

Planning Lunches at Noon (PLAN) Monthly Webinar Services

Welcome to the PLAN Monthly Webinar Series!
The webinar will begin shortly.

Check out our Planning and Zoning Training website page for:

- Slides and recording of all completed webinars in the PLAN series
- Schedule for upcoming webinars
- A short, anonymous online survey to gather feedback and topics for future webinars

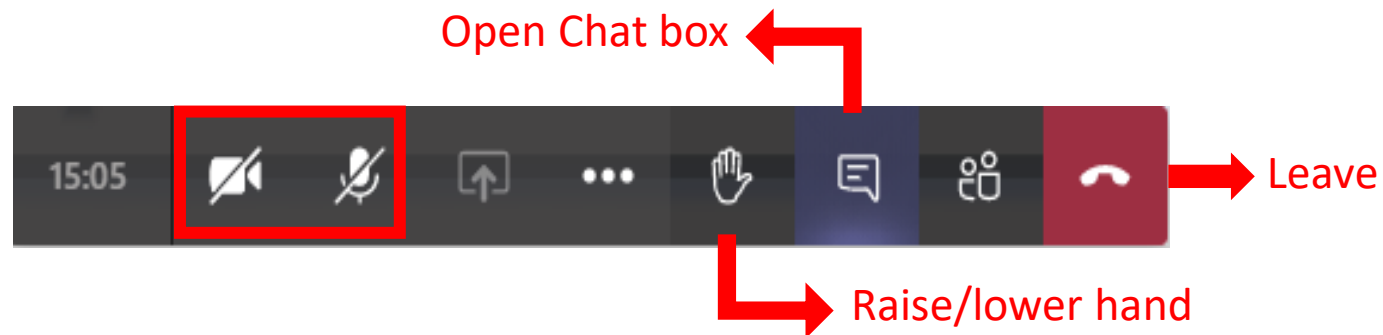
www.nh.gov/osi/planning/planning-training.htm

PLANNING FOR A RESILIENT NEW HAMPSHIRE

Webinar Logistics

Presentation then Question and Answer session

- ▶ Type questions into Chat box
- ▶ Raise hand
- ▶ We will be **recording** the presentation portion of this webinar.



Agenda

- Jennifer Rowden, Land Use Program Manager, Rockingham Planning Commission presentation of the Resilient Land Use Guide for NH
- Question & Answer Session



This project is fund, in part, by NOAA's Office for Coastal Management under the Coastal Zone Management Act in conjunction with the NH Department of Environmental Services Coastal Program.

RESILIENT LAND USE GUIDE FOR NH

OPD Planning Lunches at Noon (PLAN)
Webinar - November 10, 2022

**Jennifer Rowden | Land Use Program Manager
Rockingham Planning Commission**

Overview

- Background & Purpose
- *Guide* Overview
- Model Regulations Review
- Which Regulations Are Right for You?
- Adding to the *Guide*



Resilient Land Use Guide for NH – *Adapting to Climate Change & Coastal Hazards*

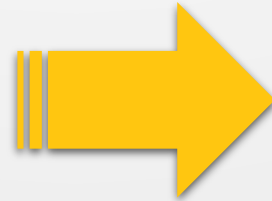
- Develop a set of land use model regulations that incorporate the best practices and updated information to help municipalities adapt to climate change and coastal hazards.
- A partnership between:
 - Rockingham Planning Commission
 - Strafford Regional Planning Commission
 - NH DES Coastal Program
 - NH BEA Office of Planning & Development
 - NH Coastal Adaptation Workgroup
 - 17 NH coastal municipalities

RESILIENT
LAND USE 
GUIDE FOR NH

NEW HAMPSHIRE
COASTAL 
LAND USE GUIDE


RESILIENT
LAND USE 
GUIDE FOR NH

NEW HAMPSHIRE
~~COASTAL~~
LAND USE GUIDE




RESILIENT
LAND USE 
GUIDE FOR NH


www.therpc.org/ResilientLandUseNH



ROCKINGHAM
PLANNING
COMMISSION
theRPC.org

Phone: 603-778-0885
Fax: 603-778-9183

 **Browse Our
DOCUMENT LIBRARY**

Search The Site:
 

[Commission](#) [Communities](#) [Regional & Community Planning](#) [Transportation](#) [Environment](#) [Maps and Data](#)

[Home](#) >> [Environment](#) >> [Resilient Land Use Guide for NH](#)

Resilient Land Use Guide For New Hampshire

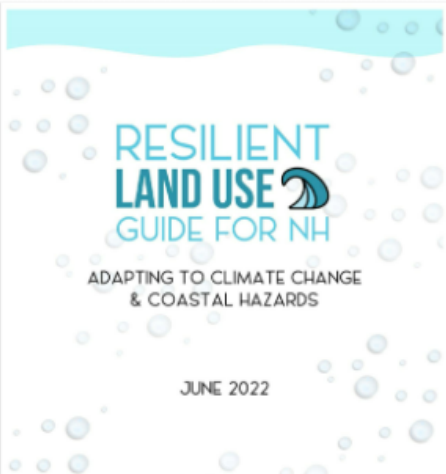
Adapting to Climate Change & Coastal Hazards


A set of land use model regulations that incorporate the best practices and updated information to help municipalities in New Hampshire adapt to climate change and coastal hazards.

Introduction

Municipalities in New Hampshire are increasingly taking steps to adapt to climate change and coastal hazards. The Resilient Land Use Guide for NH is intended to provide local officials and decision-makers with a set of land use model regulations that incorporate the best available information and practices to aid them in making informed decisions about land use within their municipalities. The Guide incorporates a wide range of topics related to resiliency and offers adaptation strategies that fit a variety of community goals and needs. Municipalities can choose regulations based on their geographic characteristic, community goals, or local issues. This Guide was developed to be user-friendly, and to allow for future expansion as needs are identified, knowledge changes, and community priorities evolve.

Developed in partnership between Rockingham Planning Commission and



RESILIENT
LAND USE 
GUIDE FOR NH
ADAPTING TO CLIMATE CHANGE
& COASTAL HAZARDS
JUNE 2022

[Environment](#)

**[Resilient Land Use
Guide for NH](#)**

[Land Conservation](#)

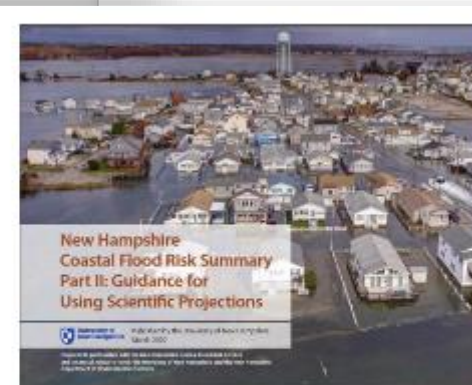
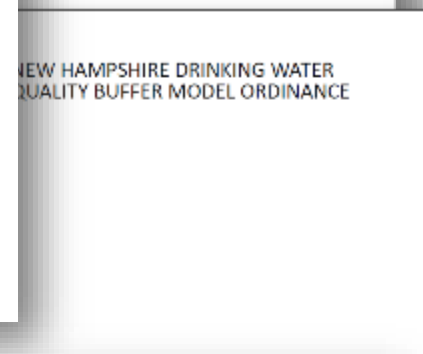
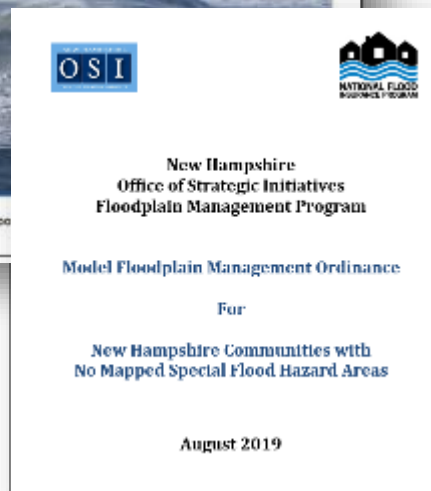
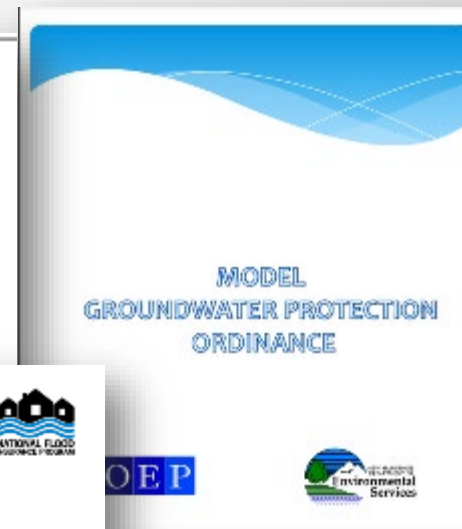
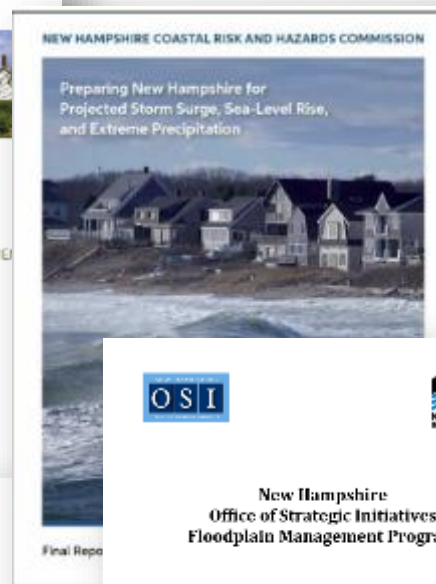
[Water Resources](#)

[Waste Management](#)

[Resources](#)

Background

- Develop a user-friendly coastal land use guide to inform local decision makers about land use regulations that can mitigate climate change impacts and increase the resiliency of the coastal region. **New Hampshire.**
- Address a range of climate resilience and adaptation priorities, challenges, and opportunities with customizable products, case studies, and direct technical assistance.



