (e.g., typical water table depths, durations, and soil series mapped in the county). Field indicators of bog, peat, hydric or saturated soils shall include characteristic hydric soil profiles, horizons, composition, color, texture, odor, moisture, taxonomy, and/or soil surveys.;

(4) The lands and water shown on the Freshwater Wetlands Map prepared by or for the State of New York pursuant to §24-0301 of the New York State Freshwater Wetlands Act and filed with the [insert county name] County Clerk on or after May 26, 1993, and entitled “New York State Freshwater Wetlands Maps” or any future revisions thereof.

(5) Final boundaries of wetlands shall be established on each parcel or parcels by the [insert name] County SWCD or an appropriately qualified individual, as approved by the Planning Board.

Wetlands, Tidal:

(1) All lands lying in the area inundated by tidal action and/or peak lunar tides exhibiting salt marsh peat and saline or brackish soils at their undisturbed surface.

(2) All estuaries, tidal fresh marshes, salt meadow, tidal flats and littoral zones.

(3) All lands which are dominated by one or more of the following plant species or associations: salt marsh hay (*Spartina patens*), spike-grass (*Distichlis spicata*), black grass (*Juncus gerardi*), saltwater cordgrass (*Spartina alterniflora*), saltwort (*Salsola kali*), glasswort (*Salicornia* spp.), sea lavender (*Limonium carolinianus*), salt marsh bulrush or chairmaker's rush (*Scirpus* spp.), sand spurry (*Spergularia marina*), groundsel bush (*Baccharis halimifolia*), high tide bush or marsh elder (*Iva frutescens*), spikerush (*Eleocharis* spp.), bent grass (*Agrotis* spp.), sea blite (*Suaeda* spp.), umbrella sedges (*Fimbristylis* spp.), Rose-mallow (*Hibiscus moscheutos*), narrow-leaf cattail (*Typha angustifolia*), arrow-grass (*Triglochin maritimum*), pickerel weed, (*Pontederia cordata*), blue flag (*Iris versicolor*), softstem bulrush (*Scirpus validus*), tussock sedge (*Carex stricta*) and common reed (*Phragmites* spp.), provided that such common reed is underlain by bog, peat, hydric or saturated soils or is inundated by tidal waters.

(4) Field indicators of wetland hydrology or inundation shall include, among others, visual observation of inundation, visual observation of soil saturation within 24 inches of the soil surface, water marks (e.g., silt or pollen lines), drift lines (e.g., deposits of water-borne debris), sediment deposits (e.g., sediment that settled out of standing water on plant bases or objects on the ground), staining or matting of soils, leaves or vegetation,

drainage patterns in wetlands (e.g., braided channels in wetlands, scouring of debris, evidence of sheet flow), and local soil survey data (e.g., typical water table depths, durations, and soil series mapped in the county). Field indicators of bog, peat, hydric or saturated soils shall include characteristic hydric soil profiles, horizons, composition, color, texture, odor, moisture, taxonomy, and/or soil surveys.

Section 4. Applicability.

A. Regulated acts which require a wetland/watercourse permit. Except as otherwise provided in Section 4(b) or Section 6(l) below, it shall be unlawful, in the absence of a permit issued pursuant to this chapter, to conduct any of the following activities in any wetland, watercourse or buffer area:

- (1) Construction or installation of any structure or facility, including but not limited to roads, buildings, driveways, parking facilities, swimming pools, tennis courts, bridges, pipes or conduits; installation of sewage disposal systems or sewer outfall; drilling of wells; placing of other obstructions; or driving of pilings.
- (2) Conduct any form of draining, dredging, excavation or removal of material, either directly or indirectly.
- (3) Conduct any form of dumping, filling or depositing of material, either directly or indirectly.
- (4) Introduction of influents of high thermal content capable of causing harmful ecological effects unless water is properly treated in recycling, including but not limited to groundwater heat pumps for other than one-family dwellings.
- (5) Installation of dry wells, retention basins, filters, open swales, or ponds.
- (6) Use of chemicals, dyes, fertilizers, animal waste, herbicides, pesticides, deicing materials or similar materials.
- (7) Alter or grade natural and/or existing man-made features and contours, alter drainage conditions or divert any flow of a wetland, watercourse or waterbody.
- (8) Construct dams, other water-control devices (including swales), pilings or bridges, whether or not they change the ebb and flow of the water.
- (9) Installation of drainage or water supply pipes or wells.
- (10) Clear cutting or other vegetation removal affecting surface water runoff.

(11) Any other activity that impairs or may impair the natural functions of a wetlands or watercourse as described in Section 2, Paragraph B of this chapter.

B. Exempt Activities. The following activities are allowed without a wetlands/watercourse permit within wetlands, waterbodies, watercourses, or buffer areas, provided that they do not constitute a pollution or erosion hazard, interfere with proper drainage or adversely affect reasonable water use by others. Such acts must conform to Zoning in Chapter [*insert number*] of the Municipal Code, and any and all other applicable laws and statutes.

(1) Normal grounds maintenance, mowing, gardening, selective trimming, pruning, or bracing of vegetation, removal of dead or diseased vegetation, and decorative landscaping and planting, incidental removal of vegetation, addition of vegetation, but not including the use of fertilizers and pesticides within a buffer area.

(2) Repair of existing walkways and walls.

(3) Maintenance and repair of preexisting structures which does not increase the existing footprint and/or habitable living area for a residential structure, or does not increase the existing footprint or floor area of a commercial structure.

(4) Public health activities including Mosquito control activities approved in writing by the NYSDEC.

(5) Operation and maintenance of existing dams, sluices, culverts or other water control structures or devices, which legally existed on the effective date of this chapter, in lakes, involving the adjustment of water elevations less than 18 inches in height for periods of less than one week, after which the water level is returned to its previous level.

(6) Public health activities, orders and regulations of the local, State, or County Department of Health for emergencies only.

(7) The deposition or removal of the natural products of lands underwater, surface waters, tidal wetlands or freshwater wetlands, by recreational or commercial fishing, shellfishing, aquaculture, hunting, or trapping where otherwise legally permitted and regulated.

(8) Agricultural activities, as defined in Section 3, Paragraph B.

(9) Any activity for which, prior to the effective date of this chapter, the Planning Board has otherwise granted approval of a preliminary plat, conditional or otherwise, or the Building Inspector has granted a building permit, or, in the case of any activity not requiring action by the Planning Board or the Building Inspector, any otherwise necessary permit has been granted by the [*City/Town/Village*] official, board, or agency responsible for review of the activity.

[Note that Municipalities may choose to add other types of activities to the list of activities that do not need wetland permits. For example:

- *Repair and maintenance of existing roadways and bridges*
- *Construction of wooden docks*
- *Erection of fences*
- *Excavation and filling necessary for public stormwater improvements*
- *Roof-mounted installation of solar panels*
- *Activities for which a valid unexpired NYS DEC tidal or freshwater wetlands permit has been issued]*

C. The *[insert name of review board]* may, when it deems it necessary for the health, safety, or welfare of the present and future population of the area and necessary to the conservation of water, drainage and sanitary facilities, deny the subdivision of any portion of the property which lies within the flood-prone area of any stream or drainage course. These flood-prone areas shall be preserved from any and all destruction or damage resulting from clearing, grading or dumping of earth, waste material or stumps, except at the discretion of the Planning Board. *[Note: a similar provision should be included in the municipal zoning and subdivision laws. See examples in Basic Land Use Tools for Resiliency Chapter and the Management of Floodplain Development Chapter.]*

Section 5. Conflicts with other laws.

If, in any case, any provisions of this chapter conflict with any other provisions of the Code of the *[insert name of City/Town/Village]*, the provisions which impose the more stringent requirement shall apply.

Section 6. Permit applications.

A. Wetlands/watercourse permit application.

(1) Any person proposing to conduct or causing to be conducted a regulated activity requiring a permit under this chapter shall file five copies of the permit application with the Code Enforcement Officer on such forms as shall be provided by the Code Enforcement Officer for the activity, together with the filing fee established by resolution of the *[City Council/Town Board/Village Board of Trustees]*. All costs incurred by the *[City/Town/Village]* in the review of this application shall be borne by the applicant.

(2) All permit applications must include the following:

- (a) The name, address and telephone number of the owner(s) of any property on which the activity would be conducted.
- (b) The street address and tax map designation of such property.

- (c) A statement of authority from the owner(s) of such property for any agent making application.
- (d) A list of adjacent landowners.
- (e) A sketch of wetland boundaries and site soil designations.
- (f) A description of proposed activity and purpose.
- (g) A completed Environmental Assessment Form.
- (h) Copies of any correspondence and/or any Article 24 Wetland Permit from the NYSDEC with reference to any adjacent New York State regulated wetland(s).

B. Single application required. Where an application has been made to the Code Enforcement Officer, *[City Council/Town Board/Village Board of Trustees]*, Zoning Board of Appeals, or *[insert name of other review boards, such as the Planning Board]* for an action that is subsequently determined to require a permit pursuant to this chapter, a copy of said application may be submitted as the wetlands/watercourse permit application.

C. Additional information. The Environmental Director and/or *[insert name of review board]* may require the applicant to submit additional information and/or more detailed information and/or plans for the proposed site alterations. Said plans may be required to be certified by an engineer, architect, land surveyor or landscape architect licensed in the State of New York. Such additional information may include any or all of the following:

- (1) The location of construction or area proposed to be disturbed and its relation to property lines, roads, waterbodies, wetlands, watercourses and buffer areas.
- (2) Mapping of soils, waterbodies, wetlands, watercourses and buffer areas on the parcel to be disturbed.
- (3) Estimated quantities of material for excavation or fill, computed from cross sections and location of disposal sites for excavated materials.
- (4) Location of any well and the depth, if known, and any subsurface sanitary disposal system within 200 feet of the proposed disturbed area.
- (5) Existing and adjusted contours at two-foot intervals in the proposed disturbed area, to a distance of 50 feet beyond the disturbed area, and at one-foot intervals on those parts of a plan where one-foot intervals are deemed necessary in order to analyze the impact of the alteration.
- (6) Details of any drainage system proposed both for conduct of the work and after completion thereof and measures proposed to control erosion both during and after the work.

(7) A detailed assessment of the functions and values of the affected wetlands, waterbodies, watercourses and buffer areas and the potential impact of the proposed project on each.

(8) A completed Full Environmental Assessment Form (EAF).

(9) A written narrative explaining the nature of the proposal, including any future development proposals for the property, and whether alternative locations exist for the proposed activity.

(10) A Stormwater Pollution Prevention Plan (SWPPP), if required by *[select one of the following]*

the stormwater provisions contained in Chapter ____ of the *[City/Town/Village of _____]* municipal code.

[OR]

the most recent NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activities.

D. Fees for technical review. In the event that an application requires the *[City/Town/Village]* to incur additional expenses for technical assistance in the review of an application, the applicant shall pay the reasonable expenses incurred by the *[City/Town/Village]*. The applicant shall be notified of the expenses and shall deposit said necessary funds prior to the cost being incurred.

E. Review of applications. The Code Enforcement Officer shall refer all applications and related plan materials to the Environmental Director within five business days of receipt. The Environmental Director may conduct such site inspections as deemed necessary in order to evaluate the application. The review of all applications by the Environmental Director shall involve a two-step process.

(1) Step One: Determination of completeness.

(a) Within 14 days of receipt of the application, the Environmental Director shall determine whether the application is complete and shall submit a written determination to the Code Enforcement Officer. Such written determination shall include a recommendation on whether referrals should be made to the *[identify referral parties, such as the Zoning Board of Appeals, Municipal Engineer, the Conservation Advisory Council, and/or the County SWCD]*.

(i) Incomplete application. If the Environmental Director's finds that the application is incomplete, he or she shall identify the specific information, as described herein, necessary to make the application complete. Within 10 business days of the receipt of the written determination from the Environmental Director that the application is incomplete, the Code Enforcement Officer shall notify the applicant, in writing, of the

information which must be filed in order to make the application complete.

If the applicant does not provide the requested information within 180 days, the application is automatically deemed abandoned. The *[insert name of review board]* may grant one six-month extension for the submittal of the requested information upon the written request of the applicant. The declaration of an application as abandoned shall not prevent the submission of a subsequent new application, including fees, which shall be considered without reference to the prior application.

(ii) Complete application. If the Environmental Director's finds that the application is complete, then within 10 business days of the receipt of the written determination, the Code Enforcement Officer shall send a copy of the application and supporting documents to the *[insert name of review board]* for its review and action. The Code Enforcement Officer shall also send such information to agencies or individuals as recommended by the Environmental Director; who will have up to 30 days to respond in writing.

(b) Where the application concerns a wetland or watercourse that lies within more than one city, town, or village, the Code Enforcement Officer shall provide a copy of the complete application to the Clerk of the relevant abutting municipality *[insert if relevant - and to the chairperson of the _____ County Environmental Management Council]*. *[Note: Additional notifications could be added, such as the chairperson of a local watershed program.]*

(c) An application is deemed complete on the earliest of the following dates:

(i) On the day the Code Enforcement Officer receives the written determination of completeness from the Environmental Director; or

(ii) On the date the Code Enforcement Officer receives from the applicant the additional information requested by the Environmental Director.

(2) Step Two: Report and recommendation.

(a) Within 30 days after the application is deemed complete, the Environmental Director shall send a report to the *[insert name of review board]* and Code Enforcement Officer that shall address, at a minimum, the following matters:

(i) A recommendation of approval, disapproval or approval with conditions of the application, based upon an evaluation of the values and functions of the wetland, watercourse and/or buffer area and the potential impact on each.

(ii) A recommendation on whether any waivers permitted under Section 6(F)(4) should be granted by the Planning Board.

(b) If the application is referred to the [City/Town/Village] Engineer, he or she shall send a report to the [insert name of review board] and Code Enforcement Officer that in addition to addressing the same matters as the Environmental Director, shall make a recommendation whether a performance bond or other security should be provided to guarantee completion of permitted work and required conditions, and if one is recommended the amount of the security.

F. Public hearing and notification.

(1) Within 62 days after receipt of a complete application and Environmental Director's report and recommendation, the [insert name of review board] shall hold a public hearing on such application, unless the [insert name of review board] waives such public hearing pursuant to Section 6(F)(4) below.

(2) The [insert name of review board] shall mail notice of said hearing to the applicant at least ten days before said hearing and shall give public notice of said hearing in a newspaper of general circulation in the [City/Town/Village] at least five days prior to the date thereof. *[Optional: The applicant shall notify the adjacent landowners of the public hearing via certified United States mail, return receipt requested, at least 10 days prior to the date of hearing. At the public hearing, the applicant shall provide to the [insert name of review board] certification of mailing of the required notice.]*

(3) Where practical, the public hearing should be coordinated with any other public hearings required of the applicant.

(4) Waiver of hearing. The [insert name of review board] may make a finding that the proposed activity would have negligible impact on a wetland, watercourse, or buffer area, and may waive the requirement for a hearing.

Section 7. Application review and decision.

A. Review Period. Within 62 days of the public hearing; or if the public hearing is waived pursuant to Section 6(F)(4), within 62 days of receipt of the Environmental Director's report; the [insert name of review board] shall approve, approve with conditions, or deny the application. The time within which the [insert name of review board] must render its decision may be extended by mutual consent of the applicant and such board.

B. Decision. In granting, denying or conditioning any permit, the [insert name of review board] shall consider the following:

(1) Evidence offered at any public hearing;

- (2) Reports from other officers, boards, commissions, or agencies;
- (3) Additional information requested by [*insert name of review board*]; and
- (4) All relevant facts and circumstances, including but not limited to the following:
 - (a) The effect of the proposed activity with reference to the protection or enhancement of the functions of the affected wetlands, watercourses, waterbodies and/or buffer areas and the benefits they provide, which are generally described in Section 2;
 - (b) The environmental impacts of the proposed action, including, when applicable, any documentation prepared pursuant to the State Environmental Quality Review Act, Environmental Conservation Law, Article 8;
 - (c) The alternatives to the proposed action;
 - (d) Irretrievable commitments of resources that would be involved in the proposed activity;
 - (e) The character and degree of injury to, or interference with, safety and/or health or the reasonable use of property that the proposed action may reasonably cause;
 - (f) The suitability or unsuitability of such activity to the area for which it is proposed;
 - (g) The availability and feasibility of measures that would mitigate negative impacts to the wetland/watercourse/buffer area, including, but not limited to, measures that would preserve the wetland/watercourse/buffer area's natural capacity to support desirable biological life, prevent flooding, supply water, control sedimentation and/or prevent erosion, assimilate wastes, facilitate drainage and provide recreation and open space.
 - (h) The proposed activity is in compliance with the standards set forth in 6 NYCRR Section 665.7(e) and Section 665.7(g).
- (5) Duly filed written notice by the state, agency or subdivision thereof to the [*insert name of review board*] that the state or any such agency or subdivision is in the process of acquiring the affected area on which a proposed regulated activity would be located by negotiation or condemnation shall be sufficient basis for denial of a permit for such regulated activity. Such notice shall be in accordance with 6 NYCRR, Section 665.7(i), and may be provided at any time prior to the Planning Board's decision to issue or deny a permit for the regulated activity.

C. Findings. The applicant shall have the burden of proof with regard to the required findings set forth below. No permit shall be approved by the *[insert name of review board]* under this chapter unless the *[insert name of review board]* finds that:

(1) The proposed regulated activity is consistent with the policy of this law to preserve, protect and also conserve freshwater wetlands, watercourses, waterbodies, associated buffer areas and the benefits derived therefrom, to prevent the despoliation and destruction of wetlands, watercourses, waterbodies and buffer areas and to regulate the development of such wetlands, watercourses, waterbodies and buffer areas in order to secure the natural benefits derived therefrom, consistent with the general welfare and the beneficial economic and social development of the *[City/Town/Village]*.

(2) The proposed activity is compatible with the public health and welfare.

(3) There is no practicable alternative for the proposed activity on a site which is not a freshwater wetland, watercourse or buffer area or which cannot practicably be relocated on the site so as to eliminate or reduce the intrusion into the wetland and/or buffer area. A practicable alternative is one that is both available to the applicant and capable of fulfilling the overall purpose of the project, such that the alternative is obtainable and feasible, in terms of reasonable costs, existing technology and best available measures, proposed use and project purpose.

(4) The proposed activity is in compliance with the standards set forth in 6 NYCRR Section 665.7(e) and Section 665.7(g).

(5) Duly filed written notice by the state, agency or subdivision thereof to the *[insert name of review board]* that the state or any such agency or subdivision is in the process of acquiring the affected area on which a proposed regulated activity would be located by negotiation or condemnation shall be sufficient basis for denial of a permit for such regulated activity. Such notice shall be in accordance with 6 NYCRR, Section 665.7(i), and may be provided at any time prior to the Planning Board's decision to issue or deny a permit for the regulated activity.

D. Filing of decision. The decision of the *[insert name of review board]* shall be filed in the office of the *[City/Town/Village]* Clerk within five business days after such decision is rendered, and a copy thereof mailed to the applicant.

Section 8. Permits.

A. Permit issuance. A permit granted pursuant to this chapter shall be issued by the Code Enforcement Officer in accordance with the decision rendered by the Planning Board. Every permit issued pursuant to this chapter shall contain the following general conditions:

(1) The Planning Board, Code Enforcement Officer and/or Environmental Director have the right to inspect the project at any reasonable time, including weekends and holidays.

(2) The permit holder shall notify the Code Enforcement Officer of the date on which project construction is to begin at least five days in advance of such date.

(3) The permit shall be prominently displayed at the project site during the undertaking of the activities authorized by the permit.

(4) The boundaries of the project shall be clearly staked or marked.

(5) All permits shall be valid for a period of one year, unless otherwise indicated, but shall expire upon completion of the acts specified.

B. Permit conditions. Any permit issued pursuant to this chapter may also be issued with specific conditions beyond those listed above. Such conditions may be attached as are necessary to assure the preservation and protection of affected wetlands, watercourse, and/or buffer area and to assure compliance with the policy and provisions of this law and the provisions of the *[insert name of review board]*'s rules and regulations. Such conditions the *[insert name of review board]* may impose include, but are not limited to, requiring the applicant to:

(1) Implement measures designed to protect wetlands, watercourses, and buffers from runoff caused by construction.

(2) Implement protective measures for significant trees or other vegetation.

(3) Post a performance bond or other security.

(4) Notify the Planning Board, Code Enforcement Official, or other designated local official at certain stages of the activity and/or other events, which may trigger an inspection of the activity pursuant to Section 8 of this chapter.

C. Permit renewal. Upon written request of the applicant, the Code Enforcement Officer may renew a permit for a period of one year, if authorized by the *[insert name of review board]*. The fee for a permit renewal will be determined by resolution of the *[City Council/Town Board/Village Board of Trustees]*.

D. Transfer of permits. Permits may be transferred to new legal owners of the affected property so long as the conditions and plans as approved remain unchanged. Notice of such transfer of permit must be filed with the Code Enforcement Officer within 30 days of the transfer.

Section 9. Inspection.

A. General procedure. The *[insert name of review board]*, Code Enforcement Officer and/or the Environmental Director may enter upon the lands or waters identified in the application for the

purpose of inspections to determine compliance with this chapter, permit conditions, and/or for the purpose of undertaking any investigations, examinations, surveys or other activities necessary for the purposes of this chapter.

B. Inspection fee. Where the *[insert name of review board]* deems inspections to be necessary, an applicant shall be required to pay an inspection fee in an amount set forth in a fee schedule established by resolution of the *[City Council/Town Board/Village Board of Trustees]*.

Section 10. Exception.

A. The provisions of this chapter shall not apply to any development, alteration or improvement of property for which final approval shall have been obtained and not expired and the approved work not completed prior to the effective date of this chapter.

B. As used in this section, the term "final approval" shall mean:

(1) In the case of the subdivision of land, final plat approval or conditional approval of a final plat as such terms are defined in Section *[32 of General City Law/276 of Town Law/7-728 of Village Law]*.

(2) In the case of a site plan not involving the subdivision of land, adoption by the *[insert name of review board]* of a resolution granting approval.

(3) In those cases not covered above, the issuance of a building permit or other authorization for the commencement of the development, alteration or improvement of property or for those developments, alterations or improvements for which the *[City/Town/Village]* does not require such permits, the actual commencement of the development, alteration or improvement of property.

Section 11. Compliance with other code and regulation provisions. All development and improvement allowed by right or allowed by permit shall also conform with all rules and regulations contained in the Code of the *[City/Town/Village of _____]* and all other applicable laws and regulations.

Section 12. Penalties and corrective actions.

A. Stop-work order. The Code Enforcement Officer may issue a stop-work order when he or she finds that the permittee is in violation of the provisions of applicable laws, ordinances and/or regulations; has not complied with any term of such permit issued pursuant to this chapter; has exceeded the authority granted in the permit; or has failed to undertake or complete the project in the manner set forth in the permit. A stop-work order shall be issued by notifying the permittee performing the work to suspend all work. Any person served with a stop-work order shall forthwith suspend all activity until the stop-work order has been rescinded. Such order and notice shall be in writing, shall state the conditions under which work may be resumed and shall be

served upon the person to whom it is directed either by delivering it to the individual personally or by posting the same upon a conspicuous portion of the area and sending a copy of the same, by registered or certified United States mail, return receipt requested, to the permittee at the address shown on the permit or approval. The Code Enforcement Officer shall immediately notify the Environmental Director and the *[insert name of review board]* when a stop-work order has been issued. The Environmental Director must inspect and approve corrective actions prior to any lifting of a stop-work order issued.

B. Corrective action. If, upon inspection, it is found that there are activities that have not been undertaken in accordance with the permit, the applicant shall be responsible for completing those activities according to the permit. Failure of the Code Enforcement Officer to carry out inspections shall not in any way relieve the applicant or the bonding company of their responsibilities. If a person has been found to have violated any provision of this chapter or conditions imposed by the *[insert name of review board]* upon an approved permit and whose permit has been suspended or upon whom a stop-work order has been issued, corrective action shall be carried out as follows:

(1) When the terms of an approved permit have been violated and a stop-work order has been issued, the Code Enforcement Officer may provide a reasonable and specified time within which corrective action shall be completed by the violator to restore, insofar as possible, the affected wetland, watercourse and/or controlled area to its condition prior to the violation.

(2) When the violation of the terms of the permit is of such a serious nature that the Code Enforcement Officer has suspended the permit or recommends the revocation of the permit, the Code Enforcement Officer shall refer the matter to the *[insert name of review board]* for its determination.

C. Civil sanctions. Any person who violates, disobeys or disregards any provisions of this chapter, in addition to a criminal sanction, shall be liable to the people of the *[City/Town/Village of _____]* for a civil penalty.

D. Criminal sanctions.

(1) Any infraction of the provisions of this chapter by failure to comply with any of its requirements, including any infraction of a condition of a permit issued pursuant to this chapter, shall constitute a violation.

(a) Any person violating any order of the *[City/Town/Village]* regulating wetlands shall, for the first offense, be guilty of a violation punishable by a fine not exceeding \$350 or a term of imprisonment not to exceed 15 days.

(b) Each day's continued violation shall constitute an additional offense.

(2) A second infraction of the provisions of this chapter, as per the stipulations mentioned above, shall constitute a misdemeanor. For a second and each subsequent infraction by any person within a three-year period, the aforesaid shall be guilty of a Class A misdemeanor punishable by a fine not exceeding \$1,000 or a term of imprisonment of not less than 15 days nor more than six months, or both.

(3) The [City/Town/Village] shall prosecute persons alleged to have violated the provisions of the law and may seek equitable relief to restrain any violation or threatened violation of its provisions.

E. Injunctions and orders to show cause. Notwithstanding any of the penalties or fines hereinabove provided, the [City/Town/Village] may maintain any action or proceeding in a court of competent jurisdiction to compel compliance with or to restrain by injunction the noncompliance of any provision of this law or permit issued thereunder.

2.2 Watercourse Protection

Watercourses are natural or artificial channels conveying water, including streams and rivers, are integral parts of the landscape that carry water and sediment from headwaters to downstream lakes, estuaries, and the ocean. Watercourse conditions are intimately connected to land uses in the watershed – the land area draining to a particular stream or waterbody. The areas bordering the watercourse -- riparian areas and floodplains – are particularly influential to the health of the waterbody.

Streams naturally migrate over time and maintain a balance with their contributing watersheds based on stream slope, flow, and the size and quantity of the sediment particles moved by the stream. Land use changes in the stream’s watershed that result in increased runoff or sediment loads will upset that balance and may result in extensive erosion and sedimentation and increased flood risk, threatening property and infrastructure.⁴³ In addition to land use impacts, stream and river systems throughout New York have been significantly modified in ways that may increase flood risk:

- Straightened stream channels and those cut off from their floodplains by berms allow water to move more rapidly, which can increase its destructive power.
- Human modifications to streams and floodplains for controlling flood waters, such as levees, culverts or bulkheads, are expensive and high-maintenance, and may have negative unintended consequences for both natural habitat and human structures.
- Culverts that are too small for flood flows may clog with debris, causing flooding.
- Stream bank stabilization on one property to address threatening erosion problems may increase risk to other properties.
- Increased development in a watershed increases impervious surfaces, which increases runoff, potentially contributing to flood flows.

Definitions

Riparian areas are the lands and other areas bordering streams, rivers, lakes, marine shorelines, and other aquatic systems. These areas may include stream banks, uplands, lakeshores, wetlands, and floodplains.

Riparian buffers are vegetated areas next to water resources that protect water resources from nonpoint source pollution and provide bank stabilization and aquatic and wildlife habitat. The formal definition of riparian buffer is diverse and depends on the individual or group defining the term.

Floodplains are areas subject to flooding from an adjoining waterway. The National Flood Insurance Program uses floodplain delineations to prepare Flood Hazard Maps and Special Flood Hazard Areas.

The risk of flooding and erosion can be reduced by ensuring that water has area commensurate with anticipated volume to flow in the stream channel, floodwaters can access the floodplain,

and the stream has adequate area to move following its natural dynamics. Maintaining or restoring naturally-vegetated floodplains and other stream buffers can reduce streambank erosion and sediment from entering watercourses, as well as help to slow and store floodwaters. For more detailed information on how watercourses, floodplains, and riparian buffers reduce flood risk, consult “Using Natural Resources to Reduce Risk of Flooding and Erosion in New York.”⁴⁴

Watercourse protection is ideally accomplished within a watershed context. Watersheds and most streams and rivers span multiple municipalities and may require intermunicipal planning approaches to achieve desired outcomes, like reducing flood impacts. At the municipal scale, zoning and other land use tools such as conservation subdivisions (see *Basic Land Use Tools for Resiliency* Chapter) can be used throughout the watershed to conserve natural areas contributing to stream health and resilience. To reduce flood risk, municipalities should consider limiting development in the floodplain. (See *Management of Floodplain Development* Chapter.)

State and federal regulation of streams is limited. New York State regulates the alteration of the bed and bank of “protected” streams. Protected status is based on designation of streams for human uses such as drinking, swimming, or fishing. The beds of navigable streams are regulated by the federal Army Corps of Engineers (USACOE). No state or federal regulation limits development in stream buffers or riparian areas. Many communities use their police powers to protect additional streams and require development setbacks from streams.

Benefits of Buffers

When left in a natural state, riparian buffer areas provide many critical functions for a healthy stream. The trees, shrubs, grasses, and other plants provide a natural transition between the water and the adjacent land that slows surface runoff, provides temporary flood storage, filters sediment and contaminants, reduces streambank erosion, and serves as critical wildlife habitat. In contrast, lawns and other maintained landscape areas generally provide little buffering benefit and can contribute to stream impairment by the overuse of fertilizer and pesticide chemicals.

What streams to protect

Municipalities have options when defining which watercourses to protect through local regulations. Some municipalities refer to perennial and/or intermittent streams that are portrayed on a map, such as the 7.5' USGS topographic quadrangle. (Several examples from New York State are listed in the table at the end of this section.) The Town of Coxsackie used a broad definition of watercourse in its natural resource protections standards, which includes headwater streams as well as lakes and ponds:

Any natural or artificial, intermittent, seasonal or permanent, and public or private water body or water segment. A water body is intermittently, seasonally or permanently inundated with water and contains a discernible shoreline and

includes ponds, lakes and reservoirs. A watercourse includes rivulets, brooks, creeks, streams, rivers and other waterways flowing in a definite channel with bed and banks and usually in a particular direction.

Small streams and waterbodies are often overlooked. However, scientific evidence clearly shows that healthy headwaters — tributary streams, intermittent streams, and spring seeps — are essential to the health of larger stream and river ecosystems. Watercourse protection to reduce flood risk should apply to smaller streams, because reducing risks upstream will also reduce risk for downstream rivers and lakes. Small headwater streams are more vulnerable because they respond most dramatically to changes in nearby land uses and tend to be located on the steepest sloping and erosion-prone lands. Small streams and tributaries also often have the highest quality aquatic and terrestrial habitats and thus can benefit the most from riparian buffer protection.

Watercourse Maps and Headwaters

Some communities choose to protect streams that are identified on a map, most often those on a U.S. Geological Survey (USGS) topographic map. Keep in mind that all maps have inherent inaccuracies. USGS maps and data available from the NYSDEC omit many small streams and waterbodies, so relying on those maps may leave headwaters unprotected. On-site investigation is necessary to verify the presence of watercourses that might meet regulatory thresholds, such as intermittent streams that flow on a seasonal basis. The local law should define these smaller streams since they may not appear on a map, for example:

Intermittent Stream: Surface water drainage channels with definite bed and banks in which there is not a permanent flow of water. Intermittent streams may be represented as a dashed line on United State Geological Survey 7.5 Minute Quadrangle maps.

Watercourse Setbacks and Buffers

Most local watercourse protection laws require development setbacks, or buffers, on streams that prescribe distances between certain activities and the watercourse. A buffer is a strip of undisturbed native vegetation bordering a stream or river, or wetland. The trees, shrubs and plants, and grasses in the buffer provide a natural and gradual transition from terrestrial to aquatic environments. They slow the overland flow of water and act as a sponge, soaking up runoff from rainstorms and slowly releasing it to the stream. Protection or restoration of vegetated buffers along streams and rivers reduces the impacts of watershed stormwater runoff, as well as riverine flooding and erosion.

The width of a setback or buffer depends on the type of resource to be protected. For example, absorbing floodwaters from large storm events and protecting habitat requires a wider buffer width than if the objective is simply to preserve the integrity of the streambank. To determine the appropriate width for a vegetated riparian buffer, municipalities should consider the width

of the floodplain, channel stability, slope, adjacent wetlands, wildlife corridors, the area of land draining into the waterbody, and existing land use and structures.⁴⁵ The table below shows several recommended minimum buffer widths for common stream management objectives.⁴⁶

Recommended Minimum Buffer Width for Common Stream Management Objectives ⁴⁷	
Purpose of Buffer	Minimum Width of Buffer
Bank Stabilization	98 - 164 feet
Retain Nitrogen and Phosphorous to Protect Water Quality	16 – 295 feet
Prevent Erosion (Sediment Input)	32 – 393 feet
Wildlife Habitat	98 feet – 5249 feet
Flood mitigation	65 – 492 feet

A number of methods can be used to assign buffers widths to watercourses in local laws:

Fixed width. The first option is a fixed-width buffer, which is the most-used by municipalities because it is the simplest to administer. One width may apply to all waterbodies, or the requirements can vary depending on the watercourse. For example, the Town of New Paltz has a 200-foot buffer along the Wallkill River, a 100-foot buffer along all other perennial streams, and a 50-foot buffer along intermittent streams. Fixed-width buffers are a one-size fits all approach that will be more than adequate in some situations and inadequate in others.⁴⁸

Variable width. Because every stream, parcel, and land use are different, a second option is the variable width approach, which is tailored to site-specific conditions such as slope and intensity of land use. While more science-based, it requires individual site evaluation and may be more difficult to administer.⁴⁹

Flexible fixed width. A third option is flexible fixed-width buffers, where municipalities determine a standard width and specify criteria for expanding or contracting the buffer, such as to include the 100-year flood plain, undevelopable steep slopes, and/or adjacent wetlands, headwater stream networks, or critical habitats.⁵⁰

Streamway setback. A fourth option is the streamway setback, which is a calculated distance adjacent to a stream that provides space for the stream to migrate and allows for natural changes in width, depth, slope and channel meander pattern, and moves development away from the highest risk areas.⁵¹

When establishing local laws that promote, establish and protect buffers, it is important to consider the point from which the buffers should be measured. Fixed and variable width buffers are generally determined by measuring inland perpendicular from either the top of bank or the top of slope, depending on the stream channel characteristics. Buffers could also be defined as including the bed and bank of the stream, and measurements adjusted accordingly.

Local watercourse laws may go beyond buffer requirements and regulate activities in the watercourse itself. Town of New Paltz, for example, regulates activities within the stream channel as well as the buffer.

Some municipalities define zones within buffers and allow different activities in each zone. An example of this approach is the Model Stream Overlay District in this document, which defines a primary riparian buffer where uses are more restricted than in the secondary riparian buffer.

The following table is a summary of the techniques illustrated in this section that can be used to protect watercourses.

Technique	Description
Local Watercourse Law	A resource-specific law designed to address the gap in existing state or federal stream protection by regulating activities within unprotected watercourses and lands adjacent to all watercourses. This is usually the most comprehensive approach because it applies to more streams and is more than a setback.
Stream Overlay District	An overlay district that adds standards to the base use and area requirements of underlying zoning. The difference from a local watercourse law is its application only to the district as defined on the official zoning map, such as an area along a specific stream.
Stream-Related Zoning Standards	Standards within a zoning law that apply to all lands with certain natural resource constraints. They can be used simply to require setbacks on streams and can require a permit for a range of activities in within streams. They may also be used as performance standards.
Simple Watercourse Setbacks	A standard setback of specified width from the centerline of any watercourse as defined in the zoning. Simple setbacks are typically only building setbacks that apply to certain projects before the planning board.

The following chart illustrates how municipalities have applied the various local law techniques to regulate watercourses and buffer areas. All the illustrations are more protective than existing state or federal regulations; however, they each provide differing levels of protection. The key differences are in their applicability; i.e., which streams and buffers they protect, and how they define the land uses or management activities that are subject to the regulations. All the techniques are flexible and exempt specific types of activities from regulation (e.g., agricultural operations or collecting firewood).

