

## 6. Our Goals, Recommendations, and Actions



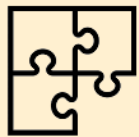
### Four Goals for a Resilient Coastal New Hampshire – SAIL

The Commission has defined four goals for coastal New Hampshire that are paramount to managing our coastal risk and hazards so that municipalities along the Atlantic Ocean and surrounding the Great Bay estuary can be resilient in the face of climate changes, including changes in storm surge, sea level, and extreme precipitation. The four goals focus on science, assessment, implementation, and legislation – “SAIL,” in honor of the New Hampshire state seal which features the frigate Raleigh, a warship built in Portsmouth in 1776, and a granite boulder in the foreground that, according to seal law, is “symbolic of the Granite State’s rugged terrain and the character of its citizenry.”<sup>v</sup>



#### Goal 1: SCIENCE

Research, understand, establish, and use the best available science about current and future coastal hazards in New Hampshire relating to storm surge, sea-level rise, and extreme precipitation.



#### Goal 2: ASSESSMENT

Identify assets and resources within our economy, our built landscape, our natural resources, and our heritage that are vulnerable to storm surge, sea-level rise, and extreme precipitation; understand the scope of that vulnerability; and evaluate existing statutes, ordinances, rules and regulations, policies, programs, and plans to determine whether changes should be made to reduce vulnerabilities.



#### Goal 3: IMPLEMENTATION

Identify and implement strategies that will enable the State and coastal municipalities to effectively protect, adapt, and sustain our current and future economy, built landscape, natural resources, and heritage.



#### Goal 4: LEGISLATION

Recommend timely considerations for legislation that leads to actions, both immediate and long-term, that reduce and/or eliminate vulnerability and result in adaptation to existing and future coastal hazards.

### Who are these recommendations for and how will we achieve them?

Under each SAIL goal, the Commission identified key recommendations and actions that will help coastal New Hampshire prepare for and respond to coastal risk and hazards. In order to carry out the recommendations, and ultimately, achieve the SAIL goals, many different groups will need to work together. The recommendations are primarily directed to the State Legislature, State agencies, and municipal governments. Lead responsible parties – the entity or entities most likely to lead and coordinate efforts to achieve the recommendation – are identified under each recommendation in parentheses; however it is important to note that every recommendation will require collaboration and coordination between the three primary audiences and public and private stakeholders.

<sup>v</sup> The State Seal history can be accessed at <https://www.nh.gov/nhinfo/seal.html>.

The Commission recognizes that many of the recommendations will take time to achieve and require new funding and expertise. In particular, municipalities will likely require targeted technical assistance in order to carry out the Commission's recommendations. Additionally, the Commission recognizes that state agencies, municipalities, and other stakeholders have already started to act on some of the recommendations listed. The recommendations and the associated actions should be prioritized by the lead responsible parties based on the risk associated with the hazard addressed, cost, and ease of implementation. Additional details concerning the target timeframe and estimated budget to complete each recommendation and the associated actions should also be developed by responsible parties as they prioritize recommendations for implementation.

### How are these recommendations organized?

The Commission makes **five Science** recommendations and **30 Assessment and Implementation** recommendations. Of these 35 recommendations, **14** have **Legislative** implications. Assessment and Implementation recommendations are paired by subject and organized into four topic areas: **Our Economy**, **Our Built Landscape**, **Our Natural Resources**, and **Our Heritage**. **Cross-cutting** recommendations include recommendations that apply to all four of the topic areas. It is important to note that the topic areas overlap—some of the structures and facilities that comprise our built landscape may also be part of our heritage—so many recommendations could fit into multiple topic areas. These four topic areas help to organize the recommendations, but should not be seen as mutually exclusive categories.



**OUR ECONOMY** is the systematic and productive exchange and flow of goods, services and transactions that must be intact, functioning, and resilient to coastal risk and hazards in order to create and sustain jobs and a high quality of life in coastal New Hampshire.



**OUR BUILT LANDSCAPE** is the network of structures and facilities owned by state and municipal governments and private entities in coastal New Hampshire. Our built landscape must be prepared to adapt and respond to coastal risk and hazards.



**OUR NATURAL RESOURCES** are the natural systems that support important species and biodiversity in coastal New Hampshire and provide critical and important services to coastal New Hampshire like food, flood protection, fresh water, raw materials, and recreation opportunities.



**OUR HERITAGE** encompasses the abundance of recreational, cultural, and historic resources, including economic assets and elements of the built landscape, in coastal New Hampshire that our state and municipalities wish to protect from coastal risk and hazards.

## 6.1 Science Recommendations



GOAL 1 is to research, understand, establish, and use the best available science about current and future coastal hazards in New Hampshire relating to storm surge, sea-level rise, and extreme precipitation.



**S1. Legislatively authorize a state agency to convene a Science and Technical Advisory Panel to review and evaluate the current state of climate change science in order to periodically update storm surge, sea-level rise, extreme precipitation and other relevant climate projections and provide planning guidance at least once every five years. [Lead: State Legislature].**

**ACTIONS:**

- a. Establish a collaborative Science and Technical Advisory Panel and a lead state agency to coordinate updated information and recommendations.
- b. The Panel, lead agency, and other participating agencies develop a mechanism that ensures communication of the updated climate science and planning guidance to a wide range of stakeholders.

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**S2. Identify gaps in scientific information, work to fill existing scientific information gaps, and conduct quantitative analyses detailing coastal risk and hazards. [Lead: State Agencies].**

**ACTIONS:**

- a. Improve coastal storm surge analysis by including wave effects and upland flooding impacts.
- b. Gather baseline data to improve analysis of coastal and riverine flood risks resulting from a combination of storm surge, sea-level rise, and extreme precipitation events in coastal areas directly exposed to the Atlantic Ocean and inland areas with tidal rivers, bays and marshes.
- c. Conduct additional applied research to better understand the following:
  - i. Flooding extent resulting from combined impacts of future climate and land use changes for upland and riverine communities and ecosystems.
  - ii. Capacity of natural resources like salt marshes and eelgrass beds to respond to projected changes in storm surge, sea level, and extreme precipitation.
  - iii. Changes in physical parameters, species composition, and ecological communities resulting from projected changes in storm surge, sea level, and extreme precipitation.
  - iv. Changes in the species food web that may endanger New Hampshire ecosystems resulting from projected changes in storm surge, sea level, and extreme precipitation.
  - v. Ecosystem services related to flood attenuation, physical protection from storms, and pollutant attenuation.
  - vi. Changes in frequency and severity of winter storm events resulting in large amounts of snow and ice pack and related impacts.
  - vii. Saltwater intrusion into coastal surface and ground water sources.
  - viii. Impacts of future drought conditions on groundwater and drinking water sources, natural resources, and other assets.
  - ix. Differential social impacts of storm surge, sea-level rise, and extreme precipitation, and appropriate adaptation strategies needed to better prepare socially vulnerable populations (i.e., social vulnerability analyses).

