

Old Saybrook Coastal Resilience and Adaptation Study

OUTREACH: COMMUNITY AND TOWN AND STATE PROFESSIONALS

Community and Town outreach was a fundamental part of the study. The Resilience Team conducted a series of Town-wide presentations for information sharing and targeted community workshops for discussion and feedback. Meetings were also held with Town and State professionals to discuss operational issues and regulation. The community workshops were focused on two areas: 1) Chalker Beach, representing the challenges faced by the Low Beach Communities; and 2) the Route 54 (Main Street and College Street) and Maple Avenue “Resilient Corridor”, representing the challenges associated with flooded community arterials.



Resilient Corridor Workshop during August, 2017




Chalker Beach Workshop during August, 2017

Public Presentations, Workshops and Team Meetings

Town-wide presentations, community workshops and Resilience Team Meetings were conducted during the following months. Community presentations and workshops are highlighted.

- February, 2017: Resilience Team Meeting
- March, 2018: Resilience Team Meeting with Town and State Professionals
- May, 2017: Planning Commission Meeting
- **June, 2017: Town-wide Presentation**
- **November, 2017: Town-wide Presentation**
- **June, 2017: Neighborhood Workshop: Resilient Corridor**
- **August, 2017: Neighborhood Workshop: Resilient Corridor**
- **August, 2017: Neighborhood Workshop: Chalker Beach**

OLD SAYBROOK
Connecticut



Coastal Resilience Public Meeting

The Town of Old Saybrook is developing a Coastal Resilience Study and Infrastructure Evaluation to improve and facilitate the social, economic and ecological resilience of the Town to the impacts of sea level rise, coastal flooding, and erosion. Public participation is essential and everyone is welcome to attend.

Where:
Duffy Pavilion at Saybrook Pt. Park
155 College Street

When:
June 7, 2017 – 6:00pm – 7:30pm

Information:
Christine Nelson, Land Use Director,
860-395-3131 or
cnelson@oldsaybrookct.gov

View the state-of-the-art flood vulnerability analysis for Old Saybrook. This includes estimates for sea level rise and flood risk between 2016 and 2116. [Copy](#)

Identify critical infrastructure, facilities and shoreline assets that may be vulnerable to sea-level-rise in the near and long-term.

Contribute feedback to the Town and Consulting Team for integration into the Coastal Resilience Study.

Old Saybrook Coastal Resilience and Adaptation Study

FEEDBACK: TOWN AND STATE PROFESSIONALS



Representatives from the Connecticut Department of Energy and the Environment (DEEP), University of Connecticut (UConn) and Town Professionals representing coastal management, land use, building code and zoning regulation enforcement, public works and state representation attended a workshop during March, 2017 to discuss coastal flood risk and sea level rise. Discussions were organized around specific categories and issues. The following summarizes the feedback.

What is the current progress of implementing/maintaining your program in Old Saybrook?

Sanitary Wastewater Treatment:

- There are approximately 2,100 residential properties within Wastewater Management District. About 100 properties have compliant or upgraded systems. About 400 residential properties will be addressed with conventional system upgrades, done in 10 to 15 non-contiguous areas by the end 2018. Currently installing about 250 conventional upgraded systems at Cornfield Point. The remaining 5 areas (approximately 800 properties, including the Low Beach Communities of Chalker Beach, Indiantown, Saybrook Manor, Great Hammock Beach and Plum Island) are difficult to upgrade due to shallow groundwater, poor draining soils and coastal flood vulnerability. The Town is currently performing an engineering study to evaluate use of community treatment systems for these remaining 5 areas.
- Conflicts between health regulations (Connecticut River Area Health District [CRAHD]), Water Pollution Control Authority (WPCA) and FEMA flood data relative to system elevation goals.

Regulations:

- Updating and strengthening of flood ordinances, zoning and other land use regulations is needed on a continual basis as building codes and flood maps change.
- The Connecticut Coastal Management Act (CCMA) now includes sea level rise as a policy consideration when preparing municipal land use plans and the CT DEEP Land and Water Resources Division will continue to push for flood compliance, septic compliance, coastal resource protection, and promote natural and nature-based solution such as Living Shorelines and discourage “grey” structural shoreline protection.
- The Connecticut Department of Energy and the Environment (DEEP) maintains an excellent working relationship with the Town relative to coastal management and intends to be an on-going partner with the Town relative to adapting to sea level rise, shoreline change and coastal flood issues.