Local Watercourse Protection Approach	Regulated Watercourses	Regulated Buffer	Applicability	Technique
Town of Pawling (NY) Freshwater Wetlands and Watercourse Protection Law ⁵²	Any natural or artificial, permanent or intermittent, public or private waterbody or water segment, such as ponds, lakes, reservoirs, rivers, streams, brooks, waterways or natural drainage swales.	100 ft as measured from the top of the bank of the watercourse	A permit is required for all activities identified in Section 111-4 of the Town of Pawling law.	Local Watercourse Law
Town of New Paltz (NY), Wetlands and Watercourse Protection Law ⁵³	Any natural, permanent, seasonal, or intermittent channel or water segment, rivers, streams, brooks, naturally occurring impoundments within such channels or other waterways that are contained within, flow through, or border on the town. Artificial water segments, such as swales and ditching, are excluded.	200 ft buffer for Wallkill River 100 ft buffer for perennial watercourse 50 ft buffer for intermittent watercourse	A permit is required for all activities identified in Section 139-8 of the Town of New Paltz law.	Local Watercourse Law
Town of Philipstown (NY), Freshwater Wetlands and Watercourses Law ⁵⁴	Rivers, streams, brooks, ponds, lakes, reservoirs and waterways, whether running constantly or intermittently, which are delineated on the current edition of the United States Department of Interior, Geological Survey, 7.5 Minute Series (Topographic) maps bearing the date 1981 (Peekskill Quadrangle), 1981 (West Point Quadrangle) and 1979 (Oscawana Lake Quadrangle), covering the Town of Philipstown; and any other streams, brooks and waterways which are contained within, flow through, or border on the Town of Philipstown, and any additional streams, brooks and waterways which are delineated on the map as defined in section 93-4 of this law.	100 ft from the mean high-water mark, measured horizontally	A permit is required for all regulated activities listed in Section 93-5 of the law.	Local Watercourse Law
Town of Poughkeepsie (NY), Aquatic Resource Protection Law ⁵⁵	Any watercourse which appears as a solid blue line on the 2003 Aquatic Resources Map of the Town.	50 ft buffer for Wappinger Creek 25 ft for all other watercourses	A permit is required for all activities identified in Section 116-5 of the Town of Poughkeepsie law.	Local Watercourse Law

Local Watercourse Protection Approach	Regulated Watercourses	Regulated Buffer	Applicability	Technique
Town of New Castle (NY), Wetlands Law ⁵⁶	Any natural or artificial, permanent or intermittent, public or private surface water body or surface water segment, such as ponds, lakes, reservoirs, rivers, streams, brooks or waterways	100 ft	A permit is required for all activities identified in Section 137-3 of the Town of New Castle law.	Local Watercourse Law
Model Stream Overlay District for the Moodna Creek Watershed Intermunicipal Council (NY) ⁵⁷	The full length and width, including the bed and banks, of any watercourse that has a channel which periodically or continuously contains moving water. Excludes constructed drainage-ways, except modified natural streams.	Four options: 2 are fixed width (100 and 200 ft), the other options expand fixed width with floodplains, wetlands, and steep slopes; different activities are regulated in the primary and secondary buffers	To be defined by the municipality; apply to all proposed actions requiring [defined] approval	“Stream” Overlay District
City of Newburgh (NY), Waterbody Protection Overlay District ⁵⁸	The overlay district consists of lands within 100 feet of 9 identified waterbodies, including the Quassaick Creek and Hudson River, as well as several lakes and ponds.	100 ft for principal structures 50 ft for accessory structures larger than 200 sq ft	Site plan review is required to clear, fill, dredge, excavate, deposit materials, and for all construction activities.	Stream Overlay District
Town of Coxsackie (NY), Natural Resource Protection Standards ⁵⁹	Any natural or artificial, intermittent, seasonal or permanent, and public or private water body or water segment. A water body is intermittently, seasonally or permanently inundated with water and contains a discernible shoreline and includes ponds, lakes and reservoirs. A watercourse includes rivulets, brooks, creeks, streams, rivers and other waterways flowing in a definite channel with bed and banks and usually in a particular direction.	150 ft for Hudson River 100 ft for perennial streams (solid blue line on USGS map) 50 ft for intermittent streams (broken blue line on USGS map) 25 ft all other watercourses	Exempts development improvements to single-family or two-family residential lots in single lot ownership; or a minor subdivision.	Zoning Standards

Local Watercourse Protection Approach	Regulated Watercourses	Regulated Buffer	Applicability	Technique
Town of Wallkill (NY), Shawangunk Kill Corridor Preservation Overlay District (NY) ⁶⁰	The Shawangunk Kill Corridor, as described on the Town’s Zoning Map.	Manufacturing and Industrial uses: 250 ft Commercial uses: 200 ft Residential uses: varies from 65-100 ft based on the fixed edge of the watercourse at full flow	All uses are prohibited except those exempted in Section 249-105 of the Town of Wallkill law. Special permits for Marinas for non-powered boats, public and private boat entry points, Structures or uses required for the operation of a public utility, such as utility rights-of-way and crossings and Decks for restaurants and in existing cleared areas. in Section 249-107.	Stream Overlay District
Town of Ulysses (NY) Zoning Law ⁶¹	Watercourses that carry water for at least 6 months of the year.	Residential areas: 50 ft Intermittent streams: 50 ft Perennial streams in areas of more intense use: 50 ft, and may be increased by up to 50% should the Planning Board find it necessary to minimize impacts	Projects that require building permits or planning board approval.	Simple Setbacks

Town of Woodstock (NY), Wetland and Watercourse Protection Standards ⁶²	Any natural, artificial, permanent, seasonal, or intermittent, public or private water segment, such as rivers, streams, brooks, or other waterways that are contained within, flow through, or border on the Town of Woodstock. A watercourse contains a discernible channel, bed, and/or banks and usually flows in a particular direction. Artificial water segments, such as swales and ditching shall not be considered a regulated watercourse, provided they do not discharge directly into a naturally occurring wetland water body or watercourse.	30 to 100 ft depending on the upstream drainage area and the slope of the land, according to "Applicable Watercourse Buffer" map (with default of 30 ft in all other cases)	A permit is required for all activities listed in Section 260-34C of the Town of Woodstock law.	Zoning Standards
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RESOURCES

Westchester County: A guide to Aquatic Buffers. (2007). Westchester County Soil and Water Conservation District ⁶³

Conservation Thresholds for Land Use Planners. (2003). Washington, D.C: Environmental Law Institute. ⁶⁴

Kusler, J. (2016). *Model “Riparian” Protection Ordinance.* Berne, NY: Association of State Wetland Managers. ⁶⁵

Kusler, J. (2009). *Model Ordinances for Regulating Wetlands, Riparian Habitats, and Stream Buffers.* Berne, NY: Association of State Wetland Managers. ⁶⁶

Model Stream Overlay District Developed for the Moodna Creek Watershed Intermunicipal Council. (2014). Moodna Creek Watershed Intermunicipal Council Outreach and Education Committee and the Orange County Planning Department. ⁶⁷

2.2.1 Simple Watercourse Setbacks

Some level of watercourse protection can be achieved through a standard tool of zoning – a setback requirement. This is a simple technique that prevents building too close to streams and waterbodies. The size of the setback could be increased for environmentally sensitive areas (e.g., lake shore and conservation districts), or areas of more intensive uses (e.g., industrial and business districts). Setbacks typically have limited applicability. In this example, the setbacks only apply in certain districts.

USAGE

Amend the sections in the municipal zoning law that describe the lot area and yard requirements of a zoning district to add a provision related to stream setbacks. Definitions of “stream,” “stream protection buffer,” “watercourse,” and “wetland” should be added to the definition section of the zoning law, and standards for vegetative buffers added to the design standards section of the zoning law.

ADAPTED FROM THE FOLLOWING SOURCE

Town of Ulysses (NY) Zoning Law, Article IV – Definitions, Article XX – Design Standards, Section 20.6.2 Stream Protection Setback⁶⁸

LANGUAGE

Add the following definitions to the zoning law:

Bank: That land area immediately adjacent to and which slopes toward the bed of a watercourse and which is necessary to maintain the integrity of the watercourse.

Stream: A watercourse that carries water for [*insert number of months, Town of Ulysses uses six*] months or more throughout a year. The edge of the stream is the bank of the stream or the top edge of the embankment if the stream is more than ten feet below the grade of the surrounding embankment.

Stream Protection Buffer: A strip of land on each side of a stream intended to provide several important societal services, including flood reduction, erosion control, groundwater filtration, surface water quality improvement and wildlife habitat. The buffer shall consist of the area included in a stream protection setback and be divided into three sections: streamside, middle, and outer.

Watercourse: A permanent or intermittent stream or other body of water, either natural or man-made, which gathers or carries surface water.

Wetland: Lands, including submerged lands, saturated by water at a frequency and duration sufficient to support vegetation adapted for life in saturated soil conditions. For the purpose of this local law, wetlands are limited to those lands that meet any of the following criteria: are categorized as wetlands by the New York State Department of Environmental Conservation; have been documented and mapped as part of an officially adopted community wetlands inventory; or meet the U.S. Army Corps of Engineers' definition of a wetland.

Add a stream protection setback standard to each zoning district description:

Stream protection setback [*residential areas*]. No buildings or other structures, or parking areas, shall be located within [*insert number of feet, Town of Ulysses uses 50*] feet from the edge of a stream or wetland, as defined in Section [*insert number of definition section of zoning law*].

OR

Stream protection setback [*areas of more intense use*]. No buildings or other structures, or parking areas, shall be located within [*insert number of feet, Town of Ulysses uses 100*] feet from the edge of a stream or wetland, as defined in Section [*insert number of definition section of zoning law*]. With the exception of stream crossings, no roadways shall be located within [*insert number of feet, Town of Ulysses uses 50*] feet from the edge of a stream or wetland. Structures near streams may also be subject to additional design standards as described in Section [*insert section number for design standards for stream protection setbacks*].

OR

Stream protection setback [*environmentally sensitive areas*]. No buildings, structures, paved areas, or storage of construction equipment or machinery shall be located within [*insert number of feet, Town of Ulysses uses 50*] linear feet of the edge of any stream, and [*insert number of feet, Town of Ulysses uses 100*] feet of any wetland. The [*insert name of review board*] may increase the area of such protected buffer area by up to 50% if it determines that such an increase is necessary to protect water quality or to minimize or mitigate the impacts of erosion and sedimentation.

Add a design standard:

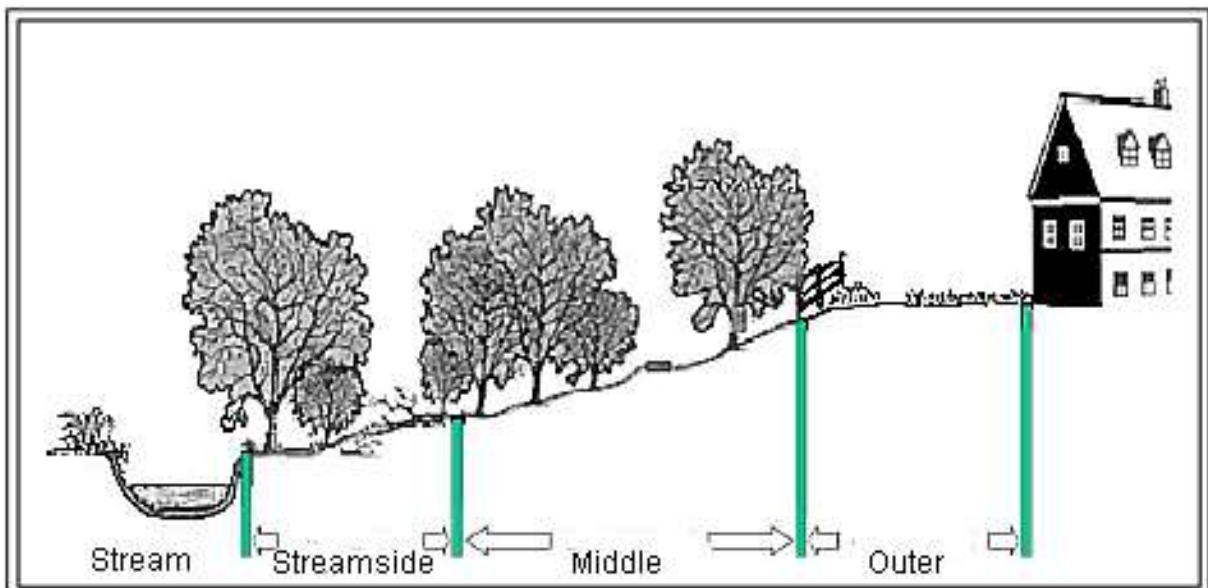
Section X. Stream Protection Buffer.

A. Stream Protection Buffer required. Healthy stream sides that are vegetated with native woody trees and shrub plants provide flood reduction, erosion control, groundwater filtration, surface water quality improvement, and wildlife habitat. Therefore, commercial properties and all properties in the [*insert zoning districts that this will apply to, such as environmental overlay*

districts that are being considered for new development or building upgrades and that encompass or adjoin a stream or creek] are required to maintain and protect the existing vegetated streamside habitat in the area included in a stream protection setback (i.e., a Stream Protection Buffer), during and after construction, and must restore vegetation in the Stream Protection Buffer consistent with the requirements of Paragraph B where such vegetation has been removed.

B. Required vegetation. Vegetation in a Stream Protection Buffer shall consist of native tree and shrub species, tolerant of the conditions of flooding and soil saturation that are typical of such habitats, and generally designated as Obligative Wetland (OBL), Facultative (FAC), Facultative Wetland (FACW), or Facultative Upland Species (FACU) in the U.S Army Corps of Engineers National Wetland Plant List.⁶⁹ Vegetation shall be planted in a manner consistent with the following within the Stream Protection Buffer:

- (1) The streamside section, intended to protect the physical and ecological integrity of the stream ecosystem, should consist of approximately twenty feet of vegetation consistent with undisturbed mature forest directly adjacent to the bank.
- (2) The middle section, intended to protect water quality and the stream ecosystem, should consist of approximately fifteen feet of actively growing forest in which periodic thinning is permitted.
- (3) The outer section, intended to filter runoff from adjacent land and encourage sheet flow of runoff into the buffer, should consist of approximately fifteen feet of native woody and herbaceous vegetation to increase the total width of the buffer; native grasses and forbs are acceptable.



Three-zone stream buffer system (Source: Adapted from Schueler, 1995)

RESOURCES

Strong, K. (2008). *Conserving Natural Areas and Wildlife in Your Community: Smart Growth Strategies for Protecting the Biological Diversity of New York's Hudson River Valley*. Ithaca, NY: New York Cooperative Fish and Wildlife Research Unit, Cornell University, and NYS Department of Environmental Conservation, Hudson River Estuary Program.⁷⁰

Stream Processes: A Guide to Living in Harmony with Streams. (2016). Horseheads, NY: Chemung County Soil and Water Conservation District.⁷¹

Westchester County: A Guide to Aquatic Buffers. (2007). Westchester County Soil and Water Conservation District.⁷²

2.2.2 Stream-Related Zoning Standards

Supplemental zoning standards can be adopted as additional requirements to underlying zoning district provisions to establish setback buffer areas and restrictions to activities within those buffers. Among the purposes of these standards is to retain areas of annual flooding, floodplains, and wetlands in their natural state to the maximum possible extent to preserve water quality and protect water retention, overflow, and natural functions.

The example below defines streams to be protected based on United States Geological Survey Topographical Maps (7.5 minute series), with solid blue lines representing perennial streams and broken blue lines representing intermittent streams.

The example was modified to promote stormwater management using practices compatible with buffer protection, rather than stormwater practices that require substantial construction resulting in a larger impact, such as stormwater ponds.

USAGE

Incorporate the supplemental zoning standards into the performance standards section of a municipal zoning law. It would be applicable everywhere in the municipality where resources falling under the definition of “watercourse” exist.

ADAPTED FROM THE FOLLOWING SOURCE

Town of Coxsackie (NY) Zoning Law, Article VI Natural Resource Protection Standards, Section 201-48⁷³

LANGUAGE

Section X. Watercourses

A. Definitions. The following definitions shall apply to this section.

(1) Buffer: A designated area along the perimeter of a wetland, fish or wildlife habitat, or other area regulated on a seasonal or permanent basis so as to minimize or mitigate the impact of adjacent activities, such as human related-disturbances.

(2) Watercourse: Any natural or artificial, intermittent, seasonal or permanent, public or private water body or water segment. A watercourse is intermittently, seasonally or permanently inundated with water and contains a discernible shoreline, including waterways flowing in a definite channel with bed and banks and usually in a particular

direction. Watercourses include ponds, lakes and reservoirs rivulets, brooks, creeks, streams, rivers and other waterways.

(3) Watercourse Buffer: The Watercourse Buffer is a buffer area surrounding a watercourse that is intended to protect the watercourse from human activity and other encroachment associated with development.

(4) Agricultural: The raising of crops, animals and animal products; forestry; other commonly accepted agricultural operations for commercial purposes, including the sale of products grown on the premises.

B. Watercourse buffer areas. These standards shall apply to any activities proposed within Watercourse Buffers, which shall exist upon:

(1) All land within 100 feet horizontal distance of the center line of any perennial stream as designated by a solid blue line on United State Geological Survey Topographical Maps (7.5 minute series).

(2) All land within 50 feet horizontal distance of the center line of any intermittent stream as designated by a broken blue line on United States Geological Survey Topographical Maps (7.5 minute series).

(3) All land within 25 feet horizontal distance of the center line of any other watercourse.

(4) All lands within 150 feet horizontal distance of the mean high tide mark of the [*insert name of river*] or the tidal portions of its tributaries.

Watercourse Feature	Buffer
Perennial Stream	100 feet
Intermittent Stream	50 feet
Other Watercourses	25 feet
Mean High Tide Mark of Tidal River	150 feet

C. General standards. It is the objective of these standards to promote the establishment of heavily vegetated areas of native vegetation and trees in order to reduce the impacts of stormwater runoff, reduce sedimentation, and increase infiltration and base flows in the [*City/Town/Village*]'s Watercourses. All lands within a designated Watercourse Buffer defined above shall be left in an undisturbed, naturally vegetated condition. Supplemental planting and landscaping with appropriate species of vegetation necessary to achieve these objectives shall be permitted.

The specific standards for the vegetation and maintenance of Watercourse Buffers are as follows:

(1) The clearing of trees that are not dead, heavily damaged by ice storms or other natural events, or diseased; and the clearing of any other vegetation other than invasive species, is prohibited.

(2) Any areas within a Watercourse Buffer not occupied by a structure, whose vegetation is removed or disturbed during development or other human activities, shall promptly be seeded with a naturalized mix of grasses rather than standard lawn grass. If such disturbance to the buffer area impacts tree or shrub species, the disturbed area shall promptly be restored using the same species of trees and shrubs, unless those species were invasive species, in which case native trees and shrubs shall be used.

(3) Watercourse Buffers shall not be mowed more than once per calendar year after vegetation establishment. Mowing of buffer areas shall not be undertaken until after August 15th of each year in order to reduce impacts to ground nesting species. Mowing related to agricultural activities is exempt from this requirement.

(4) The creation of lawns consisting of cultivated and mowed grass within Watercourse Buffers is prohibited.

(5) Snow storage areas designated pursuant to site plan review shall not be located within Watercourse Buffers, unless the applicant can demonstrate that there is no reasonable alternative location for snow storage on the same property, and the site plan and/or stormwater treatment system incorporates measures to reduce the potential for erosion and contaminated runoff entering the associated watercourse as a result of snow melt, such as infiltration areas or enhanced buffer vegetation.

(6) Agriculture, horticulture and forestry, including the keeping of livestock, is permitted, provided that any building or structure associated with such uses is located outside the watercourse buffer. Livestock-based agricultural operations should minimize livestock impacts within the Watercourse Buffer to the maximum extent possible.

(7) Encroachments necessary to rectify a natural catastrophe for the protection of the public health, safety and welfare are permitted. Such encroachments shall be undertaken so as to minimize the impact and every reasonable effort shall be made to restore the site after the activity is completed.

(8) Encroachments are permitted as necessary for building, maintaining, or improving public facilities in those cases where there is no practicable alternative to encroaching upon the Watercourse Buffer.

(9) Public recreation paths located at least ten feet from the bank of the watercourse are permitted. Outdoor recreation facilities are permitted provided any building or structure (including parking and driveways) associated with such use is located outside the watercourse buffer.

(10) The following green infrastructure practices for stormwater management, as described in Chapter 5 of the New York State Stormwater Management Design Manual,⁷⁴ (SWDM) may be permitted in the Watercourse Buffer as long as such facilities and practices are designed and built consistent with the criteria as set forth in the SWDM:

- 5.1.1 Preservation of Undisturbed Areas
- 5.1.2 Preservation of Buffers
- 5.1.3 Reduction of Clearing and Grading
- 5.1.4 Locating Development in Less Sensitive Areas
- 5.1.5 Open Space Design
- 5.3.1 Conservation of Natural Areas
- 5.3.2 Sheetflow to Riparian Buffers

(11) Where there is no feasible alternative method for providing safe access and where the roadway or access drive is located at least 10 feet from the bank of the watercourse, a roadway or access drive is permitted for the purpose of gaining access to land on the opposite side of the Watercourse Buffer or providing safe access to an approved use.

(12) Utility structures, including power, telephone, cable, sewer and water, [*insert if desired, gas or oil pipelines, having a diameter of __ or less*] are permitted, so long as encroachment is limited to the minimum extent necessary, and there is no feasible alternative for providing or extending utility services.

A model local law from the Huron River Watershed Council provides an exemption for construction of a single-family residence that is part of a plat for subdivision or approved site plan prior to the date the new provision is adopted, including the usual appurtenances, provided that:

- (a) Based on the size, shape or topography of the property, it is not reasonably possible to construct a single-family dwelling without encroaching upon the riparian buffer area;
- (b) The dwelling conforms to all other zoning regulations;
- (c) Septic tanks or drain fields are not located within the riparian buffer area;
- (d) The dwelling avoids to the maximum extent practicable disturbance of the riparian forest buffer area.

D. Preexisting structures. Expansion and construction of preexisting structures within a Watercourse Buffer may be approved by the [*insert name of review board*] as a [*special use/conditional use*], provided the requirements of the underlying zoning district, [*delete if not*

applicable] the requirements in the [City/Town/Village] Flood Damage Prevention Law, and the following standards are met:

(1) The structure to be expanded or reconstructed was originally constructed prior to the adoption of these standards. For purposes of these regulations, expansion includes the construction of detached accessory structures, including garages and utility sheds.

(2) The expanded or reconstructed structure does not extend any closer, measured in terms of horizontal distance as defined in Paragraph B, than the closest point of the structure prior to its expansion or improvement.

(3) The total footprint area of the expanded or reconstructed structure shall not be more than fifty percent larger than the footprint of the structure lawfully existing on the date of the adoption of these standards. For purposes of these regulations, reconstruction includes but is not limited to razing the existing structure and/or foundation and constructing a new structure in accordance with the provisions of the underlying zoning district regulations and this section

(4) An erosion control plan for construction is submitted by a licensed engineer or other qualified professional (i.e., certified professional in erosion and sediment control) detailing the controls that will be put in place to protect the associated watercourse.

(5) A landscaping plan showing plans to preserve, maintain and supplement existing trees and ground cover vegetation in the Watercourse Buffer is submitted and the [city/town/village] [insert name of review board] finds that the overall plan will provide a visual and vegetative buffer for the lake and/or stream.

E. Watercourse alteration and relocation. The alteration, relocation or culverting of a watercourse shall only be permitted following the review and approval of the Planning Board. In reviewing applications to alter, relocate, or culvert a watercourse, the Planning Board shall be authorized to invoke reasonable technical review, at the applicant's expense, by a suitable professional in hydrology or geomorphology, and/or to rely on the issuance of a stream disturbance permit (Article 15 of the New York Environmental Conservation Law) issued by the New York State Department of Environmental Conservation.

The [insert name of review board] shall deny an application to alter, relocate, or culvert a watercourse unless it finds that such activity:

(1) is necessary to accomplish a clear public purpose or objective;

(2) will not reduce the ability of the watercourse to adequately carry or store floodwaters;

(3) will not have an adverse impact on downstream or upstream water quality;

(4) will not adversely affect the use and enjoyment of adjacent properties; and

(5) will not affect adversely the habitat value of the watercourse or the areas or wetlands immediately adjacent thereto.

F. Inspection. The Code Enforcement Officer may enter upon the lands or waters for the purpose of inspection to determine compliance with this section.

2.2.3 Watercourse Overlay District

Overlay districts may be established to protect streams, establish buffer areas, and restrict activities within buffers. Such districts are geographically limited and defined on a zoning map. The standards included in an overlay district are in addition to the density, area, and use requirements of the underlying zoning district.

The example which follows is from a model local law created for the Moodna Creek Watershed Intermunicipal Council in Orange County, New York. A stream is broadly defined in this model, and includes intermittent as well as permanent streams, although the definition excludes constructed drainage-ways, including water bars, swales, and roadside ditches, unless they were constructed by channelizing or otherwise modifying a natural stream, wetland, or waterbody of any kind.

There are four different buffer width options, all of which have primary and secondary areas with different standards. Options A and C are fixed width buffers; options B and D allow buffers to expand to cover the floodplain and riparian wetlands. The example is applicable to regulated activities in all land use approval processes, including approvals for subdivisions, site plans, building permits and variances.

Stream buffer widths contained in the model law were determined using scientific guidance set forth in *Conservation Thresholds for Land Use Planners*, published by the Environmental Law Institute in 2003, and *Conservation Buffers: Design Guidelines for Buffers, Corridors, and Greenways*, published by the United States Department of Agriculture in 2008.

One of the uses described as permitted within the buffer area is limited tree cutting, forestry or vegetation management done pursuant to plans by certain professionals. The local law states that any harvesting must furthermore be done in accordance with the *New York State Forestry Best Management Practices for Water Quality – BMP Field Guide*, which is available from the NYS Department of Environmental Conservation.⁷⁵

USAGE

Identify the area(s) of the municipality that would be included in the Watercourse Overlay District and prepare a map showing those areas as an overlay to the municipal zoning map. Amend the section of the municipal zoning law that establishes zoning districts to include the new overlay district.

ADAPTED FROM THE FOLLOWING SOURCE

Stream Corridor Overlay Model Local Law (2014), Developed for the Moodna Creek Watershed Intermunicipal Council by the Council’s Outreach & Education Committee with technical assistance from the Orange County (NY) Planning Department⁷⁶

Section X. Watercourse Overlay District

A. Findings. The [City Council/Town Board/Village Board of Trustees] of the [city/town/village] hereby finds that the encroachment of development activities into stream corridors could create a public and private nuisance, degrade the natural environment, and be harmful to the public health, safety and welfare. Such activities can increase the risk of flooding in the stream corridor, damage water quality in the surface waters within and downstream of the [city/town/village], harm the aesthetic qualities of the [city/town/village], damage wildlife and vegetative habitat, pose additional threats to rare, threatened and endangered species that depend on riparian habitats, and tend to depreciate the value of properties in the [city/town/village]. The [City Council/Town Board/Village Board of Trustees] finds that these problems can be diminished by applying a primary and a secondary riparian buffer to all stream corridors within the [city/town/village] in keeping with the standards established in this local law.

C. Purpose. The purpose of this Section is to establish requirements for creating and maintaining buffers to protect the water quality in the streams of the [city/town/village] and the natural environment around them, thereby protecting public health, safety and welfare in this [city/town/village]. This Section promotes the prevention of sediment, nutrient and pollutant loads from entering streams by maintaining stream buffers measured from the top of the stream bank with a width to be determined by the conditions adjacent to the stream corridor. Research has shown that the distances set forth within this local law are effective at filtering nutrients and pollutants to protect water quality. Additionally, creating buffers for structures and improvements from highly erodible streams will help minimize future property damage and other impacts associated with streambank erosion. Although it is not mandated in this Section, the [city/town/village] strongly encourages landowners to maintain stream buffers of 330 feet from the top of stream bank on undeveloped land, where feasible, in order to protect wildlife and vegetative habitat.

D. Definitions. As used in this Section, the following terms shall have the meanings indicated: *[Alternatively, these definitions may be incorporated into the list of other zoning definitions. Make sure they are consistent with existing definitions.]*

Bank: the lateral confines of a stream, river, or other watercourse that contain the normal flow of the watercourse.

Buffer: land on each side of a stream that shall be left vegetated to provide riparian corridor functions. Buffers are measured horizontally from the top of the stream bank in a direction directly perpendicular to the bank and in the horizontal plane.

Development Activities: the construction, reconstruction, conversion, structural alteration, relocation, or enlargement of any structure or improvement that requires a permit or

approval from the [City/Town/Village], including that intended for agricultural use; and any mining excavation, landfill, or land disturbance, including grading and filling.

Green Infrastructure Practices: stormwater management practices that maintain or restore natural stormwater flow pattern by allowing the water to permeate slowly into the ground and be used by plants. Green infrastructure practices generally incorporate higher functioning site design and low-impact development design techniques.

Highly Erodible Soils: Soils that have a maximum potential for erosion that equals or exceeds eight times the tolerable erosion rate.⁷⁷

Improvement: alterations to the land that enhance the utility or value of the site and/or any structures thereon.

Intermittent Stream: surface water drainage channels with definite bed and banks in which there is not a permanent flow of water (and may be represented as a dashed line on United State Geological Survey (USGS) 7.5 Minute Quadrangle maps). Sometimes referred to as “ephemeral stream.”

Impervious Surface: any paved, hardened or structural surface including, but not limited to, buildings, dams, decks, driveways, parking areas, patios, streets, swimming pools, tennis courts, walkways, and other non-permeable structures and improvements. Impervious surfaces include compacted shale, gravel, and packed dirt, as well as other materials that become impervious when compacted.

Parcel: a designated tract or area of land established by plat, subdivision, or as otherwise permitted by law, to be separately owned, used, developed, or built upon.

Perennial Stream: a stream that typically flows continuously throughout the year in a natural or man-made channel (which may be represented as a solid blue line on United States Geological Survey (USGS) 7.5 Minute Quadrangle maps).

Pollutant: dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials other than those regulated under the Atomic Energy Act of 1954 as amended (42 U.S.C. § 2011 et seq.), heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal and agricultural waste discharged into water.⁷⁸

Riparian: of, inhabiting or situated on the bank of a natural course of water such as a river.

Steep Slope: any slope of 15% grade or greater.

Stream: the full length and width, including the bed and banks, of any watercourse that has a channel which periodically or continuously contains moving water and has a defined bed,

and has banks that serve to confine water at low to moderate flows (and may be represented as either a solid or dashed blue line on United States Geological Survey (USGS) 7.5 Minute Quadrangle maps). For the purpose of this Local Law, constructed drainage-ways, including water bars, swales, and roadside ditches, are not considered streams, unless they were constructed by channelizing or otherwise modifying a natural stream, wetland, or water body of any kind.

Structure: anything constructed or erected on or under the ground or upon another structure or building.

Tolerable Erosion Rate: The maximum rate of soil erosion that is equaled by the rate of soil development, thus allowing an equilibrium between the amounts of soil lost and gained. Values for allowable soil loss for different soil types may be found in Section II of the Field Office Technical Guide (FOTG) for the County of *[insert name of county]* maintained by the Natural Resources Conservation Service of the U.S. Department of Agriculture.

Top of Stream Bank: the primary edge of the ordinary high water mark, or break in slope for a watercourse that maintains the integrity of the watercourse.

Undeveloped Land: A parcel of land that does not contain residential and/or commercial structures that have been issued certificates of occupancy or the equivalent from the *City/Town/Village* Code Enforcement Officer. Land that contains structures constructed without valid building permits or other approvals, and/or which have not been issued a certificate of occupancy or the equivalent shall be considered to be undeveloped.

Wetlands: lands, including submerged lands, saturated by water at a frequency and duration sufficient to support vegetation adapted for life in saturated soil conditions. For the purpose of this local law, wetlands are limited to those lands that meet any of the following criteria: 1) are categorized as wetlands by the New York State Department of Environmental Conservation (NYSDEC); 2) have been documented and mapped as part of an officially adopted community wetlands inventory; and/or 3) meet the U.S. Army Corps of Engineers' definition of a wetland.

E. Applicability. This Section shall apply to all proposed actions requiring approval by the *[insert name of approval authority, such as code enforcement officer or Planning Board]*. The Riparian Buffer Area, both Primary and Secondary, shall be acknowledged and displayed graphically on all plans and relevant materials that are submitted to the *[city/town/village]* as part of any land use approval process, including approvals for subdivisions, site plans, building permits and appeals for variances. These requirements do not supersede or replace any greater applicable requirements established under state, federal or local law.

F. Protection requirements for perennial streams. The required buffer shall be established for all development activities, as defined in Paragraph D, that occur in proximity to perennial streams with additional considerations for wetlands, highly erodible soils, 100-year floodplains and steep

slopes. The buffer shall be subdivided into a Primary Riparian Buffer and a Secondary Riparian Buffer that protects overall water quality by limiting development in accordance with the adjacent land's ability to filter sediment, nutrients and other pollutants. The buffer will provide stability to the stream and stream bank. The minimum total buffer width for all perennial streams is *[insert minimum size based on protection options in F(2)]* as measured from the top of the stream bank. There is no established maximum buffer width.

The *[city/town/village]* shall require the delineation of any applicable Primary or Secondary Riparian Buffers on all subdivision plats, site plan applications, special permits, special approval and variance applications, building permit applications, and excavation or fill permit applications, even in the event that a stream is not located within the subject parcel but the Primary Riparian Buffer and/or the Secondary Riparian Buffer is located on the subject parcel. This delineation shall be subject to review and approval by the appropriate board or officer. Said delineation shall also be referenced in any deed for any parcel located wholly or partly within any Primary or Secondary Riparian Buffers, which shall state that:

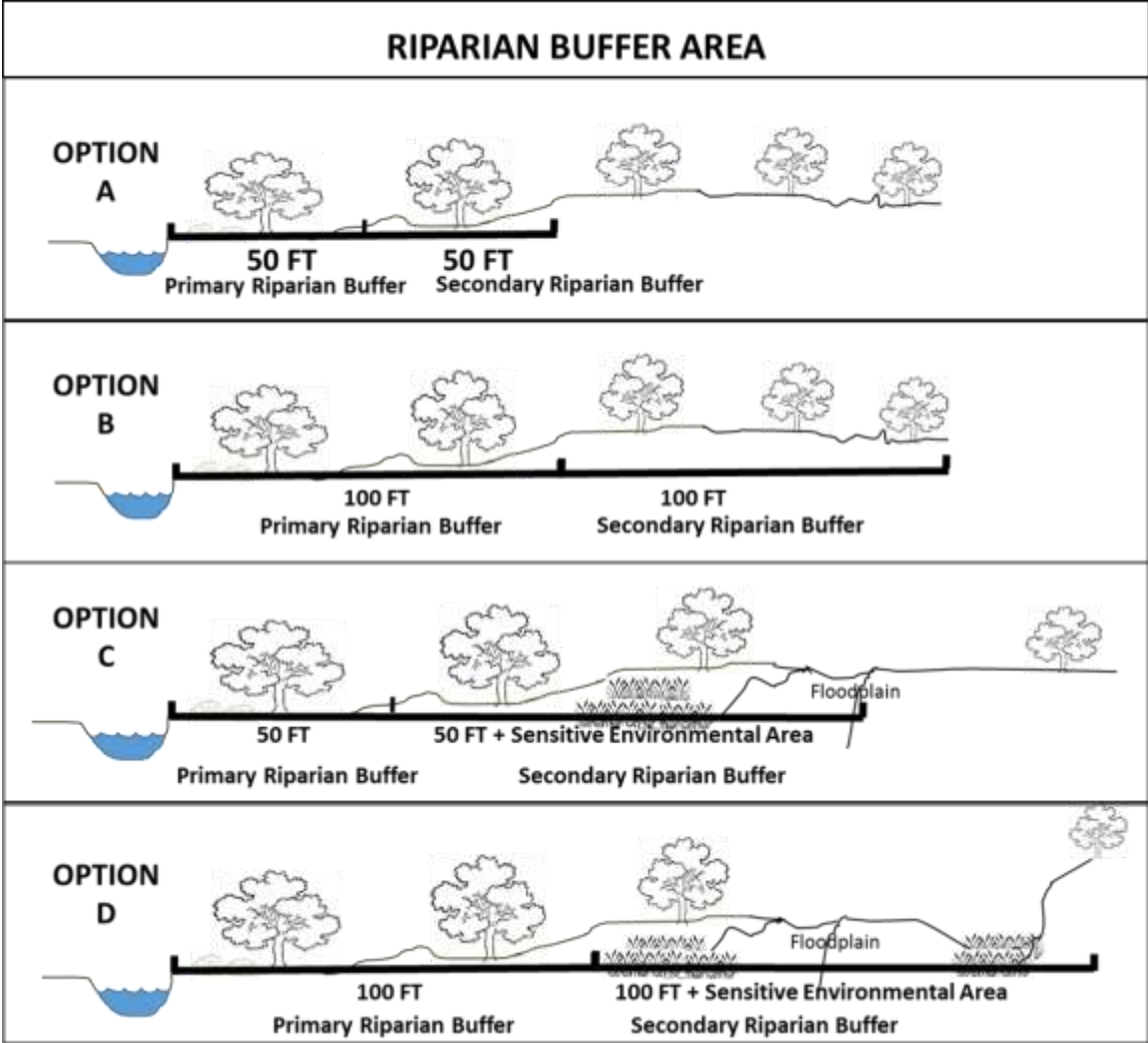
The premises hereby conveyed are subject to a Primary and/or Secondary Riparian Buffer established pursuant to the "Watercourse Overlay Local Law of the *[City/Town/Village of _____]*, as shown on *[plat or other map or permit]* recorded in the Office of the County Clerk on *[insert date]* in *[book/page/file/drawer]*." Prior to any soil-disturbing activity requiring a permit or approval by the *[city/town/village]*, the Primary Riparian Buffer and Secondary Riparian Buffer shall be clearly delineated on site and shall be left undisturbed or otherwise protected throughout the construction phase.

(1) Riparian Buffer Area. *[Select one of the following options]*

[Protection Option A] The Riparian Buffer will begin at the top of the stream bank and extend a minimum of 100 feet horizontally measured in a direction directly perpendicular to the stream bank in a horizontal plane. The Buffer area will be subdivided into a Primary Riparian Buffer extending 50 feet from the stream bank, and a Secondary Riparian Buffer extending 50 feet from the outward boundary of the Primary Riparian Buffer.

OR

[Protection Option B] The Riparian Buffer will begin at the top of the stream bank and extend a minimum of 200 feet horizontally measured in a direction directly perpendicular to the stream bank in a horizontal plane. The Buffer area will be subdivided into a Primary Riparian Buffer extending 100 feet from the stream bank, and a Secondary Riparian Buffer extending 100 feet from the outward boundary of the Primary Riparian Buffer.



OR

[Protection Option C] The Primary Riparian Buffer will begin at the top of the stream bank and extend a minimum of 100 feet horizontally measured in a direction directly perpendicular to the stream bank in a horizontal plane. The Buffer area will be divided into a Primary Riparian Buffer extending 50' from the stream bank and a Secondary Riparian Buffer extending 50' from the outward edge of the Primary Riparian Buffer. Should a wetland or a 100-year floodplain exist at least partially within the Secondary Riparian Buffer, the entirety of that area will be included within the Secondary Riparian Buffer and will be subject to the restrictions afforded to the Secondary Riparian Buffer. Should a steep slope or highly erodible soils exist partially within the Secondary Riparian Buffer, that steep slope or highly erodible soil area up to a maximum of 400 feet from the stream bank shall be included within the Secondary Riparian Buffer.

OR

[Protection Option D - Recommended for all Class A streams.] The Riparian Buffer will begin at the top of the stream bank and extend a minimum of 200 feet horizontally measured in a direction directly perpendicular to the stream bank in a horizontal plane. The Buffer area will be divided into a Primary Riparian Buffer extending 100' from the stream bank and a Secondary Riparian Buffer extending 100' from the outward edge of the Primary Riparian Buffer. Should a wetland or a 100-year floodplain exist at least partially within the Secondary Riparian Buffer, the entirety of that area will be included within the Secondary Riparian Buffer and will be subject to the restrictions afforded to the Secondary Riparian Buffer. Should a steep slope or highly erodible soils exist partially within the Secondary Riparian Buffer, that steep slope or highly erodible soil area up to a maximum of 400 feet from the stream bank shall be included within the Secondary Riparian Buffer

(2) Primary Riparian Buffer

(a) Purpose. The function of the Primary Riparian Buffer is to protect the physical and ecological integrity of the portion of the riparian corridor in closest proximity to the stream through protection and enhancement of the vegetation. Vegetation provides erosion protection, shade, leaf litter, woody debris, wildlife habitat, and filtering of sediment, nutrient and pollutant loads to the stream.

(b) Permitted Uses. Development and use within the Primary Riparian Buffer are restricted to the following uses, which in aggregate may modify or cause adverse impacts to no more than 10% of the entire Primary Riparian Buffer unless more area is necessary for the protection of human health, public utility usage, or public infrastructure.

(i) Benches or seating;

(ii) Implementation of educational and scientific research activities that enhance or otherwise do not negatively impact the composition or health of the existing vegetation;

(iii) Flood control structures, bioretention areas or other green infrastructure stormwater management practices, and stream bank stabilization measures approved by the Orange County Soil and Water Conservation District, U.S. Natural Resource Conservation Service, U.S. Army Corps of Engineers, or NYSDEC;

(iv) Maintenance of roadways or impervious surfaces existing at the time of the adoption of this provision;

(v) Culverts or other stream crossings necessary to construct a driveway, transportation route, or public utility structures necessary to provide

access or utility service to a parcel, which are designed to minimize negative impacts to the stream and Primary Riparian Buffer;

(vi) Public water supply infrastructure, including wells, public wastewater outfall structures, and associated pipes;

(vii) Public access and water-dependent public recreational facilities, including boat ramps, docks, foot trails leading directly to the stream, fishing platforms, and overlooks;

(viii) Public sewer lines and/or other utility easements.

(ix) Techniques to remove invasive species;

(x) Non-paved recreational trails no wider than 10 (*Additional Protection Option: 5*) feet that either provide access to the stream or are part of a continuous trail system running roughly parallel to the stream;

(xi) Storage of nonmotorized recreational watercraft measuring less than 15 feet in length;

(xii) Use of temporary erosion control measures, including but not limited to silt fencing, that are installed, maintained and removed after site stabilization is completed according to *New York Standards and Specifications for Erosion and Sediment Control*, most current version;

(xiii) Limited tree cutting, forestry or vegetation management done in accordance with a Forest Stewardship Plan prepared by the Department of Environmental Conservation, a forester who is certified by the Society of American Foresters or such successor organization as is later created, or a Cooperating Consulting Forester with the New York State Department of Environmental Conservation. Any harvest must furthermore be done in accordance with the *New York State Forestry Best Management Practices for Water Quality – BMP Field Guide*. Vegetation management may not compromise the integrity of the stream bank or negatively impact the function of the Primary Riparian Buffer. Tree cutting within 25 [*Additional Protection Option: 50*] feet of the top of stream bank is prohibited. Any such activity must retain at a minimum 60% [*Additional Protection Option: 95%*] of the preexisting tree canopy in the Primary Riparian Buffer at all times. Notwithstanding the foregoing, removal of trees in any location shall be permitted where such trees pose an imminent threat to property or public safety.