Part I: Science
Released August 2019
<https://scholars.unh.edu/ersc/210/>

Part II: Guidance for Using Scientific Projections
Released March 2020
<https://scholars.unh.edu/ersc/211/>

- **Introduction**
 - Purpose, Audience, and Goals
 - Legal Authority
 - How to Adopt the Regulations
- **How to Use the Guide**
- **Where Are You Located?**
- **Case Studies**
- **Model Regulations**
- **Resources & References**

RESILIENT LAND USE GUIDE FOR NH



ADAPTING TO CLIMATE CHANGE
& COASTAL HAZARDS

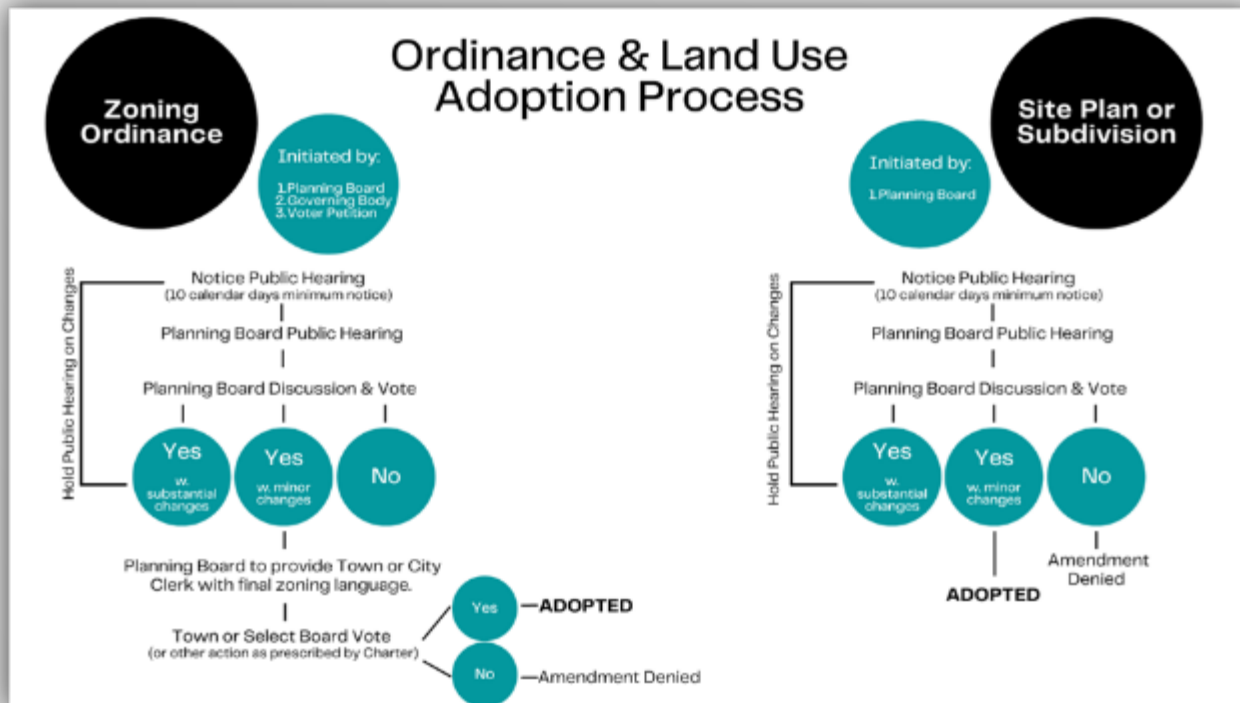
JUNE 2022



This project was funded, in part, by NOAA's Office for Coastal Management under the Coastal Zone Management Act in conjunction with the New Hampshire Department of Environmental Services Coastal Program.

• Introduction

- Purpose, Audience, and Goals
- Legal Authority
- How to Adopt the Regulations



ADOPTING THESE REGULATIONS: LEGAL AUTHORITY AND PROCESS FOR ADOPTING REGULATIONS

BACKGROUND

The State of New Hampshire adopted RSA 674:21 in 1983, authorizing innovative land use controls to deal with complex planning issues ranging from coastal flood regulations to impact fees. These land use controls are drafted and adopted with the goal of enhancing sustainable development and planning practices. RSA 674:21 provides municipalities with the authority to adopt, administer and enforce innovative land use controls. As stated in the statute, an adopted innovative land use control "may be required when supported by the master plan and shall contain within it the standards which shall guide the person or board which administers the ordinance." RSA 674:21 gives municipalities flexibility to determine how to adopt and administer innovative land use controls. While this guide provides model ordinances and regulations that communities can base their adopted language on, zoning must be adopted according to RSA 674:18; communities must have adopted the mandatory sections of the master plan and must have an established planning board that has been granted authority by the legislative body to regulate subdivisions and site plans. This section of the guide provides an overview of the various ways communities can adopt, administer, and enforce regulations based on the desired outcome.

ADOPTION

Municipalities have the flexibility to adopt innovative land use controls as amendments to their zoning ordinance, site plan regulations or subdivision regulations. Depending on the desired outcome, communities should consider the various impacts of adopting innovative land use controls via zoning, subdivision, or site plan. Zoning ordinances are adopted by the local legislative body. The local legislative body, depending on the municipality, could be town meeting, town council/city council, or board or mayor and alderman. Subdivision and site plan regulations are adopted by the planning board. While the adoption process differs, the ability to grant relief from standards also varies between zoning ordinances and site plan or subdivision regulations (BEA, 2021).

ZONING ORDINANCE

Zoning is utilized to regulate the size, location and use of buildings and other structures for the purpose of promoting the health, safety, and general welfare of the community. A zoning ordinance may be enacted by ballot vote of a majority of the voters present and voting at the annual or special town meeting, though in the case of a properly filed protest petition that meets the requirements of state law, the majority needed to for an affirmative vote may be increased to a two thirds vote. Municipalities that have a town council or city council will have town charter provisions that provide the procedures required for enacting and amendment zoning (BEA, 2021).











- **Introduction**
 - Purpose, Audience, and Goals
 - Legal Authority
 - How to Adopt the Regulations
- **How to Use the Guide**
- **Where Are You Located?**
- **Case Studies**
- **Model Regulations**
- **Resources & References**

DRAFT

STORMWATER MANAGEMENT

IMPERVIOUS SURFACE REDUCTION

LOCATIONS:

- | | |
|--|---|
|  Coastal Communities |  Inland Communities |
|  Freshwater |  Groundwater Resources |
|  Shorelands |  Projected Sea-Level Rise Impacted Areas |
|  Storm Surge Impacted Areas |  Entire Community |
|  Tidal Waters |  Coastal Zone Designated Communities |
|  Surface Waters |  Coastal Watershed Communities |
|  Flood Zones |  Locally Designated Areas and Districts |

COMMUNITY GOAL REGULATIONS:

- | | |
|---|--|
|  Open Space Protection |  Infrastructure Protection |
|  Flood Protection |  Economic Development |
|  Drinking Water Protection |  Recreation Options |
|  Environmental Protection |  Transportation Enhancement |
|  Tidal Waters |  Historic and Cultural Preservation |
|  Surface Waters |  Community Design & Aesthetics |
|  Stormwater Management |  Community Equity |
|  Water Quality Protection | |

BACKGROUND & PURPOSE

The management of stormwater runoff – rain and snowmelt flowing off impervious surfaces such as rooftops, roads, parking lots, and compacted soil – is increasingly an issue for municipalities in New Hampshire. Stormwater is the cause of most water pollution, with around 80 percent of surface water pollution in New Hampshire comes from, in some part, stormwater runoff. Increased flooding from storm surge and surge¹, more frequent storm events associated with climate change and sea level rise will result in increased stormwater runoff. Additional impacts of impervious surfaces related to climate change include reduction in flood storage capacity of floodplains, decreased ability for inland migration of coastal wetlands, reduction in recharge of groundwater sources, increase opportunity for property damage, and increased sources of urban heat impacts.

As little as 10 percent impervious cover in a watershed can result in water quality degradation (Center for Watershed Protection). Within the Piscataqua Region Watershed only nine of the 52 municipalities (including 10 municipalities in Maine) have impervious coverage of less than 10 percent ([Piscataqua Region Estuaries Partnership, 2020](#)).

REGULATION OPTIONS:

- ✓ Development Requirements
- ✓ **Impervious Surface Reduction***

* Danvers smart section

WHY ADOPT THESE REGULATIONS?

- Increase protection of water resources.
- Reduce flood potential across the entire community.
- Improve aesthetics and development design by maintaining open spaces.
- Improved legal justification for existing regulations that limit development on individual sites.

IMPERVIOUS SURFACE REDUCTION

LOCATIONS:



- | | |
|--|--|
|  Coastal Communities |  Inland Communities |
|  Freshwater |  Groundwater Resources |
|  Shorelands |  Projected Sea-Level Rise Impacted Areas |
|  Storm Surge Impacted Areas |  Entire Community |
|  Tidal Waters |  Coastal Zone Designated Communities |
|  Surface Waters |  Coastal Watershed Communities |
|  Flood Zones |  Locally Designated Areas and Districts |

COMMUNITY GOAL REGULATIONS:

- | | |
|--|---|
|  Open Space Protection |  Infrastructure Protection |
|  Flood Protection |  Economic Development |
|  Drinking Water Protection |  Recreation Options |
|  Environmental Protection |  Transportation Enhancement |
|  Tidal Waters |  Historic and Cultural Preservation |
|  Surface Waters |  Community Design & Aesthetics |
|  Stormwater Management |  Community Equity |
|  Water Quality Protection | |

BACKGROUND & PURPOSE

REGULATION OPTIONS:

-  Development Requirements
-  **Impervious Surface Reduction***

* Denotes current section

WHY ADOPT THESE REGULATIONS?

- Increase protection of water resources.
- Reduce flood potential across the entire community.
- Improve aesthetics and development design by maintaining open spaces.
- Improved legal justification for existing regulations that limit development on individual sites.

IMPERVIOUS SURFACE REDUCTION

LOCATIONS:

- | | |
|--|--|
|  Coastal Communities |  Inland Communities |
|  Freshwater |  Groundwater Resources |
|  Shorelands |  Projected Sea-Level Rise Impacted Areas |
|  Storm Surge Impacted Areas |  Entire Community |
|  Tidal Waters |  Coastal Zone Designated Communities |
|  Surface Waters |  Coastal Watershed Communities |
|  Flood Zones |  Locally Designated Areas and Districts |

COMMUNITY GOAL REGULATIONS:

- | | |
|--|---|
|  Open Space Protection |  Infrastructure Protection |
|  Flood Protection |  Economic Development |
|  Drinking Water Protection |  Recreation Options |
|  Environmental Protection |  Transportation Enhancement |
|  Tidal Waters |  Historic and Cultural Preservation |
|  Surface Waters |  Community Design & Aesthetics |
|  Stormwater Management |  Community Equity |
|  Water Quality Protection | |

BACKGROUND & PURPOSE

REGULATION OPTIONS:

- ✓ Development Requirements
- ✓ **Impervious Surface Reduction***

* Denotes current section

WHY ADOPT THESE REGULATIONS?