Land Use:

- The Town, State, land trusts and the Nature Conservancy have “set aside” land for marsh expansion through land purchase and various land use regulations and will continue to do so.
- The Beach Associations (having some governance authority) and the Town manage beaches for recreation and shoreline/water access including overlooks, boat ramps, docks, mooring fields, etc.
- Existing coastal structures are a mix of private, State and Town, including jetties, groins and revetments.

National Flood Insurance Program:

- The Town has been a participating community in the National Flood Insurance Program since the late 1970s and continues to improve compliance (based on number of compliant properties, a progressive implementation program and proactive enforcement).

Infrastructure:

- There is an on-going request/demand for on-road bikeways, in particular for recreational use and touring the waterfront/shoreline (see 2006 Sidewalk Plan and Transportation section of Plan of Conservation and Development).
- New MS4 (stormwater) permit considerations.

Historic Districts/Properties:

- Incomplete inventory of historic properties.

Old Saybrook Coastal Resilience and Adaptation Study

FEEDBACK: TOWN AND STATE PROFESSIONALS

What current impediments are you experiencing?

Sanitary Wastewater Treatment:

- Incorporating sea level rise projections, coastal flooding and federal and State flood regulations into wastewater treatment planning with CRAHD and WPCA.
- The Town government and residents may not take sea level rise and its implications seriously enough.
- The Low Beach Community properties present both technical and economic challenges. The cost of upgrading an on-site subsurface disposal system for coastal low-lying properties is about \$70,000, including retaining walls, use of suitable fill, use of proprietary leaching products, use of efficient pumping, etc.
- Town funding for community systems as well as system upgrades is required. The Town will need to approve a funding referendum. However, user funding by the property owners will also be required.

Regulations:

- Conflicts between different codes; for example, the health code requires mounded septic systems on lots in low lying areas. FEMA codes require no obstruction to flood waters. This is problematic for smaller non-conforming lots.
- There is no permitting process currently in-place for advanced on-site subsurface wastewater treatment systems for individual residential properties in Connecticut.

Land Use:

- Increased desire/request from homeowners to construct hard structures such as sea-walls for both property flood protection and construction of on-site subsurface disposal systems. This conflicts with DEEP policy to use natural and nature-based systems versus “grey” structures and fill placement in floodplains.
- Increasing flood damage of coastal waterfront properties including loss of driveways and yard areas as well as storm-related scouring around building piles.
- There is not, currently, resident support for “Retreat” as an adaptation and resilience strategy.
- Although promoted by the DEEP, there is reluctance on the part of local zoning commissions and their legal advisors to consider not allowing limitations to living square footage for “tear-downs” and rebuilds (i.e., a position that CCMA policies cannot be used to stop expansion). The Zoning Board of Appeals promotes reduction of building and structure coverage when reviewing variance appeals.

- On-site systems (including advanced systems) are not advisable on low-lying coastal waterfront properties (e.g., the beach communities) due to concerns about rising sea levels/rising groundwater levels and coastal flooding.
- Suitable sites for community systems (e.g., leaching, discharge points) must be identified and consider coastal flood and sea level rise risks.
- Damage, including repetitive losses, of community buildings due to coastal flooding.
- Invasive species is an issue and may become worse due to climate change.

Infrastructure:

- Roadway lane widths are too narrow and certain roads flood frequently.
- Inventory and analysis of existing stormwater infrastructure system is required. Funding resources are not currently available for this.

How will future SLR affect your program/exacerbate those impediments?

Sanitary Wastewater Treatment

- Use of on-site systems in coastal setting (in particular the beach communities) will become impossible and should be prohibited. On-site systems that are allowed, within floodplains) should consider coastal flood conditions (e.g., scour, flood loads).

Natural Resources:

- Beach migration and storm-induced erosion is causing sand to impact marshes by sedimentation.

Economic:

- The Town needs to evaluate the long term effects of sea level rise, in particular loss of taxable properties; loss of population; and overall loss of tax base/reduction in tax revenue.