(3) Secondary Riparian Buffer

(a) Purpose. The function of the Secondary Riparian Buffer is to filter sediment, nutrients and pollutants in runoff and slow the rate at which runoff enters the Primary Riparian Buffer.

(b) Permitted Uses. Uses within the Secondary Riparian Buffer are restricted to the following:

(i) All uses permitted in the Primary Riparian Buffer;

(ii) Minor recreational structures and improvements to allow passive recreation in the Secondary Riparian Buffer such as decks, picnic tables, playground equipment, and small concrete slabs, which each may not exceed 200 square feet in area, and which in aggregate may occupy no more than 10% of the Secondary Riparian Buffer area on the parcel;

(iii) Fences, provided such structures do not impede floodwaters;

(iv) Landscaping, planting or routine maintenance activities that do not encroach upon or negatively impact the Primary Riparian Buffer.

G. Prohibited Activities in the Riparian Buffer. The following activities are explicitly prohibited in both the Primary and Secondary Riparian Buffers.

(1) Storage or placement of any hazardous materials, including any sewage system. All sewage systems, including drain fields and raised systems, must be located a minimum of 100 feet from a perennial stream. *[For additional protection, change to 150 feet.]*

(2) Knowing or unknowing introduction of invasive vegetative species that may impact vegetation present within the stream corridor. For a listing of invasive vegetation to avoid, refer to the NYSDEC List of Prohibited and Regulated Invasive Species in 6 NYCRR Part 575 and the NYSDEC Division of Materials Management Bureau of Pest Management. If invasive or nuisance species are present on your property, NYSDEC may have developed a protocol to combat that species. Refer to the NYSDEC website for additional information.

(3) Waste storage and disposal, including but not limited to disposal and/or dumping of snow and ice, recyclable materials, manure, hazardous or noxious chemicals, used automobiles or appliances, and other abandoned materials.

(4) Any combination of permitted or exempt activities that may compromise or alter more than 10% of the combined Primary and Secondary Riparian Buffer area that lies within a parcel.

- (5) Mining or removal of soil, sand and gravel, and quarrying of raw materials.
- (6) Widening, straightening or otherwise altering the beds or banks of streams, except where the NYSDEC has issued a permit expressly allowing such activities on the parcel.
- (7) Application of herbicides, pesticides, fertilizers, or other chemicals that contain hazardous substances, as defined in 6 NYCRR Part 597.
- (8) Parking of motorized vehicles, including watercraft.
- (9) Construction or replacement of private wells within 100 feet of perennial streams.
- (10) Altering habitat of threatened or endangered species, as defined at 6 NYCRR Part 182.

H. Protection Requirements for Intermittent Streams. Although seasonal or temporary in nature, ephemeral and intermittent streams provide the same ecological and hydrological functions as perennial streams by moving water, nutrients, and sediment through watersheds. These streams provide hydrological connections across the landscape, absorb high volumes of water during storm events and other high-water flows to reduce erosion and improve water quality. For those streams classified as intermittent, only the Primary Riparian Buffer shall apply, and it shall be measured in the same manner as provided for a perennial stream in Paragraph F(1) of this Section. All provisions applicable to the Primary Riparian Buffers for perennial streams shall apply to intermittent streams.

Farm Operations

1 NYCRR Part 391.1(c) defines farm operation as the land and on-farm buildings, equipment, and practices which contribute to the production, preparation and marketing of crops, livestock and livestock products as a commercial enterprise.

I. Exemptions. The following activities are exempt from the requirements of this Section:

- (1) Agricultural activities on parcels that meet New York State Department of Agriculture and Market’s definition of a farm operation at 1 NYCRR Section 391.1(c).
- (2) Repair or maintenance of any lawful use of land that was approved for such parcel on or before the effective date of this Local Law, or if no approval was required for such use, was lawfully in existence as of said date.

[If incorporating as a separate article in the municipal code, include sections on administration and enforcement, as well as severability. See the Moodna Creek Watershed model for sample language.]

RESOURCES

New York State Standards and Specifications for Erosion and Sediment Control (Blue Book). (2005). NYS Department of Environmental Conservation.⁷⁹

2.2.4 Local Watercourse Law

Many New York municipalities have found local watercourse laws to be an effective technique to fill the gaps in state and federal protection. The example below regulates activities in watercourses as well as a 100-foot buffer measured horizontally from the top of the bank. It requires a permit for construction of structures, roads, and driveways; and for filling, dredging, grading, polluting, damming, or any other activity that may affect the functions of wetlands, watercourses and buffer areas defined in the law.

USAGE

A standalone local law, and often combined with wetland and waterbody protection.

ADAPTED FROM THE FOLLOWING SOURCE

Town of Pawling (NY) Chapter 111: Freshwater Wetlands and Watercourse Protection⁸⁰

LANGUAGE

Refer to Section 2.1.4 Local Freshwater Wetland Law. The introduction to Section 2.2: Watercourse Protection has guidance on defining the watercourses to be protected, defining the regulated buffer, and determining which activities require a permit.

Endnotes

¹ Elevated Residential Structures, FEMA 54 (1984). Retrieved 6/1/18 from <http://www.fema.gov/media-library-data/20130726-1509-20490-6744/fema54.pdf>

² Ibid.

³ Ibid.

⁴ Freshwater and tidal combined, Natural History of New York. Retrieved 6/1/18 from http://www.dec.ny.gov/docs/wildlife_pdf/nathist.pdf

⁵ United States Environmental Protection Agency. (2006). Wetlands: Protecting Life and Property from Flooding Office of Wetlands, Oceans, and Watersheds. Retrieved 6/1/18 from <https://www.epa.gov/sites/production/files/2016-02/documents/flooding.pdf>

⁶ Long Island Tidal Wetlands Trends Analysis Prepared for the New England Interstate Water Pollution Control Commission, NYS DEC (July 2015). Retrieved 6/1/18 from http://www.dec.ny.gov/docs/fish_marine_pdf/bmrwetlandstrends1.pdf

⁷ New York State *Guidance on Natural Resource Measures*. Available soon at <https://www.dec.ny.gov/energy/102559.html>

⁸ [Town of Pawling \(NY\) Wetland and Watercourse Law \(1993\)](http://ecode360.com/6968447). Retrieved 6/1/18 from <http://ecode360.com/6968447>

⁹ Zucker, L. and L. Lau. 2009. An analysis of the size and distribution of geographically isolated, small wetlands in the Hudson River Estuary Watershed. Report prepared for the Hudson River Estuary Biodiversity Program. Cornell University, Ithaca, NY.

¹⁰ Strong, K. 2008. Conserving Natural Areas and Wildlife in Your Community: Smart Growth Strategies for Protecting the Biological Diversity of New York's Hudson River Valley. New York Cooperative Fish and Wildlife Research Unit, Cornell University, and New York State Department of Environmental Conservation, Hudson River Estuary Program. Ithaca, N.Y.

¹¹ McElfish, Jr., J.M., R.L. Kihslinger, and S.S. Nichols. 2008. Planner's Guide to Wetland Buffers for Local Governments. Environmental Law Institute, Washington, DC. Retrieved 6/1/18 from <http://www.eli.org/research-report/planners-guide-wetland-buffers-local-governments>

¹² Ibid.

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- ¹³ Village of Trumansburg (NY) Zoning Ordinance, Article 6, Section 605 Wetland Conservation Overlay District. Retrieved 6/1/18 from http://locallaws.dos.ny.gov/sites/default/files/drop_laws_here/ECMMDIS_appid_DOS20150218075528_45/Content/09021343800092eb.pdf
- ¹⁴ Town of New Castle (NY) Wetlands Law (1990). Retrieved 6/1/18 from <http://ecode360.com/11774386>
- ¹⁵ Town of Pawling (NY) Wetland and Watercourse Law (1993). Retrieved 6/1/18 from <http://ecode360.com/6968447>
- ¹⁶ Town of Poughkeepsie (NY) Aquatic Resource Protection Law (2003). Retrieved 6/1/18 from <http://ecode360.com/6321213>
- ¹⁷ Town of New Paltz (NY) Wetlands and Watercourse Protection Law (2011). Retrieved 6/1/18 from <http://ecode360.com/9168154>
- ¹⁸ Town of Philipstown (NY) Freshwater Wetlands and Watercourses Law (1991). Retrieved 6/1/18 from <http://ecode360.com/6317362>
- ¹⁹ Town of New Castle (NY) Wetlands Law (1990). Retrieved 6/1/18 from <http://ecode360.com/11774386>
- ²⁰ Village of Trumansburg (NY) Wetland Conservation Overlay District (2012). Retrieved 6/1/18 from http://locallaws.dos.ny.gov/sites/default/files/drop_laws_here/ECMMDIS_appid_DOS20150218075528_45/Content/09021343800092eb.pdf
- ²¹ Town of New Castle (NY) Environmental Protection Overlay District (2002). Retrieved 6/1/18 from <http://ecode360.com/11759229>
- ²² Town of Coxsackie (NY) Natural Resource Protection Standards (2008). Retrieved 6/1/18 from <http://ecode360.com/13876388>
- ²³ Town of Woodstock (NY) Wetland and Watercourse Protection Standards (2011). Retrieved 6/1/18 from <http://ecode360.com/109422>

²⁴ Town of Ulysses (NY) Zoning Law. Retrieved 6/1/18 from <https://www.ecode360.com/28859962>

²⁵ *Local Wetland Regulations*. (2013). Kingston, NY: Ulster County Planning Board. Retrieved 6/1/18 from http://ulstercountyny.gov/sites/default/files/documents/wetland_guide.pdf

²⁶ McElfish, Jr., J.M., R.L. Kihlsinger, and S.S. Nichols. (2008). *Planner's Guide to Wetland Buffers for Local Governments*. Washington, DC: Environmental Law Institute. Retrieved 6/1/18 from <http://www.eli.org/research-report/planners-guide-wetland-buffers-local-governments>

²⁷ Kusler, J. (2009). *Model Ordinances for Regulating wetlands, riparian habitats, and stream buffers*. Berne, NY: Association of State Wetland Managers. Retrieved 6/1/18 from http://www.aswm.org/pdf_lib/model_ordinance_1209.pdf

²⁸ *Westchester County Model Ordinance for Wetland Protection*. (1998). Westchester County Soil and Water Conservation District. Retrieved 6/1/18 from <https://planning.westchestergov.com/images/stories/reports/WetlandOrdinance.pdf>

²⁹ *Wetlands Regulation Guidebook for New York State*. (1993). EPA Region 2 EPA-902-R-004. Retrieved 6/1/18 from <https://nepis.epa.gov/Exe/ZyNET.exe/9101NYGT.TXT?ZyActionD=ZyDocument&Client=EPA&Index=1991+Thru+1994&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A%5Czyfiles%5Cindex%20Data%5C91thru94%5Ctxt%5C00000030%5C9101NYGT.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h%7C-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=hpfr&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1&SeekPage=x&ZyPURL#>

³⁰ *Tidal Wetlands Guidance Document: Living Shoreline Techniques in the Marine District of New York State*. (2016). NYS Department of Environmental Conservation, Bureau of Marine Resources. Retrieved 6/1/18 from http://www.dec.ny.gov/docs/fish_marine_pdf/dmrlivingshoreguide.pdf

³¹ Town of Ulysses (NY) Zoning Law. Retrieved 6/1/18 from <https://www.ecode360.com/28859962>

³² Town of Coxsackie (NY) Municipal Code, Chapter 201 Zoning Law, Article VI Natural Resource Protection Standards, Section 201-49 Wetlands. Retrieved 6/1/18 from <http://ecode360.com/13876388>

³³ Village of Trumansburg (NY) Zoning Map (2012). Retrieved 6/1/18 from <http://trumansburg-ny.gov/wp-content/uploads/2016/12/ZoningMap.pdf>

³⁴ Village of Trumansburg (NY) Wetland Conservation Overlay District. Retrieved 6/1/18 from <http://trumansburg-ny.gov/wp-content/uploads/2016/12/2012ZoningOrdinance.pdf>

³⁵ Municipalities may regulate wetlands under the authority of the zoning enabling statutes, Municipal Home Rule Law, or Article 24 of the Environmental Conservation Law.

³⁶ 6 NYCRR Part 665. For more information, see local implementation sections 24-0501 to 24-0705 in the NYS DEC publication, Article 24 Freshwaters (1997) at http://www.dec.ny.gov/docs/wildlife_pdf/wetart24b.pdf

³⁷ Although municipalities may assume regulatory authority over State-designated wetlands pursuant to Article 24 of the Environmental Conservation Law, this is not a recommended approach. As of May 2018, only three local governments in New York have done so.

³⁸ Text adapted from Creating a Natural Resources Inventory: A Guide for Communities in the Hudson River Estuary Watershed (2014). Retrieved 6/1/18 from http://www.dec.ny.gov/docs/remediation_hudson_pdf/nriall.pdf

³⁹ Town of Pawling (NY) Wetland and Watercourse Law. Retrieved 6/1/18 from <http://ecode360.com/6968447>

⁴⁰ Town of Phillipstown (NY) Freshwater Wetlands and Watercourses Law (1991). Retrieved 6/1/18 from <http://ecode360.com/6317362>

⁴¹ Town of Southampton (NY) Wetlands Law, Chapter 325. Retrieved 6/1/18 from <http://ecode360.com/8700002>

⁴² Town of Brookhaven (NY) Municipal Code, Chapter 81 Wetlands and Waterways. Retrieved 6/1/18 from <https://ecode360.com/8596082>

⁴³ Chester County (PA) Watershed Primer Part 3: Streams and Riparian Buffers. Retrieved 6/1/18 from <http://www.chesco.org/2089/Watershed-Primer-Part-3---Strms-RpBuffer>

⁴⁴ Using Natural Resources to Reduce Risk of Flooding and Erosion in New York. NYS DEC, NYS DOS, 2018. **ADD LINK WHEN AVAILABLE**

⁴⁵ Vermont League of Cities and Towns. Creating an Effective Riparian Buffer Ordinance (2007). Municipal Assistance Center Technical Paper #2. Montpelier, VT. Retrieved 6/1/18 from <http://www.hinesburg.org/stormwater/vlct-riparianbuffer-techpaper-2007.pdf>

⁴⁶ Hawes, Ellen and Smith Markelle, Riparian Buffer Zones: Functions and Recommended Widths (2005). Retrieved 6/1/18 from http://eightmileriver.org/resources/digital_library/appendicies/09c3_Riparian%20Buffer%20Science_YALE.pdf

⁴⁷ Kennedy, C., Wilkinson, J. B., Balch, J., & Environmental Law Institute (2003). *Conservation thresholds for land use planners*. Washington, D.C: Environmental Law Institute.

⁴⁸ *River Banks & Buffers, Guidance for Communities in Northern New Jersey Watersheds*, No.7. North Jersey Resource Conservation and Development (2002). Retrieved 6/1/18 from http://northjerseyrcd.org/wp-content/uploads/2010/03/7_Guidance_for_Community.pdf

⁴⁹ Ibid

⁵⁰ Ibid

⁵¹ For additional information about streamway setbacks and river meandering, see the Vermont Agency of Natural Resources' River Corridor Protection Guide, written by Mike Kline and Kari Dolan (2008). Retrieved 6/1/18 from <http://anr.vermont.gov/sites/anr/files/co/planning/documents/guidance/River%20Corridor%20Protection%20Guide.pdf>

⁵² Town of Pawling (NY) Wetland and Watercourse Law. Retrieved 6/1/18 from <http://ecode360.com/6968447>

⁵³ Town of New Paltz (NY) Wetlands and Watercourse Protection Law. Retrieved 6/1/18 from <http://ecode360.com/9168154>

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- ⁵⁴ Town of Philipstown (NY) Freshwater Wetlands and Watercourses Law. Retrieved 6/1/18 from <http://ecode360.com/6317362>
- ⁵⁵ Town of Poughkeepsie (NY) Aquatic Resource Protection Law. Retrieved 6/1/18 from <http://ecode360.com/6321213>
- ⁵⁶ Town of New Castle (NY) Wetlands Law. Retrieved 6/1/18 from <http://ecode360.com/11774386>
- ⁵⁷ Moodna Creek Watershed Intermunicipal Council (NY), Model Stream Overlay District (2014). Retrieved 6/1/18 from http://waterauthority.orangecountygov.com/PROJECTS/MOODNA_CREEK_WATERSHED/Model%20Local%20Law%20Stream%20Corridor%20Mgmt.pdf
- ⁵⁸ City of Newburgh (NY) Waterbody Protection Overlay District. Retrieved 6/1/18 from <http://ecode360.com/30538880>
- ⁵⁹ Town of Coxsackie (NY) Natural Resource Protection Standards. Retrieved 6/1/18 from <http://ecode360.com/13876388>
- ⁶⁰ Town of Wallkill (NY) Shawangunk Kill Corridor Preservation Overlay District. Retrieved 6/1/18 from <http://ecode360.com/30555215>
- ⁶¹ Town of Ulysses (NY) Municipal Code, Chapter 212 Zoning. Retrieved 6/1/18 from <https://www.ecode360.com/28859962>
- ⁶² Town of Woodstock (NY) Wetland and Watercourse Protection Standards. Retrieved 6/1/18 from <http://ecode360.com/109422>
- ⁶³ *Westchester County: A guide to Aquatic Buffers.* (2007). Westchester County Soil and Water Conservation District. Retrieved 6/1/18 from: <https://planning.westchestergov.com/images/stories/stormwater/aquaticbuffersguide.pdf>
- ⁶⁴ *Conservation Thresholds for Land Use Planners.* (2003). Washington, D.C: Environmental Law Institute. Retrieved 6/1/18 from <https://www.eli.org/sites/default/files/eli-pubs/d13-04.pdf>
- ⁶⁵ Kusler, J. (2016). *Model “riparian” Protection Ordinance.* Berne, NY: Association of State Wetland Managers. Retrieved 6/1/18 from: https://www.aswm.org/pdf/lib/model_riparian_protection_ordinance_kusler_030916.pdf

⁶⁶ Kusler, J. (2009). *Model Ordinances for Regulating Wetlands, Riparian Habitats, and Stream Buffers*. Berne, NY: Association of State Wetland Managers. Retrieved online from: https://www.aswm.org/pdf_lib/model_ordinance_1209.pdf

⁶⁷ *Model Stream Overlay District Developed for the Moodna Creek Watershed Intermunicipal Council*. (2014). Moodna Creek Watershed Intermunicipal Council Outreach and Education Committee and the Orange County Planning Department. Retrieved 6/1/18 from http://waterauthority.orangecountygov.com/PROJECTS/MOODNA_CREEK_WATERSHED/Model%20Local%20Law%20Stream%20Corridor%20Mgmt.pdf

⁶⁸ Town of Ulysses (NY) Municipal Code, Chapter 212 Zoning. Retrieved 6/1/18 from <https://www.ecode360.com/28859962>

⁶⁹ U.S Army Corps of Engineers, State of New York 2014 Wetland Plant List. Retrieved 6/1/18 from http://rsgisias.crrel.usace.army.mil/nwpl_static/data/DOC/lists_2014/States/pdf/NY_2014v1.pdf

⁷⁰ Strong, K. (2008). *Conserving Natural Areas and Wildlife in Your Community: Smart Growth Strategies for Protecting the Biological Diversity of New York's Hudson River Valley*. Ithaca, NY: New York Cooperative Fish and Wildlife Research Unit, Cornell University, and NYS Department of Environmental Conservation, Hudson River Estuary Program. Retrieved 6/1/18 from https://www.dec.ny.gov/docs/remediation_hudson_pdf/hrebch.pdf

⁷¹ *Stream Processes: A Guide to Living in Harmony with Streams*. (2016). Horseheads, NY: Chemung County Soil and Water Conservation District. Retrieved 6/1/18 from http://www.stcplanning.org/usr/Program_Areas/Water_Resources/StreamProcessesGuide.pdf

⁷² *Westchester County: A Guide to Aquatic Buffers*. (2007). Westchester County Soil and Water Conservation District. Retrieved 6/1/18 from <http://planning.westchestergov.com/images/stories/stormwater/aquaticbuffersguide.pdf>

⁷³ Town of Coxsackie (NY) Natural Resource Protection Standards. Retrieved 6/1/18 from <http://ecode360.com/13876388>

⁷⁴ New York State Stormwater Management Design Manual. Retrieved 6/1/18 from http://www.dec.ny.gov/docs/water_pdf/swdm2015entire.pdf

⁷⁵ New York State Forestry Best Management Practices for Water Quality – BMP Field Guide, NYS Department of Conservation. Retrieved 6/1/18 from http://www.dec.ny.gov/docs/wildlife_pdf/yfiforestrybmp.pdf

⁷⁶ Moodna Creek Watershed Intermunicipal Council (NY), Model Stream Overlay District (2014). Retrieved 6/1/18 from http://waterauthority.orangecountygov.com/PROJECTS/MOODNA_CREEK_WATERSHED/Model%20Local%20Law%20Stream%20Corridor%20Mgmt.pdf

⁷⁷ The maximum potential erosion rate for any given soil can be determined by using the following formula: $R * K * LS / T < 8$, where R= rainfall, K= erodibility value of the soil, LS= the slope factor, and T= the tolerable erosion rate; factors K, LS, and T are established by the Natural Resources Conservation Service. Highly erodible soils must be verified in the field; a list of highly erodible soils is available from the Orange County Soil and Water Conservation Service.

⁷⁸ Definition of “pollutant” from the federal Clean Water Act, 40 CFR 122.2.

⁷⁹ *New York State Standards and Specifications for Erosion and Sediment Control (Blue Book)*. (2005). NYS Department of Environmental Conservation. Retrieved 6/1/18 from <https://www.dec.ny.gov/chemical/29066.html>

⁸⁰ Town of Pawling (NY) Wetland and Watercourse Law. Retrieved 6/1/18 from <http://ecode360.com/6968447>

Coastal Shoreline Protection Measures



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Publication Date: February 2020

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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 2013*³

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. RECESSON 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 beach 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 SEQRA 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, berming, 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 State 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

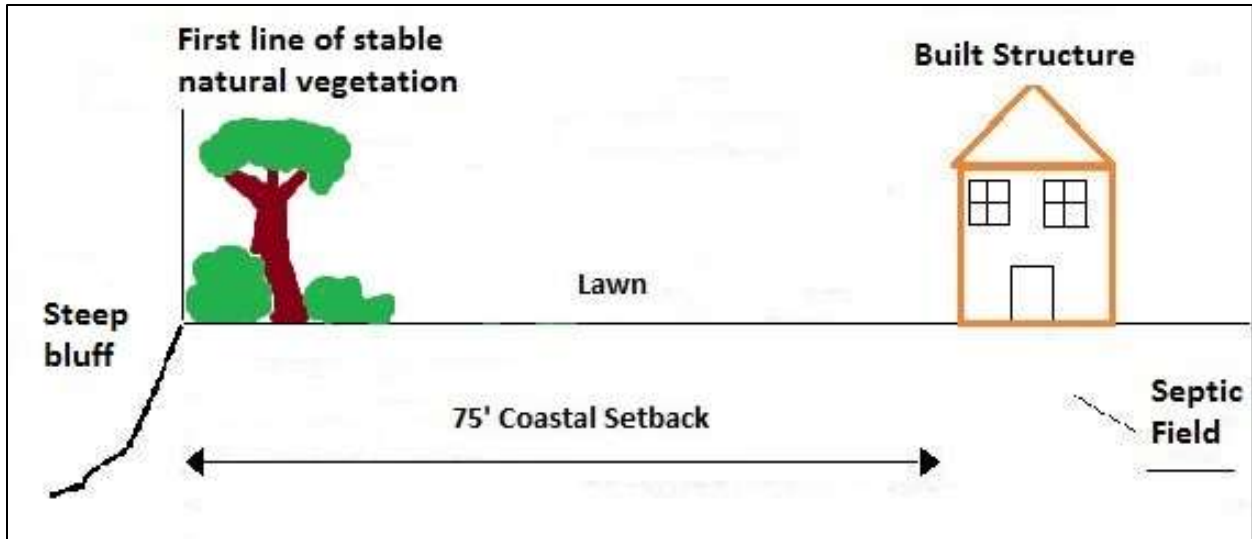
effectively marks the boundary between stable, vegetated upland areas and the dynamic sand, rock or tidal marsh shore. These features are typically observable both on the ground and using satellite imagery, however it should be noted that the first line of stable vegetation may shift landward over time 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

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).

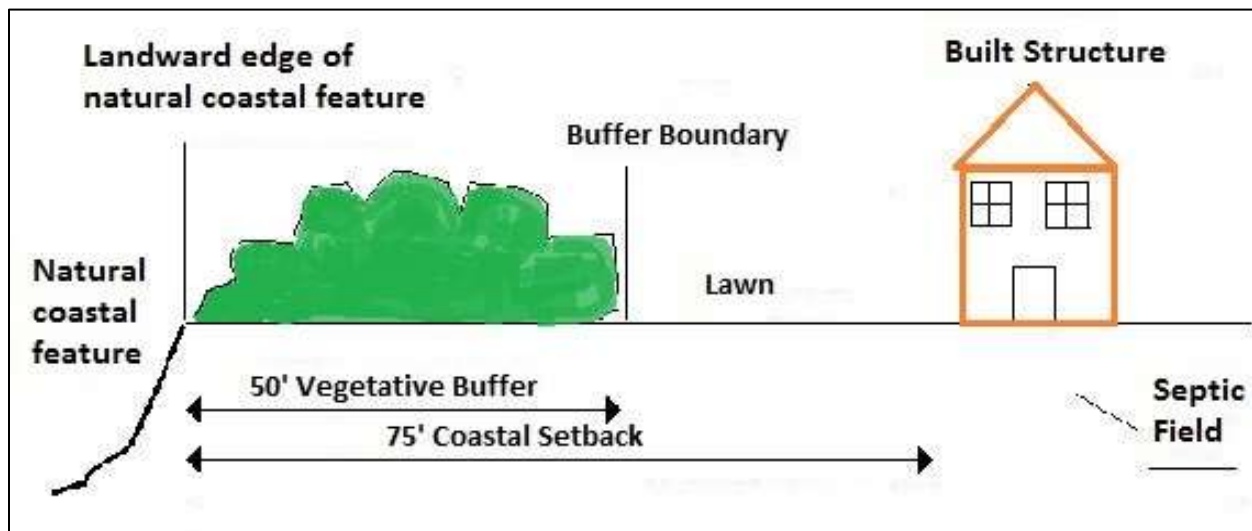
Basic protections for dunes, beaches, and coastal vegetation in this section include the following:

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

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 2018



October 2015

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.

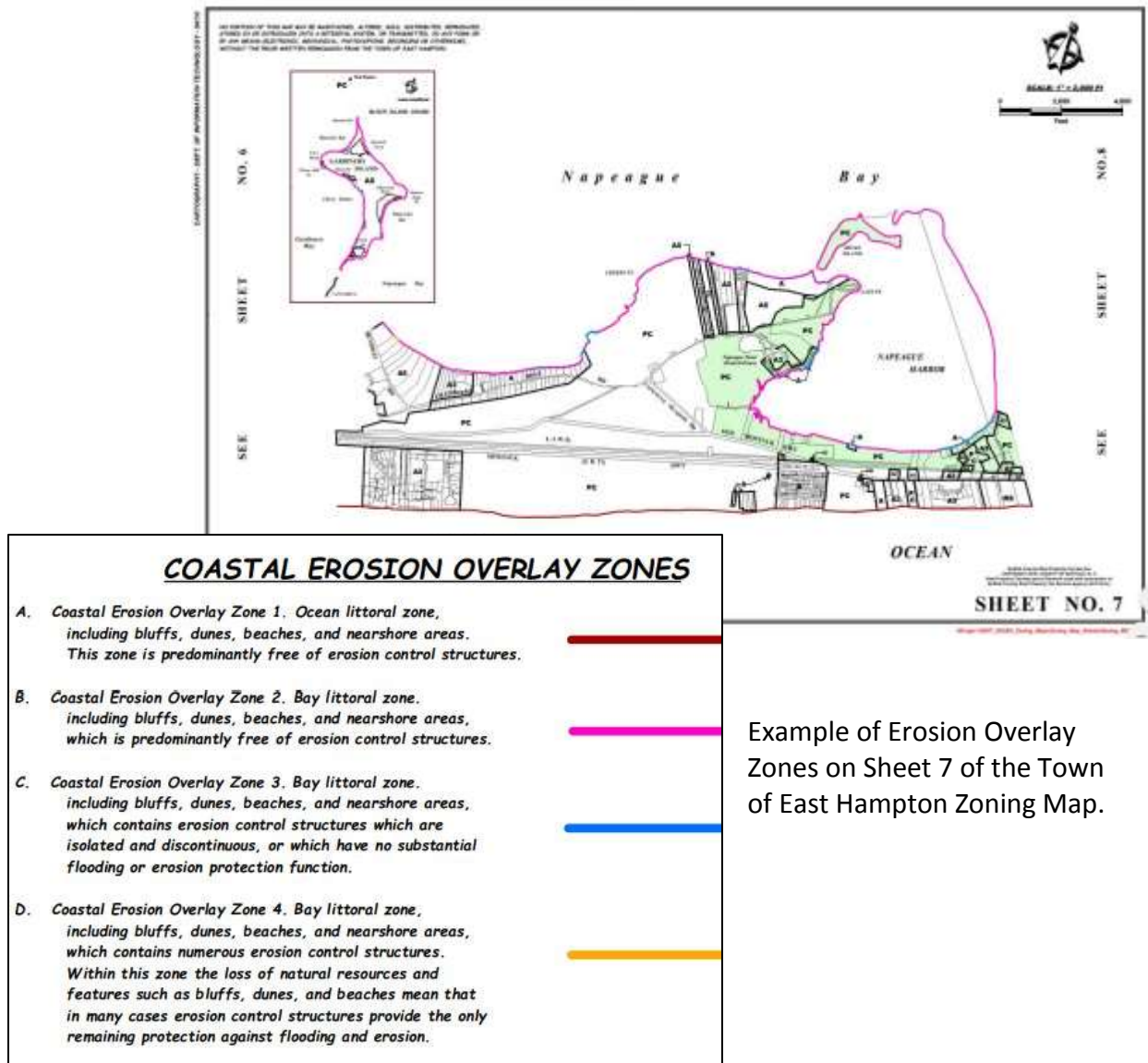
(1) Remedial actions. In addition to the remedies provided for in this section, any person or entity who or which shall violate any of the provisions of section *[insert section number establishing shoreline management special use permits]* entitled

“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.



Example of Erosion Overlay Zones on Sheet 7 of the Town of East Hampton Zoning Map.

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 re-nourishment 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; re-grading 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.

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An aerial photograph showing a wide, muddy brown river flowing through a lush green forest. A small boat is visible in the middle of the river, and several power lines run parallel to the water's edge. The water appears to be overflowing its banks in some areas, inundating nearby land.

Management of Floodplain Development

Floodwaters of the Schoharie Creek inundate area homes and roads. Source: Tim Hogan

Rossana Rosado, Secretary of State

Andrew M. Cuomo, Governor



Department
of State



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>

Publication Date: June 2019

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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.

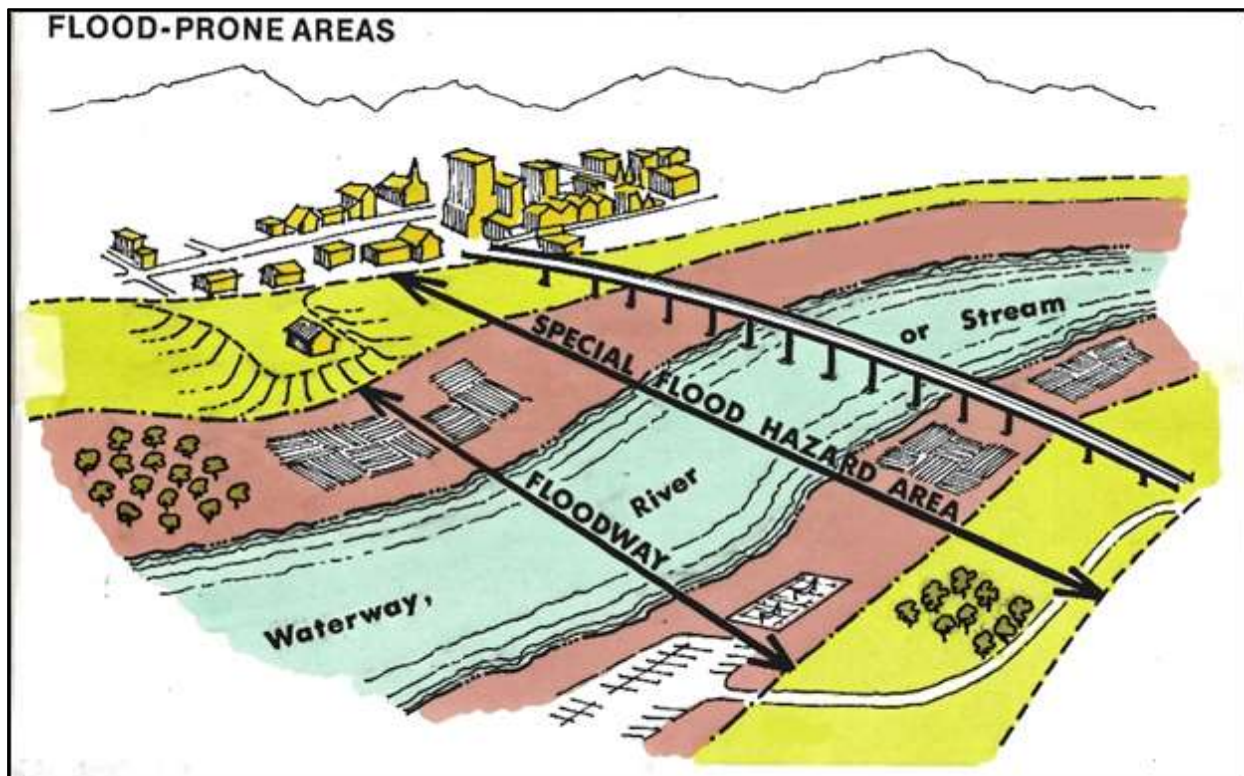
Municipal adoption of model local laws is intended to help local governments and their communities increase resiliency. This publication does not establish any legally binding standards or required criteria for state or municipal government to follow. Use of this guidance by a municipality is not a substitute 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.

4. Management of Floodplain Development

When floodplains are altered, the ability of floodplains to absorb floodwaters and reduce risk from a flood is diminished. Development within a floodplain can make flooding and flood damage more severe and extensive. The most common flood damages arise from:

- Direct damage during a flood from inundation, high velocity flow, waves, erosion, sedimentation and/or flood-borne debris;
- Degradation of building materials, either during the flood or sometime after the flood; and
- Contamination of buildings due to flood-borne substances or mold.

Climate change in New York is expected to increase the extent of flooding in the state. Precipitation intensity, the amount of rainfall that occurs in a single event, is projected to increase everywhere as temperatures increase. Short, intense precipitation events can exceed the ability of rainwater to infiltrate into the ground, which can dramatically increase runoff and the potential for flooding.¹ Sea level rise is increasing storm surge elevations from coastal storms and threatening some low-lying areas with gradual inundation, and climate change may increase the severity of tropical storms and hurricanes.



Establishing development setbacks that reduce encroachment into floodplains and leaving floodplains as open space will increase municipal resilience to floods and minimize damage

from future flooding, particularly within the areas where streams and rivers naturally meander and shorelines adjust to tides, currents, storms and rising sea level.

Nearly all municipalities in New York have flood damage prevention laws², which are a critical component of reducing municipal risk from damaging floods, and a critical requirement that must be met to qualify municipalities for the National Flood Insurance Program (NFIP). Such laws create minimum standards for resilient development in Federal Emergency Management Agency (FEMA) mapped special flood hazard areas and qualify municipalities for participation in the NFIP. NFIP participation is required by federal law to allow federally backed flood insurance to be sold within the municipality and is required for the municipality to be eligible for federal disaster assistance for structures in mapped floodplains. If the development standards are enforced, flood damages due to inundation are reduced. However, flood damage prevention laws do not typically limit density or use of land in floodplains, prevent floodwater conveyance areas from being reduced, prevent valley storage from being filled, or consider increased flood risk due to development, sea level rise, or increased precipitation due to climate change.

Laws that govern the use, siting, design, construction, and maintenance practices in floodplain areas can complement flood damage prevention laws and help minimize the likelihood and impacts of flood damages.

Municipalities are encouraged to consider incorporating the “No Adverse Impact” principle into their local laws and project reviews. Developed by the Association of State Floodplain Managers (ASFPM), the approach ensures that actions of a municipality or property owner will not adversely impact the property and rights of others. A municipality can follow that principle by making sure that the actions taken in its floodplain, and throughout its part of the watershed, do not lead to adverse impacts on other property.³ If adverse impacts would occur, the impacts should be mitigated to prevent transferring problems to another property or municipality.

To incorporate the “No Adverse Impact” concept, a municipality should:

- Decide what an “adverse impact” is in the municipality. Adverse-impact concerns should be based on the municipality’s physical, environmental, social and economic condition and incorporated into plans and policies. For example, it could be impacts on water quality, increase in debris and sediment blockage, or coastal erosion.
- Evaluate its hazards and programs, with the goal of lessening the impacts of actions on other property owners and communities.;
- Identify existing adverse impacts in the floodplain and throughout the watershed.
- Use its resources to reduce or eliminate existing adverse impacts.

Municipal floodplain laws may require a higher standard than state and federal (FEMA) regulations, but even under the “No Adverse Impact” concept they may not require less than state and federal regulations in order to participate in the National Flood Insurance Program. For example, they may require higher flood protection elevations, limit use and density in floodplains, and establish buffer and setback requirements for development adjacent to coasts

and riverine floodplains. Homeowners in municipalities that adopt additional standards and policies and carry out certain activities that reduce flood risk may qualify for reduced flood insurance rates if the municipality participates in the NFIP Community Rating System (CRS). CRS is a FEMA program that provides discounts for communities that take measures that are beyond the minimum requirements of the National Flood Insurance Program (NFIP). CRS participation is only open to individual towns, cities and villages; however, counties, watershed associations, and regional planning agencies can assist with the CRS application process. Examples of counties, watershed associations and regional planning agencies that have assisted individual communities include Delaware and Schoharie counties, the Southern Tier Central Regional Planning and Development Board, and the Ashokan Watershed Stream Management Program.

The NYS Department of Environmental Conservation (NYSDEC) Bureau of Flood Protection and Dam Safety reviews proposed new or amended floodplain laws to ensure compatibility with the NFIP. Proposals should be sent to:

NYS Department of Environmental Conservation
 Division of Water, Bureau of Flood Protection and Dam Safety
 625 Broadway, 4th Floor
 Albany, NY 12233-3504.
floodplain@dec.ny.gov

Municipalities in New York State use a variety of local law techniques to manage floodplain development and to limit damage from flooding. The table below summarizes the variety of regulatory techniques that are described in this chapter, as well as other chapters of the Model Local Laws.