- Increase protection of water resources.
- Reduce flood potential across the entire community.
- Improve aesthetics and development design by maintaining open spaces.
- Improved legal justification for existing regulations that limit development on individual sites.

IMPERVIOUS SURFACE REDUCTION

LOCATIONS:

- | | |
|--|--|
|  Coastal Communities |  Inland Communities |
|  Freshwater |  Groundwater Resources |
|  Shorelands |  Projected Sea-Level Rise Impacted Areas |
|  Storm Surge Impacted Areas |  Entire Community |
|  Tidal Waters |  Coastal Zone Designated Communities |
|  Surface Waters |  Coastal Watershed Communities |
|  Flood Zones |  Locally Designated Areas and Districts |

COMMUNITY GOAL REGULATIONS:

- | | |
|--|---|
|  Open Space Protection |  Infrastructure Protection |
|  Flood Protection |  Economic Development |
|  Drinking Water Protection |  Recreation Options |
|  Environmental Protection |  Transportation Enhancement |
|  Tidal Waters |  Historic and Cultural Preservation |
|  Surface Waters |  Community Design & Aesthetics |
|  Stormwater Management |  Community Equity |
|  Water Quality Protection | |

BACKGROUND & PURPOSE

REGULATION OPTIONS:

- ✓ Development Requirements
- ✓ **Impervious Surface Reduction***

* Denotes current section

WHY ADOPT THESE REGULATIONS?

- Increase protection of water resources.
- Reduce flood potential across the entire community.
- Improve aesthetics and development design by maintaining open spaces.
- Improved legal justification for existing regulations that limit development on individual sites.

IMPERVIOUS SURFACE REDUCTION

LOCATIONS:

- | | |
|--|--|
|  Coastal Communities |  Inland Communities |
|  Freshwater |  Groundwater Resources |
|  Shorelands |  Projected Sea-Level Rise Impacted Areas |
|  Storm Surge Impacted Areas |  Entire Community |
|  Tidal Waters |  Coastal Zone Designated Communities |
|  Surface Waters |  Coastal Watershed Communities |
|  Flood Zones |  Locally Designated Areas and Districts |

COMMUNITY GOAL REGULATIONS:

- | | |
|--|---|
|  Open Space Protection |  Infrastructure Protection |
|  Flood Protection |  Economic Development |
|  Drinking Water Protection |  Recreation Options |
|  Environmental Protection |  Transportation Enhancement |
|  Tidal Waters |  Historic and Cultural Preservation |
|  Surface Waters |  Community Design & Aesthetics |
|  Stormwater Management |  Community Equity |
|  Water Quality Protection | |

BACKGROUND & PURPOSE

REGULATION OPTIONS:

- ✓ Development Requirements
- ✓ **Impervious Surface Reduction***

* Denotes current section

WHY ADOPT THESE REGULATIONS?

- Increase protection of water resources.
- Reduce flood potential across the entire community.
- Improve aesthetics and development design by maintaining open spaces.
- Improved legal justification for existing regulations that limit development on individual sites.

IMPERVIOUS SURFACE REDUCTION

LOCATIONS:



- | | |
|--|--|
|  Coastal Communities |  Inland Communities |
|  Freshwater |  Groundwater Resources |
|  Shorelands |  Projected Sea-Level Rise Impacted Areas |
|  Storm Surge Impacted Areas |  Entire Community |
|  Tidal Waters |  Coastal Zone Designated Communities |
|  Surface Waters |  Coastal Watershed Communities |
|  Flood Zones |  Locally Designated Areas and Districts |

COMMUNITY GOAL REGULATIONS:

- | | |
|--|---|
|  Open Space Protection |  Infrastructure Protection |
|  Flood Protection |  Economic Development |
|  Drinking Water Protection |  Recreation Options |
|  Environmental Protection |  Transportation Enhancement |
|  Tidal Waters |  Historic and Cultural Preservation |
|  Surface Waters |  Community Design & Aesthetics |
|  Stormwater Management |  Community Equity |
|  Water Quality Protection | |

BACKGROUND & PURPOSE

REGULATION OPTIONS:

-  Development Requirements
-  **Impervious Surface Reduction***

* Denotes current section

WHY ADOPT THESE REGULATIONS?


- Increase protection of water resources.
- Reduce flood potential across the entire community.
- Improve aesthetics and development design by maintaining open spaces.
- Improved legal justification for existing regulations that limit development on individual sites.

IMPERVIOUS SURFACE REDUCTION

LOCATIONS:

 Coastal Communities	 Inland Communities
 Freshwater	 Groundwater Resources
 Shorelands	 Projected Sea-Level Rise Impacted Areas
 Storm Surge Impacted Areas	 Entire Community
 Tidal Waters	 Coastal Zone Designated Communities
 Surface Waters	 Coastal Watershed Communities
 Flood Zones	 Locally Designated Areas and Districts

COMMUNITY GOAL REGULATIONS:

 Open Space Protection	 Infrastructure Protection
 Flood Protection	 Economic Development
 Drinking Water Protection	 Recreation Options
 Environmental Protection	 Transportation Enhancement
 Tidal Waters	 Historic and Cultural Preservation
 Surface Waters	 Community Design & Aesthetics
 Stormwater Management	 Community Equity
 Water Quality Protection	

BACKGROUND & PURPOSE

The management of stormwater runoff – rain and snowmelt flowing off impervious surfaces such as rooftops, roads, parking lots, and compacted soils - is increasingly an issue for municipalities in New Hampshire. Stormwater is the cause of most water pollution, with around 90 percent of surface water pollution in New Hampshire comes from, in some part, stormwater runoff. Increased flooding from storm surge and stronger, more frequent storm events associated with climate change and sea level rise will result in increased stormwater runoff. Additional impacts of impervious surfaces related to climate change include reduction in flood storage capacity of floodplains, decreased ability for inland migration of coastal wetlands, reduction in recharge of groundwater sources, increase opportunity for property damage, and increased sources of urban heat impacts.

As little as 10 percent impervious cover in a watershed can result in water quality degradation (Center for Watershed Protection). Within the Piscataqua Region Watershed only nine of the 52 municipalities (including 10 municipalities in Maine) have impervious coverage of less than 10 percent ([Piscataqua Region Estuaries Partnership](#), 2020).

REGULATION OPTIONS:

- ✓ Development Requirements
- ✓ **Impervious Surface Reduction***

* Denotes current section

WHY ADOPT THESE REGULATIONS?

- Increase protection of water resources.
- Reduce flood potential across the entire community.
- Improve aesthetics and development design by maintaining open spaces.
- Improved legal justification for existing regulations that limit development on individual sites.

IMPERVIOUS SURFACE REDUCTION

LOCATIONS:

 Coastal Communities	 Inland Communities
 Freshwater	 Groundwater Resources
 Shorelands	 Projected Sea-Level Rise Impacted Areas
 Storm Surge Impacted Areas	 Entire Community
 Tidal Waters	 Coastal Zone Designated Communities
 Surface Waters	 Coastal Watershed Communities
 Flood Zones	 Locally Designated Areas and Districts

COMMUNITY GOAL REGULATIONS:

 Open Space Protection	 Infrastructure Protection
 Flood Protection	 Economic Development
 Drinking Water Protection	 Recreation Options
 Environmental Protection	 Transportation Enhancement
 Tidal Waters	 Historic and Cultural Preservation
 Surface Waters	 Community Design & Aesthetics
 Stormwater Management	 Community Equity
 Water Quality Protection	

BACKGROUND & PURPOSE

The management of stormwater runoff – rain and snowmelt flowing off impervious surfaces such as rooftops, roads, parking lots, and compacted soils - is increasingly an issue for municipalities in New Hampshire. Stormwater is the cause of most water pollution, with around 90 percent of surface water pollution in New Hampshire comes from, in some part, stormwater runoff. Increased flooding from storm surge and stronger, more frequent storm events associated with climate change and sea level rise will result in increased stormwater runoff. Additional impacts of impervious surfaces related to climate change include reduction in flood storage capacity of floodplains, decreased ability for inland migration of coastal wetlands, reduction in recharge of groundwater sources, increase opportunity for property damage, and increased sources of urban heat impacts.

As little as 10 percent impervious cover in a watershed can result in water quality degradation (Center for Watershed Protection). Within the Piscataqua Region Watershed only nine of the 52 municipalities (including 10 municipalities in Maine) have impervious coverage of less than 10 percent ([Piscataqua Region Estuaries Partnership](#), 2020).

REGULATION OPTIONS:

- ✓ Development Requirements
- ✓ **Impervious Surface Reduction***

* Denotes current section

WHY ADOPT THESE REGULATIONS?

- Increase protection of water resources.
- Reduce flood potential across the entire community.
- Improve aesthetics and development design by maintaining open spaces.
- Improved legal justification for existing regulations that limit development on individual sites.

IMPERVIOUS SURFACE REDUCTION

LOCATIONS:

 Coastal Communities	 Inland Communities
 Freshwater	 Groundwater Resources
 Shorelands	 Projected Sea-Level Rise Impacted Areas
 Storm Surge Impacted Areas	 Entire Community
 Tidal Waters	 Coastal Zone Designated Communities
 Surface Waters	 Coastal Watershed Communities
 Flood Zones	 Locally Designated Areas and Districts

COMMUNITY GOAL REGULATIONS:

 Open Space Protection	 Infrastructure Protection
 Flood Protection	 Economic Development
 Drinking Water Protection	 Recreation Options
 Environmental Protection	 Transportation Enhancement
 Tidal Waters	 Historic and Cultural Preservation
 Surface Waters	 Community Design & Aesthetics
 Stormwater Management	 Community Equity
 Water Quality Protection	

BACKGROUND & PURPOSE

The management of stormwater runoff – rain and snowmelt flowing off impervious surfaces such as rooftops, roads, parking lots, and compacted soils - is increasingly an issue for municipalities in New Hampshire. Stormwater is the cause of most water pollution, with around 90 percent of surface water pollution in New Hampshire comes from, in some part, stormwater runoff. Increased flooding from storm surge and stronger, more frequent storm events associated with climate change and sea level rise will result in increased stormwater runoff. Additional impacts of impervious surfaces related to climate change include reduction in flood storage capacity of floodplains, decreased ability for inland migration of coastal wetlands, reduction in recharge of groundwater sources, increase opportunity for property damage, and increased sources of urban heat impacts.

