

Chapter 15 – Flood Hazard Mitigation and Adaptation Policies and Strategies

Introduction

The Comprehensive Plan's Flood Hazard Mitigation and Adaptation Policies and Strategies describe goals, policies, standards, and implementation strategies related to mitigating managing flood hazards.

Purpose and Background

The Town of Wells, Maine prepared this Flood Hazard Mitigation and Adaptation Plan (hereafter referred to as the~~the~~ Plan) because the Town historically has experienced flood-related damage. The Town is also likely to experience increased damage in the future as flood hazards become more severe with climate impacts, including sea level rise, more frequent and intense precipitation events, and storm surge. The following factors contributed to that decision:

- History of coastal flooding and beach erosion in Wells
- Number of National Flood Insurance Program (NFIP) policies and claims
- Number of repetitive flood losses in Wells
- Projected climate change impacts

Assistance from the Floodplain Mitigation Assistance Program (FMAP) enabled the Town to complete the Flood Hazard Mitigation Plan that was included in the 2005 Comprehensive Plan and updated for this Comprehensive Plan. This Plan is an integral part of the Town of Wells' Comprehensive Plan.

Clarifying question for CPUC about above paragraph: Was assistance provided by the Flood Mitigation Assistance Program through FEMA or by the Maine Floodplain Management Program? Or some other program?

Flooding

As mentioned, this Plan ~~has been~~ was prepared for the Town due to the recurring flooding events throughout the community as well as the number of National Flood Insurance Program (NFIP) insurance claims. In September of 1936, February of 1978, August of 1991 (Hurricane Bob) and October of 1991 (~~No Name Storm~~ unnamed storm), the Town of Wells experienced serious flooding and sustained damage along Atlantic and Ocean Avenues, Webhannet Drive and along the Webhannet River and the Merriland River and other rivers and streams. The ~~effects~~ impacts of ~~the a 100-year flood- the~~ the October 30 – 31, 1991 ~~No Name~~ unnamed storm, which was a 100-year flood event, included flooding on Drake's Island, Moody Beach and Ocean Avenue. The storm flooded both sides of Ocean and Atlantic Avenues, damaging approximately 450 homes. The storm caused inland damage along the Bragdon Road and Branch Road/Mildram Road areas. Businesses, residential units, streets, bridges, other structures and public facilities suffered damage. In more recent years, Wells has experienced significant flooding and damage from a number of coastal storm events. Notable storms, as well as conditions and impacts associated with future sea level rise, are referenced in Appendix A, Chapter 3, Section E. Flood Hazards.

The Town considers this Plan to be a critical tool in minimizing future flood damage and adverse impacts on residents, visitors, infrastructure, and the economy.

Flood Hazard Mitigation and Adaptation

Hazard mitigation means any action taken to reduce or eliminate the long-term risk to human life and property from natural hazards. Hazard mitigation is not a one-time event, but rather an on-going process designed to identify hazards and to propose ways to reduce or eliminate dangers and risks associated with the hazards. Hazard mitigation planning allows towns to address current and future flood risk in near-term decision-making. It is not only essential for protecting people, property, natural resources, and the local economy, it is also a wise investment of limited municipal funds. The National Institute of Building Sciences found that for every one dollar invested in hazard mitigation, communities save six dollars in avoided future disaster costs.

Hazard adaptation means responding to the impacts of a hazard, such as flooding, or decreasing vulnerability of something (e.g., a roadway, private house, or municipal building) to the effects of a hazard. Elevating a home in a flood prone area is an example of adaptation. Adequate planning for flood hazards requires both mitigation and adaptation strategies. Strategies should be designed to be flexible to allow for changes in local conditions as well as shifting flood hazards in order to most effectively protect people, property, and the natural environment and increase community resilience to coastal hazards.

