

LOCAL LAND USE RESPONSE TO SEA LEVEL RISE

**Prepared by the
Land Use Law Center, Pace University School of Law
For
The Nature Conservancy on Long Island**

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TABLE OF CONTENTS

Part 1.

I.	OVERVIEW	4
II.	ABOUT THIS REPORT	5
III.	NATIONAL FRAMEWORK	7
IV.	STATE FRAMEWORK	12
V.	NEW YORK STATE COASTAL PROGRAMS AND REGULATIONS	18
VI.	LOCAL LAND USE RESPONSE TO SEA LEVEL RISE	27
	1. Executive Orders & Sea Level Rise Policy.....	27
	2. Regional Plan	29
	3. Comprehensive Plan	34
	4. Shoreline Management Plan/Local Waterfront Revitalization Plans	38
	5. Post-Storm Redevelopment Planning	43
	6. Land Use Regulations and Best Management Practices	47
	a. Rolling Easements	48
	b. Special Area Ordinances	49
	c. Overlay Zoning	54
	d. Non-conformities	60
	e. Site Capacity/Performance Standards	62
	f. Coastal Wetland Regulations	63
	g. Density Restrictions/Growth Management	66
	h. Transfer of Development Rights	68
	i. Regulatory Agreements	71
	j. Building Standards, Site Plans & Subdivision Infrastructure	72
	k. Floodplain Management	74
	l. Stormwater Management	75
	m. Coastal Infrastructure Regulation	76

Part 2.

LOCAL PLANNING AND REGULATORY STRATEGIES FOR NEW YORK MUNICIPALITIES

I.	Policy Approach	78
	Sea Level Rise and Storm Hazard Mitigation Resolutions and Executive Orders	78

II.	Studies Research Training and Education	78
	Studies, Research, and the Creation of a Task force	79
	Training Education and Citizen Participation	80
III.	Moratorium for Planning	80
	Implementation	81
IV.	Sea Level Rise and Storm Hazard Mitigation Planning	82
	Plan Preparation and Adoption	83
	1. Generally	83
	2. Organization of the Sea Level Rise Component	83
	3. Identifying Critical Issues and Collecting Background Information	83
	4. Setting Goals	84
	5. Establishing Objectives	84
	6. Developing Strategies	85
	7. Devising an Implementation Plan	85
	Links to other Planning Programs	85
V.	Sea Level Rise and Storm Hazard Mitigation Regulatory Approaches	87
	1. Create a New Zoning District(s) or Overlay District(s)	87
	2. Techniques and Standards that can be Included in New Districts	88
	3. Subdivision Regulations and Site Plan Approvals	92
	4. Adopt Local SEQRA Regulations	93
	5. Avoid Regulatory Takings Challenges	93
	6. Project Review Local Planning Board	94
	7. Transfer of Development Rights	94
	8. Establish Moratoria following future storm events (Post disaster moratoria)	94
	9. Intergovernmental Approaches	95
Appendices		
	A. New York State Land Use Summary	97
	B. Ordinances	110

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Part 1.

I. OVERVIEW

SEA LEVEL RISE AND LAND USE

The Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) (2007)² finds that sea level has been rising by 9 to 15 inches per century since 1993, and predicts that global average sea level will rise by 7.2 to 23.6 inches during this century. However, because the IPCC study did not consider increased melt water contributions from Greenland and Antarctic, these estimates are considered conservative. A recent report from the U.S. Climate Change Science Program notes that "thoughtful precaution suggests that a global sea-level rise of 1 [meter] to the year 2100 should be considered for future planning and policy discussions."³

In New York State, the New York City Panel on Climate Change (NPCC) analyzed global climate models as well as local data and "projects that by the end of the century New York City's mean annual temperatures [are] projected to increase by 4 to 7.5 degrees Fahrenheit. Annual precipitation is also projected to increase by 5 to 10 percent, and sea levels to rise by 12 to 23 inches. Recent evidence, however, including accelerated ice melt in Greenland and Antarctica, suggests that sea levels could rise at a faster rate than projected by the existing models - potentially to 41 to 55 inches by the end of the century. While this "rapid ice-melt" scenario does not have the same level of confidence associated with it as those developed by the global climate models, the NPCC included it in their projections given the large impact it would have on the City should it occur."⁴

Rising sea levels in the United States will erode beaches; drown marshes and wetlands; damage barrier islands, habitat, and ecological processes; and cause saline intrusion into freshwater ecosystems and groundwater, flooding or inundation of low-lying areas, and damage to private and public property and infrastructure.

¹ Established in 1993, the Land Use Law Center is dedicated to fostering the development of sustainable communities and regions through the promotion of innovative land use strategies and dispute resolution techniques. The Center involves land use and real estate leaders, attorneys, and other professionals in its programs. Its activities provide opportunities for students of Pace Law School to gain in-depth, practical experience that allows them to become excellent practitioners serving private, public, and nongovernmental clients. For further information concerning the Center's programs, institutes, or frequent publications on contemporary land use, real estate, and environmental issues, please visit the Center website, at www.law.pace.edu/landuse.

² IPCC, *Climate Change 2007: Physical Science Basis; Summary for Policymakers* (February 2007).

³ "Coastal Sensitivity to Sea-Level Rise: A Focus on the Mid-Atlantic Region," U.S. Climate Change Science Program (Jan. 15, 2009), available at <http://www.climatescience.gov/Library/sap/sap4-1/final-report/default.htm>

⁴ See New York City Press Release, *Mayor Bloomberg Releases New York City Panel on Climate Change Report that Predicts Higher Temperatures and Rising Sea Levels for New York City* (February 17, 2009).

The Pew Oceans Commission 2002 study of Coastal Sprawl reported that since 1982 the rate of land development in the United States has been double the rate of population growth. The study attributes this increase to declining densities of development, and predicts that at this rate another 68 million acres of rural land—equivalent to the entire State of Wyoming—will be developed by 2025.⁵

Coastal areas make up less than 20% of the country's total land area, but are home to more than half our total population. The Pew study found that in 1997 the coastal watersheds of the Mid-Atlantic region were 30% developed; New England's coastal watersheds were 17% developed; California's were 15% developed; and the South Atlantic/Gulf regions were 12.5% developed. At the current rate of development, the study predicted that by 2025 a quarter of all coastal watersheds will be developed. The Mid-Atlantic coastal watersheds will be 60% developed, along with 25% to 30% of New England, California, and South Atlantic/Gulf coastal watersheds.⁶

In its final report, *An Ocean Blueprint for 21st Century* (2004), the U.S. Commission on Ocean Policy stressed the need for coordinated, ecosystem-based management of the nation's coastal resources. The Commission recognized that "the oceans, land, and atmosphere are inextricably intertwined and that actions that affect one Earth system component are likely to affect another."⁷ It called for coordination among all levels of government and for partnerships among federal agencies and state and local stakeholders to mitigate coastal hazards, manage growth, and conserve and restore coastal lands and habitats. The Commission stated:

U.S. ocean and coastal resources should be managed to reflect the relationships among all ecosystem components, including humans and nonhuman species and the environments in which they live. Applying this principle will require defining relevant geographic management areas based on ecosystem, rather than political, boundaries.⁸

As the EPA, the Pew report⁹, and the U.S. Ocean Commission¹⁰ all emphasize, local and state governments traditionally possess—and, in the absence of coordinated federal, regional, state, and local policies, currently exercise—primary responsibility and authority to manage coastal resources and protect the coasts from the effects of accelerated sea level rise. Through their land use powers and their first-hand knowledge of local ecosystems, local governments are uniquely positioned to manage coastal lands and resources.

II. ABOUT THIS REPORT

⁵ Dana Beach, *Coastal Sprawl: The Effects of Urban Design on Aquatic Ecosystems in the United States*, at 5 (Pew Oceans Commission 2002).

⁶ *Id.*

⁷ U.S. Ocean Commission, *An Ocean Blueprint for the 21st Century: Final Report* (2004).

⁸ *Id.* at 6 (2004).

⁹ According to Pew, sea level rise is one of the most widespread impacts of global warming; but while scientific developments have provided significant understanding in past and current sea level rise, they do not clearly point to what will happen in the future. Pew Center on Global Climate Change, *Sea Level Rise – The State of the Science* (Feb. 2007), available at http://www.pewclimate.org/docUploads/SLR_fact_sheet_020207.pdf.

¹⁰ The U.S. Ocean Commission also attributes the sea level rise to climate change and it mentions the importance of mitigating the future consequences of long-term damage to corals and mangroves, loss of agricultural sites and infrastructure, saltwater contamination of fresh-water sources, and coastal erosion. *Id.*

Although an increasing number of states and local governments are beginning to consider the effects of climate change, only a small but growing number have specifically addressed sea level rise and its impacts. This report summarizes selected local land use ordinances and regulations that include specific mention of sea level rise or that incorporate appropriate policy responses that may be used to address sea level rise.

The National Framework for local responses to sea level rise is laid out below, followed by the State Framework and then Local Planning and Regulatory responses. Sea level rise is complex and affects many ecological processes. The policies and regulations that states and local governments are adopting to respond to sea level rise necessarily involve many aspects of land use and natural resource protection. Policies, plans, ordinances, and best management practices may need to address a number of resources or a number of techniques. Hazard mitigation plans, shoreline programs, overlays to protect specific resources all may have similar or overlapping goals, and those goals may be related to the effects of accelerated sea level rise whether or not sea level rise is a focus of the response.

The report is a starting point for discussion of more comprehensive, more effective local responses to sea level rise. It demonstrates how some local governments are trying to implement policies and regulations that fit the very specific and very individual needs of their communities. States with the greatest state involvement in land use planning—Washington, for example—appear at the moment to have the most advanced response to climate change. But New York, even without a formal state policy on sea level rise, has—in its land use law and in its coastal statutes and regulations—given local governments extensive authority to enact laws and policies similar to those drawn from throughout the country.

The report concludes with local planning and regulatory strategies for New York municipalities that draw on the methods employed by local governments outside of New York. This section is organized in a five phased approach starting with policies for local government to adopt, next discusses studies and citizen participation, and then moves to a moratorium, planning, and concludes with regulations and intermunicipal cooperation.

Certain general summaries of New York State land use enabling acts and techniques, and Appendix B, are adapted from JOHN R. NOLON, WELL-GROUNDED: USING LOCAL LAND USE AUTHORITY TO ACHIEVE SMART GROWTH (ELI 2001).

Please note: The Land Use Law Center does not offer legal advice or advocate the adoption of particular ordinances or regulations. Inclusion of any ordinance in this report does not imply any endorsement of its use in any particular locale. Each section includes summaries that were found to be the most representative of techniques that may be used to address sea level rise locally.

III. NATIONAL FRAMEWORK

COASTAL ZONE MANAGEMENT ACT OF 1972 (CZMA)

The Coastal Zone Management Act (CZMA) of 1972 strives to preserve and protect coastal resources. Complex and covering a broad range of issues, the CZMA was the result of several factors that made the need for comprehensive management guidance a priority. These factors include the increase in use of coasts since World War II, concern about the future health and wise management of coastal resources that led to the convening of Stratton Commission and the Stratton Commission affirming the need for guidance. The objectives of the CZMA are to protect and preserve coastal ecosystems, manage coastal development, improving water quality, utilize economic and energy resources, and coordinate and simplify administrative procedures. Described by National Oceanic and Atmospheric Administration (NOAA) as “a cornerstone for national coastal policy for more than 30 years,”¹¹ the CZMA addresses sea level rise in its findings and policy declaration and in regulations implementing the statute:

16 USC § 1451 (Section 302): Congressional Findings: “Because global warming may result in substantial sea level rise with serious adverse effects within the coastal zone, coastal states must anticipate and plan for such an occurrence.”¹²

16 USC §1452 (Section 303): Congressional Declaration of Policy: It is the national policy to aid states in developing programs that will “at least” provide for, among other issues:

- “the protection of natural resources, including wetlands, floodplains, estuaries, beaches, dunes, barrier islands, coral reefs, and fish and wildlife and their habitats within the coastal zone,”¹³ and for
- “the management of coastal development to minimize the loss of life and property caused by improper development in flood-prone, storm-surge, geological hazard, and erosion-prone areas and in areas likely to be affected by or vulnerable to sea level rise, land subsidence, and saltwater intrusion, and by the destruction of natural protective features such as beaches, dunes, wetlands, and barrier islands.”¹⁴

It is further the national policy “to encourage the preparation of special area management plans which provide for increased specificity in protecting significant natural resources, reasonable coastal-dependent economic growth, improved protection of life and property in hazardous areas, including those areas likely to be affected by land subsidence, sea level rise, or fluctuating water levels of the Great Lakes, and improved predictability in governmental decision-making.”¹⁵

The federal regulations implementing the CZMA designate as areas of special concern “[a]reas where, if development were permitted, it might be subject to significant hazard due to storms, slides, floods, erosion, settlement, salt-water intrusion, and sea level rise.”¹⁶ Shoreline erosion/mitigation planning regulations require that the coastal management program “must

¹¹ Written testimony of John H. Dunnigan, Assistant Administrator NOAA National Ocean Service, before the Committee on Natural Resources, U.S. House of Representatives (Feb. 2, 2008).

¹² 16 U.S.C. § 1451(l).

¹³ 16 U.S.C. § 1452(2)(A).

¹⁴ 16 U.S.C. § 1452(2)(B).

¹⁵ 16 U.S.C. § 1452(3).

¹⁶ 15 C.F.R. § 923.22(b)(7).

include a planning process for assessing the effects of, and studying and evaluating ways to control or lessen the impact of shoreline erosion, including potential impacts of sea level rise.”¹⁷

CZMA Reauthorization

In preparation for the 2008 reauthorization of the CZMA, NOAA and the Coastal States Organization (CSO) conducted discussions with coastal officials and stakeholders across the country,¹⁸ and found, according to congressional testimony by a NOAA administrator: “Managing growth and development in coastal areas was the most frequently identified challenge. . . . Local governments were identified as primary partners for addressing growth pressures. Climate change was the top emerging issue.”¹⁹ The NOAA official testified that “[c]oastal management issues in the next 30 years are likely to be different, or in a very different context, from the last 30 years,” because of “unanticipated effects and dynamics resulting from climate change,” together with “effects of globalization, new technologies, and changing coastal demographics.”²⁰ The testimony stressed that most “decisions that cumulatively affect coastal resources” are made at the local level, and that local governments need enhanced planning capacity for growth management; tools to incorporate natural resource planning and protection into local planning processes; and increased access to coastal planning data and information.

In *Envisioning the Future of Coastal Management*, which summarizes national CZMA reauthorization discussions on land use and growth management, NOAA and the CSO reported that stakeholders found more connections are needed “among agencies, people, goals and tools.”²¹ A list of Summary Principles included:

- Incorporating contingency or full valuation of natural and social resources.
- Promoting watershed-based planning.
- Integrating incentives, disincentives, acquisition, technical assistance and management with federal, state, and local roles.
- Thinking in both the short and the long term.²²

The CZMA reauthorization bill, H.R. 5451, was introduced to the House Committee on Natural Resources on February 14, 2008; referred to the Fisheries, Wildlife, and Oceans Subcommittee for hearings on February 20th; and forwarded to the full House Committee on Natural Resources on June 4, 2008. The hearings included questions from the subcommittee on how the CZMA could better address sea level rise and climate change impacts and on the role of

¹⁷ 15 C.F.R. § 923.25(a). *But see* The United States Government Accountability Office (GAO), *Coastal Zone Management: Measuring Program’s Effectiveness Continues to Be a Challenge* (Sep. 2008), available at <http://www.gao.gov/new.items/d081045.pdf> (GAO suggests that Congress clarify whether CZMA grants should reflect state coastal variations and that NOAA address a number of weaknesses in its current processes for awarding grants, evaluating state performance, and assessing the effectiveness of the program).

¹⁸ See NOAA/CSO, *Envisioning the Future of Coastal Management: Key Findings of Manager Interviews* (2007).

¹⁹ Written testimony of John H. Dunnigan, Assistant Administrator NOAA National Ocean Service, before the Committee on Natural Resources, U.S. House of Representatives (Feb. 2, 2008).

²⁰ *Id.*

²¹ NOAA/CSO, *Envisioning the Future of Coastal Management: Stakeholder Discussion Summary by Topic: Land Use* (2007).

²² *Id.*

science in coastal planning.²³ In introducing the bill, its sponsor took note of climate change, and said, “I fully recognize that this bill is a placeholder and a starting point for a much more substantive dialogue as we begin to address the new realities facing our nation’s coastal zone.”²⁴

The House Natural Resources Committee had scheduled a markup session on H.R. 5451 for June 11, 2008. The Committee ended up pulling the bill after several weakening amendments were proposed the day before the scheduled markup. Some of those amendments would have weakened the CZMA’s consistency provision, which requires federal agency activities that have foreseeable effects on coastal uses and resources to be consistent with enforceable policies of state coastal management programs.²⁵

An additional bill, H.R. 5453, the Coastal State Climate Change Planning Act of 2008, was introduced at the same time as H.R. 5451, but never became law. The act would have provided financial and technical aid for voluntary state planning addressing climate change adaptation under CZMA Section 306 approved management plans.²⁶

At its Annual Meeting in October 2008, CSO Members adopted a draft bill, called the Coastal Management Act of 2009, to serve as a reinvigoration and reauthorization of the Coastal Zone Management Act. Based on principles from the Envisioning Coastal Management project conducted with NOAA, and extensive discussions and drafting by CSO delegates, the bill identifies four national priorities for effective coastal management and to meet the increasing complex challenges in managing coastal resources and communities. It calls for a comprehensive planning effort by the states and increased coordination of federal, state, and local actions. Currently CSO is receiving comments and ideas from partner organizations.²⁷

FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

The Federal Emergency Management Agency (FEMA) administers both federal multi-hazard mitigation planning and federal flood insurance programs, which do not directly address sea level rise but are important components of local responses to its effects. The American Planning Association, in undertaking an ongoing study with FEMA on integrating hazard mitigation into local planning, has stated: “Planners and emergency managers, in particular, must interact and communicate more in planning and implementing hazard mitigation. . . . Most hazard mitigation involves some element of land use or other planning activities. . . . For example, zoning and open space preservation are frequently essential tools in planning for flood mitigation.”²⁸

²³ See The CSO Weekly Report, *House Subcommittee holds hearings on CZMA Bills; CSO Members Testify* (February 29, 2008), available at <http://www.coastalstates.org>.

²⁴ Hon. Madeleine Z. Bordallo, *Reauthorizing the Coastal Zone Management Act, Congressional Record—Extensions*, E435 (March 14, 2008).

²⁵ See Restore America’s Estuaries, www.estuaries.org.

²⁶ In order for a state to receive this aid, its plans would have to include accurate identification of sites and activities affected by Climate Change, and provisions for mitigation and adaptation consistent with State hazard mitigation plans developed under State or Federal law. See U.S. Commission on Ocean Policy, *An Ocean Blueprint for the 21st Century, Final Report* (2004), available at <http://www.oceancommission.gov>.

²⁷ See The Coastal States Organization, <http://www.coastalstates.org>.

²⁸ See The American Planning Association, *Integrating Hazard Mitigation into Local Planning*, available at <http://www.planning.org/hazardmitigation/index.htm>.

In a 2000 Report to FEMA, the Heinz Center surveyed coastal zone management tools used by states²⁹ to protect beaches, dunes, and bluffs from erosion and other hazards. The FEMA/Heinz report also outlined management options available to local governments. That summary included the following planning choices:

- Regulatory tools: Zoning; shoreline setbacks; dune and shore habitat protection; building codes; mitigation standards; shoreline stabilization rules; implementation of the National Flood Insurance Program.
- Planning tools: Subdivision and special hazard area ordinances; comprehensive land-use plans.
- Non-regulatory tools: Locating public structures in non-hazardous areas; transfer of development potential to non-hazardous areas; relocation programs; limitation on infrastructure development in hazardous areas; beach management.
- Land ownership and management: Acquisition of structures, property, and development potential; beach management; dune preservation and restoration.
- Research, education, and outreach: Co-funding and participating in research and impact assessments; public education; informing at-risk population.³⁰

Multi-Hazard Mitigation Planning

The Disaster Mitigation Act of 2000 (P.L. 106-390) (the DMA)³¹ and its implementing regulations, Interim Final Rule 44 CFR Part 201 (February 26, 2002) establish mitigation planning requirements for states and local governments as a condition of receiving disaster assistance funding. The Congressional findings of the DMA emphasize the need for an increased focus on “identifying and assessing the risks to States and local governments ... from natural disasters” as well as for implementation of “adequate measures to reduce losses from natural disasters.”³²

To achieve these goals, the DMA provides [under section 322(a) of the Act] for state, local, and tribal governments to each develop and submit for approval a mitigation plan “that outlines processes for identifying the natural hazards, risks, and vulnerabilities of the area under the jurisdiction of the government.” In order to be eligible for increased federal funds under section 322(e), a state, local, or tribal government must have an approved mitigation plan that fulfills the requirements as outlined in the DMA, and as provided by the Interim Final Rule issued by FEMA in February 2002. In order to assist local governments in formulating these plans, FEMA issued “State and Local Plan Interim Criteria” in July 2002. Additionally, in March of 2004, FEMA issued its “Multi-Hazard Mitigation Planning Guidance” (MMPG)³³ in order to “help Federal and State reviewers evaluate mitigation plans from different jurisdictions in a fair and consistent manner”

²⁹ See FEMA/Heinz Center, *Evaluation of Erosion Hazards* (2000), Table 4.3.

³⁰ See FEMA/Heinz Center, *Evaluation of Erosion Hazards* (2000), *Adapted from* Table 4.7.

³¹ The Disaster Mitigation Act of 2000 was enacted in October of 2000 as an amendment to the Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C. section 5121 et seq. (the “Stafford Act”).

³² P.L. 106-390, section 101.

³³ See FEMA, *Multi-Hazard Mitigation Planning Guidance under the Disaster Mitigation Act of 2000* (2004; revised January 2008) (hereinafter MMPG).

and to “help States, Tribes, and local jurisdictions develop new mitigation plans or modify existing ones in accordance with the requirements of the Rule.”³⁴ FEMA approves Standard State Mitigation Plans,³⁵ Enhanced State Mitigation Plans,³⁶ as well as Local and Tribal Mitigation Plans.³⁷

National Flood Insurance Program (NFIP)

Enacted in 1968, the National Flood Insurance Program (NFIP) is the federal government’s primary tool for managing flood hazards through a combination of incentives and regulation. In addition to the development of maps identifying flood-prone areas, the NFIP provides (or helps private companies provide) flood insurance to owners of commercial and residential structures in communities that adopt appropriate construction standards. Premiums and fees from property owners cover most program costs. Other NFIP responsibilities include identifying flood hazards, assessing risks, and implementing measures for reducing losses. While the NFIP is a national program, the majority of its policies, total coverage, and premium revenues are associated with coastal communities.

Under the NFIP, participating communities agree to adopt and enforce floodplain ordinances to reduce risk for new development in federally identified floodplains, and in return the federal government provides “an insurance alternative to disaster assistance to reduce the escalating costs of repairing damage to buildings and their contents caused by floods.”³⁸ The program is voluntary and requires that participating communities adopt at least the minimum NFIP standards for land use and building regulations.

Without the NFIP, many of the more than 19,000 participating communities most likely would not have had the incentive to develop active programs to manage flood risks. Unlike private-sector insurers, the federal government can carry debt over the long term and replenish funds depleted by catastrophic disasters over time. For this reason, the federal government is able to undertake the expense of mapping flood hazards nationally and subsidize coverage for older

³⁴ MMPG at vi.

³⁵ See 44 C.F.R. § 201.4. Under a “standard plan”, states are eligible for Hazard Mitigation Grant Plan (HMGP) funds equivalent to 7.5% of “estimated eligible Stafford Act disaster assistance”. The plan must meet the following requirements in order to be approved: “describe how the State coordinates with local mitigation planning efforts; develop a mitigation strategy based on local and State vulnerability analyses and risk assessments; describe how the State provides funding or technical assistance to local governments; discuss how the State prioritizes jurisdictions that will receive mitigation planning and project grants and other State assistance; and establish a plan maintenance process.” MMPG at ix.

³⁶ See 44 § 201.5 Under an approved “enhanced” plan, a state may qualify for HMGP funds equal to up to 20% of the total amount of “estimated eligible Stafford Act disaster assistance”. In addition to satisfying the requirements of the “standard plan”, the “enhanced plan” must “demonstrate a broad, programmatic mitigation approach... and demonstrate a systematic and effective administration and implementation of existing mitigation programs.” MMPG at ix.

³⁷ See 44 § 201.6 Local mitigation plans “must also demonstrate that proposed mitigation actions are based on a sound planning process that accounts for the inherent risk and capabilities of the individual communities.” MMPG at ix. Tribal mitigation plans may choose to develop a plan either as a “grantee” (following state guidelines) or as a “subgrantee” (following local guidelines). *Id.*

³⁸ See FEMA, *National Flood Insurance Program: Program Description (2002)*, available at <http://www.fema.gov/business/nfip/>

buildings. FEMA estimates that NFIP building standards and other floodplain management measures reduce flood losses by \$1 billion per year.³⁹

However, despite these accomplishments, concerns have been raised that the NFIP may inadvertently facilitate inappropriate coastal development and redevelopment. While many factors weigh heavily in such decisions, including the market forces that make real estate in coastal floodplains and estuarine areas so valuable, the availability of flood insurance also plays a role.

In 2006 FEMA released a report prepared by the American Institutes for Research designed to provide an objective characterization of the NFIP's developmental and environmental impacts.⁴⁰ The report confirmed that the NFIP is often perceived to reduce barriers to development by reducing economic and flood risk to property owners, but qualified that influence as nuanced. In the states and communities surveyed for this report, primarily rapidly growing coastal areas, property characteristics and the availability of NFIP insurance were the most significant considerations in decisions to develop, buy or build in flood risk areas. However, NFIP's fundamental objectives have also promoted safer and logically planned urban development. The NFIP is not perceived to inhibit floodplain development in coastal areas and high-growth communities, but it does comply with the basic requirements of both NEPA and Executive Order 11988.⁴¹

Another restriction on the scope of NFIP is the Coastal Barrier Improvement Act of 1990,⁴² which prohibits the issuance of new Federal Flood Insurance Coverage after November 16, 1991, on undeveloped coastal barriers as designated by the Secretary of the Interior.

IV. STATE FRAMEWORK

COASTAL PROGRAMS UNDER THE CZMA

All ocean-coast states and seven of the eight Great Lakes⁴³ have coastal zone programs under the CZMA.⁴⁴ The Coastal States Organization reported in September 2007 that coastal programs "are beginning to address climate change by examining the social, environmental, and economic impacts of accelerated sea level rise scenarios, resulting shoreline changes, and

³⁹ U.S. Commission on Ocean Policy, *An Ocean Blueprint for the 21st Century: Final Report of the U.S. Commission on Ocean Policy (2004)*, Chapter 10: *Guarding People And Property Against Natural Hazards*, at 15, available at <http://www.oceancommission.gov>.

⁴⁰ See Walter A. Rosenbaum & Gary Boulware, *The Developmental and Environmental Impact of the National Flood Insurance Program: A Summary Research Report*, 2006.

⁴¹ Executive Order 11988 "requires federal agencies to avoid to the extent possible the long and short-term adverse impacts associated with the occupancy and modification of flood plains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative." See The Federal Emergency Management Agency (FEMA), available at <http://www.fema.gov/plan/ehp/ehplaws/eo11988.shtm>.

⁴² 16 U.S.C. 3501.

⁴³ Illinois is in the process of adopting a program this year. The Alliance for the Great Lakes is working with Illinois government officials to create their program. The Alliance's website has the draft of the program, to which changes being made each month. See The Alliance for the Great Lakes, <http://www.greatlakes.org/Page.aspx?pid=505>.

⁴⁴ See The Coastal States Organization, *The Role of Coastal Zone Management Programs in Adaptation to Climate Change: Final Report of the CSO Climate Change Work Group* (September 2007).

potential adaptation strategies.”⁴⁵ Among these adaptation considerations are establishing public infrastructure siting policies (Massachusetts and New York); including climate change in site-level project planning (Washington and California); increasing shoreline setbacks (California and North Carolina); and promoting alternatives to shoreline armoring (Maryland).⁴⁶ The report notes that a major challenge for coastal managers is “to devise adaptation strategies for a variety of sea level rise scenarios and adjust these in the future as forecasting improves.”⁴⁷

A 2008 national survey of coastal program initiatives by Rhode Island Sea Grant and the University of Rhode Island documents both climate change initiatives and coastal hazard initiatives that may contribute to adaptation to sea level rise.⁴⁸ Programs vary enormously, and illustrate the CZMA reauthorization workshops’ insistence that government and agency coordination, ecosystem based management, standards, and technical resources are needed.⁴⁹ In general, states that have the greatest involvement in land use planning have taken the lead in planning for sea level rise.

INDIVIDUAL STATE RESPONSES TO SEA LEVEL RISE

This report includes regulations, ordinances, and plans from the following states, which have taken varying levels of action to deal with the impacts of accelerated sea level rise:

California: The California Coastal Act of 1976 created a coastal zone extending 1,000 yards landward from the mean high tide line. The California Coastal Commission administers the Act and certifies local coastal programs. Development within the coastal zone is by permit, and must conform to the requirements of the local plan. The commission surveyed potential sea level rise in a 2001 report.⁵⁰ The San Francisco Bay Conservation and Development Commission has been active in planning for sea level rise in the Bay region, and in 2007 published *Planning for Sea Level Rise in San Francisco Bay*.

Florida: Although Florida is among the states most vulnerable to sea level rise, it “has yet to begin developing a portfolio of strategies for adaptation to climate change.”⁵¹ Florida’s regional planning councils, however, have conducted a number of surveys on sea level rise. As part of a program sponsored by the EPA in 2002, the Southwest Florida Regional Planning Council coordinated a statewide study of sea level rise. The report of the Treasure Coast Regional Planning Council (2005) surveyed existing state and local shoreline initiatives in the area and urged that local governments consider sea level rise in all land use amendments in coastal areas of less than 10 feet in elevation; that topographic maps show one-foot contours in the

⁴⁵ *Id.* at 2.

⁴⁶ *Id.* at 9-13.

⁴⁷ *Id.* at 2.

⁴⁸ NOAA/Rhode Island Sea Grant/University of Rhode Island, *Summary of Coastal Program Initiatives that Address Sea Level Rise as a Result of Global Climate Change* (February 2008).

⁴⁹ See NOAA/CSO, *Envisioning the Future of Coastal Management: Key Findings of Manager Interviews* (2007).

⁵⁰ California Coastal Commission, *Overview of Sea Level Rise and Some Implications for Coastal California* (June 2001).

⁵¹ S. Mulkey, *Climate Change and Land Use: Report to the Century Commission* (June 2007).

coastal zone to aid local planning; and that planners consider long-term implications of sea level rise, instead of adopting a 10- or 20-year time frame.⁵²

Maine: Maine has incorporated sea level rise into its planning and regulations for more than a decade. The state's Coastal Sand Dune Rules acknowledge the fragile and dynamic nature of dune systems and the uncertainty of the extent of future change in sea level. The Department of Environmental Protection "anticipates that sea level will rise approximately two feet in the next 100 years," and concludes that "[u]nder any scenario of increasing sea level, the extensive development of sand dune areas and the construction of structures increase the risk of harm, to both the coastal sand dune system and the structures themselves."⁵³ Standards for All Projects require that a project may not be permitted if "it is likely to be severely damaged" by the two-foot rise in sea level over 100 years.

Maryland: Maryland has been among the most advanced states in planning for sea level rise. Since 2000, the state Department of Natural Resources has encouraged policies for responding to a rise of two to three feet in this century. In 2007, the governor established the state Commission on Climate Change, which has focused on sea level rise in its Draft Catalog of State Sectoral Adaptation Actions, Future Built Environment & Infrastructure Adaptation Options Section (Version 1 & Version 2), issued in September 2007.⁵⁴ Maryland's "Living Shorelines" program presents management options that "allow for natural coastal processes to remain through the strategic placement of plants, stone, sand fill, and other structural and organic materials." Maryland has also undertaken coastal protection initiatives with the neighboring states of Delaware and Virginia.

In 2008, under revisions to its Critical Areas legislation, Maryland expanded buffer requirements from 100' to 200' for new subdivisions in Resource Conservation Areas and for projects requiring site plan approval and involving a change in land use. The Act now requires a 300 foot setback of new IDA and RDA areas from mean high water. The revisions replace impervious surface limits with "lot coverage limits," which include gravel, stone, shell ... permeable pavement, or any man-made material" in total coverage. The revisions require nonstructural shoreline stabilization except where it can be proved to the Department of Natural Resources (DNR) that soft stabilization is not feasible.⁵⁵

Massachusetts: Massachusetts' Coastal Program is planning for a one-foot rise in sea level in this century. In FEMA-designated V-Zones, the rate is two feet in 100 years. The state has established a Coastal Hazard Commission, which has recommended mapping and modeling sea level rise data for the state. The state has issued best management practices and technical guidance on beach nourishment, and specifically addresses sea level rise in its Recommendations for Management of Risk from Coastal Hazards in Massachusetts. The Coastal Program's StormSmart Coasts web site encourages the use of No Adverse Impact

⁵² See The Treasure Coast Regional Planning Council, *Sea Level Rise in the Treasure Coast Region* (December 5, 2005), available at

http://www.tcrpc.org/special_projects/TCRPC%20SLR%20Report%2012-05-05.pdf.

⁵³ Maine Department of Environmental Protection Rules Ch. 355(1), available at <http://www.maine.gov/sos/cec/rules/06/chaps06.htm>.

⁵⁴ See The Metropolitan Washington Council of Governments, *National Capital Region: Climate Change Report and Recommendations, Committee Review Draft* (May 2008), available at <http://www.mwcog.org/uploads/committee-documents/tlZXWF420071126172933.pdf>.

⁵⁵ See Critical Area Commission, Maryland House Bill 1253, Overview of 2008 Legislation (May 20, 2008).

techniques in coastal planning for sea level rise, and provides a range of information for coastal hazard planning.

Massachusetts Wetland Regulations implement the No Adverse Effect Standard.⁵⁶ Where a coastal dune “is determined to be significant to storm damage prevention, flood control, or the protection of wildlife habitat ... any alteration of, or structure on, a coastal dune or within 100 feet of a coastal dune shall not have an adverse effect on the coastal dune by:

- (a) Affecting the ability of waves to remove sand from the dune;
- (b) Disturbing the vegetative cover so as to destabilize the dune;
- (c) Causing any modification of the dune form that would increase the potential for storm or flood damage;
- (d) Interfering with the landward or lateral movement of the dune;
- (e) Causing removal of sand from the dune artificially; or
- (f) Interfering with mapped or otherwise identified bird nesting habitat.”⁵⁷

North Carolina: North Carolina’s Coastal Areas Management Act (CAMA) of 1974 aims to encourage cooperative land use planning between state and local governments. All coastal communities must adopt land use plans in conformance with CAMA. It is the policy of the state that “adequate plans for post-disaster reconstruction should be prepared by and coordinated between all levels of government prior to the advent of a disaster.”⁵⁸

NOAA’s summary of Coastal Program sea level rise initiatives points out that although CAMA and the state’s administrative regulations do not mention sea level rise, they recognize that shorelines are constantly changing.⁵⁹ CAMA bans hardened oceanfront structures. Oceanfront setbacks are tied to erosion rates: “By their very nature, setbacks tied to long-term erosion rates take sea level rise into account, as it is one of the drivers of shoreline change from which erosion rates are determined.”⁶⁰ Setbacks for new development on public trust shorelines must be set back 30 feet landward from the normal high water line (as opposed to the mean high tide line); this “is the ordinary extent of high tide based on site conditions such as the presence and location of vegetation, which has its distribution influenced by tidal action, and the location of the apparent high tide line.”

Oregon: Under Oregon’s statewide planning program, the Land Conservation and Development Commission (LCDC) initially adopts the state’s planning goals and rules, and approves comprehensive plans adopted by local governments in conformance with the state regulations. The State of Oregon claims ownership of the Pacific shore “between ordinary high tide and extreme low tide, and from the Oregon and Washington state line on the north to the Oregon and California state line on the south.”⁶¹ The state maintains a right of public access to the dry sand beach, finding that the public’s “frequent and uninterrupted use of the ocean shore” since the nineteenth century has created a perpetual easement for public recreational use up to a statutory or established vegetation line—an easement that has been upheld by the courts.⁶²

⁵⁶ § 310 CMR 10.28, available at <http://www.mass.gov/dep/water/laws/regulati.htm#top>.

⁵⁷ *Id.*

⁵⁸ North Carolina General Policy Guidelines for the Coastal Area, 5A NCAC 07M.0501.

⁵⁹ NOAA/Rhode Island Sea Grant/University of Rhode Island, *Summary of Coastal Program Initiatives that Address Sea Level Rise as a Result of Global Climate Change*, at 42 (February 2008).

⁶⁰ *Id.*

⁶¹ ORS 390.615.

⁶² ORS 390.610; *State ex rel. Thornton v. Hay*, 462 P.2d 671 (1969).

The governor has established an Office of Climate Change, which with Oregon Sea Grant is preparing a report to the Legislature on climate change.

Rhode Island: The Purpose clause of Rhode Island's zoning enabling statute includes: "Providing for orderly growth and development which recognizes: . . . The values and dynamic nature of coastal and freshwater ponds, the shoreline, and freshwater and coastal wetlands."⁶³ The state has established setbacks for dunes, barrier beaches, and other coastal resources determined by the type of natural feature and the erosion rate. Permits may be required for activity within 200 feet of a coastal feature. In dune areas, construction or alteration is restricted. Undeveloped barriers may have only soft structural protection. Construction or alteration is prohibited on undeveloped and moderately developed barriers. New infrastructure is prohibited on all barrier beaches.

In January 2008, the state Coastal Resources Management Council added Section 145: Climate Change and Sea Level Rise to Rhode Island's Coastal Management Program, in preparation for rulemaking. Findings of fact set out the scientific basis for sea level rise projections and describe the probable effects of accelerated sea level rise. Policies include planning for an expected rise of three to five feet in this century, and contingency planning for an even greater rise.