As little as 10 percent impervious cover in a watershed can result in water quality degradation (Center for Watershed Protection). Within the Piscataqua Region Watershed only nine of the 52 municipalities (including 10 municipalities in Maine) have impervious coverage of less than 10 percent ([Piscataqua Region Estuaries Partnership](#), 2020).

REGULATION OPTIONS:

- ✓ Development Requirements
- ✓ **Impervious Surface Reduction***

* Denotes current section

WHY ADOPT THESE REGULATIONS?

- Increase protection of water resources.
- Reduce flood potential across the entire community.
- Improve aesthetics and development design by maintaining open spaces.
- Improved legal justification for existing regulations that limit development on individual sites.

Stormwater impacts can be dealt with through treatment, by reducing the sources of stormwater, or by preventing the source of stormwater altogether. These regulations focus on the reduction and prevention of stormwater by reducing or eliminating impervious surfaces. There are several benefits to communities when reducing impervious surfaces beyond prevention stormwater runoff. These benefits include increased open spaces, enhanced drinking water protection, reduced infrastructure maintenance cost, and improved community aesthetics.

REGULATION LANGUAGE

The following language is recommended to be incorporated into existing zoning districts as a part of the general requirements for those districts. Definitions are recommended to be incorporated either within the general zoning definition section.

General Definitions Section.

Lot, Coverage: Areas of a lot that include buildings, parking areas, vehicular drives, pavement and any other man-made structures and surfaces that are impervious to water. All surfaces deemed to be impervious surface shall be used when calculating lot coverage area.¹

Impervious Surface: A modified surface, that cannot effectively absorb or infiltrate water, including, but not limited to, structures, roofs, decks, patios, paved asphalt, concrete driveways, paved gravel or crushed stone driveways, parking areas, and walkways, unless designed to absorb or infiltrate water.²

District Impervious Surface Coverage Limits

Purpose: The purpose of limiting impervious surface coverage is to provide reasonable protection local natural resources from degradation and prevent adverse impacts from stormwater runoff to adjacent and downstream land, property, facilities, and infrastructure. Additionally, limitations help to ensure adequate space for water and wastewater infrastructure, encourage open spaces, maintain community characteristics and to minimize climate change and sea level rise impacts.

Residential District (without sewer)³

Lots Less than 2 Acres -Maximum Lot Coverage 30%

Lots Greater than 2 Acres - Maximum Lot Coverage: 20%

MODEL LANGUAGE

NOTES AND EXPLANATIONS

1. Definitions are intended to be located either within general zoning definition section or within zoning section describing dimensional requirements of lots within existing zoning districts.
2. The definition of impervious surface should be reviewed with existing definitions, often within groundwater ordinances. Within specific regulations the definition of impervious surface may be more specific if worded such that the definition applies only to the standards within that specific regulation.

Lot coverage limits are the limits for the entire lot. All limitations for development and uses within setbacks, wetland districts, aquifer districts, village districts, etc. will still apply.
3. Lot coverage limits should be evaluated based on location and zoning, existing density, and risk tolerance for flooding.

Municipalities may choose to vary lot coverage limits for smaller lots by conducting analysis of existing lot impervious coverage versus lot size. The intent would be to understand the number lots that may become non-conforming under the proposed standard.

Stormwater impacts can be dealt with through treatment, by reducing the sources of stormwater, or by preventing the source of stormwater altogether. These regulations focus on the reduction and prevention of stormwater by reducing or eliminating impervious surfaces. There are several benefits to communities when reducing impervious surfaces beyond prevention stormwater runoff. These benefits include increased open spaces, enhanced drinking water protection, reduced infrastructure maintenance cost, and improved community aesthetics.

REGULATION LANGUAGE

The following regulation language is recommended to be incorporated into existing zoning districts and general requirements and standards for those districts. Definitions are recommended to be incorporated either into the general zoning definition section.

General Definitions Section.

Lot, Coverage: Areas of a lot that include buildings, parking areas, vehicular drives, pavement and any other man-made structures and surfaces that are impervious to water. All surfaces deemed to be impervious surface shall be used when calculating lot coverage area.¹

Impervious Surface: A modified surface, that cannot effectively absorb or infiltrate water, including, but not limited to, structures, roofs, decks, patios, paved asphalt, concrete driveways, paved gravel or crushed stone driveways, parking areas, and walkways, unless designed to absorb or infiltrate water.²

District Impervious Surface Coverage Limits

Purpose: The purpose of limiting impervious surface coverage is to provide reasonable protection local natural resources from degradation and prevent adverse impacts from stormwater runoff to adjacent and downstream land, property, facilities, and infrastructure. Additionally, limitations help to ensure adequate space for water and wastewater infrastructure, encourage open spaces, maintain community characteristics and to minimize climate change and sea level rise impacts.

Residential District (without sewer)³

Lots Less than 2 Acres -Maximum Lot Coverage 30%

Lots Greater than 2 Acres – Maximum Lot Coverage: 20%

MODEL LANGUAGE

NOTES AND EXPLANATIONS

1. Definitions are intended to be located either within general zoning definition section or within zoning section describing dimensional requirements of lots within existing zoning districts.
2. The definition of impervious surface should be reviewed with existing definitions, often within groundwater ordinances. Within specific regulations the definition of impervious surface may be more specific if worded such that the definition applies only to the standards within that specific regulation.

Lot coverage limits are the limits for the entire lot. All limitations for development and uses within setbacks, wetland districts, aquifer districts, village districts, etc. will still apply.
3. Lot coverage limits should be evaluated based on location and zoning, existing density, and risk tolerance for flooding.

Municipalities may choose to vary lot coverage limits for smaller lots by conducting analysis of existing lot impervious coverage versus lot size. The intent would be to understand the number lots that may become non-conforming under the proposed standard.

Residential District (with sewer)

Lots Less than 0.25 Acres - Maximum Lot Coverage 50%

Lots Less than 1 Acres - Maximum Lot Coverage 30-50%

Lots Greater than 1 Acres - Maximum Lot Coverage: 30%

Commercial or Mixed-Use District⁴

Maximum Lot Coverage – 50% for existing lots of record as of {date of adoption} and 40% for lots of record created subsequently.

To assess risk, municipalities can use the [Coastal Flood Risk Summary: Part 2 Guidance for Using Scientific Projections](#), Step 1 as guidance. For mapping assistance, the New Hampshire Sea-Level Rise, Storm Surge, and Groundwater Rise Mapper (Sea-Level Rise Mapper) is available to provide easy access to future coastal inundation scenarios. (New Hampshire GRANIT) ACCESS THE MAPPER: www.tinyurl.com/slrmapper

4. Lot coverage limits on impervious surface do not specifically limit the ability to develop a site, but instead encourage the use of Low Impact Development (LID) techniques, including green roofs, pervious asphalt, and bio retention swales. Many of these LID techniques are required as part of municipal stormwater management requirements for commercial and multifamily developments. See [Stormwater Management: Development Requirements](#) for additional options for stormwater management requirements at the site-specific level.

WHERE DO THESE REGULATIONS GO?

The regulation language offered in this model is intended to be in addition to the [Southeast Watershed Alliance \(SWA\) Post Construction Stormwater Management Standards](#). Most municipalities that have adopted the SWA model language have included them within site plan and subdivision regulations, however, the model language can also be located within zoning ordinances. The additional language offered in this model can be inserted into either site plan/subdivision regulations or zoning ordinances.

HOW TO ADOPT THESE REGULATIONS:

Amendments to zoning ordinances require a majority vote at town meeting or by city/town council depending on the municipal form of government.

Additional information about the process of adopting regulations is available in the [Process for Adopting Regulations](#) section of this Guide.

municipal form of government. Additional information about the process of adopting regulations is available in the [Process for Adopting Regulations](#) section of this Guide.

Residential District (with sewer)

Lots Less than 0.25 Acres - Maximum Lot Coverage 50%

Lots Less than 1 Acres - Maximum Lot Coverage 30-50%

Lots Greater than 1 Acres - Maximum Lot Coverage: 30%

Commercial or Mixed-Use District⁴

Maximum Lot Coverage – 50% for existing lots of record as of {date of adoption} and 40% for lots of record created subsequently.

To assess risk, municipalities can use the [Coastal Flood Risk Summary: Part 2 Guidance for Using Scientific Projections](#), Step 1 as guidance. For mapping assistance, the New Hampshire Sea-Level Rise, Storm Surge, and Groundwater Rise Mapper (Sea-Level Rise Mapper) is available to provide easy access to future coastal inundation scenarios. (New Hampshire GRANIT) ACCESS THE MAPPER: www.tinyurl.com/slrmapper

4. Lot coverage limits on impervious surface do not specifically limit the ability to develop a site, but instead encourage the use of Low Impact Development (LID) techniques, including green roofs, pervious asphalt, and bio retention swales. Many of these LID techniques are required as part of municipal stormwater management requirements for commercial and multifamily developments. See [Stormwater Management: Development Requirements](#) for additional options for stormwater management requirements at the site-specific level.

WHERE DO THESE REGULATIONS GO?

The regulation language offered in this model is intended to be in addition to the [Southeast Watershed Alliance \(SWA\) Best Construction Stormwater Management Standards](#). Most municipalities that have adopted the SWA model language have included them within site plan and subdivision regulations, however, the model language can also be located within zoning ordinances. The additional language offered in this model can be inserted into either site plan/subdivision regulations or zoning ordinances.

HOW TO ADOPT THESE REGULATIONS:

Amendments to zoning ordinances require a majority vote at town meeting or by city/town council depending on the municipal form of government.

Additional information about the process of adopting regulations is available in the [Process for Adopting Regulations](#) section of this Guide.

SUGGESTED SUPPLEMENTARY INFORMATION AND RESOURCES TO COMPLEMENT THESE REGULATIONS:

Recommendation	Type	Details
Zoning Map with base zoning districts	Maps/GIS Data	Find in local Zoning Ordinance
Parcel Map	Maps/GIS Data	Find via Municipal Tax Maps
Sea Level Rise Scenarios	Maps/GIS Data	Reference NH Sea-Level Rise, Storm Surge, and Groundwater Rise Mapper
Impervious Surface Coverage Map	Maps/GIS Data	Access via GRANIT or Regional Planning Commissions
Water Resource and Wetland Map	Maps/GIS Data	Access via GRANIT , Regional Planning Commissions, or Conservation Commission, Master Plan, or Natural Resource Inventory
Water Infrastructure Availability Map	Maps/GIS Data	Find via Public Works Department, Regional Planning Commissions, or Water/Sewer Commission
Zoning Administrator	Personnel	Interprets and administers the regulation
Building Inspector/Code Enforcement Officer	Personnel	Reviews building permits for compliance and enforces regulations.
Conservation Commission	Volunteers	Advises the Planning Board on the location of areas particularly sensitive to the impacts of impervious surfaces such as waterways, wetlands, aquifers, and wildlife habitats.
Planning Board	Volunteers	Approves/denies applications and ensures that the land use applications before them meet municipal regulations.