Floodplain Management Model Local Laws	
Technique	Description
Floodplain Overlay District	A zoning overlay district that restricts uses in the floodplain.
Floodplain and Wetland Resource Conservation Overlay District	A zoning overlay district to apply performance standards to new development in stream corridors, including floodplains, buffer areas, and regulated wetlands.
Flood Damage Prevention Laws	Local laws that meet or exceed NFIP guidelines that reduce municipal risk from damaging floods.
Examples from other Chapters in the Model Local Laws Publication	
Subdivision in Flood Prone Areas	Prohibit the subdivision of land for residential use if it is subject to flooding and deemed by the Planning Board as uninhabitable. See example in <i>Basic Land Use Tools for Resiliency</i> Chapter.

Protection of Natural Features in a Subdivision	Provisions in local subdivision regulations to protect natural features including floodplains. See example in the <i>Basic Land Use Tools for Resiliency</i> Chapter, such as protection of natural features in a subdivision and cluster or conservation subdivision where floodplains are preserved as open space.
Prohibit Substantial Improvements to Nonconforming Uses or Structures in a Flood Protection District	Would prohibit substantial improvements to nonconforming uses or structures in a flood protection district and require flood insurance for remaining nonconforming structures. See example in the <i>Basic Land Use Tools for Resiliency</i> Chapter.
Transfer of Development Rights	Transfer of Development Rights provides ways to preserve open space to maintain floodplains and retain stormwater. See example in the <i>Basic Land Use Tools for Resiliency</i> Chapter.
Stormwater and Erosion Control Laws	Zoning provisions designed to reduce erosion and runoff from new development. See example in <i>Stormwater Control Measures</i> Chapter.
Watercourse Protection	Watercourse protection measures usually include buffers and development setbacks from streams and rivers. See examples in <i>Wetland and Watercourse Protection Measures</i> Chapter.

Flood Protection Terminology

Area of Special Flood Hazard Area: The land in the floodplain within a community subject to a one percent or greater chance of flooding in any given year. This area may be designated as Zone A, AE, AH, AO, A1-A30, A99, V, VO, VE, or V1-V30. It is also commonly referred to as the base floodplain or 100-year floodplain. For purposes of [a flood damage prevention law], the term “special flood hazard area (SFHA)” is synonymous in meaning with the phrase “area of special flood hazard.”¹

Coastal High Hazard Area: An area of special flood hazard extending from offshore to the inland limit of a primary frontal dune along an open coast and any other area subject to high velocity wave action from storms or seismic sources. The area is designated on a FIRM as Zone V1-V30, VE, Vo or V.¹

Base Flood: The flood having a 1-percent chance of being equaled or exceeded in any given year.²

Base Flood Elevation (BFE): The elevation of the base flood, including wave height, relative to the National Geodetic Vertical Datum (NGVD), North American Vertical Datum (NAVD) or other datum specified on the Flood Insurance Rate Map (FIRM).²

Design Flood: The flood associated with the greater of the following two areas:

1. Area with a flood plain subject to a 1-percent or greater chance of flooding in any year.
2. Area designated as a flood hazard area on a community’s flood hazard map, or otherwise legally designated.²

Design Flood Elevation (DFE): The elevation of the “design flood,” including wave height, relative to the datum specified on the community’s legally designated flood hazard map. In areas designated as Zone AO, the design flood elevation shall be the elevation of the highest existing grade of the building’s perimeter plus the depth number (in feet) specified on the flood hazard map. In areas designated as Zone AO where a depth number is not specified on the map, the depth number shall be taken as being equal to 2 feet (610 mm).²

Development: Any man-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, paving, excavation or drilling operations or storage of equipment or materials.¹

Source of Definition

¹ NYSDEC Model Local Law for Flood Damage Prevention

² 2015 International Building Code (3rd Printing as adopted by New York State)

Flood Protection Terminology (Continued)

Flood or Flooding: A general and temporary condition of partial or complete inundation of normally dry land areas from:

1. The overflow of inland or tidal waters.
2. The unusual and rapid accumulation or runoff of surface waters from any source.^{2, 1}

"Flood" or "flooding" also means the collapse or subsidence of land along the shore of a lake or other body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels or suddenly caused by an unusually high water level in a natural body of water, accompanied by a severe storm, or by an unanticipated force of nature, such as a flash flood or an abnormal tidal surge, or by some similarly unusual and unforeseeable event which results in flooding as defined in (1) above.¹

Flood Insurance Rate Map (FIRM): An official map of a community, on which the Federal Emergency Management Agency (FEMA) has delineated both the special flood hazard areas and the risk premium zones applicable to the community.²

Floodplain or Flood-prone Area: Any land area susceptible to being inundated by water from any source (see definition of "Flooding").¹

Floodway or Regulatory Floodway: The channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height as determined by the Federal Emergency Management Agency in a Flood Insurance Study or by other agencies as provided in Section 4.4-2 of [the flood damage prevention] Law.¹

Editor's Note: In New York, the height is 0.00 feet, i.e., no measurable rise.

Freeboard: A factor of safety expressed in feet (mm) above the design flood elevation.³

Uniform Code: An abbreviated reference to the NYS Uniform Fire Prevention and Building Code.

Source of Definition

¹ NYSDEC Model Local Law for Flood Damage Prevention

² 2015 International Building Code (3rd Printing as adopted by New York State)

³ Uniform Code

RESOURCES

Kusler, Jon. (2003). *Common Legal Questions about Floodplain Regulations in the Courts, 2003 Update*.⁴

Chapter 4 Regulatory Tools. In *Reducing Damage from Localized Flooding: A Guide for Communities*. (2011). FEMA 511-05⁵

No Adverse Impact: A Toolkit for Common Sense Floodplain Management. (2003). Association of State Floodplain Managers. ⁶

National Flood Insurance Program Community Rating System Coordinator's Manual. (2017). FEMA FIA-15.⁷

The Southern Tier Central Regional Planning and Development Board provides several fact sheets related to floodplain management, as well as floodplain management forms.⁸

New York State Flood Risk Management Guidance for Implementation of the Community Risk and Resiliency Act⁹

National Flood Insurance Program Community Rating System CRS Credit for Higher Regulatory Standards. (2006). FEMA. ¹⁰

4.1 Limit Development in 100-Year or 500-Year Floodplain

A municipality may choose to limit development in a flood hazard area through zoning restrictions. One method is to create overlay districts that are contiguous with the FEMA mapped Special Flood Hazard Area within the municipality. To provide more protection, the municipality could define the boundary as the 500-year floodplain (0.2 percent or greater annual chance of flood).

For example, the Land Conservation District in the City of Utica (NY) is defined by the boundary of the 100-year floodplain and floodway.¹¹ However, land outside the floodplain and floodway are not necessarily free from flood risk. Utica includes a disclaimer that the designation of the district does not imply that land outside of it will be free from flooding.

The provisions of a municipal flood damage prevention law could be incorporated into the floodplain overlay district or incorporated by reference to its place in the municipal code book. A key element of the overlay district is the list of allowed and restricted uses.

USAGE

Incorporate into the regulations and standards section of the municipal zoning law and amend the district use regulations.

ADAPTED FROM THE FOLLOWING SOURCE

Town of Dover (NY) Municipal Code, Chapter 145: Zoning, Article IV: Overlay District Regulations, Section 145-13 Floodplain Overlay District¹²

Town of Ancram (NY) Zoning Law, Article V Supplemental Regulations, A. Regulations for All Districts, 12. Flood Prevention¹³

LANGUAGE

Section X. Floodplain Overlay District.

A. General. The provisions of [*insert chapter number for the Flood Damage Prevention law*] are incorporated herein by reference and shall apply in addition to any other applicable zoning or building regulations.

B. Boundaries. The Floodplain Overlay District shall be the [*one-hundred-year/five-hundred-year*] floodplain, as defined in [*insert section number containing zoning definition of floodplain*]. The boundaries shown on the Overlay District Map are approximate.

C. Prohibited activities. The following uses are prohibited within the Floodplain Overlay District:

- (1) New structures intended for human habitation;
- (2) Dry cleaners;
- (3) New septic tanks, leach fields, or other sanitary sewage systems;
- (4) Storage of petroleum or chemical products;
- (5) Slaughterhouses;
- (6) Manure storage; and
- (7) Placement of fill.

[Other uses could be added, such as golf courses or campgrounds, due to safety or their potential for contamination.]

Such restrictions shall not prevent the replacement of existing facilities.

[Alternatively, the municipality may wish to restrict repairs to flood-damaged structures.]

D. Permitted activities subject to planning board review. Applications for uses within the floodplain overlay district that require subdivision review, site plan review, or the granting of a special use permit shall be submitted to the Planning Board for review to assure that approvals for such applications are consistent with the need to minimize flood damage or potential pollution of sensitive groundwater supplies in those locations.

(1) The planning board shall require as a condition of approval that the applicant for a permit related to a business, whose property is located in the floodplain overlay district and also lies partially or completely in an underlying *[insert name of industrial district]*, demonstrate the measures he or she will take to store and protect petroleum and chemical products from exposure to and distribution by floods.

(2) The planning board shall require that all structures, public utilities, and facilities shall be located, elevated and constructed to minimize or eliminate flood damage, and that adequate drainage shall be provided so as to reduce exposure to flood hazards in accordance with the *[City/Town/Village]* Flood Damage Prevention law.

4.2 Floodplain and Wetland Resource Conservation Overlay District

New York has seen an increase in the frequency, intensity, and duration of extreme precipitation events and coastal storm flooding. Total annual precipitation amounts in the Northeast have increased by approximately 3.3 inches over the last 100 years, which impacts our rivers, streams, coastlines and lakefronts. In some locations, flooding has approached or exceeded 500-year flood levels.

FEMA provides flood hazard maps that show areas prone to flooding. However, about one-third of flood insurance claims are for properties outside of mapped “special flood hazard areas.”¹⁴ Also, according to staff of the NYSDEC Bureau of Flood Protection and Dam Safety, Flood Insurance Rate Maps (FIRMs) in New York State do not demonstrate the extent of flooding from ice jams or wave run up and wave action along the coasts of the Great Lakes (as of 2018). Damage from flooding can be reduced by land use planning and by building smarter. This approach establishes a conservation buffer zone that includes areas both in and outside of the floodplain. It establishes additional standards for all development in the 100-year FEMA floodplain as well as a 500-ft. buffer zone. (A buffer zone could be greater or less than 500 feet.) The buffer zone would be either adjacent to the floodplain or, where no Special Flood Hazard Area has been mapped, measured from the center line of an adjacent perennial stream.

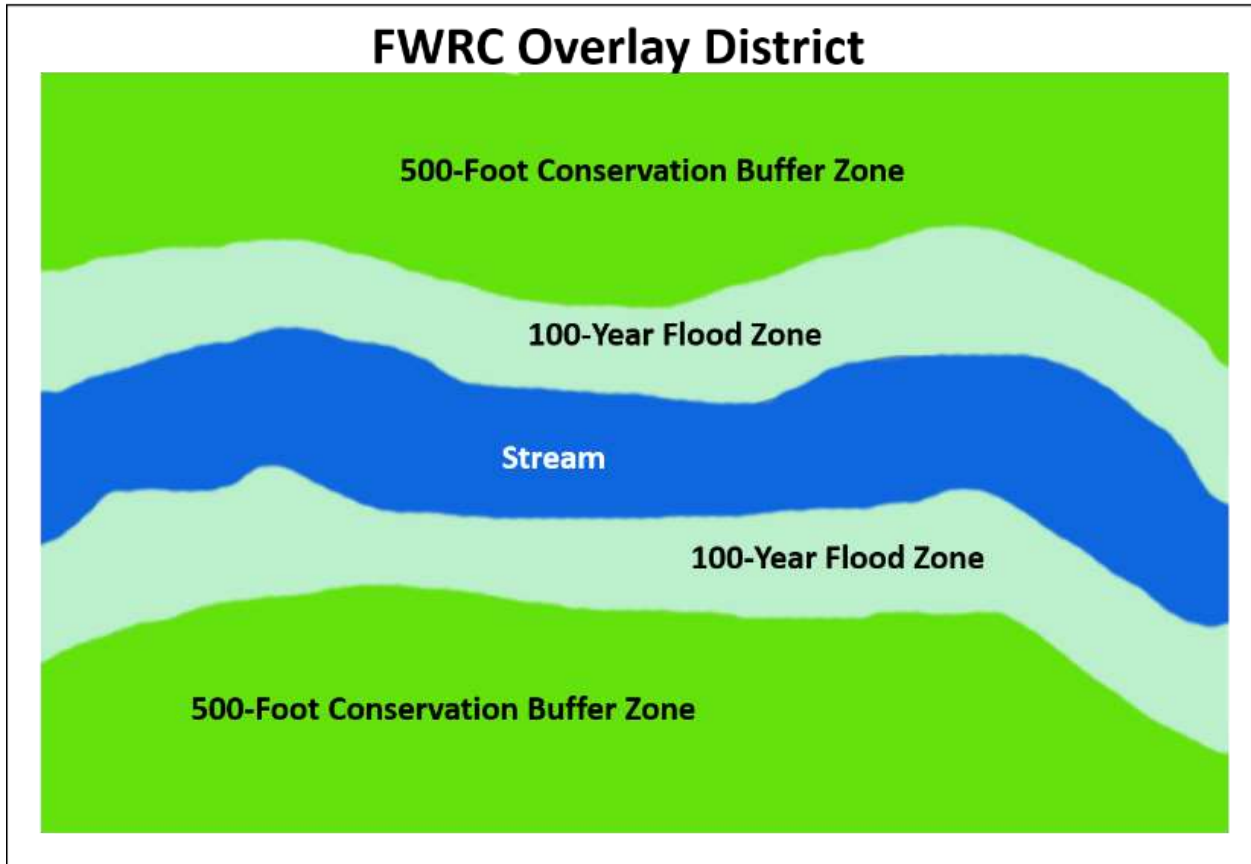
Floodplain Map Limitations

“The regulatory floodplain on the Flood Insurance Rate Map (FIRM) may not adequately identify all of a community’s at-risk areas. There are several reasons why some local flooding areas may be missing from the community’s FIRM.

- Smaller problem areas do not show up as Special Flood Hazard Areas (SFHAs) because Federal Emergency Management Agency (FEMA) mapping standards focus on larger flood problems, such as watersheds larger than 1 square mile.
- Conditions may have changed since the study was conducted to produce the FIRM, which could be over 10 or 20 years old. [Some New York maps are over 40 years old.]
- When the FIRM was prepared, an area may not have been known to have a flood problem or it may not have had much development activity, so it was not studied.
- The study criteria may not reflect all types of flood-related hazards, including dam or levee failure, stormwater flooding, or land subsidence.”

Source: Chapter 4 Regulatory Tools, from *Reducing Damage from Localized Flooding: A Guide for Communities*. (2005) FEMA. Retrieved 6/12/18 from <https://www.fema.gov/media-library/assets/documents/1012>

The image below illustrates the area that could be included in a floodplain and wetland conservation overlay district.



RESOURCES

Wagner, K., Neuwirth, J., & Janetschek, H. (2009). *Flood risk – Prevention and Impact on Agricultural Lands. Federal Institute of Agricultural Economics.*¹⁵

NYS Department of Environmental Conservation. (1986). *Stream Corridor Management: A Basic Reference Manual.*¹⁶

USAGE

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 municipal zoning law that establishes zoning districts to include the new overlay district. Add the criteria needed to evaluate applications for special use permits in the description of the overlay district.

ADAPTED FROM THE FOLLOWING SOURCE

Town of Greenfield (NY) Municipal Code, Chapter 105 Zoning, Article X Overlay District Requirements, Section 105-112 Floodplain Management, Wetland Resource Conservation Overlay District (FMWRC)¹⁷

LANGUAGE

Section X. Floodplain and Wetland Resource Conservation Overlay District (FWRC)

A. Statement of purpose.

(1) The purpose of the Floodplain and Wetland Resource Conservation Overlay District (FWRC) is to regulate land development within flood hazard zones, wetlands and the *[insert name of specific watershed]*. Population growth, attended by housing, roads and other development, along with increased demands on the *[city/town/village]*'s natural resources, has been found to be encroaching on, despoiling or eliminating many of the *[city/town/village]*'s wetlands, water bodies, watercourses and other natural resources and processes associated therewith.

(2) The conservation, preservation and maintenance of these natural resources in an undisturbed and natural condition constitutes important physical, ecological, social, aesthetic, recreational and economic assets necessary to promote the health, safety and general welfare of present and future residents of the *[city/town/village]* and of downstream drainage areas.

(3) It is the intent of this district to provide for the protection, preservation, proper maintenance and use of the *[city/town/village]*'s water bodies, watercourses and wetlands by preventing or minimizing erosion due to flooding and stormwater runoff, flooding of downstream lands, maintaining the natural groundwater supplies, and preserving and protecting the purity, utility, water-retention capability, ecological functions, recreational usefulness and natural beauty of all water bodies, watercourses and wetlands and other related natural features of the terrain.

(4) Specifically, the following objectives pertain:

(a) To minimize the threat to life and the destruction of property and natural resources from flooding and preserve and/or reestablish natural floodplain hydrologic function.

(b) To maintain, protect and enhance water quality and associated aquatic resources and water supply within the *[mention specific watershed]*.

(c) To enhance the cultural, recreational and visual amenities of the [*insert name of specific stream*] corridor.

(d) To maintain, protect and enhance water quality and associated resources and water supply within the confines of wetlands within the [*city/town/village*].

B. Applicability. In addition to the requirements of [*insert chapter number for the Flood Damage Prevention law*] of the [*City/Town/Village of _____*] Code, the following standards for the FWRC Overlay District shall apply to any lands meeting any of the following criteria:

(1) All lands within the 100-year [*alternatively, 500-year*] flood zone as determined by the Federal Emergency Management Agency.

(2) A 500-foot conservation buffer zone adjacent to the 100-year (one percent or greater annual chance) flood zone [*alternatively, the 500-year flood zone or 0.2 percent or greater annual chance*] or, where no flood zone exists, measured from the center line of the stream.

(3) All lands designated as New York State Department of Environmental Conservation regulated wetlands.

(4) All lands designated as federally regulated wetlands by the United States Army Corps of Engineers.

C. Permitted, accessory and special uses. All uses allowed in the underlying zoning district, including permitted uses, accessory uses and special uses, shall be permitted only as a special use in the FWRC Overlay District. Each use shall require a special use permit in compliance with [*insert chapter number for special use permits*]; [*insert chapter number for the Flood Damage Prevention law*]; and the additional standards of this section. Within the 500-foot conservation buffer zone, a special use permit is not required for a minor exterior structural addition or alteration (defined as an enclosed porch, deck, stairway or other similar facility).

D. Space and bulk standards. Any building, structure or use of land within FWRC District shall comply with the space and bulk requirements of the underlying zoning district.

E. Additional standards. Any building, structure or use of land within the FWRC Overlay District shall comply with the following requirements:

(1) No development shall be allowed, other than construction of piers, docks and similar water-dependent uses that have been permitted, providing such uses comply with permitting requirements and the criteria in paragraph (E)(3) below. For the purposes of this section, "Development" means any man-made change to improved or unimproved

real estate, including but not limited to buildings or other structures, mining, dredging, filling, paving, excavation or drilling operations or storage of equipment or materials.

(2) Within the 500-foot conservation buffer zone, no development may take place unless such development is determined by the Planning Board to be in compliance with the following criteria:

(a) That environmental resource constraints are fully considered in establishing land use patterns in the stream corridor.

(b) That open space and visual amenities in rural areas are maintained and preserved by establishing and maintaining greenbelts or vegetated buffer strips along the stream corridor.

(c) That development in the stream corridor is consistent with the historical and cultural character of the surroundings and fully reflects the need to protect visual amenities.

(d) That disturbance of streambeds and streambank erosion are minimized and, where practical, eroding streambanks shall be restored to a natural or stable condition.

(e) That runoff from development areas is controlled such that it does not unnecessarily increase the frequency and intensity of flooding at the risk of threatening life and property.

(f) That the natural vegetative canopy along the stream corridor is maintained or restored to ensure that midsummer stream temperatures do not exceed tolerance limits of desirable aquatic organisms.

(g) That accelerated enrichment of the stream corridor and contamination of waterways from runoff containing nutrients, pathogenic organisms, organic substances and heavy metals and toxic substances are minimized.

(h) Floodplain development criteria for special flood hazard areas.

(i) That base flood elevation data is provided regardless of the proposed development size.

(j) That other data or evidence as may be requested by the Planning Board pertaining to flood and site plan information has been submitted.

F. Performance standards. The following performance standards apply to any land within the 500-foot conservation buffer zone, in addition to the requirements of *[insert reference to zoning article or chapter containing supplementary regulations, and code chapter containing flood damage prevention law]*:

(1) Agriculture.

(a) An untilled filter strip of natural vegetation shall be retained between the tilled ground and the normal high-water mark of the surface waters protected by this district, in accordance with a plan designed after New York State Department of Environmental Conservation guidelines for preventing erosion and sedimentation.

(2) Clearing and noncommercial tree cuttings.

(a) The clearing of trees and conversion to other vegetation is permitted for approved development. Where such clearing extends to the shoreline, a cleared opening(s) not greater than twenty-five feet in width for every one hundred feet of shoreline (measured along the normal high-water mark) may be created. This opening applies to all areas up to fifty feet inland from the normal high-water mark and paralleling the shoreline. Where the natural vegetation is removed, it is to be replaced with other vegetation that is equally effective in retarding erosion and preserving natural beauty. The total width of any opening to the shore shall not exceed forty feet.

(b) Tree cutting for noncommercial purposes is permitted, provided that no more than fifty percent of existing trees six or more inches in diameter, measured at four feet above ground level, are removed from any contiguous stand or grouping of trees. In no case shall the area of contiguous clearing exceed 7,500 square feet.

(3) Erosion and sedimentation control.

(a) On slopes greater than fifteen percent, there shall be no grading or filling within one hundred feet of the normal high-water mark, other than for road construction or water crossings, except to protect the shoreline and prevent erosion.

(b) Development activities shall be conducted in such a manner as to prevent, to the maximum extent possible, erosion and sedimentation loading of surface waters. Such activities shall incorporate the following practices:

[1] As little bare ground as possible shall be exposed and for as short a time as is feasible.

[2] Full use shall be made of temporary ground cover, such as mulch, and permanent cover, such as sod, to stabilize fill and disturbed areas.

[3] Sediment shall be trapped by diversion ditches, silting basins, terraces, siltation fences, and other devices.

[4] The sides of channels or artificial watercourses shall be constructed with side slopes of two units horizontal distance to one unit vertical or flatter, unless bulkheads or riprapping are provided and the sides are stabilized to prevent slumping.

(4) Wetland alteration.

(a) No filling, dredging or other earthmoving shall be carried out within the limits of a wetland as identified by the New York State Department of Environmental Conservation (NYSDEC) except in connection with road construction as set forth under Subsection F of this section.

(b) Within [*insert number such as one hundred*] feet of any NYSDEC-designated wetland, the land shall be maintained in a natural vegetative state and no buildings, structures or impervious surfaces shall be placed or erected.

(c) Pursuant to NYS Environmental Conservation Law, within one hundred feet of a NYSDEC-designated wetland, a NYSDEC permit shall be obtained for the placement of buildings, structures, subsurface drainage or impervious surfaces, prior to their placement or erection.

(5) Roads and water crossings.

(a) All cut or fill banks and areas of exposed mineral soil outside the roadbed within [*insert number such as one hundred*] feet of flowing streams or standing beds of water shall be revegetated or otherwise stabilized so as to reasonably prevent erosion and sedimentation of water bodies. Temporary erosion control measures, including siltation fences or other devices, will be installed where appropriate and/or required by the [*City/Town/Village*] Engineer.

(b) Road banks shall have a slope no greater than two horizontal units to one vertical unit, extending back [*insert number such as one hundred*] feet from the normal high-water mark of flowing streams or standing beds of water.

(c) Drainage ditches are to be provided so as to effectively control water entering and leaving the road area within [*insert number such as one hundred*] feet of the normal high-water mark of flowing streams or standing beds of water. Such drainage ditches will be properly stabilized so that the potential for erosion is minimized.

(d) To prevent road surface drainage from directly entering water bodies, roads and their associated drainage ditches shall be located, constructed and maintained to provide an unscarified filter strip, of at least the width indicated below in Table A, between the road and the normal high-water mark of a surface water body. This requirement does not apply to road approaches to water crossings.

Table A	
Average Slope of Land Between Road and Normal High-Water Mark (percent)	Width of Strip Between Road and Normal High-Water Mark (linear feet along surface of ground)
0	25
10	45
20	65
30	85
40	105
50	125
60	145
70	165

(e) Bridges and culverts shall be installed and maintained in a manner consistent with the New York State Bridge Manual and New York State Department of Environmental Conservation guidelines for stream crossings. In particular, bridges and culverts in tidal areas should be sized to accommodate the higher of the 0.2-percent annual chance flood (Q500) or a range of sea-level rise projections, up to and including the New York State high sea-level rise projection for critical bridges and culverts and the medium projection for non-critical infrastructure. In non-tidal areas, design of bridges and culverts should incorporate the higher of the vertical flood elevation and corresponding horizontal floodplain that result from increasing current, relevant peak flows, e.g., Q50, Q100, to account for projected peak flows for the full, expected service life of the infrastructure, adding freeboard per current applicable engineering requirements or recommendations (three feet preferred), and extending this level to its intersection with the ground, or the vertical flood elevation and corresponding horizontal floodplain subject to flooding from the 0.2-percent annual chance flood (Q500).

(f) Culverts used in water crossings shall be installed at or below streambed elevation, be seated on firm ground, have soil compacted at least halfway up the side of the culvert, be covered by soil to a minimum depth of one foot or according to the culvert manufacturer's specifications, whichever is greater, and have a headwall at the inlet end which is adequately stabilized by riprap or other suitable means to avoid erosion of material around the culvert. These standards do not apply to any water crossing or encroachment regulated by any county, state or federal body.

(6) Subsurface sewage disposal. All subsurface sewage disposal facilities shall be installed in conformance with the New York State Department of Health Standards for Individual Water Supply and Individual Sewage Treatment Systems as well as other appropriate

State of New York and [City/Town/Village of _____] regulations. In addition, the following standards apply:

(a) All subsurface sewage disposal systems shall be located in areas of suitable soil and size to meet state standards.

(b) The minimum setback for subsurface sewage disposal facilities with design flows of three hundred gallons per day or less shall be no less than one hundred horizontal feet from the normal high-water mark of the regulated stream(s) or wetland. Systems with design flows of greater than three hundred gallons per day shall have a minimum setback of three hundred horizontal feet.

(7) Timber harvesting. Commercial timber harvesting, other than for road building and water crossings or that is in conjunction with development activities, is prohibited in the FWRC Overlay District.

A municipality should also consider adding a definition of “Normal High-Water Line” to the definitions section of the zoning law. For example:

Normal High-Water Line: Means the line on the shore, running parallel to the main stem of the river or stream, established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the immediate bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.¹⁸

4.3 Flood Damage Prevention Laws

The NYS Department of Environmental Conservation (NYSDEC) Bureau of Flood Protection and Dam Safety provides coordination, technical support, and training for floodplain management. To participate in the National Flood Insurance Program (NFIP)¹⁹, a municipality must adopt and enforce a local flood damage prevention law that is in substantial compliance with the model law provided by the state. Model flood damage prevention laws are provided to guide communities in adopting local laws that meet NFIP requirements. The NYSDEC Bureau of Flood Protection and Dam Safety provides such model laws to communities upon request.

NYSDEC Bureau of Flood Protection and Dam Safety reviews proposed new or amended floodplain laws submitted by municipalities seeking to adopt or amend local flood damage prevention laws to ensure they comply with FEMA and state minimum requirements.

FEMA has calculated that buildings built to the standards reflected in the model local laws suffer 70 percent less flood related damage than unprotected buildings during occurrence of the base flood (i.e., one percent annual chance floor or 100-year flood). However, they can still suffer damage, so higher protection levels are warranted in most instances. For example, floods can be higher than the base flood elevation (BFE) for various reasons, including larger storms, downstream obstructions, increased watershed development, floodplain development, and sea level rise.

Municipalities may opt to tailor their flood damage prevention laws to address additional areas of concern. The model local laws below are optional language that can be “plugged into” the model flood damage prevention law to lower flood risk. Many of the optional techniques may result in lower flood insurance premiums either directly or through the Community Rating System (CRS). 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. Model local laws provided in other Model Local Law chapters, such as waterway buffers and cluster or open space subdivisions, may also result in CRS points if adopted.

Several methods of increasing protection from flooding are provided. If a municipality decides to use any of these measures, those changes should be brought to the attention of NYSDEC Bureau of Flood Protection and Dam Safety so that staff may review the final language and assure that it is compliant with the NFIP and FEMA regulations.

A municipality that seeks to increase its flood protection by adopting more restrictive standards than the Uniform Code, such as a higher freeboard, is required to contact the New York State Division of Building Standards and Codes for assistance. Local laws adopted outside New York City that are more restrictive than the Uniform Code must receive State Fire Prevention and

Building Code Council approval. The Department of State provides documents on its website relating to more restrictive standards for construction, including a “Code Outreach Program - More Restrictive Construction Standards” and a form called “Notice and Petition Relating to More Restrictive Construction Standards.”²⁰ Two communities that have used this process to address flood risks include the Town of Brookhaven²¹ and Village of Freeport.²²

Optional Additions to Flood Damage Prevention Laws		
Topic	Context	CRS Points
County Administration of Flood Damage Prevention Law	In some cases, county agencies may be willing to assist local towns and villages with floodplain permitting. In all cases, the local municipality remains legally responsible for complying with federal requirements for participation in the National Flood Insurance Program. If a county agency is willing to take on the permitting responsibility within a town or village, a formal memorandum of understanding must be signed by both parties.	N/A
Establishing a Design Flood Elevation	Adopt a regulatory flood elevation that exceeds the base flood elevation. With freeboard required by the Uniform Code, structures are further elevated. (Activity 430)	Up to 500
Compensatory Storage	Avoid increased flood risk from fill or structures that occupy space below the base flood elevation in floodplains by requiring the lost flood water storage to be compensated in an excavated area. (Activity 432a)	Up to 140
Repetitive Damage	Allow insured structures that have been repetitively damaged over time to qualify for up to \$30,000 in additional flood insurance claim funds to be used toward elevating, floodproofing, demolishing or relocating the structure even if it was not substantially damaged by a single flood. CRS points are available for flood protection assistance, floodplain management planning, acquisition and relocation, and flood protection applying to repetitively damage structures.	N/A
Cumulative Substantial Improvement	Require structures to meet flood protection requirements by combining the value of several improvements over time to a structure to meet the definition of “substantial improvement.” (Activity 432d)	Up to 90
Protection of Critical Facilities	Exclude critical public and private facilities from the 100- and 500-year floodplain. (Activity 432f)	Up to 80
Areas Behind Levees or Below High Hazard Dams	Apply flood protection development standards to areas below dams or behind levees.	N/A

Dry Land Access	Require dry land access to principal structures. This would be considered an “other higher standard” in CRS parlance. (Activity 432o)	Up to 100
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RESOURCES

The NYS Department of Environmental Conservation, Division of Water, Bureau of Flood Protection and Dam Safety may be reached at 518-402-8185 or by email at floodplain.floodplain@dec.ny.gov .

No Adverse Impact: A Toolkit for Common Sense Floodplain Management. (2003). Association of State Floodplain Managers ²³

National Flood Insurance Program Community Rating System Coordinator’s Manual. (2017). FEMA FIA-15.²⁴

Unit 6: Additional Regulatory Measures. In *Managing Floodplain Development Through the NFIP*. (1998).²⁵

4.3.1 County Administration of Flood Damage Prevention Law

The model local law for flood damage prevention, provided by the NYSDEC Bureau of Flood Protection and Dam Safety, includes the designation of a local administrator to administer the law and grant or deny floodplain permits. While this job is typically performed by a municipal official, it may also be delegated to the county in which the municipality is located. For example, the Town of New Berlin (NY), transferred administration of its flood damage prevention law to the County of Chenango in 1987 by a memorandum of agreement. The arrangement was codified by local law in 2010, designating the Chenango County Code Enforcement Office as Local Administrator. According to the Chenango County Hazard Mitigation Plan, 19 towns and 6 villages have designated the county as the floodplain administrator.²⁶ An example of an intermunicipal agreement for floodplain management between Chenango County and the Town of Sherburne is on the town’s website.²⁷ A model memorandum of understanding is also available from the NYSDEC Bureau of Flood Protection and Dam Safety.

In all cases, responsibility for complying with federal requirements for participation in the National Flood Insurance Program remains with the municipality. County administration of the local floodplain law requires a formal legal delegation through a memorandum of understanding (MOU). Where the county agrees to take on the local administration, the local municipality may benefit from full-time county staff that are knowledgeable and may be more able to effectively administer floodplain development standards.

USAGE

Work with the county to prepare a memorandum of agreement whereby the county agrees to assume the duties associated with the municipal flood damage prevention law. Amend the “Administration” section of the existing municipal flood damage prevention law to designate the appropriate county office or officer as the Local Administrator (generally Section 4.1).

ADAPTED FROM THE FOLLOWING SOURCE

Town of New Berlin (NY) Municipal Code, Chapter 91 Flood Damage Prevention, Article IV Administration, Section 91-10²⁸

LANGUAGE

Section 4.1 Designation of the Local Administrator.

The [*insert county name*] County Code Enforcement Office is hereby appointed Local Administrator to administer and implement this chapter by granting or denying floodplain development permits in accordance with its provisions.

4.3.2 Establishing a Design Flood Elevation

Recent storms have shown us that some Flood Insurance Rate Maps (FIRMs) may no longer depict the true base flood elevation and Special Flood Hazard Area boundaries. Even if the FIRM predicted flood elevations perfectly, buildings constructed to the elevations shown on the FIRM will offer protection only against the 100-year flood level (i.e., the one percent annual chance flood level or base flood elevation). Many floods result in flood levels that exceed the BFE, and buildings constructed to the minimum elevation could sustain flood damage.²⁹

FIRMs do not account for the following:

- Shoreline erosion, dune loss, land subsidence, and sea level rise;
- Several severe storms occurring over a short period of time;
- Topographic and bathymetric changes, upland development, and addition of impervious surfaces that affect drainage and/or flooding;
- Degradation or settlement of seawalls, levees, and floodwalls; and
- Changes in storm climatology (frequency and severity) due to natural climate variations or climate change.³⁰

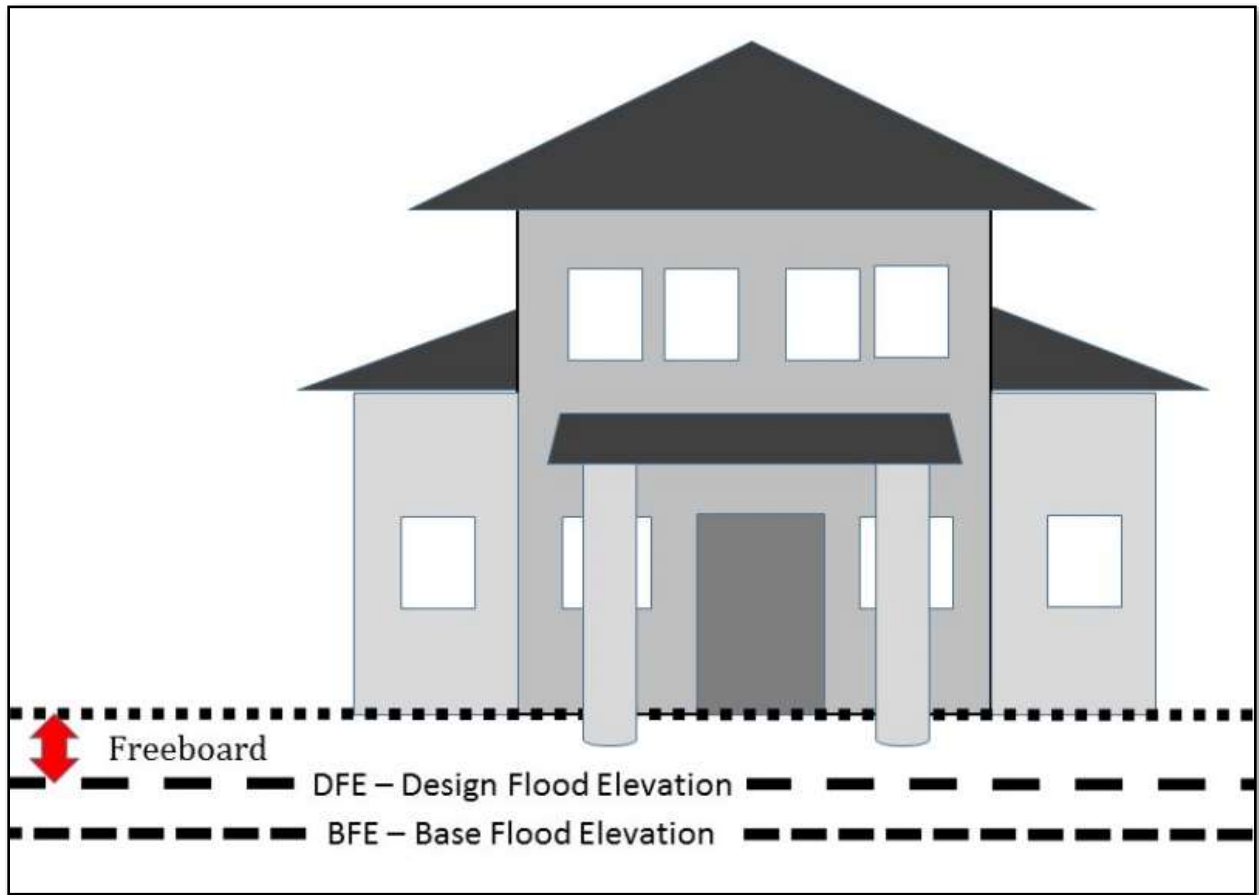
Thus, use of the mapped 100-year floodplain and flood elevations as the basis for risk reduction may no longer be sufficiently protective. During Superstorm Sandy in 2012, the remnants of Hurricanes Irene and Lee in 2011, and several localized supercell thunderstorms in 2013, flood levels exceeded the BFE in some areas and extended far beyond the Special Flood Hazard Area shown on the FIRM.³¹

The Uniform Code uses base flood elevations (BFE) to establish design flood elevations (DFE). The DFE must be at least as high as the BFE. Once the DFE is established, it is adjusted by adding a certain amount of freeboard to it. Freeboard is additional height above the DFE to provide a margin of safety against uncertainties and future conditions.³² All new or substantially improved structures are required by the Uniform Code to have a specified amount of freeboard. Floodplain elevations are expressed as the BFE or the DFE. (Note: commercial buildings can be floodproofed.)

Municipalities may feel a need to put more space between potential flood waters and the lowest floor of buildings to account for current and future increases in flood stages not reflected in the FIRM. The Uniform Code allows them to do this by establishing a DFE that is higher in all or part of the municipality than the BFE. Freeboard would then be measured from the higher design flood elevation.

FEMA recommendations for building owners also provide guidance to municipalities considering adoption of a design flood elevation. FEMA recommends that where a building is situated in one flood zone but is close to a more hazardous zone, property owners consider designing, elevating, and using construction methods as if the building were located in the more hazardous zone.