South Carolina: South Carolina's Office of Ocean and Coastal Resource Management (OCRM) has declared in a statement of policy:

It has been clearly demonstrated that erosion problems of this State are caused by a persistent rise in sea level, a lack of comprehensive beach management planning, and poorly planned oceanfront development, including construction of hard erosion control structures, which encroach upon the beach/dune system. Sea level rise in this century is a scientifically documented fact. Our shoreline is suffering from its effects today. It must be accepted that regardless of attempts to forestall the process, the Atlantic Ocean, as a result of sea level rise and periodic storms, is ultimately going to force those who have built too near the beachfront to retreat.⁶⁴

OCRM concluded that "the long-range public good is the same as the long-range private good. If the dry sand beaches of this State disappear because of the failure of its people and governmental natural resource managers to protect the beach/dune system, future generations will never have the opportunity to use and enjoy this valuable resource."⁶⁵ The state's Coastal Zone Management Act of 1977 adopted retreat and re-nourishment as basic state policies for beach preservation and restoration.

Texas: The Texas Open Beaches Act of 1959 codified the public's common-law right of access to dry beach above mean high tide. Amendments to the Act in 1991 authorized the commissioner of the Government Land Office (GLO) to promulgate Beach/Dune rules. In a 2006 report, the GLO commissioner found that the state's rolling easement is never fixed, but migrates landward according to natural coastal processes.⁶⁶

Washington: Under Washington's Shoreline Management Act, which implements the CZMA, local governments must establish shoreline management programs to protect shoreline

⁶³ General Laws of Rhode Island § 45-24-30(3)(iii).

⁶⁴ Ch. 30, § 30-1(C)(4).

⁶⁵ *Id.* § 30-1(C)(7).

⁶⁶ See Eddie R. Fisher & Angela R. Sunley, *A Line in the Sand: Balancing the Texas Open Beaches Act and Coastal Development*, Proceedings of Coastal Zone 07, Portland, OR (July 2007).

resources and to assure public access to the shore. Some local plans expressly refer to sea level rise. This year, the state's Growth Management Act, under which most Washington communities adopt comprehensive plans, has been amended to establish a climate change project with selected local governments on developing responses to global warming, including sea level rise.⁶⁷ Legislation on Climate Change—Mitigating Impacts adopted in 2007 identifies sea level rise as one of the threats to Washington's economy, environment, and communities. Executive Order 07-02 outlines strategies for addressing the impacts of climate change, focusing on greenhouse gases and energy issues.

A January 2008 report by the University of Washington Climate Impacts Group and the Washington State Department of Ecology presents a range of predictions for sea level rise in the state's coastal waters. The report finds that a "medium" estimate of 21st century SLR [sea level rise] in Washington is that in Puget Sound, local SLR will closely match global SLR." The report states that coastal management decisions—"decisions with long timelines and low risk tolerance"—should consider low-probability high-impact estimates, which take into account rapid ice loss not included in the latest IPCC estimates of global SLR.⁶⁸

ASSOCIATION OF STATE FLOODPLAIN MANAGERS: NO ADVERSE IMPACT

The No Adverse Impact Approach (NAI) to floodplain management advocates community consideration of the *cumulative* impacts of local land use decisions. NAI aims to ensure that individual development and permitting decisions do not adversely affect property, natural resources, or communities in neighboring areas. The Association of State Floodplain Managers (ASFPM) states:

"No Adverse Impact Floodplain Management" is a managing principle that is easy to communicate and, from legal and policy perspectives, tough to challenge. In essence, No Adverse Impact floodplain management takes place when the actions of one property owner are not allowed to adversely affect the rights of other property owners. The adverse effects or impacts can be measured in terms of increased flood peaks, increased flood stages, higher flood velocities, increased erosion and sedimentation, or other impacts the community considers important. The No Adverse impact philosophy can shape the default management criteria: a community develops and adopts a comprehensive plan to manage development that identifies acceptable levels of impact, specifies appropriate measures to mitigate those adverse impacts, and establishes a plan for implementation. No Adverse Impact criteria can be extended to entire watersheds as a means to promote the use of regional retention/detention or other stormwater techniques to mitigate damage from increased runoff from urban areas.⁶⁹

ASFPM sets out seven principles of the No Adverse Impact Approach:

⁶⁷ Washington Growth Management Act Amendments, Ch. 289, Laws of 2008.

⁶⁸ See University of Washington and Washington Department of Ecology, *Sea Level Rise in the Coastal Waters of Washington State* (January 2008).

⁶⁹ ASFPM, *No Adverse Impact Defined*, available at <http://www.floods.org/NoAdverseImpact/whitepaper.asp>

- Hazard Identification and Mapping: coastal hazard data included in maps and regulations.
- Planning: special area management plans.
- Regulations and Development Standards: for sensitive resource preservation, densities, restricted shoreline development, buffers, and impervious surfaces.
- Mitigation: vegetative shoreline stabilization, regulation of shoreline protection structures and of construction in vulnerable areas, beach nourishment only where appropriate.
- Infrastructure Siting and Design: no major public infrastructure sited in hazard areas, critical infrastructure sited above 500-year floodplain, roads and infrastructure sited so as not to encourage new development of resource areas.
- Emergency Services: post-disaster planning.
- Public Outreach: information including disclosure on property transfers.⁷⁰

The Massachusetts Coastal Program's StormSmart Coasts initiative encourages communities to adopt the NAI approach,⁷¹ and Massachusetts's courts have upheld local NAI permitting, as have courts across the country.⁷²

V. NEW YORK STATE COASTAL PROGRAMS AND REGULATIONS

In 2007, the State Legislature established the State Sea Level Rise Task Force within the Department of Environmental Conservation (DEC). The Task Force is charged with making recommendations to the Governor by the end of 2009 to protect New York's coastal ecosystems and natural habitats, and to increase coastal community resilience in the face of sea level rise. The Legislature also created the Office of Climate Change, within the DEC, to take the lead in the development of programs and policies to mitigate greenhouse gas emissions and to help communities and residents adapt to the effects of climate change. These goals will be met through the following avenues of action: greenhouse gas mitigation programs, an inventory of the origin of emissions, an evaluation of greenhouse gas reducing technologies, partnering with both public and private entities throughout New York to introduce a climate change element into their decision making processes, and to keep the public informed on how they can help battle climate change.⁷³ The New York State Sea Grant and the New York State Energy Research and Development Agency (NYSERDA) are also involved in climate change research and guidance to local governments.⁷⁴

⁷⁰ ASFPM, *No Adverse Impact Toolkit* (2003), available at http://www.floods.org/NoAdverseImpact/NAI_Toolkit_2003.pdf.

⁷¹ Massachusetts StormSmart Coasts, available at http://www.mass.gov/czm/stormsmart/resources/stormsmart_nai.pdf

⁷² See ASFPM, *No Adverse Impacts and the Courts: Protecting the Property Rights of All* (November 2007).

⁷³ See The New York State Department of Environmental Conservation, Office of Climate Change, <http://www.dec.ny.gov/about/43166.html>.

⁷⁴ In 2008, the New York State Energy Research and Development Agency (NYSERDA) initiated a climate impact assessment project focusing on six sectors vulnerable to climate change, which include coastal zones, agriculture and ecosystems, energy and related infrastructure, transportation and communications infrastructure, public health, and water resources and related infrastructure. Currently workgroups for each sector are organizing stakeholder meetings to determine what the information needs are, what data is available, and to define the state's vulnerabilities. After the information is gathered potential adaptation strategies will be developed using modeling and case studies. See The New York State Energy Research and Development (NYSERDA), <http://www.nyserda.org/programs/environment/emep/home.asp>.

Waterfront Revitalization and Coastal Resources Program

NY Executive Law Article 42 §§ 910 *et seq.*

19 N.Y.C.R.R. § 600.5.

In 1982, under the authority of the federal Coastal Zone Management Act (CZMA), the State of New York created its voluntary Local Waterfront Revitalization Program. Coastal waters and inland waterways included in the program are defined by the Act. New York's program delegates authority to municipalities to create and draft their own waterfront revitalization plans, as long as the plans implement federal and state policies, including minimum state flooding and erosion standards. The State of New York reserves the authority to approve local plans.

The adoption of a local waterfront revitalization plan (LWRP) will provide many benefits to implementing community. A LWRP reflects community consensus, provides a clear direction for development and can increase a community's ability to attract development that will respect unique cultural and natural characteristics. A LWRP also develops partnerships between the local government, community organizations, and the State. Further the State will provide technical assistance to prepare and implement a local program. All state permitting, funding, and direct actions must be consistent with an approved LWRP and within federally defined coastal areas federal agencies activities are also required to be consistent with an approved LWRP (otherwise known as consistency requirement). The unified vision presented by the LWRP increases a community's ability to obtain public and private funding for projects, including grants from the New York State Environmental Protection Fund.⁷⁵

The Waterfront Revitalization and Coastal Resources Program's implementing regulations set out 44 policies that all local plans must fulfill. These policies include encouraging both the use and the protection of coastal resources, and avoiding the impairment of coastal resources during siting, construction, or dredging operations. There is no specific mention of sea level rise, but several policies contribute to local responses to sea level rise. These include Policy 11, requiring that structures in the coastal area be sited so as to minimize flood and erosion damage to life and property; Policy 12, requiring that development must minimize damage to natural protective features such as dunes, barrier islands, and bluffs; Policy 14, requiring that development, including the construction or erosion control structures, must not measurably increase erosion or flooding at the site or at other locations; Policy 15, requiring the protection of sediment supplies and natural processes; and Policy 17, requiring the use of non-structural erosion control measures wherever possible.⁷⁶

Some commentators believe that the coastal policies are often inconsistent with each other. The development policies (Policies 1-6) and the fish and wildlife policies (Policies 7-10) seem to contradict the coastal protection policies because the former policies encourage the development of waterfront areas for commercial, industrial, cultural, recreational and other compatible uses, as well as the expansion of the recreational and commercial use of fish and wildlife resources in coastal areas. Nevertheless, it is the express goal of the Coastal

⁷⁵ NYS DOS Division of Coastal Resources, Local Waterfront Revitalization Program, *available at* http://www.nyswaterfronts.com/aboutus_LWRP.asp.

⁷⁶ See NOAA/Rhode Island Sea Grant/University of Rhode Island, *Summary of Coastal Program Initiatives that Address Sea Level Rise as a Result of Global Climate Change*, at 41 (February 2008).

Management Program to take into account the interrelationships among the policies, without allowing one to override another.⁷⁷

Long Island Sound Coastal Management Program

The Long Island Sound Coastal Management Program⁷⁸ replaces the goals of the Waterfront Revitalization Act for Long Island Sound. The program was developed under the CZMA and N.Y. Executive Law to integrate local and state programs protecting the Sound shoreline in Westchester, Nassau, and Suffolk Counties, and in parts of New York City:

- Policies 1-3 foster patterns of development that minimize adverse effects on the coast and enhance scenic resources.
- Policies 4-8 call for the protection of natural resources from flooding and erosion; the protection and enhancement of water and air quality; the protection and restoration of the Long Island Sound ecosystem; and the minimization of damage from hazardous substances.
- Policies 9-13 call for the protection of public access and of water-dependent uses, marine resources, agricultural lands, and energy and mineral resources.

Under the program, coastal area projects are required to “consider sea level rise when siting and designing projects involving substantial public expenditures.”⁷⁹

These regional policies reflect existing state laws and authorities and thus take the place of the statewide policies of the New York State Coastal Management Program. The policies are the basis for federal and state consistency determinations for activities affecting the Long Island Sound coastal area. They also guide the development of new Local Waterfront Revitalization Programs and revisions to approved Local Waterfront Revitalization Programs in the region.⁸⁰

A number of municipalities on Long Island have state approved LWRP's including:

- The Village of Bayville (adopted 5/03)
- The Town of East Hampton (adopted 8/08)
- The Village of Greenpoint (adopted 7/89)
 - Greenpoint Amendment (adopted 9/96)
- Village of Head of Harbor/Village of Nissequogue (adopted 10/91)
- Village of Lloyd Harbor (adopted 7/97)
- Village of Sag Harbor (adopted 10/86)
 - Sag Harbor Amendment #1 (adopted 6/99)
 - Sag Harbor Amendment #2 (adopted 7/06)
- Town of Smithtown (adopted 10/89)

⁷⁷ NYS DOS Division of Coastal Resources,
http://nyswaterfronts.com/downloads/pdfs/State_Coastal_Policies.pdf

⁷⁸ NYS DOS Division of Coastal Resources, Long Island Sound Coastal Management Program, *available at*
http://www.nyswaterfronts.com/downloads/pdfs/lis_cmp/index.htm.

⁷⁹ *Id.* Policy 4.6.

⁸⁰ NYS DOS Division of Coastal Resources, Long Island Sound Coastal Management Program, *available at*
http://www.nyswaterfronts.com/downloads/pdfs/lis_cmp/index.htm.

- Town of Southold (adopted 11/05)⁸¹

Long Island South Shore Estuary Reserve Act NY Executive Law Article 46

The New York Legislature created the Long Island South Shore Estuary Reserve “to protect and manage the South Shore Estuary System as a single integrated estuary.”⁸² The Reserve extends “from mean high tide line on the ocean side of the barrier island to the inland limits of the estuary’s watershed,” which covers 326 square miles in Nassau and Suffolk Counties.⁸³ The Long Island South Shore Estuary Reserve’s Comprehensive Management Plan (CMP), prepared by the NYS Department of State, provides a blueprint for the long-term health of the Reserve’s bays and tributaries, its tidal wetlands and wildlife, and its tourism and economy. The CMP calls for more than 75 actions, to be implemented over a five year period, that address water quality, particularly non-point source pollution; living resources, advocating an ecosystem-based approach to habitat protection; public use and enjoyment; the estuary-related economy; and education, outreach, as well as stewardship.⁸⁴ The Plan recognizes that the Reserve’s “barrier/bays system continues to respond to wave action, the tides, coastal storms and a rising sea level.”⁸⁵

The implementation chapter (Chapter 7) of the Reserve’s comprehensive management plan provides specific implementation actions for each one of the goals listed in the CMP.⁸⁶ The actions focus on problems that have been clearly identified where the existence of motivated partners assures a higher likelihood of success. These actions are organized according to the outcomes they will fulfill. There are eleven “outcomes,” each with a detailed, specific implementation action. “Outcome 6 Improved Knowledge for Ecosystem Management” calls for the development of a “reserve-wide hydrologic model” that measures “[g]roundwater underflow, tributary inputs, circulation and ocean-bay exchanges” in order to predict, among other things, water quality impacts of flooding, erosion and sea level rise.⁸⁷ Outcome 6 also calls for a “comprehensive analysis” of the anticipated shoreline changes due to sea level rise, including effects on natural resources, real property, and infrastructure.⁸⁸

The Department of State has established partnerships to implement these CMP strategies with each of the six towns situated within the Reserve, with Nassau and Suffolk counties, with the NYS Department of Environmental Conservation, and with several federal agencies. The South Shore Estuary Reserve Office facilitates CMP implementation among these estuary stakeholders.⁸⁹ The Reserve Office monitors and documents CMP progress, coordinates interaction

⁸¹ NYS DOS Division of Coastal Resources, List of Approved Coastal Local Waterfront Revitalization Programs (LWRPs) September 2008, *available at* http://www.nyswaterfronts.com/LWRP_Status.asp.

⁸² See Resolution: South Shore Estuary Reserve Council Adoption of the Long Island South Shore Estuary Reserve Comprehensive Management Plan (April 12, 2001).

⁸³ NYS DEC, South Shore Estuary Reserve, *available at* <http://www.dec.ny.gov/lands/31847.html>.

⁸⁴ See The Long Island South Shore Estuary Reserve Council, <http://www.estuary.cog.ny.us/>. The cost of the program is met from a variety of funding sources including the Clean Water/Clean Air Bond Act, the Environmental Protection Fund, the NYS Department of Transportation, as well as federal and private funding. *Id.*

⁸⁵ The Long Island South Shore Estuary Reserve Comprehensive Management Plan, at ii, *available at* http://www.nyswaterfronts.com/final_draft_html/Main_Page.htm.

⁸⁶ *Id.* at 72.

⁸⁷ *Id.* at 88-89.

⁸⁸ *Id.* at 72, 88-89.

⁸⁹ See The Long Island South Shore Estuary Reserve Council, <http://www.estuary.cog.ny.us/>.

and administration of a Reserve Council, as well as, its committees and workgroups, and provides technical assistance to estuary stakeholders on a variety of local, state, and federally-initiated programs that advance CMP actions and Reserve Council priorities.⁹⁰

As of 2005, a project examining portions of the Reserve's Great South Bay's sub-bottom structure and geologic development was ongoing. The information gleaned from this study may be used to increase "understanding of the bay's evolution and possible future response to environmental changes such as sea-level rise and breaches of barrier islands."⁹¹

Coastal Erosion Hazard Areas Program

ECL Article 34

6 NYCRR Part 505

In 1981, New York State required as state policy the identification of coastal erosion hazard areas and that activities, development, or other action in these erosion hazard areas should be undertaken to minimize damage to property, and prevent the exacerbation of erosion hazards. Where public actions encourage new development in hazard areas, the area must be protected by structural or other erosion controls. Both public and private erosion controls must minimize damage both to other property and to natural resource features.⁹²

Under the Act and its regulations, the DEC identifies and maps structural hazard areas and natural protective feature areas. In structural hazard areas, the long-term average rate of erosion must be at least one foot per year and the area must be likely to experience erosion in a 40-year period. Landward setbacks from the natural protective feature are established at 40 times the long-term average recession rate. Natural protective feature areas include dunes, beaches, and bluffs where alteration of the feature could reduce the protection it offers to other land. Movable structures may be permitted in structural hazard areas, but the structure must be moved before the shore edge reaches 10 feet from the structure's waterward edge. Non-movable structures are prohibited. In natural protective areas, permit requirements are established for nearshore areas, beaches, bluffs, primary dunes, and secondary dunes. Erosion control structures are generally discouraged under the regulations as being likely to cause harm, but may be allowed where they can be shown to protect life and property without causing harm elsewhere. Permitted erosion control structures must be likely to control erosion for at least 30 years and must be constructed of materials expected to last for 30 years, unless the maintenance program specifies otherwise.

In order to implement the goals of the Coastal Erosion Hazard Areas Program the DEC requires Coastal Erosion Management Permits for construction and other activities that occur within a designated erosion hazard area. Regulated activities include modification or addition to a structure and any use of land such as grading, dredging, or filling. The permits ensure that the activity is "reasonable and necessary" and that it will not cause a "measurable increase in erosion" on the site or other locations. In addition, and most importantly, the permit aims to make sure that the project prevents or mitigates adverse effects on natural protective features such as dunes, bluffs, and vegetation, other existing erosion protection devices, and "significant

⁹⁰ *Id.*

⁹¹ The Long Island South Shore Estuary Reserve Council, *Partners for Progress: Long Island South Shore Estuary Reserve Comprehensive Management Plan Accomplishments 2003 – 2005* at 26, available at, <http://www.estuary.cog.ny.us/ISR2005/isr2005A.htm>. The Partners for Progress Report was the last official update issued by the Reserve Council. *Id.*

⁹² See NYS Sea Grant, *The New York State Coastal Erosion Hazard Act: Fact Sheet 4* (1989).

fish and wildlife habitats and shellfish beds.” The permits may be obtained from the regional DEC office where the activity will occur.

Local governments may take over the permitting system from the DEC and may adopt land use regulations in accordance with the minimum standards established under the state law. The permitting program, local regulations, and any amendments must be approved by the DEC Commissioner.

Communities in Long Island that currently have an approved locally administered and enforced CEHA Management Program include the following:

- Suffolk County:
 - Town of Babylon (adopted 12/89)
 - Village of Belle Terre (adopted 09/89)
 - Brookhaven (North Shore) (adopted 3/95)
 - Brookhaven (South Shore) (adopted 6/01)
 - Village of Easthampton (adopted 09/89)
 - Town of Huntington (adopted 01/90)
 - Town of Islip (adopted 10/99)
 - Village of Lloyd Harbor (adopted 10/89)
 - Village of Ocean Beach (adopted 12/99)
 - Village of Old Field (adopted 02/93)
 - Village of Port Jefferson (adopted 06/89)
 - Village of Quogue (adopted 02/89)
 - Town of Riverhead (adopted 05/91)
 - Village of Saltaire (adopted 5/99)
 - Village of Shoreham (adopted 01/90)
 - Town of Southampton (adopted 5/89)
 - Village of Southampton (adopted 02/89)
 - Town of Southold (adopted 06/91)
 - Village of Westhampton Beach (adopted 05/89)
 - Village of West Hampton Dunes (adopted 11/95)
- Nassau County:
 - Village of Atlantic Beach (adopted 09/89)
 - Village of Bayville (adopted 12/92)
 - City of Glen Cove (adopted 08/90)
 - Town of Hempstead (adopted 05/92)
 - Village of Kings Point (adopted 11/89)
 - Village of Lattingtown (adopted 10/89)
 - Village of Sands Point (adopted 02/89)

Tidal Wetlands Act

ECL Article XXV §§ 25-0101 –5-0601
6 NYCRR Part 661

New York State owns tidal wetlands below mean high water line. Tidal wetlands are defined under the Environmental Conservation Law as “areas which border on or lie beneath tidal waters,” including “those areas now or formerly connected to tidal waters,” together with “all banks, bogs, meadows, flats and tidal marsh subject to such tides” and characterized by certain types of vegetation. Tidal wetlands are inventoried by the state. The statute requires a permit from the DEC for any dredging, filling, construction, or other activity within or immediately adjacent to inventoried tidal wetlands “which may substantially alter or impair the natural

condition of the tidal wetland area.” The state permit is in addition to, rather than in lieu of, any required local permit.

Federal permits to build in tidal wetlands fall under §404(c) of the Clean Water Act. Section 1344 of the Act delegates permit approval to the Secretary of the Army and project management to the Army Corps of Engineers. In approving permits, the Secretary makes a determination according to a “public interest review,” which is a cost-benefit analysis based on a variety of factors.⁹³ Some of these factors include the proposal’s effect on wetlands, fish and wildlife, water quality, historical as well as aesthetic values, and floodplain management.⁹⁴ Though the Secretary of the Army approves proposals, the Administrator of the EPA is authorized veto the Secretary’s decision if he determines that the discharge of materials into the area will have an unacceptably adverse effect on municipal water supplies, shellfish beds and fishery areas (including spawning and breeding areas), wildlife, or recreational areas.⁹⁵

The DEC may enter into cooperative agreements with local governments for the protection of tidal wetlands. The agreement shall provide that the wetlands “be preserved or maintained in their natural or enhanced state” except for local operation or lease of shellfish beds.” Outside of New York City, roads, other infrastructure, and most new construction must be situated at least 75 feet from a tidal wetland.

Environmental Review under State Environmental Policy Act

N.Y.Environmental Conservation Law, Article 8
6 N.Y. C.R.R. Part 617

Under the New York State Constitution, it is the policy of the state to “conserve its natural resources and scenic beauty and encourage the development and improvement of its agricultural lands for the production of food and other agricultural products.”

Under the State Environmental Quality Review Act (SEQRA), all state, county, and local agencies “are stewards of the air, water, land, and living resources,” and are obligated “to protect the environment for the use and enjoyment of this and all future generations.” The environment is very broadly defined by SEQRA: “*Environment* means the physical conditions that will be affected by a proposed action, including land, air, water, minerals, flora, fauna, noise, resources of agricultural, archaeological, historic or aesthetic significance, existing patterns of population concentration, distribution or growth, existing community or neighborhood character, and human health.”

Under SEQRA regulations, local governments may give critical environmental area (CEA) designation to areas of “exceptional or unique character” that have “a benefit or threat to human health;” “a natural setting (e.g. fish or wildlife habitat, forest and vegetation, open space, and areas of important or scenic quality);” “agricultural, social, cultural, historic, archeological, recreational, or educational values;” or “an inherent ecological, geological or hydrological sensitivity to change that may be adversely affected by any change.” Rather than clarifying or streamlining the environmental review of subsequent projects like the Generic Environmental Impact Statement, the CEA identifies fragile or threatened areas to insure that their particular characteristics are understood and taken into consideration in the conduct of environmental reviews on subsequent, individual projects.

⁹³ 33 CFR 320.4(a) (2008).

⁹⁴ *Id.*

⁹⁵ 33 CFR 320.4(c).

Modeled on the National Environmental Policy Act of 1969, 42 U.S.C. §§ 4321-4347, SEQRA requires local agencies that review applications for land use approvals to take into account the environmental impact of proposed projects. The essence of SEQRA is the requirement that the impact of local actions on the environment be considered in the planning process from the earliest possible point, and that local agencies act effectively to avoid any possible adverse environmental impacts.

SEQRA gives local agencies independent authority to impose conditions on land use approvals to mitigate the potential negative environmental impacts of proposed projects. SEQRA gives local governments additional authority to study and adopt plans for areas of special environmental significance—to designate critical environmental areas; to conduct cumulative impact analyses; or to prepare generic environmental impact statements.

NYS Ocean and Great Lakes Ecosystem Conservation Program

NY ECL Article 14

“Recognizing the interdependent goals of community well-being, environmental quality and economic viability,” the state legislature in 2006 amended the Environmental Conservation Law to create a New York Ocean and Great Lakes Ecosystem Conversation Council, which will coordinate activities of nine state agencies to “integrate and coordinate ecosystem-based principles with existing laws and programs” and “facilitate regional coordination and cooperation to address complex coastal resource issues which cross political and jurisdictional boundaries.”⁹⁶ Under this program, it is New York State policy to conserve, maintain, and restore coastal ecosystems; recognize interconnections among land, air, and water; acknowledge uncertain risks; and apply caution in decision-making; and inform decisions by good science.

On January 29, 2009, the Council released the Draft New York Ocean and Great Lakes Ecosystem Conservation Council Report for public review.⁹⁷ The Report is based on the Council’s work over the past two years completed through public dialogues, working groups, advisory groups, community groups, and other efforts to capture the issues facing New York’s ocean and Great Lakes, their basins, and their communities. The Report recommends priority actions to move forward efficiently and effectively to address future sea level rise. These include:

- *Enhance Local Planning and Protection in Coastal Transition Zones* – The Report advises that the State must coordinate with local government efforts to improve the health and resiliency of coastal transition zones between the offshore and onshore areas. This should include a “consistent and science- based approach to land- use planning in coastal areas that are within the range of projected water- level fluctuations, including impacts from climate change (e.g., sea level rise and increase in severe storms).”⁹⁸

⁹⁶ New York Ocean and Great Lakes Ecosystem Conservation Act, ECL Article 14, NYA10584B, <http://www.assembly.state.ny.us/leg/?by=n&q=A10584B>

⁹⁷ New York Ocean and Great Lakes Ecosystem Conservation Council, *New York Ocean and Great Lakes Ecosystem Conservation Council Draft Report*, available at <http://www.nyoglecc.org>.

⁹⁸ *Id.* at 35.

- *Protect Sensitive Coastal and Offshore Habitats* - The Report advises that due to significant ecosystem services provided by these areas, the Council should support management measures that comprehensively protect and restore sensitive coastal and offshore habitats.⁹⁹
- *Adapt to Dynamic Coastal Ecosystems* – The Report advises that a planning strategy for climate change adaptation that “assumes a constant environment or that relies on models based only on previous trends will fail, because it does not contemplate and cannot accommodate the unpredictability” of climate change impacts.¹⁰⁰ Coordination of government efforts should build the State capacity to deal with ecosystem changes and to track key ecosystem targets. The Council is encouraged to work with the Sea Level Rise Task Force and the State’s Office of Climate Change, as well as other levels of government to integrate local actors and unique issues to reflect the local nature of environmental changes. The planning effort should “identify emerging challenges, set and adapt a course of action, and measure relative progress in achieving management objectives.”¹⁰¹
- *Prepare Local Communities for Ecosystem Changes* – The Report advises that community management strategies should be based on an analysis of scientific information and be developed and adapted to reflect current and projected environmental conditions. Strategies should build local capacity to deal with predicted ecosystem changes¹⁰² and “broadly address multiple alternatives involved in adapting to sea level rise or lake level change, including managed retreat and the potential need for desalination for municipal water supplies.”¹⁰³ Based on a continuing analysis of this information, the State should establish new policies for post- storm redevelopment.
- *Identify and Prioritize the Protection of Coastal Habitats* – The Report advises that in light of climate- change induced sea level rise, localities and the State must put a renewed emphasis on inventorying and mapping those coastal wetland habitats and other coastal habitats most at risk for inundation. Strategies must be developed for the protection of “low- lying adjacent upland areas to allow for long- term landward migration of coastal wetlands in response to sea- level rise.”¹⁰⁴

⁹⁹ *Id.*

¹⁰⁰ *Id.* at 39. The Report recognizes that the impacts of “climate change and corresponding fluctuations in sea and lake water levels will affect many sectors of New York’s government, natural resources, and economy “including disruptions or impairments to transportation systems, freshwater supplies, wastewater treatment facilities, shoreline habitats and other infrastructure. Shifts in the biological, physical, and chemical attributes of New York’s coastal ecosystems - along with a redistribution of species and habitats - will affect ecosystem health and function, agriculture, coastal infrastructure, commercial and recreational fishing, and tourism.” *Id.*

¹⁰¹ *Id.*

¹⁰² This should include “the development of climate change impact scenarios and integrated adaptation strategies that will prepare communities and local governments for predicted ecosystem changes.” *Id.* at

40.

¹⁰³ *Id.*

¹⁰⁴ *Id.*

VI. LOCAL LAND USE RESPONSE TO SEA LEVEL RISE

1. EXECUTIVE ORDERS & SEA LEVEL RISE POLICY

To incorporate consideration of sea level rise into the very first stages of land use planning, some state and local governments have adopted resolutions, policy statements, or executive orders addressing the issue. These policy tools represent top-down approaches to managing sea level rise that can effectively initiate the implementation of a project across various agencies and levels of government.

An Executive Order (EO) is simply a directive issued to executive-level agencies, department heads, or other employees from the Governor of a state or a local municipality head under state constitutional or local statutory powers. EOs are similar to instructions given by a corporate CEO to department heads regarding the implementation of certain specified policies or goals. EOs are not themselves law but only give direction to state or local government personnel on how to carry out existing law or achieve certain policy goals. Ultimately EOs are top-down management tools used by state or local government heads to direct the action of the departments under their jurisdiction.

Olympia, Washington: Resolution

Olympia is located on the southernmost shore of Puget Sound and has been publicly concerned with the impacts of sea level rise for more than a decade. In 1991, Olympia's City Council adopted a resolution on climate change, which recognized that the impacts of global warming and potential sea level rise made remedial "action prudent in spite of uncertainty."¹⁰⁵

After adoption of the resolution, the city began to study the local effects of sea level rise and in 1994 added land use and environmental elements to its comprehensive plan. In 2005, faced with potential rising sea levels of 10 inches to 1½ feet per century, the mayor reported that the city was responding with efforts to control sprawl and reduce growth; waterfront zoning; protections for critical areas; coastal land buffers; sensitive land acquisition; infrastructure protection; and emergency management.¹⁰⁶ In 2007, the city initiated an ongoing analysis of potential sea level rise and its impact on the downtown area.¹⁰⁷

King County, Washington: Executive Order on the Evaluation of Climate Change Impacts through the State Environmental Policy Act (June 27, 2007)

The King County, Washington Executive Order requires that all county departments include an analysis of climate impacts in their evaluations of private or public proposals under Washington's State Environmental Policy Act (SEPA). The EO notes that sea level rise has been included as a serious local impact resulting from global climate change in both the King County Comprehensive Plan and 2007 Climate Plan. Any county department acting as a lead agency in SEPA review must insure that climate impacts are appropriately identified and evaluated before rendering a threshold determination on whether an environmental impact statement is necessary. Under previous Executive Orders, county departments are also required to employ "increasingly aggressive" strategies, "innovative environmental

¹⁰⁵ Olympia, WA, City Council Resolution No. M-1306, adopted February 5, 1991.

¹⁰⁶ See Mark Foutch, *The Policymaker's Challenge: Turning Science into Action* (PowerPoint presentation, October 27, 2005), available at <http://www.ci.olympia.wa.us>.

¹⁰⁷ See Olympia Planning Commission Minutes of Meeting April 7, 2008, p.2

management,” and “coordinated strategies of land use” to mitigate and adapt to global warming.¹⁰⁸

Miami-Dade County, Florida: Statement on Sea Level in the Coming Century

In July 2006, the Miami-Dade County Board of Commissioners passed an ordinance creating the Miami Dade Climate Change Advisory Task Force to provide technical assistance and advice to the Board of County Commissioners concerning mitigation and adaptation measures in response to the impacts of global climate change.¹⁰⁹ The Task Force consists of twenty-five appointed members representing various sectors of the Miami-Dade community including government agencies and educational institutions.¹¹⁰

The Science and Technology Committee is one of six committees established to focus on specific areas of climate change mitigation and adaptation. In September 2007, the Committee published a statement documenting the “very real threat” to the county’s near future posed by accelerated sea level rise. The report noted that since 1932 the relative sea level rise in South Florida—nine inches, or one foot per century—is about eight times greater than the rise in the previous 2,500 years.¹¹¹ The committee projected a rise of at least 1.5 feet in the next 50 years, with a total rise of at least three to five feet by 2100.¹¹²

The committee emphasized the urgency “of reconsidering nearly every aspect of the county’s management, zoning, infrastructure, and planning,” and recommended establishing sea level rise scenarios reflecting future rise to help determine what must be done to preserve habitability and what infrastructure will “need to yield to the rising sea.”¹¹³ This analysis called for documentation of infrastructure elevations, areas susceptible to erosion and pollution, drainage and storm-surge risks, and water supplies from across the county’s various departments. Using the data it collected, the Committee began modeling to understand what areas of the county would be inundated with water under different sea-level rise scenarios.¹¹⁴ The data and subsequent modeling are analyzed in the Committee’s “Climate Change Briefing Book” which details the County’s vulnerability to sea level rise and catalogs specific adaptive steps that should be taken in response.¹¹⁵ As new data continues to emerge regarding the extent of future sea level rise, the Committee plans to provide additional projections to determine the potential impact on Miami-Dade County and what protective measures should be taken.

¹⁰⁸ King County, WA, Executive Order Land Use Strategies for Global Warming Preparedness (Apr. 1, 2006); King County, WA, Climate Plan (Feb. 2007).

¹⁰⁹ MIAMI-DADE COUNTY, FL, CODE, art. CXXVI, §§ 2-1941 to 1946 (2006), *available at* <http://www.miamidade.gov/govaction/matter.asp?matter=061152&file=true&yearFolder=Y2006>.

¹¹⁰ Science and Technology Committee, *Statement on Sea Level in the Coming Century*, in SECOND REPORT AND INITIAL RECOMMENDATIONS MIAMI-DADE COUNTY CLIMATE CHANGE TASK FORCE, Presented to the Miami-Dade Board of County Commissioners (Apr. 2008), *available at* http://www.miamidade.gov/derm/library/08-10-04_CCATF_BCC_Package.pdf.

¹¹¹ *Id.* at 1.

¹¹² *Id.* at 3-4. (“Developed Miami-Dade County as we know it will significantly change with a 3-4 foot sea level rise. Spring high tides would be at about +7 to 8 feet; freshwater resources would be gone; the Everglades would be inundated on the west side of Miami-Dade County; the barrier islands would be largely inundated; storm surges would be devastating; landfill sites would be exposed to erosion contaminating marine and coastal environments.”).

¹¹³ *Id.* at 4.

¹¹⁴ Email from Devesh Nirmul, Program Manager, Office of Sustainability, Miami-Dade County, to Kristen Herighty, Staff Attorney, The Land Use Law Center at Pace University School of Law (Nov. 13, 2008).

¹¹⁵ *Id.*

NEW YORK

New York City: PlaNYC

In December 2006, the New York City Office of the Mayor implemented PlaNYC,¹¹⁶ a strategic plan that includes a blueprint for citywide climate change adaptation.¹¹⁷ The City's strategy focuses on controlling and reducing greenhouse gas emissions but also includes plans to fortify areas vulnerable to storm surges and flooding. The City's process relies on detailed reports prepared by the Goddard Institute for Space Studies concerning the potential impacts of accelerated sea level rise on New York City.¹¹⁸

2. REGIONAL PLAN

Historically, land use control in the United States has been local; states delegate planning power to local governments in conjunction with the power to implement those plans.¹¹⁹ However, this localization of land use control has fostered parochialism and hindered logical, comprehensive planning on the regional level.¹²⁰ Today, local governments are authorized, by state constitution or by statute, to voluntarily cooperate to accomplish a number of local municipal responsibilities including planning.

One of the advantages of adopting a regional land use plan is uniformity and coordination. However, a significant disadvantage is that regional plans tend to divest authority from local governments most familiar with the unique geography, history, and social constraints of an area. Therefore, when instituting regional planning commissions and subsequent planning documents, municipal authorities must strive to realize a broad coordinated effort while still retaining and relying on the invaluable input of local knowledge, especially as complicated challenges of climate change adaptation develop over the next century.

There are three general types of regional coordination: guided planning through state statute; cooperative planning at the intermunicipal level; and county coordinated planning for municipalities within county borders. State-wide statutory planning may require the creation of a land use regulatory agency, planning commissions responsible for sensitive areas spanning multiple jurisdictions or model guidelines for regional planning at the local level. Intermunicipal planning may take the form of a compatible land use plan defining regulations and strategies to manage shared resources among neighboring municipalities. Counties can create regional plans to coordinate and manage the activities and resources of cities, towns, or villages within their jurisdictions.

Planning commissions created by the state in Massachusetts, Florida, and California are among the first to adopt specific regional measures to address the effects of sea level rise brought on by the changing climate.

¹¹⁶ NYC PlaNYC, at <http://www.nyc.gov/html/planyc2030/html/home/home.shtml>.

¹¹⁷ PlaNYC Report on Climate Change, at http://www.nyc.gov/html/planyc2030/downloads/pdf/full_report.pdf.

¹¹⁸ See Goddard Institute for Space Studies, Climate Impacts in New York City: Sea Level Rise and Coastal Floods, at <http://icp.giss.nasa.gov/research/ppa/2002/impacts/introduction.html>.

¹¹⁹ See MORTON GITELMAN, JOHN, R. NOLON, PATRICIA E. SALKIN & ROBERT R. WRIGHT, CASES AND MATERIALS ON LAND USE 252-61 (6th ed. 2004).

¹²⁰ *Id.*

Barnstable, Massachusetts: Cape Cod Commission

The Cape Cod Commission is a regional land use and regulatory agency created by state statute¹²¹ and approved by the voters of Barnstable County. The Commission has prepared and implemented a regional policy plan that comprehensively addresses issues associated with sea level rise. The current plan, enacted in 2003, is intended to protect resources and “ensure that land-use planning and management on the Cape are coordinated, especially across municipal boundaries.”¹²² It addresses rate and density of growth, requires adequate infrastructure to accommodate growth, and advocates clustering of development. Protections including buffers, setbacks, and performance standards are established for shorelines, wetlands, vernal pools and kettle holes, and for plant and wildlife habitat. Open space goals and performance standards, including site capacity calculations, aim to protect 50% of the Cape’s remaining open space as of 1996. The Commission addresses the implementation of plan goals through various model laws designed for local municipalities.

