



NORTH
SUFFOLK
OFFICE of
RESILIENCE &
SUSTAINABILITY



Mystic River
WATERSHED ASSOCIATION

WOODS HOLE
GROUP
A CLE COMPANY

Building Adaptive Capacity in Revere: Flood Monitoring and Community Resilience Project

Community Meeting

03/09/2026



Photo Credit: NBC10 Boston

Project Overview: Why We're Here

The City of Revere is launching a new project to prepare for flooding. This project involves:

- A new flood monitoring system that tracks how high the tides are and when streets begin to flood
- What the data shows about frequent (“sunny-day”) flooding and how it may change in the future
- How this data helps the City plan for flooding now and in the future

The project will also alert residents before likely flooding events.

- New flood sensors that trigger text message alerts that will notify residents about flooding and changing conditions



What Led to This Work

1. Evidence of Past and Ongoing Flooding

- Residents in low-lying areas of Beachmont and along Mills Avenue have experienced recurring flooding.

2. Community Input

- Public input has helped identify the need for better flood information, early warning tools, and near-term actions.

3. Previous Planning and Resilience Studies

- Belle Isle Marsh Environmental Inventory, Coastal Modeling, and Restoration Assessment (2022)
- Saugus River Watershed Coastal Vulnerability Assessment and Regional Adaptation Plan (2023)
- Saugus River Watershed Shoreline Prioritization and Adaptation Project (2024)
- Building Resilience in Beachmont Plan (2025)



Primary Types of Flooding - Storm-Induced Flooding



Storm-induced flooding occurs during coastal storms when elevated water levels, storm surge, and wave action combine with the natural tide cycle.



Primary Types of Flooding - Sunny-Day Flooding



Sunny-day flooding occurs during high tides, even when weather conditions are calm. This type of flooding is driven by:

- High astronomical tides
- Rising sea levels
- Local critical elevations where water begins to enter streets or properties

Why This Difference Matters



Although both flooding types affect the coastline, they behave differently:

- **Storm-induced flooding:** Low frequency, high impact events
- **Sunny-day flooding:** Frequent, recurring impacts that affect daily life

Understanding Flood Elevations

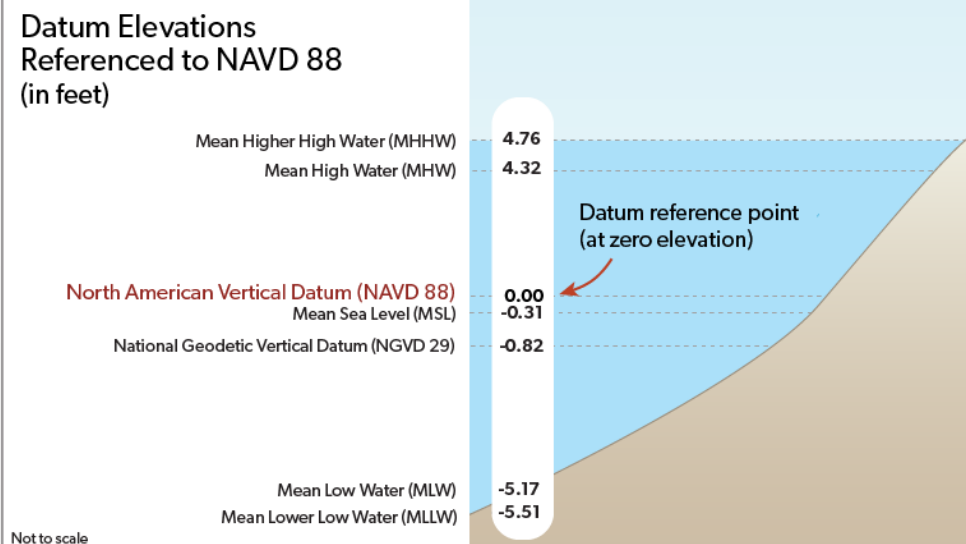
- We have tools that help predict where flooding may occur, how far it may extend inland, and what the height or depth the water may be.
- To interpret these predictions; we first need to understand how flood elevations are measured.
- A helpful example is to look at historical flood depths, like the high-water mark from Hurricane Sandy.
 - High-water markers show how high the water reached during a storm.
 - In this case, the water to an elevation of 12.3 feet.
- However, that number is measured from a specific reference point, not from the ground.
- Different datasets may use different reference points, which can make flood elevations confusing to compare.