- d. Collaborate with science, planning and management professionals to determine current and future research gaps. The Panel established under Science Recommendation S.1 (a) could help coordinate this collaboration.

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**S3. Establish a central repository for spatial coastal hazards-related information, and assign and fund an entity to maintain and adapt this tool over time. [Lead: State Agencies].**

**ACTIONS:**

- a. Identify the appropriate data repository for critical coastal information and a strategy for its funding and maintenance. Consider existing spatial databases, including the NH Coastal Viewer managed by NH GRANIT.
- b. Identify funding for on-going support of the coastal hazards data repository or database.
- c. Establish a mechanism to ensure adequate data sharing exists among state agencies and GRANIT for spatial coastal hazards-related information.

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**S4. Provide clear, concise, science-based information to inform and raise awareness of relevant audiences about the risks and vulnerabilities associated with coastal risk and hazards. [Lead: State Agencies].**

**ACTIONS:**

- a. Create and compile informational materials about coastal hazards, risks and vulnerability.
- b. Strengthen state, regional, and municipal capacities to better understand the best available science related to potential future impacts of climate change in order to improve decisions.
- c. Improve understanding of the concepts of uncertainty and risk and how they can be applied to decision-making and action planning.
- d. Partner with federal and state agencies as well as regional and local organizations to expand resources for education, outreach, and coordination.
- e. Identify and provide education and outreach to new groups (e.g., socially vulnerable populations, local businesses) by partnering with new entities, holding events at their established venues and meetings, and tailoring materials to meet their needs.
- f. Encourage the incorporation of climate science and information about the risks and hazards associated with changing climatic conditions in public school curriculum.
- g. Dedicate funding and technical support to implement science-based education and outreach efforts related to coastal risk and hazards.

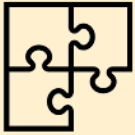


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**S5. Augment state funding in support of applied research that improves understanding, modeling, and projections of current and future coastal risk and hazards in New Hampshire's coastal zone. [Lead: State Legislature].**

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## 6.2 Assessment & Implementation Recommendations: Cross-Cutting



**GOAL 2** is to identify assets and resources within our economy, our built landscape, our natural resources, and our heritage that are vulnerable to storm surge, sea-level rise, and extreme precipitation; understand the scope of that vulnerability; and evaluate existing statutes, ordinances, rules and regulations, policies, programs, and plans to determine whether changes should be made to reduce vulnerabilities.



**GOAL 3** is to Identify and implement strategies that will enable the State and coastal municipalities to effectively protect, adapt, and sustain our current and future economy, built landscape, natural resources, and heritage.



The Crosscutting recommendations below include assessment and implementation recommendations that apply to all four of the topic areas:



**Our Economy,**  
**Our Built Landscape,**  
**Our Natural Resources,**  
and **Our Heritage.**



### **CC1. Secure new and allocate existing funding sources for state agencies and municipalities to conduct vulnerability assessments of assets at appropriate scales and to implement adaptation strategies. [Lead: State Legislature; State Agencies; Municipalities].**

*Note: This recommendation summarizes the funding-related actions found throughout the assessment and implementation recommendations.*

#### **ACTIONS:**

- a. Fund coastal vulnerability assessments and dissemination of results (see CC2 and BL1 (b)).
- b. Fund state agency audits of existing statutes and administrative rules (see CC3).
- c. Dedicate funding and technical assistance for state agencies and municipalities to incorporate the Science and Technical Advisory Panel report, as amended, in development standards, land use policies, and plans (see CC5 (b)).
- d. Establish a funding mechanism to assist state agencies in covering the costs of emergency and disaster response and recovery (see CC 5 (e)).
- e. Apply for and utilize FEMA mitigation grants and other sources of funding to implement climate adaptation and planning strategies that reduce or eliminate flooding impacts (see CC6 (a)).
- f. Create and utilize a dedicated fund to acquire repetitive loss properties when structures and facilities are abandoned or destroyed (see CC6 (d)).
- g. Identify mechanisms to raise matching funds for FEMA and other grant programs, such as creating a dedicated state flood mitigation fund (see CC6 (e)).
- h. Establish stormwater utilities to fund retrofits to existing development and future improvements (see E3 (b)).
- i. Utilize existing funding sources for natural resource restoration (e.g. offset measures, state Aquatic Resource Mitigation fund) (see NR2 (d)).
- j. Establish dedicated funds and sources to support land preservation, restoration, acquisition of easements, and development rights to transfer vulnerable property to conservation lands (see NR3 (b)).
- k. Allocate FY2018-2019 Biennial Budget funding and authority to expend funds for recreational and cultural resource vulnerability surveys, planning efforts, and implementation of the resulting plans (see H5).





**CC2. Identify vulnerable state and municipal assets at regional, municipal, and site-specific scales as appropriate. [Lead: State Agencies; Municipalities].**

**ACTIONS:**

- a. Assess existing regional emergency services and evacuation routes and identify additional service needs, points, and routes where necessary.
  - b. Collaborate with private sector representatives to evaluate and identify necessary improvements to emergency communications systems preparedness to ensure 911 and other critical communications services remain operational during emergencies and disasters.
  - c. Develop site-specific vulnerability assessments for public assets at risk from increased coastal flooding based on the flooding scenarios presented in the Science and Technical Advisory Panel report, as amended.
  - d. Provide local technical assistance to perform vulnerability assessments through collaborative partnerships and local and regional networks, such as the NH Coastal Adaptation Workgroup.
  - e. Disseminate and share results from coastal vulnerability assessments with relevant audiences.
  - f. Dedicate existing funding for coastal vulnerability assessments and dissemination of results.
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**CC3. Review whether existing state statutes and rules adequately permit state agencies and municipalities to prepare and adapt to best available climate science and impacts, and make recommendations for amendments or new regulations where necessary. [Lead: State Agencies].**

**ACTIONS:**

- a. Require and provide funding for state agencies to evaluate and recommend necessary amendments to relevant statutes and administrative rules with respect to best available climate science, involving relevant stakeholders as appropriate. Relevant statutes and administrative rules include, but are not limited to, the following: RSA 483-B Shoreland Water Quality Protection Act, RSA 482-A Fill and Dredge in Wetlands, 485-A:29-39 Subsurface Systems, 485-A:17 Terrain Alteration, RSA 230:78 State Highways, RSA 230:79 Liability of NHDOT, and RSA 79-A Current Use.
- b. Review current practices to determine the most appropriate buffer and setback distances, freeboard, shoreline treatment, and other design standards and approaches needed to provide adequate levels of risk reduction and protection for at risk structures and facilities.
- c. Develop an approach to consolidate RSA 483-B Shoreland Water Quality Protection Act and RSA 482-A Fill and Dredge in Wetlands to create permitting efficiencies and allow for comprehensive management of tidal resources.
- d. Assess the status of existing state agency, municipal, and other disaster response and recovery plans, and determine whether new procedures or regulations are necessary to enable response and recovery planning at state and municipal levels.
- e. Identify and recommend modifications to state and local building codes necessary to protect against likely changes in flooding and other coastal hazards.