Nationally, the U.S. Government, including the U.S. Congress, the Federal Emergency Management Agency (FEMA) and the NFIP are concerned with the extensive amount of damage caused by both coastal and riverine flooding and the consequent amount of federal disaster assistance. As a result, the federal government has encouraged states and municipalities to prepare a Flood Hazard Mitigation Plan to identify ways to reduce the risk from flooding and perhaps eliminate flood hazards. In some communities where flooding conditions are significant, disaster assistance in the future may not be available unless a community prepares and follows a Flood Hazard Mitigation Plan. Such a plan provides the community with a pathway to receive federal assistance for implementation activities designed around specific mitigation projects.

Flood mitigation and adaptation planning involves a technical analysis of the existing conditions relating to the flooding conditions and a review of alternative strategies that are practical, realistic and achievable for the Town. The strategy provides the Town with direction as to preferred actions the Town can take to reduce and prevent damage to property, life and natural resources and thus enhance the overall quality of life for residents and visitors to Wells.

Flood hazard mitigation and adaptation techniques can vary, but may include:

- ▶ More restrictive ~~floodplain~~-development standards designed to reduce the risk from flooding in a Special Flood Hazard Area (SFHA) and areas vulnerable to storm surge and sea level rise.
- ▶ Land use plans that discourage public and private investments in floodplains and areas vulnerable to storm surge and sea level rise.
- ▶ Priority mitigation projects such as acquisition, relocation, flood retrofitting, drainage improvements and seawall protection.
- ▶ Flood retrofitting improvements to residential buildings.
- ▶ Public education efforts that stress the benefits of using coastal natural resources to buffer

- the ~~affected~~effects of coastal storms, ~~and~~surges, ~~and~~ sea level rise.
- ▶ Public education efforts geared to property owners as to the actions they can take to protect themselves and their property from flood damage.

Plan Benefits and Implementation

Several benefits accrue to the Town from participation in a flood hazard mitigation planning program. The primary benefit is to encourage public safety by reducing damage to personal property and harm to residents and visitors. Examples include retrofitting homes so that they are flood resistant and retrofitting bridges so damage is lessened. Mitigation ~~and~~ adaptation activities can reduce storm impacts including the cost of post-disaster clean up and recovery.

Formal adoption and implementation of the Plan enables the Town of Wells to secure additional credit points in the NFIP sponsored Community Rating System (CRS). The Town currently does not participate in the CRS, but did in the past. The CRS recognizes the community's efforts that go beyond the minimum NFIP requirements of flood plain management by reducing the flood insurance premiums for property owners located in the Special Flood Hazard Area (SFHA). The discounts provide an incentive for the Town and the property owners to become involved in new flood mitigation activities and flood plain planning and preparedness activities.

FEMA recently updated the NFIP methodology used to determine flood insurance premiums through the implementation of a new pricing methodology called Risk Rating 2.0. The methodology is aimed at developing insurance rates that are actuarially sound, equitable, easier to understand and better reflect a property's flood risk. For some flood insurance policy holders, that means an increase in their annual premium payment. As of May 2021, Wells had the greatest number of NFIP flood insurance policies in effect as well as the highest insurance premium prices of not only all communities in York County, but in the entire state of Maine. Since 1978, Wells property owners have filed the greatest number of NFIP flood insurance claims of all municipalities in the entire state, and the number of claims is nearly double that of the York County community with the second highest claim number. Additionally, Wells property owners have the 3rd highest payment amount for flood insurance claims in the entire state. As sea levels continue to rise, precipitation events become more intense, and storms occur more frequently, costly damage to homes will not only continue, but intensify, and more properties and people within Wells will be at risk of flooding. Wells' renewal of its participation in the CRS program would help to offset potential flood insurance costs for property owners and help the Town continue its flood mitigation and adaptation efforts.

Preparation and implementation of the Plan increases the Town of Wells' opportunities for additional federal assistance including FEMA's pre-disaster Flood Mitigation Assistance Program and its post-disaster Hazard Mitigation Grant Program. The Maine Emergency Management Agency provides a priority in its grant programs to communities who have prepared a comprehensive and ~~well-designed~~well-designed Flood Hazard Mitigation Plan. Pre-planning activities enable the post-disaster and recovery efforts to operate in a smooth and efficient manner. In addition to building support for implementation activities, the Plan advances the community outreach and public education component of the flood mitigation effort.