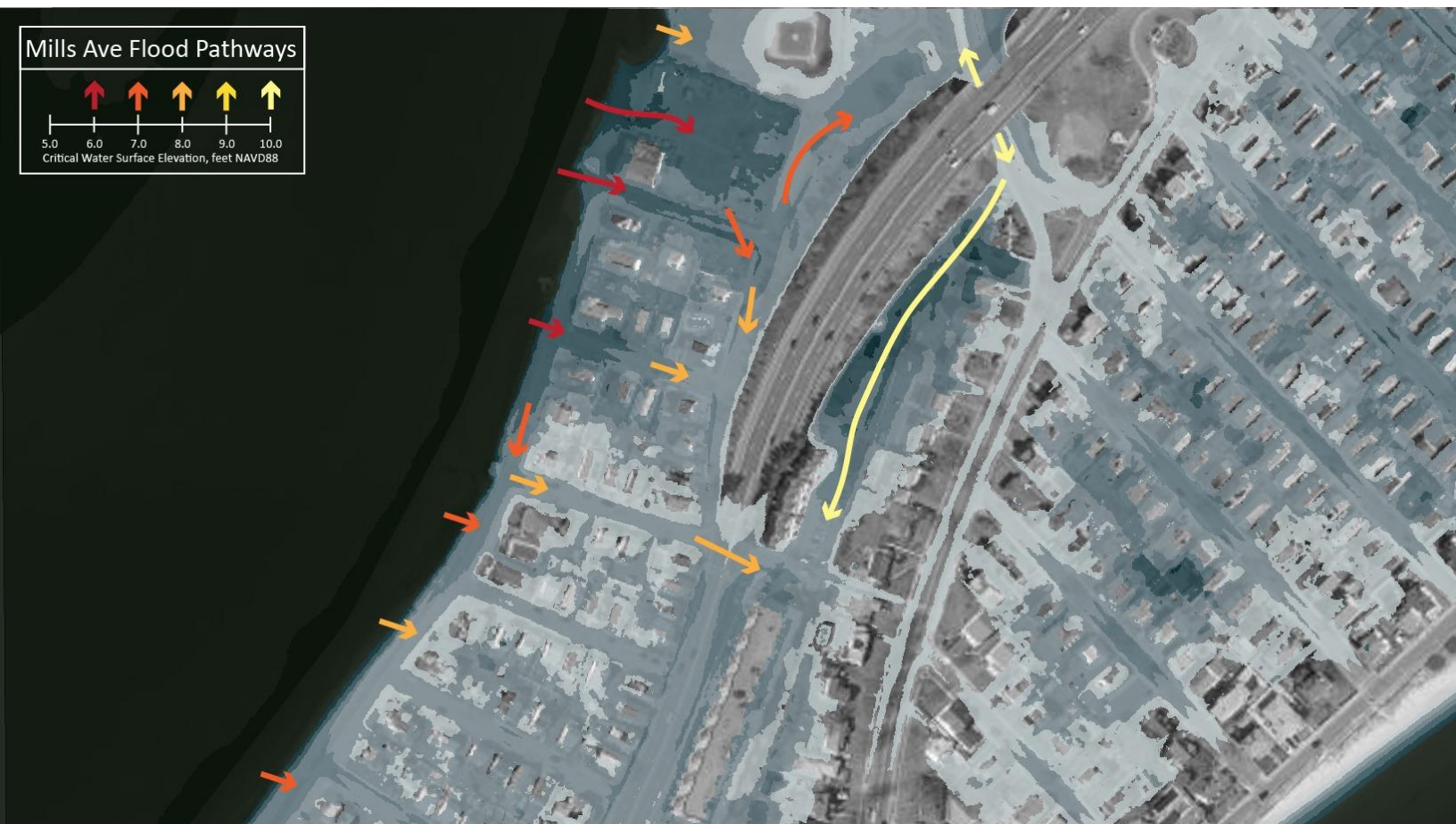