The plan aims to “limit development in areas subject to coastal storm flow, particularly high-hazard areas, in order to minimize human casualties and property or environmental damage resulting from storms, flooding, erosion, and relative sea level rise.”¹²³ The plan advises that all new and replacement buildings in FEMA-designated A-zones should accommodate the state-documented sea level rise rate of at least one foot per 100 years. In FEMA V-zones, the rate is two feet in 100 years.¹²⁴ The plan also recommends the prohibition of new development on barrier beaches and coastal dunes; sets out suggested elevation requirements for reconstruction of existing buildings; and discourages new and expanded public infrastructure in hazard zones.¹²⁵ The plan recommends that towns adopt rolling easements¹²⁶ and the adoption of “‘soft’ solutions to coastal erosion.”¹²⁷

¹²¹ Cape Cod Commission Act (1989), *available at* <http://www.capecodcommission.org/CCCact.htm>.

¹²² Cape Cod Commission, Cape Cod Regional Policy Plan, *available at* <http://www.capecodcommission.org/RPP/home.htm>.

¹²³ *Id.* Goal 2.2.2.

¹²⁴ Cape Cod Commission, Model Floodplain District Bylaw, *available at* <http://www.capecodcommission.org/bylaws/floodplain.html>.

¹²⁵ Cape Cod Commission, Cape Cod Regional Policy Plan, *available at* <http://www.capecodcommission.org/RPP/home.htm>. Providing that: “[w]here land subject to coastal storm flow serves to control floods and prevent storm damage, no activity shall increase the existing site elevations or the velocity of flood waters or increase flows due to a change in drainage or flowage characteristics on the subject site, adjacent properties, or any public or private way.” *Id.* Goal 2.2.2.7. Also providing that “[n]ew development and redevelopment shall not impede the landward migration of resource areas within the 100-year floodplain, except for maintenance of existing public infrastructure. Relative sea level rise and the landward migration of coastal resources in response to relative sea level rise shall be incorporated into the design, construction, and location of structures and other activities proposed.” *Id.* Goal 2.2.2.8

¹²⁶ *Id.* “Under the concept, private landowners along rivers, estuaries, and the oceans could continue to use and develop their properties as long as they refrain from armoring the shoreline; they would receive payment up front in return for their commitment not to bulkhead properties.” *Id.* at 51.

¹²⁷ *Id.* at 52. Beach nourishment is a common “soft solution” to beach erosion and there are currently over twenty states with local, state and federally funded programs. See Western Carolina University, <http://psds.wcu.edu/1038.asp>.

The Regional Plan must be revised every five years. On May 29, 2008, a draft revised plan¹²⁸ was issued which prohibits new development and redevelopment within the 10-year floodplain from impeding the landward migration of coastal resources.

Florida: The Strategic Regional Plan of Southwest Florida Regional Planning Council (SWFRPC) & The Strategic Regional Policy Plan of the South Florida Regional Planning Council (SFRPC)

The Natural Resources element of the SWFRPC's Strategic Regional Plan recognizes that acquiring "solid information on systems that are constantly changing due to constantly changing baseline conditions" is a major problem for resource managers and specifically cites sea level rise as an example. The SWRPC sponsored the report of the Treasure Coast Regional Planning Council (2005), which surveyed existing state and local shoreline initiatives and urged local governments to consider sea level rise in all land use amendments effecting coastal areas of less than 10' in elevation; to revise topographic maps to show one-foot contours in the coastal zone to aid local planning; and to encourage planners consider long-term implications of sea level rise, instead of envisioning only a 10- or 20-year time frame.¹²⁹

The SFRPC's Coastal High Hazard Areas element includes among its goals and policies, the incorporation of "buffer and conservation zones into site designs for new development and redevelopment in the storm surge areas to mitigate possible damage" and consideration of "the inevitable rise in sea level in all decisions regarding the design, location, and replacement of coastal development and redevelopment." The plan recommends limiting development and densities in hazard areas, and encourages local government to preserve open space, to discourage development in floodways and storm surge areas, and to acquire destroyed properties.

San Francisco, California: San Francisco Bay Conservation and Development Commission

The San Francisco Bay Conservation and Development Commission (SFBCDC) is a state agency created in 1965 to regulate development on the immediate shoreline of the Bay. It has succeeded in reducing fill on shorelines and is now focusing on developing policies to respond to the effects of accelerated sea level rise. The Commission's jurisdiction covers the Bay and the shoreline, while primary land use authority lies with 110 local governments in the Bay area, 26 of which are located on the shore. The Plan lays out an eight-year program to map areas likely to be inundated within 50 years¹³⁰; determine the economic value of threatened resources,

¹²⁸ Cape Cod Commission, *Cape Cod Regional Policy Plan Draft* (May 29, 2008), available at <http://www.capecodcommission.org/>.

¹²⁹ See Treasure Coast Regional Planning Council, *Sea Level Rise in the Treasure Coast Region* (Dec. 5, 2005).

¹³⁰ Regarding the 50-year planning timeline, the Commission comments:

It is particularly difficult to develop a thoughtful strategy for dealing with sea level rise in the Bay when the temperature increase scenarios used by the California Climate Change Center yield possible increases in water level ... over the next 100 years that have a tenfold difference between the lowest and highest potential increases. The uncertainties inherent in planning for the future can be reduced by half by developing a strategy with a 50-year time horizon and updating the strategy every ten years to incorporate emerging information. A 50-year planning horizon is short enough to offer more certainty, yet long enough to amortize most capital investments made in accordance with the strategy.

prepare a plan to protect the most important resources; and finally to develop local plans for sea level rise protection programs, relocation and resource enhancement programs, and sustainability programs to offset greenhouse gas emissions from development.¹³¹

NEW YORK

In New York State regional planning is the result of voluntary intermunicipal agreements, special state statutes guiding the planning process, and planning imposed at the county government level.

A.) Intermunicipal Agreements (IMAs) –

All municipalities in New York State are authorized to establish planning boards to prepare comprehensive land use plans, to create zoning authorities to implement zoning, and to enact any other land use law that may be required.¹³² These municipalities have extensive authority to cooperate with one another to accomplish common land use objectives.¹³³ An IMA is a cooperative or contractual agreement between two or more municipalities that allows for the adoption of consistent comprehensive plans, zoning laws, and other land use regulations.¹³⁴ In order to implement an IMA, the legislative bodies of each participating municipality must adopt the agreement by a majority vote and each regionally compatible regulation or zoning law under IMA that it wishes to implement.¹³⁵

Long Island Sound Watershed Intermunicipal Council (LISWIC):

In 1998, three cities, three towns, and four villages with land use jurisdiction over the watershed of Long Island Sound in Westchester County entered into a cooperative intermunicipal agreement designed to prevent pollution affecting the Sound. LISWIC agreed to work toward the development of compatible comprehensive plans, zoning, and land use regulations and to submit a joint funding application to the state to initiate the process.

Manhasset Bay Protection Committee:

In 1995, 13 localities in the Manhasset Bay area, near Hempstead, Long Island, entered into an agreement to develop a strategy to achieve the economic and environmental well being of the bay. The IMA established the Manhasset Bay Protection Committee through which the localities agreed to seek funding together, to identify priority areas, and to coordinate protection efforts.

B.) State Statutory Planning –

The Long Island Pine Barrens Protection Act:

The New York State legislature enacted the Long Island Pine Barrens Protection Act in 1993. The Act created a five member Central Pine Barrens Joint Planning and Policy Commission and mandated the preparation and implementation of the Central Pine Barrens Comprehensive Land Use Plan, which was adopted in June 1995. The Act and the Plan give the Commission

See San Francisco Bay Conservation and Development Commission (SFBCDC), *A Climate Change Strategy for the San Francisco Bay Region* (2007).

¹³¹ See Leslie D. Lacko Planning for Sea Level Rise in San Francisco Bay, Proceedings of Coastal Zone 07 (July 2007); SFBCDC, *A Climate Change Strategy for the San Francisco Bay Region* (2007).

¹³² N.Y. TOWN LAW §§ 261, 262, 263 (McKinney 2008).

¹³³ N.Y. GEN. MUN. LAW § 119-o (McKinney 2008).

¹³⁴ N.Y. TOWN LAW § 284; N.Y. VILLAGE LAW § 7-741 (McKinney 2008); N.Y. GEN. MUN. LAW § 20-g.

¹³⁵ N.Y. TOWN LAW § 284; N.Y. VILLAGE LAW § 7-741; N.Y. GEN. MUN. LAW § 20-g.

combined duties as state agency, planning board and park commission, with jurisdiction to review and approve all proposed development in critical resource areas and developments of regional significance as identified in the land use plan.¹³⁶

The Hudson River Valley Greenway Communities Council:

The Hudson River Valley Greenway Communities Council was created by the New York State legislature in 1991 to develop a cooperative planning approach among localities in the 10-county region that lines the Hudson River from Yonkers to Albany. The goal of the council is to encourage cooperative planning. Localities in the sub-regions of the Hudson River Valley may join together and adopt land use plans that are consistent with the goals contained in the enabling legislation. Among these goals are the conservation of natural, economic redevelopment, waterfront reclamation and public access promotion, and finally the adoption of a local planning process that is compatible with the approaches of neighboring communities.

C.) County Planning –

Municipalities can perform wide-scale planning on a county scale, conduct a review of selected growth and development areas in the county or create a county wide comprehensive plan.

Westchester Action Plan 2008:

“The Westchester Action Plan (Action Plan) lays out a comprehensive, integrated, community-wide plan to translate leadership and vision on climate change and sustainable development into workable strategies that can generate practical actions for all sectors; county and municipal governments, educational institutions, businesses, and households.”¹³⁷

Under the Plan, the County Executive convened the Global Warming Task Force (Task Force), drawn from public officials, subject experts, educators, and business leaders in the county. The Task Force considered the 2005 countywide GHG footprint and the most recent climate science to set a goal of 20% reduction in GHGs below the 2005 base year by 2015. The Task Force set a goal of 80% reduction by 2050. To achieve these reductions, adapt to climate change, and promote sustainability, the Task Force identified countywide strategies for energy, transportation, land use, water resources, and waste and green purchasing. Under its Water Resources section, the plan addresses the increased risks of sea level rise and the increased intensity of storm events for the county.¹³⁸

The actions developed by Task Force members, in conjunction with outside experts, to address climate change and sustainable development approaches were evaluated by sectors within the County¹³⁹ to identify those that were appropriate and feasible for each. The plan organizes the strategies by sector and provides a recommended time frame for completion ranging from short term (1 to 3 years), to medium term (3 to 8 years) to long term (8+years).

¹³⁶ McKinney’s ECL § 57-0123. See New York State’s Central Pine Barrens, at http://pb.state.ny.us/#Act_Plan_Commission.

¹³⁷ *Westchester Action Plan for Climate Change and Sustainable Development (2008)*, available at http://www.westchestergov.com/environment_globalwarmingactionplan.htm and http://www.westchestergov.com/pdfs/ENVFACIL_globalWarmingAction2008FINAL.pdf.

¹³⁸ *Id.* Specifically the plan notes that Westchester must find ways to 1) Mitigate flooding consequences associated with global warming; 2) Adapt to rising water levels; 3) Protect and preserve drinking water reservoirs and watersheds; and 4) Conserve drinking water. *Id.* at 4.

¹³⁹ These sectors are County Government, Municipal Government, Business, Education, and Households. *Id.* at 5.

Suffolk County Evaluation of Major Growth & Development Areas:

Executive Order number 8-2006 issued February 28, 2006 by the Suffolk County legislature directed the Suffolk County Department of Planning to perform an evaluation and analysis of proposed development in five *major growth and development areas* in the County.¹⁴⁰ The report presents an overview of existing conditions in each of the five growth areas and discusses information on employment, businesses, population, office and industrial markets, retail centers, and traffic data. An analysis of proposed additional development and estimates of potential future growth are presented for each area. The outlook for the future of each growth area is considered in light of potential impact mitigation measures. Finally a set of recommended planning actions is presented at the report's conclusion.

Nassau County Comprehensive Plan:

In 1995 Nassau County embraced comprehensive planning as a critical tool for growth. Amendments to the County Charter required the Nassau County Planning Commission to adopt a comprehensive master plan for the development of the entire area. These amendments recognized that comprehensive planning requires an understanding of a variety of topics, ranging from natural resources to land use to transportation, and directed the Planning Commission to address a wide range of issues and to study and address these issues as often as the public interest requires. The county comprehensive plan was first enacted in 1998, most recently updated in 2004, and is currently undergoing another update to incorporate changes in the County.¹⁴¹ To learn more about comprehensive planning, consult Section V.3, below.

3. THE COMPREHENSIVE PLAN

A comprehensive or master plan contains the blueprint for the future development and preservation of a community. Many states authorize local legislatures to prepare and amend specific municipal comprehensive plans in accordance with the general state goals. The plan is the policy foundation upon which communities are built. A good comprehensive plan guides the physical and economic development of the community and is flexible enough to accommodate social, environmental, and regional concerns.

Comprehensive plans are not law, however the statutes that require their preparation mandate that all zoning and other land use laws must be adopted in accordance with the plan. This prevents the enactment of arbitrary regulation and ensures the public welfare is being served through legislation implementing the goals of the community.

The plan is an advisory document, which should be reviewed and revised as change occurs. While the plan summarizes a general route to healthy, smart, and logical community growth, it must be reevaluated to cover new challenges and changing social mores.

¹⁴⁰ Suffolk County Department of Planning, *A Review of Selected Growth and Development Areas, Suffolk County, New York* (August 2006), available at http://www.suffolkcountyny.gov/upload/planning/pdfs/majorgrowtharearpt10_06.pdf. These five areas were identified through a collaborative process between Suffolk County and the New York Metropolitan Transportation Council (NYMTC) and include Route 110 Office-Industrial Corridor, Sagtikos Regional Development Zone, Yaphank, Town of Riverhead, and Stony Brook High Tech Campus. *Id.*

¹⁴¹ See The Nassau County Planning Commission, at <http://www.nassaucountyny.gov/agencies/Planning/comprehensive.html>.

Counties and communities in Washington and Florida are among the municipalities that have reevaluated their comprehensive plans in light of climate change challenges. These communities have adopted a number of elements that specifically or practically address the impacts of sea level rise.

City of Bainbridge Island, Washington: Environment Element

The City of Bainbridge Island, to the west of Seattle in Puget Sound, has explicitly addressed the potential for sea level rise in the Environment element of its comprehensive plan. Adopted in 2004, the plan recognizes that Bainbridge Island is potentially subject to flooding, erosion, landslides, seismic events, and soil subsidence. The overall goal of the Environment element is to avoid adverse impacts where possible; to minimize, reduce, or eliminate impacts over time; and to compensate for unavoidable impacts. The plan outlines protections for critical areas including transfer of and purchase of development rights; provides for the use of the City's Shoreline Management Master Program to address and protect marine fish and marine shoreline habitat; mandates no net loss of the city's remaining regulated aquatic resources; requires the maintenance of vegetated buffers between proposed development and aquatic resources; calls for the preservation of stream courses; and the protection or restoration of natural functions of riparian habitat.¹⁴²

The Frequently Flooded Areas component of the plan also addresses sea level rise, noting that "cumulative sea level rise has serious implications for the shorelines and lowland areas that are potentially affected by beach, bluff erosion, and loss of intertidal zones." The component recommends actions to protect frequently flooded areas including a limitation on development and the alteration of natural floodplains; preservation of stream channels and natural protective barriers; revision of the flood insurance rate map to reflect the natural migration of frequently flooded areas; implementation of nonstructural protective methods such as setbacks and the use of natural vegetation; and location of public sewer and water infrastructure outside frequently flooded areas.¹⁴³

City of Olympia, Washington: Environment Element

The environment element of Olympia's comprehensive plan emphasizes sustainability and the reduction of greenhouse gases, relying on the rationale that "planning now to maintain the biological integrity of the Olympic area environment is much preferred to mitigating our losses later." What makes the plan unique is its focus on community involvement. The City of Olympia recognizing that "citizens will not give grudging support to (land use) actions if they do not understand the reasons for them" created *Olympia's Plan to Grow Smart*.¹⁴⁴ The plan outlines an aggressive education program for citizens of all ages covering how planning for growth is key to environmental quality, and encouraging participation in environmental planning issues. The plan works to create a sense of community as well as emerging and locally approved goals for the city's land use planners based on community feedback.

Escambia County, Florida: Coastal Conservation and Management Element

¹⁴² See The City of Bainbridge Island Comprehensive Plan, Environmental Element, *available at* http://www.ci.bainbridge-isl.wa.us/comprehensive_plan.aspx.

¹⁴³ *Id.* at 8.

¹⁴⁴ Olympia's Plan to Grow Smart, *available at* <http://search.mrsc.org/Subjects/Governance/trust/o46-41.pdf>.

The Coastal Conservation and Management element of Escambia County's comprehensive plan, adopted in 2002, sets out a number of objectives and policies that aid in adaptation to accelerated sea level rise. The plan calls for the environmental monitoring of barrier beaches and other sensitive areas and ecosystems. The monitoring data must include:

- changes in the total acreage of coastal wetlands and the extent of wetland communities,
- changes in the volume of the commercial fish catch and the amount of fish and shellfish annually landed,
- changes in acreage of protected land on barrier islands, and
- changes in acreage of land held for conservation and recreation use. Monitoring data and recommendations shall be included in the comprehensive plan implementation committee's annual report.

The plan's Future Land Use Element Resource Protection policies include limiting impacts of development or redevelopment upon wetlands, water quality as well as quantity, wildlife habitats, living marine resources and other natural resources. Where development in sensitive areas is permitted, adverse impacts must be minimized through the use of clustering, variance of the county lot and setback requirements, a reduction in construction "footprints," modified or innovative construction techniques, and land use and development techniques which minimize negative environmental impacts or results.

Since hurricane Luke swept throughout the county in 2004, Escambia has added many new features to their comprehensive plan that may aid in sea level rise adaptation. No newly constructed houses may rest at ground level but must be built three (3) feet above the ground on pilings and new construction requirements are designed to fortify construction against sea level rise and other weather related hazards.

City of St. Pete, Florida: Coastal and Conservation Element

The City of St. Pete is a barrier island community located on Florida's Treasure Coast, entirely within the Coastal High Hazard Area and the 100-year floodplain. The Coastal and Conservation element of the city's comprehensive plan establishes requirements for new development within the floodplain, including onsite retention of stormwater runoff, the minimization of impervious surfaces, and the cultivation of at least 25% native vegetation onsite. Policies to conserve wetlands and native vegetation encourage the removal of exotic invasive species, establish a preference for the use of native marine species in conservation and stabilization efforts, and require the adoption of land use regulations that protect environmental systems and habitat. Any project that produces changes in tidal circulation patterns requires hydrological analysis of the project's net environmental impact before approval. Intermunicipal cooperation is required to protect environmental functions of estuaries and other resources "on a system-wide basis regardless of political boundaries."

To protect beaches, coastal dunes, and coastal ecosystems, the comprehensive plan calls for development regulations that protect primary dunes and prohibit activities that limit the natural fluctuation of dunes. Construction seaward of the state Coastal Construction Control Line must comply with state requirements. Disaster mitigation requirements include limits on public expenditures for development within the high-hazard area, coastal-hazard disclosure on all real-estate transfers or leases, and the development of a disaster preparedness plan, post-recovery task force, and post-disaster moratoria on redevelopment.

Collier County, Florida: Conservation and Coastal Management Element

The Collier County Comprehensive Plan calls for the use of watershed management plans to protect “landscape-scale wetland conservation areas.” The plan emphasizes the non-alteration of natural shore functions as well as the protection and restoration of native vegetation. Expenditures within Collier County’s undeveloped coastal barrier system are limited to acquisitions for the purposes of public safety, education, restoration, removal of exotic vegetation, recreational use, and/or research facilities only if the use will “not substantially alter the natural characteristics and natural functions of the undeveloped barrier system.”¹⁴⁵

New development in the county’s undeveloped coastal barrier system is limited to one unit per five acres,¹⁴⁶ and must be reviewed through the county’s “special treatment district” Transfer of Development Rights (TDR) program.¹⁴⁷ Prohibited activities include those that may cause “man-induced shoreline erosion beyond the natural beach erosion cycle or that would deteriorate the beach and dune system.”¹⁴⁸ Seawalls are also prohibited on the Gulf of Mexico except where there is imminent danger to existing buildings.¹⁴⁹ All new policy must be based on “available scientific/coastal engineering literature/studies that have established benchmarks for natural rates of beach erosion.”

NEW YORK

In New York, the state enabling acts¹⁵⁰ and the Municipal Home Rule Law¹⁵¹ give local governments extensive authority to regulate development and to protect natural resources. Planning is a critical component of this authority. All land use regulations must be in accordance with a comprehensive plan. Such plans consist of materials, including but not limited to maps, descriptive materials, identifying goals, and objectives, for the immediate and long range protection, enhancement, growth and development of a municipality.¹⁵² The comprehensive plan guides “the most appropriate use of land throughout the municipality.”¹⁵³ Under New York statute local governments may enter into intermunicipal agreements to adopt compatible comprehensive plans.¹⁵⁴

Town of East Hampton, NY: Coastal Management Element

The Town of East Hampton is one New York community that has made specific reference to sea level rise in its comprehensive plan. The town adopted its Local Waterfront Revitalization Program as the Coastal Management component of its comprehensive plan, and has stated “Future planning efforts should examine the likely effects of global warming, including increasing sea level rise and storm and hurricane activity on the town’s coastline. Beginning to plan for

¹⁴⁵ Collier County Comprehensive Plan, Policy 10.3.4

¹⁴⁶ *Id.* 10.3.8.

¹⁴⁷ *Id.* 10.3.15.

¹⁴⁸ *Id.* 10.4.3.

¹⁴⁹ *Id.* 10.4.9.

¹⁵⁰ N.Y. TOWN LAW § 272 (McKinney 2008); N.Y. VILLAGE LAW § 7-722 (McKinney 2008); N.Y. GEN. CITY LAW § 28-a (McKinney 2008).

¹⁵¹ N.Y. MUN. HOME RULE LAW (McKinney 2008).

¹⁵² N.Y. TOWN LAW § 272-a (2)(a); N.Y. VILLAGE LAW § 7-722 (2)(a); N.Y. GEN. CITY LAW § 28-a 3(a).

¹⁵³ *Id.*

¹⁵⁴ N.Y. TOWN LAW § 284; N.Y. VILLAGE LAW § 7-741; N.Y. GEN. MUN. LAW § 20-g.

these effects, assessing potential damage to public resources and infrastructure, and evaluating methods of protection and associated costs are vital for future coastal management.”¹⁵⁵

In the 1980s, the town enacted amendments that would ensure the continuous surveillance of wetland boundary locations. Based on this monitoring the town has been able gauge wetland movement and take appropriate measures to ensure that wetlands can naturally retreat rather than drown. This data also demonstrated that the arbitrary construction of bulkheads had created a major impediment to the natural progression of wetland migration. In light of the data, the town amended their comprehensive plan to prohibit the building of any bulkheads that would block wetland migration. East Hampton has also adopted coastal setbacks as much as 150' and no-build zones in high hazard floodplains.

The town also participates in a program with four other Long Island municipalities, implementing an additional 2% tax on houses over a certain price. This extra influx of tax money has allowed increased spending on wetland conservation and sea level rise mitigation including additional bulkheads that are free of negative wetland impact.

4. SHORELINE MANAGEMENT PLANS/LOCAL WATERFRONT REVITALIZATION PLANS (LWRPs)

Shoreline planning, like comprehensive planning, is a method of coordinating goals and objectives to establish a route for the immediate and long range protection, enhancement, and development of sensitive shoreline communities and ecosystems. Shoreline management plans are implemented under various legal auspices. The Federal Coastal Zone Management Act (CZMA) establishes a process for the development of state coastal zone management programs and offers cooperating states federally funded development and administrative grants. States that develop plans or programs under the CZMA benefit from a federal consistency requirement, meaning that any federal agency proposing to conduct, permit, or fund a project in an area that has approved plan must act consistently with the provisions of the plan. State statutes implementing the federal CZMA may either require or allow local governments to create plans to manage, sustain, or revitalize local shorefront.

A. Local adoption of shoreline management:

Local governments may voluntarily adopt shoreline management plans or local waterfront revitalization plans (LWRPs) under the authorization of the state plan that are specifically designed to meet local needs. A state plan might also require the adoption of LWRPs rather than allow their voluntary implementation, while still permitting the program design to reflect local needs. The federal consistency requirement applies to these locally adopted plans.

B. State preemption of local shoreline management:

A more uniform planning approach may be the preemption of local control of shoreline management and the maintenance of shoreline zoning and other regulatory land use authority at the state level. A state may assume control of the public waters held in trust for its citizens under the authority of the general police power. The state may statutorily mandate that municipalities adopt local shoreland zoning ordinances and either provide model ordinances or

¹⁵⁵ Town of East Hampton, NY, Comprehensive Plan: Coastal Management Component, at C-1.

delegate power to the state environmental agency to create guidelines setting forth minimum ordinance standards that a municipality may adopt.

Ultimately, a shoreline management plan summarizes a general route to healthy, smart, and logical growth as well as preservation and must be frequently reevaluated to address new challenges. One of the advantages of adopting a statewide, top-down approach is uniformity and coordination. However, such approaches must remain flexible enough to incorporate local familiarity with the unique qualities of an area, in addition to emerging data and other relevant information.

City of Bainbridge Island, Washington: Shoreline Management Program

Under Washington's Shoreline Management Act, which implements the CZMA, local governments must establish shoreline management programs (SMPs) to protect shoreline resources and to assure public access to the shore. All new shoreline uses and all shoreline modification activities must conform to the program. Bainbridge Island's SMP is intended to minimize the environmental impacts of shoreline uses and activities. The SMP does not mention sea level rise, but its provisions are applicable to sea level rise adaptation. Among its requirements are that shoreline uses "minimize interference with beneficial natural shoreline processes such as water circulation, sand and gravel movement, and erosion and accretion," and that any use minimize the need for shoreline stabilization and flood protections.

Native vegetated zones and habitat protection and restoration are required in environmentally sensitive areas. Where replacement of resources is permitted in sensitive areas, the replacement activities must be permanently protected through legal instruments such as conservation easements. The Act's environmental designations establish differing levels of development or human activity.¹⁵⁶ Residential development is permitted only in urban, semi-rural, and rural environments and is a conditional use in conservancy areas.

Flood Hazard and Stormwater provisions allow the alteration of a shoreline as a conditional use only where other methods are demonstrated to be insufficient. Shoreline modification provisions prohibit channelization of normal stream flows, scouring of the beach, and shoreline stabilization in wetlands. Dikes, levees, jetties, groins, gabions, and breakwaters are prohibited. Beach enhancement is prohibited in habitat areas and where littoral drift could adversely affect biologically sensitive areas. Revetments and bulkheads are permitted only under strict conditions. Natural berms and vegetated stabilization methods are encouraged. Shoreline hardening is prohibited in areas with feeder bluffs, marshes, or wetlands and on accretion shoreforms such as spits, hooks, bars, or barrier beaches.

Pacific County, Washington: SMP Ocean Coast Requirements

¹⁵⁶ Urban environments sustain high-intensity uses; semi-rural environments accommodate low- to medium-intensity uses and may be transitional areas; rural environments include agricultural and low-density uses, conservancy environments contain sensitive areas such as flood-prone areas, bluffs, and wetlands, and other areas where development would interfere with natural processes or damage other resources; natural environments are wildlife habitats or areas of scientific and educational value or scenic and recreational value. These may include saltwater marshes; aquatic environments are all marine water areas seaward of the ordinary high water mark (OHWM), and may include marshes; aquatic Conservancy environments are tidal lagoons; salt marshes and mud flats in tidal inlets; and marine vegetation seaward of mean lower low water (MLLW). These include areas of at least 4,000 square feet of eel grass or kelp.

Pacific County's Shoreline Management Program (SMP), created under Washington's Shoreline Management Act, includes shoreline policies encouraging design and use of naturally regenerating protective systems; the elimination of invasive aquatic weeds and the protection of native plant communities; the development of integrated structural and non-structural shoreline protection measures; and development that does not change the composition of the beach and bottom substrate. The SMP further commits to amend land use regulations in light of continuing scientific research.

The SMP states that for residential development on shorelines subject to tidal action in the Conservancy Environment, it is the property owner's responsibility to demonstrate that drainage or pumping will not deplete groundwater or cause saltwater intrusion. Structures are prohibited on shorelines in the SMP's Natural Environment, (the "no touch zone") but are permitted with conditions in other Environments. Provisions for dunes include a 100' buffer and building setbacks. The SMP prohibits any structure that would modify a dune to below 24 feet above sea level. Development standards also require that an altered watercourse shall be allowed to meander and maintain stream surface area.

Maine: Mandatory Shoreland Zoning Act

Maine has established a Mandatory Shoreland Zoning Act¹⁵⁷ that appoints the State of Maine as trustee of all the waters within the State, under its power to provide for the health, safety, and general welfare of its citizens. Under the Act, municipalities must adopt their own local shoreland zoning ordinances. The State's Department of Environmental Protection (DEP) has created guidelines for the local municipalities that sets forth the least restrictive minimum standards that the municipality can implement.

Particularly, municipalities must regulate land use activities "within 250 feet of all tidal waters, great ponds, rivers, coastal wetlands, and non-forested freshwater wetlands of 10 acres or more, and within 75 ft of streams."¹⁵⁸ The Act, in conjunction with the guidelines created by the Maine DEP, permits Maine's Board of Environmental Protection (BEP) to create standards to which local municipalities must adhere. Should a municipality fail to create their own ordinances according to the BEP standards, the Mandatory Shoreland Act allows the BEP to adopt regulations it feels are necessary on behalf of the municipality. In such an instance, the municipality is required to administer and enforce the BEP's regulations.

The Act requires municipalities to identify all shoreland areas and then establish specific districts or zones within those areas. Most towns establish Resource Protection, General Development, Limited Residential, and Stream Protection districts; they may also designate areas dedicated to Limited Commercial and/or Commercial Fisheries/Maritime Activity districts.¹⁵⁹ Municipalities must map certain undeveloped areas within the 250 foot shoreland zone as Resource Protection Districts. These include 100-year floodplains on rivers or tidal waters; areas adjacent to freshwater wetlands, salt marshes, and salt meadows which are rated as moderate or high value for waterfowl habitat by the Maine Department of Inland Fisheries; areas with two or more acres of steep slopes (+ 20 %); areas with two or more acres of wetland

¹⁵⁷ 38 MRSA § 435-49.

¹⁵⁸ See *Maine Land Use Planning, Zoning, and Shoreland Zoning*, at 6, available at www.maine.gov/spo/ceo/publications/sz_2006/2006sz_manual_complete.pdf

¹⁵⁹ See *Maine Shoreland Zoning, A Handbook for Shoreland Owners*, at 7, available at www.state.me.us/dep/blwq/docstand/sz/citizenguide.pdf.

vegetation which are not part of a water body (typically, forested wetlands); and areas on rivers or tidal water subject to severe bank erosion.¹⁶⁰

Restrictions that apply in *Resource Protection Districts* are designed to protect water quality, productive habitat, biological ecosystems, and as well as natural values.¹⁶¹ *Stream Protection Districts* are designed to protect the water quality of free flowing bodies of water outside the 250 shoreland areas that do not meet the definition of a river, but provide a significant State resource (i.e. fish habitat, source of water to wetlands). *Limited Residential Districts*, *Limited Commercial District* and *General Development Districts (I and II)* accommodate varying residential as well as commercial development intensities and provide shoreline setback requirements. *Commercial Fisheries Districts* and *Maritime Activities Districts* accommodate shoreland areas with uses that are dependent on a waterfront location (such as working harbors). These Districts prohibit residential uses and all other uses must have a “water-dependent” purpose in order to be a permitted use.

The Shoreland Management Act, though extremely detailed, lays out straightforward requirements for local municipalities within the state. The guidelines include diagrams and drawings illustrating how to apply shoreland zoning to specific situations.¹⁶² They also outline the performance standards that should be applied for different uses, ranging from accessory structures to piers, docks, and wharfs.¹⁶³

Town of Orland, Maine: Shoreland and Zoning Ordinance

The Town of Orland, pursuant to Maine’s Shoreland Management Act, has adopted its own Shoreland and Zoning Ordinance. This ordinance contains specific provisions related to timber harvesting; clearing shoreland vegetation for development; erosion and sedimentation control; mineral exploration and extraction; and storm water runoff.

Specifically, this ordinance applies to all land areas within 250 feet of the normal high-water line of any great pond, river, or saltwater body; within 250 feet of the upland edge of a coastal or freshwater wetland; and within 75 feet, of the normal high-water line of a stream.¹⁶⁴ Like the Shoreland Management Act, this ordinance also establishes shoreland districts for Resource Protection, Limited Residential and Commercial Use, General Development, Commercial Fisheries/Maritime Activities and Stream Protection.¹⁶⁵

NEW YORK

A.) New York State Waterfront Revitalization Program (LWRP):

New York State’s Local Waterfront Revitalization Program is a voluntary partnership between

¹⁶⁰ *Id.*

¹⁶¹ Restrictions include a prohibition on roads and driveways; a 1000 square foot limit on clearing for campsites; and a prohibition on the removal of any vegetation within the 75-foot buffer area around a great pond except to remove safety hazards. *Id.* at 22, 26.

¹⁶² See *Maine Land Use Planning, Zoning, and Shoreland Zoning*, at 50-70, available at www.maine.gov/spo/ceo/publications/sz_2006/2006sz_manual_complete.pdf.

¹⁶³ *Id.*

¹⁶⁴ TOWN OF ORLAND MAINE, SHORELAND ZONING ORDINANCE §3 Applicability, available at <http://www.orlandme.org/images/shore.pdf>.

¹⁶⁵ *Id.*

the state and local governments to protect the state's 5,000 miles of shoreline. Created under the Coastal Zone Management Act (CZMA) and the New York Waterfront Revitalization and Coastal Resources Act,¹⁶⁶ the program is open to more than 600 local governments with shorelines identified under the state statute and regulations. Under the program, municipalities can create local waterfront revitalization programs (LWRPs), harbor management plans, and comprehensive shorefront management programs to implement federal and state policies including minimum erosion and flood control standards.

A municipality may implement an LWRP through the same procedure it would use to develop a comprehensive plan. A municipality either appoints a planning board or a special board to develop the LWRP, which becomes legislatively approved amendment to the local comprehensive plan. The LWRP must receive approval from the NYS Department of State's Division of Coastal Resources and then from the federal Office of Coastal Resource Management. Once approved, the plan becomes effective.

Ultimately, a successful LWRP will identify coastal problems such as sea level rise, provide for program implementation to address these problems, and insure that these programs are properly managed. Municipalities may use traditional land use tools such as zoning to carry out the LWRP's goals. See Section 6. Land Use Regulations and Best Management Practices.

B.) The NYS Environmental Protection Fund's (EPF) LWRP Grants:

To implement the LWRP, the New York Department of State annually solicits grant applications from local governments for 50/50 matching grants from the New York State Environmental Protection Fund.¹⁶⁷ For the 2008-2009 Grant Cycle, the Department of State requested proposals in grant categories including the preparation of a local or regional watershed management plan and "adapting to Climate Change."¹⁶⁸

In addition to multiple grants for master watershed planning throughout the state, the EPF awarded the City of Albany a grant to develop a local Climate Action and Adaptation Plan. The plan "will identify risks, impacts, opportunities and strategies to guide policy on emissions reduction, infrastructure and technologies investments, water and air quality improvement, and development of regulations to minimize risks associated with climate change and sea level rise."¹⁶⁹

Village of Tivoli, NY:

To implement its LWRP, the village of Tivoli in northern Dutchess County established a land conservation district that borders the Hudson River and other major watercourse that flow through the village. The district allows no as-of-right uses and a special permit must be obtained to establish uses limited to agriculture, wildlife preserves, outdoor recreation facilities, parks and

¹⁶⁶ NY. EXEC. LAW § 910 (McKinney 2008), available at http://www.nyswaterfronts.com/downloads/pdfs/Article_42.pdf. See also 19 NYCRR §600.5 (McKinney 2008) (codification of the 44 policies that all LWRPs must fulfill).

¹⁶⁷ NYS DOS Division of Coastal Resources, Coastal Resources Online, *Environmental Protection Fund's Local Waterfront Revitalization Program*, at http://www.nyswaterfronts.com/grantopps_EPF.asp.

¹⁶⁸ *Id.*

¹⁶⁹ NYS DOS Division of Coastal Resources, Coastal Resources Online, *2008-2009 EPF LWRP grant awards*, at http://www.dos.state.ny.us/pres/pr2008/2008_PR_Descriptions_Statewide_w_Recommendations.pdf.

playgrounds.

City of North Tonawanda, NY:

The City of North Tonawanda created a waterfront zoning allowing only water dependent uses to carry out the goals of its LWRP. The zone allows non-water dependent uses only by special permit if public waterfront access is provided.

Town of Easthampton, NY:

The Town of Easthampton enacted a harbor overlay district under its LWRP. The district established additional standards to reduce adverse water quality impacts emanating from the all permitted uses on parcels that are adjacent to the shore. Additionally, Easthampton integrated the coastal management component of its LWRP directly into the comprehensive plan prepared for the area.¹⁷⁰

C.) New York State Coastal Erosion Hazards Act:

The New York State Coastal Erosion Hazards Act of 1973 was implemented with development funds granted to the state under the CZMA to manage coastal resources. The Act grants the New York State Department of Environmental Conservation the authority to identify and map coastal areas affected by serious erosion or acting as natural erosion control features and to adopt regulations to control certain activities and development in those areas. The program revolves around a DEC permitting system directed toward all proposed construction in erosion hazard areas. Local governments may be given permitting authority by the DEC to regulate construction in these areas.

5. POST-STORM REDEVELOPMENT PLANNING

Post-storm redevelopment planning may involve the creation and implementation of Hazard Mitigation Plans, Moratoria, or Redevelopment Task Forces, that are responsible for overseeing the implementation of both.