**CC4. Amend state laws and rules to incorporate consideration of best available climate science and weather-related data. [Lead: State Legislature].**

**ACTIONS:**

- a. Adopt amendments to state statutes and administrative rules identified under Cross-cutting Recommendation CC3, including, but not limited to: RSA 483-B Shoreland Water Quality Protection Act, RSA 482-A Fill and Dredge in Wetlands, 485-A:29-39 Subsurface Systems, 485-A:17 Terrain Alteration, RSA 230:78 State Highways, RSA 230:79 Liability of NHDOT, and RSA 79-A Current Use Taxation.



**CC5. By 2019<sup>vi</sup>, state agencies will consider and use best available climate science in their activities and plans. [Lead: State Legislature].**

**ACTIONS:**

- a. Establish the Science and Technical Advisory Panel report (see Science Recommendation S1), as amended, as state agency and municipal guidance about anticipated future climate and coastal flooding conditions.
- b. Dedicate funding and technical assistance for state agencies and municipalities to incorporate the Science and Technical Advisory Panel report, as amended, in development standards, land use policies, and plans.
- c. Establish a mechanism to monitor state agency and municipal use of Science and Technical Advisory Panel findings and recommended approaches to risk management.
- d. Require state agencies to address current and future coastal risk and hazards in preparation, response, and recovery plans.
- e. Establish a funding mechanism to assist state agencies in covering the costs of emergency and disaster response and recovery.
- f. Integrate social vulnerability information in adaptation planning, emergency preparedness strategies, and public health interventions.



**CC6. Make existing structures and facilities more resilient and acquire properties in high risk areas in order to reduce or eliminate flooding impacts. [Lead: State Legislature; State Agencies; Municipalities].**

**ACTIONS:**

- a. Apply for and utilize FEMA mitigation grants and other sources of funding to implement climate adaptation and planning strategies that reduce or eliminate flooding impacts.
- b. Elevate existing at-risk structures and implement higher freeboard standards above the Base Flood Elevation on new and substantially reconstructed structures and facilities to protect from future flood risks (see BL2 for more detail).
- c. Acquire at-risk and repetitive loss properties to create buffers and open space that facilitate restoration of floodplain functions.
- d. Create and utilize a dedicated fund to acquire repetitive loss properties when structures and facilities are abandoned or destroyed.
- e. Identify mechanisms to raise matching funds for FEMA and other grant programs, such as creating a dedicated state flood mitigation fund.

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<sup>vi</sup> This timeframe was determined to be acceptable by the state agencies on the NH Coastal Risk and Hazards Commission.



**CC7. Encourage municipalities to incorporate coastal hazards, risks and vulnerability in policies, plans and investments. [Lead: Municipalities].**

**ACTIONS:**

- a. Evaluate deficiencies and barriers in municipal regulations, plans and policies, and their implications for regional vulnerability.
- b. Incorporate coastal hazards and risks assessments, including social vulnerability information, in municipal hazard mitigation plans, natural hazards and climate change adaptation Master Plan chapters, and emergency management plans.
- c. Encourage municipalities to develop detailed preparation, response and recovery plans that build on existing plans and initiatives.
- d. Encourage municipalities to adopt buffers and setbacks that better account for risk and vulnerability of structures, facilities, and natural resources and maintain ecosystem services (e.g. flood storage, storm surge attenuation, reduced impacts to public structures and facilities, and private property).
- e. Incorporate vulnerability assessment information and adaptation strategies for structures and facilities planning and investment for long term capital projects in municipal Capital Improvement Programs (CIPs).
- f. Improve connections between municipal hazard mitigation plans, master plans and capital improvement plans.
- g. Identify and reduce existing inconsistencies between municipal plans and state plans, such as hazard mitigation plans, building codes, design standards, and evacuation plans.
- h. Consider the concepts of uncertainty and risk in decision-making and action planning.
- i. Encourage communities that conduct floodplain management activities that exceed the minimum requirements of the National Flood Insurance Program (NFIP) to consider joining and participating in the Community Rating System (CRS), which provides discounts to annual flood insurance premiums for some residents and businesses as a reward for their community's activities.



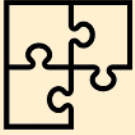
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**CC8. Establish an adaptation coordinator to monitor and coordinate implementation of the NH Coastal Risk and Hazards Commission recommendations. [Lead: State Legislature].**

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## 6.3 Assessment & Implementation Recommendations: Our Economy



Identify economic assets that are vulnerable to storm surge, sea-level rise, and extreme precipitation; understand the scope of that vulnerability; and evaluate existing statutes, ordinances, rules and regulations, policies, programs, and plans to determine whether changes should be made to reduce vulnerabilities.



Identify and implement adaptation strategies that will enable the State and coastal municipalities to protect, adapt, and sustain our current and future economy.



**Our Economy** is the systematic and productive exchange and flow of goods, services and transactions that must be intact, functioning, and resilient to coastal risk and hazards in order to create and sustain jobs and a high quality of life in coastal New Hampshire.



- E1. Identify vulnerability of sector-based economic assets, including but not limited to tax base, workforce and jobs, property values, insurance costs, trade facilities, and public recreational facilities based on best available climate science. [Lead: State Agencies; Municipalities].**



- E2. Incorporate best available climate science and vulnerability assessment information in state, regional, and municipal economic development plans. [Lead: State Agencies; Municipalities].**

**ACTIONS:**

- a. Encourage private property owners and businesses to incorporate best available climate science and vulnerability assessments in their decision making and preparedness plans.
- b. Consider vulnerabilities of local tax base, state economic development plan, retention or replacement of economic resources, at risk populations and population migration.
- c. Improve management, coordination and delivery mechanisms to ensure continuity of services to essential facilities, people, businesses and employment centers.



- E3. Use appropriate and available mechanisms, including but not limited to incentives and market-based tools to fund climate adaptation strategies. [Lead: State Agencies; Municipalities].**

**ACTIONS:**

- a. Align land acquisition and easement programs to transfer vulnerable properties into conservation.
- b. Establish stormwater utilities to fund retrofits to existing development and future improvements.
- c. Develop and utilize tools to identify cost effective strategies and public investments for adapting to increased flood risk in vulnerable areas.
- d. Develop special overlay districts, tax credits and revolving loan funds as mechanisms to discourage development in vulnerable areas.