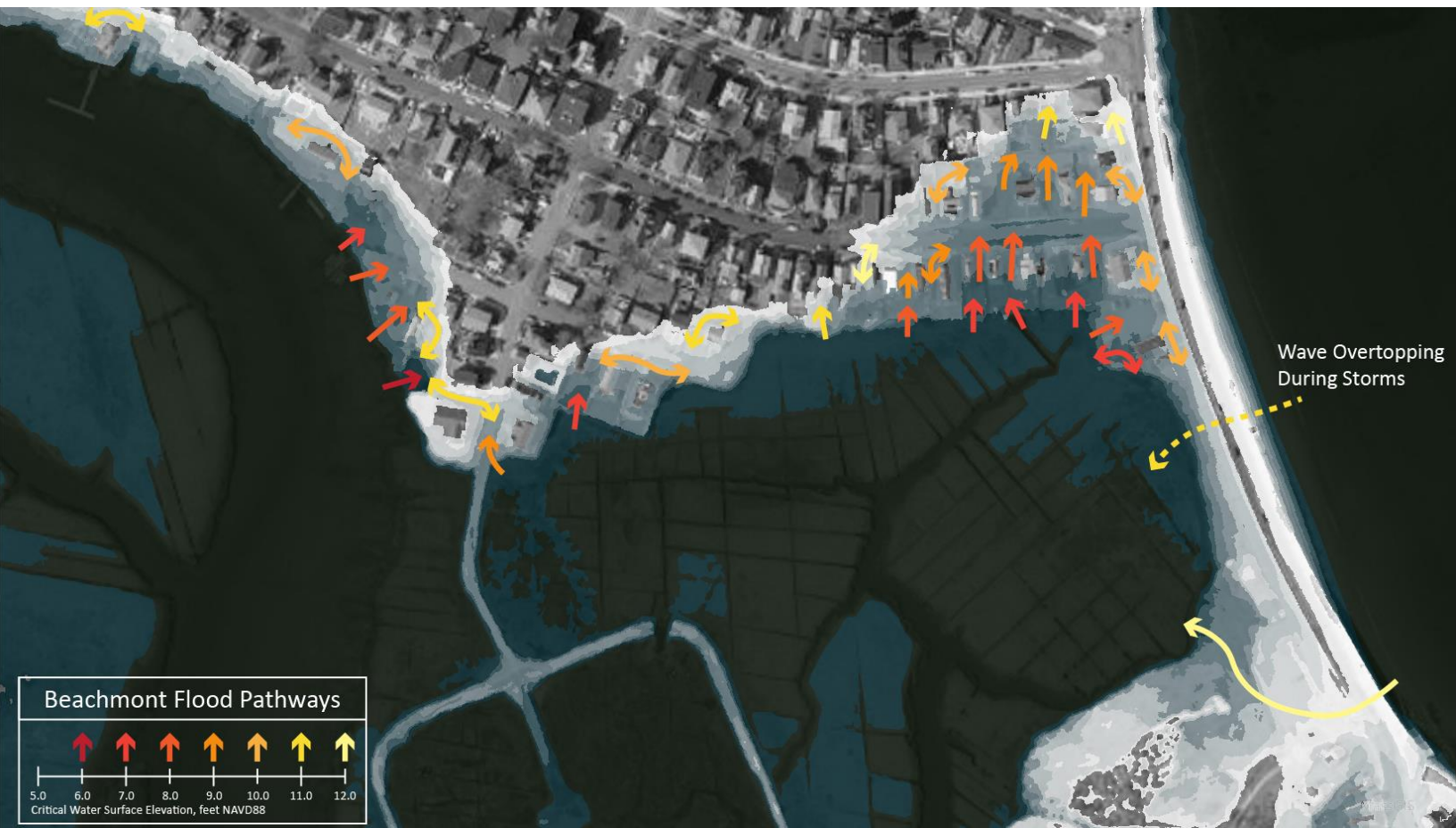