Infrastructure and Emergency Response:

- Future projections of road flooding will need to be incorporated into emergency management plans, specifically: 1) delineation of ingress/egress roads; 2) maintenance of access/egress to roads; 3) specialized vehicles for Police, Fire and EMS; 4) increase capacity of emergency public shelters; and 5) Evacuation Planning.
- Beach migration and storm-induced erosion is causing sand to impact roads.

Old Saybrook Coastal Resilience and Adaptation Study

FEEDBACK: TOWN AND STATE PROFESSIONALS

Planning/Land Use:

- Sea level rise will add an additional level to Town planning and sea level rise needs to be included in future planning decisions. Zoning regulations do not include set-backs for tidal wetlands. As wetland area increases, there will be less buildable area and an increased need for variances.
- Sea level rise raises issues of cost and environmental benefit that will have to be addressed.
- There will be an increased demand for “grey” structural shoreline protection.
- Without adequate planning and regulation, development will continue within areas of the Town that are the most vulnerable to coastal flooding and the effects of sea level rise.
- Identifying a planning pathway to success in the face of sea level rise, so resources and investment can be appropriately applied.

Historic Districts/Properties:

- Not enough attention is being paid to flood protection of historic structures.

National Flood Insurance Program/ Disaster Relief Funding:

- FEMA Flood Insurance Rate Maps, limits of special flood areas and Base Flood Elevations will continue to change with rising sea levels.
- Eligibility for public assistance funding generally requires documenting pre-and post-storm to demonstrate what needs to be repaired or replaced. The need for this level of documentation will increase.

At what future point do you anticipate having to modify your program?

Sanitary Wastewater Treatment:

- The plan for addressing wastewater treatment in the Town has defined end dates, but is a continual concern impacting property owners – in particular, those that have failing systems.
- The Town is under a court order to improve water quality and wastewater management. However, the approval for community systems rests primarily with the DEEP.
- Support from the Board of Selectmen, and ultimately the voting residents, is also required to move forward with community systems.

Infrastructure:

- Flooding of infrastructure needs to be addressed Now.
- At what point (i.e., what sea level) do we raise roads and by how much to stay ahead of futures increases in sea level?

Regulations:

- All planning programs and regulations (included local building codes and flood-plain ordinances and zoning regulations) need to be continually modified to incorporate higher sea level rise standards.

Public Health:

- Climate change will likely introduce new public health issues such as increased temperatures, northern migration of disease vectors. These will have to be addressed.

National Flood Insurance Program:

- Need updated flood regulations – soon.



Old Saybrook Coastal Resilience and Adaptation Study

FEEDBACK: COMMUNITIES



Attachment 5 presents the details of a Neighborhood Resilience and Adaptation assessment of two “neighborhoods”, including Chalker Beach and the Rt. 154 Main Street, College Street and Maple Avenue intersection. This effort resulted in extensive feedback by residents during the several workshops. The feedback generated during the community workshops is summarized below.

Top resilience and adaptation priorities - Chalker Beach:

1. Town and beach community investment in resilience and adaptation should be focused on infrastructure and flood protection measures such as perimeter flood protection berms and beach nourishment.
2. Investment should be prioritized in the most vulnerable, low-lying areas.
3. Roadway investment should be made to ensure that community ingress and egress is available, at a minimum for nuisance and high probability floods (e.g., 2 to 10 year recurrence interval floods).
4. Evacuation is acceptable for larger, less frequent flood events.
5. Perimeter flood protection berms of up to six feet in height would be acceptable (from an aesthetics, water access perspective).
6. At this time, interest in voluntary buyouts and relocation is limited.
7. There is a community willingness to contribute to an adaptation fund of an amount no more than \$10,000 per household for “one-time” measures and \$1,000 per household on a recurring 10-year basis.

Topics without a clear consensus - Chalker Beach:

- The appropriate legal mechanism for implementing a perimeter berm flood protection strategy (i.e., voluntary, mandatory, easements, design guidelines, etc.)
- If perimeter flood protection berms are located on private property, should they also be available to be used as recreational, public access greenways.
- Whether or not property should be dedicated for Town buyback or as regulatory setbacks to allow for lateral advancement of tidal marsh (or whether marsh advancement is important to the residents).
- Whether zoning regulations should dictate the visual and aesthetic requirements for elevating houses.