- e. Implement voluntary transfer of development rights programs and other economic incentives to acquire or conserve property in high risk areas.
  - f. Create statewide and municipal funding programs for climate adaptation strategies.
  - g. Adapt economic development planning approaches to respond to changing environmental conditions and leverage shifting opportunities.
  - h. Promote resilience and sustainability planning as economic development strategies.
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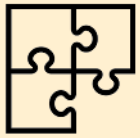


**E4. Improve information available to property owners and prospective buyers about coastal hazards and vulnerabilities. [Lead: State Agencies; Municipalities].**

**ACTIONS:**

- a. Improve consumer protection disclosure of properties vulnerable to coastal flooding.
  - b. Distribute flood protection safety information to property owners in high-risk areas.
  - c. Encourage homeowners in moderate- to low-risk areas to purchase Preferred Risk NFIP Policies.
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## 6.4 Assessment & Implementation Recommendations: Our Built Landscape



Identify assets (i.e., structures and facilities) in our built landscape that are vulnerable to storm surge, sea-level rise, and extreme precipitation; understand the scope of that vulnerability; and evaluate existing statutes, ordinances, rules and regulations, policies, programs, and plans to determine whether changes should be made to reduce vulnerabilities.



Identify and implement strategies that will enable the State and coastal municipalities to effectively protect, adapt, and sustain our current and future built landscape.



### **Our Built Landscape**

is the network of structures and facilities owned by state and municipal governments and private entities in coastal New Hampshire. Our built landscape must be prepared to adapt and respond to coastal risk and hazards.



**BL1. Encourage state agencies and municipalities to complete vulnerability assessments for state, municipal, and regulated private structures and facilities. [Lead: State Legislature; State Agencies; Municipalities].**

#### **ACTIONS:**

- a. Use initial assessments to identify need for more detailed assessments.
- b. Require and secure funding for state agencies to conduct vulnerability assessments of state-owned structures and facilities located in the coastal zone at regional, municipal, and/or site-specific scales as appropriate.



**BL2. Implement regulatory standards and/or enact enabling legislation to ensure that the best available climate science and flood risk information are used for the siting and design of new, reconstructed, and rehabilitated state-funded structures and facilities, municipal structures and facilities, and private structures. [Lead: State Legislature; State Agencies; Municipalities].**

#### **ACTIONS:**

- a. Adopt amendments to state and local building codes recommended under Cross-cutting Recommendation CC3.
- b. Require state agencies, through legislation or amendment to NH Executive Order 96-4<sup>vii</sup>, to use one of the following approaches <sup>viii, ix, x</sup> for determining a higher vertical flood elevation and expanded corresponding horizontal floodplain than the current base flood elevation and floodplain to address current and future flood risk for state-funded new construction, substantial improvement, or repairs to substantially-damaged structures and facilities:

<sup>vii</sup> NH Executive Order 96-4 directs State agencies to comply with the floodplain management requirements of all local communities participating in the NFIP in which State-owned properties are located.

<sup>viii</sup> See Federal Executive Order 13690, Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Input.

<sup>ix</sup> See Guidelines for Implementing Executive Order 13690.

<sup>x</sup> See [Appendix F](#) for State of New Hampshire comments on Draft Guidelines for Implementing Executive Order 13690.

- i. *Climate-informed Science Approach* – use the best available, actionable hydrologic and hydraulic data and methods that integrate current and future changes in flooding based on climate science.<sup>xi</sup>
  - ii. *Freeboard Value Approach* – use the freeboard value, reached by adding an additional two (2) feet to the base flood elevation for non-critical structures and facilities and from adding an additional three (3) feet to the base flood elevation for critical<sup>xii</sup> structures and facilities.
  - iii. *The 0.2-percent-annual-chance Flood Approach* – use the 0.2-percent-annual-chance flood elevation (also known as the 500-year flood elevation).
- c. Encourage municipalities to use one of the following three approaches<sup>xiii,xiv,xv</sup> for determining a higher vertical flood elevation and expanded corresponding horizontal floodplain than the current base flood elevation and floodplain to address current and future flood risk for new construction, substantial improvement, or repairs to substantially-damaged municipal and private structures and facilities:
  - i. *Climate-informed Science Approach* – use the best available, actionable hydrologic and hydraulic data and methods that integrate current and future changes in flooding based on climate science.<sup>xvi</sup>
  - ii. *Freeboard Value Approach* – use the freeboard value, reached by adding an additional two (2) feet to the base flood elevation for non-critical structures and facilities and from adding an additional three (3) feet to the base flood elevation for critical<sup>xvii</sup> structures and facilities.
  - iii. *The 0.2-percent-annual-chance Flood Approach* – use the 0.2-percent-annual-chance flood elevation (also known as the 500-year flood elevation).
- d. Develop model regulations for municipalities to consider adopting into their existing floodplain management regulations, which can assist municipalities in becoming more flood resilient by addressing current and future flood conditions using the best available flood risk and climate science information.
- e. Amend the New Hampshire Stream Crossing Guidelines to incorporate anticipated future stormwater flows based on best available climate science.
- f. Incorporate the Science and Technical Advisory Panel report information, as amended, into benefit-cost analyses for applications submitted under FEMA Hazard Mitigation Assistance and Public Assistance grant programs. In relevant cases, consider timeframes for potential future relocation or retreat by acquiring at-risk properties.
- g. Require, through legislation or other means, that the New Hampshire Site Evaluation Committee and Public Utilities Commission take future sea-level rise and coastal flooding into account in project siting decisions and other planning.

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<sup>xi</sup> An acceptable source of climate science for New Hampshire includes the Coastal Risk and Hazards Commission Science and Technical Advisory Panel report, Sea-level Rise, Storm Surges, and Extreme Precipitation in Coastal New Hampshire: Analysis of Past and Projected Trends, as amended.

<sup>xii</sup> Any activity for which even a slight chance of flooding would be too great. For expanded description of “critical action” see Part I, Section 6 of Guidelines for Implementing Executive Order 13690.

<sup>xiii</sup> See Federal Executive Order 13690, Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Input.

<sup>xiv</sup> See Guidelines for Implementing Executive Order 13690.

<sup>xv</sup> See [Appendix F](#) for State of New Hampshire comments on Draft Guidelines for Implementing Executive Order 13690.

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<sup>xvii</sup> Any activity for which even a slight chance of flooding would be too great. For expanded description of “critical action” see Part I, Section 6 of Guidelines for Implementing Executive Order 13690.



**BL3. Map the plausible future changes in freshwater and coastal floodplain extent and depth based on best available information about future precipitation and land use for all municipalities. [Lead: State Agencies].**

**ACTIONS:**

- a. Use the Lamprey River Watershed study or other similar methods for projecting future riverine floodplain extents and vulnerabilities for rivers within the coastal watershed and apply results as appropriate in municipal policy and planning (see BL4 (b) for more detail).