Plan Scope

The scope of this Plan includes the entire land area contained within the boundaries of the Town of Wells, Maine. The Plan pays special attention to the Little River, Ogunquit River, Webhannet River, Merriland River, Wells Bay and the coastal areas of Wells. The effective Flood Insurance Study (FIS) and the accompanying Flood Insurance Rate Map (FIRM), prepared for the Town of Wells by the Federal Emergency Management Agency was ~~very helpful~~ in used for the preparation of the Plan. Additionally, maps depicting the inundation extent of sea level rise projections and storm surge were considered in the development of the Plan to ensure it addresses both existing and future flood hazards. While this Plan addresses flooding concerns in Wells, Maine, the Town recognizes the benefits of coordinating floodplain management activities with its neighboring communities.

Note: Maps showing inundation and impacts of sea level rise and storm surge have been prepared for Wells through the Tides, Taxes, and New Tactics Project, New England Climate Adaptation Project, and the SMPDC-led regional economic resilience planning project. Those maps can be utilized to inform the policies and implementation policies.

Policies and Implementation Strategies

The Comprehensive Plan's Flood Hazard Mitigation and Adaptation Policies and Implementation Strategies section describes the goals, policies, standards and implementation strategies related to mitigating and adapting to flood hazards in Wells. Integrating flood risk, climate change considerations, and coastal flood resilience strategies into municipal planning, policies, expenditures, and infrastructure decisions will help to protect people, physical infrastructure, and public investments. Future development should be guided away from flood-prone areas and redevelopment should incorporate flood risk reduction measures to protect people and property.

Goals

State Goal:

Each municipality shall prevent inappropriate development in natural hazard areas, including ~~flood plains~~ floodplains and areas of high erosion. (Maine Growth Management Act)

Growth Management Program Goals:

F. To protect the State's other critical natural resources, including without limitation, wetlands, wildlife and fisheries habitat, sand dunes, shorelands, scenic vistas and unique natural areas.

N. To plan for the effects of the rise in sea level on buildings, transportation infrastructure, sewage treatment facilities and other relevant state, regional, municipal or privately held infrastructure, property or resources.

Wells Goals:

1. Identify and protect existing populations, buildings and facilities, which are at risk due to potential flooding conditions associated with existing and future flood hazards, including sea level rise and storm surge.
2. Reduce the potential damage to both private and public property due to flooding conditions associated with existing and future flood hazards, including sea level rise and storm surge.

3. Identify specific land use policies, projects and programs that will mitigate and reduce future flood related damages and adapt to future flood conditions, including sea level rise and storm surge. **Note: This suggestion is based on public comments from outreach and engagement efforts for the Comprehensive Plan update.**
4. Recommend specific actions the Town should take to mitigate and reduce damages caused by coastal and riverine flooding, storm surge, and sea level rise.
5. Qualify the Town of Wells for federal flood mitigation grant assistance, which can assist in the Plan's implementation. **Has this been done?**
6. Involve local officials, affected property owners and the general public in the Plan's preparation so that broad acceptance is achieved.
7. Conduct a public education and outreach program to inform the public about the risks associated with development in the floodplain and areas vulnerable to storm surge and sea level rise.
- 7.8. Conduct an education and outreach program to inform the public about climate change-related flood hazards and associated impacts to Wells. **Note: This suggestion is based on public comments from outreach and engagement efforts for the Comprehensive Plan update.**
- 8.9. Protect and preserve the natural and beneficial functions of floodplains and coastal areas subject to existing and future flood hazards.