Top resilience and adaptation priorities - Resilient Corridor (Main Street):

- Implementing a roadway infrastructure program that elevates as many roads as possible to provide access to the largest number of homes.
- Providing egress and mobility during frequent Sandy-sized storms, but not necessarily during the 100-year recurrence interval floods.
- Having evacuation policies for larger storms.
- Providing sloped access to private driveways off of raised roads.
- Creating floodable (green) streets for non-critical routes.
- Creating recreational trails along the marshes, either with or without perimeter flood protection berms, and/or along rights-of-way.
- Building perimeter berms two to six feet tall.
- Leaving the responsibility of elevating structures up to owners.

Topics without a clear consensus - Resilient Corridor (Main Street):

- The appropriate legal mechanism for implementing a perimeter berm flood protection strategy (i.e., voluntary, mandatory, easements, design guidelines, etc.)

Old Saybrook Coastal Resilience and Adaptation Study

FROM FEEDBACK TO STRATEGIC PRIORITIES...

The feedback provided by the residents and Town and State professionals was used to define strategic priorities for resilience and sea level rise adaptation:

INGRESS AND EGRESS - ROADS AND BRIDGES

The Town's roads are vulnerable to coastal flooding, as experienced during recent storms. Nuisance flooding is already encountered on some roads. Larger storms create isolated "islands" with no means of ingress and egress during the flood event.

PUBLIC SAFETY

Ensure that the Town's Essential and Lifeline facilities are protected to the 500-year recurrence interval flood. Ensure evacuation during flood levels greater than the 10-year recurrence interval flood, including access to the Town's public shelter.

SANITARY WASTEWATER TREATMENT

Low-lying, poor draining areas (in particular the Low Beach Communities) are becoming completely unsuitable for individual on-site subsurface disposal systems due to small lot sizes, shallow groundwater and vulnerability to flooding. Sea level rise will make this condition worse in the future. Different applicable regulations have conflicting requirements. Funding to pay for new systems will have to be identified.

NATIONAL FLOOD INSURANCE PROGRAM

The Town is a participating community in the National Flood Insurance Program and has been proactive in achieving compliance. However, due future sea level rise, updates to FEMA Flood Insurance Rate Maps are expected - probably about every ten years or so - increasing the limits of special flood hazard areas and base flood elevations.

PROTECTION OF PRIVATE PROPERTY

Protection of private property is a key priority of the Town's residents. Maintaining property value is equally important. A flood protection approach that uses several, integrated strategies and measures is preferred. Perimeter flood protection using earthen berms was discussed as an alternative for protection of areas abutting the tidal marshes. However, the berms would have to be on private property. Also, the conditions are not conducive to constructing berms that would qualify as FEMA-accredited levees (i.e., would not change flood insurance or building code requirements. Elevating houses in accordance with current federal, State and local building codes is another alternative - one currently being used by residents.

INGRESS AND EGRESS

Elevate roads, at a minimum, to provide ingress and egress under nuisance flood conditions (e.g., astronomical high tides) and high probability floods (e.g., at least to the 10-year recurrence interval flood predicted over the next 50 to 100 years).

PUBLIC SAFETY

Provide flood protection for at-risk Essential and Lifeline Facilities. If all roads cannot be elevated, develop alternative emergency response capabilities such as amphibious emergency vehicles for use during storms when roads are flooded. Establish and communicate evacuation guidance and protocols.

SANITARY WASTEWATER TREATMENT

Two strategic alternatives: 1) Retreat from these areas; or 2) provide alternative wastewater treatment systems. The Old Saybrook Water Pollution Control Authority has developed, and is implementing, a wastewater management program that will use centralized community systems for treatment of wastewater from the most vulnerable communities (i.e., the beach communities), allowing these homeowners to remain in-place. A priority is to design these treatment systems to accommodate coastal flood vulnerabilities and sea level rise for the through 2100 years or their design life. Identify funding opportunities including grants, bonds, general taxes and/or use fees.

