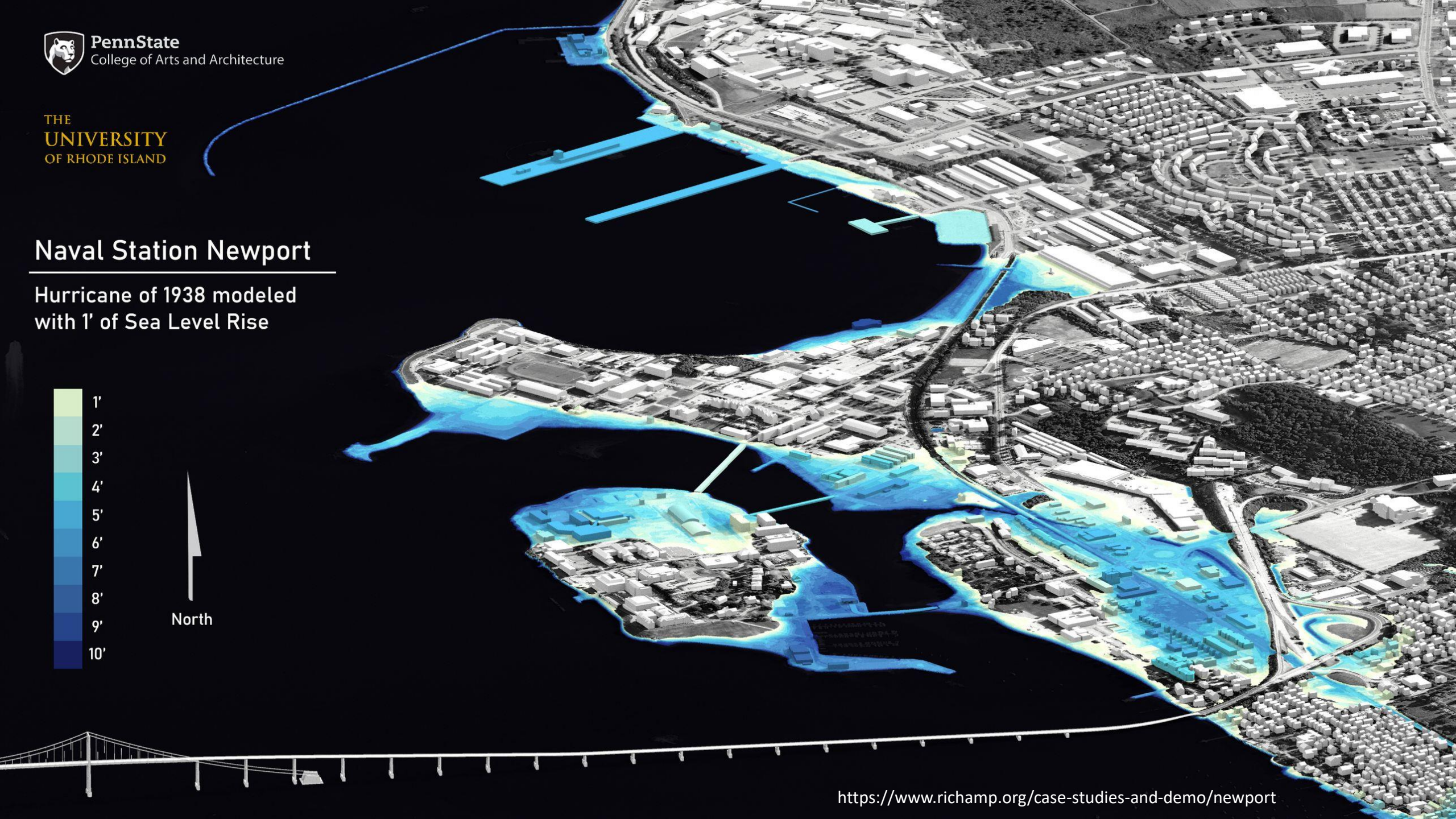

# STORMWATER FLOODING

## A CLIMATE-DRIVEN COMMUNITY CHALLENGE

# FLOODING IS A CITY-WIDE PROBLEM


PennState
College of Arts and Architecture
THE
UNIVERSITY
OF RHODE ISLAND
Naval Station Newport
Hurricane of 1938 modeled
with 1' of Sea Level Rise
1'
2'
3'
4'
5'
6'
7'
8'
9'
10'
North
https://www.richamp.org/case-studies-and-demo/newport