Policies

To achieve these goals, it is the policy of the Town of Wells to:

1. Ensure that an accurate inventory of the properties located in the Special Flood Hazard Area is completed and maintained.
- 1.2. Conduct an inventory of properties and infrastructure located in areas subject to sea level rise and storm surge impacts based on the scenarios recommended for planning purposes by the Maine Four-Year Plan for Climate Action.
- 2.3. Review the Town's local land use regulations on a regular basis to ensure they are consistent with the latest National Flood Insurance Program and any other requirements and reduce hazardous floodplain flood plain risks.
4. Review the Town's land use regulations to identify opportunities for incorporating measures and standards that increase the resilience of development to flooding and provide enhanced flood risk reduction for areas vulnerable to future flood hazards, including sea level rise and storm surge. **Note: This suggestion is based on public comments from outreach and engagement efforts for the Comprehensive Plan**

update.

- 3.5. Provide incentives for property owners in the ~~flood plain~~ floodplain area and areas vulnerable to existing and future flooding, including sea level rise and storm surge, to properly floodproof their properties and to make their properties more flood damage resistant.
- 4.6. Ensure that improvements to existing public investments are built to minimize potential damage from existing flooding and future flood hazards, including sea level rise and storm surge, ~~situations~~ through proper stormwater management and floodplain management practices.
- 5.7. Identify flood hazard mitigation and adaptation projects in consultation with local, state and federal officials, property owners and the community at large.
- 6.8. Identify and seek assistance from federal, state and local sources for flood hazard mitigation and adaptation projects.
- 7.9. Educate property owners in the ~~flood plain~~ floodplain and areas vulnerable to future flood hazards, including sea level rise and storm surge, and the community at large about the risks of building in those the flood plain areas and techniques to reduce the risks.
- 8.10. Examine the potential for financial incentives to landowners in the ~~flood plain~~ floodplain area and areas subject to future flooding, including sea level rise and storm surge, through state or federal programs for maintaining their property in open space.
11. Discourage new public and private investment in the floodplain ~~area~~ and areas vulnerable to future flooding, including sea level rise and storm surge, that would encourage growth in those areas.
- 9.12. Partner with neighboring municipalities to assess and address flood hazards and undertake flood adaptation and resilience planning initiatives and projects.

Standards

To achieve these policies, the following are Town of Wells' standards to guide development:

1. See existing Wells Floodplain Management ordinance.

Implementation Strategies

Note: Wells' reports from recent coastal flooding projects, including the New England Climate Adaptation Project, Tides, Taxes, and New Tactics project, and Flood Resilience Checklist process, should be reviewed for policies, strategies, and actions.

Planning

Establish a Flood Hazard Mitigation and Adaptation Committee to ensure the Plan remains current. Review this Plan once a year and update it every three years.

Question: Is this Plan being updating on a regular basis?

Prevention

Prevention activities include planning and zoning, open space preservation, floodplain development regulations, stormwater management, drainage improvements and pre-disaster mitigation activities.

Land Use Planning Activities

1. Identify local and state policies, programs and practices that directly or indirectly promote growth and development in the Special Flood Hazard Area and areas subject to future flood hazards and increase the potential for coastal damage due to flooding conditions. Once these policies and programs have been updated, recommend policy and regulatory changes that will discourage growth and development in the Special Flood Hazard Area and areas vulnerable to future flood hazards, including sea level rise and storm surge.
2. Work with local, state, and federal conservation organizations such as the U.S. Fish and Wildlife Service to identify ~~and~~, acquire, and conserve parcels in the Special Flood Hazard Area and those in areas vulnerable to future flood hazards that have the potential to reduce the risk from flooding.
3. Consider the inclusion of ~~a~~-floodplain management and sea level rise criteria as the Town formulates its open space strategy for management and acquisition of open space lands to promote conservation of areas vulnerable to flooding. **Note: This suggestion is based on public comments from outreach and engagement efforts for the Comprehensive Plan update.**
4. Amend the Town's Floodplain Management Ordinance (Chapter 115) to be consistent with State requirements after the Town has adopted ~~accepted~~ the new Flood Insurance Study (FIS) and Flood Insurance Rate Map (FIRM). Incorporate enhanced flood resilience measures and standards for development in the Floodplain Management Ordinance that exceed the minimum State requirements.
5. Review the findings and conclusions of the Wells Bay Planning Committee to determine what recommendations should be included in the Town's floodplain

management program and public education activities.