A.) Hazard Mitigation Plans:

Local municipalities, most familiar with the unique challenges of an area, are the best equipped to develop and implement hazard mitigation strategies and policies. Municipalities with FEMA approved all-hazard mitigation plans are eligible to receive project funding from the Hazard Mitigation Grant Program (HMGP) under the federal Disaster Mitigation Act of 2000. The long-term benefits of mitigation planning include increased community awareness of potential hazards, sustainable and disaster-ready infrastructure, the creation of partnerships that support planning and mitigation efforts, and a reduction in future damages to human health and the built environment.¹⁷¹ FEMA's all-hazard mitigation guidelines¹⁷² indicate local mitigation plans can be prepared either by a single jurisdiction (a village, town or city) or by multiple jurisdictions under the auspices of a county or a regional organization.

B.) Moratoria:

¹⁷⁰ See Section VI.3 Comprehensive Plan.

¹⁷¹ 44 CFR Part 201.6 (2008).

¹⁷² *Id.*

A moratorium on development suspends the right of property owners to obtain development approvals while the community takes time to consider, draft, and adopt land use plans or rules to respond to new or changing circumstances not adequately covered by its current laws. A moratoria on redevelopment in coastal areas can give communities dealing with destructive sea level rise impacts including extensive storm damage, erosion or flooding, time to rethink their land use plan and local laws and adopt a new, smarter approach that more properly manages growth.

C.) Redevelopment Task Forces:

A local redevelopment task force can be created via local law to oversee post-disaster reconstruction. The task force may meet regularly to create a redevelopment plan, consider policies for redeveloping the area, determine redevelopment priorities as well as mitigation measures in advance of an emergency, and suggest regulatory changes.

Hillsborough County, Florida: Post-Disaster Redevelopment and Mitigation Ordinance

Hillsborough County's Post-Disaster Redevelopment and Mitigation ordinance¹⁷³ was enacted in 1993 to respond to potential natural or man-made hazards, in conformance with the goals and policies of the Coastal Management and Port Element of the county comprehensive plan. The comprehensive plan requires the county to restrict both development and redevelopment that would damage coastal natural resources; to limit expenditures for public infrastructure in coastal hazard areas; and to adopt a post-disaster redevelopment plan that will restrict and eliminate unsafe structures, create a "decision-making matrix" for the post-disaster rebuilding or relocation of public infrastructure, and guide orderly redevelopment in the recovery period.

In preparation for future storm events, the county ordinance establishes a redevelopment task force, which will oversee post-disaster reconstruction and advise the Board of County Commissioners. The task force is to meet regularly, to create a redevelopment plan, to consider policies for redeveloping areas that have suffered repeated storm damage, to determine redevelopment priorities and mitigation measures in advance of an emergency, and to suggest regulatory changes. The ordinance also allows the task force to make recommendations regarding what it calls "non-mitigative local objectives and opportunities," including enhancement of open space, enhancement of public access to estuaries and rivers, and enhancement and restoration of local ecosystems. Task Force meetings are open to the public and any citizen may give suggestions, which are then considered and, if desirable, entered into a draft redevelopment plan. Once a draft plan is completed, Hillsborough County will post copies on their website for public viewing. A second series of open meetings are then held to discuss the planner's findings and to consider all public advice for a final post-disaster redevelopment plan.¹⁷⁴

Buildings that are damaged less than 50% of their replacement cost may be rebuilt subject to current building and safety codes. Buildings suffering greater damage may be rebuilt to their original size and use if they comply with federal elevation requirements, local floodproofing requirements, building and safety codes, and other state and local regulations. The County also

¹⁷³ See Hillsborough County, Florida, *Post-Disaster Redevelopment Plan Ordinance*, available at <http://www.hcptc.org/pgm/pdrp/>.

¹⁷⁴ See Hillsborough County, Florida, *Post-Disaster Redevelopment Plan - Planning Process and Timeline*, available at <http://www.hillsboroughcounty.org/pgm/pdrp/planning.cfm>.

has an initial building moratorium; a destroyed structure moratorium; major and minor damaged structure moratoria; and a new development moratorium, an outstanding building permit and an outstanding development order moratoria, and a site plan review moratorium.

Town of Duck, North Carolina: Moratorium on Rebuilding and Reconstruction

North Carolina's Coastal Areas Management Act of 1974 encourages cooperative land use planning between state and local governments.¹⁷⁵ It is the policy of the State of North Carolina that "adequate plans for post-disaster reconstruction should be prepared by and coordinated between all levels of government prior to the advent of a disaster."¹⁷⁶ North Carolina's Design and Construction Guidelines for local hazard mitigation plans suggest that coastal communities should "outline a post-disaster permitting process that facilitates repairs but remains steadfast to the need to mitigate against future disasters."¹⁷⁷ One way to accomplish this is to create a short-term building moratorium to allow the community time to assess damage and consider mitigation measures.

The Town of Duck, on North Carolina's Outer Banks, is a coastal community that has adopted local regulations implementing state coastal policies. In 2005, Duck adopted, and the State of North Carolina certified, the town's CAMA CORE Land Use Plan. Duck's Code of Ordinances includes a chapter on Rebuilding and Reconstruction that sets out procedures for assessing damage, declaring a building moratorium, and defining types of moratoriums that may be declared in the aftermath of a damaging storm. The ordinance is intended to ensure that rebuilding occurs "in an orderly manner," and with the opportunity to identify "appropriate areas for post-storm change and innovation."

A building moratorium may be declared in the event of a Category 4 hurricane or greater; when the President issues a disaster declaration for the town; when 100 or more buildings have suffered major damage; or when the Mayor has declared a state of emergency. The state's Department of Emergency Management requires a local damage assessment team to assess property damage immediately following a storm and to make recommendations to the town's Building Inspector, who then inspects and categorizes structures according to the degree of damage.¹⁷⁸

When a building moratorium is declared, an "initial moratorium" extends for 48 hours, during which no building permits may be issued. A "destroyed structure moratorium" extends for 30 days following the expiration of the initial moratorium and during this period, no permit for

¹⁷⁵ The North Carolina Coastal Area Management Act of 1974, N.C. GEN STAT. §§ 1131-100 to 134.3 (2009), *available at* <http://dcm2.enr.state.nc.us/rules/cama.htm>.

¹⁷⁶ 15A N.C. ADMIN. CODE § 07M.0501 (2009), *available at*, <http://www.nccoastalmanagement.net/Rules/Text/t15a-07m.0500.pdf>.

¹⁷⁷ NORTH CAROLINA DESIGN AND CONSTRUCTION GUIDELINES, at 15 (on file with the author).

¹⁷⁸ The ordinance defines a *destroyed structure* as one "that is a total loss or damaged to such an extent that repairs are not technically or economically feasible"---that is, damage is equivalent to "50% or more of replacement cost at the time of damage or destruction." TOWN OF DUCK, NC, CODE § 152.02. A *major damaged structure* is one requiring extensive repairs to foundation, roof structure, or major structural components in order to be made habitable. Repair costs may range from 10% to 50% of replacement cost at time of damage. A *minor damaged structure* requires repairs of less than 10% of replacement cost at the time of damage---repairs, for example, to windows, doors, floors, or furnaces and water heaters, which can be completed quickly.

replacement of a destroyed structure will be issued.¹⁷⁹ In order to receive building permits, all replacement building and repairs following moratoriums must meet applicable town zoning and other code requirements.

Moratorium regulations also require that land bordering incipient inlets—ocean-to-sound inlets that may form or be altered as a result of a damaging storm—may be declared a high hazard area, with no building permits issued until the inlet has stabilized. A moratorium on outstanding building permits revokes all permits issued before the storm and delays re-issuing of permits for at least 30 days. All moratoriums except the initial moratorium may be canceled or extended by the Mayor or Town Council. The ordinance creates a Reconstruction Task Force to review damage reports and advise the Town Council on reconstruction, rezoning, and innovative mitigation measures.

Town of Nags Head, North Carolina: Hurricane and Storm Reconstruction and Redevelopment & General Use Standards for Redevelopment in Ocean Hazard Areas

The North Carolina Administrative Code defines ocean hazard areas as areas along the Atlantic shoreline vulnerable to the effects of sand, wind, and water where “uncontrolled or incompatible development could unreasonably endanger life or property.”¹⁸⁰ The Code acknowledges that “absolute safety from the destructive forces indigenous to the Atlantic shoreline is an impossibility for development located adjacent to the coast,” and aims to manage hazard areas to protect life and property; prevent encroachment of development on beach and dune areas; preserve barrier dune ecology; protect rights of public access; and reduce public costs of inappropriate development. The Outer Banks community of Nags Head has adopted a building moratorium ordinance and general use standards for ocean hazard area reconstruction. An ocean hazard area includes ocean erodible area¹⁸¹ and the high hazard flood area.¹⁸² After a building moratorium expires, certain requirements must be met for the issuance of building permits. Destroyed structures, major damaged structures, and minor damaged structures all require:

- A post-storm survey and/or site plan of the lot and proposed structure, where the original structure was destroyed or where an increase in the footprint of the pre-storm structure is proposed.
- Site plan approval.
- On-site inspection of the lot by zoning administrator.
- All debris removed from the lot.
- A septic improvements permit.

¹⁷⁹ A *major damaged structure moratorium* also extends for 7 days following the initial moratorium and a *minor damaged structure moratorium* coincides with the 48-hour initial moratorium.

¹⁸⁰ 15A NCAC 07H.0301

¹⁸¹ TOWN OF NAGS HEAD, NC, CODE, Ch 132. The ocean erodible area is defined seaward by the mean low water line. The landward boundary is defined by the distance landward from the first line of stable natural vegetation to the recession line calculated by the long-term erosion rate times 60, or in cases where the erosion rate is less than 2 feet per year by a set distance of 120 feet landward from the stable vegetation line; or the distance landward from the recession line established above to “the recession line that would be generated by a storm having a one percent chance of being equaled or exceeded in any year.” Erosion rates are determined by the North Carolina Coastal Resources Commission.

¹⁸² The high hazard flood area, as identified on Federal Insurance Administration flood insurance rate maps, is the area subject to high velocity waters in a storm having a one percent chance of being equaled or exceeded in any given year.

- Certain setbacks dependant on the extent of damage.
- For destroyed and major damaged structures, town water must be restorable at street frontage of the lot, electrical service must be restorable to building site, and there must be direct, uninterrupted approved vehicular access to the lot.

NEW YORK

The New York State Emergency Management Office (SEMO)¹⁸³ provides hazard mitigation planning assistance to local jurisdictions. In addition to SEMO assistance, FEMA provides grants, tools, and training to support local mitigation planning. SEMO's Disaster Preparedness Commission (DPC), which is comprised of the commissioners, directors or chairpersons of 23 state agencies and the American Red Cross is responsible for the preparation of State disaster plans, the direction of State disaster operations, and the coordination of local government operations with federal, State and private recovery efforts. DPC coordinated the preparation of the current State Hazard Mitigation Plan, approved by FEMA on January 4, 2008.¹⁸⁴ The plan profiles potential hazards involving flood, wind events, tornado, earthquake, landslide, winter/ice storms, land subsidence, wildfire, drought, power failure, extreme heat, hail storm and the cascading effects of several of these disasters including coastal erosion caused by large storms.

Some local SEMO supported plans explicitly address the potential hazards posed by rising sea level.

New York City Hazard Mitigation Plan

In its 2008 Hazard Mitigation Plan, New York City addresses the effect of climate change and sea level rise on erosion and flooding within the city. The plan envisions amendments to the city building code to prepare buildings for climate change and citywide structural changes including the construction of sea walls around wastewater treatment plants; measures to reduce storm surge into the city sewer system; flood planning for the subway system; construction of greenroofs across the city; and the reconstruction of dams and seawalls.¹⁸⁵

Suffolk County Hazard Mitigation Plan

Suffolk County's Risk Assessment–Coastal Erosion section of its Hazard Mitigation Plan (December 2007),¹⁸⁶ adopted under the Disaster Mitigation Act of 2000, includes sea level rise among the potential risks that the County faces in the future. The Plan documents potential sea level rise of as much as three feet along the county's barrier beaches, and includes projections of change over a period of 50-100 years. The risk assessment concludes that Suffolk County is "highly vulnerable" to coastal erosion, causing loss of beaches, barrier islands, buildings, and infrastructure.

¹⁸³ New York State Emergency Management Office, <http://www.semo.state.ny.us/>.

¹⁸⁴ New York State Hazard Mitigation Plan (2008), *available at* <http://www.semo.state.ny.us/programs/planning/hazmitplan.cfm>.

¹⁸⁵ New York City Hazard Mitigation Plan, *available at* http://www.nyc.gov/html/oem/html/about/planning_hazard_mitigation.shtml

¹⁸⁶ Suffolk County, New York, DMA 2000 Hazard Mitigation Plan (December 2007), *available at* http://suffolkcountyny.gov/RESPOND/PDFs/Section_5.4.5.pdf.

6. LAND USE REGULATIONS AND BEST MANAGEMENT PRACTICES

A major goal of land use regulations and best management practices for adaptation to sea level rise is to maintain natural shorelines and processes; prohibit shoreline hardening structures; phase out existing hardening structures; restore natural sedimentation processes and natural vegetation; control invasive plant species; and to encourage native plant species. On barrier Islands, some state and local governments are allowing the natural migration of dunes; increasing the acreage of unfragmented natural vegetated communities; and promoting natural inlet formation and littoral drift.

a. ROLLING EASEMENTS

Rolling easements are regulatory mechanisms or interests in land that allow wetlands or beaches to migrate inland as sea level rises and thus transfer of the risk of sea level rise from the environment or the public to the property owner.¹⁸⁷ When rolling easements are implemented as a regulation, they provide an alternative to prohibiting all development in coastal area, which may be politically infeasible, inequitable, or even unconstitutional.¹⁸⁸ When implemented as an interest in land, a rolling easement offers an alternative to the purchase of the property by the government or the negotiation of a conservation easement.¹⁸⁹

A rolling easement helps to align a property owner's expectations with the migrating nature of the shore and if sea level rise is expected, property owners can efficiently prepare for that eventuality.¹⁹⁰ Rolling easements allow development but preclude shore protection and thus are appropriate for areas where preventing development is not feasible and shore protection is unsustainable.¹⁹¹

The common-law basis for such rolling easements was summarized in a 2007 article in the Ecology Law Quarterly as follows:

Although a rolling easement can be authorized through statutory action or judicial fiat, there is a strong argument that such easements are most fundamentally rooted in common law principles—primarily the public trust doctrine, although the laws of custom and public nuisance may also play a role. Expressly grounding rolling easements in the longstanding background principles of the common law and within the principles of property law helps to immunize the state from potential constitutional takings challenges because articulating such background principles does not change the existence of fundamental property rights enjoyed by a private owner but merely clarifies that owner's existing rights. Put simply, there can be no taking when the property owner never had a "right" to armor to begin with.¹⁹²

City of Corpus Christi, Texas: Dune Protection, Rolling Easements

The Texas Open Beaches Act of 1959 codified the public's common-law right of access to dry beach above mean high tide and amendments to the Act in 1991 authorized the commissioner

¹⁸⁷ U.S. Climate Change Science Program, *Coastal Sensitivity to Sea Level Rise: A Focus on the Mid-Atlantic Region*, 299 (2009), <http://www.climatescience.gov/Library/sap/sap4-1/final-report/default.htm>.

¹⁸⁸ *Id.*

¹⁸⁹ *Id.*

¹⁹⁰ *Id.*

¹⁹¹ *Id.* at 300.

¹⁹² Caldwell, Meg & Segall, Craig Holt, No Day at the Beach: Sea Level Rise, Ecosystem Loss, and Public Access Along the California Coast, 34 Ecology Law Quarterly 533 (2007).

of the Government Land Office (GLO) to promulgate Beach/Dune rules. In a 2006 report, the GLO commissioner stated that the state's rolling easement is never fixed, but migrates landward according to natural coastal processes.¹⁹³

In December 2005 Nueces County adopted a Beach Management Plan under the Texas Open Beaches Act and Beach/Dune rules.¹⁹⁴ The plan established a line running parallel to the beach 1,000' landward of mean high tide to protect critical dune areas. The plan also delegates authority to local governments to delineate the dune protection line and to issue permits for development. Subject to this authority, the Dune Protection ordinance of the City of Corpus Christi sets out requirements for permitted development and for managing and preserving the public beach.

Under the ordinance's building permit requirements, a proposed activity may not materially weaken dunes or damage dune vegetation and the design and use of naturally regenerating systems is encouraged. Mitigation is required where the city finds that an activity will adversely affect dunes or dune vegetation seaward of the dune protection line. To obtain a Beach Construction Certificate, the proposed construction may not reduce the size of the public beach.

The ordinance also includes management guidelines for the Public Beach providing for post-storm damage assessments by the city; beach nourishment standards; and dune restoration standards, under which hard or engineered structures are prohibited.

The ordinance affirms that "beaches are presumed public unless a property owner obtains a declaratory judgment to the contrary under the Open Beaches Act."

b. SPECIAL AREA ORDINANCES AND HABITAT PRESERVATION

Special Area Ordinances

Special area ordinances may be adopted to protect sensitive resources facing development pressures or risks from threats including sea level rise. Regulations governing such areas may require that proposed development undergo scrutinized environmental impact assessment; may prohibit uses other than non-intensive recreational ones; or may divide land within the critical area into classifications supporting development, limited development, and strict resource conservation.

Habitat Preservation

Habitat preservation ordinances, akin to special or critical area ordinances identify resources in need of special protection and restrict development that is not compatible with an area's natural features and functions. With regard to sea level rise, these ordinances and agreements might regulate tidal and freshwater wetlands, tidal waters, beaches, dunes, bluffs, and their vegetation to promote stabilization, the proliferation of keystone species and the prohibition of intense, permanent development.

¹⁹³ See Eddie R. Fisher & Angela R. Sunley, *A Line in the Sand: Balancing the Texas Open Beaches Act and Coastal Development*, Proceedings of Coastal Zone 07, Portland, OR (July 2007).

¹⁹⁴ *Id.*

Habitat preservation may also be achieved through special requirements maintained in the local comprehensive plan or attached to development permits, mandating the implementation of certain measures by developers or the analysis of certain resources in local environmental assessments.

Town of Nags Head, North Carolina: Nags Head Woods Special Environmental District

The maritime forest of the Town of Nags Head is a federally designated National Natural Landmark and a critical resource for the outer banks' ecosystem. The Town enacted a Special Environmental District to regulate and permit "development that is compatible with the environmentally sensitive nature of Nags Head Woods and to preserve land in a natural state where such land is considered to be a vital link in the groundwater replenishment cycle of the outer banks and where the destruction of natural vegetation would have a harmful effect on the stability of the soil and its resistance to erosion."

The ordinance aims to protect the area's natural features and function, specifically, the groundwater recharge and storage system, which includes ponds, lowlands, marshes, bay forests, and wetlands, and the vegetation necessary to soil stabilization and to protection from saltwater intrusion, which includes dune ridge plant communities and scrub forest. Additionally, the ordinance aims to protect the Nags Head Woods ecosystem from floods and other disasters, to protect coastal waters from pollution, to permit low-intensity residential development only in appropriate areas and to prohibit incompatible uses, and to preserve the integrity of the maritime forest.

Permitted and conditional uses are specified, along with dimensional requirements, including setbacks from protected resources, building heights, and limits on lot coverage. Standards for site plan, site development, and subdivisions require protections for dunes and vegetation, and prohibit the draw-down of groundwater, except for on-site wells designed to serve buildings on individual lots, and the alteration of natural drainage patterns.

Anacortes, Washington: Riparian Vegetation Landscape Ordinance

The City of Anacortes modified its Landscaping Code to require that new development and redevelopment for non-water-dependent uses abutting marine shorelines must include, in the site plan, beds of riparian vegetation in the 15-foot-wide strip of land lying immediately landward of unarmored shorelines or on the landward edge of shoreline armoring. Beds must be a minimum of six feet wide and ten feet long and must occupy a minimum of 50% of the shoreline's footage for new development and 25% for redevelopment. Salt-tolerant riparian species must be identified on the landscape plan and approved by a biologist/riparian plant specialist. Non-native species are to be removed from planting beds. Riparian vegetation is encouraged but not required on the rest of the site. Provisions are included for plant monitoring over a five-year period. A planting is considered successful if at the end of the five-year period the plants have a minimum 80% survival rate and a minimum rate of 50% cover of the planting beds by plants at least four feet tall.¹⁹⁵

Worcester County, Maryland: Atlantic Bays Critical Area Ordinance

¹⁹⁵ ANACORTES, WA, MUNICIPAL CODE, art. VII, Marine Shoreline Vegetation § 17.70.580.

Maryland's Atlantic Bays Protection Act was created to safeguard water quality and coastal natural resources and the Worcester County's Critical Area ordinance was adopted under the Act. Though its purpose and findings statements do not specifically mention sea level rise, the ordinance's provisions for setbacks, buffers, growth allocation, and extensive resource protections are appropriate responses to sea level rise.

The county's findings stress the adverse impacts of human activity on coastal resources and the need to guide development to appropriate areas. The county adopts a 100 foot setback from mean high water line of tidal waters, tributary stream banks, and the landward extent of tidal wetlands. Upstream activities directly affect tidal waters, and the ordinance finds that protections beyond the limits of the critical area itself are necessary. The ordinance declares that additional protections beyond state requirements are necessary to mitigate impacts to non-tidal wetlands and buffers beyond the critical area but within its watershed.

Within the Atlantic Coastal Bays Critical Area, three land classifications are established: intensely developed areas; limited development areas; and resource conservation areas.

Intense development should be located outside the critical area, but where it is proposed within the area should be directed to the first classification. Limited development areas allow for low-density development that must be strictly regulated to protect water and coastal resources. Resource conservation areas are primarily designated for agriculture, forestry, fisheries, and habitat protection.

The county's 100 foot buffer from mean high water may be expanded to protect contiguous sensitive areas such as hydric or highly erodible soils that may impact aquatic environments. The ordinance provides development standards for each land classification. These include provisions for a wildlife corridor system in limited development areas, and impervious surface limits for both existing and new lots. In non-tidal wetlands and non-tidal wetland buffers, where state regulations require no mitigation, this ordinance establishes mitigation requirements. In Resource Conservation Areas, any development should be located at least 300 feet landward of tidal wetlands or waters. Habitat protection plans are required for the 100 foot buffer; for plant and animal habitat areas including nontidal wetlands; for threatened and endangered species; and for anadromous fish populations. To protect fish populations and other resources, channelization is prohibited.

In April 2008, under revisions to its Critical Areas legislation, Maryland expanded buffer requirements from 100 to 200 feet for new subdivisions in Resource Conservation Areas and for projects requiring site plan approval and involving a change in land use. The Act now requires a 300 foot setback of new IDA and RDA areas from mean high water. The revisions replace impervious surface limits with "lot coverage limits," which include "gravel, stone, shell ... permeable pavement, or any man-made material" in total coverage. The revisions require nonstructural shoreline stabilization except where it can be proved to the Department of Natural Resources that soft stabilization is not feasible.

Escambia County, Florida: Protection of Unique Vegetative Communities

The comprehensive plan of Escambia County includes a provision to protect vegetative communities that cross-jurisdictional boundaries:

The county will continue cooperation with adjacent local governments to conserve, appropriately use, or protect unique vegetative communities

located within more than one local jurisdiction (reference chapter 13, intergovernmental coordination element). Proposals for development which impact unique vegetative communities located within more than one local government jurisdiction will be provided to the affected local government by Escambia County whenever the proposed development plan is presented to Escambia County.¹⁹⁶

The provision helps stabilize dunes to shield the conservation areas, which helps preserve the dunes for flood and erosion protection.

Town of Sullivan’s Island, South Carolina: Beach Preservation; Recreation and Conservation Area Districts

Sullivan’s Island is a barrier community near the entrance to Charleston harbor.¹⁹⁷ The Zoning Ordinance of the Town of Sullivan’s Island, adopted in 1977 and revised in 2005, establishes two Recreation and Conservation Area Districts: RC-1 (ocean side) and RC-2 (marsh side). These areas are composed of sand dunes and vegetation which “are constantly shifting over unpredictable periods of time,” prone to flooding, and therefore are not suitable for any development purpose. The ordinance, noting that these areas offer protection “from the hazards of high tides and floods caused by hurricanes, tropical storms, and seasonal tides,” provides for the preservation of the RC Areas “in their natural state, except for the trimming, pruning, and cutting of bushes and trees” to promote recreational use of the land.

Erosion control structures may not be placed in the RC Area Districts without permission of the Town and repair of erosion control structures is not permitted if the Town determines that 50% or more of the structure has been damaged. Where damage is less than 50%, repairs in place are permitted if the repairs comply with all Town and OCRM regulations. Damaged structures may not be enlarged or strengthened beyond their pre-damage condition, and the Town may require beach replenishment as a condition for repair.

The Conservation and Preservation article of the Beaches chapter of the Town Code is to be read “in conjunction with and in harmony with” the RC Area District regulations. Conservation areas extend from the mean low water mark to the boundaries of the RC-1 and RC-2 Districts.¹⁹⁸ This area must be retained and preserved by the Town in trust as an area of conservation through the use of all legal means by the town to guarantee that this natural habitat will be undisturbed. The ordinance further provides that that land may not be subdivided; that there may “no man-made, artificial changes” other than erosion control approved by the Town for the area; and that the Town will use its police powers “to prevent altering of this area in any way” other than for emergency access and for specified pruning and approved docks and piers.

¹⁹⁶ Escambia County Comprehensive Plan, Policy 11.B.3.7: Multi-jurisdictional Unique Vegetative Communities.

¹⁹⁷ In the past 80 years, the City of Charleston itself has experienced a 10-inch rise in relative sea level—a measure that combines global sea level rise and local factors, such as subsidence. See South Carolina Sea Grant (2007).

¹⁹⁸ TOWN OF SULLIVAN’S ISLAND, SC, CODE, § 4-5.2, *available at* <http://www.sullivanisland-sc.com/Files/Town%20Ordinances/Beaches.pdf>. RC boundaries are specifically defined as either “the seaward lot line of property platted on Sullivan’s Island,” the “critical line;” which is generally defined as the crest of the primary ocean front sand dune;” or the “face of a functional erosion-control device; whichever encompasses a greater landward area. *Id.*

The chapter codifies the right to convey all undeveloped land that borders the Atlantic Ocean owned by the Town to the Lowcountry Open Land Trust. The Trust was created to place restrictions on the property (a conservation easement) and re-convey the land to the Town, giving the Town the right to revoke the restrictions by unanimous vote of the Town Council and a referendum approved by 75% of the citizens. The conveyance between the Town and the Trust was created to avoid potential future political conflicts. “The fear was that a future (town) council might agree to rescind the restrictions if just placed on the land by such council”¹⁹⁹ and thus the restrictions would be “more permanent if placed on the land” by a party land trust.²⁰⁰

The chapter also includes regulations for landscaping and dune vegetation, which encourage the use of native dune grasses, groundcovers, and shrubs. Non-native vegetation is prohibited seaward of the RS/RC-1 boundary line. The Town may approve the use of non-native vegetation where the 40-year setback is landward of the boundary line, but may require mitigation.

NEW YORK

The New York State Constitution calls for the preservation of wildlife habitat and the state Environmental Conservation Law (ECL) specifically protects wild animals, plants, and significant habitats through regulations issued and enforced by the State Fish and Wildlife Department. Municipal Home Rule Law’s broad grant allowing for regulation protective of the community’s physical environment arguably encompasses the protection of wildlife habitat.

To protect wildlife habitat, a community may create a natural resources inventory or biodiversity assessment and then develop a priority list of areas and habitat types for preservation. The American Planning Association (APA) recommends that planners maintain a dense core area of habitat surrounded by buffer areas that accommodate gradually increasing amounts of human activity.²⁰¹

Town of Brookhaven, NY: Critical Environmental Area and SEQRA Ordinance

The Town of Brookhaven implements critical environmental area designations along with SEQRA review procedures in a separate chapter of the town code.²⁰² Recognizing the value of the town’s “vast and precious natural and human environmental resources” and acknowledging intense development pressures, the town designates critical environmental areas and adopts lists of actions subject to environmental review. Actions requiring environmental impact statements include actions affecting certain agricultural areas, critical environmental areas, or open space, historic, or landmark resources. The Code designates the Brookhaven Coastal Zone Area as a Critical Environmental Area. As such, any proposed use or development in that area is considered a Type I action under SEQRA, so it has to meet the requirements of preparation and submission of a long environmental assessment form (LEAF). This submission would necessitate an examination of future sea level rise hazards.

¹⁹⁹ Email from Kent Prause, Senior Planner of Mt. Pleasant, SC to the Pace University Land Use Law Center (on file with the author).

²⁰⁰ *Id.*

²⁰¹ The APA’s Policy Guide on Endangered Species and Habitat Protection is available at <http://www.planning.org>.

²⁰² CODE OF THE TOWN OF BROOKHAVEN, NY, Ch. 80, available at <http://landuse.law.pace.edu/landuse/documents/laws/reg2/BrookhavenNYCriticalEnvironAreas.doc>.

Town of East Hampton, NY: Natural Resource Protection Ordinance

In its Natural Resource Protection Ordinance, the Town of East Hampton has identified for special protection tidal and freshwater wetlands; tidal waters and watercourses and near-shore areas; and beaches, dunes, bluffs, and their vegetation. Flooding, storms, siltation, and direct destruction of coastal resources are among the threats identified in the ordinance. The ecological benefits of tidal wetlands, freshwater wetlands, and beaches, bluffs, and dunes are described in detail, along with the benefits of beach vegetation. Setbacks and permitting are established for activities affecting these resources. Within 100 feet of any bluff or dune crest and within 150 feet of certain Atlantic coast bluffs and dune crests no construction of any sort is permitted. Construction is prohibited in nearshore areas and within the high-hazard (V-E) floodplain. Removing or damaging beach vegetation or replacing beach vegetation with sod or turf is prohibited.²⁰³

To make sure that residents treat ecological resources appropriately, the town streamlines the building permit process for any resident who will voluntarily agree not to build any structures within 150 feet of a wetland and to not disturb its upper edge. The streamlined application process creates an incentive for residents ready to build and has been a successfully embraced by the community.

c. OVERLAY ZONING

Overlay zoning is a flexible zoning technique that allows a municipality either to encourage or to discourage development in certain areas. An overlay zone is defined as a mapped overlay district superimposed on one or more established zoning districts. A parcel within the overlay zone will thus be simultaneously subject to two sets of zoning regulations: the underlying and the overlay zoning requirements.

The overlay district is most often thought of, and is sometimes defined, as a technique for conserving a fragile natural resource area. Overlay districts, however, have broad application in a variety of contexts. They can be used, for example, to accomplish the redevelopment or revitalization of shoreline community. Within a designated redevelopment overlay district, developers can be given a variety of incentives to redevelop substandard properties, rehabilitate substandard structures or site structures back from the shoreline. Overlay districts can, at the same time, be used to protect fragile shoreline ecosystems. For example, the locality can adopt a conservation overlay district in environmentally constrained waterfront areas and a development area overlay district along a transportation corridor or further landward. A simple strategy for achieving growth with sea level rise in mind is to identify one or two conservation overlay zones and one or two development overlay zones and implement them at the same time.

Chatham, Massachusetts: Conservancy Districts Overlay

The Town of Chatham's Conservancy Districts Overlay is intended to preserve groundwater, coastal waters, and habitat, and to "protect persons and property from the hazards of flood and tidal waters which may result from unsuitable development in or near swamps, ponds, bogs and marshes, along water courses or in areas subject to flooding, extreme high tides and the rising sea level." The Districts encompass "all the submerged lands along the coast of Town, and

²⁰³ CODE OF THE TOWN OF EAST HAMPTON, NY, Ch. 255 art.4.

areas subject to flooding,” including the FEMA-designated 100-year floodplain. Permitted activities include beach nourishment except in salt marsh areas or shellfish tidal flats; dune nourishment; non-structural bank and dune stabilization; and approved coastal engineering structures. The construction of residential dwelling units is prohibited in the district and no building may be constructed in FEMA-designated V and V1-30 Zones. Pre-existing structures and uses are subject to the zoning ordinance’s non-conforming use provisions.

South Kensington, Rhode Island: High Hazard Overlay

South Kensington’s high hazard overlay was adopted under the state statute allowing communities to regulate growth and development in areas subject to seasonal or periodic flooding and implements the state coastal program under the CZMA and the Federal Coastal Barrier Improvement Act of 1990.²⁰⁴ The Town of South Kensington Building Official issues building permits in accordance with the National Flood Insurance Act of 1968.

The Board may grant special use permits for construction in HFD Zoning Districts behind the fore-dune zone, which is the landward boundary marked by dipped sand dunes. The Board may require additional information before issuing a special use permit including a detailed map with extensive environmental information such as high and low tide levels, soil type, dunes and other natural protective barriers, existing flood and erosion control methods, and current drainage elevations and contours, as well as a detailed plan which lays out the proposed uses for the lot.²⁰⁵ Environmental Impact Statements (EIS) are required with special use applications and must include a description of the proposed use; the existing environmental setting including man-made, natural and physiographic features within 500 feet of the property line; all favorable and adverse environmental impacts of the proposed use; a statement of the expected flood hazard present on the site; the means and costs necessary to minimize the adverse impacts; and identification of any irreversible commitment or alteration of natural features as a result of the proposed action.²⁰⁶

The ordinance expressly disclaims liability for flood damage that occurs in reliance on these local regulations.²⁰⁷

Tillamook County, Oregon: Beach and Dune Overlay Zone

²⁰⁴ TOWN OF SOUTH KENSINGTON, RI, CODE, § 601. In its Findings of Fact, the ordinance describes the history of coastal flooding in Rhode Island and the protective functions of coastal barriers, and states: “The Town of South Kingstown amended its Zoning Ordinance to enable persons to submit applications to the Rhode Island Coastal Resources Management Council to request assent for residential development. This section of the Zoning Ordinance should not be construed as an intent on the part of the Town to foster development on coastal barriers, but rather to allow the Coastal Resources Management Council to promote its policies under its statutory authorization.” *Id.*

²⁰⁵ TOWN OF SOUTH KENSINGTON, RI, CODE, § 601.8. See also www.ri.gov; www.southkingstownri.com/index.cfm.

²⁰⁶ *Id.*

²⁰⁷ TOWN OF SOUTH KENSINGTON, RI, CODE, § 601.4. “The degree of flood erosion protection required by this article is considered reasonable for regulatory purposes and is based on scientific methods of study. Larger floods may occur. This Ordinance does not imply that areas outside the High Flood Danger Overlay District’s boundaries or land use permitted within such district will be free from flooding or flood damages. This Ordinance shall not create liability on the part of the Town of South Kingstown or any officer or employee thereof for any flood damages that result from reliance on this Ordinance or any administrative decision lawfully made thereunder.” *Id.*

Under Oregon's statewide planning program, the Land Conservation and Development Commission (LCDC) adopts the state's planning goals and rules, and approves comprehensive plans adopted by local governments in conformance with the state regulations.²⁰⁸ A local plan must address all applicable state goals. For coastal communities, Goal 7 (Areas Subject to Natural Disasters and Hazards), Goal 17 (Coastal Shorelands), and Goal 18 (Beaches and Dunes) are particularly significant.

Under Goal 7, the local plan must inventory areas subject to erosion, landslides, or flooding and must condition any building permits to protect against the identified hazards. Goal 17 calls for the establishment under the comprehensive plan of a coastal shoreland boundary that is generally 50 feet landward from the shoreline but may be greater if a specific resource is present. These resources include sites especially suited to water-dependent uses; mitigation and restoration sites; coastal hazard areas; riparian vegetation; significant habitats; public access; and areas of exceptional aesthetic value. Under Goal 18, local comprehensive plans must inventory beach and dune areas and must base any land use approvals on findings regarding a proposed development's impact on the natural environment, including the geology and stability of beach and dune landforms; dune erosion, accretion, and migration; flooding hazards; and significant habitat and vegetation.

Tillamook County, Oregon is highly vulnerable to ongoing coastal erosion, landslides, and sand inundation of permitted structures in the fore-dune areas of the coast. The county code incorporates a Beach and Dune (BD) Overlay Zone that implements Oregon's statewide Goal 18, requiring that development be prohibited in active dune areas subject to flooding and other natural hazards; that erosion and groundwater drawdown be minimized in coastal areas; and that only properties developed before January 1, 1977, the date in which Goal 18 became effective, may obtain permits for beachfront protective structures.

The BD Overlay is intended to regulate development so as to conserve, protect, and restore the values of coastal beach and dune areas and to reduce the hazardous effects of natural events or human actions in those areas.²⁰⁹ The county maintains an inventory of beach and dune landforms, based on U.S. Natural Resource Conservation Service maps, summarized in four categories:

- *Developed beachfront areas*, which are active fore-dune areas where an exception to Goal 18 allows development;
- *Fore-dune management areas*, which are active fore-dune areas where an exception to Goal 18 allows development and an approved management plan allows fore-dune grading;

²⁰⁸ ORS 197; ORS 215; ORS 227. The State of Oregon claims ownership of the Pacific shore "between ordinary high tide and extreme low tide, and from the Oregon and Washington state line on the north to the Oregon and California state line on the south." ORS 390.615. The state maintains a right of public access to the dry sand beach, finding that the public's "frequent and uninterrupted use of the ocean shore" since the nineteenth century has created a perpetual easement for public recreational use up to a statutory or established vegetation line—an easement that has been upheld by the courts. ORS 390.610; *State ex rel. Thornton v. Hay*, 462 P.2d 671 (1969).

²⁰⁹ TILLAMOOK COUNTY, OR, LAND USE ORDINANCE, § 3.085, *available at* <http://www.co.tillamook.or.us/Gov/ComDev/Planning/luo.htm> The ordinance specifies that standards and criteria of other code sections may apply in the BD Zone: among these are the Shorelands Overlay Zone, Estuary Zones, Geologic and Flood Hazard Zones, and water quality requirements. *Id.*

- *Resource protection areas*, which include beach and dune areas dedicated to resource protection or recreational use; and
- *Stabilized beach and dune areas*, which include conditionally stable areas, stabilized dunes, and coastal terraces, all of which are stabilized by vegetation.

Beachfront protective structures—“riprap and other revetments”—are permitted only in Developed Beachfront Areas and Fore-dune Management Areas of the BD Zone where development existed on January 1, 1977 or under exceptions to Goal 18. Proposals must demonstrate that there is the threat of ocean erosion or flooding; the development cannot be adequately protected by non-structural means; the protective structure will be placed as far landward as possible and will be angled into the bank to prevent flank erosion; that existing public access is preserved; and that specified construction standards are met.