Another consideration should be the Limit of Moderate Wave Action, or LiMWA, which is the inland limit of the area expected to receive 1.5-foot or greater breaking waves during the 1-percent-annual-chance flood event.³³



FEMA suggests anticipation of future conditions, such as Zone A flood conditions extending landward of the Special Flood Hazard Area boundary into Zone X (extend the freeboard elevation landward until the ground rises to this elevation).³⁴

Municipalities may also designate a DFE based on the climate-informed science guideline elevation recommended by the New York State Flood Risk Management Guidance³⁵ for multi-family and large non-residential structures. This guideline would provide additional protection for smaller structures. While additional nuances are included in the guidance document, the general guidance for tidal and nontidal areas is below:

- In nontidal areas, structures should be sited or elevated such that the lowest floor is at or higher than the higher of the following: (a) the vertical flood elevation and corresponding horizontal floodplain that result from increasing the current one-percent annual chance peak flow (Q100) to account for projected future flows, adding two feet of freeboard to the resultant flood level and extending this level to its intersection with the ground, or (b)

the vertical flood elevation and corresponding horizontal floodplain subject to flooding from the 0.2-percent annual chance flood.

- In tidal areas, such as Coastal High Hazard Areas and Coastal A Zones, structures should be sited or elevated such that the bottom of the lowest horizontal structural member is at or higher than the higher of the following elevations, considering feasibility, project costs, risk tolerance and environmental effects: (a) the vertical flood elevation and corresponding horizontal floodplain that result from adding the medium sea-level rise projection over the expected service life of the structure, plus two feet of freeboard, to the BFE and extending this level to its intersection with the ground, or (b) the vertical flood elevation and corresponding horizontal floodplain subject to flooding from the 0.2-percent annual chance flood.

In all cases, the DFE may not be lower than the BFE. The following steps should be taken to establish a design flood elevation in consultation with the NYSDEC Bureau of Flood Protection and Dam Safety:

(1) Develop Findings. Make a case for exceeding the BFE, which should be reflected in the findings statement in the local law. For example, the municipality could cite the age of the current flood analysis that established the BFE; change in conditions since the Flood Insurance Study was done; describe floods of record that exceeded the BFE; anticipate future increases in flood levels based on upland development or sea level rise; cite recent events of extreme precipitation leading to inundation; or number of damage claims due to flooding or coastal storm surges.

(2) Choose a Design Flood Elevation. Based on the current and anticipated conditions in the municipality, select a design flood elevation. The DFE must be equal to or exceed the BFE. The State Flood Risk Management Guidance for State agencies recommends an approach in tidal areas that incorporates projected sea-level rise, and also recommends adjustments for increased riverine flow.³⁶

The Uniform Code requires a two-foot freeboard requirement above the DFE. Should a municipality adopt a higher DFE, the two-foot freeboard requirement would be on top of that.

(3) Create a DFE map. Here are a few examples of how that could be accomplished:

- Modify the FIRM map to designate the 500-year flood elevation as the new DFE and show the 500-year floodplain.
- Develop a digital flood layer that uses the FIRM flood elevations and includes a notation that the DFE is the base flood elevation plus a specified amount of additional height.

- Modify the FIRM to adjust the boundaries of various flood zones to reflect historical deficiencies in the map, as well as anticipated changes in flooding patterns or sea level rise.
- Create a new map using future-conditions hydrology (including sea level rise) and more accurate topographic data than the FIRM. New flood studies undertaken for flood mapping are eligible for CRS points under Activity 410, Floodplain Mapping.

(4) Adopt a DFE map. Amend the municipal flood damage protection law to refer to the DFE map.

(5) If there is a physical change to the floodplain, DEC and FEMA must be informed. Without a physical change, it is suggested that a municipality inform the NYSDEC Bureau of Flood Protection and Dam Safety so the agency can better respond to questions about the municipality.

Establishing a Design Flood Elevation and Expanding Special Flood Hazard Areas

The model provided would amend the municipality’s Flood Damage Prevention law or similar section of the zoning law to replace the current practice of defining areas of special flood hazard as they relate to the 100-year-flood (i.e., the one percent annual chance flood) with a more expansive definition of a flood hazard area, and increase the elevation from which freeboard is measured. While the option provided designates the 500-year-flood elevation as the “Design Flood Elevation,” a climate-informed science elevation could also be used.

Following serious flooding in 2008, the City of Cedar Falls (IA) adopted the 500-year (i.e., 0.2 percent annual chance) floodplain boundary as the locally regulated floodplain and now requires structures located within the boundary to be elevated one foot above the 500-year flood elevation. The language provided below has a similar effect but is based on amendments to language standard to New York flood damage prevention laws.

The following model is appropriate for communities that have flood maps, however, it is not written to apply to New York City where the Uniform Code is not applicable. The 500-year-flood standard may be most appropriate for non-tidal areas. The “flood hazard map” referred to in the local law would be a map showing land in the floodplain within a community subject to a 0.2 percent or greater chance of flooding in any given year (i.e., the 500-year-flood). The Uniform Code addresses the scenario where a map does not provide a flood elevation in the mapped flood hazard area.

RESOURCE

Using a Digital Flood Insurance Rate Map (DFIRM). (2010). FEMA Fact Sheet No. 1.3. ³⁷

Designing for Flood Levels Above the BFE After Sandy. (2013) FEMA RA5. ³⁸

Coastal Construction Manual, Third Edition. (2000). FEMA 55.³⁹

Importance of the Limit of Moderate Wave Action (LiMWA). FEMA Fact Sheet FPM 1.⁴⁰

USAGE

Amend the municipal Flood Damage Prevention Law to establish a design flood elevation and expand the areas of special flood hazard.

The changes to a typical Flood Damage Prevention Law are generally shown below in bill drafting format, with underlined text as additions, and text that is struck through as deletions. Not all sections of a typical Flood Damage Prevention Law are shown.

ADAPTED FROM THE FOLLOWING SOURCE

Language prepared by NYS Department of State staff with the assistance from staff in the NYS Department of Environmental Conservation Bureau of Flood Protection and Dam Safety.

LANGUAGE

SECTION 1.0

Amend the Objectives section as shown. Additions are underlined, deletions are struck out.

+++

1.3 OBJECTIVES

The objectives of this local law are:

- (1) to protect human life and health;
- (2) to minimize expenditure of public money for costly flood control projects;
- (3) to minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;
- (4) to minimize prolonged business interruptions;
- (5) to minimize damage to public facilities and utilities such as water and gas mains, electric, telephone, sewer lines, streets and bridges located in flood hazard areas ~~of special flood hazard~~;

- (6) to help maintain a stable tax base by providing for the sound use and development of flood hazard areas ~~of special flood hazard~~ so as to minimize future flood blight areas;
- (7) to provide that developers are notified that property is in ~~an~~ a flood hazard area ~~of special flood hazard~~; and,
- (8) to ensure that those who occupy the flood hazard areas ~~of special flood hazard~~ assume responsibility for their actions.

+++

SECTION 2.0: DEFINITIONS

Add or Amend the following definitions. Additions are underlined, deletions are struck out.

“Design Flood Elevation (DFE)” is the elevation of the 0.2 percent or greater annual chance flood, shown as either a shaded X or a B zone in the community’s Flood Insurance Rate Map, relative to the datum specified on the community’s flood hazard map. Where there is no shaded X or B zone, but there is a base flood elevation, the Design Flood Elevation shall be the base flood elevation plus [insert number such as two] feet.

"Elevated building" means a non-basement building (i) built, in the case of a building in Zones A1-A30, AE, A, A99, AO, AH, B, C, X, or D, to have the top of the elevated floor, or in the case of a building in Zones V1-30, VE, or V, to have the bottom of the lowest horizontal structure member of the elevated floor, elevated above the ground level by means of pilings, columns (posts and piers), or shear walls parallel to the flow of the water and (ii) adequately anchored so as not to impair the structural integrity of the building during a flood of up to the magnitude of the ~~base~~ design flood. In the case of Zones A1-A30, AE, A, A99, AO, AH, B, C, X, or D, "elevated building" also includes a building elevated by means of fill or solid foundation perimeter walls with openings sufficient to facilitate the unimpeded movement of flood waters. In the case of Zones V1-V30, VE, or V, "elevated building" also includes a building otherwise meeting the definition of "elevated building", even though the lower area is enclosed by means of breakaway walls that ~~meet~~ the federal standards comply with the Uniform Code.

“Flood Hazard Map” is the map delineating flood hazard areas adopted by the [City Council/Town Board/Village Board of Trustees].

“Flood Hazard Area” is the area subject to flooding during the design flood.

“Uniform Code” is the New York State Uniform Fire Prevention and Building Code adopted pursuant to Article 11 of the Executive Law, as currently in effect and as hereafter amended from time to time.

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3.1 LANDS TO WHICH THIS LOCAL LAW APPLIES

Amend as shown. Additions are underlined, deletions are struck out.

This local law shall apply to all flood hazard areas ~~of special flood hazard~~ within the jurisdiction of the _____ of _____.

+++

3.2 BASIS FOR ESTABLISHING THE AREAS OF SPECIAL FLOOD HAZARD AND FLOOD HAZARD AREAS

Amend title of section as show above and the text below. Local laws vary in how the information is presented, so the example below is for illustrative purposes.

The areas of special flood hazard are identified and defined on the following documents prepared by the Federal Emergency Management Agency:

- 1) Flood Insurance Rate Map Panel Numbers and Effective Dates:

- (2) A scientific and engineering report entitled "Flood Insurance Study, _____ County, New York, dated _____.

- (3) Flood Boundary and Floodway Map Panel Numbers and Effective Dates:

- (4) The [City/Town/Village of _____] hereby establishes a Design Flood Elevation that defines the Flood Hazard Area as that land shown on the above listed Flood Insurance Rate Map Panels as the land in the floodplain within a community subject to a 0.2 percent or greater chance of flooding in any given year. This area includes B or shaded X zone adjacent to or separated from a Zone A, AE, AH, AO, A1-A30, A99, V, VO, VE, or V1-V30.

The above documents are hereby adopted and declared to be a part of this Local Law. The Flood Insurance Study and/or maps are on file at: _____.

+++

4.2 THE FLOODPLAIN DEVELOPMENT PERMIT

4.2-1 PURPOSE

Amend as shown. Additions are underlined, deletions are struck out.

A floodplain development permit is hereby established for all construction and other development to be undertaken in flood hazard areas ~~of special flood hazard~~ in this community for the purpose of protecting its citizens from increased flood hazards and insuring that new development is constructed in a manner that minimizes its exposure to flooding. It shall be unlawful to undertake any development in ~~an~~ a flood hazard area ~~of special flood hazard~~, as shown on the Flood Insurance Rate Map enumerated in Section 3.2, without a valid floodplain development permit. Application for a permit shall be made on forms furnished by the Local Administrator and may include, but not be limited to: plans, in duplicate, drawn to scale and showing: the nature, location, dimensions, and elevations of the area in question; existing or proposed structures, fill, storage of materials, drainage facilities, and the location of the foregoing.

+++

4.2 THE FLOODPLAIN DEVELOPMENT PERMIT

4.4-2 USE OF OTHER FLOOD DATA

Amend as shown. Additions are underlined, deletions are struck out.

- (1) When the Federal Emergency Management Agency has designated areas of special flood hazard on the community's Flood Insurance Rate map (FIRM) but has neither produced water surface elevation data (these areas are designated Zone A or V on the FIRM) nor identified a floodway, the Local Administrator shall obtain, review and reasonably utilize any base flood elevation and floodway data available from a Federal, State or other source, including data developed pursuant to paragraph 4.3(7), as criteria for requiring that new construction, substantial improvements or other proposed development meet the requirements of this law.
- (2) When base flood elevation data are not available, the Local Administrator may use flood information from any other authoritative source, such as historical data, to establish flood elevations within the flood hazard areas ~~of special flood hazard~~, for the purposes of this law.

+++

4.2 THE FLOODPLAIN DEVELOPMENT PERMIT

4.4-7 CERTIFICATE OF COMPLIANCE

Amend as shown. Additions are underlined, deletions are struck out.

- (l) In flood hazard areas ~~of special flood hazard~~, as determined by documents enumerated in Section 3.2, it shall be unlawful to occupy or to permit the use or occupancy of any building or premises, or both, or part thereof hereafter created, erected, changed, converted or wholly or partly altered or enlarged in its use or structure until a certificate of compliance has been issued by the Local

Administrator stating that the building or land conforms to the requirements of this local law.

- (2) A certificate of compliance shall be issued by the Local Administrator upon satisfactory completion of all development in flood hazard areas ~~of special flood hazard~~.
- (3) Issuance of the certificate shall be based upon the inspections conducted as prescribed in Section 4.4-5, INSPECTIONS, and/or any certified elevations, hydraulic data, floodproofing, anchoring requirements or encroachment analyses which may have been required as a condition of the approved permit.

+++

SECTION 5.0 CONSTRUCTION STANDARDS

Amend as shown. Additions are underlined, deletions are struck out.

5.1 GENERAL STANDARDS

The following standards apply to all new development, including new ~~and~~ or substantially improved structures, in the flood hazard areas ~~of special flood hazard shown on the Flood Insurance Rate Map designated as described~~ shown on the Flood Insurance Rate Map designated in Section 3.2.

All buildings and structures in this jurisdiction are subject to the Uniform Code and must comply with all applicable requirements of the Uniform Code. In the event of a conflict between any construction-related requirement of this local law and the provisions of the Uniform Code, the provisions of the Uniform Code shall control.

No variance granted under any provision of this local law can modify or vary any provision or requirement of the Uniform Code. Provisions or requirements of the Uniform Code can be modified or varied only in accordance with the provisions established by Part 1205 of Title 19 of the New York Codes, Rules, and Regulations, as currently in effect and as hereafter amended from time to time.

5.1-1 SUBDIVISION AND DEVELOPMENT PROPOSALS

The following standards apply to all new subdivision proposals and other proposed development in flood hazard areas ~~of special flood hazard~~ (including proposals for manufactured home and recreational vehicle parks and subdivisions):

- (1) Proposals shall be consistent with the need to minimize flood damage;
- (2) Public utilities and facilities such as sewer, gas, electrical and water systems shall be located and constructed so as to minimize flood damage; and,

- (3) Adequate drainage shall be provided to reduce exposure to flood damage.
- (4) Proposed development shall not result in physical damage to any other property (e.g., stream bank erosion or increased flood velocities). If requested by the Local Administrator, the applicant shall provide a technical analysis, by a licensed professional engineer, demonstrating that this condition has been met.
- (5) Proposed development shall be designed, located, and constructed so as to offer the minimum resistance to the flow of water and shall be designed to have a minimum effect upon the height of flood water.
- (6) Any equipment or materials located in a flood hazard area ~~of special flood hazard~~ shall be elevated, anchored, and floodproofed as necessary to prevent flotation, flood damage, and the release of hazardous substances as required by the Uniform Code.
- (7) No alteration or relocation of a watercourse shall be permitted unless:
 - i. a technical evaluation by a licensed professional engineer demonstrates that the altered or relocated segment will provide conveyance equal to or greater than that of the original stream segment and will not result in physical damage to any other property;
 - ii. if warranted, a conditional revision of the Flood Insurance Rate Map is obtained from the Federal Emergency Management Agency, with the applicant providing the necessary data, analyses, and mapping and reimbursing the Town of Dix for all fees and other costs in relation to the application; and
 - iii. the applicant provides assurance that maintenance will be provided so that the flood carrying capacity of the altered or relocated portion of the watercourse will not be diminished.

+++

5.2 STANDARDS FOR ALL STRUCTURES

Amend as shown. Additions are underlined, deletions are struck out

The following standards apply to all new development, including new and substantially improved structures, in the flood hazard areas ~~of special flood hazard~~ shown on the Flood Insurance Rate Map designated in Section 3.2. Any alteration, repair, reconstruction, addition, or improvements to a structure that was built or substantially improved after the adoption of floodplain management regulations shall meet the requirements for new construction.

+++

5.2-3 UTILITIES

Amend as shown. Additions are underlined, deletions are struck out

- (1) New and replacement electrical systems, equipment, and components, heating, ventilating, air conditioning, plumbing connections, and other service equipment shall be designed and constructed in accordance with the Uniform Code ~~located at least two feet above the base flood elevation or be designed to prevent water from entering and accumulating within the components during a flood and to resist hydrostatic and hydrodynamic loads and stresses.~~ Electrical wiring and outlets, switches, junction boxes and panels shall be elevated or designed to prevent water from entering and accumulating within the components unless they conform to the appropriate provisions of the electrical part of the Building Code of New York State or the Residential Code of New York State for location of such items in wet locations;
- (2) New and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system;
- (3) New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters. Sanitary sewer and storm drainage systems for buildings that have openings below the ~~base~~ design flood elevation shall be provided with automatic backflow valves or other automatic backflow devices that are installed in each discharge line passing through a building's exterior wall; and,
- (4) On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.
- (5) Gas and liquid fuel tanks must be (i) elevated at least two feet above the ~~base~~ design flood elevation or at least three feet above grade when no ~~base~~ design flood elevation data are available or (ii) properly anchored to resist floatation and the effects of scour. Fill caps and fittings below the ~~base~~ design flood elevation must be tested to be liquid tight. Tank vent openings must be two or more feet above the ~~base~~ design flood elevation or three or more feet above grade when no ~~base~~ design flood elevation data are available.

+++

5.3 RESIDENTIAL STRUCTURES

Amend as shown. Communities with Coastal High Hazard Areas should make corresponding changes to sections on residential structures. Additions are underlined, deletions are struck out

5.3-1 ELEVATION

The following standards apply to new and substantially improved residential structures located in flood hazard areas of special flood hazard, in addition to the requirements in sub-sections 5.1-1, SUBDIVISION PROPOSALS, and 5.1-2, ENCROACHMENTS, and Section 5.2, STANDARDS FOR ALL STRUCTURES.

- (1) Within all flood hazard areas, all new construction and substantial improvements shall be constructed in accordance with the Uniform Code. ~~Within Zones A1 A30, AE and AH and also Zone A if base flood elevation data are available, new construction and substantial improvements shall have the top of the lowest floor (including basement) elevated to or above two feet above the base flood elevation.~~
- ~~(2) Within Zone A, when no base flood elevation data are available, new construction and substantial improvements shall have the top of the lowest floor (including basement) elevated at least three feet above the highest adjacent grade.~~
- ~~(3) Within Zone AO, new construction and substantial improvements shall have the top of the lowest floor (including basement) elevated above the highest adjacent grade at least as high as the depth number specified in feet on the community's Flood Insurance Rate Map enumerated in Section 3.2 (at least two feet if no depth number is specified).~~
- (4) (2) Within Zones AH and AO, adequate drainage paths are required to guide flood waters around and away from proposed structures on slopes.

+++

5.4 NON-RESIDENTIAL STRUCTURES

Amend as shown. Communities with Coastal High Hazard Areas should make corresponding changes to sections on non-residential structures. Additions are underlined, deletions are struck out.

The following standards apply to new and substantially improved commercial, industrial and other non-residential structures located in areas of special flood hazard, in addition to the requirements in sub-sections 5.1-1, SUBDIVISION PROPOSALS, and 5.1-2, ENCROACHMENTS, and Section 5.2, STANDARDS FOR ALL STRUCTURES.

- (1) Within all flood hazard areas, all new construction and substantial improvements of nonresidential buildings shall be constructed in accordance with the Uniform Code. Such buildings and all attendant utility and sanitary facilities shall also comply with the Uniform Code. ~~Within Zones A1 A30, AE and AH, and also Zone A if base flood elevation data are available, new construction and substantial improvements of any non-residential structure shall either:~~

~~(i) have the top of the lowest floor, including basement or cellar, elevated to or above two feet above the base flood elevation; or~~

~~(ii) be floodproofed so that the structure is watertight below two feet above the base flood elevation, including attendant utility and sanitary facilities, with walls substantially impermeable to the passage of water. All structural components located below the base flood level must be capable of resisting hydrostatic and hydrodynamic loads and the effects of buoyancy.~~

~~(2) Within Zone AO, new construction and substantial improvements of non-residential structures shall:~~

~~(i) have the top of the lowest floor (including basement) elevated above the highest adjacent grade at least as high as two feet above the depth number specified in feet on the community's FIRM (at least two feet if no depth number is specified), or~~

~~(ii) together with attendant utility and sanitary facilities, be completely floodproofed to that level to meet the floodproofing standard specified in subsection 5.4(1)(ii)~~

~~(3) If the structure is to be floodproofed, a licensed professional engineer or architect shall develop and/or review structural design, specifications, and plans for construction. A Floodproofing Certificate or other certification shall be provided to the Local Administrator that certifies the design and methods of construction are in accordance with accepted standards of practice for meeting the provisions of Section 5.4(1)(ii), including the specific elevation (in relation to mean sea level) to which the structure is to be floodproofed.~~

~~(4)(3) Within Zones AH and AO, adequate drainage paths are required to guide flood waters around and away from proposed structures on slopes.~~

~~(5) Within Zone A, when no base flood elevation data are available, the top of the lowest floor (including basement) shall be elevated at least three feet above the highest adjacent grade.~~

+++

5.5 MANUFACTURED HOMES AND RECREATIONAL VEHICLES

Amend as shown. Additions are underlined, deletions are struck out.

The following standards in addition to the standards in Section 5.1, GENERAL STANDARDS, and Section 5.2, STANDARDS FOR ALL STRUCTURES apply, as indicated, in flood hazard areas ~~of special flood hazard~~ to manufactured homes and to recreational vehicles which are located in flood hazard areas ~~of special flood hazard~~.

- (1) Recreational vehicles placed on sites within Zones A, A1-A30, AE, AH, and AO shall either:
 - (i) be on site fewer than 180 consecutive days,
 - (ii) be fully licensed and ready for highway use, or
 - (iii) meet the requirements for manufactured homes in paragraphs 5.5(2), (3) and (4).

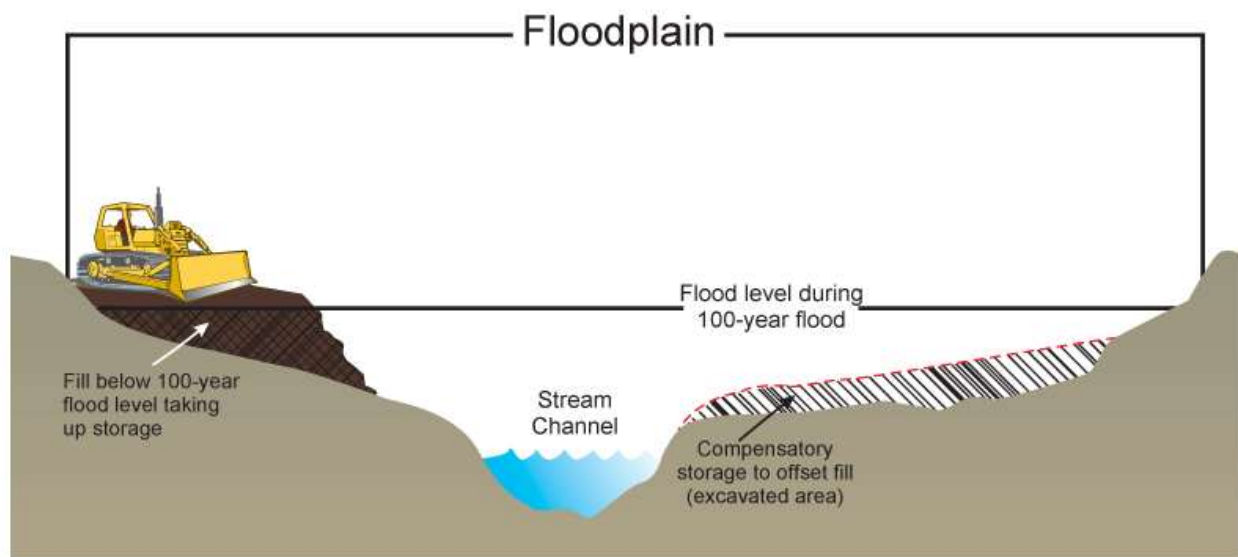
A recreational vehicle is ready for highway use if it is on its wheels or jacking system, is attached to the site only by quick disconnect type utilities and security devices and has no permanently attached additions.

- ~~(2) A-Within all flood hazard areas, manufactured home that is placed or substantially improved homes shall be installed in accordance with the Uniform Code in Zones A1-A30, AE and AH shall be elevated on a permanent foundation such that the top of the lowest floor is elevated to or above two feet above the base flood elevation and is securely anchored to an adequately anchored foundation system to resist flotation, collapse and lateral movement.~~
- ~~(3) Within Zone A, when no base flood elevation data are available, new and substantially improved manufactured homes shall be elevated such that the manufactured home chassis is supported by reinforced piers or other foundation elements of at least equivalent strength that are no less than 36 inches in height above the highest adjacent grade and are securely anchored to an adequately anchored foundation system to resist flotation, collapse or lateral movement.~~
- ~~(4) Within Zone AO, the floor shall be elevated above the highest adjacent grade at least as high as two feet above the depth number specified on the Flood Insurance Rate Map enumerated in Section 3.2 (at least two feet if no depth number is specified).~~

4.3.3 Compensatory Storage

The NFIP floodway standard restricts new development from obstructing the flow of water and increasing flood heights. However, this provision does not address the need to maintain flood storage. Especially in flat areas, the floodplain provides a valuable function by storing floodwaters. Earthen fill is sometimes placed in floodplains to reduce flood risk to the filled area. When fill or buildings are placed in a Special Flood Hazard Area (SFHA), the flood storage areas are lost and flood heights will go up because there is less room for the floodwaters. This is particularly important in smaller floodplains.

The placement of fill is considered development and requires a floodplain development permit. The use of fill is prohibited for structural support of buildings in V Zones and LiMWA areas. Fill is prohibited within the *floodway* unless it has been demonstrated that it will not result in any increase in the BFE. Some communities limit the use of fill in the *floodway fringe* (area of a riverine floodplain outside of the floodway) to protect storage capacity or require compensatory storage.



Source: City of Lincoln (NE) <https://lincoln.ne.gov/city/pworks/watershed/flood/compensatory-storage.htm>

The benefits of using fill accrue to the developer and to the property owner, while the potential problems accrue to neighbors, taxpayers, the municipality, or the environment. Earthen fill reduces floodplain storage capacity and can have an adverse impact on native vegetation, wetlands, drainage, and water quality. According to FEMA, flood insurance studies assume that when the entire riverine floodplain is filled outside of the floodway, an increase of up to one foot in the Base Flood Elevation will occur at the location of the encroachment.⁴¹

A municipality may wish to avoid a potential increase in base flood elevation, and to make certain that an encroachment does not result in increased flood elevations upstream or downstream of

the development, by requiring developments that encroach into the floodplain to provide compensatory flood storage.

The Community Rating System credits prohibition of fill and the requirement to provide compensatory storage under Activity 430, Section 431.f.

USAGE

Amend the Municipal Flood Damage Prevention Law to require compensatory storage be provided if encroachments are made to a floodplain.

The changes to a typical Flood Damage Prevention Law are generally shown below in bill drafting format, with underlined text as additions, and text that is struck through as deletions.

ADAPTED FROM THE FOLLOWING SOURCE

Town of Wappinger (NY) Municipal Code, Chapter 133 Flood Damage Prevention, Section 133-14 General Standards⁴²

Town of Marlborough (NY) Municipal Code, Chapter 97 Flood Damage Prevention, Section 97-15 Floodways⁴³

ASFPM Floodplain Regulations Committee, *A Guide for Higher Standards in Floodplain Management*⁴⁴

LANGUAGE

Add a new paragraph (3) to the "Encroachments" section of the municipal Flood Damage Prevention Law under "General Standards" (Generally Section 5.1-2):

(3) Whenever any portion of a floodplain is authorized for development, the volume of space occupied by the authorized fill or structure below the base flood elevation shall be compensated for and balanced by a hydraulically equivalent volume of excavation taken from below the base flood elevation at or adjacent to the development site. All such excavations shall be constructed to drain freely to the watercourse. No area below the waterline of a pond or other body of water can be credited as a compensating excavation.

OR

(3) Fill within the special flood hazard area shall result in no net loss of natural floodplain storage. The volume of the loss of floodwater storage due to filling in the special flood hazard area shall be offset by providing an equal volume of flood storage by excavation or other compensatory measures at or adjacent to the development site.

OR

(3) When floodway data is provided or available for a particular site pursuant to [insert section addressing use of other flood data, generally Section 4.4-2], all encroachments, including fill, new construction and substantial improvements and other development, are prohibited within the limits of the floodway unless a technical evaluation demonstrates that such encroachments shall not result in any increase in flood levels during the occurrence of the base flood discharge.

4.3.4 Repetitive Damage

FEMA's Increased Cost of Compliance (ICC) flood insurance coverage⁴⁵ provides up to \$30,000 toward elevating, floodproofing (non-residential buildings), demolishing or relocating a structure that has been substantially damaged or repetitively damaged. However, that coverage is only available to a repetitively damaged structure within a municipality that has adopted an ICC definition in its local law and uniformly enforces it. For a municipality to add a repetitive damage clause, a change must be made in the "Substantial Damage" definition in its flood damage prevention law.

By including the repetitive damage definition, an insured structure that has been damaged twice within a ten-year period for which the average damage equals or exceeds 25 percent of the market value of the structure would qualify for up to \$30,000 toward elevating, floodproofing, demolishing or relocating the structure.⁴⁶

"For ICC eligibility, a repetitive loss structure must meet all of the following:

- It must be covered by an NFIP flood insurance policy;
- It must have suffered flood damage on at least two occasions during a 10-year period ending on the day of the second loss;
- The cost to repair the flood damage, on average, equaled or exceeded 25 percent of the market value of the building at the time of each of the two flood losses, or cumulatively total 50 percent of the pre-flood market value, as defined by the local floodplain ordinance; and
- In addition to the claim requesting ICC, the NFIP must have paid a previous qualifying claim."⁴⁷

Even without the repetitive damage clause, ICC coverage is available for an insured structure that has been substantially damaged in a *single* flood event, provided that the local municipality finds in writing that the structure has been substantially damaged by flood.

A municipality with a repetitive damage clause is responsible for keeping track of all flood related structural damages. The requirement to bring a repetitively damaged structure up to code would hold whether or not the property owner carries a flood insurance policy and would apply to a building whether or not there has been a change in ownership of the building.

As of June 2019, this amendment to a local flood damage prevention law would require NYS Code Council approval. The Town Huron received NYS Code Council approval for a local law that included the definition of "substantial damage" proposed below.

RESOURCES

Section 4: The Community’s Role. Increased Cost of Compliance Coverage - Guidance for State and Local Officials. (2003). FEMA 301.⁴⁸

USAGE

Amend the definition of “substantial damage” contained in the Municipal Flood Damage Prevention Law.

The changes to a typical Flood Damage Prevention Law are generally shown below in bill drafting format, with underlined text as additions, and text that is struck through as deletions.

ADAPTED FROM THE FOLLOWING SOURCE

Town of Huron (NY) Flood Damage Prevention Law, Section 2 Definitions⁴⁹

LANGUAGE

Definitions (Generally Section 2.0) - Amend the following definition in the municipal Flood Damage Prevention Law:

"Substantial damage" means damage of any origin sustained by a structure whereby the cost of restoring the structure to its before-damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred. Substantial damage also means flood-related damages sustained by a structure on two separate occasions during a 10-year period for which the cost of repairs at the time of such flood event, on the average, equals or exceeds 25 percent of the market value of the structure before the damage occurred.

4.3.5 Cumulative Substantial Improvement

The state model flood damage prevention law allows improvements valued at less than 50 percent of a building’s pre-improvement value to be permitted without meeting the flood protection requirements. Over the years, a municipality may issue a succession of permits for different repairs or improvements to the same structures. To protect investment in such structures, the municipality may define “substantial improvement” cumulatively so that once a threshold of improvement within a certain length of time is reached, the structure is considered substantially improved and must meet flood protection requirements.⁵⁰ By also adopting the definition of “substantial damage” described in the Repetitive Damage section above, the municipality can further strengthen its ability to manage flood damage potential when structures are proposed for reconstruction after damaging floods.

As of June 2019, this amendment to a local flood damage prevention law would require NYS Code Council approval. The Town Huron received NYS Code Council approval for a local law that included the changes proposed below.

An alternative approach, not shown here, is to decrease the 50 percent threshold in the existing “substantial improvement” definition to a lower number or change the 10-year tracking period. If that is done, a definition of “cumulative substantial improvement” would not be needed.

USAGE

Amend the municipal Flood Damage Prevention Law to define “substantial improvement” cumulatively and make such substantially improved structures subject to flood protection requirements.

The changes to a typical Flood Damage Prevention Law are generally shown below in bill drafting format, with underlined text as additions, and text that is struck through as deletions.

ADAPTED FROM THE FOLLOWING SOURCE

Town of Huron (NY) Flood Damage Prevention Law, Section 2 Definitions⁵¹

LANGUAGE

Definitions (Generally Section 2.0) - Amend the definitions of “substantial improvement” and “substantial damage,” and add a definition for “cumulative substantial improvement” to the municipal Flood Damage Prevention Law:

“Cumulative Substantial Improvement” means any reconstruction, rehabilitation, addition, or other improvement of a structure that equals or exceeds 50 percent of the

market value of the structure at the time of the improvement or repair when counted cumulatively for 10 years.

“Substantial Damage” means damage of any origin sustained by a structure whereby the cost of restoring the structure to its before-damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred. Substantial damage also means flood-related damages sustained by a structure on two separate occasions during a 10-year period for which the cost of repairs at the time of such flood event, on the average, equals or exceeds 25 percent of the market value of the structure before the damage occurred.

“Substantial improvement” means any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the "start of construction" of the improvement. Substantial improvement also means “cumulative substantial improvement.” The term includes structures which have incurred "substantial damage," regardless of the actual repair work performed. The term does not, however, include either:

- (1) any project for improvement of a structure to correct existing violations of state or local health, sanitary, or safety code specifications which have been identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions; or
- (2) any alteration of a "Historic Structure," provided that the alteration will not preclude the structure's continued designation as a "Historic Structure."

4.3.6 Protection of Critical Facilities

Critical facilities should not be located within a flood prone area due to the serious danger to life, health, or widespread social or economic dislocation that would result when the facility is subjected to flooding. Such facilities either have the potential to create significant environmental or health risk or are needed for municipal support services during and after a disaster.

A municipality may vary the definition of “critical facilities” in its flood damage prevention law. For example, state regulations relating to state projects in flood hazard areas list the following types of critical facilities:

- Facilities designed for bulk storage of chemicals, petrochemicals, hazardous or toxic substances or floatable materials;
- Hospitals, rest homes, correctional facilities, dormitories, patient care facilities;
- Major power generation, transmission or substation facilities, except for hydroelectric facilities;
- Major communications centers, such as civil defense centers; or
- Major emergency service facilities, such as central fire and police stations.⁵²

These are all facilities that can cause significant dangers to life, health, and/or the regional economy in the event of a flood or are essential for disaster recovery operations. However, other facilities should also be considered critical. This includes major employment centers, water and wastewater utilities.

Requiring protection for critical facilities serves several purposes: it reduces threats to life and health; it reduces damage to vital public facilities; it reduces pollution of floodwaters by hazardous materials; and it ensures that the facilities will be operable during most flood emergencies. Protection and proper siting of those facilities makes communities more resilient. To be proactive about the siting of critical public and private facilities, communities can provide for their inclusion or exclusion through zoning and/or through the amendment of the municipal flood damage prevention law.

The Community Rating System (CRS) provides a maximum credit of 100 points to communities that prohibit critical facilities within the 500-year floodplain.

USAGE

Amend the municipal Flood Damage Prevention Law to add a definition of “critical facilities” and a new construction standard that applies to critical facilities.

The changes to a typical Flood Damage Prevention Law are generally shown below in bill drafting format, with underlined text as additions, and text that is struck through as deletions.

ADAPTED FROM THE FOLLOWING SOURCE

Town of Wappinger (NY) Municipal Code, Chapter 133 Flood Damage Prevention, Section 133-3 and 133-19⁵³

LANGUAGE

Definitions (Generally Section 2.0) - Add the following definition to the municipal Flood Damage Prevention Law:

“Critical facilities” means:

(1) Structures or facilities that produce, use, or store highly volatile, flammable, explosive, toxic and/or water-reactive materials;

(2) Hospitals, nursing homes, and housing likely to contain occupants who may not be sufficiently mobile to avoid death or injury during a flood;

(3) Police stations, fire stations, vehicle and equipment storage facilities, and emergency operations centers that are needed for flood response activities before, during, and after a flood; and

(4) Public and private utility facilities that are vital to maintaining or restoring normal services to flooded areas before, during, and after a flood.

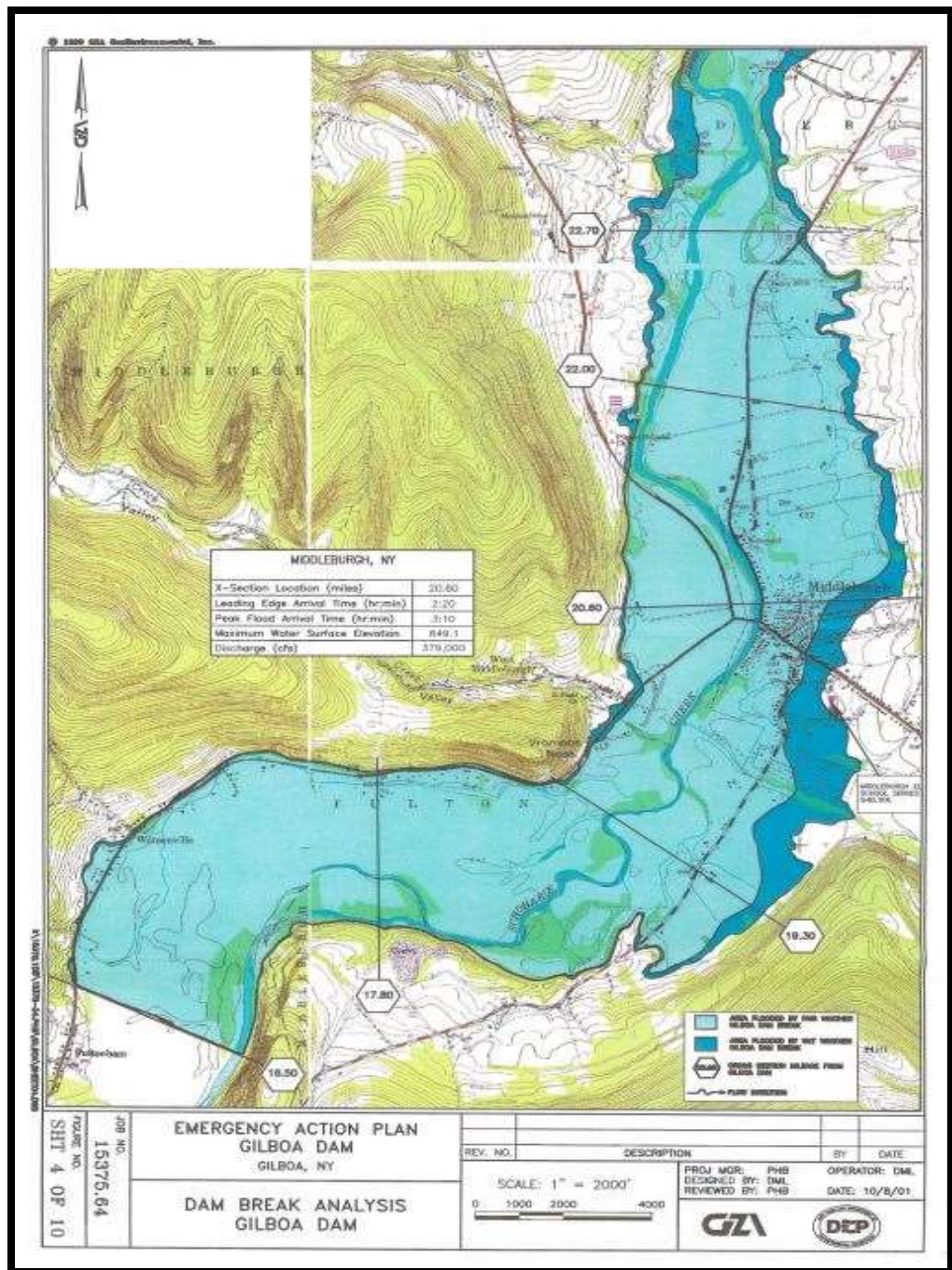
Add a new construction standard that applies to critical facilities (Generally Section 5).