HOW DOES THIS RELATE TO OTHER TOPICS?

Stormwater can be treated, reduced, or prevented altogether in several ways. These regulations focus on reduction and prevention of stormwater. Additional approaches for treating and reducing stormwater include:

- Increasing the development design criteria to improve treatment. See Stormwater: Development Standards for suggested language.
- Increasing natural vegetative buffers to wetlands and surface water to help treat stormwater prior to it entering waterways. See the [Drinking Water Protection: Surface Buffer Model and Shoreland Protection Model for suggested language](#).
- Preventing development near waterways and wetlands through conservation easements or deed restrictions.
- Reduce impervious surfaces through changes to requirements to roadways and parking lot design requirements.

WHO HAS ADOPTED THESE REGULATIONS?

Most municipalities in southeastern New Hampshire have limits to the extent any given lot can be developed, but can be improved to better define why. Development limitations can be in the form of lot size, structure setbacks, or dimensional requirements – including impervious surface coverage limitations. These development limits serve many purposes, including maintaining open space, rural characteristics, adequate space for wells and septic systems, etc. When amending or adopting impervious surface coverage limitations it is important to acknowledge the reasons for those limitations to 1) foster support for enacting the regulation, 2) assist residents and landowners in understanding the purpose for the regulation and, 3) to provide justification should the regulation be legally challenged.

ADDITIONAL RESOURCES AND REFERENCES

- [New Hampshire Coastal Flood Risk Summary Part 1: Science](#) (2019). University of New Hampshire in partnership with the NH Coastal Flood Risk Science and Technical Advisory Panel and the NH Department of Environmental Services.
- [New Hampshire Coastal Flood Risk Summary Part 2: Guidance for Using Scientific Projections](#) (2020). University of New Hampshire in partnership with the NH Coastal Flood Risk Science and Technical Advisory Panel and the NH Department of Environmental Services.

FUTURE INFORMATION NEEDS:

The impacts of climate change with respect to stormwater in New Hampshire have not been extensively researched beyond studies accessing vulnerable areas from increases in flooding due to increased precipitation, storm surge and sea-level rise. Better understand of the impacts of groundwater rise and salt-water intrusion are needed at the local and regional level to provide detailed recommendations for site specific design parameters. Additionally, further analysis is needed to understand how future development patterns may alter stormwater impacts when coupled with climate change.

HOW DOES THIS RELATE TO OTHER TOPICS?

Stormwater can be treated, reduced, or prevented altogether in several ways. These regulations focus on reduction and prevention of stormwater. Additional approaches for treating and reducing stormwater include:

- Increasing the development design criteria to improve treatment. See Stormwater: Development Standards for suggested language.
- Increasing natural vegetative buffers to wetlands and surface water to help treat stormwater prior to it entering waterways. See the [Drinking Water Protection: Surface Buffer Model and Shoreland Protection Model for suggested language](#).
- Preventing development near waterways and wetlands through conservation easements or deed restrictions.
- Reduce impervious surfaces through changes to requirements to roadways and parking lot design requirements.

WHO HAS ADOPTED THESE REGULATIONS?

Most municipalities in southeastern New Hampshire have limits to the extent any given lot can be developed, but can be improved to better define why. Development limitations can be in the form of lot size, structure setbacks, or dimensional requirements – including impervious surface coverage limitations. These development limits serve many purposes, including maintaining open space, rural characteristics, adequate space for wells and septic systems, etc. When amending or adopting impervious surface coverage limitations it is important to acknowledge the reasons for those limitations to 1) foster support for enacting the regulation, 2) assist residents and landowners in understanding the purpose for the regulation and, 3) to provide justification should the regulation be legally challenged.

ADDITIONAL RESOURCES AND REFERENCES

- [New Hampshire Coastal Flood Risk Summary Part 1: Science](#) (2019). University of New Hampshire in partnership with the NH Coastal Flood Risk Science and Technical Advisory Panel and the NH Department of Environmental Services.
- [New Hampshire Coastal Flood Risk Summary Part 2: Guidance for Using Scientific Projections](#) (2020). University of New Hampshire in partnership with the NH Coastal Flood Risk Science and Technical Advisory Panel and the NH Department of Environmental Services.

FUTURE INFORMATION NEEDS:

The impacts of climate change with respect to stormwater in New Hampshire have not been extensively researched beyond studies accessing vulnerable areas from increases in flooding due to increased precipitation, storm surge and sea-level rise. Better understand of the impacts of groundwater rise and salt-water intrusion are needed at the local and regional level to provide detailed recommendations for site specific design parameters. Additionally, further analysis is needed to understand how future development patterns may alter stormwater impacts when coupled with climate change.

HOW DOES THIS RELATE TO OTHER TOPICS?

Stormwater can be treated, reduced, or prevented altogether in several ways. These regulations focus on reduction and prevention of stormwater. Additional approaches for treating and reducing stormwater include:

- Increasing the development design criteria to improve treatment. See Stormwater: Development Standards for suggested language.
- Increasing natural vegetative buffers to wetlands and surface water to help treat stormwater prior to it entering waterways. See the [Drinking Water Protection: Surface Buffer Model and Shoreland Protection Model for suggested language](#).
- Preventing development near waterways and wetlands through conservation easements or deed restrictions.
- Reduce impervious surfaces through changes to requirements to roadways and parking lot design requirements.

WHO HAS ADOPTED THESE REGULATIONS?

Most municipalities in southeastern New Hampshire have limits to the extent any given lot can be developed, but can be improved to better define why. Development limitations can be in the form of lot size, structure setbacks, or dimensional requirements – including impervious surface coverage limitations. These development limits serve many purposes, including maintaining open space, rural characteristics, adequate space for wells and septic systems, etc. When amending or adopting impervious surface coverage limitations it is important to acknowledge the reasons for those limitations to 1) foster support for enacting the regulation, 2) assist residents and landowners in understanding the purpose for the regulation and, 3) to provide justification should the regulation be legally challenged.

ADDITIONAL RESOURCES AND REFERENCES

- [New Hampshire Coastal Flood Risk Summary Part 1: Science](#) (2019). University of New Hampshire in partnership with the NH Coastal Flood Risk Science and Technical Advisory Panel and the NH Department of Environmental Services.
- [New Hampshire Coastal Flood Risk Summary Part 2: Guidance for Using Scientific Projections](#) (2020). University of New Hampshire in partnership with the NH Coastal Flood Risk Science and Technical Advisory Panel and the NH Department of Environmental Services.

FUTURE INFORMATION NEEDS:

The impacts of climate change with respect to stormwater in New Hampshire have not been extensively researched beyond studies accessing vulnerable areas from increases in flooding due to increased precipitation, storm surge and sea-level rise. Better understand of the impacts of groundwater rise and salt-water intrusion are needed at the local and regional level to provide detailed recommendations for site specific design parameters. Additionally, further analysis is needed to understand how future development patterns may alter stormwater impacts when coupled with climate change.

HOW DOES THIS RELATE TO OTHER TOPICS?

Stormwater can be treated, reduced, or prevented altogether in several ways. These regulations focus on reduction and prevention of stormwater. Additional approaches for treating and reducing stormwater include:

- Increasing the development design criteria to improve treatment. See Stormwater: Development Standards for suggested language.
- Increasing natural vegetative buffers to wetlands and surface water to help treat stormwater prior to it entering waterways. See the [Drinking Water Protection: Surface Buffer Model and Shoreland Protection Model for suggested language](#).
- Preventing development near waterways and wetlands through conservation easements or deed restrictions.
- Reduce impervious surfaces through changes to requirements to roadways and parking lot design requirements.

WHO HAS ADOPTED THESE REGULATIONS?

Most municipalities in southeastern New Hampshire have limits to the extent any given lot can be developed, but can be improved to better define why. Development limitations can be in the form of lot size, structure setbacks, or dimensional requirements – including impervious surface coverage limitations. These development limits serve many purposes, including maintaining open space, rural characteristics, adequate space for wells and septic systems, etc. When amending or adopting impervious surface coverage limitations it is important to acknowledge the reasons for those limitations to 1) foster support for enacting the regulation, 2) assist residents and landowners in understanding the purpose for the regulation and, 3) to provide justification should the regulation be legally challenged.

ADDITIONAL RESOURCES AND REFERENCES

- [New Hampshire Coastal Flood Risk Summary Part 1: Science](#) (2019). University of New Hampshire in partnership with the NH Coastal Flood Risk Science and Technical Advisory Panel and the NH Department of Environmental Services.
- [New Hampshire Coastal Flood Risk Summary Part 2: Guidance for Using Scientific Projections](#) (2020). University of New Hampshire in partnership with the NH Coastal Flood Risk Science and Technical Advisory Panel and the NH Department of Environmental Services.

FUTURE INFORMATION NEEDS:

The impacts of climate change with respect to stormwater in New Hampshire have not been extensively researched beyond studies accessing vulnerable areas from increases in flooding due to increased precipitation, storm surge and sea-level rise. Better understand of the impacts of groundwater rise and salt-water intrusion are needed at the local and regional level to provide detailed recommendations for site specific design parameters. Additionally, further analysis is needed to understand how future development patterns may alter stormwater impacts when coupled with climate change.

WHERE ARE YOU LOCATED: UNDERSTANDING WHERE REGULATIONS MAY APPLY

MAP 1 – NH COASTAL ZONE PROGRAM

The New Hampshire Coastal Program provides staff assistance and funding to 42 coastal towns and cities as well as other local and regional groups to help protect clean water, restore coastal habitats, and help make communities more resilient to flooding and other natural hazards. The NHCP is one of 34 federally approved coastal programs authorized under the Coastal Zone Management Act and is administered by NHDES. The NH Coastal Program was established under Section 309 of the Coastal Zone Management Act (CZMA), as amended. The program encourages state coastal management programs (CMPs) to strengthen and improve their federally approved coastal management programs related to wetlands, coastal hazards, public access, marine debris, cumulative and secondary impacts, special area management plans (SAMPs), ocean/Great Lakes resources, energy and government facility siting, and aquaculture (CZP Map).