**BL4. Integrate comprehensive land use and environmental planning with floodplain management approaches that prevent and minimize impacts from coastal hazards. [Lead: State Agencies; Municipalities].**

**ACTIONS:**

- a. Establish minimum regulations at state and municipal levels that consider vulnerability assessment information to support appropriate amendments to building codes, floodplain management, fluvial erosion hazard zones, and stormwater management.
- b. Create and encourage adoption of local flood hazard overlay districts that include higher development standards that minimize impacts from natural hazards and climate change.
- c. Promote land development regulations that reduce vulnerability and protect ecosystem services (e.g. open space/cluster development).
- d. Prepare watershed-based plans that address comprehensive water resource management principles focused on changes in hydrologic systems resulting from climate change.
- e. Consider prohibiting development in areas destroyed by storms, experiencing repetitive loss of structures, and subject to chronic flooding and erosion. Consider adaptive reuse and/or acquisition of at-risk private properties.



**BL5. Document coastal and riverine shoreline conditions and assess vulnerability of natural features and engineered structures that protect people, structures, and facilities under current and future conditions. [Lead: State Agencies].**

**ACTIONS:**

- a. Establish a beach monitoring program to collect long-term data regarding beach erosion, sea-level rise, landform changes, and sediment characteristics and processes.
- b. Identify areas where erosion and shoreline instability exist.
- c. Identify potential sites for nature-based approaches to shoreline stabilization.
- d. Prioritize areas for beach nourishment and other shoreline stabilization techniques.

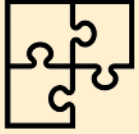


**BL6. Develop a comprehensive, integrated New Hampshire Tidal Shoreline Management Plan (TSMP) that presents general priorities for tidal shoreline management, as well as site-specific and place-based strategies including, where appropriate, protection, adaptation, and abandonment. [Lead: State Agencies].**

**ACTIONS:**

- a. Convene a tidal shoreline management planning team comprised of the NH Department of Environmental Services and other agencies and organizations as appropriate to develop a tidal shoreline management plan for New Hampshire based on, but not limited to, the information developed under Recommendation BL5.

## 6.5 Assessment & Implementation Recommendations: Our Natural Resources



Identify our natural resources that are vulnerable to storm surge, sea-level rise, and extreme precipitation; understand the scope of that vulnerability; and evaluate existing statutes, ordinances, rules and regulations, policies, programs, and plans to determine whether changes should be made to reduce vulnerabilities.



Identify and implement strategies that will enable the State and coastal municipalities to effectively protect, adapt, and sustain our current and future natural resources.



### **Our Natural Resources**

are the natural systems that support important species and biodiversity in coastal New Hampshire and provide critical and important services to coastal New Hampshire like food, flood protection, fresh water, and recreation opportunities.



### **NR1. Identify and map natural resources that are vulnerable to current and future coastal risk and hazards. [Lead: State Agencies].**

#### **ACTIONS:**

- a. Identify where habitats and biological populations would naturally shift in response to best available climate science to prioritize areas and species for protection or restoration.
- b. Map natural resources that also protect critical built landscapes.
- c. Utilize marsh migration modeling to identify and prioritize marsh migration areas for conservation and restoration.
- d. Identify potential changes, and in particular losses, to ecosystem services as a result of sea-level rise and storm surges and compare to current conditions.



### **NR2. Develop natural resource restoration plans that explicitly consider future coastal risk and hazards, and the ecological services that they provide. [Lead: State Agencies; Municipalities].**

#### **ACTIONS:**

- a. Include protection of natural systems and services, human well-being and protection of built environments in natural resource restoration plans (i.e. water quality, habitat, flood storage).
- b. Provide recommendations and incentives for removal or modification of structures and facilities, such as freshwater and tidal crossings, that create barriers to tidal flow and habitat migration, particularly those that will be impaired or severely impacted by sea-level rise, storm surge, or extreme precipitation.
- c. Engage in best practices for invasive species planning and removal and incorporate climate considerations in invasive species removal plans.
- d. Utilize existing funding sources for natural resource restoration (e.g. offset measures, state Aquatic Resource Mitigation fund).
- e. Invest in coastal dune restoration projects.
- f. Evaluate and apply sediment application techniques, where feasible, to maintain tidal marsh systems.



**NR3. Protect land that allows coastal habitats and populations to adapt to changing conditions and also provides ecosystem services that protect people, structures, and facilities. [Lead: State Legislature; State Agencies; Municipalities].**



**ACTIONS:**

- a. Use emerging habitat science to prioritize land and resource conservation projects.
- b. Establish dedicated funds and sources to support land preservation, acquisition of easements, and development rights to transfer vulnerable property to conservation lands.
- c. Prioritize land conservation efforts to adequately account for future sea-level rise and coastal flooding.
- d. Establish buffer requirements for setbacks to rivers, shorelines, and wetlands that include consideration of climate change and create a dedicated fund to support local enforcement.
- e. Encourage landowners to preserve the beneficial functions of natural features like wetlands and to restore and protect coastal dune habitat.
- f. Align land acquisition and conservation easement programs to protect important natural resources and ecosystem services.
- g. Protect future marsh migration areas identified by marsh migration modeling.
- h. Establish and share municipal inventories of land available for mitigation and conservation in areas that reduce flooding and promote the migration of species and habitat.



**NR4. Encourage state agencies and municipalities to consider ecosystem services provided by natural resources in land use planning, master plans, and asset decisions. [Lead: State Agencies; Municipalities].**

**ACTIONS:**

- a. Modify NHDES permit requirements and municipal standards to require implementation of stormwater best management practices (BMPs) and low impact development (LID) management systems to minimize impacts and maintain aquatic habitats.
- b. Implement strategies and tools (such as land regulations, incentives, building regulations) designed to maintain or restore pervious surfaces, provide nutrient barriers, protect vegetated buffers and maintain wildlife passage.
- c. Recommend standards for state-issued permits and municipal zoning regulations that protect natural floodplain functions.
- d. Develop watershed-based comprehensive water resource management plans that consider impacts of climate change.
- e. Develop best management practices for shoreline buffers, including information on appropriate use of shoreline hardening, bank stabilization, vegetation restoration and agricultural practices.
- f. Explore options to minimize shoreline hardening and promote natural or hybrid shoreline protection strategies.
- g. Create shoreline management standards that help stabilize banks for more frequent storm events, wave impacts, or higher volume flows (e.g. by using natural vegetation and proper building setbacks).
- h. Develop guidelines and provide incentives for communities to incorporate climate adaptation actions for wildlife protection in master plans, hazard mitigation plans, and zoning ordinances.





