

Freeboard Incentives work for residents, town officials in Hull, MA

The Town of Hull, Massachusetts, is situated on a peninsula in the southernmost part of Massachusetts Bay. It is densely developed, and in recent years has transitioned from a summer home community to a more year-round population. It is also extremely vulnerable to storm damage and flooding, with the third highest number of repetitive loss properties in the state.

A few years ago, conservation Administrator Anne Herbst was pitching the idea of freeboard to residents during the construction permitting process. But most people already had engineered plans and weren't willing to change them.

"So I made up this idea of a freeboard incentive," says Herbst.

It provides a cash savings to residents who choose to elevate their home, whether it's an existing property they elevate or a new construction project.

"The incentive is only \$500, but the flood insurance savings dwarfs that. Still, having a benefit on the building end is significant for homeowners," she says.

The town offers the \$500 as a rebate on building department fees, once the homeowner provides documentation that they've built the house 2 feet higher than it would otherwise be.

"Like many Massachusetts towns, we're strapped for money. I think people like to see that the town is willing to give back a little bit," Herbst explains.



Matt Duggan's family has owned property in the town for many years, and still lives nextdoor. Duggan recently retired from 25 years at the MBTA and took advantage of the incentive program when building his new house. "Freeboard saves you a bundle on flood insurance," he says. "I even got a little bit of an ocean view when I built a little higher."

The process was “a lot of work,” he admits, “but I’m glad I didn’t try to do it any other way. I think it’s a very smart move for anyone that lives near the coast.”



Implementing the incentive program required approval from the Board of Selectmen, which was unanimous. The town of Hull is going on three years of running the program, and Herbst reports a high level of initial participation.

CREDIT: Katie Kent, Climate Fellow, Clean Air-Cool Planet

- **Beach erosion: a story of three towns**

Extreme storms that hit the Maine coast repeatedly in the last 10 years destroyed properties and also contributed to existing beach erosion management. In Scarborough, Saco, and old Orchard Beach, towns decided individually on the best solution – and all came to different conclusions.

A storm at Scarborough's Willard Beach "caused us to face the reality that we had to do something more than what's here," explains Ronald Owens, town manager from 2000-2008. Although some residents were skeptical about the costs of the project, the beach represented \$400 million in value, and also houses town water and sewer lines that would be expensive to



relocate. After considering costs and benefits of several options, including doing nothing, the town opted for a building a coastal rock wall designed to deflect wave energy.

"We know much more about the beach, and what's happening to the beach," says Owens. "If we've done a good design using the data we have maybe it will last a lot longer" he says.

Close by in Old Orchard Beach, the town opted for a dune restoration project. They replanted sand dunes to reap benefits of a soft system. The idea is "is to try to mimic the way the natural dune works," says coastal geologist Pete Slovinsky, who advised on the project.

The dune they are building will naturally grow in size, continuing to absorb the energy of waves, water, and sand. "This is a great way a town or landowner can add protection," says Slovinsky.

Down the coast in Saco, the main concern was erosion down the middle of the beach. This eventually led to the installation of geotubes, huge tubes of fabric filled up with sand. The geotubes build up the beach to reduce future erosion.

Slovinsky explains that soft choices like dune replanting and geotubes have fewer negative side effects than stone walls and rock barriers. Soft barriers "work a little bit more with the system, so they're not as damaging," he says. The project was implemented by the US Army Corps of Engineers, who had previously built a jetty in the area.

- CREDIT: Katie Kent, Climate Fellow, Clean Air-Cool Planet

- **Innovative floodplain ordinance passed in Saco, ME**

“If you lived in southern Maine and there’s a big enough winter or spring storm, then the odds are good that there will be footage on your television station of Camp Ellis and the beating its taking,” explains Saco City Planner Bob Hamblen.

The repeated loss of homes to wave action and beach erosion in this neighborhood of Saco has made Camp Ellis a poster child of storm damage within the state.

“If there were going to be a Maine community most in need of taking action to prepare for future storms, it would be Saco, ” Hamblen asserts. “Because of all the damage, the planning board, city staff, and council are all very mindful of what happens on the coast during a storm.”



“In a lot of ways, Saco was the perfect community to consider changes to the floodplain ordinance,” he says. “We’ve seen in very real terms what can happen to structures down at the beach.”