Note: The following suggestions are based on public comments from outreach and engagement efforts for the Comprehensive Plan update.

- 5.6. Amend the Town's land use ordinances to include flood resilience measures and standards and direct development away from areas that are vulnerable to existing and future flood hazards.
- 6.7. Amend the Town's land use ordinances to promote land conservation and protection of open space, especially for subdivisions and large developments.
- 7.8. Increase setbacks for all waterbodies to accommodate climate change impacts, including storms of increasing intensity and frequency and sea level rise.
- 8.9. Consider implementing a land bank program to support land conservation, especially in areas vulnerable to existing and future flood hazards and areas that can support landward migration of critical natural resources, such as saltmarshes, to address the impacts of climate change.

9.10.

Stormwater management and drainage improvements

1. Conduct an inventory of all culverts, and bridgesculverts, bridges, and stormwater infrastructure components to determine their adequacy to handle the 100-year flood event i.e., determine their capability to provide for the efficient runoff of peak stormwater discharge and to prevent localized flooding conditions.
2. Seek the assistance and cooperation of landowners to gain access to drainage ways so debris can be removed to improve drainage. Because the existing drainage ways have become plugged over time and there is a 1 to 1 ½ feet change in elevation, some coastal areas experience minor and, on occasion, moderate flood conditions. This should restore to some degree the drainage system function.
3. Initiate a regular program to clean out and maintain existing catch basins on public lands or rights-of-way so that they can retain an adequate amount of water during periods of peak discharge.
4. Ensure that all proposed developments have an acceptable stormwater retention plan and drainage plan as part of the subdivision and site plan review process.
5. Adopt regulations for stormwater management and ensure they account for climate change and expected increases in precipitation frequency and intensity.

6. Conduct an assessment of the impacts of sea level rise, storm surge, and more frequent and intense precipitation events on stormwater infrastructure.
7. Require new and redevelopment to employ low impact development measures for stormwater management. Note: This suggestion is based on public comments from outreach and engagement efforts for the Comprehensive Plan update.
8. Use Stream Smart principles when designing culvert upgrades and replacements.
9. Investigate establishing a municipal fund to support infrastructure improvements that enhance the community's resilience to coastal and flood hazards.

Property Protection

1. Property protection activities include relocation, acquisition, demolition, building elevation, ~~flood retrofitting~~ flood retrofitting, retrofitting and insurance. The Town should consider focusing its initial efforts on ~~the seven~~ repetitive loss properties.
2. Conduct a flood hazard audit and analysis of the seven repetitive loss properties located on Atlantic and Ocean Avenues, ~~and~~ Webhannet Drive, and other flood-prone areas of town to determine how the risks can be reduced.
3. Ensure that all critical public facilities such as the Wells Sanitary Sewer District facilities and the KKW's water system plant are properly floodproofed to prevent the infiltration of floodwaters. These facilities should be adequately insured against the risk of flood damage.
4. Identify residential and commercial properties in the Special Flood Hazard Area and areas vulnerable to storm surge and sea level rise that would be appropriate candidates for structural improvements such as elevation and retrofitting to reduce the risk of flood damage.
5. Work with property owners within the floodplain to identify loan programs for floodproofing or other appropriate mitigation activities for structures located within the Special Flood Hazard Area.
- 5.6. Work with FEMA, conservation groups, the U.S. Fish and Wildlife Program, other appropriate partners and property owners to identify and pursue opportunities to purchase properties repeatedly damaged by flood hazards and conserve them as open space. Note: This suggestion is based on public comments from outreach and engagement efforts for the Comprehensive Plan update
- 6.7. Initiate a pilot mitigation program to provide additional incentives for

residential and commercial buildings located in the flood hazard area and areas vulnerable to sea level rise. For example, if a sufficient number of projects were generated in a localized area, a local contractor may be able to offer a discount to property owners who wish to elevate or retrofit their structures.

Natural Resource Protection

(Natural resource protection includes dune stabilization, beach nourishment, wetland protection, and erosion and sediment control measures and best management practices.)