What Is a Vertical Datum?

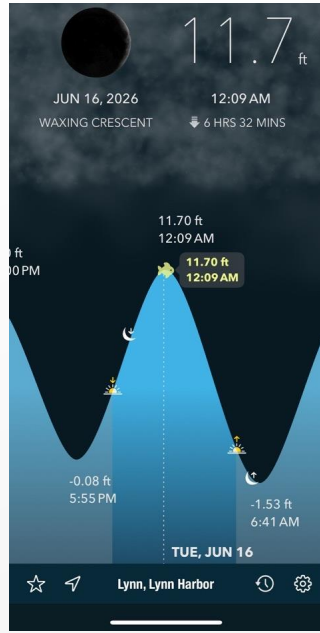
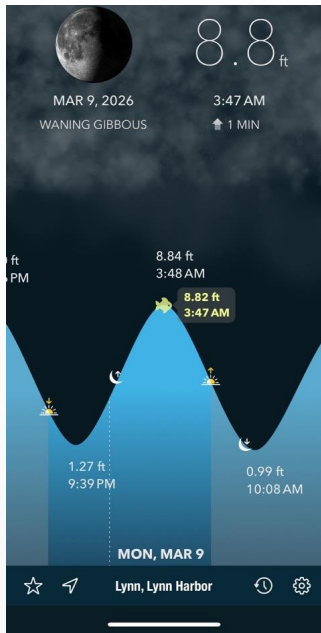
8

- These reference points are called vertical datums.
- One system measures elevation relative to **Mean Sea Level**, while the other measures it relative to **Mean Lower Low Water**.
- Geodetic datums are fixed reference systems tied to the Earth (NAVD88), while tidal datums (MLLW) are based on observed tide levels and can shift over time





Tidal Predictions (NOAA) – MLLW



March 9, 2026

June 16, 2026

High Tide (Predicted): 11.9'
High Tide (Observed): 12.3'



The Same Water Level Can Have Different Numbers

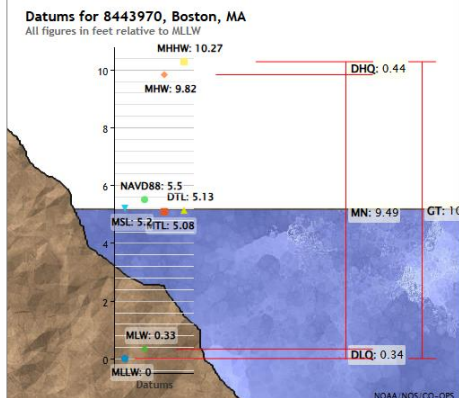
12

NOTICE: All data values are relative to the MLLW.

Elevations on Mean Lower Low Water

Station: 8443970, Boston, MA
T.M.: 75
Epoch: 1983-2001
Status: Accepted (Apr 17 2003)
Datum: MLLW

Datum	Value	Description
MHHW	10.27	Mean Higher-High Water
MHW	9.82	Mean High Water
MTL	5.08	Mean Tide Level
MSL	5.20	Mean Sea Level
DTL	5.13	Mean Diurnal Tide Level
MLW	0.33	Mean Low Water
MLLW	0.00	Mean Lower-Low Water
NAVD88	5.50	North American Vertical Datum of 1988
STND	-3.53	Station Datum

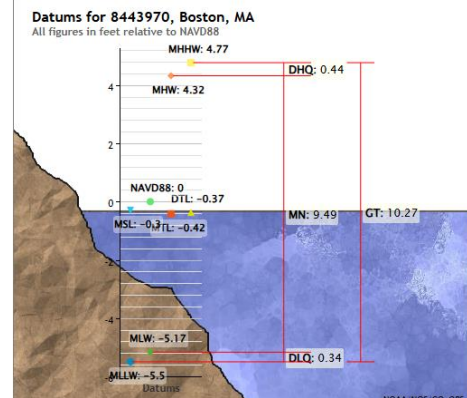


NOTICE: All data values are relative to the NAVD88.

Elevations on NAVD88

Station: 8443970, Boston, MA
T.M.: 75
Epoch: 1983-2001
Status: Accepted (Apr 17 2003)
Datum: NAVD88

Datum	Value	Description
MHHW	4.77	Mean Higher-High Water
MHW	4.32	Mean High Water
MTL	-0.42	Mean Tide Level
MSL	-0.30	Mean Sea Level
DTL	-0.37	Mean Diurnal Tide Level
MLW	-5.17	Mean Low Water
MLLW	-5.50	Mean Lower-Low Water
NAVD88	0.00	North American Vertical Datum of 1988
STND	-9.03	Station Datum



How We're Using the Data to Help Us Plan for the Future

Mills Ave's critical elevation is 6.5 ft, NAVD88 or 12 ft, MLLW.

