



Lincoln County Regional Planning Commission Sea Level Rise Ordinance Project



Winter Storm Grayson: January 4, 2018
Damariscotta Photo by: Matt Lutkus

PARTNERS

Lincoln County Regional Planning Commission (LCRPC)
Maine Geological Survey (MGS)
Bowdoin College (Bowdoin)

PROJECT DESCRIPTION (completed March 2018)

In 2013, the Lincoln County Regional Planning Commission (LCRPC) was awarded a Coastal Community Grant to work with the Maine Geological Survey (MGS) to study the potential impact of sea level rise (SLR) on Lincoln County's tidal shoreline based on existing Federal Emergency Management Agency (FEMA) flood insurance rate maps (FIRMs). This study, based on best available information at the time, included mapping of several different sea level rise (SLR) scenarios, the 1% still water level, and a combination of still water flooding combined with several sea level rise scenarios. In 2015, FEMA issued new digital FIRMs (DFRIMS) that incorporated updated wave set-up and run-up on top of still water elevation and the 2013 work was expanded to use this data and sea level rise scenarios to create new inundation data in fourteen of the county's coastal communities. See <http://lcrpc.org/coastal-projects-planning/lincoln-county-sea-level-rise-flood-study-updated>.

In 2015, LCRPC was awarded another Coastal Community Grant for work which included performing an evaluation of how local ordinances in Lincoln County currently address sea level rise (SLR), if they do at all, and to develop a list of potential ordinance amendments that towns might consider to increase resiliency to rising seas and storm surge. The goal was to develop a palette of ordinance "fixes" and then draft specific amendments for consideration by each community.

APPROACH

Initially, it was felt that the most effective approach might be for towns to enact a SLR overlay zone, the boundaries of which would conform to the limits of inundation during a 1% storm for the SLR scenario selected by the community. That is, if the community selected, for example, a planning target of three feet of SLR, the overlay zone boundary would conform to the area expected to be inundated by a 1% storm after three feet of SLR. The overlay zone might include standards governing minimum structure elevation, well and septic system protections and similar provisions that would apply to all properties within the zone. While this approach might be a possibility for towns that have a zoning ordinance, most communities in Lincoln County do not have zoning ordinances and, therefore, cannot create a legally sustainable overlay zone. In addition, an overlay zone needs verifiable and reproducible boundaries (often centerlines of roads, lot lines, offsets from known features, etc.) in order to be enforced and creating such a zone based the curvilinear boundaries of a SLR inundation area would be monumentally difficult. Consequently, another option would be necessary.

The State Mandatory Shoreland Zoning Law requires all towns to create a “shoreland” zone (SZ) extending 250 feet inland from the high tide line regardless whether the community has otherwise enacted a zoning ordinance. Based on a discussion with Maine Department of Environmental Protection staff, LCRPC was advised that towns are free to enact enhanced standards as described above as long as they are limited to the area encompassed within the SZ. In order to determine if the SZ would be a suitable vehicle for these purposes, LCRPC staff collaborated with Pete Slovinsky, Coastal Geologist with the Maine Geological Survey, and Eileen Sylvan Johnson, Lecturer, Environmental Studies at Bowdoin College on a research project that involved modeling SLR scenarios over 100 year flood plain levels for Lincoln County.

Working under the direction of her advisor, Ms. Johnson, student Elizabeth Kenny adopted and applied to Lincoln County, Maine, a GIS methodology used by NOAA to model the potential impact of sea level rise on top of the newly effective FEMA DFIRMS. The simulations focused on AE Flood Zones (areas subject to inundation by 1% annual chance flood events) and VE Flood Zones (areas subject to inundation by 1% annual chance flood events with additional hazards due to storm-induced wave velocity action). A Flood Zones (areas where base flood elevations (BFEs) have not been established), X Zones (areas where there is little chance of flooding and therefore flood insurance is not required), and open water were excluded. Additionally, flood zones that were not directly connected to coastal areas (and therefore not impacted by sea level rise) were removed from the data set.



NEXT STEPS

At this point (2018), two communities are considering enacting enhanced building elevation requirements in the near future while two others previously increased their minimum freeboard requirements. LCRPC staff plans to periodically check in with the other communities to see what progress they are making and to offer any additional information or assistance they may require.

LESSONS LEARNED

Although amending local ordinances to increase the minimum elevation of structures above the base flood appears straight forward, there can be complications for coastal communities.

There are at least two local ordinances (floodplain and SZ ordinances) that contain such provisions. Also, since the goals of such amendments include encouraging existing buildings to elevate for SLR protection, maximum building height provisions (found in SZ, building code and land use ordinances) come into play. That is, there are likely many situations where buildings are already at the maximum allowed height so elevating them would not be permitted.

To address this conflict, additional amendments were prepared for each community authorizing the board of appeals to grant a variance from maximum height requirements only to the extent that “the increase in height is no more than the distance that the lowest floor elevation (including basement) is raised above its original elevation to comply with but not exceed the minimum structure elevation requirements of the Shoreland Zoning Ordinance or Floodplain Management Ordinance.”

Third, for towns that operate on an annual town meeting basis, the process of considering and then amending local ordinances as suggested above can be quite lengthy and arduous. Rather than only needing to convince a city or town council of the validity of such amendments, town meeting governments require the vote of the public at a special or annual town meeting. This often requires many meetings, presentations and public hearings just to get on a town meeting warrant. Even then, many voters will have learned of the need for and rationale of enhanced flood protection measures only at the town meeting with prospects for approval uncertain.

APPLICABILITY FOR OTHER MUNICIPALITIES

Most Maine communities have adopted SZ ordinances that mirror state guidelines while almost all floodplain ordinances conform to the FEMA model ordinance so the amendments prepared for Lincoln County communities can be used in other municipalities. In addition, the height variance provisions can be adapted for local zoning, SZ and land use ordinances.

For additional information

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