The city of Saco’s new ordinance requires construction after storm damage or renovation above 50% of the home’s market value to elevate the home 2 feet higher than the federal compliance standards. Coordinated changes were made to accommodate height restrictions. The policy applies to new construction too.

The change was low-cost and was approved without much ado. No one spoke against the change at the city council’s public hearing and the change was approved unanimously by the council.

“It was just common sense,” says Hamblen.



The project emerged from results of research done by the Sea Level Rise Awareness Working Group (SLAWG), as well as communication and collaboration between Saco, Scarborough, Biddeford, and Old Orchard Beach. The group looked at actions that wouldn't take a lot of effort and would make sense to coastal property owners. “The group's recommendations are recognized as successful and reasonable,” Hamblen says.

Coastal homeowners have been receptive of the policy, and “some really appreciate the city partnering with them on this,” Hamblen explains.

“So many of the owners live out of state. I imagine an owner in Massachusetts or New Jersey hearing about the storm coming up the coast, and resting a little easier knowing they've raised their house up a couple more feet,” Hamblen notes.

- CREDIT: Katie Kent, Climate Fellow, Clean Air-Cool Planet

- **Sea level rise accounted for at Deer Island wastewater treatment plant**

Synopsis: Even in 1989, scientists and engineers considered sea level rise in decision-making for big investments

Imagine a sewage treatment plant large enough to remove human, household, and commercial pollutants from 43 greater Boston communities.

It's called the Deer Island Wastewater Treatment plant, and it's the second largest treatment plant in the country. It was constructed in the Boston Harbor back in 1968, and sits on a peninsula jutting into the ocean.



The plant was overhauled in the 1980's and 1990's at the cost of \$3.8 billion. Protecting the investment of that much money meant forward-thinking planning. Planners and engineers looked at the costs of elevating the plant by 1.9 feet, and compared it to the risks to the plant of future sea level rise. It would save money in the long run, they reasoned, to elevate the plant now and prevent expensive fixes in the future – including elevating the sewage piping over a fortification wall.

Since the decision was made in 1989, scientific understanding of climate change and sea level rise has improved greatly.

- CREDIT: Katie Kent, Climate Fellow, Clean Air-Cool Planet

- **Boston Plans for the Near-term Risk of Rising Tides**

While many cities around the country grapple with drought and excessive heat this year, city planners in Boston have something else on their minds: the prospect of rising water.

In this coastal metropolis, scientists and computer models predict that climate change could eventually lead to dramatic increases in sea level around the city. Coupled with a storm surge at high tide, parts of the city could easily end up under water.

The area that's home to Boston's Faneuil Hall, the city's first public market, is one of them. The land the hall was built on was once waterfront property, but by the late 1800s, the growing city needed more room. So the marshes and mudflats along the wharf were filled in — and the city expanded.



"Now, today, more than 50 percent of downtown Boston is filled tidelands," says Jim Hunt, Boston's chief of environmental and energy services.

Hunt helped Boston create a comprehensive climate action plan. It focuses both on reducing greenhouse gas emissions and on adapting to the dangers of a warmer climate such as heat waves, storms and the rising sea.

"How do we prepare our residents and businesses for the impact that we are already experiencing?" Hunt asks. "And that are sure to get more [intense and frequent], given the amount of carbon in the atmosphere?"

Regardless of the ongoing national debate about climate change, Boston is calling the projected sea level rise a near-term risk. Projections range from 2 to 6 feet here by the end of the century, depending on how fast polar ice melts.

Add to that a hurricane storm surge, and some models show parts of Boston under 10 feet of water. Researchers have told the city that by 2050, that could happen as often as every two to three years. With those risks in mind, Boston is asking developers along the waterfront to plan now for more frequent flooding.

The Boston-based health care group Partners for Healthcare, which is building a new rehabilitation hospital in downtown Boston, is heeding the call.

Read full story at: <http://www.npr.org/2012/08/21/159551828/boston-plans-for-near-term-risk-of-rising-tides>

- **City of New Castle, Delaware Coastal Resiliency Action Plan**

- As part of their statewide Sea Level Rise Adaptation Initiative, the Delaware Coastal Programs Office of the Division of Soil and Water Conservation in the Delaware Department of Natural Resources and Environmental Control (DNREC) is helping the City of New Castle conduct a vulnerability assessment and develop a coastal resiliency action plan to prepare for and adapt to sea level rise and other projected climate change impacts. This pilot implementation project will examine the physical, social, economic, and environmental vulnerabilities of the City of New Castle's coast in order to identify issues of concern, collect relevant information, and develop adaptation strategies.