- **Introduction**
 - Purpose, Audience, and Goals
 - Legal Authority
 - How to Adopt the Regulations
- **How to Use the Guide**
- **Where Are You Located?**
- **Case Studies**
- **Model Regulations**
- **Resources & References**



WHERE ARE YOU LOCATED: UNDERSTANDING WHERE REGULATIONS MAY APPLY

MAP 1 – NH COASTAL ZONE PROGRAM

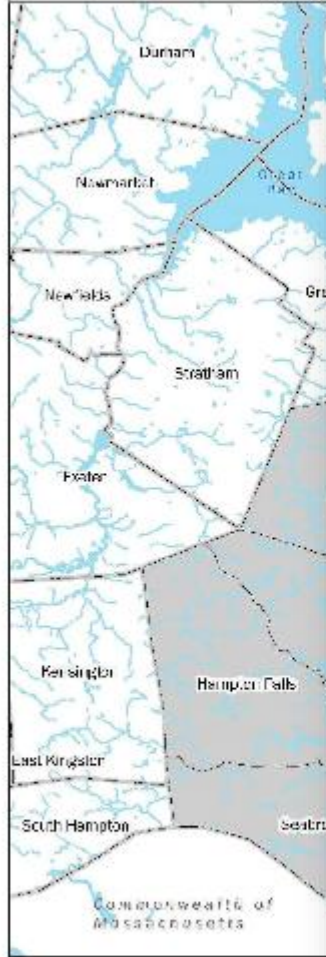
- **Introduction**
 - Purpose, Audience, and Goals
 - Legal Authority
 - How to Adopt the Regulations
- **How to Use the Guide**
- **Where Are You Located?**
- **Case Studies**
- **Model Regulations**
- **Resources & References**



staff assistance and funding to 42 coastal towns and help protect clean water, restore coastal habitats, and guard against other natural hazards. The NHCP is one of 34 programs established under Section 309 of the Coastal Zone Management Act and is one of the few programs that encourages state coastal management programs. The program encourages state coastal management programs related to debris, cumulative and secondary impacts, special area resources, energy and government facility siting, and



Map 2



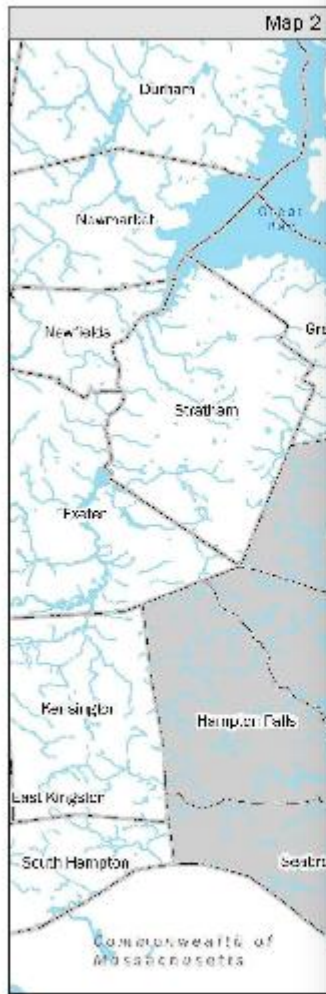
Map 3 Great Bay and



Map 4 - Hampton Seabrook Estuary



DRAFT: WHERE ARE YOU LOCATED UNDER



DRAFT: WHERE ARE YOU LOCATED UNDER



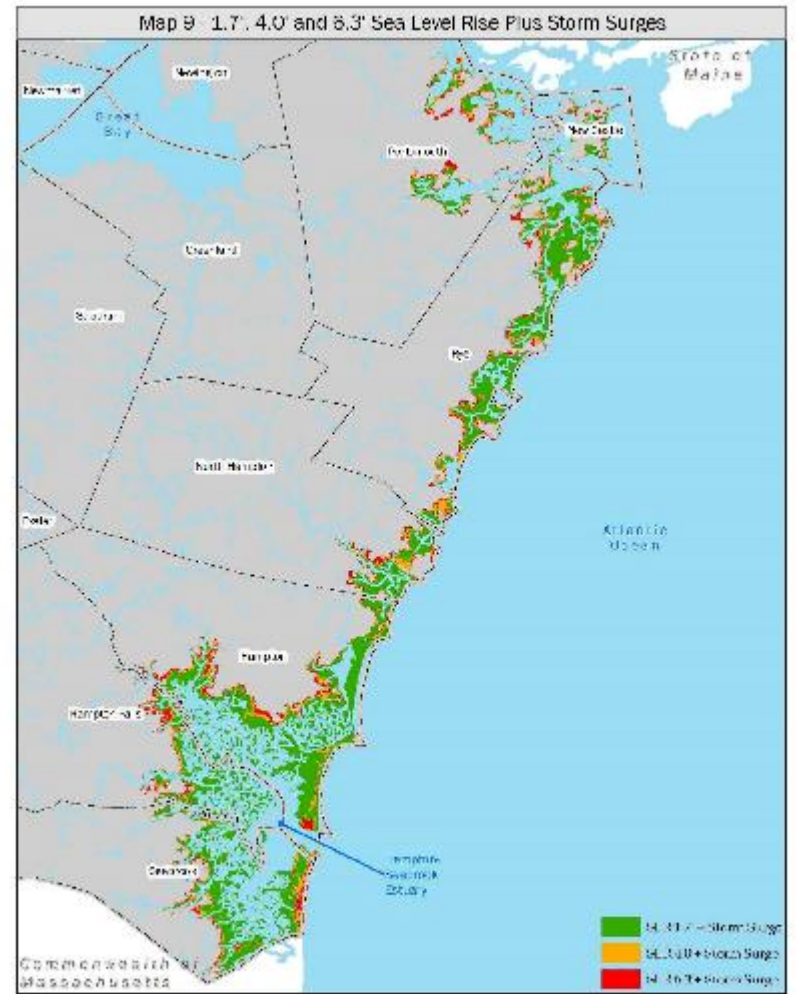
DRAFT: WHERE ARE YOU LOCATED UNDER



DRAFT: WHERE ARE YOU LOCATED UNDER



DRAFT: WHERE ARE YOU LOCATED UNDERSTANDING WHERE REGULATIONS MAY APPLY



Map 2

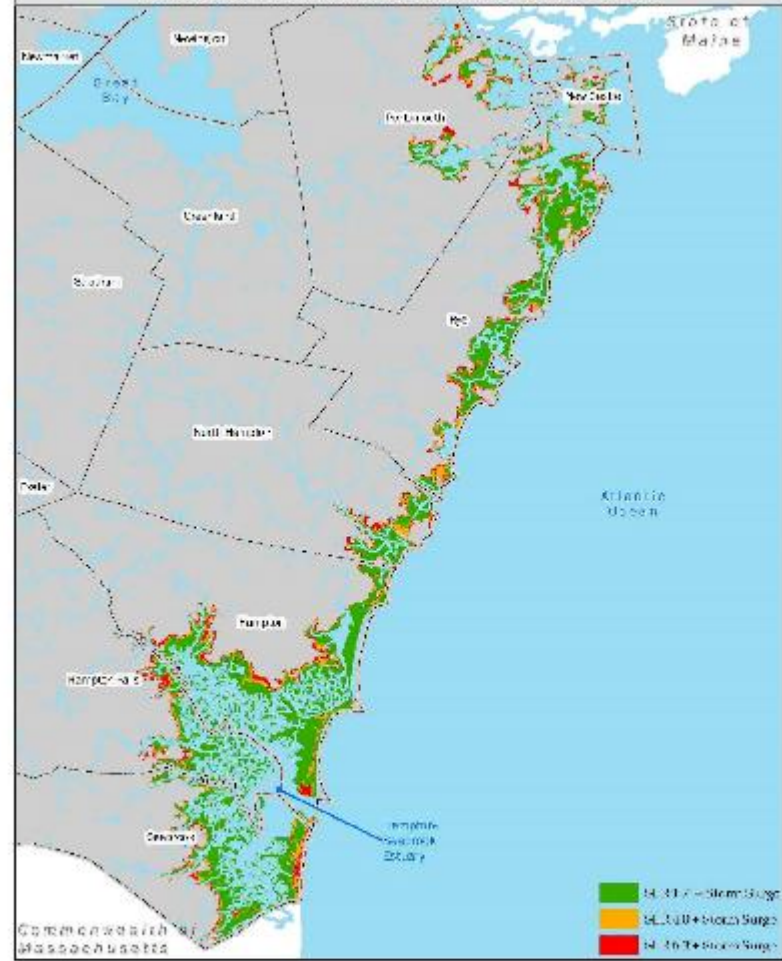
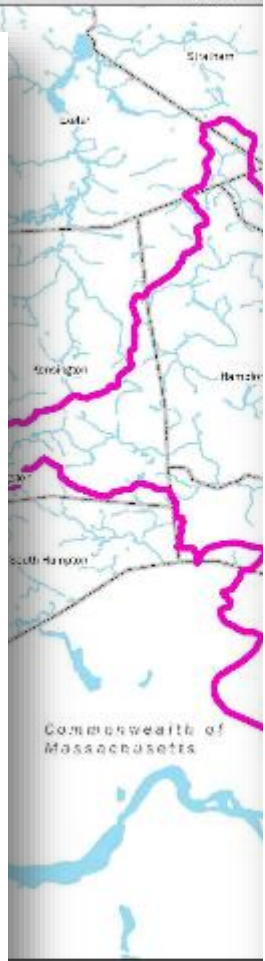
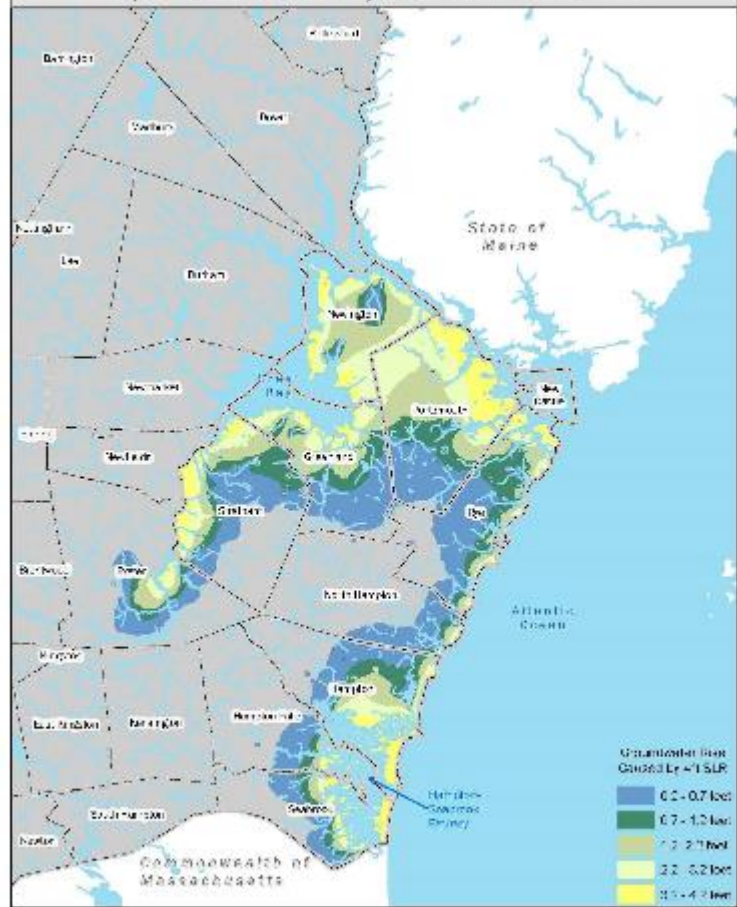
Map 3 Great Bay and