Section 5.6 Critical Facilities. In order to prevent potential flood damage to certain facilities that would result in serious danger to life and health, or widespread social or economic dislocation, no new critical facility shall be located within any Area of Special Flood Hazard, or within any 500-year flood zone shown as a B zone or a shaded X zone on the Community’s Flood Insurance Rate Maps.

4.3.7 Areas Behind Levees or Below High Hazard Dams

Municipalities may wish to apply flood elevation requirements to areas protected by a dam or levee as if the dam or levee was not there.⁵⁴ These areas that meet the requirements contained in 44 CFR 65.10, and have at least three feet of freeboard above the 100-year flood from levees and are accredited by FEMA, are usually not mapped as flood prone on Flood Insurance Rate Maps (FIRMs). However, such dams or levees can fail or overtop.

Sheet 4 of the
Emergency
Action Plan for
the Gilboa
Dam
Source:
Montgomery
County, NY
Emergency
Management
Office



While the probability of levee or dam failure is low in most areas, the consequences of such failure are large.

A municipality that wishes to apply flood protection development standards to areas below dams or behind levees must first prepare a map of the affected area. Inundation maps related to dam failure may already exist. For example, high and medium hazard dams require emergency action plans that may have maps or descriptions of inundation areas.

As FEMA’s Risk MAP flood mapping program moves forward, it may become easier for a municipality to develop a map using digital FIRMs from FEMA.

USAGE

Adopt a map of the areas protected by a dam or levee (e.g., inundation map).

Amend the municipal Flood Damage Prevention Law to change the definition of “area of special flood hazard” to include areas identified by the municipality on a map of levee protected areas and/or dam failure inundation zones.

Amend the section of the municipal Flood Damage Prevention Law that adopts the FIRM and flood insurance study for the municipality (generally Section 3.2) to include the appropriate maps. (*Not illustrated.*)

The changes to a typical Flood Damage Prevention Law are generally shown below in bill drafting format, with underlined text as additions, and text that is struck through as deletions.

ADAPTED FROM THE FOLLOWING SOURCE

Town of New Scotland (NY) Local Law 1-2015, A Local Law for Flood Damage Prevention⁵⁵

LANGUAGE

Definitions (Generally Section 2.0) - Add the following definition to the municipal Flood Damage Prevention Law:

“Area of special flood hazard” is the land in the floodplain within a community subject to a one percent or greater chance of flooding in any given year. This area may be designated as Zone A, AE, AH, AO, A1-A30, A99, V, VO, VE, or V1-V30. It is also commonly referred to as the base floodplain or 100-year floodplain. For purposes of this Local Law, the term “special flood hazard area (SFHA)” is synonymous in meaning with the phrase “area of special flood hazard,” and includes the area identified on the Emergency Action Plan [insert map number(s)], which refers to the [insert name of dam, levee or dike], respectively.

4.3.8 Dry Land Access

The Association of State Floodplain Managers (ASFPM) published *A Guide for Higher Standards in Floodplain Management*⁵⁶ in 2013 to provide options for municipalities to enhance existing floodplain regulations with options that will further reduce risk and protect floodplain functions. ASFPM suggests model language related to access (ingress and egress) to decrease the likelihood that residents will be stranded in their elevated homes, which would reduce the need for water rescues that place emergency responders at risk. One example of a municipal code that regulates contiguous dryland access is from the City of New London and Outagamie and Waupaca Counties (WI).⁵⁷

The FEMA publication, *Managing Floodplain Development Through the NFIP*, states, “Fire prevention, evacuation and rescue operations are common emergency response activities associated with flooding. The effectiveness and success of these efforts greatly depend on readily available access. However, streets and roads are usually the first things to be inundated in the event of a flood. To ensure access, some communities have enacted ordinance provisions requiring that all roads and other access facilities be elevated to or above the BFE. Some require elevation to within one foot of the BFE so at least fire and rescue equipment can travel on them during a flood.”⁵⁸

A municipality may require development within the area typically covered by floodwaters during the 100-year flood (special flood hazard area or floodplain) to be elevated to or above the base flood elevation and have dry land access to the principal structure. Wisconsin has adopted dry land access provisions by state statute for residential and commercial development with limited exemptions.

The Community Rating System has credited dry land access provisions under Activity 430, Section 431.i in the *CRS Coordinator’s Manual* and the *CRS Application*.⁵⁹

USAGE

Amend the municipal Flood Damage Prevention Law to add a definition of “dry land access” and add a new construction standard relating to subdivision and development proposals. A construction standard may also be added relating to nonresidential structures.

The changes to a typical Flood Damage Prevention Law are generally shown below in bill drafting format, with underlined text as additions, and text that is struck through as deletions.

ADAPTED FROM THE FOLLOWING SOURCE

A Guide for Higher Standards in Floodplain Management. (2013). ASFPM Floodplain Regulations Committee. ⁶⁰

Waukesha (WI) Municipal Code, Chapter 22 Zoning, Section 22.70 Floodplain Zoning⁶¹

LANGUAGE

Definitions (Generally Section 2.0) - Add the following definition to the municipal Flood Damage Prevention Law:

“Dry Land Access” means a vehicular access route above the base flood elevation [or, design flood elevation] that connects land located in the floodplain to land outside the floodplain, such as a road with its surface above base flood elevation [or, design flood elevation] and wide enough for wheeled rescue and relief vehicles. [Note: definition based on Waukesha law.]

Add a new construction standard relating to subdivision and development proposals (Generally Section 5.1-1)

(8) Contiguous dry land access shall be provided from a proposed principal structure on residential and commercial property to land outside the Special Flood Hazard Area (SFHA).

OR

(8) New development proposals will be designed, to the maximum extent practicable, so residential building sites, walkways, driveways, and roadways are located on land with a natural grade with elevation not less than the base flood elevation [or, design flood elevation] and with dry land access. [Note: this is the ASFPM approach.]

Add a new construction standard relating to nonresidential structures (Generally Section 5.4)

(6) New development proposals will be designed, to the maximum extent practicable, so non-residential building sites, walkways, driveways, and roadways are located on land with a natural grade with elevation not less than the base flood elevation [or, design flood elevation] and with dry land access. [Note: this is the ASFPM approach.]

4.4 State Model Flood Damage Prevention Laws

The NYS Department of Environmental Conservation (NYSDEC) has three model local laws for flood damage prevention that communities can adopt to join the National Flood Insurance Program (NFIP): one for communities without mapped flood hazard areas, one for communities with standard mapped flood hazards, and another for communities with coastal flood hazard areas.

A flood damage prevention local law should be submitted by the municipality to NYSDEC and the Federal Emergency Management Agency (FEMA) before it is enacted. This local law indicates that if a municipality has mapped flood hazard areas and if development is to occur in those flood hazard areas then the development is required to be built to certain standards, identified in the NFIP's regulations and the Uniform Code. If development is being considered for a Special Flood Hazard Area, then the local floodplain administrator, an office designated in the local law, reviews the development to ensure that construction standards have been met before issuing a floodplain development permit. Non-structural development within a Special Flood Hazard Area is also subject to a local floodplain development permit.

There are several different models. For example:

- Model Local Law A is for communities that do not have a flood map. It is designed to comply with the floodplain management requirements of the National Flood Insurance Program contained in 44 CFR 60.3(a).
- Model Local Law D is for communities that have flood maps but no coastal wave runup zones. It is designed to comply with the floodplain management requirements of the National Flood Insurance Program contained in 44 CFR 60.3(a) through (d). The DEC has included optional administrative provisions in the model local law that are strongly recommended for proper administration.
- Model Local Law E is for communities with coastal wave runup zones. It is designed to comply with the floodplain management requirements of the National Flood Insurance Program contained in 44 CFR 60.3(a) through (e). The DEC has included optional administrative provisions in the model local law that are strongly recommended for proper administration.

Any changes made to a model should be reviewed by the municipal attorney, NYSDEC, and FEMA before they are enacted. NYSDEC and FEMA must be provided a list of any changes to this model at the time of filing. Contact the NYSDEC Bureau of Flood Protection and Dam Safety for a copy of a model law or for more information.⁶²

Endnotes

- ¹ NYS Department of Environmental Conservation. (2015). *Observed and Projected Climate Change in New York State: An Overview*. Retrieved 6/1/18 from https://www.dec.ny.gov/docs/administration_pdf/climbkgncrra.pdf
- ² *Communities Participating in the National Flood Program*. Community Status Book Report: New York. (2018) FEMA. Retrieved 6/12/18 from <https://www.fema.gov/cis/NY.pdf>
- ³ *No Adverse Impact: A Toolkit for Common Sense Floodplain Management*. (2003). Association of State Floodplain Managers. Retrieved 6/1/18 from http://www.floods.org/NoAdverseImpact/NAI_Toolkit_2003.pdf
- ⁴ Kusler, Jon. (2003). *Common Legal Questions about Floodplain Regulations in the Courts*, 2003 Update. Retrieved 6/1/18 from http://www.floods.org/NoAdverseImpact/FLOODPLAIN_REG_IN_COURTS_112603.pdf
- ⁵ Chapter 4 Regulatory Tools. In *Reducing Damage from Localized Flooding: A Guide for Communities*. (2011). FEMA 511-05. Retrieved 6/1/18 from <https://www.fema.gov/pdf/fima/FEMA511-05-Chapter4.pdf>
- ⁶ *No Adverse Impact: A Toolkit for Common Sense Floodplain Management*. (2003). Association of State Floodplain Managers. Retrieved 6/1/18 from http://www.floods.org/NoAdverseImpact/NAI_Toolkit_2003.pdf
- ⁷ *National Flood Insurance Program Community Rating System Coordinator's Manual*. (2017). FEMA FIA-15. Retrieved 6/1/18 from <https://www.fema.gov/media-library/assets/documents/8768>
- ⁸ Southern Tier Central Regional Planning and Development Board, *Floodplain Development Standards*. Retrieved 6/1/18 from <http://www.stcplanning.org/index.asp?pageId=108>
- ⁹ *New York State Flood Risk Management Guidance for Implementation of the Community Risk and Resiliency Act*. Retrieved 6/26/18 from <https://www.dec.ny.gov/energy/102559.html>
- ¹⁰ *National Flood Insurance Program Community Rating System CRS Credit for Higher Regulatory Standards*. (2006). FEMA. Retrieved 6/1/18 from https://www.fema.gov/media-library-data/20130726-1555-20490-7239/crs_credit_higher_standards.pdf

¹¹ City of Utica (NY) Municipal Code, Chapter 2-29: Zoning, Article IV: District Regulations, Division 6: Land Conservation District, Section 2-29-251 Purpose and Establishment. Retrieved 6/1/18 from <http://ecode360.com/14015780>

¹² Town of Dover (NY) Municipal Code, Chapter 145: Zoning, Article IV: Overlay District Regulations, Section 145-13 Floodplain Overlay District. Retrieved 6/1/18 from <http://ecode360.com/11750946>

¹³ Town of Ancram (NY) Zoning Law, Article V Supplemental Regulations, A. Regulations for All Districts, 12. Flood Prevention (pp. 62-63). Retrieved 6/1/18 from http://www.ancramny.org/ws/wp-content/uploads/2017/10/Final_Zoning_Law_Nov_20_2014.pdf

¹⁴ *Floodplain Facts #11: Development in Areas of Shallow Flooding*. (2009). Southern Tier Central Regional Planning and Development Board. Retrieved 6/1/18 from http://www.stcplanning.org/usr/Program_Areas/Flood_Mitigation/Floodplain%20Management/NFIP_11_Areas_of_Shallow_Flooding.pdf

¹⁵ Wagner, K., Neuwirth, J., & Janetschek, H. (2009). *Flood risk – Prevention and Impact on Agricultural Lands*. Federal Institute of Agricultural Economics. Retrieved 6/1/18 from <http://ageconsearch.umn.edu/bitstream/50942/2/Wagner37.pdf>

¹⁶ NYS Department of Environmental Conservation. (1986). *Stream Corridor Management: A Basic Reference Manual*. Retrieved 11/16/18 from https://www.dec.ny.gov/docs/water_pdf/streambmmps.pdf

¹⁷ Town of Greenfield (NY) Municipal Code, Chapter 105: Zoning, Article X: Overlay District Requirements, Section 105-112 Floodplain Management, Wetland Resource Conservation Overlay District (FMWRC). Retrieved 6/1/18 from <http://ecode360.com/8221936>

¹⁸ Definition from Chapter 2.06 of the New Hampshire Department of Environmental Services, *Innovative Land Use Planning Techniques: A Handbook for Sustainable Development*. (2008). Retrieved 11/16/18 from https://www.des.nh.gov/repp/innovative_land_use.htm

¹⁹ Jones, Christopher. (2017). *Flood Resistance of the Building Envelope*. National Institute of Building Sciences. Retrieved 6/1/18 from https://www.wbdg.org/resources/env_flood.php

²⁰ The Department of State provide documents on its website relating to Uniform Code – Executive Law §379, including a “Code Outreach Program - More Restrictive Construction Standards” at https://www.dos.ny.gov/DCEA/pdf/2018-3_More_Restrictive_Construction_Standards.pdf and a form called “Notice and Petition Relating to

More Restrictive Construction Standards” at [https://www.dos.ny.gov/DCEA/pdf/Notice %20and Petition 379.pdf](https://www.dos.ny.gov/DCEA/pdf/Notice%20and%20Petition%20379.pdf).

²¹ Town of Brookhaven, Local Law 14 of 2009. Retrieved 6/1/18 from http://locallaws.dos.ny.gov/sites/default/files/drop_laws_here/ECMMDIS_appid_DOS20150218075531_38/Content/090213438000c73c.pdf

²² Village of Freeport, Local Law 3 of 2013. Retrieved 6/1/18 from http://locallaws.dos.ny.gov/sites/default/files/drop_laws_here/ECMMDIS_appid_DOS20150218075529_42/Content/090213438000a4a2.pdf

²³ *No Adverse Impact: A Toolkit for Common Sense Floodplain Management*. (2003). Association of State Floodplain Managers. Retrieved 6/1/18 from [http://www.floods.org/NoAdverseImpact/NAI Toolkit 2003.pdf](http://www.floods.org/NoAdverseImpact/NAI_Toolkit_2003.pdf)

²⁴ *National Flood Insurance Program Community Rating System Coordinator’s Manual*. (2017). FEMA FIA-15. Retrieved 6/1/18 from <https://www.fema.gov/media-library/assets/documents/8768>

²⁵ Unit 6: Additional Regulatory Measures. In *Managing Floodplain Development Through the NFIP*. (1998). Retrieved 6/1/18 from <http://www.fema.gov/media-library-data/20130726-1535-20490-3720/unit6.pdf>

²⁶ Section 6: Mitigation Strategies. In *DMA 2000 Hazard Mitigation Plan Update- Chenango County, New York*. (2015). Retrieved 6/1/18 from <http://www.co.chenango.ny.us/hazard-mitigation-plan/section/Section%206%20-%20Mitigation%20Strategy.pdf>

²⁷ Town of Sherburne (NY) Intermunicipal Floodplain Management Agreement. (2013). Retrieved 6/1/18 from [http://www.townofsherburne.net/wp-content/uploads/Intermunicipal-Agreement-Floodplain.pdf? sm_au =iVVQ6JZ2jD5HJW7P](http://www.townofsherburne.net/wp-content/uploads/Intermunicipal-Agreement-Floodplain.pdf?sm_au=iVVQ6JZ2jD5HJW7P)

²⁸ Town of New Berlin (NY) Municipal Code, Chapter 91: Flood Damage Prevention, Article IV: Administration, Section 91-10. Retrieved 6/1/18 from <http://ecode360.com/9471540>

²⁹ *Designing for Flood Levels Above the BFE*. (2010). FEMA Technical Fact Sheet 1.6. Retrieved 6/1/18 from http://www.fema.gov/media-library-data/20130726-1537-20490-8057/fema499_1_6_rev.pdf

³⁰ *Designing for Flood Levels Above the BFE After Sandy*. (2013) FEMA RA5. Retrieved 6/1/18 from http://www.fema.gov/media-library-data/1381405016896-8bdeadf634c366439c35568a588feb24/SandyRA5DesignAboveBFE_508_FINAL2.pdf

³¹ Ibid.

³² *Reducing Flood Losses Through the International Codes, 4th Edition, 2014*. International Code Council in cooperation with FEMA. Retrieved 6/6/19 from https://www.fema.gov/media-library-data/1411731781834-d0c7d7f9ff0d195ce3c33901ba73daac/ReducingFloodLosses_4thED_Final_508.pdf

³³ *Importance of the Limit of Moderate Wave Action (LiMWA)*. FEMA Fact Sheet FPM 1. Retrieved 6/4/19 from https://www.fema.gov/media-library-data/1436816523486-15e2af5cfc6514c156adacd337d3caed/FPM_1_Page_LiMWA.pdf

³⁴ *Designing for Flood Levels Above the BFE After Sandy*. (2013) FEMA RA5. Retrieved 6/1/18 from http://www.fema.gov/media-library-data/1381405016896-8bdeadf634c366439c35568a588feb24/SandyRA5DesignAboveBFE_508_FINAL2.pdf

³⁵ *New York State Flood Risk Management Guidance for Implementation of the Community Risk and Resiliency Act*. Retrieved 6/26/18 from <https://www.dec.ny.gov/energy/102559.html>

³⁶ Ibid.

³⁷ *Using a Digital Flood Insurance Rate Map (DFIRM)*. (2010). FEMA Fact Sheet No. 1.3. Retrieved 6/1/18 from https://www.fema.gov/media-library-data/20130726-1537-20490-8105/fema499_1_3.pdf

³⁸ *Designing for Flood Levels Above the BFE After Sandy*. (2013) FEMA RA5. Retrieved 6/1/18 from http://www.fema.gov/media-library-data/1381405016896-8bdeadf634c366439c35568a588feb24/SandyRA5DesignAboveBFE_508_FINAL2.pdf

³⁹ *Coastal Construction Manual, Third Edition*. (2000). FEMA 55. Retrieved 6/1/18 from http://www.vcfloodinfo.com/pdf/coastalconstruction_vol1.pdf

⁴⁰ *Importance of the Limit of Moderate Wave Action (LiMWA)*. FEMA Fact Sheet FPM 1. Retrieved 6/4/19 from https://www.fema.gov/media-library-data/1436816523486-15e2af5cfc6514c156adacd337d3caed/FPM_1_Page_LiMWA.pdf

⁴¹ New York State Department of Environmental Conservation. *Model Local Law for Flood Damage Prevention, Optional Additional Language*. Retrieved 6/12/18 from https://www.dec.ny.gov/docs/water_pdf/oppaddlang17.pdf

⁴² Town of Wappinger (NY) Municipal Code, Chapter 133: Flood Damage Prevention, Section 133-14 General Standards. Retrieved 6/1/18 from <http://ecode360.com/11071808>

⁴³ Town of Marlborough (NY) Municipal Code, Chapter 97: Flood Damage Prevention, Section 97-15 Floodways. Retrieved 6/1/18 from http://ulstercountyny.gov/sites/default/files/documents/marlborough-town_code.pdf

⁴⁴ *A Guide for Higher Standards in Floodplain Management*. (2011). ASFPM Floodplain Regulations Committee. Retrieved 6/1/18 from http://www.floods.org/ace-files/documentlibrary/committees/Higher_Std Ref_Guide_07-12-11.pdf

⁴⁵ *National Flood Insurance Program: Answers to Frequently Asked Questions About Increased Cost of Compliance*. (2017) FEMA P-1080. Retrieved 6/12/18 from https://www.fema.gov/media-library-data/1506089264747-18aea311b4cffe2c738e3c56fccff18d/20170817_ICC_FAQs.pdf

⁴⁶ The \$30,000 in additional insurance coverage is available only up to the total limit of coverage under the National Flood Insurance Program. That limit is \$250,000 for a residential structure and \$500,000 for a non-residential structure. The total insurance claim plus the ICC claim may not exceed the above limits. *National Flood Insurance Program: Answers to Frequently Asked Questions About Increased Cost of Compliance*. (2017) FEMA P-1080. Retrieved 6/12/18 from https://www.fema.gov/media-library-data/1506089264747-18aea311b4cffe2c738e3c56fccff18d/20170817_ICC_FAQs.pdf

⁴⁷ *National Flood Insurance Program: Answers to Frequently Asked Questions About Increased Cost of Compliance*. (2017) FEMA P-1080. Retrieved 6/12/18 from https://www.fema.gov/media-library-data/1506089264747-18aea311b4cffe2c738e3c56fccff18d/20170817_ICC_FAQs.pdf

⁴⁸ Section 4: The Community's Role. *Increased Cost of Compliance Coverage - Guidance for State and Local Officials*. (2003). FEMA 301. Retrieved 11/16/18 from https://www.fema.gov/media-library-data/20130726-1453-20490-7827/fema301_complete.pdf

⁴⁹ Town of Huron (NY) Flood Damage Prevention Law, Section 2 Definitions. Retrieved 6/5/19 from https://locallaws.dos.ny.gov/sites/default/files/drop_laws_here/ECMMDIS_appid_DOS20150728060040/Content/09021343800ee29b.pdf

⁵⁰ Enforcement of a cumulative substantial improvement provision could result in up to 110 credits toward flood insurance discounts in communities that participate in the CRS.

⁵¹ Town of Huron (NY) Flood Damage Prevention Law, Section 2 Definitions. Retrieved 6/5/19 from

https://locallaws.dos.ny.gov/sites/default/files/drop_laws_here/ECMMDIS_appid_DOS20150728060040/Content/09021343800ee29b.pdf

⁵² 6 NYCRR 502.4 Floodplain Management Criteria for State Projects in Flood Hazard Areas, Section (a)(17). Retrieved 6/1/18 from [https://govt.westlaw.com/nycrr/Document/I4eb109d4cd1711dda432a117e6e0f345?viewType=FullText&originationContext=documenttoc&transitionType=CategoryPageItem&contextData=\(sc.Default\)](https://govt.westlaw.com/nycrr/Document/I4eb109d4cd1711dda432a117e6e0f345?viewType=FullText&originationContext=documenttoc&transitionType=CategoryPageItem&contextData=(sc.Default))

⁵³ Town of Wappinger (NY) Municipal Code, Chapter 133 Flood Damage Prevention, Section 133-3 and 133-19. Retrieved 6/1/18 from <https://ecode360.com/11071675>

⁵⁴ Levees are regulated by 44 CFR 65.10 – Mapping of areas protected by levee systems. Retrieved 11/16/18 from <https://www.law.cornell.edu/cfr/text/44/65.10>

⁵⁵ Town of New Scotland (NY) Local Law 1-2015, A Local Law for Flood Damage Prevention. Retrieved 6/1/18 from <http://www.townofnewscotland.com/DocumentCenter/View/519/Flood-Damage-Prevention-2015-LL01>

⁵⁶ *A Guide for Higher Standards in Floodplain Management*. (2011). ASFPM Floodplain Regulations Committee. Retrieved 6/1/18 from http://www.floods.org/ace-files/documentlibrary/committees/Higher_Stds_Ref_Guide_07-12-11.pdf

⁵⁷ City of New London, Outagamie and Waupaca Counties (WI), Municipal Code, Chapter 16: Floodplain Zoning Code, Section 16-10.0 Definitions. Retrieved 6/1/18 from http://www.newlondonwi.org/Clerks/Municipal_Code/CHAPTER_16.pdf

⁵⁸ Unit 6: Additional Regulatory Measures. In *Managing Floodplain Development Through the NFIP*. (1998). Retrieved 6/1/18 from <http://www.fema.gov/media-library-data/20130726-1535-20490-3720/unit6.pdf>

⁵⁹ Ibid.

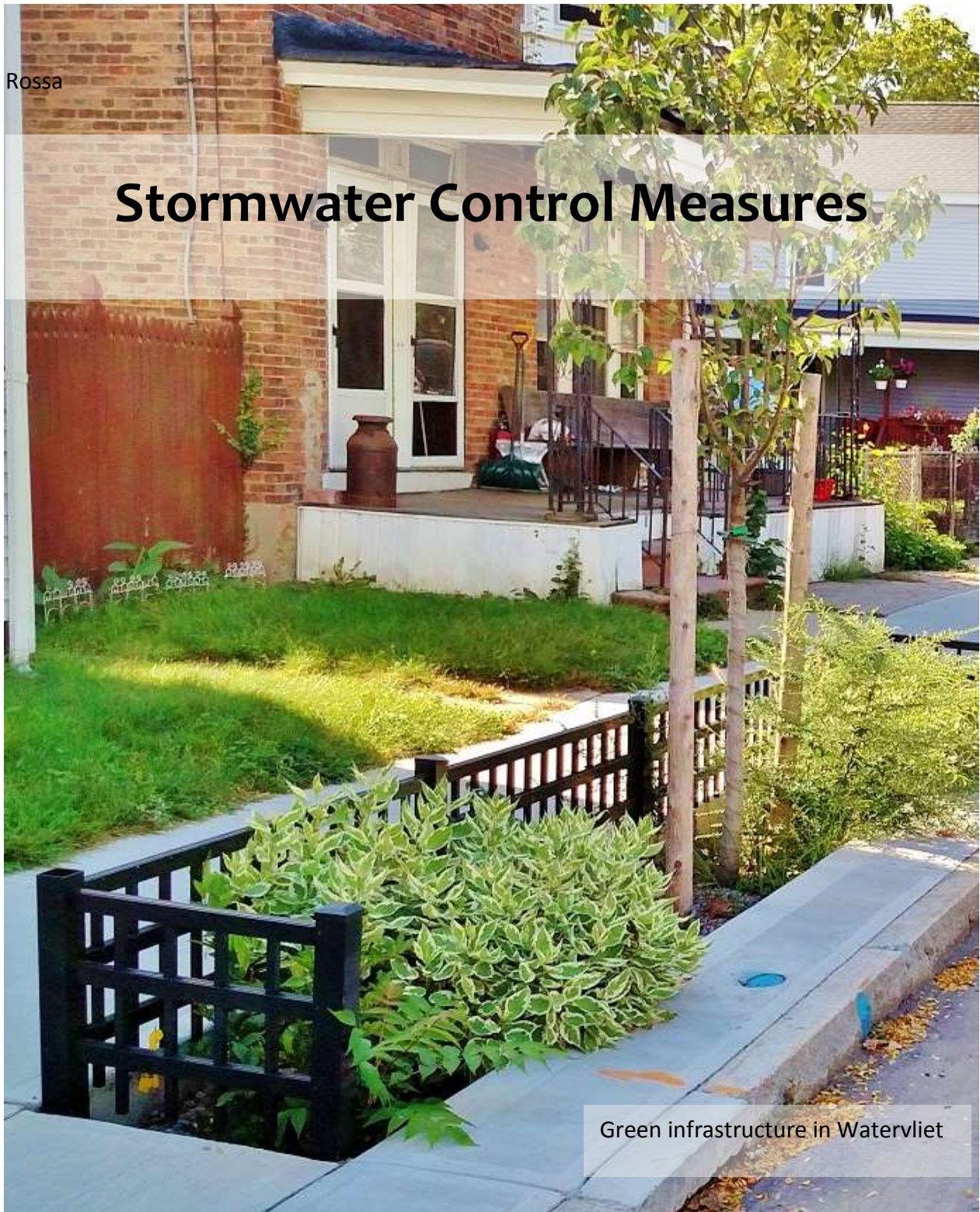
⁶⁰ *A Guide for Higher Standards in Floodplain Management*. (2013). ASFPM Floodplain Regulations Committee. Retrieved 6/13/18 from https://www.floods.org/ace-files/documentlibrary/committees/3-13_Higher_Standards_in_Floodplain_Management2.pdf

⁶¹ Waukesha (WI) Municipal Code, Chapter 22 Zoning, Section 22.70 Floodplain Zoning. Retrieved 6/12/18 from <http://waukesha-wi.gov/DocumentCenter/View/664/2270-Floodplain-Zoning-PDF>

⁶² The NYS Department of Environmental Conservation Division of Water, Bureau of Flood Protection and Dam Safety is located at 625 Broadway, 4th Floor, Albany, NY 12233-3504. Contact them by email at floodplain.floodplain@dec.ny.gov or by telephone at 518-402-8185.

Rossa

Stormwater Control Measures



Green infrastructure in Watervliet

Rossana Rosado, Secretary of State

Andrew M. Cuomo, Governor



Department
of State



New York State Department of State
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Publication Date: June 2019

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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.

5. Stormwater Control Measures

Stormwater is an important water resource. As rain falls, some water runs off overland and most soaks into the soil, recharging groundwater as it makes its way to lakes and streams. Numerous features of the natural landscape trap runoff and allow rainwater to filter into the ground. These natural features remove pollutants and slow the rate of surface runoff. However, land development often eliminates features that moderate stormwater runoff, exposing soil to erosion. After construction is finished, parts of the site are usually covered by pavement, buildings and other impervious surfaces. Water can no longer be absorbed into these areas, so more stormwater remains on the land surface, picking up pollutants as it runs off overland or through storm drains. Downstream, bank erosion and flooding increase, and even upstream communities begin to experience road washouts and flooded basements. Instead of a valuable resource, stormwater becomes a costly and sometimes dangerous problem.

Preventing these problems requires both temporary and permanent stormwater management controls. Temporary erosion and sediment control measures and site planning are important during construction to prevent soil erosion and impacts to local water resources. Permanent stormwater management practices are installed during development of the site, but their purpose is to keep soil in place, treat pollutants in stormwater and control flooding after land development is complete for the long-term benefit of the community.

Because local governments have the principal responsibility for controlling land use and development, federal and state law require urbanized communities designated as Municipal Separate Storm Sewer Systems (MS4s)¹ to establish stormwater management programs. The goal of these programs is to retain or absorb stormwater on developed sites wherever possible, with the quantity, rate and quality of runoff remaining as they were before the sites were developed. The state/federal stormwater management program is set up to allow flexibility for local governments to manage stormwater in a way that suits their own individual conditions.

Throughout New York State, owners or operators of most construction projects that involve soil disturbance of one or more acres must obtain coverage under the State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activity, and meet the standards in the State's two engineering specifications: New York State Standards and Specifications for Erosion and Sediment Control, and the New York State Stormwater Management Design Manual. In the New York City East of Hudson watershed, this requirement is triggered by construction projects involving soil disturbance of 5,000 square feet or more, as compared to projects involving an acre (43,560 square feet) or more of land. These requirements exist whether or not a municipality is a designated MS4. Therefore, the model and sample local laws in this Chapter have been designed or revised to reflect the more stringent New York State standards for erosion and sediment control and stormwater management.

Stormwater Management Options	
Technique	Description
Steep Slopes	Amends the zoning ordinance, subdivision law, or creates a standalone law to regulate the amount of land that can be disturbed in any project; the activities that can occur within the bluff area; the vegetation that must remain on and around the slope; and the amount of impervious surfaces. Such laws can also provide standards designed to control erosion of the slope.
Stormwater Management and Reducing Impervious Surfaces	Regulate the amount of impervious area in new development and reduce the impact of necessary impervious surfaces associated with that development. Changes to zoning can incorporate impervious surface coverage limits by district; basic stormwater management laws can include incentives for reducing impervious surfaces; and stormwater management laws can add provisions to require green infrastructure.
Mitigation for Failure to Reduce Impermeable Surface Coverage	Through amendments to the zoning law or stormwater management law, allow the planning board to require mitigation of stormwater issues prior to approving redevelopment or expansion of nonconforming uses/structures/lots. Mitigation could occur through conservation easement or monetary contribution to a local fund.
Erosion and Sediment Control and Stormwater Management	Implement construction site and post-construction stormwater management activities through a stormwater management and erosion and sediment control law.
Stormwater Utility	A funding mechanism which enables a municipality to assess a fee on all property-owners to pay for the management of stormwater. It can also incentivize the use of green infrastructure by residents and businesses alike through credits.
Examples from other Chapters in the Model Local Law Publication	
Maximum Lot Coverage	Establishes bulk standards related to the amount of land in a developable lot that can be covered by buildings, structures and impermeable areas such as asphalt and concrete. See example in <i>Basic Land Use Tools for Resiliency</i> Chapter.

Nonconformance of Impermeable Surface Coverage	Allows legal nonconforming lots in a lake front district to be redeveloped by special use permit where impermeable surface coverage on the lot is reduced, and runoff is mitigated. Among the mitigation measures is acquisition of a conservation easement on land in the zoning district, or contribution toward a fund for acquisition of development rights. See example in <i>Basic Land Use Tools for Resiliency</i> Chapter.
Drainage Improvements in a Subdivision	Require subdivision lot lines to be drawn so that drainage patterns are not disturbed and lots are buildable. See example in <i>Basic Land Use Tools for Resiliency</i> Chapter.
Subdivision Woodlands	Incorporate into zoning, subdivision, and site plan laws language to limit land clearance in advance of development in favor of selective clearance of land. This can reduce stormwater runoff, thus reducing flood risk. See example in <i>Basic Land Use Tools for Resiliency</i> Chapter.

RESOURCES

Stormwater Management Guidance Manual for Local Officials. (2004). NYS Department of Environmental Conservation.²

New York State Standards and Specifications for Erosion and Sediment Control (Blue Book). (2016). NYS Department of Environmental Conservation.³

New York State Stormwater Management Design Manual. (2015) NYS Department of Environmental Conservation.⁴

Green Infrastructure Guide. (2015). City of Newburgh, NY: Conservation Advisory Council.⁵

Better Site Design. (2008). NYS Department of Environmental Conservation Division of Water.⁶

Scott, Geoffrey. (2014). *Stormwater Management.* Ithaca: Cornell Local Roads Program.⁷

5.1 Steep Slopes

Steep slopes add beauty to an area, but they also present environmental challenges. If not properly maintained, they can lead to serious environmental harm. Steep slopes with impervious surfaces, or slopes that lack sufficient vegetation are more likely to erode and become unstable. Slopes with no or little vegetation allow water to rush downhill carrying debris and sometimes washing out roads and trails. If a waterbody is at the bottom of the slope, soil erosion can impact the quality of the water. Unstable slopes can also lead to landslides, wash-outs, stormwater redirection, pollution, and significant property damage.

The Westchester County Planning Department has provided some guidance related to steep slopes (see box), which they define as areas with an average slope equal to or greater than 15% with a minimum 500 square feet.⁸

Key Elements of a Steep Slopes Ordinance
Source: Flooding and Land Use Planning: A Guidance Document for Municipal Officials and Planners (Westchester County)

Steep Slope Definition:
Those areas with an average slope equal to or greater than 15%, as measured in accordance with the slope measurement criteria, with minimum 500 sq ft.

Steep Slope Restrictions:
Land that includes a slope equal to or greater than 15% that has a request to be developed and/or regraded or stripped of vegetation will require a permit. The percentage of land that can be possibly developed should vary depending on the steepness of the land.

Ideal Recommendations:

- Sloped land slope = 15% requires permit;
- Sloped area from 15%-20% not more than 25% of the area may be disturbed;
- Sloped area slope = 20%, no more than 10% of that area may be disturbed;
- Sloped area slope = 25% may not be disturbed.

Cut and Fill of Steep Slopes:
Cut and Fill provisions should be included for all steep slope activity. Cut and fill slopes does not exceed a slope of one vertical to three horizontal except where retaining walls, structural stabilization, or other methods acceptable to the Town Engineer are used.

Mitigation Measure:
Proper completion of the proposed activity in accordance with the approved plans. The restoration of the area to its natural condition as far as practicable and protection of adjoining property owners from damage resulting from steep slope disturbances.

Permit Requirements:
Permits should be required when developing, regrading or stripping land slope is equal to or greater than 15% slope.

Preserving steep slopes and building on flatter areas helps to prevent soil erosion and minimizes stormwater runoff, to stabilize hillsides and soils, and to reduce the need for cut-and-fill and

grading. Avoiding development on erodible soils can prevent sedimentation problems and water-quality degradation. Areas with highly permeable soils can be used as nonstructural stormwater infiltration zones.

Laws applying to steep slopes can regulate the amount of land that can be disturbed in any project; the activities that can occur within the bluff area; the vegetation that must remain on and around the slope; and the amount of impervious surfaces. They can also provide standards designed to control erosion of the slope.

Three examples are provided here for regulating steep slopes. The first regulates frontage and pavement standards based on the slope of a driveway. The second example incorporates performance standards into the supplemental regulations portion of the zoning law. It would apply throughout the municipality wherever slopes greater than fifteen percent, or some other locally determined slope, exist. The third example establishes a steep slope protection district to address development in special resource areas.

Example	Description
Lot Frontage and Driveways on Steep Slopes	Requires an increasing amount of frontage based on slope of 15% and above and establishes maximum slopes and pavement standards for driveways.
Steep Slope and Erosion Control Performance Standards	Would apply throughout the municipality wherever slopes greater than a designated amount exist. Describes general best management standards for control of erosion.
Steep Slope Protection Overlay District	Regulates activities on lands with slopes of 15% or greater as designated on an official map and requires a permit prior to undertaking regulated activities.

RESOURCES

New York State Standards and Specifications for Erosion and Sediment Control (Blue Book). (2016). NYS Department of Environmental Conservation.⁹

5.1.1 Lot Frontage and Driveways on Steep Slopes

One way in which slopes are disturbed is by the construction of roads or driveways. This disturbance can result in unsafe lot access, increased erosion, and sedimentation on adjoining roads. By requiring an increasing minimum frontage for building lots with a significant slope perpendicular to the street, a municipality can minimize or mitigate stormwater runoff and soil erosion and reduce the number of lots developed along a slope. Increased frontage can provide greater opportunities for the installation of driveways with the appropriate slope and drainage, which might be achieved through longer drives or switchbacks parallel with the road. Driveways that access state or county roads are subject to conditions established through permit requirements, which may be more stringent than local requirements.^{10 11}

APPLICATION

Include this language in subdivision regulations in a section containing standards for lot development.

ADAPTED FROM THE FOLLOWING SOURCE

Buncombe County (NC) Land Development and Subdivision Ordinance, Chapter 70 Subdivisions, Article III Standards, Section 70-66 General Requirements¹²

City of Hendersonville (TN) Subdivision Regulations, Article III Design Standards and Improvement Requirements, 3-102 Lot Requirements, 3-102.6 Driveways/Access to Lots, Section 3-102. 605 Design Standards for Residential Driveways¹³

LANGUAGE

(x) Lot frontage. Lot frontage shall be regulated when the average land slope perpendicular to the street exceeds 15 percent [*original law said 18 percent*]. Any residential subdivision lot where the side slope of the land, at a right angle to the frontage street, is in excess of 15 percent slope shall have a minimum of 50 feet street frontage, and the lot street frontage shall be increased four feet for each side slope percentage point over the 15 percent base for such calculations. Example: A side slope of 50 percent requires lot frontage of 178 feet (50 feet, plus 128 feet for the excess side slope of 32 percent).

(y) Residential driveways. Any driveway should be constructed in a manner such that the drive has a maximum slope of eight percent for the first fifteen feet (measured from the back of the city approved sidewalk). Driveways greater than eight percent slope shall be reviewed and approved by the [*City/Town/Village*] [*highway department/engineer*] prior to a building permit being issued. In no case shall the driveway slope exceed ten percent in the first 15 feet from the street. Where the potential exists for gravel or soil to be washed from a driveway onto the public right-of-way such driveways shall be paved or otherwise stabilized for a distance sufficient to

prevent material from migrating onto public property. Where the driveway design and standards listed above are not in conformance with the standards of the state or county departments of transportation, the [city/town/village] [highway department/engineer] may require conformance with whichever standard is more restrictive.