NATIONAL FLOOD INSURANCE PROGRAM

Continue to proactively achieve compliance and evaluate the benefits of investing to improve the Town's Community Rating System score. Until FEMA changes their mapping guidelines to address sea level rise, provide residents with Town-specific flood hazard data reflecting sea level rise projections for 2050 and 2100, in line with the State of Connecticut.

PROTECTION OF PRIVATE PROPERTY

Prioritize the protection of homes, on an individual property basis, using methods available under the existing federal and State flood regulations and local ordinances (such as elevating houses). Provide guidance to homeowners on floor elevations considering sea level rise. Evaluate the use of community-wide standards for elevating buildings to: 1) provide community aesthetic consistency; and 2) reduce the challenges of elevating roads (i.e., multiple, differing entry elevations).

Old Saybrook Coastal Resilience and Adaptation Study

FROM FEEDBACK TO STRATEGIC PRIORITIES...

LAND USE

“Set-asides” and land acquisition are used for the preservation and enhancement of natural resources. The beach communities and the Town manage the beaches. There is ongoing demand for public access to scenic views, the waterfront and the tidal marshes, including dedicated bikeways on public roads. The additional use of perimeter flood protection berms as public greenways was discussed; however, there are concerns by abutting property owners about this use. It is the goal of beach community residents (in particular those located on the beach) to stay in the community (i.e., not retreat) and use a strategy of flood protection at the property scale (i.e., elevated structures, consistent with existing building codes).

HISTORIC PROPERTIES

There are several historic districts and numerous historic properties located within the Town. These properties are significant to maintaining the character of the Town. Many of these properties are vulnerable to coastal flooding. Ownership is a mix of private and public. These properties are not well-suited to typical flood mitigation measures presented in the flood regulations (e.g., elevating houses).

SHORELINE PROTECTION

Old Saybrook’s shorelines, for the most part, are eroding. Maintaining shorelines is a key component of resilience and adaptation. The State is promoting the use of natural and nature-based measures (e.g., Living Shorelines, beach nourishment) and is discouraging (including new legislation) the new construction of “grey” structures (e.g., seawalls, revetments, groins). Much of the Old Saybrook shoreline is exposed to large waves limiting the use of Living Shorelines. The tidal marshes and river mouths are good environments for Living Shorelines. Beach nourishment is very expensive and sand sources are becoming limited. Much of the shoreline access is limited to community residents.

ECONOMIC CHALLENGES

Coastal flooding and sea level rise will result in increasing costs to the Town and Town residents. Federal grants and public assistance funds are limited and historically linked to emergency public assistance funding. These federal programs are insolvent; the future availability of this source of funding is uncertain.

LAND USE

The importance and complexity of these issues makes revisiting Town land use planning goals and regulations (in the context of coastal flooding and sea level rise) a top priority. Achieving a balance of public and private land use in a manner that also reduces the risks of coastal flooding is an obvious goal. While retreat may not currently be a preferred strategy by Town residents, some amount of retreat will be inevitable in the future and should be a priority for long-term planning. Future land use planning should focus on promoting new development in non-vulnerable areas of Town.

HISTORIC PROPERTIES

Provide flood protection for Historic Properties. These properties are exempt from the federal flood regulations, allowing flexibility in the types of flood mitigation measures that can be used.

SHORELINE PROTECTION

It is a priority for the Town and the DEEP to continue to work together to find shoreline protection solutions that are compliant with regulation and also meet the needs of the Town residents, possibly involving an integrated approach of Living Shorelines, beach nourishment, natural and nature-based tidal marsh borders and upland (above the CJL) flood protection structures. Town-wide and regional beach nourishment planning is also a priority, providing the regional critical mass to promote nourishment projects and coordinate with the USACE.

ECONOMIC CHALLENGES

Identifying the resilience and adaptation cost liability associated with: 1) increased public works and public safety costs; 2) potential erosion of tax base; 3) effect of Town tax rate; and 4) effect on Town municipal bond credit rating, should be a priority. Contingency cost planning should be considered as part of the General Budget. Land use planning and policy should preserve the tax base by encouraging land development (including relocation) in non-vulnerable areas of Town.