Site development requirements prohibit draining or filling of significant deflation plain wetlands. Any development using groundwater resources must submit a hydraulic analysis report demonstrating that the withdrawal of groundwater will not cause the loss of stabilizing vegetation, a deterioration of water quality, or saltwater intrusion in water supplies. Land grading and drainage and erosion criteria protect steep slopes and vegetation.²¹⁰

City of Manzanita, Oregon: Fore-dune Management Overlay Zone

Manzanita, a city of 735 year-round residents in Tillamook County on Oregon’s northern coast has seven miles of ocean beach, which is subject to sand accretion in the coastline’s fore-dune area because of intense wave and wind action. Oceanfront homes have been inundated by sand, ocean views have been blocked, and beach access has been restricted because of accumulating sand.

Manzanita residents felt this sand inundation posed a particular threat and decided to supplement County BD Overlay Zone with local regulation. In the 1990’s, the residents formed a management association that worked with state agencies, and a private consultant to develop a management strategy, monitoring and maintenance programs, and an implementing ordinance to achieve Oregon’s Goal 18 requirements for sand grading to prevent inundation. Oregon’s Natural Hazard Technical Resource Guide cites Manzanita’s program as a unique, homeowner-based example “of proactive, area-wide planning that may be applicable to other areas of coastal hazards management.”

The goals of the Overlay Zone are the maintenance and enhancement of the natural protective functions of the fore-dune area; minimization of sand inundation and maintenance or enhancement ocean views; and the maintenance or enhancement of public recreational access

²¹⁰ *Id.* A Dune Hazards Report, similar to an environmental impact assessment, may be required for certain developments. It must include a preliminary site investigation to identify hazards and recommend development standards for buildable areas of the site or recommend a more detailed investigation. The preliminary report must include identification of dune landforms, location of perennial streams, and elevation and width of the fore-dune crest; a history of dune stabilization and of erosion or accretion in the area; general topography and base flood elevation; and recommended land grading practices. A detailed site investigation report must fully describe the extent and severity of identified hazards and include standards for development density and design; design of roads, driveways, and any required special foundations; and stormwater management. Both reports must identify hazards associated with the proposed development; find that the use “is reasonable protected from the described hazards for the lifetime of the structure; identify measures to protect the surrounding area from any hazards resulting from the development; and recommend periodic monitoring of necessary development standards. *Id.*

to the beach. The ordinance identifies four geographic management units covered by the overlay, and defines the overlay's landward boundary as the seaward "foundation of existing buildings and a direct line between [these] building foundations where there is no building."

Uses permitted outright in the four management units include sand transfer in and between units; vegetative stabilization and sand collection; and remedial grading and fore-slope shaping. In two of the management units, specified fore-dune grading is also permitted. Sand removal is prohibited in all management units unless otherwise approved by the city, and view grading is prohibited on individual lots or in areas not specified in the management plan.

View grading standards require that fore-dune management and grading must be part of an approved management unit subarea plan. This plan must describe the proposed work, identifying the location, scope, and timing of activities to be carried out and including plan views of existing conditions and proposed modifications in the subarea, as well as proposed monitoring and maintenance programs. Sixty percent of property owners in the subarea must approve the plan, which must also be submitted to the city for administrative review before any work is undertaken.²¹¹

Very few differences actually exist between the Tillamook overlay and the Manzanita overlay. Manzanita has adopted the majority of the Tillamook overlay provisions, while focusing specifically on the issue of sand stabilization and fore-dune breaching and grading. Both of the overlay classifications abide by Goal 18 and its exceptions for development in beach and dune areas. The city changes the Tillamook overlay's "Special Activities Permitted with Standards" into four outright permitted uses: public beach access, private beach access, fore-dune breaching and grading and vegetative sand stabilization. The most significant difference between the two overlays is Manzanita's view grading standards, which require an approved plan for fore-dune management and grading approved by sixty percent of subarea property owners and the city.

City of Monterey, California: Special Setback Overlay District

A Special Setback Overlay District allows the City of Monterey, California to increase setbacks along scenic roads and along the shoreline of Monterey Bay both "to protect natural resources and to achieve a visually pleasing relationship between buildings and the environment where they are located." The city's Planning Commission or the City Council may initiate the application of the overlay, which may be combined with any zoning district.

The District is established by the adoption of a zoning map amendment, together with the adoption of a Special Setback Map. A shoreline setback designates the required distance, in feet, "of all structures, including bulkheads, from the adjacent shoreline." The shoreline boundary is established by the City Engineer's designation of the NOAA Elevation 4.60 mean high tide line on the Special Setback Map.

City of Garibaldi, Oregon: Limited Use Overlay Zone

The City of Garibaldi's Limited Use Overlay Zone (LUO), adopted in 2006, is intended to allow the local government to regulate the timing and extent of development of individual parcels or to narrow the uses permitted on a parcel by the original underlying zoning. The overlay, as

²¹¹ CITY OF MANZANITA, OR, ZONING ORDINANCE, § 3.080 Beaches and Dunes Overlay Zone, § 4.050 Dune Construction Requirements.

applied, identifies the only use or uses from the underlying zoning that will be permitted on the parcel. Any application of the overlay must be in conformance with the city's comprehensive plan and must be designated on the city's official plan and zoning map.

Site plan approval is required to ensure that the permitted use is compatible with existing uses in the area and the order adopting the overlay may include specific site plan requirements. Unless expressly altered by the adopting order, all other underlying zoning requirements remain in effect.

The Garibaldi's overlay zone only covers general land uses overlay zone, as opposed to an overlay zone directed at a specific environmental or economic problem, it's generality allows the zone to address new problems or developing problems including sea level rise through the protection of wetlands, dunes, or other ecologically significant areas.

NEW YORK

Town of East Hampton, NY: Coastal Erosion Overlay District

Adopted in April 2007, the Town of East Hampton's coastal erosion overlay regulates the construction and alteration of shoreline protective structures.²¹² The overlay was adopted in lieu of Coastal Erosion Hazards Area legislation that had been debated by the town for several years and implements policies of the town's Local Waterfront Revitalization Plan.²¹³

The overlays district establishes four coastal erosion zones to protect the natural shoreline, defined by physical and ecological features.²¹⁴ In Zones 1, 2, and 3,²¹⁵ which are all ocean or bay coast-side, the construction of new coastal erosion structures is prohibited. In Zone 4, where many erosion structures exist, a special permit is required to construct or alter any erosion control structure. The repair or construction of structures perpendicular to the shore is also prohibited, unless the alteration would reduce the size of an existing perpendicular structure or provide other environmental benefits. If a landowner desires to take such action, he or she may apply for an expedited permit (Emergency Repair Building Permit) contingent on an agreement to use suitable materials, such sand from dredging, in the alteration. The process has allowed the town to eliminate unnecessary bulkheads in the district and provided local landowners with expedient relief from erosion.

Village of Pittsford, NY: Performance Zoning Overlay District

To protect its environmental and other open-land resources, the Village of Pittsford, has adopted an innovative performance zoning overlay, which may be applied in any area where conventional space, bulk, and use regulations of the underlying zoning are inadequate to protect "the unique qualities characterizing the Village's open lands."²¹⁶ The overlay may be applied to

²¹² TOWN OF EAST HAMPTON, N.Y., CODE, Ch. 255: Zoning § 255-3-80.

²¹³ See Joanne Pilgim, *Town Okays Erosion Law Just Before Storm*, East Hampton Star (Apr. 19, 2007).

²¹⁴ TOWN OF EAST HAMPTON, N.Y., CODE, § 255-3-80. The district encompasses land and the underwater area 200' inland from the mean high water line of any tidal waters within the town; seaward of the mean high water line to a point 1000' feet seaward of the mean low water line; or seaward of the mean high water line to a contour line where the mean low water depth is 15 feet. *Id.*

²¹⁵ Zone 1 covers ocean coast; Zone 2 covers bay coast, and 3 covers bay coast with existing isolated or discontinuous erosion control structures. *Id.*

²¹⁶ CODE OF THE VILLAGE OF PITTSFORD, NY, Ch. 210, art. XIII.A.

properties of one acre or more of undeveloped and/or open land and a conditional use permit must be approved by the planning board and accepted by the board of trustees before a building permit may be issued for any proposed use.

The proposed project must meet or exceed two or more of the following four criteria:

- it must result in a lower density or intensity of use than the underlying zoning;
- it must propose a use more compatible with the “surrounding context” than the underlying zoning;
- it must preserve natural and other resources to a greater extent than the underlying zoning;
- and/or it must be necessary to maintain an agriculture-related use.

Standards for the overlay district include conformance with the design standards of the Village’s Local Waterfront Revitalization Program, the provision of wetland buffers, the use of conservation easements to preserve natural resources, and standards for the Erie Canal corridor within the Village.

d. NON-CONFORMITIES

Nonconforming uses are created when zoning changes prohibit existing land uses that were valid when they were established. Preexisting land uses that do not conform to the modified zoning are allowed to continue for a time, but are not favored. The right of municipalities to adopt reasonable measures to eliminate non-conforming uses has been recognized.

Regulations regarding these uses are normally found in a discrete article of the local zoning law, entitled “Nonconforming Uses.” That article will prohibit or limit changes in buildings and lot uses that are nonconforming and will provide for the termination of nonconforming uses in a variety of ways, such as (1) simply terminating them after the passage of a stipulated amount of time, (2) limiting their expansion or enlargement, (3) disallowing the reestablishment of nonconforming uses after they have been discontinued for a time, or (4) prohibiting the reconstruction of damaged structures.

City of Manzanita, Oregon: Nonconforming Uses

The Manzanita, Oregon Zoning Ordinance²¹⁷ allows for variances in cases of “practical difficulty and unnecessary hardship,” allowing a nonconforming use or structure to be enlarged up to 20% in floor area, or, if there is no structure, up to 10% in land area. Conformity to another law, such a pollution control, may also trigger a variance.²¹⁸ Further, the extension of a nonconforming use “to a portion of a structure which was arranged or designed for” that use at the time of the ordinance’s adoption is not considered an enlargement or extension of the use.

A destroyed structure must be returned to use within one year, or any future use or structure on the site must conform to the ordinance. A structure is considered destroyed if it is damaged “by any cause to an extent exceeding 80% of its fair market value.” If a nonconforming use is

²¹⁷ MANZANITA, OR, ZONING ORDINANCE # 95-4, § 7. A non-conforming use is a “lawful existing structure or use at the time this Ordinance or any amendment thereto becomes effective, which does not conform to the requirements of the zone in which it is located.” *Id.*

²¹⁸ *Id.*

discontinued for one year, any further use of the property must conform to the Zoning Ordinance.

A 2006 amendment to the ordinance requires that a structure conforming to use but not to the current ordinance's height, yard requirements, lot coverage, equipment, location on the lot, or other regulations cannot be altered or enlarged except in conformance with the current ordinance. If the structure is moved "for any reason and by any distance" it must conform to the current zoning regulations.

Town of Duck, North Carolina: Non-Conformities

The Town of Duck requires that non-conforming structures "destroyed by any means to an extent more than 50% of its replacement cost" can only be reconstructed in conformity with current regulations.²¹⁹ On lots adjacent to the Atlantic Ocean, non-conforming structures may be moved only if the movement "does not increase the non-conformity in any way." A non-conforming principal single-family residential structure that suffers documented casualty loss may be replaced if the construction does not create new non-conformities and is in conformance with National Flood Insurance Program requirements, with town natural hazard mitigation requirements, and with state and federal wetlands and environmental requirements.

A shortcoming to the ordinance is the financial burden that it places on the Town. If a non-conforming use is destroyed by more than 50% and the homeowner does not wish to rebuild in conformity with current regulations, the Town must assume 100% of the upfront costs to demolish such a building. This cost comes immediately out of the tax pool and, once spent, it can only be recouped by insurance after a specified period of time.

NEW YORK

The New York zoning enabling statutes make no express reference to the authority of local governments to allow the continuation of nonconforming uses. The statutes, however, implicitly authorize local legislatures to adopt reasonable measures to protect the legitimate investment expectations of owners of developed land.²²⁰ "[M]unicipalities in New York are free to seek solutions of the nonconforming-use problem which seem feasible under their particular local circumstances ... They are limited only by the reach of their general zoning powers and the constitutional limitations which protect existing uses of land."²²¹

Village of Westhampton, NY: Municipal Code

The Village of Westhampton's Zoning Ordinance provides that a nonconforming use may only be reconstructed or altered by way of a special exception permit from the Zoning Board of Appeals. Any enlargement, extension or expansion of a nonconforming structure is prohibited. All exemption permits are conditioned upon the demonstration of certain conditions including the absence of any change in the character of the nonconforming use except in the reduction of nonconformity; compliance with all district dimensional requirements including building area, required yards and building height, except as to any dimensional requirements which caused all or part of the nonconforming use; and a requirement that "any change shall be beneficial to the general neighborhood." The ordinance mandates that whenever a nonconforming use has been

²¹⁹TOWN OF DUCK, NC, CODE, § 156.070.

²²⁰ See Salkin, *New York Zoning Law and Practice*, § 10:04.

²²¹ *Id.*

substantially discontinued, it may not be reestablished and that any future use of the property must be in conformity with applicable zoning.²²²

e. SITE CAPACITY/PERFORMANCE STANDARDS

Natural resource performance standards are based on the capacity and suitability of a site to sustain new development. Local municipalities may analyze local site conditions on developable property to determine the extent or type of development the site can or should sustain based on its unique conditions.

Beaufort County, South Carolina: Resource Protection, Site Capacity and Open Space Ordinance

The Beaufort County Resource Protection, Site Capacity and Open Space Ordinance recognizes that natural systems “are self-balancing, provided enough of the system is left in a functioning condition. A system’s health or function can be measured by its habitat quality and species diversity.” To prevent the destruction of natural resources through inappropriate development, the ordinance establishes natural resource performance standards and requires new developments “to conduct a site capacity analysis which regulates the maximum intensity based on actual site conditions.” The analysis “ensures that the public health, safety, and welfare are protected by preventing development from exceeding the site’s resource capacity to sustain the development.”

The ordinance identifies protected resources and requires that “all or a percentage of the resource be reserved as open space and left undisturbed by any development.” Protection levels for the resources are expressed as “the decimal value or percentage of the resource that is to remain permanent open space.” Beach-dunes, river buffers, and endangered species areas in any district, for example, require a 1.00 level of protection, or 100% open space. The ordinance describes a required six-step site capacity analysis based on physical conditions, hazards, and natural resources on site. Performance standards and mitigation requirements are established for tidal and non-tidal wetlands and for beach-dunes and river buffers. Primary dunes and dune vegetation are protected from disturbance, and the requirements of the ordinance must be included as covenants and restrictions for all subdivision development that contains beach-dune areas on the seaward side of barrier islands.

Seattle, Washington: Standards for Natural Beach Protection

Seattle’s Land Use Code encourages “the design and use of naturally regenerating systems for the prevention and control of beach erosion” where the protection is “a reasonable solution to the needs of the specific site where it is proposed.”²²³ These systems include gravel berms and beach nourishment if appropriate, and planting “with short-term mechanical assistance.”²²⁴ Natural beach protections must not interfere with littoral drift or cause waves, currents, or sediment to affect other shorelines. The property owner is responsible for maintenance of the protective systems. Related provisions establish standards for bulkheads and for breakwaters and jetties. Bulkheads may not “detrimentally redirect littoral drift, waves currents or sediments

²²² TOWN OF WESTHAMPTON, NY, MUNICIPAL CODE, § 197-29.

²²³ SEATTLE, WA, MUNICIPAL CODE, § 23.60.186.

²²⁴ *Id.*

to other shores.”²²⁵ Breakwaters and jetties may be authorized only for water-dependent uses. Floating breakwaters are preferred. Solid breakwaters may be used “only where design modifications can eliminate potentially detrimental effects on the movement of sand and circulation of water.”²²⁶

NEW YORK

Site Capacity and Performance Standards are not generally used in New York, but could be a very useful tool if implemented by local governments.

f. COASTAL WETLAND REGULATIONS

Federal programs discourage destruction of most existing coastal wetlands but do little to allow wetlands to migrate inland. North Carolina, Maryland, New Jersey, and New York own the tidal wetlands below the Mean High Water while Virginia, Delaware and Pennsylvania have enough ownership interest under the Public Trust Doctrine to preserve coastal wetlands. However, there are no federal programs restricting development on shore property to allow the migration of wetlands inland.

Buffers may be created to protect swaths of area around resources that are critical to sea level rise mitigation including wetlands. Preserving land along the shoreline allows wetlands and beaches to migrate inland. Preserving land around wetlands protects the natural stormwater and floodwater control properties of these resources. Currently, neither federal nor state regulations encourage developers to create buffers that might enable wetlands to migrate inland.²²⁷ Further, only a few coastal counties and states have decided to keep shorefront farms and forest undeveloped.²²⁸ Only Maine, Massachusetts, and Rhode Island have statutes or regulations that explicitly recognize the risk posed by sea level rise through the restriction of shoreline armoring to enable dunes or wetlands to migrate inland.²²⁹

Town of Falmouth, Massachusetts: Wetlands Regulations

The impacts of accelerated sea level rise are explicitly addressed by the Town of Falmouth’s extensive wetlands regulations, adopted by the Falmouth Conservation Commission under the authority of the town’s wetlands ordinance.²³⁰ The wetland ordinance and regulations identify specific resource areas for protection, including coastal wetlands, beaches, dunes, and marshes; the ocean; land subject to tidal action, flooding, inundation, or coastal storm flowage; and any land within 100’ of the protected resource areas.

In discussing permitting for projects to control coastal erosion, the regulations emphasize the dynamic nature of coastal ecosystems and the adverse effects that groins, jetties, and other

²²⁵ *Id.*

²²⁶ *Id.*

²²⁷ U.S. Climate Change *Science Program, Coastal Sensitivity to Sea Level Rise: A Focus on the Mid-Atlantic Region*, at 505 (2009), <http://www.climatescience.gov/Library/sap/sap4-1/final-report/default.htm>.

²²⁸ *Id.* at 444-45.

²²⁹ *Id.* at 481. See 06-096 Code of Maine Rules, § 355(3)(B)(1) (2007); 310 Code of Massachusetts Regulations, § 10.30 (2005); Rhode Island Coastal Resource Management Program §210.3(B)4 and §300.7(D) (2007).

²³⁰ FALMOUTH, MA, CODE, ch. 235 (2008); FALMOUTH WETLANDS REGULATIONS, FWR § 10.00 (2008).

engineered structures have on coastal resources. The regulations require wildlife habitat evaluations, resource area buffers, and mitigation and restoration measures based on scientific analysis of site conditions and ecological functions. The regulations set out detailed science-based findings to support the requirements.

Coastal wetland regulations protect land under the ocean and under estuaries; coastal beaches, including tidal flats; coastal dunes, including not only dune shape, volume, and vegetative cover but also the dunes' ability to respond to erosion and to migrate landward; barrier beaches; coastal banks; rocky intertidal shores; salt marshes; land under salt ponds; and land supporting shellfish and fish populations. Regulations for land subject to coastal storm flowage include relative sea level rise considerations, requiring special protection for coastal floodplains immediately landward of salt marshes, coastal beaches, dunes, banks, and barrier beaches. The regulations call for planning for relative sea level rise of one foot per 100 years in FEMA-designated A-zones and two feet per 100 years in V-zones. Performance standards are established to take into account relative sea level rise and landward migration of resource areas. Regulations for the Black Beach/Great Sippewissett Marsh area of critical planning concern include detailed discussions of the impacts of accelerated sea level rise on a particularly vulnerable coastal resource area.

Barnstable, Massachusetts: Performance Standard for Wetland Buffers

The Conservation Commission of the Town of Barnstable has enhanced its wetland buffer regulations to include an undisturbed buffer zone of natural vegetation between wetland resource areas and a limitation on site disturbance, noting that “*only* the relative rate of increase in sea level is being debated, not the tendency to sustained increase in the centuries ahead.”²³¹

Setbacks of 35 feet from wetlands and 50 feet from coastal areas and inland great ponds operate within a 100 foot buffer zone landward of such areas (when activity may elicit a deleterious resource area impact). The uniform provision of an undisturbed setback zone serves to insulate wetland resource areas from adverse impacts stemming from development elsewhere in the buffer zone.²³² In cases where the slope of an undisturbed setback exceeds 18%, or in any instance where the scope or nature of the project is likely to require a greater spatial offset to wetland resource areas, the Commission reserves the right to increase setbacks to a more suitable dimension.

City of Olympia, Washington, Critical Area Buffers

The Olympia, Washington's Critical Areas ordinance, adopted under the requirements of Washington's Growth Management Act, includes among its purposes regulating development to protect critical areas and functions; avoiding alteration of natural stream flow patterns so as to protect natural systems of flood control and stormwater storage; and protecting the public against avoidable losses from subsidizing public mitigation of avoidable impacts and from the cost of emergency and relief operations.²³³

²³¹ TOWN OF BARNSTABLE, MA, CODE, Ch. 704: Wetlands Buffer Zone Activity. The Commission concluded that “In the face of the scientific concern over the acceleration of the rate of sea level rise, and so that upland-induced impacts to coastal resource areas may be minimized, the imposition of a flanking undisturbed buffer zone is found both advisable and necessary.” *Id.*

²³² Finding that the town's coastline has “long provided an active interface for the power of the sea and the buffering capacity of its coastal landforms (marshes, beaches, dunes, and banks).” *Id.*

²³³ CITY OF OLYMPIA, WA, UNIFIED DEVELOPMENT CODE, § 18.32 Critical Areas.

The ordinance establishes mitigation priorities, and includes 250 foot buffers for streams and important riparian areas, and a scale of variable wetland buffer widths, ranging from 50 to 300 feet, following the Washington State Wetland Rating System for Western Washington. The rating system was established in 2004 and divides wetlands into four categories:

- Category I wetlands are the most rare and require the most protection;
- Category II occur more common but still require a high level of protection;
- Category III are smaller and less diverse than Category II wetlands;
- Category IV though they provide the fewest amount of practical functions still qualify for some protection.

Factors that distinguish wetlands for classification are their prevalence, the amount of past alteration, functionality, ease of replication, and sensitivity to disturbance.

NEW YORK

In New York, wetlands on private property may be regulated through federal, state, or local law.

A.) Federal Regulation -

The federal Clean Water Act authorizes the Army Corps of Engineers and the Environmental Protection Agency to regulate designated wetlands throughout the country.

B.) State Regulation -

New York State, through the Freshwater Wetlands Act, has authorized its Department of Environmental Conservation (DEC) to regulate wetlands of 12.4 or more acres, and smaller wetlands of unusual local significance. Outside of New York City, the state requires a minimum 22.9-meter (75 foot) buffer around tidal wetlands to allow migration, while outside of this buffer additional development and shoreline protection are permitted.²³⁴

C.) Local Regulation -

Local governments can elect to replace the DEC as regulator of wetlands within their jurisdiction, as long as the local regulations are at least as protective of the wetlands as the state regulations. However, most local wetlands regulations in New York are enacted under the authority of the Municipal Home Rule Law. Home Rule allows municipalities to adopt laws protective of a community's "physical and visual environment" and for the "safety, health, and well-being of persons or property" within the community's jurisdiction. Under this authority, wetlands of any size may be regulated. Local regulations adopted under home rule authority are concurrent with DEC regulations, and landowners must comply with both sets of standards separately, as well as with applicable federal requirements.

Local governments in New York may also protect wetlands by regulating the review and approval of development applications. Subdivision, site plan, and special permit regulations may contain special standards or conditions protective of wetlands. Some localities also protect

²³⁴ The state has jurisdiction up to 300 feet beyond the tidal wetland boundary in most areas but only 150 feet in within the City.

wetlands by adopting floodplain, erosion and sedimentation, timber harvesting, or clearing and grading regulations or by designating sensitive areas for overlay protection.

Tidal Wetlands -

Tidal wetlands are separately protected under the New York's Environmental Conservation Law (ECL). Tidal wetlands are "areas which border on or lie beneath tidal waters," including "those areas now or formerly connected to tidal waters." They include "all banks, bogs, meadows, flats and tidal marsh subject to such tides" and are characterized by certain types of vegetation.

The Department of Environmental Conservation inventories New York's tidal wetlands and the ECL forbids dredging, filling, construction, and other activities within or immediately adjacent to inventoried tidal wetlands "which may substantially alter or impair the natural condition of the tidal wetland area."

The DEC may enter into cooperative agreements with local governments for the protection of tidal wetlands. Such agreements must provide that the wetlands "be preserved or maintained in their natural or enhanced state" except for local operation or lease of shellfish beds.

Town of East Hampton, NY: Coastal and Wetland setbacks and buffers

The Wetland Setbacks provisions of East Hampton's Natural Resource Protection ordinance provide wetland setbacks for all areas of the town. Construction is prohibited within a wetland; sewage disposal devices must be set back 150 feet from the upland boundary of a wetland; turf may not be established nearer the upward boundary than 50 feet; and coastal setbacks of 100' to 150', from bluff lines or dune crests, are created in addition to primary and secondary setbacks, feet are established. Where multiple setbacks may affect a property, compliance with each setback is required, unless the landowner can show non-feasibility.²³⁵

Village of Sagaponack, NY: Wetlands and Tidal Wetlands and Ocean Beach Overlays

The Village of Sagaponack's Wetlands, Tidal Wetlands and Ocean Beach Overlays were established to achieve a no overall net loss of wetlands remaining in the village. The ordinance implementing the overlays recognizes the ecological importance and complexity of wetlands and the need to integrate wetland protections with other local regulations.

In particular, the regulation seeks to protect against the economic impacts of wetland loss and erosion. The provision specifically restricts activity in structural hazard, near-shore, beach, dune, and bluff areas. Structural hazards areas include "those shorelands located landward of natural protective features. . . which recede at a long time average recession rate of one foot or more per year."²³⁶ Bluffs are defined as banks or cliffs that have precipitous or steeply sloped faces adjoining a beach or body of water and which "protect shore-lands and costal development by absorbing destructive energy of open water."²³⁷

g. DENSITY RESTRICTIONS/GROWTH MANAGEMENT

²³⁵ TOWN OF EAST HAMPTON, NY, CODE § 255-4-30.

²³⁶ VILLAGE OF SAGAPONACK, NY CODE, § 42-6 Definitions

²³⁷ *Id.* § 42-6 Definitions; § 42-14 Bluff Area Restrictions

The adoption of state zoning and planning enabling acts evidences a policy of delegating much of the responsibility for managing private land development to the local or county level of government. “State growth management legislation” refers to additional statutes that provide further guidance to, or impose limitations on, local land use authority.

A common approach to growth management is for the state to define growth boundaries or to provide model comprehensive plans that local governments must consider or emulate. Other state statutes may create regional land use review boards to which specified local decisions can be referred; regional agencies that exercise extraordinary power over a single area; or programs designed to obtain local compliance with one or more state growth management objectives.

Localities implementing growth management and density restrictions must ensure that the local plans do result in the complete exclusion or prohibition of growth. A locality may accommodate growth in a manner that protects local resources through diversionary tactics that funnel the growth away from sensitive areas but may not permanently freeze growth in the locality.²³⁸ Density restrictions may utilize development district to direct the growth away from fragile resource areas to areas where development can be better accommodated.

Worcester County, Maryland: Atlantic Bays Critical Areas Ordinance

The Atlantic Coastal Bays Critical Area is designated as the land within 1000 feet of the head of either the tide or tidal wetlands. The ordinance sets out three levels of development density that are permissible within this critical area. The Intensely Developed Area (IDA) is where residential, commercial, institutional, and/or industrial uses predominate and where relatively little natural habitat occurs or remains. The Limited Development Area (LDA) is currently developed in low or moderate-intensity uses and contains areas of natural plant and animal habitats. The Resource Conservation Area (RCA) is characterized by natural environments and supports resource utilization activities like agriculture and forestry.

Seattle, Washington: Shoreline Environment Districts

Seattle’s Municipal Code divides its Shoreline District into 11 environments based on resource protection, use, and existing densities of development. Conservancy Districts are established for Navigation; Preservation; Recreation; Management; and Waterway. Urban environments are Residential; Stable; Harborfront; Maritime; General; and Industrial. Each environment is defined by purpose and locational criteria. The Conservancy Management purpose clause states, for example: “While the natural environment need not be maintained in a pure state, developments shall be designed to minimize adverse impacts to natural beaches, migratory fish routes and the surrounding community.”²³⁹

NEW YORK

In New York, phased growth management has been found to be an implied power of the local legislature. In the leading state court case sustaining local growth management ordinances, *Golden v. Ramapo*, 30 N.Y.2d 359 (1972), New York’s highest court referred to subdivision control as a mechanism “to guide community development in the directions outlined here, while at the same time encouraging the provision of adequate facilities for the housing, distribution, comfort and convenience of local residents.”

²³⁸ See *Golden v. Planning Bd. of Ramapo*, 30 N.Y.2d 359, 334 N.Y.S.2d 138, 285 N.E.2d 191 (1972).

²³⁹ SEATTLE, WA, MUNICIPAL CODE, § 23.60.220.

Local comprehensive plans may identify areas suitable for development and areas where the community chooses to limit development and local zoning can regulate these areas where development is or is not desired.

Town of Perinton, NY: Limited Development Districts

The Town of Perinton’s Limited Development Districts (LDD) ordinance states that “different areas are intrinsically suited for different types and intensities of development.” The ordinance characterizes LDD districts by soil, vegetation, terrain or slope, and hydrology. Relying on a planning inventory and with the advice of its Conservation Board, the town may limit development in areas with slopes greater than 15%; areas within the 100-year floodplain; areas prone to inundation or with a high water table; areas of unstable soils; and stream corridors as classified by the NYS DEC in 6 NYCRR part 701.

The LDD regulations supersede existing area, setback, and density regulations in these environmentally sensitive areas. The ordinance sets out permitted and conditional uses for LDDs, and states that further mitigation measures or conditions may be required for project approval in light of the LDD’s value “in protecting water quality, habitat, protection from erosion, and effect on the overall site drainage.”²⁴⁰

h. TRANSFER OF DEVELOPMENT RIGHTS

Where authorized by state law to do so, localities can provide for the transfer of the right to develop property under current zoning provisions from one part of the community to another. Voluntary, market-based transfer of development rights (TDR) programs offer protection for sensitive coastal resources by directing needed development away from the resource, designated the “sending” area, and siting it in an appropriate “receiving” area, where increased density of development can be accommodated.²⁴¹ When a TDR credit is purchased from a property owner in the sending district, that property owner records a deed restriction prohibiting development on the property. The TDR credit can then be applied to property in the receiving district as a density bonus.

Among the “essential elements” of an effective TDR program are:

- A clear and valid public purpose.
- Clear designation of sending and receiving areas.
- Consistency of the TDR program with the local comprehensive plan.
- Recording of development rights through a conservation easement.
- Uniform standards for development rights.
- Sufficient planning in the receiving area for adequate public facilities and for sufficient allowable density to make development economically viable.²⁴²

Collier County, Florida: TDR Program & Overlay Zone

²⁴⁰ TOWN OF PERINTON, NY, CODE, Ch. 208, art. VIII.

²⁴¹ See NOAA OCRM, *Transfer of Development Rights Program Case Study*, at http://coastalmanagement.noaa.gov/initiatives/shoreline_ppr_tdr.html.

²⁴² *Id.*

Collier County's TDR program created a Special Treatment Overlay Zone for 80% of the county. A property owner in the sending area must establish a conservation easement or deed the land for county management. In the receiving area, a density cap was established, preventing density from exceeding 20% of that provided for in the zoning. There were already adequate development opportunities under the receiving areas' existing zoning and thus the demand for development credits was low. Nevertheless, Collier County expanded its TDR program and, as of April 2008, had 3,450 acres of sending land in recorded development right limitation.²⁴³

Hillsborough County, Florida: TDR Ordinance

Hillsborough County's TDR ordinance is intended to establish a market-based approach to the preservation of environmentally sensitive lands and resources. Noting that development of sensitive lands may be regulated by reasonable local restrictions, the ordinance states that the TDR process "provides a vehicle to enable the private market to allocate economic benefits to landowners in the restricted areas, thereby enhancing the viability of businesses in the sending areas and avoiding potential legal disputes between the private landowners and the County."

The TDR ordinance authorizes the transfer of 100% of development rights in a sending area to eligible receiving areas identified in the county comprehensive plan or a community plan. Land in environmentally sensitive areas must be placed under a recorded permanent conservation easement running in favor of the county. Applicants for transfer must agree that they and their successors in interest will be bound "to maintain the pattern of development proposed in such a way that for the area of application as a whole there will be conformity with applicable zoning regulations," with enforcement running to the county.

Maryland: TDR Survey

A 2007 survey by the Eastern Shore Land Conservancy found that Maryland has established some of the nation's most successful TDR programs, protecting almost 68,000 acres of farmland, forest, and natural land.²⁴⁴ Common features of Maryland's successful programs include:

- Large or multiple receiver areas provide bonus density for using TDRs that significantly exceeds base zoning density.
- Demand for TDRs and total supply of TDRs are carefully balanced.
- County policy requires the use of TDRs for increasing zoning density in receiver areas.
- Permanent easements protect sending sites.²⁴⁵

The survey reports that TDRs are also more likely to succeed where the real estate market is robust; where the county has strong comprehensive planning policies that support TDR; where the TDR program is simple, efficient, and predictable, and has broad public support.²⁴⁶

Environmental constraints can limit TDR projects. The survey reports that in Dorchester County, where half the county is located in the state's Critical Area, the land is "under six-foot elevation, with high water tables or wetlands that would not support TDR densities without sewage

²⁴³ See Collier County, FL, TDR Program, at <http://www.colliergov.net/Index.aspx?page=270>.

²⁴⁴ Eastern Shore Land Conservancy, *The Feasibility of Successful TDR Programs for Maryland's Eastern Shore*, at 1 (January 2007).

²⁴⁵ *Id.*

²⁴⁶ *Id.* at 2.

treatment.”²⁴⁷ Further “[m]ore than 30% of the county is permanently preserved by federal and state landholdings or permanent easements and much of the remaining farmland cannot be developed because of soil and water table limits.”²⁴⁸

Among the survey’s recommendations are the adoption of state legislation providing review, guidance, and technical assistance for county TDR programs, such as New Jersey has implemented; and the establishment of county policies to use TDRs “for any upzoning to increase density for new development projects,” as Calvert, Montgomery, and Charles Counties have done.²⁴⁹

Town of Ocean City, Maryland: Beach Transfer Overlay Districts

Ocean City is one of the most intensely developed sites on the Maryland coast. The State of Maryland recognized that Ocean City lacked resources for condemnation through eminent domain of beach properties whose functions had been greatly diminished through erosion, and thus authorized a beach replenishment project, which Ocean City implemented through a transfer of development rights program. The 1993 TDR ordinance sets out findings on the ecological and economic importance of the ocean beach to the city and the state, and establishes beach transfer sending and receiving districts.

Through this program, one development right is awarded for every 500 square feet of land area in the sending district. Time limits were set for registration for the program. Special conditions apply to the use of rights for hotel or motel development in the receiving district. Development rights used in a project are associated with that project in perpetuity and cannot be used again. In total there were 312 rights issued and as of today, there are less than 100 left to be applied to the receiving district.

NEW YORK

New York statutes authorize municipalities to establish TDR programs in conformance with a comprehensive plan: “The purpose of providing for transfer of development rights shall be to protect the natural, scenic or agricultural qualities of open lands, to enhance sites and areas of special character or special historical, cultural, aesthetic or economic interest or value and to enable and encourage flexibility of design and careful management of land in recognition of land as a basic and valuable natural resource.”

The Central Pine Barrens TDR Program, Long Island, NY:

In eastern Long Island, New York, a TDR program was created to protect the Central Pine Barrens, an environmentally fragile and resource-rich area encompassing over 100,000 acres. Faced by requests for over 220 development projects in the area and stymied by time-consuming and costly litigation over their environmental impacts, the towns, landowners, developers, citizens, and environmentalists joined together to develop a plan, including the use of TDR, to preserve a core area of about 55,000 acres.

The Long Island Pine Barrens TDR program was modeled after the New Jersey Pine Barrens program. It was established under state legislation adopted in 1993 and is implemented under

²⁴⁷ *Id.* at 3.

²⁴⁸ *Id.*

²⁴⁹ *Id.* at 4.

a comprehensive land use plan adopted in April of 1995. Several municipalities with jurisdiction over the Pine Barrens area are involved in the program. The comprehensive plan allocates Pine Barrens credits to land in designated sending districts based on their development yield. Under the zoning law, land in the sending district may not be developed. Instead, that applicable zoning is used to determine the development rights that may be transferred. The development yield varies according to the number of units the zoning law permits per acre. If zoning permits four units per acre, the development yield factor established is 2.7, yielding that number of credits.

The comprehensive plan establishes overlay districts into which development rights can be transferred. If a developer purchases one credit, he will be able to build one unit above the density allowed in a receiving district. Overall, the receiving areas are structured to provide a demand for credits in the receiving sites that exceeds the number of credits created in the sending sites by a ratio of 2.5 to 1. This ratio was calculated to create sufficient competition to insure an active market for the development credits in the sending districts. The state legislation creating this program established a TDR bank, funded by an allocation of five million dollars to provide an initial market for the credits. The bank is authorized to purchase credits from owners in sending districts and sell them to owners in receiving districts.

Town of Brookhaven, NY: TDR Ordinance

The Town of Brookhaven adopted a TDR ordinance in 2005 to further the objectives of the town's comprehensive plan and its open space and farmland protection program. A Transfer of Development Rights Clearinghouse is established "to be used by the Town exclusively for the acquisition, holding and management and disposition of interests or rights in real property pursuant to this article." The town board is authorized to acquire real property, establish the value of transfer credits, and assemble appropriate building sites or areas. The planning board is authorized to investigate and make recommendations on the acquisition of land.²⁵⁰

i. REGULATORY AGREEMENTS

Regulatory or Development agreements occur between a municipality and a private party, and may serve to limit the right of the municipality to apply new land use regulations to a project that is already in progress or may streamline the development review process, in exchange for specified concessions by the developer.

Barnstable, Massachusetts, Regulatory Agreements Ordinance

Barnstable's Regulatory Agreement ordinance allows the Town and/or the Cape Cod Commission to enter into a development agreement with a qualified applicant for land use approvals within a mapped district. The agreement establishes, but is not limited to, terms for impact fees or transfer of development rights. The agreement is negotiated by the planning board and must be approved by the board and the town council before being executed by the town manager.