**NR5. Assess the impact of freshwater and tidal crossings on adjacent tidal wetlands, aquatic organism passage, and public safety under existing and future climate conditions.**

***[Lead: State Agencies].***

**ACTIONS:**

- a. Continue the NHDES freshwater culvert inventory program (SADES).
  - b. Develop methodology for assessing tidal crossings and implement assessment protocol throughout coastal NH.
  - c. Prioritize tidal crossing replacement projects and restoration opportunities based on environmental and resiliency criteria.
  - d. Conduct feasibility analysis and due diligence inquiries on prioritized tidal crossing projects.
  - e. Assess the impacts of future increased precipitation and stormwater on surface water resources.
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**NR6. Assess current conditions of groundwater resources and impacts from best available climate science. *[Lead: State Agencies].***

**ACTIONS:**

- a. Assess location, quality and quantity of groundwater under current and future climate conditions.
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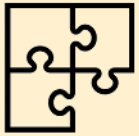


**NR7. Restore or maintain natural flow regimes (groundwater, surface water and wetlands) to increase ecosystem resilience to extreme weather events and other coastal hazards, including floods, drought, and sea-level rise. *[Lead: State Agencies].***

**ACTIONS:**

- a. Improve designs for dams, culverts and bridges to maintain existing function and reconnect fragmented surface waters (wetlands, lakes, ponds, rivers and streams) to provide higher quality habitat for aquatic organisms and the ability to improve resilience of these systems.
  - b. Work with Federal Energy Regulatory Commission, NHDES Wetlands, Dam and Watershed Management Bureaus to ensure habitat connectivity and resilience to help sustain intact coastal ecosystems.
  - c. Adopt ecosystem-friendly approaches in the placement and design of freshwater and tidal stream crossing facilities. For example, appropriate sizing for new culverts, identify undersized culverts, and identify dams that need improvements to protect aquatic habitats.
  - d. Comprehensively manage groundwater resources to consider infiltration and recharge, water quality, and changes to groundwater levels and salinity from sea-level rise.
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## 6.6 Assessment & Implementation Recommendations: Our Heritage



Identify our recreational, cultural, and historic resources, including economic resources and elements of the built landscape, that are vulnerable to storm surge, sea-level rise, and extreme precipitation; understand the scope of that vulnerability; and evaluate existing statutes, ordinances, rules and regulations, policies, programs, and plans to determine whether changes should be made to reduce vulnerabilities.



Identify and implement adaptation strategies that will enable the State and coastal municipalities to effectively protect, adapt, and sustain current and future recreational and cultural resources.



### **Our Heritage**

encompasses the abundance of recreational, cultural, and historic resources, including economic assets and elements of the built landscape, in coastal New Hampshire that our state and municipalities wish to protect from coastal risk and hazards.



**H1. Identify and survey recreational resources and assess their vulnerability to coastal risk and hazards based on best available climate science. [Lead: State Agencies; Municipalities].**



**H2. Develop plans and implement strategies to prepare and adapt recreational resources based on best available climate science. [Lead: State Agencies; Municipalities].**

#### **ACTIONS:**

- a. Conduct public information hearings to understand the impacts of proposed climate adaptation strategies.
- b. Assess existing and future recreational areas for their potential to provide storage for flood waters and stormwater runoff.
- c. Preserve open space and recreational areas that serve to minimize climate change impacts.
- d. Integrate recreational and open space planning into climate adaptation planning and the Tidal Shoreline Management Plan.
- e. Integrate protection of recreational resources into land use and management, engineering, regulatory components of state and municipal plans including the Tidal Shoreline Management Plan, hazard mitigation plans, Master Plans, and design standards.



**H3. Identify and survey cultural and historic resources and assess their vulnerability to coastal risk and hazards based on best available climate science. [Lead: State Agencies; Municipalities].**

#### **ACTIONS:**

- a. Map all currently surveyed cultural and historical resources.
- b. Identify asset types that may also be cultural and historic resources.
- c. Use reconnaissance level survey and vulnerability assessments to identify high priority areas for intensive survey.



**H4. Require state agencies and encourage municipalities to develop long-term plans for protecting, adapting, or reducing risk to cultural resources affected by climate change. [Lead: State Agencies; Municipalities].**



**ACTIONS:**

- a. Create or modify adaptation strategies for cultural and historic buildings affected by climate change, including plans for protecting or relocating resources.
- b. Integrate protection of cultural and historical resources into land use and management, engineering, regulatory components of state and municipal plans including the Tidal Shoreline Management Plan, hazard mitigation plans, Master Plans, and design guidelines.
- c. Establish expert group to create a decision-making process for property owners and municipalities to determine when and how to mitigate sites that will be lost.
- d. Establish guidelines for adaptation or risk reduction of cultural resources in state ownership.
- e. Create programmatic strategies to compensate for the loss of historic asset types that will be replaced in order to adapt to climate change impacts.
- f. Modify the Land and Cultural Heritage Investment Program (LCHIP) to include selection criteria that incentivize funding for climate adaptation actions.



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**H5. Allocate FY2018-2019 Biennial Budget funding and authority to expend funds for recreational and cultural resource vulnerability surveys, planning efforts, and implementation of the resulting plans. [Lead: State Legislature].**

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## 6.7 Legislation Recommendations



Goal 4 is to recommend timely considerations for legislation that leads to actions, both immediate and long-term, that reduce and/or eliminate vulnerability and result in adaptation to existing and future coastal hazards.



- S1. Legislatively authorize a state agency to convene a Science and Technical Advisory Panel to review and evaluate the current state of climate change science in order to periodically update storm surge, sea-level rise, extreme precipitation and other relevant climate projections and provide planning guidance at least once every five years. [Lead: State Legislature].**

**ACTIONS:**

- a. Establish a collaborative Science and Technical Advisory Panel and a lead state agency to coordinate updated information and recommendations.
- b. The Panel, lead agency, and other participating agencies develop a mechanism that ensures communication of the updated climate science and planning guidance to a wide range of stakeholders.



- S5. Augment state funding in support of applied research that improves understanding, modeling, and projections of current and future coastal risk and hazards in New Hampshire's coastal zone. [Lead: State Legislature].**



- CC1. Secure new and allocate existing funding sources for state agencies and municipalities to conduct vulnerability assessments of assets at appropriate scales and to implement adaptation strategies. [Lead: State Legislature; State Agencies; Municipalities].**

*Note: This recommendation summarizes the funding-related actions found throughout the assessment and implementation recommendations.*

**ACTIONS:**

- a. Fund coastal vulnerability assessments and dissemination of results (see CC2 and BL1 (b)).
- b. Fund state agency audits of existing statutes and administrative rules (see CC3).
- c. Dedicate funding and technical assistance for state agencies and municipalities to incorporate the Science and Technical Advisory Panel report, as amended, in development standards, land use policies, and plans (see CC5 (b)).
- d. Establish a funding mechanism to assist state agencies in covering the costs of emergency and disaster response and recovery (see CC5 (e)).
- e. Apply for and utilize FEMA mitigation grants and other sources of funding to implement climate adaptation and planning strategies that reduce or eliminate flooding impacts (see CC6 (a)).
- f. Create and utilize a dedicated fund to acquire repetitive loss properties when structures and facilities are abandoned or destroyed (see CC6 (d)).
- g. Identify mechanisms to raise matching funds for FEMA and other grant programs, such as creating a dedicated state flood mitigation fund (see CC6 (e)).