1. ~~1.~~—Seek engineering assistance to review the Town’s practice of relocating sand to the eroded beach area at the beginning of Laudholm Beach at the northeastern part of Drake’s Island.
2. Work with state and federal partners to evaluate the feasibility of beach nourishment through the beneficial reuse of dredged material where appropriate.
3. Conduct an assessment of how Wells’ beaches and other coastal resources will be impacted by sea level rise and increasing erosion.
4. Work with regional, state, and federal partners to investigate opportunities to protect natural resources and areas that provide natural flood mitigation benefits.
5. Preserve and protect natural wetland and coastal waterbody buffers through zoning, increased regulatory setbacks for development and land conservation.
Note: This suggestion is based on public comments from outreach and engagement efforts for the Comprehensive Plan update.

Emergency Services

(Emergency services include flood warning, flood response, critical facilities and public health and safety maintenance.)

1. Review and update the Town’s local Emergency Response Plan. Since the Plan was first prepared, changes in land use have occurred with new commercial and industrial development, and in the emergency planning context, such as the flood warning notification system, the updated evacuation plans and the Emergency Alert System (EAS). An updated Emergency Response Plan should reflect these changes.
2. Conduct a tabletop flood response drill once a year to test the notification and

communication procedures, the responders' knowledge of their procedures and the extent of local resources such as sandbags, barricades, generators and shelters.

3. Complete evacuation route signage.
4. Provide additional support to the Town's Emergency Management Director in the form of a computer and part time administrative assistance.

Structural Projects

(Structural projects include seawalls, floodwalls and beach nourishment.)

1. Continue to repair and improve the seawall footing along Webhannet Drive by placing sheet pile facade in from the existing seawall. This project provides protection from storm and flood damage to properties along Webhannet Drive. The project should continue for approximately 1,500 feet at an estimated cost of \$1,600,000. This project should be completed over a 5 to 7 year period.

Is this still a strategy the updated Comprehensive Plan should reference?

2. Monitor the results of the recently completed beach nourishment program so that minor alterations can be made, as needed.

Public Information and Engagement

(As one of the initial members in the Community Rating System (CRS) program, Wells ~~has been was previously~~ active in various public information and education programs associated with an effective floodplain management program.) The Town should continue education and engagement efforts regarding flood hazards facing Wells and flood mitigation and adaptation. Public engagement includes information campaigns, education and outreach programs, community discussions, and technical assistance.

1. Initiate public information and engagement activities including providing:
 - a. FIRM map information
 - b. Sea level rise and storm surge hazards, impacts, and community vulnerability information
 - ~~b.c.~~ Technical assistance on the floodplain regulations and flood mitigation activities
 - ~~e.d.~~ Information at the library
 - ~~d.e.~~ Outreach projects
 - ~~e.f.~~ Real estate disclosure
 - g. Environmental education
 - ~~f.h.~~ Flood mitigation actions that property owners can implement to protect their homes and businesses.
 - i. Coordination with adjacent communities.
 - ~~g.i.~~ Opportunities for residents and property owners to share their flood hazard knowledge, concerns, and experiences, as well as ideas for flood adaptation and mitigation activities, with town officials.

Note: This suggestion is based on public comments from outreach and engagement efforts for the Comprehensive Plan update.

2. Prepare a public information brochure that describes in detail the comprehensive nature of the Town's floodplain management program, flood resilience, and sea level rise adaptation activities. **Note: This suggestion is based on public comments from outreach and engagement efforts for the Comprehensive Plan update.**
3. Establish a committee of concerned flood hazard property owners who are advocates of the Town's floodplain management and flood adaptation and resilience efforts. Use the committee as a sounding board for new ideas and initiatives regarding an effective floodplain management and climate change resilience program. **Note: This suggestion is based on public comments from outreach and engagement efforts for the Comprehensive Plan update.**
4. Use the community cable access program to publicize the Town's floodplain management programs and sea level rise adaptation and resilience efforts.