Proffers by the applicant may include land dedication and/or land preservation or other benefits that preserve community character and natural resources. The town's proffers may include streamlining of the development review process or protection from future changes in local

²⁵⁰ TOWN OF BROOKHAVEN, NY, CODE, Ch. 85 Zoning, art. XXXVA.

regulations. Where a development is determined to be of regional impact, the Cape Cod Commission must be a party to the agreement.²⁵¹

NEW YORK

New York has no statutory provision allowing municipalities to enter into binding agreements with a developer to secure the developer's vested rights in a project. Local governments may, however, enter into development agreements through their home rule authority under the Municipal Home Rule Law and Statute of Local Governments. Development agreements specify how the locality will conduct the process of reviewing the project, provide zoning incentives, and otherwise support the project, in compliance with state law. At an appropriate point in the process, the locality may declare that the developer's rights to proceed are vested.

j. BUILDING STANDARDS, SITE PLANS AND SUBDIVISION INFRASTRUCTURE

Regulations providing structural requirements can directly respond to sea level rise through the implementation of mitigating structural features in nearshore development such as increased setbacks and building elevation, the creation of onsite stormwater control, and the maintenance of natural vegetation.

South Kingston, Rhode Island: The High Hazard Overlay District Standards

South Kingston, Rhode Island's High Hazard Overlay District establishes building and setback standards and requirements for special permits and environmental review in the overlay district. The Board may grant special use permits for uses or structures, construction or certain alterations behind the fore-dune zone. In addition to the requirements of the ordinance, building permits under the National Flood Insurance Program are required for development in high hazard zones.

The City of Bellingham, Washington

In 2008 Bellingham, Washington issued a Draft Environmental Impact Statement for its New Whatcom Development District that assumes 2.4 foot SLR in Bellingham Bay by 2100 and recommends raising site grades as mitigation.²⁵²

Olympia, Washington: Low Impact Development and Cluster Development

The Green Cove Creek watershed, on the shore of Puget Sound, is protected by regulations requiring low impact development techniques—narrow streets, small building footprints, on-site control of stormwater runoff—and by the city's extensive tree regulations, one of its earliest responses to climate change.²⁵³ The tree ordinance's purpose clause describes the ecological importance of preserving trees and other vegetation in an undisturbed and natural condition, and the "positive impact" of trees and woodland growth on global climate change. Under the

²⁵¹ TOWN OF BARNSTABLE, MA, Code, Ch. 168.

²⁵² See The City of Bellingham, WA, available at <http://www.cob.org/services/neighborhoods/community-planning/waterfront/index.aspx>

²⁵³ See The City of Olympia WA, available at <http://www.olympiawa.gov/cityutilities/stormwater/streams/GreenCoveCreek.htm>.

provisions of the ordinance, a city-approved tree plan is required for specified activities, and designated percentage of forest cover must be retained.

Maine, Coastal Sand Dune Rules

Maine has incorporated sea level rise into its planning and regulations for more than a decade. The state's Coastal Sand Dune Rules acknowledge the fragile and dynamic nature of dune systems and the uncertainty of the extent of future change in sea level. The Department of Environmental Protection "anticipates that sea level will rise approximately two feet in the next 100 years," and concludes that "[u]nder any scenario of increasing sea level, the extensive development of sand dune areas and the construction of structures increase the risk of harm, to both the coastal sand dune system and the structures themselves."²⁵⁴ Therefore, standards for all projects provide that a project may not be permitted if "it is likely to be severely damaged" by the two-foot rise in sea level over 100 years.

City of Malibu, California: Coastal Zone Shoreline and Bluff Ordinance and; Local Coastal Program Local Implementation Plan

Malibu's Coastal Zone ordinance implements the policies of the California Coastal Act and the city's state-certified Local Coastal Plan and Land Use Plan. The ordinance establishes development standards and permitting requirements to minimize risks in the siting and design of new development and to minimize the use of shoreline protective devices that could contribute to erosion or create other hazards and alteration of landforms. Under the ordinance, the city must provide written findings of fact for all review decisions. Development standards expressly require the consideration of sea level rise and mandate setbacks of a sufficient distance landward and elevations to a sufficient finished floor height, which will "eliminate or minimize to the maximum extent feasible hazards associated with anticipated sea level rise over the expected 100 year economic life of the structure."²⁵⁵

New development on the beach or on oceanfront bluffs must be sited outside areas subject to beach or bluff erosion, inundation, wave run-up at any time during the full projected 100 year economic life of the development and if complete avoidance is not feasible, the new development must be elevated above the base FEMA Flood Elevation and sited as far landward as possible to the maximum extent practicable.²⁵⁶

Shoreline protective structures are strictly regulated, and "soft" protections are strongly preferred, including dune restoration, sand nourishment, and design criteria emphasizing maximum the aforementioned landward setbacks and raised foundations.²⁵⁷ Subdivision requirements prohibit new lots that might require shoreline protection or bluff stabilization structures at any time during the full 100 year economic life of the development.²⁵⁸

²⁵⁴ Maine Department of Environmental Protection, Rules Ch. 355(1).

²⁵⁵ CITY OF MALIBU, CA, CODE, §10.4(A). Generally requiring that "[s]iting and design of new shoreline development and shoreline protective devices shall take into account anticipated future changes in sea level. In particular, an acceleration of the historic rate of sea level rise shall be considered and its potential impact on beach erosion, shoreline retreat, and bluff erosion rates shall be evaluated." *Id.*

²⁵⁶ *Id.* § 10.4(B).

²⁵⁷ *Id.* § 10.4(O).

²⁵⁸ *Id.* § 10.4(Q).

The ordinance also requires deed restrictions against properties “where geologic or engineering evaluations conclude that the development can be sited and designed so as to not require a shoreline protection structure as part of the proposed development or at any time during the life of the development.” The restrictions ensure that “no shoreline protection structure shall be proposed or constructed to protect the development approved.”²⁵⁹

One unanticipated problem has arisen as a result of the ordinance: i.e. the houses in the district cannot have basements and many homeowners store belongings under the elevated portion of their house. Ocean surges may flow underneath the house, pushing belongings against the exterior of the elevated portion and damaging the homeowner’s property.

NEW YORK

Town of Brookhaven, NY

The Town of Brookhaven authorizes its planning board “to review and approve and/or deny cluster development for subdivision plats, simultaneously with its review and approval of such plats, for all lands within the Town.” The planning board may require the submission of a cluster development map where it finds that a property under review contains environmentally sensitive features, historic sites or structures, or significant archeological or scenic features.²⁶⁰

Town of Southampton, NY: Construction in and Adjacent to Town Waters and Beach Areas Ordinance

The Town of Southampton ordinance requires a permit for any erosion control structure or artificial beach nourishment under this provision of the town code.

K. FLOODPLAIN MANAGEMENT

Development activities in floodplains can decrease their water storage capacity, increase runoff, and decrease water quality. Local floodplain regulations can limit the extension of buildings and infrastructure into flood areas, require that such buildings are built at certain elevations, and prevent the obstruction of stream channels.

The early movement in floodplain regulation was initiated by the federal government’s adoption of the National Flood Insurance Program, which required localities to adopt and enforce floodplain management programs as a prerequisite to the eligibility of local property owners for flood disaster insurance and payments.

The Association of State Floodplain Managers’ No Adverse Impact approach to floodplain regulation, described in Section III, advocates reflecting actual risk in flood insurance and disclosure of risk when planning for development in high hazard areas.

Irvine, California: Floodplain District Ordinance

²⁵⁹ *Id.* § 10.6(C). The property owner “expressly waives any future right to construct such devices that may exist” under the state Public Resources Code. *Id.*

²⁶⁰ TOWN OF BROOKHAVEN, NY, CODE, § 85-388.

Irvine, California adopted a Floodplain District Ordinance for the purpose of promoting the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions in specific areas.²⁶¹ The ordinance notes that the flood hazard areas of the city are subject to periodic water inundation, which results in loss of life and property, health and safety hazards, and extraordinary public expenditures.

NEW YORK

Most communities In New York have adopted floodplain laws in accordance with the federal requirements of the National Flood Insurance Program in order to take advantage of the program's benefits. These requirements are designed largely to protect development from flood damage rather than to preserve the ecological functions and values of floodplains.

Local governments in New York also have authority to adopt floodplain regulations under the state flood protection statute, the state zoning enabling acts, and the Municipal Home Rule Law. These sources either explicitly or implicitly designate floodplain control and protection as a matter of local concern. The New York zoning enabling act provides that local regulations "shall be . . . designed to . . . secure safety from fire, flood, panic, and other dangers."

Local governments not only may protect development from the hazards of flooding but may also protect and conserve the environmental and ecological benefits of their floodplains. The enabling statutes allow local governments to create zoning districts and overlay districts that incorporate floodplain regulations. Density restrictions and conditions attached to site plan and subdivision approval can also limit the alteration of flood hazard areas.

Town of Southampton, NY: Tidal Floodplain Overlay

Southampton's Tidal Floodplain Overlay District establishes subdivision requirements for lot layout on the barrier beach to minimize damage from coastal storms. Setbacks are established for ocean beach water frontages in accordance with the town's Coastal Erosion Hazards ordinance. Structures on other water frontages must be set back at least 75 feet from the upper edge of the tidal wetland.

I. STORMWATER MANAGEMENT

Pursuant to its authority under the Clean Water Act, the EPA has established a two-phase Stormwater Management Program. Phase I began regulating medium and large operators of municipal separate storm sewer systems (MS4s) in 1990. The Phase II regulations, which were issued in 1999, apply to local governments that operate storm sewer systems that discharge to federally protected waters.²⁶² Phase II regulates small MS4s as well as small construction activities; i.e., those activities disturbing between one and five acres of land. Operators of regulated MS4s are required to obtain either an individual or general National Pollutant Discharge Elimination System (NPDES) permit.

NEW YORK

²⁶¹ IRVINE, CA. ZONING ORDINANCE § 5-2-2 (2005).

²⁶² 40 CFR 122.26(b)(16) (2008).

Under the New York State regulations implementing the federal Stormwater Management Program, affected local governments are required to adopt erosion and sediment control laws; establish site plan review procedures for projects that will impact water quality; inspect construction activities; and adopt enforcement measures. Post-construction runoff controls are also required for development and redevelopment projects. Redevelopment is defined to include any change in the footprint of existing buildings that disturbs greater than one acre of land.

Local governments may also adopt protections against stormwater damage through their planning, zoning, and home rule authority. A model local law for Stormwater Management and Erosion & Sediment Control is available from the NYS DEC.²⁶³

Local governments in New York also have broad authority to control erosion and sedimentation under provisions of the zoning enabling acts, the Municipal Home Rule Law, the General Municipal Law, and other state statutes. Comprehensive plans may implement erosion controls. Land-disturbing activities that are a primary cause of erosion are typically regulated by local zoning, subdivision, and site plan ordinances. Conditions imposed on development approvals may require the minimizing of land disturbance, the phasing of projects, the use of construction techniques that limit erosion, or the reduction of impervious surfaces, and may include specific design considerations, such as the contouring or terracing of construction, the preservation of trees and native vegetation, or the use of vegetative buffers, swales, or porous pavements.

Nassau County, NY: Stormwater Management Program:

Nassau County developed a storm water management program (NCSWMP) as required under state and federal law. The NCSWMP includes a list of Best Management Practices (BMP's) implemented by the County and a coalition of local municipalities to achieve the regulatory standard of reducing pollutants in the County's stormwater to the maximum extent practicable. The County Department of Public Works, with input from local "Task Groups," developed the BMP's, measurable goals, implementation schedule and initial NCSWMP. These Task Groups consisted of municipal officials, watershed protection committee members and consulting engineers. Effectiveness of the selected BMP's, and the success in achieving the plan's measurable goals are reviewed annually and modified, if necessary.²⁶⁴

m. COASTAL INFRASTRUCTURE REGULATION

The siting of coastal infrastructure is an extremely important component of local responses to sea level rise. Studies of sea level rise conducted by Florida Regional Planning Councils, for example, have focused on the siting and protection of public water facilities and sewage treatment facilities, as well as roads and power facilities, both in land use and in emergency planning. The Hillsborough County, FL, Disaster Mitigation ordinance, described earlier, prohibits public expenditures on infrastructure in hazard areas. The Comprehensive Plans of the City of St. Pete, FL, and of Collier County, FL, described earlier, include specific prohibitions on public expenditures for development in sensitive areas.

²⁶³ See *Stormwater Management Guidance Manual for Local Officials* (2004), available at <http://www.dec.ny.gov/chemical/9007.html>. See also *NYS Stormwater Design Manual* (Apr. 2008) available at <http://www.dec.ny.gov/chemical/29072.html>.

²⁶⁴ Nassau County Stormwater Management Program, available at <http://www.nassaucountyny.gov/agencies/DPW/Docs/PDF/2003-FINAL-NCSWMP.pdf>.

Collier County, Florida: Coastal Zone Management and; Sea Level Rise Analysis

The Resource Protection chapter of Collier County's Land Development Code includes specific requirements for Coastal Zone Management.²⁶⁵ Among these is a mandatory sea-level-rise impact analysis for all shoreline development, including infrastructure. The analysis must show that the development will remain fully functional for its intended use after a six-inch rise in sea level.²⁶⁶

Iowa City, Iowa:

Iowa City, IA, moved its water supply facility to higher ground following the disastrous floods of 1993. As a result of the relocation the city had drinking water during severe flooding in 2008, even though most of the city was completely flooded.²⁶⁷

NEW YORK

Location of Public Utilities:

Both federal law and state law regulate public utilities. Federal statutes that provide for the exclusive licensing of public utilities can preempt local regulatory authority, with the result that public utilities cannot be excluded from a municipality or be unduly constrained. In New York, the Public Service Law governs the state's regulation of public utilities. Local governments may regulate the siting of a public utility through their zoning and planning authority under the Town, Village, and General City Law, the Municipal Home Rule Law, and SEQRA. However, in *Consolidated Edison Co. of N.Y. v. Hoffman*, 43 N.Y.2d 598 (1978), the state's highest court held that a lesser showing is required of a public utility to obtain a variance than is required of a private property owner.

Infrastructure Provision:

New York municipalities use their general taxing and spending authority to provide roads, transit facilities, parking, water, sewer, storm drains, lighting, and sidewalks for redevelopment work and projects.

²⁶⁵ COLLIER COUNTY, FL., LAND DEVELOPMENT CODE, § 3.03.05 (2008).

²⁶⁶ *Id.* An analysis shall be required demonstrating the impact of a six (6) inch rise in sea level above NGVD [National Geodetic Vertical Datum] for development projects on a shoreline. This requirement shall be met by inclusion of this analysis in an environmental impact statement (EIS). This requirement shall be waived when an EIS is not required. This analysis shall demonstrate that the development will remain fully functional for its intended use after a six (6) inch rise in sea level. In the event that the applicant cannot meet this requirement, a list shall be provided by the applicant of the changes necessary in order for the development to meet the standard. *Id.*

²⁶⁷ See PBS News Online NewsHour, *Iowa Reels From Bout of Severe Flooding* (June 16, 2008), available at http://www.pbs.org/newshour/bb/weather/jan-june08/flooding_06-16.html.

Part 2.

LOCAL PLANNING AND REGULATORY STRATEGIES FOR NEW YORK MUNICIPALITIES

This section is organized in a five phased approach starting with policies for local government to adopt, next discusses studies and citizen participation, and then moves to a moratorium, planning, and concludes with regulations and intermunicipal cooperation.

I. Policy Approach

Sea Level Rise and Storm Hazard Mitigation Resolutions

The local executive branch or legislature can set the stage for sea level rise planning and the implementation of regulatory approaches through resolutions, policy statements, or executive orders (EOs). These policy tools represent top-down approaches to managing sea level rise that can effectively initiate the implementation of a project across various agencies and levels of government.²⁶⁸

An initial resolution or EO can take notice of certain facts and create the foundation for a strategic blueprint for locality-wide climate change adaptation.²⁶⁹ The document may include sea level rise predications and lay out the need to track this data. It can also establish the economic life of buildings (50-100 years), establish time lines for 1 and 2 foot sea level rise, and provide for 10 year adjustments.²⁷⁰

The municipality can supplement this initial policy statement or adopt a second stating its intention to proceed with certain specified action to respond sea level raise and storm hazards. This can be short of what will be included in a future plan. The resolution might provide for a Task Force of public and private actors to conduct studies, research and lay out goals for land use training and education.²⁷¹

II. Studies, Research, Training, and Education

²⁶⁸ See Section VI.1 Executive Orders & Sea Level Rise Policy.

²⁶⁹ New York City, PlaNYC, <http://www.nyc.gov/html/planyc2030/html/home/home.shtml>; PlaNYC Report on Climate Change, available at http://www.nyc.gov/html/planyc2030/downloads/pdf/full_report.pdf. See Section VI.1 Executive Orders & Sea Level Rise Policy.

²⁷⁰ In a 2005, Olympia, Washington was faced with potential rising sea levels of 10 inches to 1½ feet per century and responded with a resolution that called for citywide efforts to control sprawl and reduce growth; waterfront zoning; protections for critical areas; coastal land buffers; sensitive land acquisition; infrastructure protection; and emergency management. In 2007, the city initiated an ongoing analysis of potential sea level rise and its impact on the downtown area. See Section VI.1 Executive Orders & Sea Level Rise Policy.

²⁷¹ The Miami-Dade County, Florida's Climate Change Task Force consists of twenty-five appointed members representing various sectors of the Miami-Dade community including government agencies and educational institutions. The Task Force is divided into six committees that focus on specific areas of climate change mitigation and adaptation. See Section VI.1 Executive Orders & Sea Level Rise Policy.

Studies, Research, and the Creation of a Task Force

Many questions arise and are considered by the community when the local legislative body commissions a formal sea level rise study. What is sea level rise and will it affect my property? Will the beaches and local habitat be destroyed or disappear?

These questions must be addressed and community awareness must be established before moving forward with a sea level rise and storm hazard mitigation plan. The municipality may hire consultants to gather available data at the regional and local level and supplement that data as new information becomes available. The governing body may also commission a citizen survey to identify the critical issues facing the community, ensuring that the survey is distributed broadly to local citizens and supplemented by community meetings.

All this data gathering and community outreach can be coordinated by a Task Force on sea level rise and storm hazard mitigation. The local legislature may create the task force by ordinance and endow it with the authority to conduct surveys, study the results, build citizen awareness of local problems, and work with experts to develop an effective strategy for adaptation. This analysis may document infrastructure elevations, areas susceptible to erosion and pollution, drainage and storm-surge risk areas, and the vulnerability of water supplies. It might also establish sea level rise scenarios reflecting future rise to help determine what must be done to preserve habitability and what infrastructure will need to retreat. The Task Force should include landowners and developers who can help develop strategies that are politically and economically workable.²⁷²

If a community has an established Conservation Advisory Council (CAC), the Task Force may be created within the CAC. State law encourages localities to form CACs to develop an inventory of all open areas in the community and to list them in order of priority for acquisition or preservation. Once this inventory is approved by the local legislature, the CAC can become the locality's conservation board, and may be empowered to review and make recommendations regarding development projects that affect listed natural areas or features. Studies may be conducted to provide an inventory of the open space and other lands in sensitive areas susceptible to sea level rise and storm hazards.

Ideally, a sea level rise and storm hazard mitigation study is conducted as part of the comprehensive planning process, which is discussed later. However, during the first phase of planning, it is essential to consider "nearly every aspect of the [area's] management, zoning, infrastructure, and planning" before developing a holistic strategy.²⁷³

²⁷² *Id.* See also Section VI.5 *Hillsborough County, Florida: Post-Disaster Redevelopment and Mitigation Ordinance*. To prepare for future storm events, the county ordinance established a redevelopment Task Force to oversee post-disaster reconstruction and advise the Board of County Commissioners (the planning entity). The Task Force is required to meet regularly, create a redevelopment plan, consider policies for redeveloping areas that have suffered repeated storm damage, determine redevelopment priorities and mitigation measures in advance of an emergency, and suggest regulatory changes. The Task Force may also make recommendations regarding "non-mitigative local objectives and opportunities," including enhancement of open space, enhancement of public access to estuaries and rivers, and enhancement and restoration of local ecosystems. Task Force meetings are open to the public and any citizen may give suggestions, which are then considered and, if desirable, entered into a draft redevelopment plan).

²⁷³ *Id.*

The second critical phase is to then provide training and education to the citizens and land use officials of the community.

Training, Education, and Citizen Participation

Training local community leaders on the critical issues identified through sea level rise studies and research, equips them with the knowledge to educate the citizens and land use officials of the area. Consensus building among local leaders and citizens of the community is a vital element to successfully implementing a mitigation and adaptation plan. Knowledgeable leaders may guide local discussion toward consensus among the community actors, prevent a splintering of the group, and achieve the best possible sea level rise and storm hazard mitigation strategies for the area.

It is important to the success of the plan to elicit public participation in the plan preparation. A citizen survey serves not only as the starting point for developing a local sea level rise and storm hazard mitigation plan, but as a critically needed citizen education program regarding the need for these plans.²⁷⁴

State law declares that an open, responsible, and flexible planning process is essential to the preparation of a local comprehensive plan. This invites, but does not require, public participation in all phases of plan development to ensure community support. The law allows the entity preparing the plan to conduct meetings, as it deems necessary to assure full citizen participation, requiring at a minimum, that one public hearing be held. A community may decide to create locally approved goals for the city's land use planners based on community feedback from local meetings.²⁷⁵

In order to gather all available ideas and secure the support of the entire community, meetings may be conducted on a communitywide basis, in neighborhoods, over long weekends, or in a series. Meetings with representatives of the media can be held; updates on the process of the plan development or early drafts may be placed in local papers; and special mailings may be sent to all local postal addresses. Efforts should be made to identify divergent groups and views within the community, and to involve key representatives in the preparation of the plan. Such representatives may be appointed to the entity that drafts the plan or may be invited to join an advisory committee to assist in plan preparation.

III. Moratorium for Planning

A moratorium on development or redevelopment is a local law or ordinance that suspends the right of property owners to obtain development approvals while the community takes time to consider, draft, and adopt land use plans or rules to respond to new or changing circumstances not adequately covered by its current laws such as sea level rise and storm hazard mitigation.

²⁷⁴ See Section VI.3 Comprehensive Plan. The City of Olympia's Comprehensive Plan stresses community involvement. The City recognized that "citizens will not give grudging support to (land use) actions if they do not understand the reasons for them," and created *Olympia's Plan to Grow Smart*. Through this plan, the City conducts an aggressive education program for citizens of all ages, and encourages their participation in environmental issues. The plan helps to create a sense of community and creates locally approved goals for the city's land use planners based on community feedback. See Olympia's Plan to Grow Smart, <http://search.mrsc.org/Subjects/Governance/trust/o46-41.pdf>.

²⁷⁵ *Id.*

In coastal areas this can give communities dealing with destructive sea level rise impacts including extensive storm damage, erosion or flooding, time to rethink their land use plan and local laws and adopt a new, smarter approach that more properly manages growth.

Development moratoriums may be general or specific. A general moratorium imposes a ban on the consideration and approval of all development and building applications in the community including subdivision plans, site plans, special permits, wetland permits, and building permits are suspended until the community makes a decision regarding future land use. Hardship exemptions may be provided and certain actions may be categorically exempted. A specific moratorium may prevent development approvals in a particular geographic area or of a certain type.

A moratorium will preserve the status quo for a reasonable time while the municipality develops a land use strategy to respond to new problems and will prevent developers and property owners from rushing to develop their land under current land use rules that the community wishes to change. General moratoriums may be issued prior to the adoption of a local overlay zone, a new subdivision law, the designation of a critical environmental area, or the adoption of an environmental constraints ordinance. The moratorium will forestall additional negative impacts from the type of development that the new law or regulation is designed to prevent or mitigate.

Implementation

A moratorium is one of the most extreme land use actions that a municipality can take because it suspends completely the rights of owners to use their property. Due to the severity of the action, it is advisable to pave the way for the adoption of a moratorium with findings that confirm the necessity of this action. The findings should reference the following points:

- The conditions that mandate the imposition of a moratorium;
- The lack of available alternatives less burdensome on property rights;
- An explanation of why existing land use plans and ordinances not adequate;
- A summary of the recent circumstances that justify the adoption of the moratorium;
- The serious and urgent nature of these circumstances; and
- Hard evidence documenting the necessity of the moratorium.

When adopting a moratorium, the municipality should also set forth a mitigation or adaptation strategy for dealing with the situation that gave rise to the moratorium. The strategy should reference:

- The local bodies responsible for the mitigation or adaptation;
- Any studies that are to be conducted;
- Resources that are available to complete such studies; and
- Deadlines for various steps in the mitigation process.

The more specific and legitimate this plan and timetable are, the more likely it is that the moratorium will be found reasonable.

Based on the action plan and timetable, a date can be selected for the expiration of the moratorium. A moratorium can be extended if the timetable cannot be met, however, setting a

date for an expiration that is legitimate under the circumstances enhances the reasonableness of the action.

A moratorium should be adopted in conformance with all procedures required of any zoning or land use action, including notice, hearing, the formalities of adoption, and filing. While a moratorium does not require an environmental review under the State Environmental Quality Review Act, it may be subject to review by a county or regional planning board prior to adoption if it affects adjacent municipalities or county facilities.

IV. Sea Level Rise and Storm Hazard Mitigation Planning

In New York, all local land use regulations must be consistent with the community's comprehensive plan. A comprehensive plan is a written document that identifies the goals, objectives, and devices for the "immediate and long-range protection, enhancement, growth and development" of the community.²⁷⁶ Other governmental agencies, such as state agencies, must consider the local comprehensive plan in planning their capital projects within the locality. There are no required components of a comprehensive plan, however it should specify the maximum intervals at which it will be reviewed and may also consider the needs of the region and plans of other relevant public agencies. In planning for sea level rise and storm hazard mitigation, municipalities may either adopt components to the local comprehensive plan or to the local hazard mitigation plan.²⁷⁷

A comprehensive plan component may recognize the susceptibility of a locality to flooding, erosion, sea level rise and severe storm events. It may include information concerning the negative consequences to the community posed by these threats and will call the public's attention to the issue. A detailed component might include information about the topography that will be affected by sea level rise including impacts on dunes, tidal wetlands, and environmental functions of groundwater. The level of detail is such that the plan can be the basis for certain regulatory approaches that will be discussed later.

The component may then outline strategies to avoid adverse impacts of these threats such as development protections for critical areas including transfer of development rights and purchase of development rights; no net loss of an area's remaining regulated aquatic resources; the use of vegetated buffers in their natural state; and the protection or restoration of natural functions of coastal habitat.²⁷⁸

A local municipality may also implement hazard mitigation strategies and policies. Municipalities with FEMA approved all-hazard mitigation plans are eligible to receive project funding from the Hazard Mitigation Grant Program (HMGP) under the federal Disaster Mitigation Act of 2000.²⁷⁹ Such plans may specifically address the effect of climate change and sea level rise on erosion and flooding within the city. The hazard mitigation plan may envision amendments to the local building code to prepare buildings for climate change; measures to reduce storm surge; and provide projections of change over a period of 50-100 years.²⁸⁰

²⁷⁶ See Section VI.3 Comprehensive Plan.

²⁷⁷ See Section VI.5 Post-Storm Redevelopment Planning.

²⁷⁸ See Section VI.3 *City of Bainbridge Island, Washington: Comprehensive Plan Environment Element*.

²⁷⁹ See Section VI.5 Post-Storm Redevelopment Planning.

²⁸⁰ See Section VI.5 *New York City Hazard Mitigation Plan; Suffolk County Hazard Mitigation Plan*.

Whether to do a comprehensive plan (general or specific) or a hazard mitigation plan is a question of available planning resources and a policy determination for the municipality to make.

Once a municipality determines the level of detail and the type of plan, it must identify the sea level rise target areas that the plan will address in its sea level rise component. The specific areas identified may be fixed or movable—areas may move as sea level rises by reference to a designated source such as the tide line. Various sea level rise scenarios can be included in the plan through the incorporation of maps. The municipality may work with neighboring communities to create an intermunicipal compact to review and approve sea level rise projections and changes when they arise. Once approved, the sea level projections and changes can be incorporated into the plan.

Plan Preparation and Adoption:

1.) Generally—

The plan may be prepared by the local legislature, the planning board or a specially constituted panel including at least one member of the planning board. A Sea Level Rise Task Force may be created by ordinance and charged with developing the plan.²⁸¹ Public hearings must be held prior to the plan adoption. After the plan has undergone the state environmental review process (SEQRA), it must be submitted to the county or regional planning board for review and comment and then adopted by the local legislature.

2.) Organization of the Sea Level Rise Component—

The sea level rise component can be divided into four sections:

- *Background Information:* data and community opinion relevant to the component under discussion;
- *Goals:* broad statements of ideal future conditions that are desired;
- *Objectives:* statements of attainable, quantifiable, intermediate-term achievements that help accomplish each goal; and
- *Strategies:* a set of actions to be undertaken to accomplish each objective.

3.) Identifying Critical Issues and Collecting Background Information—

To assess the critical sea level rise issues and unique opportunities of the community, it is necessary for the board charged with preparation of the plan to consider and evaluate both community opinion and reliable data.²⁸²

Surveys: Community opinion may be gathered by conducting surveys or holding public meetings where the public presents its views regarding critical issues and unique opportunities.

²⁸¹ Section VI.1 Executive Orders & Sea Level Rise Policy; Section VI.5 Post-Storm Redevelopment Planning.

²⁸² Reference mapping tool.

Data, Information, and Studies: Readily available data may be collected from information sources such as the United States Bureau of the Census, state agencies, and the county government.²⁸³ Studies may be conducted on important local conditions, such as existing land uses, threatened natural resources, and the implications of sea level rise and storm hazards. Important data useful in plan preparation include:

- Population trends and demographics;
- Coastal development;
- Land use and development trends, such as housing, commercial, industrial, and agricultural development;
- Adequacy of existing public facilities, utilities and infrastructure;
- Adequacy of existing public services;
- Existing natural resource conditions, such as steep slopes, soil types, wetlands, watercourses, floodplains, aquifers, forests, and rare plant and animal habitats;
- Historic, cultural, and scenic resources; and
- Identification of the community's unique strengths and opportunities.

Critical Issues and Unique Opportunities: The purpose of gathering and analyzing community opinion, collecting data, and conducting studies is to identify the critical issues that the community faces as well as its unique opportunities. This information may reveal, for example, that increased storm hazards and sea level rise will severely threaten local infrastructure. It will also indicate the unique characteristics, strengths, and opportunities that the community possesses. From this information, the entity preparing the plan can determine which issues the plan must address in detail and which strategies are the most feasible.

4.) Setting Goals—

With community participation, the board can set goals that address sea level rise and storm hazard mitigation issues selected in the prior stage of planning and build upon the community's unique strengths, characteristics, and opportunities. The aim in each case is to eliminate the problem identified while strengthening the community's positive attributes. Possible goals include:

- Protection of sensitive areas from sea level rise: beaches, views, dunes, vegetated areas, habitats, etc.
- Hazard damage mitigation and redevelopment: storm surge, wind damage, wind driven water damage, and flooding.
- Protection of public, property, and environment from sea level rise and natural disasters.
- Promoting economic development that is consistent with other goals.

5.) Establishing Objectives—

The board can then identify one or more intermediate-term objective that will enable the community to reach its goals. The objectives could be to educate the public about the facts, train local land use leaders on the strategies and implementation measures, create short term priorities for immediately threatened environmental resources, buildings, and public areas, and develop a consensus for movement because of future consequences of sea level rise and natural disasters.

²⁸³ *Id.*

To set realistic objectives, the board must carefully assess the resources available to the community in addressing its most critical issues. Including the entire community in the planning process and consulting with outside agencies are important methods of identifying such resources so that critical issues may be dealt with effectively.

6.) Developing Strategies—

Strategies are actions the board recommends to accomplish an objective. In each case, one or more actions may be suggested to attain the objective. An example is to develop construction standards with elevation requirements. Other examples are to amend the zoning law to protect dunes and prohibit shoreline protective structures, or to adopt a sea level rise overlay district. A complete list of sea level rise regulatory approaches is listed below. A municipality can select from this list appropriate strategies to include in the comprehensive plan and to adopt.

7.) Devising an Implementation Plan—

At the end of the plan development, the board can recommend how the plan's strategies are to be implemented. An implementation plan designates the agencies or officials responsible for each action, identifies necessary resources, and establishes time periods for completing each action.

Drafting the local law could be assigned to the municipal attorney with the aid of a Sea Level Rise Task Force, interested members of the community who are knowledgeable about sea level rise and storm hazard mitigation, and developers and landowners who will be affected by the regulations. The implementation plan could then state that the proposed law be circulated by the municipal clerk to the local planning board and county planning agency for their review and recommendations, with adoption of the local law to occur within twelve months of the effective date of the comprehensive plan.

By attempting to assign responsibilities, identify necessary resources, and adopt a time frame to accomplish specific actions, the board will discover whether strategies being explored are realistic. If they seem unrealistic, the board has the opportunity to devise new strategies to achieve the established objectives.

Links to other Planning Programs:

In proceeding with the special area plan component, the municipality should be mindful of the following planning programs:

- **Local Waterfront Redevelopment Plan (LWRP)** is a process by which a municipality uses applicable local, state, and federal authority to manage and protect its waterfront resources. It does this by adopting a local waterfront management plan, which has significance under local, state, and federal law. A local waterfront management plan can be viewed as an addition to a municipality's comprehensive plan, applicable to coastal areas.²⁸⁴

²⁸⁴ See Section VI.3 Comprehensive Plan. The Town of East Hampton adopted its Local Waterfront Revitalization Program as the Coastal Management Component of its comprehensive plan. The plan states that "[f]uture planning efforts should examine the likely effects of global warming, including increasing sea level rise and storm and hurricane activity on the town's coastline. Beginning to plan for

- While any community may use its authority to engage in comprehensive planning for its waterfront areas, there is specific federal and state authority to create LWRPs.
 - The **Federal Coastal Zone Management Act (CZMA)** establishes a process for the development of state coastal zone management programs. This Act offers cooperating states federally funded development and administrative grants. States that develop conforming plans and programs also benefit from what is called federal consistency requirements. This means that any federal agency that proposes to conduct, permit or fund a project in a coastal area in a state with an approved plan must act consistently with the provisions of the plan. When local governments adopt LWRPs under the state program, this federal consistency requirement applies to the local plans as well.
 - New York State enacted the **Waterfront Revitalization and Coastal Resources Act** pursuant to the federal authority. The state developed 44 policies to which all state and federal agencies must adhere, delegated authority to local governments to create local waterfront revitalization plans, and provides funding to communities that adopt LWRPs. For such communities, it is the state's responsibility to police and enforce the federal consistency requirements.
- **Coastal Erosion Hazard Act (CEHA)** encourages localities to use all applicable authority, including planning authority, to minimize erosion hazards caused by development in the coastlines of the state.
- **Federal Disaster Mitigation Act of 2000** calls upon states to plan for disasters by developing a mitigation plan that outlines processes for identifying the natural hazards, risks, and vulnerabilities of the area under the jurisdiction of the government to be approved by the government. Preparation and adoption of a jurisdiction wide natural hazard mitigation plan is a condition of receiving project grant funds under the Hazard Mitigation Grant Program. An enhanced plan that demonstrates that the state is committed to a comprehensive state mitigation program by engaging local governments qualifies for more grant money than a standard plan.
- New York's **State Environmental Quality Review Act (SEQRA)** requires local agencies, when reviewing development projects, adopting plans, and establishing programs, to prepare an environmental impact statement for actions that may have a significant adverse impact on the environment. SEQRA requires such agencies to use all practicable means to minimize or avoid adverse environmental effects.
 - Under SEQRA, municipalities can designate the specific target area identified in the planning process a Critical Environmental Areas. The SEQRA regulations define a **Critical Environmental Area (CEA)** as "a specific geographical area designated by a state or local agency, having exceptional or unique environmental characteristics." The focus of a CEA is on the definition of the critical area and the identification of its unique and exceptional environmental characteristics. Rather than clarifying or streamlining the environmental review of subsequent projects like the Generic

these effects, assessing potential damage to public resources and infrastructure, and evaluating methods of protection and associated costs are vital for future coastal management." *Id.*

Environmental Impact Statement, the CEA identifies fragile or threatened areas to insure that their particular characteristics are understood and taken into consideration in the conduct of environmental reviews on subsequent, individual projects.²⁸⁵

V. Sea Level Rise and Storm Hazard Mitigation Regulatory Approaches

Having created in the plan the specific target area, the communities have a variety of options for strategies to protect people, property, and the environment in the identified area.

1. Create a New Zoning District(s) or Create Overlay District(s)

- Various names and concepts for these districts include:
 - limited development zone,
 - no build zone,
 - high hazard area,
 - limited hazard area,
 - highly sensitive environmental area,
 - shoreline protection district,
 - flood prone area, or
 - sea level rise target area.
- **Zoning:** New York's zoning enabling legislation is found in parallel provisions of the Town, Village, and General City Law, which—like the zoning enabling acts of most states—are derived from the Standard State Zoning Enabling Act.²⁸⁶ Zoning and land use regulations must conform to the community's comprehensive plan and must encourage "the most appropriate use of land throughout the municipality." Local governments are authorized to divide the community into zoning districts and to regulate the use, construction, and alteration of buildings and land within those districts.
- **Overlay Zoning:** Overlays are a widely used means of protecting a community's natural, historical, or scenic resources and of directing development to appropriate areas of the community. The provisions of the overlay ordinance are applied in addition to the underlying zoning regulations. Overlay zones may be established in New York under the enabling statutes' grant of authority to adopt zoning regulations and to encourage the most appropriate use of land throughout the municipality. Additional authority is found in statutory provisions that permit the creation of historic districts, and in provisions of the Municipal Home Rule Law and Statute of Local Governments concerning the protection and enhancement of the municipality's physical and visual environment.

²⁸⁵ See Section VI.6b Special Area Ordinances. The Town Code of Brookhaven, New York designates the Brookhaven Coastal Zone Area as a Critical Environmental Area. As such, any proposed use or development in that area is considered a Type I action under SEQRA, so it has to meet the requirements of preparation and submission of a long environmental assessment form (LEAF). This submission would necessitate an examination of future sea level rise hazards.

²⁸⁶ U.S. Department of Commerce, A Standard State Zoning Enabling Act, § 3 (1924, reprinted 1926). A PDF version of the 1926 Department of Commerce publication is posted by the American Planning Association at <http://www.planning.org/growingsmart/enablingacts.htm>.