- h. Establish stormwater utilities to fund retrofits to existing development and future improvements (see E3 (b)).
- i. Utilize existing funding sources for natural resource restoration (e.g. offset measures, state Aquatic Resource Mitigation fund) (see NR2 (d)).
- j. Establish dedicated funds and sources to support land preservation, restoration, acquisition of easements, and development rights to transfer vulnerable property to conservation lands (see NR3 (b)).
- k. Allocate FY2018-2019 Biennial Budget funding and authority to expend funds for recreational and cultural resource vulnerability surveys, planning efforts, and implementation of the resulting plans (see H5).



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**CC3. Review whether existing state statutes and rules adequately permit state agencies and municipalities to prepare and adapt to best available climate science and impacts, and make recommendations for amendments or new regulations where necessary. [Lead: State agencies].**

**ACTIONS:**

- a. Require and provide funding for state agencies to evaluate and recommend necessary amendments to relevant statutes and administrative rules with respect to best available climate science, involving relevant stakeholders as appropriate. Relevant statutes and administrative rules include, but are not limited to, the following: RSA 483-B Shoreland Water Quality Protection Act, RSA 482-A Fill and Dredge in Wetlands, 485-A:29-39 Subsurface Systems, 485-A:17 Terrain Alteration, RSA 230:78 State Highways, RSA 230:79 Liability of NHDOT, and RSA 79-A Current Use.
- b. Review current practices to determine the most appropriate buffer and setback distances, freeboard, shoreline treatment, and other design standards and approaches needed to provide adequate levels of risk reduction and protection for at risk structures and facilities.
- c. Develop an approach to consolidate RSA 483-B Shoreland Water Quality Protection Act and RSA 482-A Fill and Dredge in Wetlands to create permitting efficiencies and allow for comprehensive management of tidal resources.
- d. Assess the status of existing state agency, municipal, and other disaster response and recovery plans, and determine whether new procedures or regulations are necessary to enable response and recovery planning at state and municipal levels.
- e. Identify and recommend modifications to state and local building codes necessary to protect against likely changes in flooding and other coastal hazards.



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**CC4. Amend state laws and rules to incorporate consideration of best available climate science and weather-related data. [Lead: State Legislature].**

**ACTIONS:**

- a. Adopt amendments to state statutes and administrative rules identified under Cross-cutting Recommendation CC3, including, but not limited to: RSA 483-B Shoreland Water Quality Protection Act, RSA 482-A Fill and Dredge in Wetlands, 485-A:29-39 Subsurface Systems, 485-A:17 Terrain Alteration, RSA 230:78 State Highways, RSA 230:79 Liability of NHDOT, and RSA 79-A Current Use Taxation.



**CC5. By 2019<sup>xviii</sup>, state agencies will consider and use best available climate science in their activities and plans. [Lead: State Legislature].**

**ACTIONS:**

- a. Establish the Science and Technical Advisory Panel report (see Science Recommendation S1), as amended, as state agency and municipal guidance about anticipated future climate and coastal flooding conditions.
- b. Dedicate funding and technical assistance for state agencies and municipalities to incorporate the Science and Technical Advisory Panel report, as amended, in development standards, land use policies, and plans.
- c. Establish a mechanism to monitor state agency and municipal use of Science and Technical Advisory Panel findings and recommended approaches to risk management.
- d. Require state agencies to address current and future coastal risk and hazards in preparation, response, and recovery plans.
- e. Establish a funding mechanism to assist state agencies in covering the costs of emergency and disaster response and recovery.
- f. Integrate social vulnerability information in adaptation planning, emergency preparedness strategies, and public health interventions.



**CC6. Make existing structures and facilities more resilient and acquire properties in high risk areas in order to reduce or eliminate flooding impacts. [Lead: State Legislature; State Agencies; Municipalities].**

**ACTIONS:**

- a. Apply for and utilize FEMA mitigation grants and other sources of funding to implement climate adaptation and planning strategies that reduce or eliminate flooding impacts.
- b. Elevate existing at-risk structures and implement higher freeboard standards above the Base Flood Elevation on new and substantially reconstructed structures and facilities to protect from future flood risks (see BL2 for more detail).
- c. Acquire at-risk and repetitive loss properties to create buffers and open space that facilitate restoration of floodplain functions.
- d. Create and utilize a dedicated fund to acquire repetitive loss properties when structures and facilities are abandoned or destroyed.
- e. Identify mechanisms to raise matching funds for FEMA and other grant programs, such as creating a dedicated state flood mitigation fund.



**CC8. Establish an adaptation coordinator to monitor and coordinate implementation of the NH Coastal Risk and Hazards Commission recommendations. [Lead: State Legislature].**



**BL1. Encourage state agencies and municipalities to complete vulnerability assessments for state, municipal, and regulated private structures and facilities. [Lead: State Legislature; State Agencies; Municipalities].**

**ACTIONS:**

- a. Use initial assessments to identify need for more detailed assessments.
- b. Require and secure funding for state agencies to conduct vulnerability assessments of state-owned structures and facilities located in the coastal zone at regional, municipal, and/or site-specific scales as appropriate.

<sup>xviii</sup> This timeframe was determined to be acceptable by the state agencies on the NH Coastal Risk and Hazards Commission.