5.1.2 Steep Slope and Erosion Control Performance Standards

Performance standards may be developed that apply anywhere in the municipality where steep slopes exist.

APPLICATION

Most municipalities will already have a section of the zoning law called supplementary use regulations or performance standards. The text below can be incorporated into existing sections or added as a new section under the suggested heading. The language used should be compatible with and complementary to a more robust stormwater sediment and erosion control local law.

ADAPTED FROM THE FOLLOWING SOURCE

City of Newburgh (NY) Municipal Code, Chapter 300: Zoning Law, Section 300-52 Environmental Constraints¹⁴

Town of Ayer (MA) Proposed Zoning Bylaw (March 2017). Section 9: General Regulations, Subsection 9.4: Environmental Performance Standards¹⁵

LANGUAGE

Section X. Supplementary Regulations; Environmental Constraints

A. Purpose. The provisions within this Section are designed to protect the natural resources and environmentally sensitive areas in all applicable areas of the [*City/Town/Village of _____*], within all zoning districts. The standards are intended to define and conserve selected natural resources by minimizing adverse impacts to them, thereby protecting the rights of the residents of the [*city/town/village*] to clean air, pure water, and the natural, scenic, historic and aesthetic values of the environment.

B. Resource Types. The following subsections address individual natural resource types by prescribing performance standards governing land disturbance where the resources exist.

(1) Steep Slopes.

(a) For any subdivision, special use permit, site plan, building permit, zoning permit, or variance that involves the disturbance of slopes greater than 15%, conditions shall be attached to ensure that:

[i] Adequate erosion control and drainage measures will be in place so that erosion and sedimentation do not occur during or after construction, as determined by the Planning Board.

[ii] Cutting of trees, shrubs, and other natural vegetation will be minimized, as determined by the Planning Board.

[iii] Safety hazards will not be created due to excessive road or driveway grades or due to potential subsidence, road washouts, landslides, flooding or avalanches, as determined by the Planning Board.

[iv] Proper engineering review of plans and construction activities will be conducted by the *[City/Town/Village]* to ensure compliance with this section, paid for by escrow deposits paid by the Applicant.

[v] No Certificate of Occupancy will be granted until all erosion control and drainage measures required pursuant to this section have been satisfactorily completed.

[vi] There will be no building allowed within the one hundred (100) feet of a waterbody within the *[insert name of district, such as the Water Overlay District]*.

(b) Slope determinations shall be made based upon the topographic information required for a particular approval, along with such other topographic information as a reviewing board or official shall reasonably require or the Applicant shall offer. In cases of uncertainty or dispute, a qualified professional retained by the *[City/Town/Village]*, at the Applicant's expense, shall determine the location of regulated slopes.

(2) Erosion Control.

(a) Erosion of soil and sedimentation of watercourses and waterbodies shall be minimized by employing the following "best management" practices *[if applicable, add "and the requirements of the stormwater and erosion control provisions contained in Section ____ of this law"]*:

[i] Exposed or disturbed areas due to stripping of vegetation, soil removal, and regrading shall have achieved final stabilization within six months of occupancy of a structure, or when the Notice of Termination for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activities is filed with the New York State Department of Environmental Conservation, whichever occurs first.

[ii] During construction, temporary vegetation and/or mulching shall be used to protect exposed areas from erosion. Until a disturbed area is permanently stabilized, sediment in runoff shall be trapped by using silt fence or sedimentation traps. All temporary erosion and sediment control measures shall be designed and installed according to the most current version of the New York State Standards and Specifications for Erosion and Sediment Control.

[iii] Permanent erosion control and vegetative measures shall be in accordance with erosion/sedimentation vegetative practices in the most current version of the New York State Standards and Specifications for Erosion and Sediment Control.

[iv] All slopes exceeding fifteen (15) percent resulting from the site grading shall be stabilized with practices designed and installed according to the most current version of the New York State Standards and Specifications for Erosion and Sediment Control.

[v] Dust control shall be used during grading operations if the grading is to occur within 200 feet of an occupied residence or place of business. Dust control methods and conditions are provided in New York Standards and Specifications for Erosion and Sediment Control. The most current version is the version that should be followed.

Add to definition section of zoning law:

“Final Stabilization” means that all soil disturbance activities have been completed and a uniform, perennial vegetative cover with a density of eighty (80) percent over the entire pervious surface has been established; or other equivalent stabilization measures, such as permanent landscape mulches, rock rip-rap or washed/crushed stone have been applied on all disturbed areas that are not covered by permanent structures, concrete or pavement.

5.1.3 Steep Slope Protection Overlay District

Overlay districts may be established to provide special controls over land development located in sensitive environmental areas. The regulations contained in an environmental overlay district would not be a substitute for the zoning regulations of the underlying primary zoning districts but are additional requirements that shall be met by an applicant or developer prior to project approval. The purpose of overlay districts is to provide the municipality with an additional level of review and regulation that controls how land development permitted by the municipality's primary zoning districts should occur in or near sensitive or unique environmental areas.

A comprehensive plan can support the adoption of steep slope protection overlay districts as a technique to:

- Enhance flood protection.
- Maintain and improve surface water quality.
- Preserve wildlife habitats.
- Preserve aesthetics.
- Maintain soils and slope stability.
- Control adverse impacts of existing development.

APPLICATION

Identify the area(s) of the municipality that would be included in a steep slope protection overlay district and a map showing those areas as an overlay to the municipal zoning map. Amend the section of the municipal zoning law which establishes zoning districts to include a new overlay district.

ADAPTED FROM THE FOLLOWING SOURCE

Town of Owasco (NY) Municipal Code, Chapter 150: Zoning, Article IIA: Environmental Protection Overlay Districts, Section 150-9.20¹⁶

LANGUAGE

Section X. Steep Slope Protection District

A. Purpose. The purpose of the Steep Slope Protection Overlay District is to minimize the impacts of development activities on steep slopes in the [City/Town/Village of ____] by regulating activities in such areas and by requiring review and permit approval prior to project commencement. The development impacts include soil erosion and sedimentation, destruction of vegetation, increased stormwater runoff rates and landslides. The regulations contained in this district are designed to minimize the disturbance or removal of existing vegetation, prevent increased erosion and stormwater runoff, maintain established drainage systems, locate

development where it is less likely to cause future slope failures and to retain, as much as possible, the natural character of these areas.

B. Delineation of district boundaries. The boundaries of the Steep Slope Protection Overlay District shall be delineated on the [City/Town/Village of ____] Official Maps and shall include all areas of fifteen-percent or greater slopes, and all areas within 50 feet of the toe or top of such slopes. The Planning Board may consult other information, including but not limited to the Soil Survey Map of [insert name of county] County, topographic maps produced by the United State Geological Survey, filed surveys and other appropriate sources, in order to more accurately locate and delineate Steep Slope Protection Overlay District boundaries.

C. Permit application.

(1) Permit required. A steep slope development permit shall be required subject to the provisions of this section and prior to the commencement of any regulated activity or the issuance of any building permit for regulated development in a designated Steep Slope Protection Overlay District.

(2) Approvals required. Steep slope development permits may be authorized by the Planning Board concurrently with subdivision and site plan approvals for which the Planning Board has jurisdiction.

(3) Application procedures.

(a) Applications for steep slope development permits shall be made in writing and filed with the Zoning Enforcement Officer on application forms available in the [Code Enforcement/Zoning Enforcement] office. Application packets provided to applicants shall contain an application form and instructions which shall include submittal requirements, fees, procedures and approval criteria. Application shall be made by the property owner or his/her agent and shall be accompanied by the materials and fees specified. If the [Code Enforcement Officer/Zoning Enforcement Officer] determines the application to be complete, the application shall be submitted to the Planning Board at its next duly called meeting following the date of the submission of the complete application. If the application is deemed to be incomplete, the [Code Enforcement Officer/Zoning Enforcement Officer] shall return the application to the applicant and identify the deficiencies of the application.

(b) The applicant shall submit a scaled (one inch equals 50 feet or one inch equals 100 feet) site plan, prepared and certified by a licensed engineer or land surveyor, that contains the following minimum information:

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

[ii] The location of all [*insert name of special environmental districts, such as the Conservation District*], designated municipal open space, municipal, county or state parks.

[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 two-foot intervals for the property.

[vi] Soil types on the property including erosion hazard ratings.

[vii] The location and types of all existing and proposed vegetation and shrub masses, as well as all trees with a diameter of eight inches or more within and/or adjacent to the property.

[viii] The location of all existing and proposed drainage patterns, drainageways, swales, etc., within and/or adjacent to the property.

(4) Fees. The [*City Council/Town Board/Village Board of Trustees*] may, from time to time, by resolution, establish and amend the fees for steep slope development permits. The steep slope development permit fees shall be in addition to any other fees required.

(5) Review procedures. Whenever possible, the review of activities within Steep Slope Protection Overlay Districts shall be performed concurrently with other required approvals. The Planning Board may refer the application to other appropriate boards and agencies for their review and recommendations. Such boards or agencies shall have 30 days from the date of their receipt of a completed application in which to report their recommendations. Failure for any board or agency to respond within this time frame shall not be cause for the Planning Board to postpone processing such application or action thereon. The time line for Planning Board review shall be consistent with the review time line prescribed for subdivision review if subdivision approval is required for the subject property. If subdivision approval is not required, the time line for Planning Board approval shall be consistent with the review time line prescribed for site plan review. The Planning Board shall have the authority to approve, approve with conditions or deny steep slope development permit for regulated activities subject to the standards, criteria, and other factors contained in this article.

D. Regulated activities.

(1) Clearing of or constructing on any land area within the Steep Slope Protection Overlay District, including construction or clearing activities related to providing equipment access on the site, except for those activities exempted from regulations as enumerated in Paragraph E herein.

(2) The construction or placement of any sewage disposal system, including individual sewage disposal systems septic tanks, septic drainage or leach fields.

(3) Filling, cutting or excavation operations.

(4) Discharge of stormwater and/or construction and placement of stormwater runoff systems.

E. Exempt activities. The following activities are exempt from the permit procedures of this section:

(1) Lawn care and maintenance.

(2) Noncommercial gardening activities.

(3) Tree and shrub care and maintenance.

(4) Select cutting and removal of trees in woodlots that are not located on steep slopes, for the personal use of the property owner and not for commercial purposes.

(5) Removal of dead or deteriorating vegetation.

(6) Maintenance and repair of existing structures and buildings.

(7) Emergency repair and maintenance of faulty or deteriorating sewage facilities or utility lines.

(8) Reconstruction of structures damaged by a natural disaster, provided that the new construction is of the same size and at the same location.

(9) Customary agricultural activities such as tilling of the soil, dairying, pasture, animal and poultry husbandry, apiculture, arboriculture, horticulture, floriculture, viticulture, and accessory uses secondary to that of the principal agricultural production activities, except for new or expanded structures.

(10) Public health activities, orders and regulations of the New York State Department of Health, [*insert name of county*] County Department of Health or other related agency.

(11) Drilling a water well to serve a single residence.

(12) An actual or ongoing emergency activity which is immediately necessary for the protection of life, property or natural resources.

(13) Removal of structures.

(14) Installing utility service from an existing distribution facility to a structure, where no major modifications or construction is necessary.

(15) Repair and maintenance of faulty or deteriorating sewage facilities or utility lines.

(16) Any activities associated with normal, outdoor recreational activity

(17) Activities subject to the review jurisdiction of the New York State Public Service Commission or the New York State Board on Electric Generation Siting and the Environment under the provisions of Article 7 of the New York State Public Service Law.

[Note: Activities 13 through 17 may need coverage under the SPDES General Permit for Construction Activity if they result in a disturbance of one or more acres.]

F. Standards for permit review.

(1) General regulations. No permit to undertake a regulated activity within a Steep Slope Protection Overlay District in the [City/Town/Village of ____] shall be issued unless the project complies with the following additional standards:

(a) The stable angle of repose of the soil classes found on the site shall be used to determine the proper placement of structures and other development-related facilities within the plateau area. Site-specific calculations of the stable angle of repose for the site shall be determined by an engineer or certified professional soil scientist using the soil classes and nomenclature contained in the Soil Survey of [insert name of county] County and obtained for the site by borings, as well as high-intensity soil survey data provided by the applicant.

(b) The stability of soils will be maintained or increased to adequately support any construction thereon or to support any landscaping, agricultural or similar activities. This shall be documented by soil bearing data provided by a qualified testing laboratory or engineer and paid for by the developer.

(c) No proposed activity will cause erosion or slipping of soil or cause sedimentation to be discharged into any stream, brook, tributary, wetlands or into [insert name of major river or lake].

(d) Plant life located on the slopes outside the minimum area that need to be disturbed for carrying on approved activities shall not be destroyed. Plants or other acceptable ground cover shall be reestablished in disturbed areas immediately upon completion of development activity so as to prevent any of the harmful effects set forth above to maintain the natural scenic characteristics of any steep slope.

(e) Access down steep slopes shall be provided with ramp slopes no greater than one to six and side slopes not greater than one to three if not terraced or otherwise structurally stabilized. Disturbed non-roadway areas shall be stabilized and adequately drained.

(f) There is no reasonable alternative for the proposed regulated activity on that portion of the site not containing steep slopes.

(2) Specific standards. Construction of erosion protection structures shall be permitted according to the following standards:

(a) All erosion protection structures shall be designed and constructed according to generally accepted engineering principles and the most current version of the New York State Standards and Specifications for Erosion and Sediment Control.

(b) A long-term maintenance program shall be included in any application for construction, modification or restoration of an erosion protection structure until ground cover has been reestablished. Such program shall include specifications for normal maintenance of degradable materials and the periodic removal of materials.

(c) The construction, modification or restoration of erosion protection structures shall not be likely to cause any measurable increase in erosion at the development site or other locations and prevent adverse effects to natural protective features, existing erosion protection structures and natural resources such as significant fish and wildlife habitats.

(d) Temporary erosion controls, i.e., silt fences, hydro seeding and mulching, and sediment basins as needed shall be provided for all disturbed areas, shall be installed before work begins according to New York State Standards and Specifications for Erosion and Sediment control, most current version, and shall be maintained until restoration is complete. The site plan and Stormwater Pollution Prevention Plan (SWPPP), if required, shall identify the locations and methods of erosion/siltation controls.

(e) A construction and erosion control schedule should be required from the applicant as part of the permit application. Where soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures must be initiated by the end of the next business day and completed within fourteen (14) days from the

date the current soil disturbance activity ceased. If five acres or more have been disturbed at one time and soil disturbance activity has temporarily or permanently ceased, the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven (7) days from the date the current soil disturbance activity ceased.

(f) Drainage of stormwater shall not cause erosion or siltation, contribute to slope failures, pollute groundwater or cause damage to, or flooding of, property. Drainage systems shall be designed and located to ensure slope stability.

(g) Any grading, excavating or other soil disturbance conducted on a steep slope shall not direct surface water runoff over the receding (downhill) edge during construction.

(h) Removal of existing mature trees from steep slope areas will be permitted only where absolutely necessary to allow the subject construction. All trees larger than three inches in diameter to be removed shall be shown on the site plan.

(3) Prior to receiving any approval or imposing any conditions of approval, the applicant for a development permit shall have the burden of demonstrating that the proposed regulated activity will be conducted in accordance with the standards and requirements of this section, as well as any additional requirements which may be imposed by the Planning Board.

5.2 Stormwater Management and Reducing Impervious Surfaces

As impervious surfaces increase in a community, stormwater runoff also increases, carrying pollutants and causing localized flooding during storm events. There are several ways that communities can regulate the amount of impervious surfaces in new development and reduce the impact of impervious surfaces associated with that development.

First, a community can incorporate impervious surface coverage limits by district in the zoning law. A rural conservation district would have a lower percentage of impervious coverage limits than a commercial or industrial district, preferably including undisturbed natural areas. The impervious cover limits help the community realize both natural resource protection and economic development goals for their community, while reducing the impacts of stormwater runoff.

Second, a basic stormwater management local law includes incentives for reducing impervious surfaces by incorporating imperviousness in the calculation of the amount of stormwater runoff from a site. The more the designer reduces impervious surfaces in the site layout, the less cost there will be for the developer to install permanent stormwater management practices.

Third, a stormwater management law can be enhanced by adding provisions to require green infrastructure planning on a site. The New York State Stormwater Management Design Manual, Chapter 5, includes green infrastructure planning practices and design techniques that are acceptable for runoff reduction. Green infrastructure planning includes measures for preservation of natural features of the site and reduction of proposed impervious cover. While New York State has minimum requirements for use of green infrastructure in development projects of a certain size, a municipality can require green infrastructure planning and design for smaller projects or in certain resource areas important to the community. Green infrastructure captures, treats and reuses stormwater; maintains and restores the natural hydrology of a site; promotes infiltration using pervious surfaces; encourages evapotranspiration through establishment of natural vegetative features; absorbs carbon dioxide; and can provide flood control through protection of riparian buffers, floodplains and open space.

APPLICATION

Incorporate into the zoning area and bulk table a standard listing the maximum percent of impervious surface per lot (or minimum percent to remain pervious per lot) for each zoning district.

ADAPTED FROM THE FOLLOWING SOURCE

City of Saratoga Springs (NY) Zoning Ordinance, 2.0 Base Zoning Districts, Table 3: Area and Bulk Schedule¹⁷

LANGUAGE

Section X. Districts Area and Bulk Schedule.

Lot and building dimensional requirements are established in each zoning district as provided in Table X.

[Note: there are additional zoning districts in the City of Saratoga Springs, these were provided for illustrative purposes only.]

Zoning Table X: Bulk and Area Schedule		
Zoning District	Minimum Lot Size (sq. ft.)	Minimum % to Remain Permeable
RR (Rural Residential)	2 acres	80
SR-1 (Suburban Residential-1)	40,000	40
SR-2 (Suburban Residential-2)	20,000	30
UR-1 (Urban Residential-1)	12,500	30
UR-2 (Urban Residential-2)	6,000	25
HGB (Highway General Business)	20,000	15

5.3 Mitigation for Failure to Reduce Impermeable Surface Coverage

See the Basic Land Use Tools for Resiliency Chapter, Section 1.3.2 Nonconformance of Impermeable Surface Coverage.

5.4 Erosion and Sediment Control and Stormwater Management

The Federal Clean Water Act, administered by the NYS Department of Environmental Conservation (DEC) in New York State, mandates that all construction activities that disturb one acre or more of soil (or 5,000 square feet or more in the New York City watershed east of the Hudson River) must demonstrate how the site work will prevent erosion and sedimentation. Procedurally, this is accomplished by having the owner of the parcel being developed file what is called a 'Notice of Intent' (NOI) with the DEC.

In New York, local land use regulations are the framework for carrying out the construction/post-construction stormwater management program. Municipalities in urbanized areas classified as regulated Municipal Separate Storm Sewer communities or "MS4s" are required to adopt a local law or other regulatory mechanism that controls construction site erosion and post-construction stormwater runoff. Non-regulated municipalities are encouraged to adopt a similar law to reduce the impact of land development activities on stormwater runoff which causes erosion and sedimentation, and which increases flood risk. By implementing a local permitting process, a municipality can enforce good development practices and ideally protect water quality and reduce flood hazards.

To help implement stormwater controls, the DEC and the NYS Department of State (DOS) collaborated to produce the Stormwater Management Gap Analysis Workbook for Local Officials. Originally designed to evaluate Regulated MS4 local laws that were not identical to the State's Sample Local Law for Stormwater Management and Erosion & Sediment Control, it can be used by other municipalities to evaluate gaps in how they regulate stormwater.¹⁸

A model law was originally developed by the DEC and DOS in 2006 so that municipalities could implement local oversight of construction site and post-construction stormwater management activities. For this publication, the agencies prepared two new versions of the model law to update DEC stormwater general permit requirements, to add plug-in provisions for municipalities in impaired watersheds, and to provide optional language for municipalities desiring to increase the use of green infrastructure to improve community resiliency. For regulated MS4s municipalities, one of the two models may be used to update the required stormwater law that they currently have on the books; for non-regulated municipalities, the models are optional but are still applicable. The sample local laws may be adopted as stand-alone local laws or as amendments to existing local land use laws and ordinances and are designed to be applicable to the wide variety of existing local land use regulatory provisions found in the state.

In this section we also provide another option for communities not designated as MS4s but are desiring to provide management of stream corridors within a local erosion and sediment control law. This local law provides for more integration of an erosion and sediment control plan and stream corridor management within the local planning and approval process.

Approaches	Description
Model Stormwater Management and Erosion & Sediment Control for a Regulated MS4 Community, includes Plug-in Provisions for Impaired Waters and Enhanced Phosphorus Removal Watersheds	Designed to ensure compliance with the minimum control measures of the Stormwater Phase II Regulations for regulated MS4s, this model law could be adopted by any municipality in New York State. This model includes additional sections designed for municipalities that have impaired waterbodies within their borders that can be plugged into the model Stormwater Management and Erosion and Sediment Control Law for a Regulated MS4 Community.
Model Stormwater Management and Erosion and Sediment Control Law with Additional Provisions for Community Resiliency	Optional provisions to promote use of green infrastructure and management of riparian areas for stormwater management were developed for communities interested in addressing long-term community resilience to meet the challenges of climate change and potentially more frequent storm and flooding events. These are designed as add-ins for the State Model Stormwater Management and Erosion and Sediment Control Law.
Model Stormwater Management and Erosion and Sediment Control Law with Additional Provisions for Community Resiliency with Stream Corridor Management Provisions	An example of a sediment and erosion control law for a non-regulated MS4 that includes provisions for stream corridor management and streambank stabilization.

RESOURCES

Green Infrastructure Model Local Law Project Summary Report: Process, Findings, and Implementation. (2013). Stormwater Coalition of Albany County.¹⁹

5.4.1 Model Stormwater Management and Erosion & Sediment Control with Plug-in Provisions for Impaired Waters and Enhanced Phosphorus Removal Watersheds

This model local law is intended to be a guidance tool for municipalities interested in adopting a local stormwater law. The model law includes the basic requirements needed for location regulation of both erosion and sediment control during construction and installation of post-construction stormwater practices that provide long-term water quality and quantity control of stormwater runoff. This law should be used by municipalities subject to the Municipal Separate Storm Sewer System (MS4) Phase II stormwater management requirements of the National Pollutant Discharge Elimination System (NPDES) regulations, administered by New York State through the State Pollutant Discharge Elimination System (SPDES) regulations. This law may also be used by non-MS4 municipalities to regulate erosion and sediment control and stormwater management during development and redevelopment.

This model law includes additional plug-in sections included in text boxes developed specifically for adoption by municipalities with three categories of impaired waterbodies within their borders:

1. Impaired waterbodies WITHOUT watershed improvement strategies or total maximum daily load (TMDL) requirements;
2. Impaired waterbodies WITH watershed improvement strategies and/or TMDLs;
3. Certain provisions required for municipalities in the New York City Watershed East of the Hudson River.

The following link provides a PDF of this draft model law:

https://www.dec.ny.gov/docs/water_pdf/smpllocllawsedctrl.pdf

Please note that there may be revisions made to this draft when the MS4 General Permit renewal is issued by DEC. During the public review period and issuance of the MS4 General Permit renewal, please check the DEC “MS4 Toolbox” web page for the most up to date text for this Model Law at:

<http://www.dec.ny.gov/chemical/8695.html>

5.4.2 Model Stormwater Management and Erosion and Sediment Control Law with Additional Provisions for Community Resiliency

This model local law is intended to be a guidance tool for municipalities interested in adopting a local stormwater law that includes additional provisions to encourage site planning for green infrastructure, prevent flooding impacts, increase community resilience, and address the potential impacts of climate change. The model stormwater law includes both standard language and concepts that a good stormwater management program should contain, as well as resiliency provisions identified with a footnote to explain the purpose and/or source of the added language.

This model local law includes a review process requiring green infrastructure planning as a regular component of development approval and encourages the use of large and small-scale green infrastructure to manage stormwater. Practices include management of riparian areas such as stream buffers and floodplains, protection and conservation of natural areas, and installation of rain gardens, vegetated swales, and green roofs.

Note for Municipal Separate Storm Sewer System (MS4) Communities

There is an alternate model available with plug-in sections for impaired waters and phosphorus removal watersheds. MS4 communities may either use this model local law or “Sample Local Law for Stormwater Management and Erosion & Sediment Control with Plug-in Provisions for Impaired Waters and Enhanced Phosphorus Removal Watersheds,” a separate document, as a basis for their model law. However, if a municipality that contains impaired waterbodies or enhanced phosphorus removal watersheds as identified by DEC uses this model law with resiliency provisions as a basis, they should ALSO cut and paste the applicable water quality provisions from the “Sample Local Law for Stormwater Management and Erosion & Sediment Control with Plug-in Provisions for Impaired Waters and Enhanced Phosphorus Removal Watersheds,” to ensure compliance with permit requirements. (See section 5.4.3.) Alternatively, a municipality that uses the “Sample Local Law for Stormwater Management and Erosion & Sediment Control with Plug-in Provisions for Impaired Waters and Enhanced Phosphorus Removal Watersheds” as a basis for their local law can add additional provisions from this model law for green infrastructure planning, preventing flood impacts, and community resilience as desired.

The following link provides a PDF of this draft model law:

https://www.dec.ny.gov/docs/water_pdf/smplloclawresilncy.pdf

Please note that there may be revisions made to this draft when the MS4 General Permit renewal is issued by DEC. During the public review period and issuance of the MS4 General Permit renewal, please check the DEC “MS4 Toolbox” web page for the most up to date text for this model law at:

<http://www.dec.ny.gov/chemical/8695.html>

5.4.3 Erosion and Sediment Control Law with Stream Corridor Management Provisions

The model below is an example of a sediment and erosion control law for a municipality not regulated under the MS4 general permit that includes provisions for stream bank stabilization and stream corridor management. Chapter 2 of this document, Wetland and Watercourse Protection Measures, and Chapter 3, Management of Floodplain Development, provide more information and additional local laws on these subjects. This model does not fulfill the requirements for regulated MS4s. However, for non-regulated municipalities, this model may be useful to achieve greater oversight of construction activities and riparian protection in the community.²⁰

APPLICATION

Adopt as a standalone section of the municipal code.

ADAPTED FROM THE FOLLOWING SOURCE

Town of Geneseo (NY) Municipal Code, Chapter 54 Erosion and Sediment Control²¹

LANGUAGE

Chapter X. Erosion and Sediment Control

A. Findings of fact. The [*City Council/Town Board/Village Board of Trustees of the City/Town/Village of _____*] finds that uncontrolled drainage and runoff associated with land development has a significant impact upon the health, safety and welfare of the community by potentially causing substantial recreational, aesthetic, environmental and economic losses resulting from adverse impacts on community waters, specifically:

- (1) Construction requiring land clearing and the alteration of natural topography tends to increase erosion;
- (2) Stormwater runoff can carry pollutants into receiving water bodies, degrading water quality;
- (3) The increase in nutrients in stormwater runoff such as phosphorus and nitrogen accelerates eutrophication of receiving waters;
- (4) Improper design and construction of erosion control devices can increase the velocity of runoff thereby increasing stream bank erosion and sedimentation;
- (5) Siltation of water bodies resulting from increased erosion decreases their capacity to hold and transport water, interferes with navigation, and harms flora and fauna;

(6) Development as defined in this chapter and activities associated with development, as well as land grading and earth moving can have a significant and potentially adverse impact on the environment.

B. Purpose. The purpose of this chapter is to safeguard persons, protect property, prevent damage to the environment within the [City/Town/Village of _____], as well as all bodies of water or watercourses in the [City/Town/Village], and to promote the public welfare by guiding and regulating the design, construction, and maintenance of any development or other activity which disturbs or breaks the topsoil or results in the movement of earth on land in the [insert name of watershed], or any other watershed potentially impacted by such activities in the [City/Town/Village of _____].

C. Conformance required. All site preparation, construction and development activities as defined hereinafter occurring in the [City/Town/Village of _____] shall be in conformance with the provisions set forth herein.

D. Word usage; definitions.

(1) Unless specifically defined below, words or phrases shall be interpreted so as to give them the meanings they have in common usage and to give this chapter its most effective application. Words used in the singular shall include the plural and the plural the singular; words used in the present tense shall include the future tense. The word "shall" connotes mandatory and not discretionary; the word "may" is permissive.

(2) As used in this chapter, the following terms shall have the meanings indicated:

Agricultural Operations (as defined in Article 25AA of the NYS Agriculture and Markets Law): Land and on-farm buildings, equipment and practices which contribute to the production, preparation and marketing of crops, livestock and livestock products as a commercial enterprise.

Certificate of Compliance: A written certificate that is issued to the applicant by the Code Enforcement Officer after all final grading and seeding is completed and all permanent erosion control measures are established as specified in the erosion control permit and to the satisfaction of the Code Enforcement Officer.

Certified Professional: A licensed engineer, a licensed landscape architect, or an International Erosion Control Association (IECA) certified professional in erosion and sediment control.

Develop: To make a site or area available for use by physical alteration.

Development: Any physical alteration of a site or area, including, but not limited to, providing access to a site, clearing of vegetation, grading, earth moving, providing utilities

and other services such as parking facilities, stormwater management and erosion control systems, and sewage disposal systems, altering landforms, or construction of a structure on the land.

Erosion: The removal of soil particles by the action of the water, wind, ice or other geological agents.

Erosion Control Permit: A permit that is issued by the Code Enforcement Officer before any development and/or land clearing activities can occur on a site.

Erosion Control Plan: A document prepared by a certified professional that identifies predevelopment and postdevelopment conditions on a site and outlines the erosion control measures that will be used on a site. This document is required for projects exposing more than 10,000 square feet of soil.

Floodplain: For a given flood event, that area of land temporarily covered by water which adjoins a watercourse. [*The municipality may wish to substitute a more specific definition for defined flood events*]

Garden: A plot of ground where herbs, fruits, flowers, or vegetables are cultivated, excluding agricultural operations as defined herein.

Gabion: A galvanized wire basket filled with stone used for structural purposes. When they are fastened together, they are used as retaining walls, slope protection and similar structures.

Grading: Excavation or fill of material, including the resulting conditions thereof.

Natural Drainage Channel: A swale, watercourse in a gully, or an unprotected stream.

Performance Standards: The set of standards outlining the erosion control requirements for construction and soil disturbing activities.

Perimeter Control: A barrier that prevents sediment from leaving a site either by filtering sediment laden runoff or diverting it to a sediment trap or basin.

Phasing: Clearing a parcel of land in distinct phases, with the stabilization of each phase occurring before the clearing of the next.

Riprap: A combination of large stone, cobbles and boulders used to line channels, stabilize stream banks, and reduce run off velocities.

Stabilization: The use of practices that prevent exposed soil from eroding.

Start of Construction: The first land disturbing activity associated with a development, including land preparation such as clearing, grading and filling; installation of streets, driveways, parking areas and walkways; excavation for basements, footings, piers or foundations; erection of temporary forms; and installation of accessory buildings such as garages.

Steep Slope: Grade change of 15% or more.

Stop-Work Order: A written order issued by the Code Enforcement Officer to cease and desist all activity and development on a site until such time as the violation is corrected.

Stream Corridor: The landscape features on both sides of a stream, including soils, slope and vegetation, whose alteration can directly impact the stream's physical characteristics and biological properties.

Swale: A natural or man-made depression or wide shallow ditch used to temporarily route or filter runoff.

Utilities: Public and private services, including, but not limited to, public water and sewer connection, private wells and septic systems, and telephone, natural gas, electric, and cable television services.

Watershed: A region or area bounded by a greater elevation and draining ultimately to a particular body of water.

E. Applicability of provisions.

(1) This chapter shall apply to all development, as defined herein, which involves the uncovering, exposure or disturbance of 500 or more square feet of soil. Excepted herefrom are agricultural operations, whether or not within an agricultural district, as defined in Article 25AA of the New York State Agriculture and Market Laws, and private gardens.

(2) No person, corporation, entity, organization, or public agency shall initiate any development activities, land clearing, land grading, or earthmoving activities (hereinafter also collectively referred to as "land disturbance activity") unless in conformity with the regulations of this chapter.

(3) No person, agency, corporation or other entity shall commence any development or land disturbing activities without obtaining an erosion control permit issued by the Code Enforcement Officer.

(4) No person shall be granted an erosion control permit for land disturbing activity that would require the disturbance or uncovering of 10,000 or more square feet without the approval of an erosion control plan by the Planning Board.

(5) Exemptions. The following activities are exempt from the erosion control plan requirements but must comply with the performance standards listed in Paragraph I herein and have the applicable erosion control measures approved by the Code Enforcement Officer:

(a) Development or land disturbing activities involving at least 500 square feet of soil, but less than 10,000 square feet of soil;

(b) Development involving less than one acre of soil disturbance of one single-family residential structure or one duplex unit and accessory structures and utilities thereto;

(c) The installation of a lawn involving less than one acre of soil disturbance for one single-family residential structure; and

(d) The installation of a driveway involving less than one acre of soil disturbance for one single-family residential structure.

(e) The installation of all septic systems which are subject to the review, inspection and/or approval of the *[insert name of county]* County Department of Health.

(6) NYSDEC Phase II stormwater requirements. Developing an erosion control permit or plan that complies with the requirements of this chapter herein does not relieve an operator from the obligation of complying with stormwater management requirements of the NYSDEC Phase II Stormwater Program having jurisdiction over the project.

F. Erosion control permit; inspections; certificate of compliance; certificate of occupancy.

(1) Erosion control permit.

(a) An applicant shall submit an erosion control permit application to the Code Enforcement Officer, who shall inform the applicant within *[insert number of days, such as ten]* if the application is incomplete.

(b) The Code Enforcement Officer shall refer all complete erosion control permit applications for lands within the *[insert name of watershed district]* to the *[insert name of watershed district]* Inspector within seven days of receipt for review and comment.

[i] The Watershed Inspector shall have *[insert number of days, such as fourteen]* to comment on the application and return those comments to the Code Enforcement Officer; and

[ii] The Code Enforcement Officer shall consider comments from the Watershed Inspector if the comments are received within this period of time.

(c) If an erosion control plan is not required, the Code Enforcement Officer shall review the application to determine whether the proposed erosion control measures comply with the performance standards outlined in Paragraph I hereof and approve or deny the erosion control permit based on that review. A preconstruction meeting with the Code Enforcement Officer, the Watershed Inspector, and the applicant may be required prior to the issuance of an erosion control permit.

(d) If an erosion control plan is not required, an erosion control permit must be approved or denied within 60 days of receipt of a complete erosion control application by the Code Enforcement Officer.

(e) Issuance of an erosion control permit does not authorize development of the site unless and until all other applicable permits or approvals, including a building permit, are issued pursuant to federal, state and local law.

(2) Inspections. The applicant shall arrange with the Code Enforcement Officer for scheduling inspections of the site. The Code Enforcement Officer shall inspect the work and either approve it or notify the applicant in writing of any failure to comply with the requirements of the approved erosion control plan and/or erosion control permit. The Code Enforcement Officer and the Watershed Inspector may conduct inspections at reasonable times to ensure effective control of erosion and sedimentation during all phases of construction. The Code Enforcement Officer may have the [City/Town/Village] Engineer assist with onsite inspections. If the [City/Town/Village] engages an engineer to consult on an inspection, the applicant shall be responsible for the cost of such consultation, pursuant to [insert section number of municipal code allowing for charging of fees] of the [City/Town/Village of _____].

(3) A certificate of compliance shall be issued by the Code Enforcement Officer after all final grading and seeding are completed and all permanent erosion control measures are established as specified in the erosion control permit and to the satisfaction of the Code Enforcement Officer.

(4) A permanent certificate of occupancy shall not be issued until a certificate of compliance is issued for the satisfactory installation and/or completion of erosion control measures.

G. Contents of erosion control plan.

(1) Erosion control plans shall be prepared by a person that is knowledgeable in the principals and practices of erosion and sediment control, and stormwater management; such as a licensed professional engineer, Certified Professional in Erosion and Sediment Control (CPESC), or a licensed landscape architect. Plans must contain the information set forth in this section to enable the [City/Town/Village] Planning Board to determine whether the plan will prevent the development from adversely affecting the water quality of the surface water due to erosion. In making this determination, plans shall be evaluated pursuant to the performance standards in Paragraph I hereof and must therefore contain sufficient information to permit such evaluation.

(2) The erosion control plan shall contain the name, address, and telephone number of the owner, contractor, and developer. In addition, the legal description of the property shall be provided, and its location with reference to such landmarks as major water bodies, adjoining roads, railroads, subdivisions, or municipalities shall be clearly identified on a map.

(3) The structure and content of the erosion control plan shall be as follows:

(a) Background information.

[i] Project description which shall include, but not be limited to, a sequence of construction of the development site, including stripping and clearing, rough grading, construction of utilities, infrastructure, and buildings, and final grading and landscaping. Sequencing shall identify the expected date on which clearing will begin, the estimated duration of exposure of cleared areas, and the sequence of clearing, installation of temporary erosion and sediment measures, and establishment of permanent vegetation.

[ii] Existing (predevelopment) conditions, including, but not limited to, an identification of soils, slopes, and existing vegetative cover and drainage conditions.

[iii] Proposed future (development) conditions, including, but not limited to, an identification of drainage conditions and changes in vegetative cover anticipated to result from the proposed activity.

(b) Erosion and sediment control.

[i] Identification of temporary erosion and sediment control measures, including, but not limited to, seeding mixtures and rates, types of sod, method of seedbed preparation, expected seeding dates, and type and quantity of mulching for both temporary and permanent vegetative control measures.

[ii] Identification of permanent erosion and sediment control measures.

[iii] Implementation schedule and maintenance, including, but not limited to, easements and estimates of the cost of maintenance.

[iv] All erosion and sediment control measures shall be designed and installed according to the most current version of the New York State Standards for Erosion and Sediment Control.

H. Erosion control plan review process.

(1) The applicant shall submit a complete erosion control plan to the Code Enforcement Officer.

(2) The Code Enforcement Officer shall inform the applicant in writing within 14 days if the erosion control plan is incomplete. The erosion control plan shall automatically be deemed complete if the Code Enforcement Officer does not inform the applicant within 14 days.

(3) When the erosion control plan is determined to be complete, the Code Enforcement Officer shall then schedule it for review at the next available Planning Board meeting, to be held not later than 31 days after the erosion control plan is determined to be complete.

(4) All erosion control plans for development in the *[insert name of watershed]* must be referred to the *[insert name of watershed]* Inspector for review and comment within seven days of Code Enforcement Officer receipt of the plan. Comments received from the *[insert name of watershed]* Inspector prior to the Planning Board meeting will be considered by the Code Enforcement Officer and the Planning Board.

(5) The applicant shall receive written notice of the time and place of the Planning Board meeting where the erosion control plan will be reviewed no less than five days prior to the Planning Board meeting.

(6) An erosion control plan shall also be reviewed by the *[City/Town/Village]* Engineer or any other certified professional retained by the *[city/town/village]*. The Engineer or certified professional may then recommend approval or disapproval of the plan to the Planning Board prior to the scheduled Planning Board meeting where the plan will be discussed. A recommendation for approval or disapproval of the plan must be based on conformance to the performance standards listed in Paragraph I.

(7) The Planning Board shall have the authority to impose reasonable conditions to ensure that the objectives of this chapter are met.

(8) The Planning Board shall approve or disapprove the erosion control plan. Approval or disapproval of the plan must be based on conformance to the performance standards listed in Paragraph I, so as to protect the water quality of waterbodies in the

[city/town/village], and should clearly identify why it does not, in the instance of a disapproval, conform to the performance standards.

