

From: Weston Town Hall listserv@civicplus.com
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To: liserevers@gmail.com

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Flooding Prediction for Weston: The Charles River Flood Model is Live

The Town of Weston, in partnership with the [Charles River Watershed Association](#) (CRWA) and 14 other communities in the upper and middle Charles River watershed, is excited to announce the release of the [Charles River Flood Model \(CRFM\)](#). Funded by the Massachusetts Executive Office of Energy and Environmental Affairs' Fiscal Year 2021 [MVP Action Grant Program](#), and developed by [Weston & Sampson](#), this flood model can help communities protect vulnerable populations and property from flooding.

The CRFM visualizes the impacts of increasingly severe storm events that will become more common with climate change, then shows what happens if we invest in nature-based solutions such as land conservation, green stormwater infrastructure, and/or reducing impervious surfaces.

This model comes at an important time. Our region has seen approximately 9.5 inches of rain so far this month, an astounding 9 inches more than average for early July. Following Tropical Storm Elsa and subsequent rains; the Charles River remained above flood stage in Dover from July 12 to 17 according to the U.S. Geological Survey.

The CRFM found that without intervention, a projected 2070, 100-year storm will impact more than 50 critical facilities and flood up to 12,500 acres of land within the watershed. This exceeds the estimated 10,400 acres of flooding stemming from the severe rains during March 2010, which is the most recent significant flooding event caused by rainfall to affect the region. Weston saw flooding at the Transfer Station making it inaccessible, the Hobbs Pond dam at Cat Rock collapsed, and many residences experienced property loss due to flooded basements. These intense rain events will put many residents at risk, especially vulnerable populations such as low-income residents, the elderly, and those who suffer from physical or mental illness.

The CRFM was also used to test the impact of developing land that is currently

undeveloped but vulnerable to future development. Developing half of the watershed's remaining undeveloped and unprotected land without flood control measures would result in a 33% increase in flooded area in the present day 10-year storm, and a 20% increase in flooded area in the 2070 10-year storm. Allowing undeveloped land to be developed without considerable flood protection will cause downstream flooding and directly impact vulnerable residents.

“CRWA is excited to have led this regional effort,” said Julie Wood, deputy director with the Charles River Watershed Association. “This is a critical step to taking action as a region to effectively mitigate the expected flooding impacts of climate change. The model provides valuable information that will allow communities to make informed decisions about policy changes and on the ground interventions.”

Investing in nature-based solutions brings other important co-benefits as well, including improvements in water quality in the Charles River, reduced heat island effect, cleaner air, increased biodiversity, and more. Weston has been promoting the installation of rain gardens through building permits and stormwater management permitting. Rain gardens improve the water quality of stormwater, provides groundwater recharge, and helps to mitigate peak rates and volume of runoff. And of course, Weston has 2,000 acres of conservation land.

During the planning phase for Weston's Climate Action and Resilience Plan, flooding was identified as a top climate hazard the town will face. Enhancing Weston's infrastructure, utilities, and critical services is a goal identified and mapped in the plan.

Flooding does not follow political boundaries, and this tool will help create stronger regional collaboration between communities in the watershed to better understand and address flooding due to climate change. Participating communities include Arlington, Dedham, Franklin, Holliston, Medway, Millis, Natick, Needham, Newton, Norfolk, Sherborn, Watertown, Wellesley, Weston, and Wrentham.

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11 Town House Road, Weston, Mass. 02493
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