Map 4

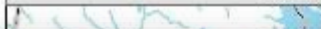
Map 5

Map 9 1.7', 4.0' and 8.3' Sea Level Rise Plus Storm Surges

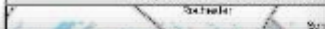
Map 10 - Groundwater Rise Projects at 4.0 feet of Sea Level Rise



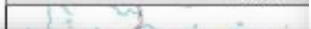
Map 2



Map 3 Great Bay and



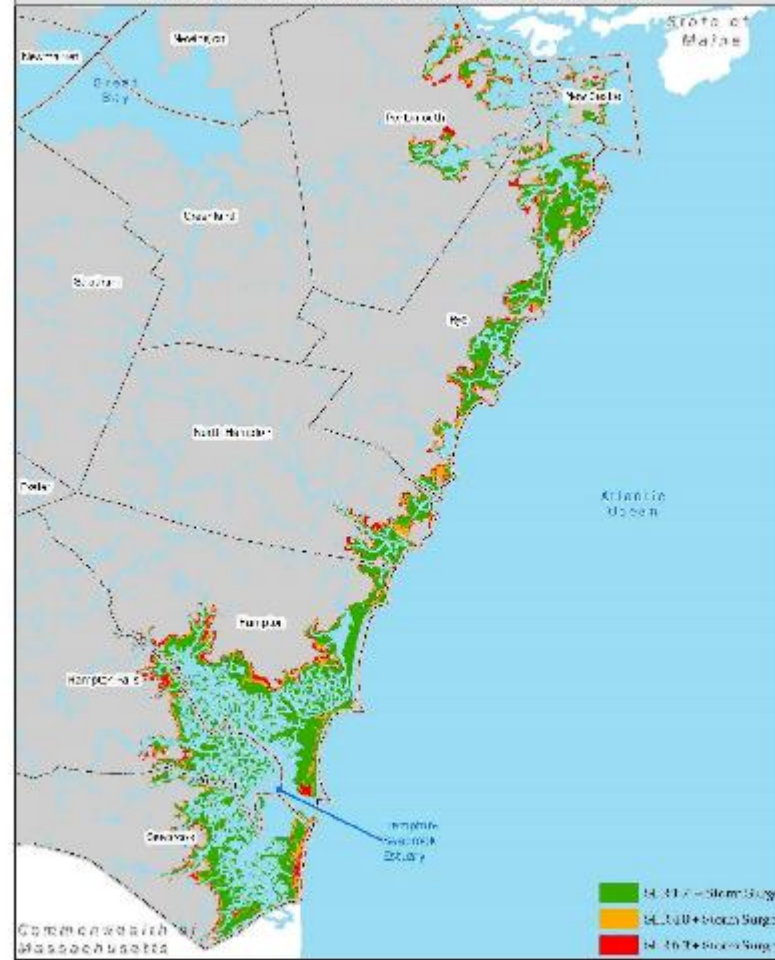
Map 4



Map 5



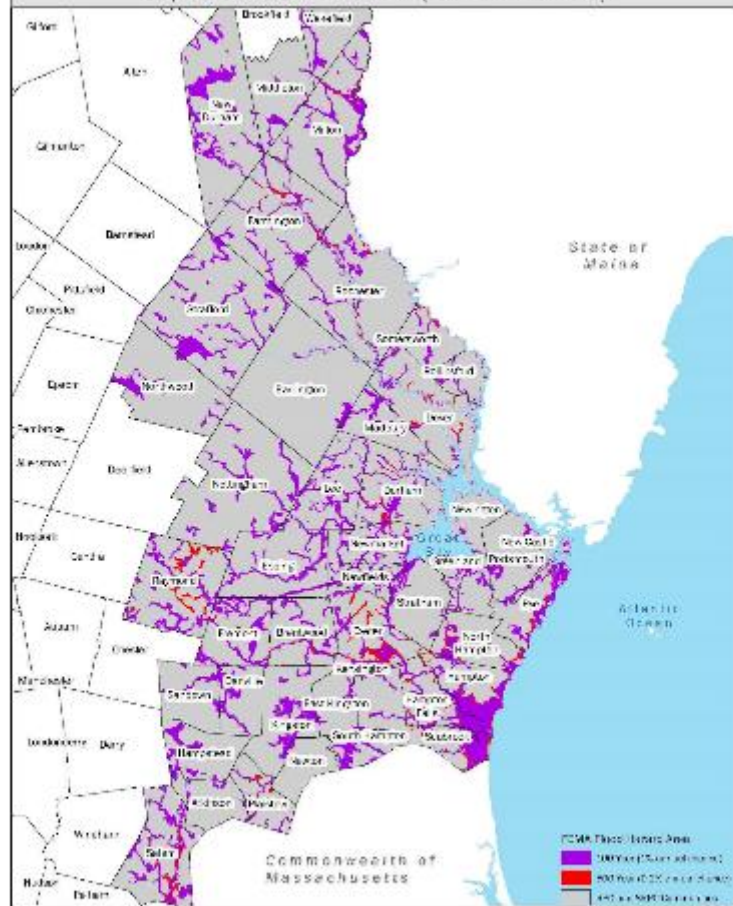
Map 9 1.7', 4.0' and 8.3' Sea Level Rise Plus Storm Surges



Map 10 - Groundwater



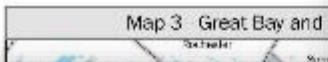
Map 11 - NH Flood Hazard Areas (100 Year & 500 Year)



Map 2



Map 3 Great Bay and



Map 4



Map 5



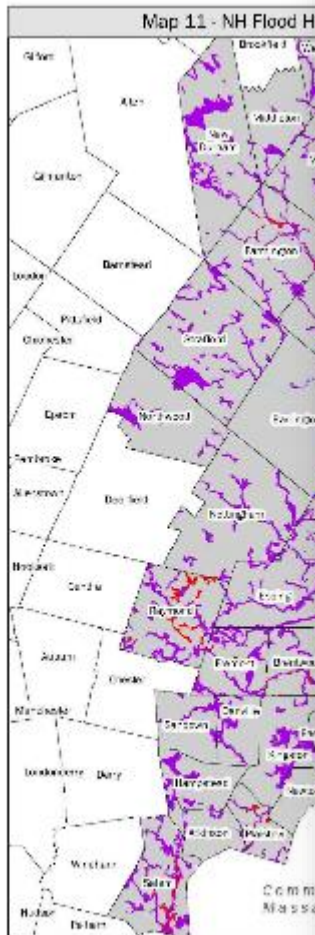
Map 9 1.7', 4.0' and 8.3' Sea Level Rise Plus Storm Surges



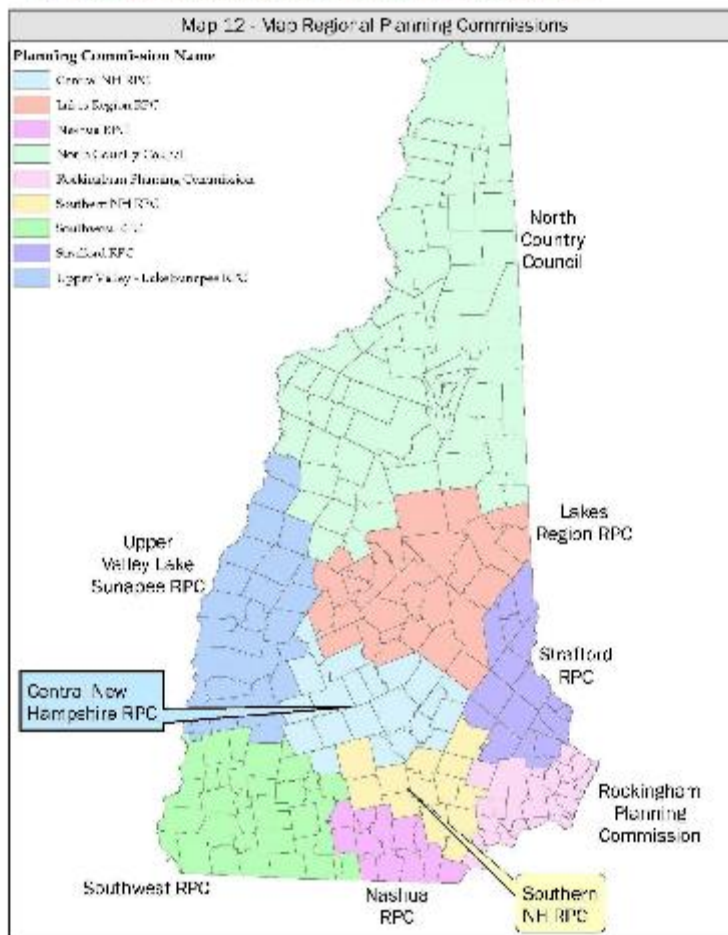
Map 10 - Groundwater



Map 11 - NH Flood H



Map 12 - Map Regional Planning Commissions



- **Introduction**
 - Purpose, Audience, and Goals
 - Legal Authority
 - How to Adopt the Regulations
- **How to Use the Guide**
- **Where Are You Located?**
- **Case Studies**
- **Model Regulations**
- **Resources & References**

DEPT RESILIENT LAND USE GUIDE **CASE STUDY: CITY OF DOVER & TOWNS OF DURHAM AND LEE, NH**
 This study provides a comprehensive overview of the regulatory framework for flood risk management in these communities.