- See Section VI.6c *Tillamook County, Oregon Beach and Dune Overlay District*. Tillamook County, Oregon is highly vulnerable to ongoing coastal erosion, landslides, and sand inundation of permitted structures in the fore-dune areas of the coast. The county code incorporates a Beach and Dune (BD) Overlay Zone that prohibits development in active dune areas subject to flooding and other natural hazards; requires erosion and groundwater drawdown be minimized in coastal areas; and provides that only properties developed before a certain date may obtain permits for beachfront protective structures.

2. Techniques and Standards that can be Included in New Districts

- **No-build zone provision:**
 - **Prohibit building in high hazard zones:** See Section VI.6c *Tillamook County, Oregon Beach and Dune Overlay District*, See Section VI.6 *Overlay Zoning*.
- **Establish very limited build zones:**
 - **Limit as of right uses or deny all as of right uses and permit only conditional uses:** See Section VI.4 *Village of Tivoli, NY*. To implement its LWRP, Tivoli established a land conservation district that borders the Hudson River and other major watercourse that flow through the village. The district allows no as-of-right uses and a special permit must be obtained to establish uses limited to agriculture, wildlife preserves, outdoor recreation facilities, parks and playgrounds; See Section VI.6c *City of Manzanita, Oregon: Fore-dune Management Overlay Zone*. Uses permitted outright in the Zone's four management units include sand transfer in and between units; vegetative stabilization and sand collection; and remedial grading and fore-slope shaping. In two of the management units, specified fore-dune grading is also permitted. Sand removal is prohibited in all management units unless otherwise approved by the city, and view grading is prohibited on individual lots or in areas not specified in the management plan.
 - **Govern Conditional Uses - Conditional uses can be very limited or of an intermediate intensity:** See Section VI.4 *City of North Tonawanda, NY*. North Tonawanda created a water-front zoning allowing only water dependent uses to carry out the goals of its LWRP. The zone allows non-water dependent uses only by special permit if public waterfront access is provided.
- **Permit Conditions and Standards:**
 - **Define Standards or Conditions for Permits:** See Section VI.4 *Pacific County, Washington: Ocean Coast Requirements*. Structures are prohibited on "natural environment" shorelines and permitted with conditions in other Environments. Provisions for dunes include a 100 foot buffer and building setbacks. The requirements prohibit any structure that would modify a dune to below 24 feet above sea level. Development standards also require that an altered watercourse shall be allowed to meander and maintain stream surface area; See Section VI.6b *Town of Nags Head, North Carolina: Nags Head Woods Special Environmental District*. District requirements include setbacks from protected resources, building heights, and limits on lot coverage, standards for site plan, site development, and

subdivisions require protections for dunes and vegetation, and prohibit the draw-down of groundwater, except for on-site wells designed to serve buildings on individual lots, and the alteration of natural drainage patterns.

- **Mandatory SLR analysis for various levels of SLR:** See Section VI.6b *Collier County, Florida: Coastal Zone Management; Sea Level Rise Analysis*. The Resource Protection chapter of the County's Land Development Code requires a mandatory sea-level-rise impact analysis for shoreline development, which must demonstrate that the development will remain fully functional for its intended use after a six (6) inch rise in sea level and if the applicant cannot meet this requirement, a list shall be provided by the applicant of the changes necessary in order for the development to meet the standard; See Section VI. 6 *City of St. Pete, Florida: Coastal and Conservation Element*. A project that produces changes in tidal circulation patterns requires hydrological analysis of the project's net environmental impact before approval.
- **Require detailed coastal maps and conditions inventory with regular application:** See Section VI.6c *South Kensington, Rhode Island: High Hazard Overlay*. Special use permits for construction behind the fore-dune zone may be granted and may require additional information including a detailed map with extensive environmental information such as high and low tide levels, soil type, dunes and other natural protective barriers, existing flood and erosion control methods, and current drainage elevations and contours, as well as a detailed plan which lays out the proposed uses for the lot; See Section VI.6. *Tillamook County, Oregon: Beach and Dune Overlay Zone*. Local plans must inventory areas subject to erosion, landslides, or flooding and must condition any building permits to protect against the identified hazards.
- **Require applicant to prove compliance with sensitive area protections:** See Section VI.4 *Pacific County, Washington: SMP Ocean Coast Requirements*. The SMP states that for residential development on shorelines subject to tidal action in the Conservancy Environment, it is the property owner's responsibility to demonstrate that drainage or pumping will not deplete groundwater or cause saltwater intrusion; See Section VI.6j *Maine Coastal Sand Dune Rules*. Standards for all projects in sand dune areas provide may not be permitted if "it is likely to be severely damaged" by the two-foot rise in sea level over the next 100 years; See Section VI.6b *Collier County, Florida: Coastal Zone Management; Sea Level Rise Analysis*. An applicant must demonstrate that development will remain fully functional for its intended use after a 6-inch rise in sea level and if the applicant cannot meet this requirement, a list shall be provided by the applicant of the changes necessary in order for the development to meet the standard.
- **Prohibit rebuilding in areas subject to a storm event unless certain standards are met:** See Section VI.5 *Town of Nags Head, North Carolina: General Use Standards for Redevelopment in Ocean Hazard Areas*. Destroyed structures, major damaged structures, and minor damaged structures may not be reconstructed without an on-site inspection of the lot by zoning administrator, a septic improvements permit, and certain setbacks dependant on the extent of damage. For destroyed or major damaged structures town water must be restorable at street

frontage of the lot, electrical service must be restorable to building site, and there must be direct, uninterrupted approved vehicular access to the lot.

- **Restrict Non-conforming uses:**

- **Discontinue or impose amortization:** See Section VI.6d *Non-conforming uses*.

- **Deny rebuilding of any non-conforming building destroyed by 50% of value or more in proscribed areas:** See Section VI.6d *Town of Duck, North Carolina: Non-Conformities*. Duck requires that non-conforming structures “destroyed by any means to an extent more than 50% of its replacement cost” can only be reconstructed in conformity with current regulations. On lots adjacent to the Atlantic Ocean, non-conforming structures may be moved only if the movement does not increase the non-conformity in any way; See Section VI.6c *Town of Sullivan’s Island, South Carolina: Beach Preservation; Recreation and Conservation Area Districts*. Repair of erosion control structures in RC Districts is not permitted if the Town determines that 50% or more of the structure has been damaged. Where damage is less than 50%, repairs in place are permitted if the repairs comply with all Town regulations. Damaged structures may not be enlarged or strengthened beyond their pre-damage condition, and the Town may require beach replenishment as a condition for repair.

- **Construction Standards:**

- **General Standards:** See Section VI.6b *Town of Nags Head, North Carolina: Nags Head Woods Special Environmental District*. Permit standards include setbacks from protected resources, building heights, and limits on lot coverage, standards for site plan, site development, and subdivisions require protections for dunes and vegetation, and prohibit the draw-down of groundwater, except for on-site wells designed to serve buildings on individual lots, and the alteration of natural drainage patterns; See Section VI.6j *City of Malibu, California: Coastal Zone Shoreline and Bluff Ordinance*. New development on the beach or on oceanfront bluffs must be sited outside areas subject to beach or bluff erosion, inundation, wave run-up at any time during the full projected 100 year economic life of the development and if complete avoidance is not feasible, the new development must be elevated above the base FEMA Flood Elevation and sited as far landward as possible. Subdivision requirements prohibit new lots that might require shoreline protection or bluff stabilization structures at any time during the full 100 year economic life of the development.
- **Elevation requirement for permitted building:** See Section VI.6j *City of Malibu, California: Coastal Zone Shoreline and Bluff Ordinance*. Development standards expressly require the consideration of sea level rise and mandate setbacks of a sufficient distance landward and elevations to a sufficient finished floor height, which will “eliminate or minimize to the maximum extent feasible hazards associated with anticipated sea level rise over the expected 100 year economic life of the structure.”
- **Low impact development:** See Section VI.6j *Olympia, Washington: Low Impact Development and Cluster Development*. The Green Cove Creek watershed, on the Puget Sound shore, is protected by regulations requiring low impact development

techniques—narrow streets, small building footprints, on-site control of stormwater runoff—and by the city’s extensive tree regulations.

- **Limit impervious surface, storm water retention and management:** See Section VI.6j *Olympia, Washington: Low Impact Development and Cluster Development*. Regulations require on-site control of stormwater runoff.
- **Buffers & shoreline setbacks:** See Section VI.6f *Barnstable, Massachusetts: Performance Standard for Wetland Buffers*. 35 foot setbacks from wetlands and 50 foot from coastal areas and inland great ponds operate within a 100 foot buffer zone landward of such areas); See Section VI.6f *City of Olympia, Washington, Critical Area Buffers*. 250 foot buffers for streams and important riparian areas, and a scale of variable wetland buffer widths, ranging from 50 feet to 300 feet dependent on the Washington State Wetland Rating System for Western Washington; See Section VI.6f *Town of East Hampton, NY: Coastal and Wetland setbacks and buffers*. Wetland setbacks are provided for all areas of the town. Construction is prohibited within a wetland; sewage disposal devices must be set back 150 feet from the upland boundary of a wetland; turf may not be established nearer the upward boundary than 50 feet; and coastal setbacks of 100 to 150 feet, from bluff lines or dune crests, are created in addition to primary and secondary setbacks, feet are established. Where multiple setbacks may affect a property, compliance with each setback is required, unless non-feasibility can be shown by the landowner.
- **Preservation of vegetated portions of site (25% or more):** See Section VI.6j *Olympia, Washington: Tree Ordinance*. The ordinance’s purpose clause describes the ecological importance of preserving trees and other vegetation in an undisturbed and natural condition, and the “positive impact” of trees and woodland growth on global climate change. A city-approved tree plan is required for specified activities, and designated percentage of forest cover must be retained; See Section VI.6b *Anacortes, Washington: Riparian Vegetation Landscape Ordinance*. The Landscaping Code requires new development and redevelopment for non-water-dependent uses abutting marine shorelines include beds of riparian vegetation in the 15-foot-wide strip of land lying immediately landward of unarmored shorelines or on the landward edge of shoreline armoring. Beds must be a minimum of six feet wide; ten feet long; and occupy a minimum of 50% of the shoreline’s footage for new development and 25% for redevelopment. Salt-tolerant riparian species must be identified on the landscape plan and approved by a biologist/riparian plant specialist. Non-native species are to be removed from planting beds. Riparian vegetation is encouraged but not required on the rest of the site.
- **Prohibit shoreline protective structures (hard/soft solutions):** See Section VI.6j *City of Malibu, California: Coastal Zone Shoreline and Bluff Ordinance*. Shoreline protective structures are strictly regulated, and “soft” protections are strongly preferred, including dune restoration, sand nourishment, and design criteria emphasizing maximum the aforementioned landward setbacks and raised foundations; See Section VI.3 *Town of East Hampton, NY: Coastal Management Component*. Monitoring data has shown that the arbitrary construction of bulkheads has created a major impediment to the natural progression of wetland migration. In light of the data, the town amended their comprehensive plan to prohibit the building of any bulkheads that would block wetland migration; See Section VI.6c *Town of*

Sullivan's Island, South Carolina: Beach Preservation; Recreation and Conservation Area Districts. Erosion control structures may not be placed in the RC Area Districts without permission of the Town; See Section VI.6c *Town of East Hampton, NY: Coastal Erosion Overlay District.* East Hampton's coastal erosion overlay regulates the construction and alteration of shoreline protective structures. establishes four coastal erosion zones to protect the natural shoreline, where the construction of new coastal erosion structures is prohibited or require a special permit.

- **Require Deed Restrictions/Conservation Easements:**
 - **Require Deed Restrictions/Conservation Easements before property is inundated:** See Section VI.6j *City of Malibu, California: Coastal Zone Shoreline and Bluff Ordinance.* Ordinance requires deed restrictions against properties that can be sited and designed to not require a shoreline protection structure as part of the proposed development or at any time during the life of the development. The restrictions ensure that "no shoreline protection structure shall be proposed or constructed to protect the development approved".
 - **Require deed restrictions on building on all but small portion of the site**
- **Subject developers/landowners to development agreements governing future assurances:**
 - **Regulatory Agreements:** See Section VI.6i *Barnstable, Massachusetts, Regulatory Agreements Ordinance.* The ordinance allows the Town and/or the Cape Cod Commission to enter into a development agreement with a qualified applicant for land use approvals within a mapped district. The agreement is negotiated by the planning board and must be approved by the board and the town council before being executed by the town manager. Proffers by the applicant may include land dedication and/or land preservation or other benefits that preserve community character and natural resources. The town's proffers may include streamlining of the development review process or protection from future changes in local regulations.
- **Density/Growth Management Restrictions:**
 - **Mandatory clustering – requires clustering away from sensitive areas:** See Section VI.3 *Escambia County, Florida: Coastal Conservation and Management Element.* Where development in sensitive areas is permitted, adverse impacts must be minimized through the use of clustering, variance of the county lot and setback requirements, a reduction in construction "footprints," modified or innovative construction techniques, and land use and development techniques which minimize negative environmental impacts or results.
 - **Limited Development Districts:** See Section VI.6g *Town of Perinton, NY: Limited Development Districts.* Perinton's Limited Development Districts (LDD) ordinance states that "different areas are intrinsically suited for different types and intensities of development" and characterizes LDD districts by soil, vegetation, terrain or slope, and hydrology. Relying on a planning inventory and with the advice of its Conservation Board, the town may limit development in areas with slopes greater than 15%; areas within the 100-year floodplain; areas prone to inundation or with a

high water table; areas of unstable soils; and stream corridors as classified by the NYS DEC in 6 NYCRR part 701.

3. Subdivision Regulations and Site Plan Approvals

- Many of the standards and techniques listed above may be added to the community's subdivision and site plan regulation. See Section VI.6j *City of Malibu, California: Coastal Zone Shoreline and Bluff Ordinance*. Subdivision requirements prohibit new lots that might require shoreline protection or bluff stabilization structures at any time during the full 100 year economic life of the development; See Section VI.6b *Town of Nags Head, North Carolina: Nags Head Woods Special Environmental District*. Standards for site plan, site development, and subdivisions require protections for dunes and vegetation, and prohibit the draw-down of groundwater, except for on-site wells designed to serve buildings on individual lots, and the alteration of natural drainage patterns.

4. Adopt Local SEQRA Regulations

- The State Environmental Quality Review Act (SEQRA) allows the community to adopt more stringent provisions under local regulations. These regulations could include any number of mitigation techniques that reduce the impact of development activities on the specific area and its environment identified in the comprehensive plan component. These local SEQRA regulations are applied to all development proposals.

Avoid Regulatory Takings Challenges²⁸⁷

- **In general:** Occasionally, courts will find that the impact of a regulation on private property rights is so burdensome that it violates the constitutional guarantee that property shall not be taken for a public use without just compensation. In select situations, a land use regulation can be invalidated as a “regulatory taking” and compensation can be awarded to the regulated property owner for the damages caused.
- **Adopt a comprehensive plan, keep it up to date, and back it up by studies:** Be sure that local land use regulations of the new district conform to the plan. A regulation that is adopted specifically to further an objective of a comprehensive plan is more likely to survive a regulatory taking challenge.
- **Ensure all similarly situated district properties are similarly regulated:** A regulation that limits the use of all properties in the district that are historic or that contain wetlands of a certain type will likely be found to distribute the benefits and burdens of the regulation as fairly and broadly as possible. Such regulations conform to the “principle of generality,” which puts courts at ease and tends to reduce fears that individual owners are being singled out.

²⁸⁷ See *Walton County v. Stop Beach Renourishment, Inc.*, 2008 WL 4381126 (Fl., Sept. 29, 2008) (In a decision with implications for public efforts to adapt to sea level rise due to global warming, the Florida Supreme Court, in a 5 to 2 decision, reversed the Florida Court of Appeals and rejected a taking claim based on the Florida Beach and Shore Preservation Act, which authorizes the state to nourish beachfront areas with sand and assert public ownership of the created land area; the Court ruled that the Act did not result in a taking because it did not fundamentally interfere with shore owners' common law rights to use and gain access to the water).

- **Allow variances for hardships:** If land use regulations might prevent all economically beneficial use of land owned by a particular individual, be sure that there is a readily available mechanism for the owner to prove that no reasonable use of the land is allowed and to obtain a hardship exemption from the strict application of the regulations. If the local government awards an exemption that allows some reasonable use of the property, an owner will not be able to claim that the regulatory regime destroys all but a bare residue of value.
- **Conduct studies supporting the need for public access on private property:** When government imposes conditions on the approval of development projects which require owners to allow public access to their properties, individual studies must be conducted to show that the condition is both necessary to mitigate the project's impact on the community and roughly proportionate to that impact.
- **Alternatives to Regulations:** Instead of limiting land uses through regulations, the community can explore the many innovative tools and techniques discussed in this Part as well as Part 1.V, that local governments are encouraged to use under statutes adopted by the state legislature. Where the public objective can be accomplished, for example, through regulatory agreements with landowners, clustering development, transferring development rights, or by purchasing conservation easements, burdens on landowners can be minimized and the chances of facing regulatory takings challenges reduced.

5. Project Review Local Planning Board

- The planning board has the authority to impose mitigation measures and enforce the standards that are contained in the law. Under SEQRA, the planning board is likely the lead agency and thus is required to impose mitigation techniques.
- If the community has a CAC and used it in the task force stage above, the municipality can convert it to a Conservation Board and require it review all applications submitted to planning board.

6. Transfer of Development Rights

- State law allows New York municipalities to establish transfer of development rights programs that concentrate development in receiving districts and provide for the transfer of development rights from sending districts. In smart growth terms, the receiving district is the designated growth area and the sending area is a conservation or natural resource protection area. See Section VI.6h *Town of Brookhaven, NY: TDR Ordinance*. Brookhaven's TDR ordinance established a Transfer of Development Rights Clearinghouse to be used "exclusively for the acquisition, holding and management and disposition of interests or rights in real property pursuant to this article." The town board is authorized to acquire real property, establish the value of transfer credits, and assemble appropriate building sites or areas. The planning board is authorized to investigate and make recommendations on the acquisition of land.

7. Establish Moratoria following future storm events (Post disaster moratoria)

- Limit all building pending a post-storm damage survey within a fixed time. See Section VI.5 *Town of Duck, North Carolina: Moratorium on Rebuilding and Reconstruction*. Damage assessment team assesses property damage immediately following a storm and makes recommendations to the town's Building Inspector, who then inspects and categorizes structures according to the degree of damage. When a building moratorium is declared in the Town of Duck, North Carolina, an "initial moratorium" extends for 48 hours, during which no building permits may be issued. A "destroyed structure moratorium" extends for 30 days following the expiration of the initial moratorium and during this period, no permit for replacement of a destroyed structure will be issued. In order to receive building permits, all replacement building and repairs following moratoriums must meet applicable town zoning and other code requirements. A major "damaged structure moratorium" also extends for 7 days following the initial moratorium and a "minor damaged structure moratorium" coincides with the 48-hour initial moratorium.
- Limit all building not connected with required infrastructure. See Section V. 5 *Town of Nags Head, North Carolina: General Use Standards for Redevelopment in Ocean Hazard Areas*. After the close of a building moratorium destroyed or major damaged structures may not be reconstructed unless an on-site inspection of the lot by zoning administrator is performed, a septic improvements permit is granted, the water is restorable at the street frontage of the lot, the electrical service is restorable to building site, and there is direct, uninterrupted approved vehicular access to the lot.
- Adjust zones and regulations to the post storm landscape. See Section VI.5 *Town of Duck North Carolina: Moratorium on Rebuilding and Reconstruction*. The ordinance creates a Reconstruction Task Force to review damage reports and advise the Town Council on reconstruction, rezoning, and innovative mitigation measures.
- Regulate all post storm rebuilding according to changes in land and the landscape. See Section VI.5 *Hillsborough County, Florida: Post-Disaster Redevelopment and Mitigation Ordinance*. The ordinance establishes post-disaster building standards. Buildings damaged less than 50% of their replacement cost may be rebuilt subject to current building and safety codes. Buildings suffering greater damage may be rebuilt to their original size and use if they comply with federal elevation requirements, local floodproofing requirements, building and safety codes, and other state and local regulations.

8. Intergovernmental Approaches²⁸⁸

- Intermunicipal Agreements – to regulate shared coastal resources and/or shared risk prevention and mitigation.
- Complete resolutions, plans, and regulations intermunicipally.
- Create intermunicipal Task Forces to address mutual SLR problems and concerns.

²⁸⁸ In New York, local governments have been given liberal legal authority to cooperate in the planning and zoning field. Town Law § 284, Village Law §7-741, and General City Law § 20-g. Through intermunicipal agreements, they can designate shared or interlocking districts. This technique is a particularly important for coastal communities.

- Perform intermunicipal studies, research, outreach, and education.
- Conduct intermunicipal training for local boards and land use leaders.
 - One day or extensive training programs
- Utilize intermunicipal cooperation as method of securing state and federal funds.
- Utilize intermunicipal cooperation for cost sharing, development of BMPs, regulatory drafting, and consultants.
- Establish joint board or boards to review applications regarding any specially designated area applications.
 - Delegate lead agency status to a single board under SEQRA
 - Allow local boards to comment on what the operative board is doing. Provide alternative dispute resolution procedures to settle disagreements.
- *See generally* Section VI.2 Regional and Intermunicipal Planning; *See* Section VI.2 *Long Island Sound Watershed Intermunicipal Council (LISWIC)*. In 1998, three cities, three towns, and four villages with land use jurisdiction over the watershed of Long Island Sound in Westchester County entered into a cooperative intermunicipal agreement designed to prevent pollution affecting the Sound. The group agreed to work toward the development of compatible comprehensive plans, zoning, and land use regulations. The group submitted a joint funding application to the state to assist in the development of their mutual objectives.

APPENDIX A

NEW YORK STATE LAND USE SUMMARY

The state enabling acts and the Municipal Home Rule Law give local governments in New York extensive statutory authority to protect natural resources. Comprehensive planning is critical to the SEQRA goal of incorporating environmental considerations into the earliest stages of the planning process. Zoning and special permit regulations can include both general and specific environmental protections. Site plan and subdivision regulations may contain detailed standards to ensure that land development will not adversely affect natural resources, aesthetics, or other critical resources

Municipal Home Rule Law

Local land use regulations may be adopted under the authority of the Municipal Home Rule Law (MHRL) and the Statute of Local Governments. The MHRL authorizes a local government to adopt laws for “the protection and enhancement of its physical and visual environment” as well as for the “government, protection, order, conduct, safety, health, and well being of persons or property therein.”²⁸⁹ The MHRL further states that a municipality may adopt local laws as provided in the Statute of Local Governments.²⁹⁰

The power “to adopt, amend and repeal zoning regulations” is included among the powers granted to cities, towns, and villages by the Statute of Local Governments.²⁹¹ Home rule authority gives local governments the power to adopt laws relating to their local property, affairs, and government, in addition to the powers specifically delegated to them by the legislature. New York’s Town, Village, and General City Law clarify gaps in the Municipal Home Rule Law, including the provision of authority to adopt zoning laws.

Under the New York State Constitution, “every local government shall have power to adopt and amend local laws not inconsistent with the provisions of this constitution or any general law relating to its property, affairs or government.” A local government is “a county, city, town or village.” A general law is defined as a law “which in terms and in effect applies alike to all counties, all counties other than those wholly included within a city, all cities, all towns or all villages.” A special law is a law “which in terms and in effect applies to one or more, but not all, counties, counties other than those wholly included within a city, cities, towns and villages.”

Under their home rule authority, and following specific procedures and conditions in their land use enactments, local governments may expressly supersede conflicting provisions of state law.

Planning Enabling Acts

Under parallel provisions of the Town, Village, and General City Law, municipalities are authorized, but not required, to establish planning boards and to enact comprehensive plans.

- *Planning Board*: Town Law § 271; Village Law § 7-718; General City Law § 27; General Municipal Law §§ 235-239A.
- *Comprehensive Plan*: Town Law § 272-a; Village Law § 7-722; General City Law § 28-a.

²⁸⁹ MHRL § 10(1)(ii)(a)(11).

²⁹⁰ MHRL § 10(1)(ii)(a)(14).

²⁹¹ Statute of Local Governments § 10(6).

A comprehensive plan is the “materials, written and/or graphic, including but not limited to maps, charts, studies, resolutions, reports, and other descriptive material that identify the goals, objectives, principles, guidelines, policies, standards, devices, and instruments for the immediate and long-range protection, enhancement, growth, and development” of the municipality. The statutes identify 15 elements that may be part of the comprehensive plan.

- Town Law § 272-a(a); Village Law § 7-722(2)(a); General City Law § 28-a(3)(a).

Zoning laws must conform to the comprehensive plan.

- Town Law § 263; Village Law § 7-704; General City Law § 20(25).

The Statute of Local Governments authorizes a city, town, or village to “perform comprehensive or other planning work related to its jurisdiction.”

- Statute of Local Governments § 10(7).

Counties in New York State are authorized to establish planning boards and to create comprehensive plans. Counties are not authorized to adopt zoning regulations.

- *County Planning Boards*: General Municipal Law § 239-C.
- *County Comprehensive Plans*: General Municipal Law § 239-D.

Regional planning councils and regional comprehensive plans are authorized.

- *Regional Planning Councils*: General Municipal Law § 239-H.
- *Regional Comprehensive Plans*: General Municipal Law § 239-I.

Intermunicipal cooperation in comprehensive planning is authorized.

- Town Law § 284; Village Law § 7-739; General City Law § 20-g; General Municipal Law §§ 5-G, 119-U.

Zoning Enabling Acts

New York’s zoning enabling legislation is found in parallel provisions of the Town, Village, and General City Law, which—like the zoning enabling acts of most states—are derived from the Standard State Zoning Enabling Act.²⁹²

- Town Law § 261; Village Law § 7-700; General City Law § 20(24).

Zoning and land use regulations must conform to the community’s comprehensive plan and must encourage “the most appropriate use of land throughout the municipality.”

- Town Law § 263; Village Law § 7-704; General City Law § 20(24), (25).

Local governments are authorized to divide the community into zoning districts and to regulate the use, construction, and alteration of buildings and land within those districts.

- Town Law § 262; Village Law § 7-702; General City Law § 20(25).

Subdivision Enabling Acts

New York statutes permit, but do not require, local legislative bodies to adopt regulations and procedures for the review and approval of subdivisions. The local legislature may authorize the planning board to review and approve subdivision applications. The state statutes authorize

²⁹² U.S. Department of Commerce, A Standard State Zoning Enabling Act, § 3 (1924, reprinted 1926). A PDF version of the 1926 Department of Commerce publication is posted by the American Planning Association, at <http://www.planning.org/growingsmart/enablingacts.htm>.

local governments to define subdivisions as “major” or “minor,” with separate requirements for review and approval.

- Town Law §§ 276 – 278; Village Law §§ 7-728 – 7-730; General City Law §§ 32 – 34.

Subdivision regulations may contain detailed standards to ensure that land development will not adversely affect natural resources, aesthetics, historic sites, or other critical resources.

Site Plan Controls

Local governments are authorized, but not required, to adopt site plan regulations. The statutes specify elements that may be required in site plan applications and authorize the imposition of reasonable conditions on approval, the reservation of parkland on site, the posting of security to guarantee improvements on site, requirements for compliance with environmental review provisions, and the waiving of requirements where appropriate.

- Town Law § 274-a; Village Law § 7-725-a; General City Law § 27-a.

Municipalities must give adjacent municipalities notice and opportunity to be heard when considering a site plan application that affects property within 500 feet of their common boundaries.

- General Municipal Law § 239-nn (effective 7-1-06).

County or regional planning agencies must review certain applications for site plan approval.

- General Municipal Law § 239-m.

Special Use Permits

Special use permits may be issued within zoning districts subject to conditions designed to protect surrounding properties and the neighborhood from any negative impacts of the permitted use. In New York, the authority to impose conditions on the issuance of a special permit is expressly delegated to local governments by statute. The statutes state that the conditions must be “reasonable” and “directly related to and incidental to the proposed use of the property.”

- Town Law § 274-b; Village Law § 7-725-b; General City Law § 27-b.

Municipalities must give adjacent municipalities notice and opportunity to be heard when considering a special use permit application that affects property within 500 feet of their common boundaries.

- General Municipal Law § 239-nn (effective 7-1-06).

Nonconforming Uses

The New York zoning enabling statutes make no express reference to the authority of local governments to allow the continuation of nonconforming uses. The statutes, however, implicitly authorize local legislatures to adopt reasonable measures to protect the legitimate investment expectations of owners of developed land. “[M]unicipalities in New York are free to seek solutions of the nonconforming-use problem which seem feasible under their particular local circumstances ... They are limited only by the reach of their general zoning powers and the constitutional limitations which protect existing uses of land.”²⁹³

Overlay Zoning

Overlays are a widely used means of protecting a community’s natural, historical, or scenic resources and of directing development to appropriate areas of the community. The provisions

²⁹³ See Salkin, *New York Zoning Law and Practice*, § 10:04:

of the overlay ordinance are applied in addition to the underlying zoning regulations. Overlay zones may be established in New York under the enabling statutes' grant of authority to adopt zoning regulations and to encourage the most appropriate use of land throughout the municipality. Additional authority is found in statutory provisions that permit the creation of historic districts, and in provisions of the Municipal Home Rule Law and Statute of Local Governments concerning the protection and enhancement of the municipality's physical and visual environment.

- Town Law § 263; Village Law § 7-704; General City Law § 20(24), (25).
- General Municipal Law § 96-a.
- MHRL §§ 10(1)(ii)(a)(11), 10(1)(ii)(a)(14).
- Statute of Local Governments § 10(6).

Floating Zone

New York courts have approved the use of floating zones. In *Rodgers v. Tarrytown*, 302 N.Y.115 (1951), New York's highest court held that a zoning law is not flawed because a district created by its provisions is not affixed to a particular parcel of land at the time the district is created. Under state enabling statutes, zoning regulations may be adopted with a view to encouraging the most appropriate use of land throughout the municipality.

- Town Law § 263; Village Law § 7-704; General City Law § 20(24), (25).

Incentive Zoning

Municipalities in New York have long had the implied power to adopt incentive zoning regulations. Because this authority had been used sparingly, the legislature amended the Town, Village, and General City Law to clarify this authority and to provide a specific procedure for creating a system that all municipalities can rely on.

- Town Law § 261-b; Village Law § 7-703; General City Law § 81-d.

Cluster Development

To "enable and encourage flexibility of design and development of land in such a manner as to preserve the natural and scenic qualities of open lands," the New York State Legislature has expressly authorized local governments to use cluster development as part of their subdivision review process.

- Town Law §278; Village Law § 7-738; General City Law § 37.

Planned Unit Development (PUD)

In 2003, the New York state legislature granted express authority to communities to adopt PUD regulations. The enabling statutes' stated purpose is "to provide for residential, commercial, industrial or other land uses, or mix thereof, in which economies of scale, creative architectural or planning concepts and open space preservation may be achieved by a developer in furtherance of the town comprehensive plan" or zoning ordinances.

- Town Law § 261-C; Village Law § 7-703-A; General City Law § 81-F.

Transfer of Development Rights (TDR)

New York statutes authorize municipalities to establish TDR in conformance with a comprehensive plan: "The purpose of providing for transfer of development rights shall be to protect the natural, scenic or agricultural qualities of open lands, to enhance sites and areas of special character or special historical, cultural, aesthetic or economic interest or value and to enable and encourage flexibility of design and careful management of land in recognition of land as a basic and valuable natural resource."

- Town Law § 261-a, Village Law § 7-701, General City Law § 20-(f).

In the landmark decision *Penn Central Transportation Co. v. City of New York*, 438 U.S. 104 (1978), the U.S. Supreme Court upheld New York City's use of TDR in an urban context. New York State has made notable use of TDR provisions in its comprehensive plan for the Long Island Pine Barrens.

- See N.Y. Environmental Conservation Law, art. 57, Long Island Pine Barrens Protection Act of 1993.

Growth Limits

In New York, phased growth management has been found to be an implied power of the local legislature. In *Golden v. Ramapo*, 30 N.Y.2d 359 (1972), the leading state court case sustaining local growth management ordinances, New York's highest court referred to subdivision control as a mechanism "to guide community development in the directions outlined here, while at the same time encouraging the provision of adequate facilities for the housing, distribution, comfort and convenience of local residents."

Local comprehensive plans can identify areas suitable for development and areas where the community chooses to limit development. Local zoning regulations can define areas where development is or is not desired.²⁹⁴

Intermunicipal Planning and Regulation

New York statutes specifically authorize local governments to enter into intermunicipal agreements to adopt compatible comprehensive plans and zoning laws as well as other land use regulations, including wetlands and floodplain laws; aquifer protection, watershed enhancement and corridor development plans; and historic preservation, cultural resource protection, erosion control, and visual buffering programs. Local governments also may agree to establish joint planning, zoning, historic preservation, and conservation advisory boards and to hire joint inspection and enforcement officers.

- Town Law § 284; Village Law § 7-739; General City Law § 20-g; General Municipal Law §§ 5-6, 119-U.²⁹⁵

Moratoria on Development

In New York, there is no specific statutory authorization to adopt a moratorium on development. The courts have pointed to two separate sources of authority, while consistently confirming the municipal power to enact moratoriums. For communities that have adopted a comprehensive plan and a zoning law, the adoption of a moratorium can be considered an implied power. For communities that have not yet adopted a comprehensive plan and zoning law, the authority to adopt a moratorium is implied either in their delegated authority to adopt zoning or in the municipal police power to protect the community in advance of zoning. Some courts have held that a development moratorium is a form of zoning, implying that it is part of the statutorily delegated power to adopt and amend zoning provisions. Alternatively, a community's authority

²⁹⁴ See also Office of the New York State Comptroller, Division of Local Government Services & Economic Development, *Smart Growth in New York State: A Discussion Paper* (2004), http://nysosc3.osc.state.ny.us/localgov/pubs/research/smart_growth.pdf;

NYS Department of State, Division of Local Government Services, *Creating the Community You Want: Municipal Options for Land Use Controls*, James A. Coon Local Government Technical Series (1998), <http://www.dos.state.ny.us/lgss/pdfs/municipl.pdf>.

²⁹⁵ See also NYS DOS, *Intergovernmental Cooperation*, James A. Coon Local Government Technical Series (June 1998), <http://www.dos.state.ny.us/lgss/pdfs/intergvt.pdf>.

to adopt a moratorium has been referred to as a police-power measure appropriate to prevent conditions that threaten the community's health, safety, welfare, and morals.

Performance Zoning

Performance zoning regulates land development by establishing standards of scale, density, and intensity of use rather than by the more customary separation of uses by district. Performance zoning has not been widely adopted in New York, but performance standards are sometimes combined with more traditional zoning techniques.

Purchase of Development Rights

The General Municipal Law authorizes local governments to expend funds for the acquisition of rights in real property to preserve open space in order to enhance the value of the surrounding urban area or to conserve natural or scenic resources. The purchase of development rights imposes, in effect, an equitable servitude on the protected property prohibiting any development of the site that is inconsistent with protecting the parcel's natural or scenic resources.

- General Municipal Law § 247(2).

Conservation Area Zoning

Conservation Area overlays recognize the interrelationships among natural resources and are designed to preserve ecosystems as a whole. In New York, the broad authority to implement this technique is found in the Municipal Home Rule Law, which grants localities the power to adopt laws relating to their "property, affairs or government," to "the protection and enhancement of [their] physical and visual environment," and to matters delegated to them under the Statute of Local Governments. The Statute of Local Governments delegates to municipalities the power "to adopt, amend and repeal zoning regulations" and "to perform comprehensive or other planning work related to [their] jurisdiction."

- MHRL § 10(1)(ii)(a)(11); MHRL § 10(1)(ii)(a)(14); Statute of Local Governments § 10(6).

A model local law establishing a Conservation Area Overlay District was prepared by the Land Use Law Center of Pace University School of Law for the Metropolitan Conservation Alliance. The CAOD is a mapped overlay district that may cross political boundaries, and that includes performance standards to maintain and protect the diversity of habitats and species; to protect open space, water resources, steep slopes, and ridgelines; to preserve ecological communities, environmentally sensitive areas, and native vegetation; and to protect scenic and historical resources. To preserve large contiguous undeveloped spaces—natural corridors that preserve the ecological functions of watersheds or of native plant and animal habitats—the CAOD can extend across municipal boundaries to follow the natural contours of ecosystems rather than political contours.

- Conservation Area Overlay District: A Model Law prepared by the Land Use Law Center of Pace University School of Law for the Metropolitan Conservation Alliance, MCA Technical Paper Series: No. 3 (2002), <http://www.wcs.org/media/file/MCA-WCS-TP3-CAOD.pdf>.

Conservation Easements

A conservation easement is a voluntary agreement between a private landowner and a municipal agency or qualified not-for-profit corporation—often a land trust—to restrict the use of land. Under the agreement, the owner of the real property deeds an interest in the land to a qualified public or private agency. The valuation of the land for purposes of real estate taxation is reduced by the limitations that the easement places on future use of the land.

- General Municipal Law § 247.

- N.Y. Environmental Conservation Law §§ 49-0301 et. seq.

Development Agreements

Development agreements limit a municipality's right to apply new land use regulations to a project that is already in progress, in exchange for specified concessions by the developer. Unlike some states, New York has no statutory provision allowing municipalities to enter into binding agreements with a developer to secure the developer's vested rights in a project. Local governments may, however, enter into development agreements through their home rule authority under the Municipal Home Rule Law and Statute of Local Governments. Development agreements specify how the locality will conduct the process of reviewing the project, provide zoning incentives, and otherwise support the project, in compliance with state law. At an appropriate point in the process, the locality may declare that the developer's rights to proceed are vested.

The common law doctrine of vested rights protects property owners from changes in zoning when they have received a valid building permit and have completed substantial construction and made substantial expenditures in reliance on the permit. The New York State Legislature has adopted an additional statutory protection for approved residential subdivisions, which provides that the lots shown on an approved and properly filed subdivision plat shall be immune from subsequent increases in dimensional requirements for a period established in the statute.

- Town Law § 265-a; Village Law § 7-709; General City Law § 83-a.

Erosion and Sediment Control

Local governments have broad authority to control erosion and sedimentation under provisions of the zoning enabling acts, the Municipal Home Rule Law, the General Municipal Law, and other state statutes. Comprehensive plans may implement erosion controls. Land-disturbing activities that are a primary cause of erosion are typically regulated by local zoning, subdivision, and site plan ordinances. Conditions imposed on development approvals may require the minimizing of land disturbance, the phasing of projects, the use of construction techniques that limit erosion, or the reduction of impervious surfaces, and may include specific design considerations, such as the contouring or terracing of construction, the preservation of trees and native vegetation, or the use of vegetative buffers, swales, or porous pavements. Authority to control erosion in coastal hazard areas is found in the Environmental Conservation Law.