Current coastal issues in New Castle include flooding and erosion from storms, which have stressed existing dikes and tide gates throughout the community; more intense storms and sea level rise expected with climate change have the potential to overwhelm the community, resulting in complete dike failures, inundation, habitat loss, and infrastructure damage. The goal of this project is to create an adaptation plan to increase the resiliency of New Castle to current and projected effects of coastal storms, sea level rise, and climate change.

More information: <http://www.cakex.org/case-studies/850>

- **Portsmouth's "Coastal Resiliency" Project**

Portsmouth, like many coastal communities in New Hampshire and across the country, has a distinct and pressing need to comprehensively address the existing and future impacts relating to climate change, particularly sea level rise, land and natural resource protection, public health, and sustainability of local and regional economies.

Portsmouth has secured funding from the Gulf of Maine Council to complete a climate impact and vulnerability analysis of critical assets and develop and implement policies, plans and regulations to address the projected impacts of climate induced changes. The purpose of this initiative is to improve resiliency, to integrate proactive and prescriptive actions into the City's existing framework of management, planning and infrastructure investments. Portsmouth has chosen to integrate this climate impact and vulnerability assessment as a preliminary step toward updating its Master Plan in 2013. This approach will ensure that critical recommendations from the vulnerability assessment are incorporated into the plan as well as supporting zoning, land use regulations and building codes.

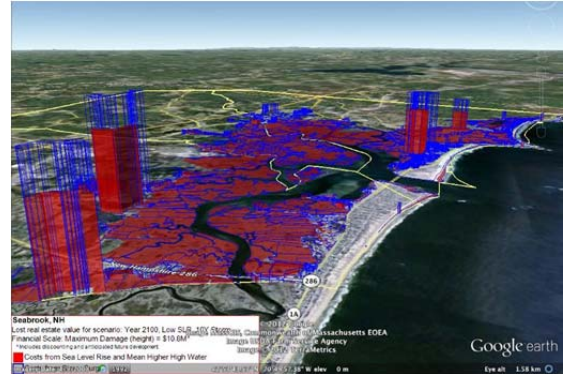


Important first steps in this process include identifying areas at most risk from flooding and sea level rise; developing strategies that decrease the vulnerability of buildings, infrastructure and natural resources in areas subject to higher risk of flooding, particularly in the next 20 to 50 years (or within the life cycle of most existing facilities); and leveraging existing institutional practices - such as master plans, hazard mitigation plans, and capital improvement plans - to maximize use of available funds and implement comprehensive strategies to mitigate and prevent impacts, and protect public and private investments. The goal of taking these steps is for the City to institutionalize best practices into its daily governance and regulatory structures and provide a framework of regulatory, planning and policy actions that create a resilient and adaptive built environment and protect ecosystems and other important historical and cultural assets from potential catastrophic impacts.

For more information, email [Peter Britz](#) (Portsmouth Environmental Planner) or call him at 610-7215

- **Hampton, Hampton Falls and Seabrook, New Hampshire Tackle Coastal Flooding**

The eve of Snowmagedon (October 30, 2011) marked the start of a year-long adaptation project with citizens and community leaders from Hampton, Hampton Falls, and Seabrook. By using the Coastal Adaptation to Sea-Level Rise Tool (COAST), the Coastal Adaptation Workgroup and community members met through winter and spring to explore the economic impacts of sea-level rise and storm surge on community facilities and private real estate. Most recently, stakeholders met in June to discuss the cost-benefit results of strategies to protect local assets from flooding and when it makes the most sense to take such actions.



The "COAST" tool helps to visualize the economic impacts of storm surge and sea-level rise.

For more information, email [Julie LaBranche](mailto:Julie.LaBranche@rockinghamplanning.com) of the Rockingham Planning Commission or call her at 778-0885. Also, see coverage at [Seacoast Online](http://SeacoastOnline.com) or at the [NH StormSmart Coasts](http://NHStormSmartCoasts.com) page.