OVERVIEW

The City of Dover and the Towns of Durham and Lee have implemented a comprehensive regulatory framework to address flood risk. This framework includes a combination of zoning, subdivision, and other regulations designed to reduce flood risk and protect public safety. The regulations are based on the latest available data and are designed to be flexible and adaptable to changing conditions.



Photo: NH Sea Grant, University of New Hampshire

DEPT RESILIENT LAND USE GUIDE **CASE STUDY: CITY OF DOVER & TOWNS OF DURHAM AND LEE, NH**
 This study provides a comprehensive overview of the regulatory framework for flood risk management in these communities.

APPROACH TO ADOPTION

The City of Dover and the Towns of Durham and Lee have implemented a comprehensive regulatory framework to address flood risk. This framework includes a combination of zoning, subdivision, and other regulations designed to reduce flood risk and protect public safety. The regulations are based on the latest available data and are designed to be flexible and adaptable to changing conditions.

LESSONS LEARNED AND NEXT STEPS

During the public process, several key lessons were learned. These lessons include the importance of public participation, the need for clear communication, and the importance of ongoing monitoring and evaluation. The City of Dover and the Towns of Durham and Lee have implemented a comprehensive regulatory framework to address flood risk. This framework includes a combination of zoning, subdivision, and other regulations designed to reduce flood risk and protect public safety. The regulations are based on the latest available data and are designed to be flexible and adaptable to changing conditions.

DEPT RESILIENT LAND USE GUIDE **CASE STUDY: CITY OF DOVER & TOWNS OF DURHAM AND LEE, NH**
 This study provides a comprehensive overview of the regulatory framework for flood risk management in these communities.

LESSONS LEARNED AND NEXT STEPS

During the public process, several key lessons were learned. These lessons include the importance of public participation, the need for clear communication, and the importance of ongoing monitoring and evaluation. The City of Dover and the Towns of Durham and Lee have implemented a comprehensive regulatory framework to address flood risk. This framework includes a combination of zoning, subdivision, and other regulations designed to reduce flood risk and protect public safety. The regulations are based on the latest available data and are designed to be flexible and adaptable to changing conditions.


GUIDANCE FOR THESE REGULATIONS IN YOUR COMMUNITY

This study provides a comprehensive overview of the regulatory framework for flood risk management in these communities. It includes a detailed analysis of the regulatory framework and provides guidance for other communities looking to implement similar regulations. The study also includes a list of resources and references for further information.

RESOURCES

- **Division of Safety** - Building Permits: [http://bit.ly/148d1m0](#)
- **City of Dover** - Flood Risk Management: [http://www.cityofdover.com/flood-risk-management](#)
- **Town of Durham** - Flood Risk Management: [http://www.townofdurham.com/flood-risk-management](#)
- **Town of Lee** - Flood Risk Management: [http://www.townoflee.com/flood-risk-management](#)
- **NH Sea Grant** - Flood Risk Management: [http://www.seagrant.org/flood-risk-management](#)
- **NH Department of Safety** - Flood Risk Management: [http://www.nh.gov/safety/flood-risk-management](#)
- **NH Department of Environmental Services** - Flood Risk Management: [http://www.nh.gov/es/flood-risk-management](#)

The project was funded in part by the Office for Ocean Management under the Ocean State Management Act in conjunction with the NH Department of the Environment's Coastal Growth Program.



Model Regulations

- **Stormwater:** Impervious surface reduction, and stormwater infrastructure site design requirements
- **Drinking Water:** Groundwater protection, surface water source buffers, and groundwater intrusion options
- **Shoreland Protection:** Increasing protections within buffer requirements
- **Agriculture:** Agricultural subdivision and general provisions
- **Recreation:** Improved site design bike and pedestrian requirements, stormwater reduction design enhancements.
- **Coastal Resiliency Project Funding:** Off-site mitigation requirements, impact fees, and transfer of development rights regulations.

Model Regulations - Stormwater

- Impervious surface reduction
 - General zoning provision to reduce stormwater runoff
 - Aims to improve water quality, reduce flooding, & improve open space/aesthetics
 - Increase legal justification for existing restrictions – i.e. make it easier to enforce!
 - Provides definitions, purpose statement, and recommendations for lot coverage based on use & geography.
 - Ties restriction to sea-level rise risk via Coastal Flood Risk Guidance and stormwater regulations requirements (MS4 Permit).
- Stormwater infrastructure site design requirements
 - Builds upon Southeast Watershed Alliance Model Regulations
 - Spells out incorporating sea-level rise and climate change impact into regulation to increase justification.
 - For coastal communities, includes using Coastal Flood Risk Summary to identify design standards based on stormwater infrastructure 50 year lifecycle.

Model Regulations – Shoreline Protection

- Buffer Requirements
 - Incorporates sea-level rise and climate change impact into regulation to increase justification.
 - Incorporates the use of increasing buffer protections for different uses, including future flood risk, outlined in the Buffers on the Bay project.
 - For coastal communities, includes using the using Coastal Flood Risk Summary and SLAMM model to identify areas of potential increase buffer requirements to utilize

Model Regulations – Agriculture

- Agricultural Subdivision
 - To be utilized in conjunction with other zoning regulations.
 - Goal maintaining the region's heritage, and most arable soils while keeping in balance development needs.
 - Preserving key farmland and soils to increase resiliency of food production while shifting development to other areas.
 - Encouraging permanent protection of agricultural lands.
- General Provisions
 - Maintain existing agricultural production and improve the viability of the land-often referred to as regenerative agriculture.

Model Regulations – Recreation

- Bike/Pedestrian Site Design Enhancements
 - Developed through the lens of access, and thereby focuses on creating bike and pedestrian regulations which promote walkability and bikability.
 - Guidance on sidewalk criteria, complete streets, open space requirements for residential areas, and bike parking minimums to prioritize multi-modal transportation for energy reduction and protect natural spaces for recreation.

Model Regulations – Coastal Resiliency Funding Options

- Impact Fees
 - Use Capital Improvement Program and impact fee zoning (which may already exist).
 - Establish fee for development costs the municipality in infrastructure improvements related to climate change impacts.
 - Collect fees and use on improvements within 6 years.
- Transfer of Development Rights
 - Identify areas to encourage development away from impacted areas (based on flood risk, habitat protection, etc.).
 - Determine the value of that increased area of development – this part is hard!
 - Establish zoning regulations and set up administrative accounting process.

Model Regulations – Coastal Resiliency Funding Options continued

- Off-site Mitigation – likely already an adopted regulation!
 - Use when there is a site plan or subdivision application in a sensitive area – like an area likely subject to sea-level rise or flooding.
 - Improvements are limited to roadway, drainage, sewer and water upgrades;
 - The scope of improvements must be in a reasonable proportion to the proposed development

Review of Using

- Coastal Resiliency Funds (RSA 36:53)
- Coastal Resiliency and Cultural and Historic Resources District & Funds (RSA 12-A:68 & 69)
- Coastal Resilience Incentive Zone (RSA 79-E: 4-a)
- Capital Reserve Fund (RSA 35)
- Trust Funds (RSA 31:19-a)
- Municipal Finance Act – Issuance of Bonds (RSA 33)
- Utility Fees: Stormwater & Resiliency (RSA 149-I:6)

Model Regulations – Drinking Water

- Groundwater Protection
 - Builds on existing DES Groundwater Model
 - Increase connection of groundwater/surface water by restricting hazardous land uses in floodprone areas.
 - Improves stormwater management, particularly for municipalities that have not adopted SWA Model Regulations.
 - Minimizes salt application
 - Increases participation by the Conservation Commission in the approval process for uses requiring CUP.
 - Updates Spill Prevention and Response Plans requirements

- Surface Water Source Buffer
 - Uses 2021 RPC/SPRC/DES model surface water buffer.
 - Recommends 100 foot buffer for surface water sources and adjacent surface waters/wetlands.
 - Uses recommendations from Buffers on the Bay.
 - Gives recommendations to Wetland Ordinances based on wetland function, with larger buffers for larger wetland resources.

Model Regulations – Drinking Water continued

- Groundwater Rise Overlay District
 - Will require further refinement as mapping improves; municipality will require groundwater rise data.
 - Provides purpose and legal authority language to ensure a community understands the goals and objectives of what they are seeking to accomplish and that they can enforce the regulation.
 - Provides process on how a groundwater rise zone overlay district would be applied and could be adopted.
 - Future considerations:
 - Requirements for future development that may cause need to hook up to municipal water.
 - Requirements for design or inspection of septic systems.

Adding to the *Guide*

- ✓ **Flooding:** Expansion of [Menu of Higher Floodplain Regulation Standards for New Hampshire Communities](#) via current FloodSmart Seacoast Initiative
- ✓ **Groundwater:** Develop design requirement regulations to mitigate impact on infrastructure (roads, septic, stormwater, etc.) from groundwater rise and saltwater intrusion. NHDES efforts to increase modeling in seacoast to include impact to seasonal highwater table.
- ✓ **Electric Vehicle Infrastructure and Design Requirements:** Utilizing RPC transportation funding and incorporating NH Electric Vehicle Plan.
- ✓ **Heat Reduction Site and Infrastructure Design Requirements**
- ✓ **Solar Model Ordinance (modify existing NH model)**
- ✓ **Access Management/Parking Reduction Options**
- ✓ **Housing & Environmental Justice Regulations**
- ✓ **Increasing Flexibility in Regulations Aimed at Resilience:** Example: Allowing more outdoor dining option in traditionally public spaces like sidewalks and parking lots.

Questions?

1. What topics would you like to see example land use regulations on that would help your community become more resilient to the impacts of climate change?
2. Has your community adopted similar regulations?

Questions and Answer Section

- If you would like to ask a question, please either raise your hand and unmute yourself or type your question in the Chat box. If on the phone, lines have been unmuted



Thank you!

Jenn Rowden | Land Use Program Manager
Rockingham Planning Commission
jrowden@theRPC.org | 603-658-0521

RESILIENT
LAND USE 
GUIDE FOR NH

www.therpc.org/ResilientLandUseNH

- **Planning Lunches at Noon (PLAN) Monthly Webinar Series**

www.nh.gov/osi/planning/planning-training.htm

Slides and recordings of all completed webinars

Schedule for 2022 upcoming webinars

A short, anonymous online survey to gather feedback and topics
for future webinars

THANK YOU