- Town Law § 261; Village Law § 7-700; General City Law § 20(24).
- MHRL § 10(1)(ii)(a)(11); MHRL § 10(1)(ii)(a)(14); Statute of Local Governments § 10(6).
- General Municipal Law § 96-b.
- N.Y. Environmental Conservation Law, art. 34, §§ 34-0101 – 34-0113.²⁹⁶

Floodplain Protection

New York State requires local governments with jurisdiction over any area of special flood hazard to comply with the requirements of the National Flood Insurance Program. In order to take advantage of the federal insurance program, most communities that have adopted floodplain laws have done so in accordance with the federal requirements. These requirements are designed largely to protect development from flood damage rather than to preserve the ecological functions and values of floodplains.

²⁹⁶ See also Stormwater Management Guidance Manual for Local Officials (2004), available at <http://www.dec.state.ny.us/website/dow/toolbox/ms4toolbox/localall.pdf>.

The NYS Standards and Specifications for Erosion and Sediment Control (2005) are available at <http://www.dec.ny.gov/chemical/29066.html>.

Local governments in New York have further authority to adopt floodplain regulations under the state flood protection statute, the state zoning enabling acts, and the Municipal Home Rule Law. These sources of authority either explicitly or implicitly designate floodplain control and protection as a matter of local concern. Under this authority, local governments not only may protect development from the hazards of flooding but also may protect and conserve the environmental and ecological benefits of floodplains. The zoning enabling statutes state that local regulations “shall be . . . designed to . . . secure safety from fire, flood, panic, and other dangers.” The enabling statutes allow local governments to create zoning districts and overlay districts that incorporate floodplain regulations. Density restrictions and conditions attached to site plan and subdivision approval can limit the alteration of flood hazard areas.

- N.Y. Environmental Conservation Law, art. 16 Flood Control §§ 16-0101 – 16-0119.
- N.Y. Environmental Conservation Law, art. 36 Participation in Flood Insurance Programs §§ 36-0101 – 36-0113.
- General Municipal Law § 72-L Navigation and flood control improvements in cooperation with the federal government
- County Law § 223 Flood control and soil conservation.
- Town Law §§ 263, 277; Village Law §§ 7-704, 7-730; General City Law §§ 20(24), (25), 30.
- MHRL § 10(1)(ii)(a)(11); MHRL § 10(1)(ii)(a)(14); Statute of Local Governments § 10(6).

Large Landscape Protection Zones

Landscape fragmentation is a principal threat to the preservation of biodiversity and ecological resources. Ecosystems cross political boundaries. Comprehensive and regional planning legislation; habitat or wildlife protection statutes; and open space or agricultural lands protections may encourage the preservation of large landscapes. Measures for the protection of wildlife and habitat can be part of an integrated approach to open space preservation, to the preservation of wetlands, ridgelines, steep slopes, trees, floodplains, groundwater resources, and aquifers, and to stormwater management and the prevention of erosion and sedimentation. Local environmental laws can protect areas, species, and resources that are not protected by federal and state environmental statutes. The overall goal is to plan for an entire landscape—to consider and coordinate an entire range of land uses.

Scenic Resource Protection

Under the New York State Constitution, it is the state’s policy to “conserve its natural resources and scenic beauty.” In New York, regulations that protect important visual features from erosion or other harm and that prevent visual blight may be adopted under a municipality’s police power and under the authority of the Municipal Home Rule Law “to adopt laws for “the protection and enhancement of its physical and visual environment.”

- N.Y.S. Constitution, art. XIV, § 4
- MHRL § 10(1)(ii)(a)(11); MHRL § 10(1)(ii)(a)(14); Statute of Local Governments § 10(6).

The NYS Division of Coastal Resources evaluates and designates scenic areas of statewide significance—“unique, highly scenic landscapes which are accessible to the public and recognized for their outstanding quality.” The state’s designation can be of use to local governments in planning and other land use decision-making.

- New York State Scenic Areas of Statewide Significance, 19 NYCRR Part 602, Policies 24 and 25, http://nyswaterfronts.com/waterfront_developed_SASS.asp.
- Scenic byways are protected by N.Y. Highway Law §§ 340-aa – dd.

- Scenic river protections are authorized by N.Y. Environmental Conservation Law §§ 15-2701 – 15-2723.

Steep Slope Protection

Steep slopes may be protected through the adoption of zoning regulations applicable to all development activities on properties containing steep slopes, as identified on municipal maps. Overlay zones protecting important natural features such as steep slopes may be created to supplement existing zoning regulations. Home rule authority to protect the physical and visual environment also encompasses the protection of steep slopes.

- Town Law §§ 261-263; Village Law §§ 7-700 – 7-704; General City Law §§ 20(24), 20(25).
- Town Law §§ 276 – 278; Village Law §§ 7-728 – 7-730; General City Law §§ 32 – 34.
- MHRL § 10(1)(ii)(a)(11); MHRL § 10(1)(ii)(a)(14); Statute of Local Governments § 10(6).

Stormwater Management

Pursuant to its authority under the Clean Water Act, the U.S. Environmental Protection Agency (EPA) has established a two-phase Stormwater Management Program. Phase I began regulating medium and large operators of municipal separate storm sewer systems (MS4s) in 1990. The Phase II regulations, which were issued in 1999, apply to local governments that operate storm sewer systems that discharge to federally protected waters. 40 CFR 122.26(b)(16). Phase II regulates small MS4s as well as small construction activities; i.e. those activities disturbing between one and five acres of land. Operators of regulated MS4s are required to obtain either an individual or general National Pollutant Discharge Elimination System (NPDES) permit.

Under the New York State regulations implementing the federal program, affected local governments are required to adopt erosion and sediment control laws, establish site plan review procedures for projects that will impact water quality, inspect construction activities, and adopt enforcement measures. Post-construction runoff controls are also required for development and redevelopment projects. Redevelopment is defined to include any change in the footprint of existing buildings that disturbs greater than one acre of land.

Local governments may also adopt protections against stormwater damage through their planning, zoning, and home rule authority.²⁹⁷

- *Zoning*: Town Law §§ 261-263; Village Law §§ 7-700 – 7-704; General City Law §§ 20(24), 20(25).
- *Comprehensive Plan*: Town Law § 272-a; Village Law § 7-722; General City Law § 28-a.
- *Site Plan*: Town Law § 274-a; Village Law § 7-725-a; General City Law § 27-a.
- *Subdivision*: Town Law §§ 276 – 278; Village Law §§ 7-728 – 7-730; General City Law §§ 32 – 34.
- *Cluster Development*: Town Law §278; Village Law § 7-738; General City Law § 37.
- MHRL § 10(1)(ii)(a)(11); MHRL § 10(1)(ii)(a)(14); Statute of Local Governments § 10(6).

Tree Preservation

²⁹⁷ A model local law for Stormwater Management and Erosion & Sediment Control is available from the NYS DEC. See Stormwater Management Guidance Manual for Local Officials (2004), at <http://www.dec.ny.gov/chemical/9007.html>. See also NYS Stormwater Design Manual (April 2008) available at <http://www.dec.ny.gov/chemical/29072.html>.

New York's General Municipal Law states that there is a "direct relationship" between trees and the health, safety, and welfare of a community. The Municipal Home Rule Law authorizes local governments to adopt regulations protecting their visual and physical environment. Communities may adopt separate tree preservation ordinances or may include tree preservation and landscaping standards or requirements in subdivision and site plan regulations. Individual trees and particular species of trees may be protected. Land use approvals may be conditioned on the maintenance of required trees and landscaping or on the replacement of vegetation disturbed in the construction process.

- General Municipal Law § 96-B.
- MHRL § 10(1)(ii)(a)(11); MHRL § 10(1)(ii)(a)(14); Statute of Local Governments § 10(6).
- N.Y. Environmental Conservation Law, art. 53 Tree Conservation and Urban Forestry

Waterfront Management Laws

New York's Waterfront Revitalization Program is a voluntary partnership with the federal and local governments to protect the state's 5,000 miles of shoreline. Created under the Coastal Zone Management Act (CZMA) and N.Y. Executive Law, the program is open to more than 600 local governments with shorelines identified under the state statute and regulations. Local revitalization programs, harbor management plans, and comprehensive management programs for the Long Island Sound have been developed under this authority. Additionally, the state Coastal Erosion Hazard Areas statute regulates construction on shorelines designated by the DEC as coastal erosion hazard areas. Local governments may be given permitting authority by the DEC to regulate construction in these areas.²⁹⁸

- Coastal Zone Management Act (CZMA), 16 U.S.C. §§ 1451-1465.
- Waterfront Revitalization of Coastal Areas and Inland Waterways, N.Y. Executive Law, art. 42, §§ 910 – 923; 19 N.Y.C.R.R. § 600.5.
- Coastal Erosion Hazard Areas, N.Y. Environmental Conservation Law, art. 34.

The Long Island Sound Coastal Management Program was developed under the CZMA and N.Y. Executive Law to integrate local and state programs protecting the Sound shoreline in Westchester, Nassau, and Suffolk Counties, and in parts of New York City.²⁹⁹

Watershed Planning

Watershed planning necessarily involves cooperation among governments and agencies at all levels—local, county, regional, state, and federal. In New York, local governments may adopt critical watershed protections within their own jurisdictions under their local planning and zoning authority and under the authority of the Municipal Home Rule Law. Under statutes authorizing intermunicipal cooperation in comprehensive planning, municipalities may adopt plans that cross political boundaries.

- Town Law § 284; Village Law § 7-739; General City Law § 20-g; General Municipal Law §§ 5-G, 119-U.

²⁹⁸ See US EPA Division of Coastal Resources, at <http://www.epa.gov/region02/superfund/brownfields/nyscast.htm>. NOAA Office of Ocean and Coastal Resource Management

<http://www.ocrm.nos.noaa.gov/>

²⁹⁹ See NYS Department of State Division of Coastal Resources, Long Island Sound Coastal Management Program, at http://www.nyswaterfronts.com/initiatives_longisland.asp

At the county level, New York statutes authorize the creation of county plans and planning boards and regional plans and planning councils. County Small Watershed Protection Districts, County Lake Protection and Rehabilitation Districts, and Soil and Water Conservation Districts may be established under state statutes.

- General Municipal Law §§ 239-C.
- General Municipal Law § 239-D.
- General Municipal Law § 239-H.
- General Municipal Law § 239-I.
- County Law §§ 299-1 – 299-y.
- County Law §§ 250 et seq.
- Soil and Water Conservation Districts Law § 2.

At the state level, interstate pollution control compacts, the Water Resources Law, the Freshwater Wetlands Act, the Tidal Wetlands Act, the Waterfront Revitalization and Coastal Resources Act, and the Coastal Erosion Hazards Act all can implement watershed planning. The recently adopted New York Ocean and Great Lakes Ecosystem Conservation Act extends even beyond watersheds to “facilitate regional coordination and cooperation to address complex coastal resource issues which cross political and jurisdictional boundaries.”

- N.Y. Environmental Conservation Law, art. 24, §§ 24-0101 – 24-1305.
- N.Y. Environmental Conservation Law, art. 25 §§ 25-0101 –25-0601.
- N.Y. Executive Law, art. 42, §§ 910 – 923.
- N.Y. Environmental Conservation Law, art. 34.
- N.Y. Environmental Conservation Law, art. 14, § 14-0109(8) (enacted 8.8.06).

At the federal level, certain statutes provide further means to develop intergovernmental watershed management plans.

- Watershed Protection and Flood Prevention Act, 16 U.S.C. §§ 1001-1011;
- Coastal Zone Management Act, 16 U.S.C. §§ 1451-1464;
- Endangered Species Act, 16 U.S.C. §§ 1531-1544

Wetlands Protection

In New York, wetlands on private property may be regulated by federal, state, and local laws. The federal Clean Water Act authorizes the Army Corps of Engineers and the Environmental Protection Agency to regulate designated wetlands throughout the country. New York State, through the Freshwater Wetlands Act, has authorized its Department of Environmental Conservation (DEC) to regulate wetlands of 12.4 or more acres, and smaller wetlands of unusual local significance. The state regulations include buffer areas within 100 feet of a wetland boundary. Local governments can elect to replace the DEC as regulator of wetlands within their jurisdiction, as long as the local regulations are at least as protective of the wetlands as the state regulations.

- N.Y. Environmental Conservation Law, art. XXIV, §§ 24-0101 – 24-1305.

Most local wetlands regulations in New York are enacted under the authority of the Municipal Home Rule Law to adopt laws to protect the community’s “physical and visual environment” and for the “safety, health, and well-being of persons or property” within its jurisdiction. Under this authority, wetlands of any size may be regulated. Local regulations adopted under home rule authority are concurrent with DEC regulations, and landowners must comply with both sets of standards separately, as well as with applicable federal requirements.

- MHRL § 10(1)(ii)(a)(11); MHRL § 10(1)(ii)(a)(14); Statute of Local Governments § 10(6).

Local governments in New York may also protect wetlands by regulating the review and approval of development applications. Subdivision, site plan, and special permit regulations may contain standards to protect wetlands. Some localities also protect wetlands by adopting floodplain, erosion and sedimentation, timber harvesting, or clearing and grading regulations or by designating sensitive areas for overlay protection.

Tidal wetlands are separately protected under the Environmental Conservation Law. Tidal wetlands are “areas which border on or lie beneath tidal waters,” including “those areas now or formerly connected to tidal waters,” together with “all banks, bogs, meadows, flats and tidal marsh subject to such tides” and characterized by certain types of vegetation. The DEC may enter into cooperative agreements with local governments for the protection of tidal wetlands. The agreement shall provide that the wetlands “be preserved or maintained in their natural or enhanced state” except for local operation or lease of shellfish beds.” Tidal wetlands are inventoried by the state. The statute forbids dredging, filling, construction, and other activities within or immediately adjacent to inventoried tidal wetlands “which may substantially alter or impair the natural condition of the tidal wetland area.”

- N.Y. Environmental Conservation Law, art. XXV §§ 25-0101 –25-0601.

Wildlife Habitat Protection

The New York State Constitution calls for the preservation of wildlife habitat. The state protects wild animals, plants, and significant habitats through the Environmental Conservation Law, which authorizes the State Fish and Wildlife Department to regulate and enforce its provisions. The broad grant of authority in the Municipal Home Rule Law to regulate for the protection of the community’s physical environment arguably encompasses the protection of wildlife habitat. Under the state Education Law, New York has established the Biodiversity Research Institute.

- N.Y.S. Constitution, art. XIV, § 3.
- N.Y. Environmental Conservation Law §§ 11-0535[1]-[2], 11-0536[2], [4].
- Endangered and Threatened Species of Fish and Wildlife; Species of Special Concern,
- 6 NYCRR Part 182 <http://www.dec.state.ny.us/website/regs/part182.html>
- NYS Significant Coastal Fish and Wildlife Habitats, http://nyswaterfronts.com/waterfront_natural_narratives.asp.
- MHRL § 10(1)(ii)(a)(11); MHRL § 10(1)(ii)(a)(14); Statute of Local Governments § 10(6).
- N.Y. Education Law § 235.
- Hudson River Estuary Program Biodiversity Outreach and Technical Assistance Program <http://www.dec.state.ny.us/website/hudson/biodiversity.html>.

To protect wildlife habitat, a community may create a natural resources inventory or biodiversity assessment and then develop a priority list of areas and habitat types for preservation. The American Planning Association (APA) recommends that planners maintain a dense core area of habitat surrounded by buffer areas that accommodate gradually increasing amounts of human activity.³⁰⁰

Infrastructure Provision

The provision of infrastructure is critical to smart growth. Municipalities use their general taxing and spending authority to provide roads, transit facilities, parking, water, sewer, storm drains, lighting, and sidewalks for redevelopment work and projects. Municipalities may, at times, provide infrastructure for affordable housing built by private and non-profit corporations

³⁰⁰ The APA’s Policy Guide on Endangered Species and Habitat Protection is available at <http://www.planning.org/policyguides/endanger.htm>.

organized under state housing laws. Cities, towns and villages may also be authorized to provide infrastructure in order to encourage positive and inclusionary urban revitalization methods.

- Private Housing Finance Law I§ 59-E, Infrastructure Development Fund.
- Private Housing Finance Law, art. 21 §§1130-1133, Infrastructure Development Demonstration Program.
- N.Y.S. Constitution, art. IX, § 2(c)(8) refers specifically to a municipality's power to tax and spend for local improvements.
- N.Y. Real Property Tax Law § 300 and § 1400 et seq. Provides the authority to assess and tax real property.

Location of Public Utilities

Both federal law and state law regulate public utilities. Federal statutes that provide for the exclusive licensing of public utilities can preempt local regulatory authority, with the result that public utilities cannot be excluded from a municipality or be unduly constrained. In New York, the Public Service Law governs the state's regulation of public utilities. Local governments may regulate the siting of a public utility through their zoning and planning authority under the Town, Village, and General City Law, the Municipal Home Rule Law, and SEQRA. However, in *Consolidated Edison Co. of N.Y. v. Hoffman*, 43 N.Y.2d 598 (1978), the state's highest court held that a lesser showing is required of a public utility to obtain a variance than is required of a private property owner.

APPENDIX B

ORDINANCES

1. EXECUTIVE ORDERS & SEA LEVEL RISE POLICY

Olympia, Washington: Resolution

- Olympia, WA, City Council Resolution No. M-1306, adopted February 5, 1991.

King County, Washington: Executive Order on the Evaluation of Climate Change Impacts through the State Environmental Policy Act (June 27, 2007)

- King County, WA, Executive Order Land Use Strategies for Global Warming Preparedness (Apr. 1, 2006); King County, WA, Climate Plan (Feb. 2007).

Miami-Dade County, Florida: Statement on Sea Level in the Coming Century

- See The Science and Technology Committee, *Statement on Sea Level in the Coming Century*, in SECOND REPORT AND INITIAL RECOMMENDATIONS MIAMI-DADE COUNTY CLIMATE CHANGE TASK FORCE, Presented to the Miami-Dade Board of County Commissioners (Apr. 2008), available at http://www.miamidade.gov/derm/library/08-10-04_CCATF_BCC_Package.pdf.

New York City: PlaNYC

- NYC PlaNYC, at <http://www.nyc.gov/html/planyc2030/html/home/home.shtml>.
- PlaNYC Report on Climate Change, at http://www.nyc.gov/html/planyc2030/downloads/pdf/full_report.pdf.

2. REGIONAL PLAN

Barnstable, Massachusetts: Cape Cod Commission

- Cape Cod Commission Act (1989), available at <http://www.capecodcommission.org/CCAct.htm>.
- Cape Cod Commission, Cape Cod Regional Policy Plan, available at <http://www.capecodcommission.org/RPP/home.htm>.

Florida: The Strategic Regional Plan of Southwest Florida Regional Planning Council (SWFRPC) & The Strategic Regional Policy Plan of the South Florida Regional Planning Council (SFRPC)

- This was provided: See Treasure Coast Regional Planning Council, *Sea Level Rise in the Treasure Coast Region* (Dec. 5, 2005).

San Francisco, California: San Francisco Bay Conservation and Development Commission

- See San Francisco Bay Conservation and Development Commission (SFBCDC), *A Climate Change Strategy for the San Francisco Bay Region* (2007).

NEW YORK

A.) Intermunicipal Agreements (IMAs)

- N.Y. TOWN LAW §§ 261, 262, 263 (McKinney 2008).
- N.Y. GEN. MUN. LAW § 119-o (McKinney 2008).
- N.Y. Town Law § 284; N.Y. Village Law § 7-741 (McKinney 2008); N.Y. Gen. Mun. Law § 20-g.
- N.Y. Town Law § 284; N.Y. Village Law § 7-741; N.Y. Gen. Mun. Law § 20-g.

Long Island Sound Watershed Intermunicipal Council (LISWIC):

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Manhasset Bay Protection Committee:

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B.) State Statutory Planning

The Long Island Pine Barrens Protection Act:

- N.Y. ENVTL. CONSERV. LAW § 57-0123 (McKinney 2008). See New York State's Central Pine Barrens, at http://pb.state.ny.us/#Act_Plan_Commission.

The Hudson River Valley Greenway Communities Council:

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C.) County Planning

Westchester Action Plan 2008:

- *Westchester Action Plan for Climate Change and Sustainable Development* (2008), available at http://www.westchestergov.com/environment_globalwarmingactionplan.htm and http://www.westchestergov.com/pdfs/ENVFACIL_globalWarmingAction2008FINAL.pdf.

Suffolk County Evaluation of Major Growth & Development Areas:

- Suffolk County Department of Planning, *A Review of Selected Growth and Development Areas, Suffolk County, New York* (August 2006), available at http://www.suffolkcountyny.gov/upload/planning/pdfs/majorgrowththerearpt10_06.pdf.

Nassau County Comprehensive Plan:

- See The Nassau County Planning Commission, at <http://www.nassaucountyny.gov/agencies/Planning/comprehensive.html>.

3. THE COMPREHENSIVE PLAN

City of Bainbridge Island, Washington: Environment Element

- See The City of Bainbridge Island Comprehensive Plan, Environment Element, available at http://www.ci.bainbridge-isl.wa.us/comprehensive_plan.aspx.

City of Olympia, Washington: Environment Element

- Olympia's Plan to Grow Smart, *available at* <http://search.mrsc.org/Subjects/Governance/trust/o46-41.pdf>.

Escambia County, Florida: Coastal Conservation and Management Element

- Escambia County Comprehensive Plan, Chapter 11 Coastal Management and Conservation Element, *available at* www.co.escambia.fl.us/departments/planning_zoning/LandDevelopmentCode.php

City of St. Pete, Florida: Coastal and Conservation Element

- St. Pete Beach Comprehensive Plan, Coastal/Conservation Element, *available at* <http://www.stpetebeach.org/sub/devel/compplan.html>

Collier County, Florida: Conservation and Coastal Management Element

- Collier County Comprehensive Plan, Policy 10.3.4, *available at* <http://www.colliergov.net/Index.aspx?page=257>.

NEW YORK

- N.Y. TOWN LAW § 272 (McKinney 2008); N.Y. VILLAGE LAW § 7-722 (McKinney 2008); N.Y. GEN. CITY LAW § 28-a (McKinney 2008).
- N.Y. MUN. HOME RULE LAW (McKinney 2008).
- N.Y. TOWN LAW § 272-a (2)(a); N.Y. VILLAGE LAW § 7-722 (2)(a); N.Y. GEN. CITY LAW § 28-a 3(a).
- N.Y. TOWN LAW § 284; N.Y. VILLAGE LAW § 7-741; N.Y. GEN. MUN. LAW § 20-g.

Town of East Hampton, NY: Coastal Management Element

- Town of East Hampton, NY, Comprehensive Plan: Coastal Management Component, at C-1.

4. SHORELINE MANAGEMENT PLANS/LOCAL WATERFRONT REVITALIZATION PLANS (LWRPs)

City of Bainbridge Island, Washington: Shoreline Management Program

- BAINBRIDGE ISLAND, WA, MUNICIPAL CODE, Ch. 16.12, Shoreline Management Master Program, *available at* http://www.ci.bainbridge-isl.wa.us/shoreline_management_master_program3.aspx.

Pacific County, Washington: SMP Ocean Coast Requirements

- See Pacific County Shoreline Master Program, *available at* <http://www.co.pacific.wa.us/pdf%20files/smp.pdf>

Maine: Mandatory Shoreland Zoning Act

- Title 38, Sections 435-449 M.R.S.A

Town of Orland, Maine: Shoreland and Zoning Ordinance

- TOWN OF ORLAND, ME, SHORELAND ZONING ORDINANCE §3 Applicability, *available at* <http://www.orlandme.org/images/shore.pdf>.

NEW YORK

A.) New York State Waterfront Revitalization Program (LWRP):

- N.Y. EXEC. LAW § 910 (McKinney 2008), available at http://www.nyswaterfronts.com/downloads/pdfs/Article_42.pdf. See also 19 NYCRR §600.5 (McKinney 2008) (codification of the 44 policies that all LWRPs must fulfill).

B.) The NYS Environmental Protection Fund's (EPF) LWRP Grants:

- NYS DOS Division of Coastal Resources, Coastal Resources Online, *Environmental Protection Fund's Local Waterfront Revitalization Program*, at http://www.nyswaterfronts.com/grantopps_EPF.asp.

Village of Tivoli, NY: Land conservation District to Implement LWRP

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City of North Tonawanda, NY: Water Front Zoning to Implement LWRP

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Town of East Hampton, NY: Harbor Overlay District & Comprehensive Plan Integration to Implement LWRP

- See Town of East Hampton Comprehensive Plan, available at http://www.town.east-hampton.ny.us/comp_plan.cfm.
- TOWN OF EAST HAMPTON, CODE, Ch. 255, art. III, § 255-3-70 Harbor Protection Overlay District (HPO).

C.) New York State Coastal Erosion Hazards Act:

- N.Y. ENVTL. CONSERV. LAW, art. 34 (McKinney 2008).
- 6 NYCRR Part 505

5. POST-STORM REDEVELOPMENT PLANNING

FEMA's All Hazard Mitigation Guidelines

- 44 CFR Part 201.6 (2008).

Hillsborough County, Florida: Post-Disaster Redevelopment and Mitigation Ordinance

- See Hillsborough County, Florida, *Post-Disaster Redevelopment Plan Ordinance*, available at <http://www.hcptc.org/pgm/pdrp/>.

Town of Duck, North Carolina: Moratorium on Rebuilding and Reconstruction

- The North Carolina Coastal Area Management Act of 1974, N.C. GEN STAT. §§ 1131-100 to 134.3 (2009), available at <http://dcm2.enr.state.nc.us/rules/cama.htm>.
- 15A N.C. ADMIN. CODE § 07M.0501 (2009), available at, <http://www.nccoastalmanagement.net/Rules/Text/t15a-07m.0500.pdf>.
- NORTH CAROLINA DESIGN AND CONSTRUCTION GUIDELINES, at 15 (on file with the author).
- TOWN OF DUCK, NC, CODE, Title XV, § 152.02.

Town of Nags Head, North Carolina: Hurricane and Storm Reconstruction and Redevelopment & General Use Standards for Redevelopment in Ocean Hazard Areas

- North Carolina Administrative Code "Ocean hazard areas." 15A N.C. ADMIN. CODE § 07H.0301, available at <http://dcm2.enr.state.nc.us/Rules/Text/t15a-07h.0300.pdf>.
- TOWN OF NAGS HEAD, NC, CODE, §§ 48-741 to 48-744.

NEW YORK

- New York State Emergency Management Office, <http://www.semo.state.ny.us/>.

- New York State Hazard Mitigation Plan (2008), *available at* <http://www.semo.state.ny.us/programs/planning/hazmitplan.cfm>.

New York City Hazard Mitigation Plan

- New York City Hazard Mitigation Plan, *available at* http://www.nyc.gov/html/oem/html/about/planning_hazard_mitigation.shtml

Suffolk County Hazard Mitigation Plan

- Suffolk County, New York, DMA 2000 Hazard Mitigation Plan (December 2007), *available at* <http://suffolkcountyny.gov/RESPOND>.

6. LAND USE REGULATIONS AND BEST MANAGEMENT PRACTICES

a. ROLLING EASEMENTS

City of Corpus Christi, Texas: Dune Protection, Rolling Easements

- This Provided See Eddie R. Fisher & Angela R. Sunley, *A Line in the Sand: Balancing the Texas Open Beaches Act and Coastal Development*, Proceedings of Coastal Zone 07, Portland, OR (July 2007).

b. SPECIAL AREA ORDINANCES AND HABITAT PRESERVATION

Town of Nags Head, North Carolina: Nags Head Woods Special Environmental District

- TOWN OF NAGS HEAD, NC, CODE OF ORDINANCES, § 48-442. SED-80 special environmental district.

Anacortes, Washington: Riparian Vegetation Landscape Ordinance

- ANACORTES, WA, MUNICIPAL CODE, art. VII, Marine Shoreline Vegetation § 17.70.580.

Worcester County, Maryland: Atlantic Bays Critical Area Ordinance

- § NR 3-101, Atlantic Bays Critical Area Law, *See also*, Worcester County, MA, *Atlantic Coastal Bays Critical Area*, <http://www.co.worcester.md.us/drp/natres/ACBCA.html>

Escambia County, Florida: Protection of Unique Vegetative Communities

- Escambia County Comprehensive Plan, Policy 11.B.3.7: Multi-jurisdictional Unique Vegetative Communities.

Town of Sullivan’s Island, South Carolina: Beach Preservation; Recreation and Conservation Area Districts

- Need Cite for Zoning Ordinance of the Town of Sullivan’s Island, adopted in 1977 and revised in 2005, establishes two Recreation and Conservation Area Districts: RC-1 (ocean side) and RC-2 (marsh side).
- TOWN OF SULLIVAN’S ISLAND, SC, CODE, § 4-5.2, *available at* <http://www.sullivanisland-sc.com/Files/Town%20Ordinances/Beaches.pdf>.

NEW YORK

- The New York State Constitution calls for the preservation of wildlife habitat and the state Environmental Conservation Law (ECL) specifically protects wild animals, plants, and significant habitats through regulations issued and enforced by the State Fish and Wildlife Department. Municipal Home Rule Law’s broad grant allowing for regulation

protective of the community's physical environment arguably encompasses the protection of wildlife habitat.

- The APA's Policy Guide on Endangered Species and Habitat Protection is available at <http://www.planning.org>.

Town of Brookhaven, NY: Critical Environmental Area and SEQRA Ordinance

- CODE OF THE TOWN OF BROOKHAVEN, NY, Ch. 80, *available at* <http://landuse.law.pace.edu/landuse/documents/laws/reg2/BrookhavenNYCriticalEnvironAreas.doc>.

Town of East Hampton, NY: Natural Resource Protection Ordinance

- CODE OF THE TOWN OF EAST HAMPTON, NY, Ch. 255 art. 4.

c. OVERLAY ZONING

Chatham, Massachusetts: Conservancy Districts Overlay

- TOWN OF CHATHAM, MA, ZONING, Protective Zoning By-law.

South Kensington, Rhode Island: High Hazard Overlay

- TOWN OF SOUTH KENSINGTON, RI, CODE, § 601. *See also* www.ri.gov; www.southkingstownri.com/index.cfm.

Tillamook County, Oregon: Beach and Dune Overlay Zone

- Land Conservation and Development Commission (LCDC). ORS 197; ORS 215; ORS 227.
- TILLAMOOK COUNTY, OR, LAND USE ORDINANCE, § 3.085, *available at* <http://www.co.tillamook.or.us/Gov/ComDev/Planning/luo.htm>

City of Manzanita, Oregon: Fore-dune Management Overlay Zone

- Oregon's Natural Hazard Technical Resource Guide cites Manzanita's program as a unique, homeowner-based example "of proactive, area-wide planning that may be applicable to other areas of coastal hazards management."
- CITY OF MANZANITA, OR, ZONING ORDINANCE, § 3.080 Beaches and Dunes Overlay Zone; § 4.050 Dune Construction Requirements.

City of Monterey, California: Special Setback Overlay District

- CITY OF MONTEREY, CA, CODE, Ch. 38: Zoning Ordinance, art. 14, Special Setback Overlay District, *available at* <http://66.113.195.234/CA/Monterey/index.htm>.

City of Garibaldi, Oregon: Limited Use Overlay Zone

- CITY OF GARIBALDI, OR, CODE, Zoning Ordinance, § 18.85, Limited Use Overlay Zone (LUO), *available at* <http://www.codepublishing.com/or/garibaldi/Garibaldi18/Garibaldi1885.html#18.85>

NEW YORK

Town of East Hampton, NY: Coastal Erosion Overlay District

- TOWN OF EAST HAMPTON, N.Y., CODE, Ch. 255: Zoning § 255-3-80.

Village of Pittsford, NY: Performance Zoning Overlay District

- CODE OF THE VILLAGE OF PITTSFORD, NY, Ch. 210, art. XIII.A.

d. NON-CONFORMITIES

City of Manzanita, Oregon: Nonconforming Uses

- MANZANITA, OR, ZONING ORDINANCE # 95-4, § 7.

Town of Duck, North Carolina: Non-Conformities

- TOWN OF DUCK, NC, CODE, § 156.070.

NEW YORK

Village of Westhampton, NY: Non-Conformities

- TOWN OF WESTHAMPTON, NY, MUNICIPAL CODE, § 197-29.

e. SITE CAPACITY/PERFORMANCE STANDARDS

Beaufort County, South Carolina: Resource Protection, Site Capacity and Open Space Ordinance

- BEAUFORT COUNTY, SC, CODE OF ORDINANCES, art. Resource Protection, Site Capacity and Open Space Ordinance, *available at* <http://www.municode.com/Resources/gateway.asp?pid=10400&sid=40>.

Seattle, Washington: Standards for Natural Beach Protection

- SEATTLE, WA, MUNICIPAL CODE, § 23.60.186.

F. COASTAL WETLAND REGULATIONS

Town of Falmouth, Massachusetts: Wetlands Regulations

- FALMOUTH, MA, CODE, ch. 235 (2008); FALMOUTH WETLANDS REGULATIONS, FWR § 10.00 (2008).

Barnstable, Massachusetts: Performance Standard for Wetland Buffers

- TOWN OF BARNSTABLE, MA, CODE, Ch. 704: Wetlands Buffer Zone Activity.

City of Olympia, Washington, Critical Area Buffers

- CITY OF OLYMPIA, WA, UNIFIED DEVELOPMENT CODE, § 18.32 Critical Areas.

NEW YORK

State Regulation

- New York State, through the Freshwater Wetlands Act, has authorized its Department of Environmental Conservation (DEC) to regulate wetlands of 12.4 or more acres, and smaller wetlands of unusual local significance. Outside of New York City, the state requires a minimum 22.9-meter (75 foot) buffer around tidal wetlands to allow migration, while outside of this buffer additional development and shoreline protection are permitted.

Tidal Wetlands

- Tidal wetlands are separately protected under New York’s Environmental Conservation Law (ECL). Tidal wetlands are “areas which border on or lie beneath tidal waters,” including “those areas now or formerly connected to tidal waters.” They include “all banks, bogs, meadows, flats and tidal marsh subject to such tides” and are characterized by certain types of vegetation.

Town of East Hampton, NY: Coastal and Wetland setbacks and buffers

- TOWN OF EAST HAMPTON, NY, CODE § 255-4-30

Village of Sagaponack, NY: Wetlands and Tidal Wetlands and Ocean Beach Overlays

- VILLAGE OF SAGAPONACK, NY CODE, § 42-6 Definitions; § 42-14 Bluff Area Restrictions

G. DENSITY RESTRICTIONS/GROWTH MANAGEMENT

Worcester County, Maryland: Atlantic Bays Critical Areas Ordinance

- § NR 3-101, Atlantic Bays Critical Area Law, *See also*, Worcester County, MA, *Atlantic Coastal Bays Critical Area*, <http://www.co.worcester.md.us/drp/natres/ACBCA.html>.

Seattle, Washington: Shoreline Environment Districts

- SEATTLE, WA, MUNICIPAL CODE, § 23.60.220.

NEW YORK

- *Golden v. Planning Bd. of Ramapo*, 30 N.Y.2d 359, 334 N.Y.S.2d 138, 285 N.E.2d 191 (1972).

Town of Perinton, NY: Limited Development Districts

- TOWN OF PERINTON, NY, CODE, Ch. 208, art. VIII.

h. TRANSFER OF DEVELOPMENT RIGHTS

Collier County, Florida: TDR Program & Overlay Zone

- See Collier County, FL, TDR Program, at <http://www.colliergov.net/Index.aspx?page=270>.

Hillsborough County, Florida: TDR Ordinance

Maryland: TDR Survey

- Eastern Shore Land Conservancy, *The Feasibility of Successful TDR Programs for Maryland’s Eastern Shore*, at 1 (January 2007).

Town of Ocean City, Maryland: Beach Transfer Overlay Districts

NEW YORK

- N.Y. TOWN LAW § 261-a, N.Y. VILLAGE LAW § 7-701, N.Y. GEN. CITY LAW § 20-(f).

The Central Pine Barrens TDR Program, Long Island, NY:

- See N.Y. ENVTL. CONSERV. LAW, art. 57, Long Island Pine Barrens Protection Act of 1993 (McKinney 2008).

Town of Brookhaven, NY: TDR Ordinance

- TOWN OF BROOKHAVEN, NY, CODE, Ch. 85 Zoning, art. XXXVA.

i. REGULATORY AGREEMENTS

Barnstable, Massachusetts, Regulatory Agreements Ordinance

- TOWN OF BARNSTABLE, MA, Code, Ch. 168.

j. BUILDING STANDARDS, SITE PLANS AND SUBDIVISION INFRASTRUCTURE

South Kingston, Rhode Island: The High Hazard Overlay District Standards

- TOWN OF SOUTH KINGSTON, RI, CODE, § 601 High flood Danger (HFD) Overlay District, available at <http://www.municode.com/resources/gateway.asp?pid=12088&sid=39>

The City of Bellingham, Washington

- See The City of Bellingham, WA, available at <http://www.cob.org/services/neighborhoods/community-planning/waterfront/index.aspx>

Olympia, Washington: Low Impact Development and Cluster Development

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Maine, Coastal Sand Dune Rules

- Maine Department of Environmental Protection, Rules Ch. 355(1).

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- CITY OF MALIBU, CA, CODE, §§10.4(A),(B),(O),(Q); 10.6(C).

NEW YORK

Town of Brookhaven, NY

- TOWN OF BROOKHAVEN, NY, CODE, § 85-388.

Town of Southampton, NY: Construction in and Adjacent to Town Waters and Beach Areas Ordinance

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k. FLOODPLAIN MANAGEMENT

Irvine, California: Floodplain District Ordinance

- IRVINE, CA. ZONING ORDINANCE § 5-2-2 (2005).

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Town of Southampton, NY: Tidal Floodplain Overlay

- TOWN OF SOUTHAMPTON, NY, CODE, art VIII, § 330 Tidal Wetlands and Ocean Beach Overlay District.

l. STORMWATER MANAGEMENT

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Nassau County, NY: Stormwater Management Program:

- Nassau County Stormwater Management Program, available at <http://www.nassaucountyny.gov/agencies/DPW/Docs/PDF/2003-FINAL-NCSWMP.pdf>.

m. COASTAL INFRASTRUCTURE REGULATION

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- COLLIER COUNTY, FL., LAND DEVELOPMENT CODE, § 3.03.05 (2008).

Iowa City, Iowa:

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