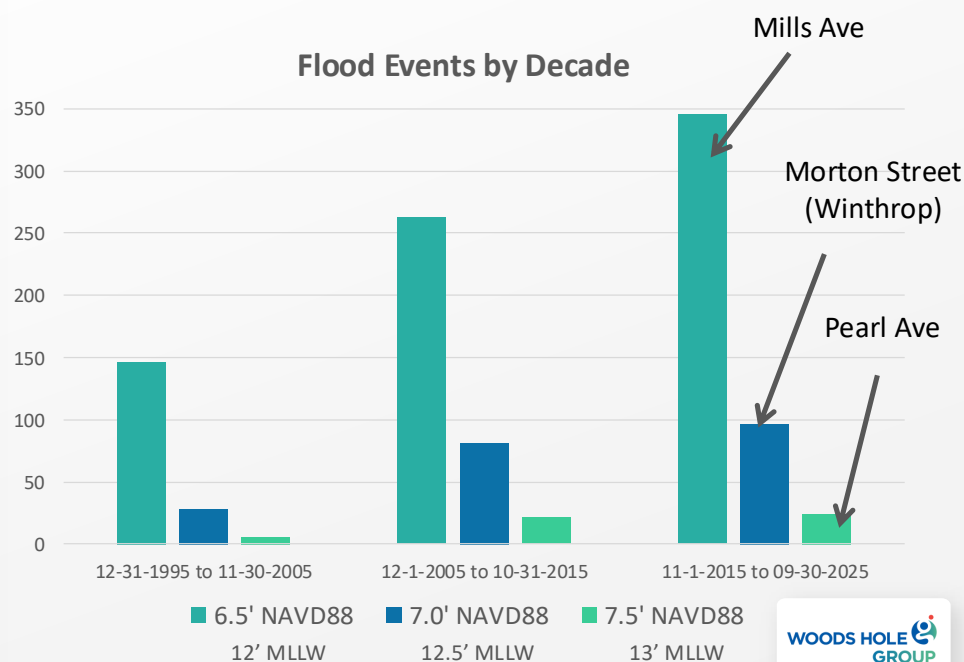


Pearl Ave's critical elevation is 7.5 ft, NAVD88 or 13 ft, MLLW.



A Look Back at Flood Events Since 1995

- Now that we know the water level where impacts begin, we can look at how often tides or storms reach that level.
- There are approximately 6,977 tides per decade.
- Flooding has tripled from the late 1990s to the mid 2010s.
- Boston has seen ~5.4 inches of sea level rise since 1995.



Monitoring Flooding in Real Time

- To better understand when these flooding thresholds are reached, we are also going to use real-time monitoring
- Hohonu sensors are compact, solar-powered flood monitoring devices that measure water levels in real time.



Photo Credit: MyCoast

The Sensors Will Help Us

- Measure water surface elevation at regular intervals
- Record tides, storm surge, and flooding events over time
- Send data wirelessly to an online dashboard
- Trigger alerts when water reaches predefined thresholds

<https://dashboard.hohonu.io/>

How to Sign Up for Text Alerts – Coming Soon

The screenshot shows the Hohonu dashboard for Saugus River, MA. The top navigation bar includes the Hohonu logo and a close button. The main header displays the location 'Saugus River, MA' with a bell icon and a status of '-3.2 ft. NAVD88'. A date range selector shows '03/06/2026 - 03/11/2026'. A red circle highlights the bell icon, with a red arrow pointing to the sign-up form. The form has two tabs: 'High Water Text Alerts' (selected) and 'King Tide Text Alerts'. The text reads: 'Sign up to receive text alerts when local observations reach critical thresholds. Texts are automated and consent is optional. Message and data rates may apply.' Below this is a text input field with a country dropdown (USA) and a '+1' prefix, followed by a 'NEXT' button. A graph on the left shows 'WATER LEVEL' with 'Height in ft (NAVD)' on the y-axis and dates on the x-axis. A map on the right shows the location in Saugus River, MA.

<https://dashboard.hohonu.io/>



Thank You

Contact Information:

Kristen Homeyer khomeyer@revere.org

Justine Rooney jrooney@woodsholegroup.com