**BL2. Implement regulatory standards and/or enact enabling legislation to ensure that the best available climate science and flood risk information are used for the siting and design of new, reconstructed, and rehabilitated state-funded structures and facilities, municipal structures and facilities, and private structures. [Lead: State Legislature; State Agencies; Municipalities].**

**ACTIONS:**

- a. Adopt amendments to state and local building codes recommended under Cross-cutting Recommendation CC3.
- b. Require state agencies, through legislation or amendment to NH Executive Order 96-4,<sup>xix</sup> to use one of the following approaches<sup>xx,xxi,xxii</sup> for determining a higher vertical flood elevation and expanded corresponding horizontal floodplain than the current base flood elevation and floodplain to address current and future flood risk for state-funded new construction, substantial improvement, or repairs to substantially damaged structures and facilities:
  - i. *Climate-informed Science Approach* – use the best available, actionable hydrologic and hydraulic data and methods that integrate current and future changes in flooding based on climate science.<sup>xxiii</sup>
  - ii. *Freeboard Value Approach* – use the freeboard value, reached by adding an additional two (2) feet to the base flood elevation for non-critical structures and facilities and from adding an additional three (3) feet to the base flood elevation for critical<sup>xxiv</sup> structures and facilities.
  - iii. *The 0.2-percent-annual-chance Flood Approach* – use the 0.2-percent-annual-chance flood elevation (also known as the 500-year flood elevation).
- c. Encourage municipalities to use one of the following three approaches<sup>xxv,xxvi,xxvii</sup> for determining a higher vertical flood elevation and expanded corresponding horizontal floodplain than the current base flood elevation and floodplain to address current and future flood risk for new construction, substantial improvement, or repairs to both municipal and private structures and facilities:
  - i. *Climate-informed Science Approach* – use the best available, actionable hydrologic and hydraulic data and methods that integrate current and future changes in flooding based on climate science.<sup>xxviii</sup>
  - ii. *Freeboard Value Approach* – use the freeboard value, reached by adding an additional two (2) feet to the base flood elevation for non-critical structures and facilities and from adding an additional three (3) feet to the base flood elevation for critical<sup>xxix</sup> structures and facilities.

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<sup>xix</sup> NH Executive Order 96-4 directs State agencies to comply with the floodplain management requirements of all local communities participating in the NFIP in which State-owned properties are located.

<sup>xx</sup> See Federal Executive Order 13690, Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Input.

<sup>xxi</sup> See Guidelines for Implementing Executive Order 13690.

<sup>xxii</sup> See [Appendix F](#) for State of New Hampshire comments on Draft Guidelines for Implementing Executive Order 13690.

<sup>xxiii</sup> An acceptable source of climate science for New Hampshire includes the Coastal Risk and Hazards Commission Science and Technical Advisory Panel report, Sea-level Rise, Storm Surges, and Extreme Precipitation in Coastal New Hampshire: Analysis of Past and Projected Trends, as amended.

<sup>xxiv</sup> Any activity for which even a slight chance of flooding would be too great. For expanded description of “critical action” see Part I, Section 6 of Guidelines for Implementing Executive Order 13690.

<sup>xxv</sup> See Federal Executive Order 13690, Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Input.

<sup>xxvi</sup> See Guidelines for Implementing Executive Order 13690.

<sup>xxvii</sup> See [Appendix F](#) for State of New Hampshire comments on Draft Guidelines for Implementing Executive Order 13690.

<sup>xxviii</sup> An acceptable source of climate science for New Hampshire includes the Coastal Risk and Hazards Commission Science and Technical Advisory Panel report, Sea-level Rise, Storm Surges, and Extreme Precipitation in Coastal New Hampshire: Analysis of Past and Projected Trends, as amended.

<sup>xxix</sup> Any activity for which even a slight chance of flooding would be too great. For expanded description of “critical action” see Part I, Section 6 of Guidelines for Implementing Executive Order 13690.



- iii. *The 0.2-percent-annual-chance Flood Approach* – use the 0.2-percent-annual-chance flood elevation (also known as the 500-year flood elevation).
- d. Develop model regulations for municipalities to consider adopting into their existing floodplain management regulations, which can assist municipalities in becoming more flood resilient by addressing current and future flood conditions using the best available flood risk and climate science information.
- e. Amend the New Hampshire Stream Crossing Guidelines to incorporate anticipated future stormwater flows based on best available climate science.
- f. Incorporate the Science and Technical Advisory Panel report information, as amended, into benefit-cost analyses for applications submitted under FEMA Hazard Mitigation Assistance and Public Assistance grant programs. In relevant cases, consider timeframes for potential future relocation or retreat by acquiring at-risk properties.
- g. Require, through legislation or other means, that the New Hampshire Site Evaluation Committee and Public Utilities Commission take future sea-level rise and coastal flooding impacts into account in project siting decisions and other planning.



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**NR3. Protect land that allows coastal habitats and populations to adapt to changing conditions and also provides ecosystem services that protect people, structures, and facilities. [Lead: State Legislature; State Agencies; Municipalities].**

**ACTIONS:**

- a. Use emerging habitat science to prioritize land and resource conservation projects.
- b. Establish dedicated funds and sources to support land preservation, acquisition of easements, and development rights to transfer vulnerable property to conservation lands.
- c. Prioritize land conservation efforts to adequately account for future sea-level rise and coastal flooding.
- d. Establish buffer requirements for setbacks to rivers, shorelines, and wetlands that include consideration of climate change and create a dedicated fund to support local enforcement.
- e. Encourage landowners to preserve the beneficial functions of natural features like wetlands and to restore and protect coastal dune habitat.
- f. Align land acquisition and conservation easement programs to protect important natural resources and ecosystem services.
- g. Protect future marsh migration areas identified by marsh migration modeling.
- h. Establish and share municipal inventories of land available for mitigation and conservation in areas that reduce flooding and promote the migration of species and habitat.



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**H2. Develop plans and implement strategies to prepare and adapt recreational resources based on best available climate science. [Lead: State Agencies; Municipalities].**

**ACTIONS:**

- a. Conduct public information hearings to understand the impacts of proposed climate adaptation strategies.
- b. Assess existing and future recreational areas for their potential to provide storage for flood waters and stormwater runoff.

- c. Preserve open space and recreational areas that serve to minimize climate change impacts.
- d. Integrate recreational and open space planning into climate adaptation planning and the Tidal Shoreline Management Plan.
- e. Integrate protection of recreational resources into land use and management, engineering, regulatory components of state and municipal plans including the Tidal Shoreline Management Plan, hazard mitigation plans, Master Plans, and design standards.



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**H4. Require state agencies and encourage municipalities to develop long-term plans for protecting, adapting, or reducing risk to cultural resources affected by climate change. [Lead: State Agencies; Municipalities].**

**ACTIONS:**

- a. Create or modify adaptation strategies for cultural and historic buildings affected by climate change, including plans for protecting or relocating resources.
- b. Integrate protection of cultural and historical resources into land use and management, engineering, regulatory components of state and municipal plans including the Tidal Shoreline Management Plan, hazard mitigation plans, Master Plans, and design guidelines.
- c. Establish expert group to create a decision-making process for property owners and municipalities to determine when and how to mitigate sites that will be lost.
- d. Establish guidelines for adaptation or risk reduction of cultural resources in state ownership.
- e. Create programmatic strategies to compensate for the loss of historic asset types that will be replaced in order to adapt to climate change impacts.
- f. Modify the Land and Cultural Heritage Investment Program (LCHIP) to include selection criteria that incentivize funding for climate adaptation actions.



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**H5. Allocate FY2018-2019 Biennial Budget funding and authority to expend funds for recreational and cultural resource vulnerability surveys, planning efforts, and implementation of the resulting plans. [Lead: State Legislature].**