(9) The Planning Board shall report the decision to the Code Enforcement Officer and the applicant within 10 days of approval or disapproval of the plan.

(10) If the erosion control plan is approved, the Code Enforcement Officer shall issue the applicant an erosion control permit within 10 days of receipt of the Planning Board decision.

I. Performance standards. The following performance standards must be applied to all land disturbing activities described in this chapter, including those exempted under Paragraph C hereof, as well as those for which a permit is required hereunder:

(1) Existing vegetation on a project site shall be retained and protected as much as possible to minimize soil loss from the project site.

(2) Sediment control practices/measures shall be designed to protect the natural character of water bodies on-site as well as off-site. The practices must be in place before the start of land disturbance activities until the establishment of permanent stabilization.

(a) The off-site impacts of erosion and sedimentation from the development site shall not be any greater during and following land disturbance activities than under predevelopment conditions.

(b) Water in stream reaches on-site and downstream of construction areas shall not have substantial visible contrast relative to color, taste, odor, turbidity and sediment deposition from the water in reaches upstream of the construction area.

(c) Sediment laden runoff shall not be allowed to enter any water body and result in deposition on the bottom of the water body, degrade its natural biological functions, or be deleterious to the classified usage of the water.

(3) All erosion and sediment control measures shall be constructed prior to beginning any land disturbance activities. All runoff from disturbed areas shall be directed to sediment control devices. These devices shall not be removed until the disturbed land areas are stabilized.

(4) Specific guidance.

(a) Exposure restrictions. No more than five acres of unprotected soil shall be exposed at any one time. Previous earthwork shall be stabilized in accord with approved design standards and specifications referenced in Paragraph I (4)(h) before additional area is exposed.

(b) Grading. Perimeter grading shall blend with adjoining properties.

(c) Vegetative protection. Where protection of trees and/or other vegetation is required, the location shall be shown on the erosion control plan or on the drawings for the proposed development project. The method of protecting vegetation during construction shall conform to the design specifications referenced in Paragraph I (4)(h).

(d) Drainage control.

[i] Surface runoff that is relatively clean and sediment free shall be diverted or otherwise prevented from flowing through areas of construction activity on the project site. (This will greatly reduce sediment loading in surface runoff.)

[ii] A fill associated with an approved temporary sediment control structure or permanent stormwater management structure shall not be created which causes water to pond off-site on adjacent property, without first having obtained ownership or permanent easement for such use from the owner of the off-site or adjacent property.

[iii] Natural drainage channels shall not be altered. Pursuant to Article 15 of the Environmental Conservation Law, a protected stream and banks thereof shall not be altered or relocated without the approval of the Department of Environmental Conservation.

[iv] Runoff from any land disturbing activity shall not be discharged or have the potential to be discharged off-site or into storm drains or into watercourses unless such discharge is directed through a properly designed, installed and maintained structure, such as a sediment trap, to retain sediment on-site. Accumulated sediment shall be removed when it takes up 50% of the storage capacity of the sediment retention structure, or as specified according to Paragraph I (4)(h) below.

[v] For finished grading, adequate gradients shall be provided so as to prevent water from standing on the surface of lawns for more than 24 hours after the end of a rainfall, except in a swale flow area which may drain as long as 48 hours after the end of rainfall.

[vi] Permanent swales or other points of concentrated water flow shall be stabilized. Biotechnical approaches using certain types of grasses, such as reed canary grass, are preferable to using sod, gabions and riprap where water quality enhancement is a high priority and the swale design allows. However, sod, gabions, or riprap may be used to stabilize swales where soils and gradient preclude the use of grasses. Use of grasses may require an erosion control matting as provided for in the design specifications referenced in Paragraph I (4)(h) below.

[vii] Surface lows over cut and fill slopes shall be controlled as provided for in the design specifications for vegetating waterways referenced in Paragraph I (4)(h).

(e) Timing.

[i] Except as noted below, all sites in sensitive areas, including, but not limited to, the [*insert watershed name*], may be required to be seeded and mulched with erosion control materials such as rye grass, straw mulch, jute, or excelsior (wood shavings) within 14 days of initial disturbance. If construction has been suspended, or sections completed, areas shall be seeded immediately and stabilized with erosion control materials. Maintenance shall be performed as necessary to ensure continued stabilization.

[ii] For active construction areas, such as borrow or stockpile areas, roadway improvements, and areas within fifty (50) feet of a building under construction, a perimeter sediment control system consisting of silt fencing as provided for in the design specifications referenced in Paragraph I (4)(h) below shall be installed and maintained to contain soil.

[iii] On cut sides of roads, ditches shall be stabilized immediately with rock riprap or other nonerodible liners or, where appropriate, vegetative measures such as sod. When seeding is approved, an anchor mulch shall be used and soil shall be limed and fertilized in accord with recommendations referenced in Paragraph I (4)(h).

[iv] Permanent seeding shall optimally be undertaken in the spring from April 1 through June 15, and in late summer from August 1 to October 15. During the peak summer months and in the fall after October 15 when seeding is found to be impracticable, an appropriate mulch shall be applied. Permanent seeding may be undertaken during summer if plans provide for adequate watering of the seedbed.

[v] All slopes steeper than 15%, as well as basin or trap embankments, and perimeter dikes shall, upon completion, be stabilized with sod, seed and anchored straw mulch, or other approved stabilization measures. Areas outside of the perimeter sediment control system shall not be disturbed. Maintenance shall be performed as necessary to ensure continued stabilization.

[vi] Temporary sediment trapping devices shall be removed within 30 calendar days following establishment of permanent stabilization in all contributory drainage areas. Stormwater management structures used temporarily for sediment control shall be converted to permanent stormwater management practices using the standards referenced in Paragraph I (4)(h) within this time period as well. Accumulated sediments removed from temporary sediment traps or permanent stormwater

management facilities shall be disposed in a manner so as not to erode and enter a water body.

(f) Stream corridor management. The bed and banks of all on-site and off-site streams which may be impacted by land clearing, grading, and construction activities shall be protected to prevent sedimentation, stream bank erosion, stream enlargement, or degradation or loss of fisheries habitat. Measures for protecting the bed and/or banks of a stream may include gabion baskets, riprap, log cribbing, and vegetative measures. Whenever possible, vegetative stream bank stabilization practices are recommended over structural practices, such as riprap and gabion linings, that may unnecessarily alter the existing stream ecosystem. Native species of vegetation shall be used for stream bank stabilization wherever practical. In undertaking stream bank stabilization activities for protected streams, the applicant shall comply with appropriate protection of water provisions in Article 15 of the Environmental Conservation Law of the State of New York.

(g) Maintenance.

[i] All points of construction ingress and egress shall be protected to prevent the deposition of materials onto traversed public thoroughfares either by installing and maintaining a stabilized construction entrance or by maintaining a vehicle wash area in a safe disposal area to wash vehicle shells and undercarriage. All materials deposited onto public thoroughfares shall be removed immediately. Proper precaution shall be taken to assure that the removal of materials deposited onto public thoroughfares will not enter catch basins, storm sewers, or water bodies.

[ii] Accumulated sediment shall be removed when 50% of the storage capacity of sediment retention structures is reached, or according to the specifications in Paragraph 4(h) below. All removed sediment shall be disposed of in a spoil area where it can be graded, mulched and seeded to prevent erosion and sedimentation.

(h) Design standards/documents. The designs, standards and specifications for controlling erosion and sedimentation found in the most recent version of the following publication should be used and shall be identified and shown in the Erosion Control Plan: NYS Standards and Specifications for Erosion and Sediment Control. For conversion of temporary sediment control structures to permanent practices the standards in the New York State Stormwater Management Design Manual should be used.

K. Performance bond.

(1) In order to ensure the full and faithful completion of all construction activities related to compliance with all conditions set forth by the Planning Board in its approval of the erosion control plan, the Planning Board may require the applicant and/or the applicant's contractor to provide, prior to construction, a performance bond, escrow account certification, or irrevocable letter of credit from an appropriate financial or surety institution which guarantees satisfactory completion of the project and names the [city/town/village] as the beneficiary. The security shall be in an amount to be determined by the Planning Board based on submission of final design plans, with reference to actual construction costs.

(2) Where erosion and sediment control facilities are to be operated and maintained by the applicant or by any person or entity that owns or manages a commercial or industrial facility, the applicant, prior to construction, may be required to provide the [city/town/village] with a performance bond or an irrevocable letter of credit from an appropriate financial institution or noted surety to ensure proper operation and maintenance of all erosion control facilities for the life of the project.

(3) The performance bond or letter of credit shall remain in force until the surety is released from liability by the [city/town/village].

(4) Per annum interest on the performance bond or letter of credit shall be reinvested in the account until the surety is released from liability.

(5) If the developer or owner fails to properly operate and maintain erosion and sediment control facilities, the [city/town/village] may draw upon the account or notify the surety to cover the costs of proper operation and maintenance.

L. Enforcement.

(1) Any development activity that is commenced without first being granted an erosion control permit, or which is conducted contrary to an approved erosion control plan, or contrary to the performance standards listed in Paragraph I hereof may be issued a notice of violation and restrained by a stop-work order issued by the Code Enforcement Officer.

(2) Service of a notice of violation shall be sufficient if directed to the owner, agent of the owner or contractor and left at his or her last known place of business or residence, if within the municipality; and if no place of business or residence can be found, then the notice shall be served by posting in a conspicuous place on the premises which is the subject of the violation.

(3) A stop-work order shall also be issued on the project if any of the following conditions are not met during development of the land:

- (a) There shall be no increase in turbidity that will cause a substantial visible contrast to natural conditions;
- (b) There shall be no suspended, colloidal and settleable solids that will cause deposition or impair waters in the area for their best usages; and
- (c) There shall be no residue from oil and floating substances, visible oil film, globules, or grease (6 NYCRR, Part 703, Surface Water and Groundwater Quality Standards and Groundwater Effluent Limitations).

(4) Civil and criminal penalties. In addition to or as an alternative to any penalty provided herein or by law, any person who violates the provisions of this chapter shall be punished by a fine of not less than \$200 per day nor more than \$1,000 per day or by imprisonment for a period not to exceed 60 days, or by both such fine and imprisonment. Such person shall be guilty of a separate offense for each day during which the violation occurs or continues.

(5) Any violator may be required to restore land to its undisturbed condition. In the event that restoration is not undertaken within a reasonable time after notice, the [city/town/village] may institute an action or proceeding in a court of competent jurisdiction to compel compliance with this chapter, including restoration of land to its undisturbed condition, or for any other legal remedy available at law.

M. Appeals. Any person aggrieved by the action of any official charged with the enforcement of this chapter, as the result of the disapproval or approval of an erosion control permit or an alleged failure by the Code Enforcement Officer to properly enforce the chapter in regard to a specific application, shall have the right to appeal the action to the Zoning Board of Appeals. The appeal shall be filed in writing within 20 days of the date of official transmittal of the final decision or determination to the applicant, shall state clearly the grounds on which the appeal is based, and shall be processed in the manner prescribed for hearing appeals under State law.

N. Variances. The Zoning Board of Appeals may grant a written variance from any requirement of this chapter using the following criteria:

- (1) There are special circumstances uniquely applicable to the subject property or its intended use; and
- (2) Such special circumstances render it impossible or impracticable for the applicant to develop the subject lands in compliance with some or all of the provisions of this chapter; and
- (3) The granting of the variance shall not:
 - (a) Result in an increase or decrease in the rate or volume of surface water run-off;
 - (b) Result in an adverse impact on a wetland, watercourse or water body;
 - (c) Result in degradation of water quality; or
 - (d) Otherwise impair attainment of the objectives of this chapter.

5.5 Stormwater Utility

To raise money to help offset, or completely offset, the costs of stormwater management programs, municipalities may establish a stormwater utility under the authority given in New York State Municipal Home Rule Law. This funding mechanism enables a municipality to assess a fee on property-owners to pay for the management of stormwater. It is an alternative to relying on property taxes, which don't accurately reflect stormwater generated by the property, and which exclude tax-exempt properties from contributing toward the costs of managing stormwater flowing off their properties. In addition to establishing a dedicated fund, a stormwater utility program can be set up to incentivize the use of green infrastructure by residents and businesses alike through credits.

There are four components that municipalities must carefully consider: (1) What kind of fee will be charged, (2) What the fee rate will be, (3) Whether credits will be provided, (4) Public support.

There should be a reasonable relationship between the costs incurred in providing stormwater services and fee charged to the rate payer. Because it is impractical to measure stormwater runoff, and because there is usually no relationship between metered water flow and stormwater runoff generated on a property, stormwater charges are established based on other measures such as a property's pervious and/or impervious areas. According to a national stormwater utility survey conducted in 2014 by Black & Veatch, over 90% of the survey participants indicated that they use actual and/or effective impervious area as the basis of charges.²²

Credits and exemptions built into a stormwater utility law can promote best management practices and increased acceptance of stormwater utility fees. Utility fee credits can be offered to reward stormwater management practices such as the use of porous or permeable surfaces or installation of rain gardens. They can also be tied to the maintenance of stormwater management structures by requiring certification on an annual basis that the improvements exist in working order to maintain eligibility for the credit. The municipality determines the amount of the credit, the kinds of properties it will apply to, and eligible types of interventions. Credits should be clearly described and can include installation of approved best management practices such as retention/detention basins, rainspout disconnections and porous pavers.

A credit is a percentage reduction (the credit rate) in the yearly fee for landowners who install eligible improvements. Municipalities may offer them to nonresidential parcels (including multifamily and condominiums), residential parcels, or both. However, as the number of residential lots often greatly exceeds the number of nonresidential lots, some municipalities may find that including residential lots in the credit system would be too great an administrative burden. An alternative might be to only make residential lots above a certain square footage eligible for credits. The City of Ithaca, from where this model law was adapted, chooses not to offer residential credits due to the administrative burden of calculating these credits.

In determining credits, the municipality must weigh the benefits associated with public participation in the credit program against the corresponding revenue loss. Ideally, credits should be valuable so that they encourage a desirable level of public engagement in the credit program, but not too valuable as to significantly cut the stormwater utility’s revenue.

The credit rate is unique to each municipality, as it depends on the municipality’s stormwater utility fees and cost of stormwater management. Credit rates commonly range from 50 to 75 percent, but higher or lower percentages were also reported in the Black & Veatch survey cited above.

Mitigation Measures on List of Approved Stormwater User Fee Credits in the City of Ithaca (NY)		
Rain Garden	Porous Pavement	Stormwater Wetland
Green Roof	Bioretention	Stormwater Infiltration
Stormwater Planter	Stormwater Pond	Stormwater Filters
		Open Channel

Mitigation measures are reviewed and approved by the city Board of Public Works. Approved mitigation measures are described in the application with reference to the NYS Stormwater Management Design Manual. Access the application at:
<https://www.cityofithaca.org/DocumentCenter/View/2111/Stormwater-User-Fee-and-Credit-Application-FINAL-1?bidId& sm au =iVVwQgRjvMPwMnjf>

Certain types of land uses can be exempted from the fees in recognition of their contribution to an effective stormwater system. For example, municipalities that calculate the utility fee using impervious area could offer an exemption to undeveloped (100 percent pervious) land. The following model law establishes a utility fee that only applies to developed lots.

When enacting a local law, the municipality should include a section on findings or intent. These findings don’t typically show up in the municipal code book but become an important part of the public record in the event the local law is challenged. The findings portion of a stormwater utility local law should include the following items:

- Reference to the authority to enact the ordinance. New York State Municipal Home Rule Law Section 10(1)(ii)(a)(9-a) enables the municipality to provide for the “The fixing, levy, collection and administration of local government rentals, charges, rates or fees, penalties and rates of interest thereon, liens on local property in connection therewith and charges thereon.” In addition, Town Law, Article 12 authorizes towns to establish watershed protection improvement district(s), and Town Law, Article 12-C authorizes town boards to provide for water and drainage improvements and establishes procedure

for taking action. Similarly, Village Law, Article 4, Section 4-412(3)(1) authorizes village boards of trustees to construct and maintain drains, culverts, dams, bulkheads, and dredge channels, and to regulate watercourses, for the purpose of arresting and preventing damage to property resulting from floods or erosion.

- The cost of managing stormwater incurred by the municipality.
- A discussion of equity that will be achieved through the stormwater utility. The City of Ithaca (NY), from which this model was adapted, found that “[e]very parcel of real property that contains impervious surface areas, both public and private, uses and benefits from the maintenance of the stormwater system. . . Properties with large, impervious surfaces, such as parking lots, are often assessed at a lower value for property tax purposes than smaller properties with a residential building surrounded largely by pervious surfaces, even though the former properties have a much larger effect on the City’s stormwater infrastructure. As a result, the costs of stormwater services required to meet the City’s regulatory obligations, increase waterway quality, and protect City residents and businesses from flooding are not currently shared by each property in proportion to the demands it places on such services.”²³
- A discussion of future need. Ithaca described in its local law findings, intent, and purpose the need for a dedicated source of funds to pay the costs incurred by the city for stormwater services and infrastructure, compliance with new federal and state stormwater regulations, and increases in overall precipitation and heavy precipitation events that have occurred and are anticipated due to climate change.

When considering a stormwater utility, municipalities should undertake extensive public outreach and education at the beginning of the process to demonstrate why a proposed fee is necessary, and how a well-funded stormwater program can help reduce flooding, improve drought conditions, create better fishing and recreation, and improve water quality. Public support has proved to be extremely important for the success of a new stormwater utility fee.²⁴ After adoption of the stormwater utility, the municipality should make customers aware of their estimated fees well before the first bills are issued and provide a means to address customer inquiries.

RESOURCES

Stormwater User Fee FAQs. City of Ithaca.²⁵

City of Ithaca Stormwater User Fee Revision/Credit Application. City of Ithaca, NY.²⁶

Funding Stormwater Programs. (2009). EPA 901-F-09-004.²⁷

Stormwater Utility Fees: Considerations and Options for Interlocal Stormwater Working Group (ISWG). (2005). New England Environmental Finance Center.²⁸

APPLICATION

Adopt as a standalone chapter in the municipal code

ADAPTED FROM THE FOLLOWING SOURCE

City of Ithaca (NY) Municipal Code, Chapter 283: Stormwater Utility²⁹

LANGUAGE

Chapter X. Stormwater Utility

Section 1. Definitions.

Credit Rate. The scaling factor that shall be applied in the calculation of stormwater user fee credits. For structures or practices that, as determined by the superintendent, are anticipated to provide:

- (i) both treatment quality and quantity attenuation, the credit rate shall be *[insert percent, such as 20%]*;
- (ii) either treatment quality or quantity attenuation, the credit rate shall be *[insert percent, such as 10%]*.

Developed Lot. A lot which has an impervious surface area greater than or equal to *[insert percent, such as 25%]* of an Equivalent Residential Unit.

Equivalent Residential Unit (“ERU”). The average amount of impervious surface area on a residential property in the *[City/Town/Village]*, as determined by the *[City Council/Town Board/Village Board of Trustees]*.

Impervious Surface. Any surface on a lot that, because of the surface’s composition or compacted nature, impedes or prevents natural infiltration of water into the soil, including, but not limited to, roofs, solid decks, driveways, patios, sidewalks (other than public walks located in the *[City/Town/Village]*’s right-of-way), parking areas, tennis courts, concrete, asphalt, or crusher/run streets or paths, or compacted gravel or dirt surfaces, as determined by the *[insert name of department, such as Planning or Public Works Department]*.

Impervious Surface Area. As recorded or calculated by the *[insert name of department, such as Planning or Public Works Department]*, the number of square feet of horizontal surface on a Lot covered by an impervious surface.

Lot. Lot or parcel of land, as set forth by the current *[City/Town/Village]* Tax Maps on file with the _____ County Department of Assessment.

Non-Residential Lot. All developed lots other than residential lots.

Property Class Code. The property type classification code, as defined by the New York State Office of Real Property Services in the Assessors' Manual, assigned to a lot by the _____ County Department of Assessment, as may be updated by that Department from time to time.

Property Owner or Owner. The owner of a lot as shown on the _____ County tax records.

Residential Lot. A developed lot with a property class code of 210, 215, 220, 230, 240, 250, or 270, or substantially identical successor designations.

Stormwater. The runoff from all forms of precipitation that travels over natural or developed surfaces to the nearest stream, other conduit, or impoundment and appears in lakes, rivers, ponds, or other bodies of water.

Stormwater Services. The *[City/Town/Village]* program for protection of stormwater quality and for the partial control and conveyance of stormwater, including, but not limited to: public education; monitoring, removing, and regulating stormwater pollutants; other activities described in the *[City/Town/Village]*'s SPDES permit; mapping; planning; regulating, reviewing and inspecting private stormwater infrastructure; operating, constructing, improving, cleaning, and maintaining the *[City/Town/Village]*'s stormwater system; and any and all expenses deemed reasonably necessary to the management of stormwater within the *[City/Town/Village]* in the judgment of the *[insert title of local official, such as Director of Public Works]*, as instructed from time to time by the Stormwater Utility Board, including but not limited to the payment of debt principal and debt service, and the establishment of a reserve fund, to pay for these services.

Note: Identifying Impervious Surface Area

A combination of data is used to identify impervious surface area.

- Geographic Information System (GIS) data and aerial photos are used to distinguish impervious surfaces and pervious surfaces
- Building permit data is used to update lot records between aerial photo updates
- Property owners can contest the amount of impervious surface area by submitting drawings showing revised calculations. If verified by the Department of Public Works, lot records will be updated.

Stormwater System. The system of natural and constructed conveyances for collecting and transporting stormwater, including but not limited to lakes, ponds, rivers, perennial, intermittent, and/or channeled streams, connected wetlands, open ditches, catch basins and other inlets, pipes, sewers, drains, culverts, and created stormwater management facilities that provide partial treatment by passive means such as wet detention ponds, detention basins, and stormwater wetlands.

Stormwater User Fee. The fee charged for costs incurred by the [City/Town/Village] in providing stormwater services.

Stormwater Utility Board. A board comprised of [insert description of board, such as members of the City Council/Town Board/Village Board of Trustees].

Superintendent. The [insert title of official in charge of the Public Works Department], or his or her designee.

Treatment Efficiency. As determined by the Superintendent, the calculated effectiveness, expressed as a percentage of total possible effectiveness of an ideal stormwater management practice or structure, of a stormwater management practice or structure designed to remove a desired component through quality treatment, quantity attenuation, or both, as applicable.

Section 2. Stormwater User Fees.

A. Each developed lot in the [City/Town/Village] shall be subject to a monthly stormwater user fee equal to the product of [insert number in dollars] and the number of ERUs of impervious surface area on the lot as calculated below, less any credits for the lot approved by the Superintendent pursuant to Section 3.

(1) Every residential lot, and each non-residential lot with an Impervious Surface Area less than or equal to one ERU, shall be deemed to have an impervious surface area equal to one ERU.

(2) The number of ERUs of impervious surface area on a non-residential lot with an impervious surface area greater than one ERU shall be calculated by dividing the lot's impervious surface area by the value of one ERU, and rounding the result up to the nearest one-quarter of an ERU.

(3) At least once every five years the municipality will revisit the user fee to adjust for inflation, changes in the cost of stormwater management, and other factors.

B. Equivalent Residential Unit.

(1) An Equivalent Residential Unit is equal to [insert number] square feet.

(2) At least once every five years, the Superintendent shall report to the [City Council/Town Board/Village Board of Trustees] and Stormwater Utility Board regarding changes in the average impervious surface areas of residential lots. [Note: delete if not measuring impervious surfaces.]

C. Measurement of Impervious Surfaces. The amount of impervious surface area shall be recorded or calculated by the [insert name of department, such as Planning or Public Works Department].

(1) Any owner may file an application with the Superintendent contesting the calculation of impervious surface area on the lot as of the date of the application. The applicant must submit satisfactory evidence as required by the Superintendent, such as square footage measurements and descriptions of the relevant buildings or materials. For applications submitted prior to [insert date], any approved changes in calculations will take effect retroactive to [insert date]. For all other applications, any approved changes in calculations will take effect on the first day of the billing period beginning after the application was submitted, even if retroactive as of date of

Note: User Fees

Choosing an Appropriate User Fee Structure

The approach used in this model local law is based on impervious surface area and ERU and is a combination of flat and variable rate fees. In this model, each residential property pays a flat fee, regardless of impervious surface area, and every non-residential property has a fee based on the ratio between existing impervious surface area and one ERU. In order to calculate the fee in this way, geographic information systems (GIS) analysis will be needed.

In the United States, the average fee for a single-family residence ranges from \$2 to \$40 per quarter.

Setting an Appropriate User Fee

Under this model, the municipality must set a user fee for each ERU. Two broad principles provide guidance in setting the fee:

- The aggregate fee should equal the cost of providing stormwater services to the community.
- The fee per ERU can be calculated by dividing the stormwater budget by the total number of ERUs of impervious space in the area.

For example:

Stormwater Budget = \$5000

Total Impervious Space within municipal borders = 1000 ERUs

\$5000 Budget/1000 ERUs = \$5 per ERU stormwater fee

approval; no refunds or credits shall be granted for amounts billed prior to submission of the application. The applicant may appeal the determination of the Superintendent as set forth in Section 5(A).

(2) The Superintendent shall endeavor to update the impervious surface data in the [City/Town/Village]'s geographic information systems at least once every five years.

(3) Upon close-out of any building permit under which the associated documentation or other data indicates that at least one quarter of an ERU of impervious surface has been constructed upon a lot, the [insert title, such as Director of Planning and Development or Planning Board] or authorized code enforcement personnel shall provide to the Superintendent notice of the number of square feet of impervious surface added, in net, to the lot, as indicated on documentation associated with said permit, together with the applicable tax lot number. The Superintendent shall thereafter update the data in the [City/Town/Village]'s geographic information systems to reflect the adjusted impervious surface area on the lot.

Section 3. Stormwater User Fee Credits.

A. The stormwater user fee for a non-residential lot shall be reduced as provided herein if the Superintendent certifies that the lot is eligible for one or more credits in accord with this section.

B. Calculation of Credits. The credit for a practice or structure shall be the product of: the lot's stormwater user fee, the percentage of the total impervious surface area on a lot mitigated by the practice or structure, the practice or structure's credit rate, and the practice or structure's treatment efficiency.

C. Eligible Practices. Credits are available for those stormwater management practices or structures enumerated in a detailed list entitled "Approved Stormwater User Fee Credits," maintained by the Superintendent, established by resolution of the Stormwater Utility Board, and updated from time to time by additional resolution of the Stormwater Utility Board on consultation with the Superintendent. Such updates shall only be effective in conjunction with this chapter if, at least fourteen days before the Stormwater Utility Board finally votes on any such update, the Superintendent provides to the Stormwater Utility Board and to the [Comptroller/Budget Officer/Chief Financial Officer] an estimate of the probable annualized budget impact of such updates upon the stormwater account maintained by the [Comptroller/Budget Officer/Chief Financial Officer].

D. Review Criteria. An engineered structure or practice that provides quality treatment and/or quantity attenuation shall be considered by the Superintendent using the criteria set forth herein.

- (1) The proposal must demonstrate that the practice will provide a quantifiable treatment and/or runoff control benefit to the site through engineered design principles.
- (2) The watershed subcatchment leading to the practice must be clearly defined including the area, amount of impervious cover, flowpath, and existing and proposed land use.
- (3) The credit for a structure will be prorated based on that structure's Treatment Efficiency. For example, the credit for an otherwise qualifying structure that is designed for ten percent (10%) water quality volume treatment efficiency will be reduced by ninety percent (90%), as compared with a structure designed for 100% efficiency.
- (4) Designs must follow the New York State Department of Environmental Conservation's Stormwater Management Design Manual guidelines, as amended or replaced by substantially identical guidelines.
- (5) The owner must assume all responsibility for practice operation and maintenance. Failure to maintain the structure shall result in cancellation of the credit pursuant to Section 3(E).

E. Administration of Credits.

- (1) In order to obtain a credit, an owner must apply in a form satisfactory to the Superintendent.
- (2) If an application is approved by the Superintendent, the resulting reduction in the stormwater user fee shall take effect with the beginning of the next billing period that begins at least thirty days after the application was approved. The Superintendent shall have the discretion to make the credit retroactive to the next billing period beginning after the application was submitted if the interests of justice so require. Unless otherwise specified, an approved credit shall continue to be applied on each future bill so long as the lot continues to be eligible for the credit; provided, however, that the Superintendent shall cancel any credit for failure to provide the [City/Town/Village] with access to inspect and confirm the lot's continuing eligibility for a particular recurring credit.
- (3) The applicant may appeal the Superintendent's denial of an application or cancellation of a previously-approved credit as set forth in Section 5(A).

Section 4. Stormwater Account and Billing.

A. The [Comptroller/Chief Financial Officer] shall create and maintain a dedicated stormwater account separate from all other [City/Town/Village] accounts or funds. All stormwater user fees,

and any penalties or interest on such user fees, shall be deposited into that account, and shall be used by the [City/Town/Village] solely to provide stormwater services.

B. Billing.

(1) The [Treasurer/Receiver of Taxes and Assessments/Receiver] shall issue bills for stormwater user fees on a quarterly basis, or another regular, periodic basis, not less regularly than annually. The stormwater user fees may be billed on a combined utility bill that contains other charges, including for water and/or sewer service. Stormwater user fees that are shown on a combined bill may be for a different service period than that used for other utility services.

(2) Bill Recipient.

(a) Single Water and/or Sewer Account. For a lot associated with only one water and/or sewer account, the [City/Town/Village] will bill the stormwater user fee to the individual or entity receiving the utility bill for such account. The owner may elect to receive the bill or redirect the bill to a third-party, with the third-party's consent, by executing and submitting a form provided by the [Treasurer/Receiver of Taxes and Assessments/Receiver].

(b) All Other Lots. For all other lots, the [City/Town/Village] will bill the stormwater user fee to the owner on a separate utility bill. The owner may elect to redirect the bill to a third-party, with the third-party's consent, by executing and submitting a form provided by the [City/Town/Village].

(c) In all cases, the owner is finally responsible for any unpaid stormwater user fees, including penalties and/or interest.

(3) If a lot is incorrectly billed, or not billed, or a bill is sent to the wrong party, the [City/Town/Village] may backbill a property for a period not to exceed two years.

(4) The Superintendent, the [Comptroller/Chief Financial Officer], and the [Treasurer/Receiver of Taxes and Assessments/Receiver] are authorized to develop billing forms, guidelines, and practices not inconsistent with this Section.

C. Effect of Nonpayment.

(1) No certificate of occupancy or certificate of compliance shall be issued by the [insert title, such as Director of Planning and Development or Planning Board] or authorized code enforcement personnel for any building or structure located on a lot if the stormwater user fee for such portion of the lot is in arrears.

(2) The stormwater user fee shall be payable without penalty for thirty days following the billing date. On all amounts unpaid at the expiration of such period, five percent of the amounts unpaid shall be added and collected. On all amounts remaining unpaid after thirty days following the expiration of such period, and after each period of thirty days or portion thereof thereafter, one percent of the amounts unpaid shall be added and collected, up through and including *[insert month]* of each year.

(3) The *[city/town/village]* may institute an action or proceeding in a court of competent jurisdiction to compel compliance with this chapter, for collection of nonpayment of stormwater user fees with any added penalty or interest, or for any other legal remedy available at law.

D. The Stormwater Utility Board shall prescribe, in its discretion, a schedule of application and/or inspection fees to be charged in connection with this chapter. Such fees shall be deposited in the stormwater account.

Section 5. Appeals and Reissuance of Fees.

A. Any applicant aggrieved by the Superintendent's determination pursuant to Sections 2(C)(1) or 3(E) may appeal such decision to the Stormwater Utility Board at an open meeting thereafter. Such appeal must be in writing and explain why the Superintendent's decision should be reversed. The applicant may present evidence to the Stormwater Utility Board at the open meeting at which the appeal is considered, but such evidence must be limited to the matters stated in the written appeal.

B. Whenever any stormwater user fee charged under the provisions of this section shall be set aside or shall be decided by any court having jurisdiction thereof to have been improperly or illegally charged or whenever it shall be ascertained that the proceedings under which said fee has been issued shall have been so far irregular and erroneous as to make the collection of such fee illegal, then the *[Treasurer/Receiver of Taxes and Assessments/Receiver]* is authorized to issue a new fee with the same force and effect as if it had been the original fee.

Section 6. Retention of Existing Powers.

Nothing herein shall be construed to modify or alter any power of the *[City Council/Town Board/Village Board of Trustees]*, Superintendent of Public Works, Planning Board, or Code Enforcement Officer to require the construction, maintenance, or repair of privately-maintained stormwater infrastructure at the cost of the property owner as part of site plan review or other applicable regulation.

Endnotes

¹ For more information see the New York State Department of Environmental Conservation stormwater website at: <http://www.dec.ny.gov/chemical/8468.html>

² *Stormwater Management Guidance Manual for Local Officials*. (2004). NYS Department of Environmental Conservation. Retrieved 6/1/18 from http://www.dec.ny.gov/docs/water_pdf/localall.pdf

³ *New York State Standards and Specifications for Erosion and Sediment Control (Blue Book)*. (2016). NYS Department of Environmental Conservation. Retrieved 6/1/18 from <https://www.dec.ny.gov/chemical/29066.html>

⁴ *New York State Stormwater Management Design Manual*. (2015) NYS Department of Environmental Conservation. Retrieved 6/1/18 from http://www.dec.ny.gov/docs/water_pdf/swdm2015entire.pdf

⁵ *Green Infrastructure Guide*. (2015). City of Newburgh, NY: Conservation Advisory Council. Retrieved 6/1/18 from http://www.cityofnewburgh-ny.gov/sites/newburghny/files/u576/cac_green_infrastructure_guide_final_2-28-2015.pdf

⁶ *Better Site Design*. (2008). NYS Department of Environmental Conservation Division of Water. Retrieved 6/1/18 from http://www.dec.ny.gov/docs/water_pdf/bsdcomplete.pdf

⁷ Scott, Geoffrey. (2014). *Stormwater Management*. Ithaca: Cornell Local Roads Program. Retrieved 6/1/18 from <https://cornell.app.box.com/v/clrp-ws-sm>

⁸ *Flooding and Land Use Planning: A Guidance Document for Municipal Officials and Planners*. (2010). Westchester County Department of Planning. Retrieved 6/1/18 from <http://planning.westchestergov.com/images/stories/reports/FLOODGUIDE.pdf>

⁹ *New York State Standards and Specifications for Erosion and Sediment Control (Blue Book)*. (2016). NYS Department of Environmental Conservation. Retrieved 6/1/18 from <https://www.dec.ny.gov/chemical/29066.html>

¹⁰ *Policy and Standards for the Design of Entrances to State Highways*. (2017). NYS Department of Transportation. Retrieved 7/5/18 from https://www.dot.ny.gov/divisions/engineering/design/dqab/hdm/hdm-repository/HDM_Ch_5_Appendix_5A.pdf

¹¹ For an example of county highway department driveway standards, see Policy & Standards: Permit Work Within County Right of Way. (2016). Orange County (NY) Department of Public Works. Retrieved 7/5/18 from

https://www.orangecountygov.com/DocumentCenter/View/8268/Policy_Standards-Revised-Jan-2015_no-fee-changes---ONLY-2018-CHANGE-WAS-REMOCE-VIEBROCK?bidId=

¹² Buncombe County (NC) Land Development and Subdivision Ordinance. Retrieved 6/1/18 from <http://www.buncombecounty.org/common/planning/SubdivisionOrdinance.pdf>

¹³ City of Hendersonville (TN) Subdivision Regulations. Retrieved 6/1/18 from <https://www.hvilletn.org/residents/code-and-regulation-information/subdivision-regulations>

¹⁴ City of Newburgh (NY) Municipal Code, Chapter 300: Zoning Law, Section 300-52 Environmental Constraints. Retrieved 6/1/18 from <http://ecode360.com/30538014>

¹⁵ Town of Ayer (MA) Proposed Zoning Bylaw (March 2017). Section 9: General Regulations, Subsection 9.4: Environmental Performance Standards. Retrieved 7/5/18 from https://www.ayer.ma.us/sites/ayerma/files/uploads/ayer_zoning_bylaw_proposed_for_adoption_03-2017_final_0.pdf

¹⁶ Town of Owasco (NY) Municipal Code, Chapter 150: Zoning, Article IIA: Environmental Protection Overlay Districts, Section 150-9.20. Retrieved 6/1/18 from <http://ecode360.com/10888954>

¹⁷ City of Saratoga Springs (NY) Zoning Ordinance, 2.0 Base Zoning Districts, Table 3: Area and Bulk Schedule <https://saratoga-springs.org/DocumentCenter/View/243/20-Base-Zoning-Districts-PDF>

¹⁸ *Stormwater Management Gap Analysis Workbook for Local Officials*. (2006). NYS Department of Environmental Conservation. Retrieved 6/1/18 from ftp://ftp.dec.state.ny.us/dow/stormdocuments/ms4/construction_post_construction_stormwater_management/gap%20analysis%20introduction.pdf

¹⁹ *Green Infrastructure Model Local Law Project Summary Report: Process, Findings, and Implementation*. (2013). Stormwater Coalition of Albany County. Retrieved 6/1/18 from http://www.stormwateralbanycounty.org/wp-content/uploads/2011/12/A_GrnInfModLocLawProj_SWCoalAlbCntyNY_2013_Nov_ForDistribution.pdf

²⁰ *Protecting Water Resources through Local Controls and Practices: An Assessment Manual for New York Municipalities*. (2006). Genesee/Finger Lakes Regional Planning Council. Retrieved 6/1/18 from http://www.dos.ny.gov/opd/programs/pdfs/Protecting_Water_Resources.pdf

²¹ Town of Geneseo (NY) Municipal Code, Chapter 54: Erosion and Sediment Control. Retrieved 6/1/18 from <https://ecode360.com/10488432>

²² *2014 Stormwater Utility Survey*. (2014). Overland Park, KS: Black & Veatch. Retrieved 6/1/18 from <http://bv.com/docs/default-source/management-consulting-brochures/2014-stormwater-utility-survey>

²³ City of Ithaca (NY) Local Law #3 of 2014. Retrieved 6/1/18 from http://locallaws.dos.ny.gov/sites/default/files/drop_laws_here/ECMMDIS_appid_DOS20150218075530_2/Content/09021343800b8020.pdf

²⁴ *Funding Stormwater Programs*. (2009). EPA 901-F-09-004. Retrieved 6/1/18 from <https://www.epa.gov/sites/production/files/2015-10/documents/fundingstormwater.pdf>

²⁵ *Stormwater User Fee FAQs*. City of Ithaca. Retrieved 6/1/18 from <http://www.cityofithaca.org/520/Stormwater-User-Fee-FAQs>

²⁶ *City of Ithaca Stormwater User Fee Revision/Credit Application*. City of Ithaca, NY. Retrieved 6/1/18 from <http://www.cityofithaca.org/DocumentCenter/View/2111/Stormwater-User-Fee-and-Credit-Application-FINAL-1>

²⁷ *Funding Stormwater Programs*. (2009). EPA 901-F-09-004. Retrieved 6/1/18 from <https://www.epa.gov/sites/production/files/2015-10/documents/fundingstormwater.pdf>

²⁸ *Stormwater Utility Fees: Considerations and Options for Interlocal Stormwater Working Group (ISWG)*. (2005). New England Environmental Finance Center. Retrieved 6/1/18 from <http://efc.muskie.usm.maine.edu/docs/StormwaterUtilityFeeReport.pdf>

²⁹ City of Ithaca (NY) Municipal Code, Chapter 283: Stormwater Utility. Retrieved 6/1/18 from <http://ecode360.com/29575853>