# THERE IS NO SINGLE CAUSE OF FLOODING

## AND THE FUTURE IS A MOVING TARGET

Newport could experience as much as 25% more annual rainfall than today, and 1.5 times as many days with more than 1” of rain.

### Development

**Slowly Permeable Soil – Rapid Runoff**

**Expanding Impervious**

Urban growth, planned or unplanned, significantly increases the risk of flooding by encroaching on floodplain and wetlands.

### Inadequate infrastructure

**Aging**

**Congested Underground**

The stormwater system in Newport was designed approximately 50 years ago and is unable to handle the intensity of these storms.

### Extreme Weather & Climate Change Change

**Increased Precipitation**

**Sea Level Rise & Tidal Impacts**

Newport experiences regular flooding during storms due to its location on the coast.

# THERE IS NO SINGLE SOLUTION TO FLOODING

## AND THE FUTURE REQUIRES US TO BE ADAPTABLE

We're focused on both **achievable & aspirational solutions.** The pursuit of the perfect will not prevent us from making incremental progress.

## SHORT-TERM PROJECTS

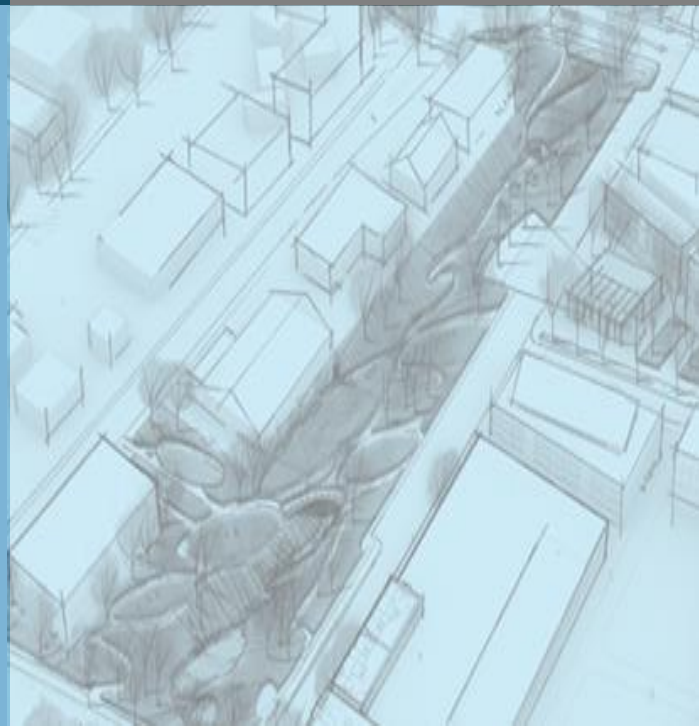
- **$1.3 million** for Malbone & Garfield
- Real-time Sewer System Monitoring
- RIDOT/Pell Bridge Ramp Coordination
- Adaptation & Rehabilitation of Stormwater System

## LONG-TERM PROJECTS

- Resiliency-related projects to capture and divert water upstream
- **Restoring & daylighting Elizabeth Brook**
- **Adaptation**

## POLICY SOLUTIONS

- **Stormwater Overlay Zones**
- Managed Retreat
- Stormwater Utility
- Education & Outreach



# OUR CHALLENGE

## THE ELIZABETH BROOK WATERSHED

## 586 ACRES

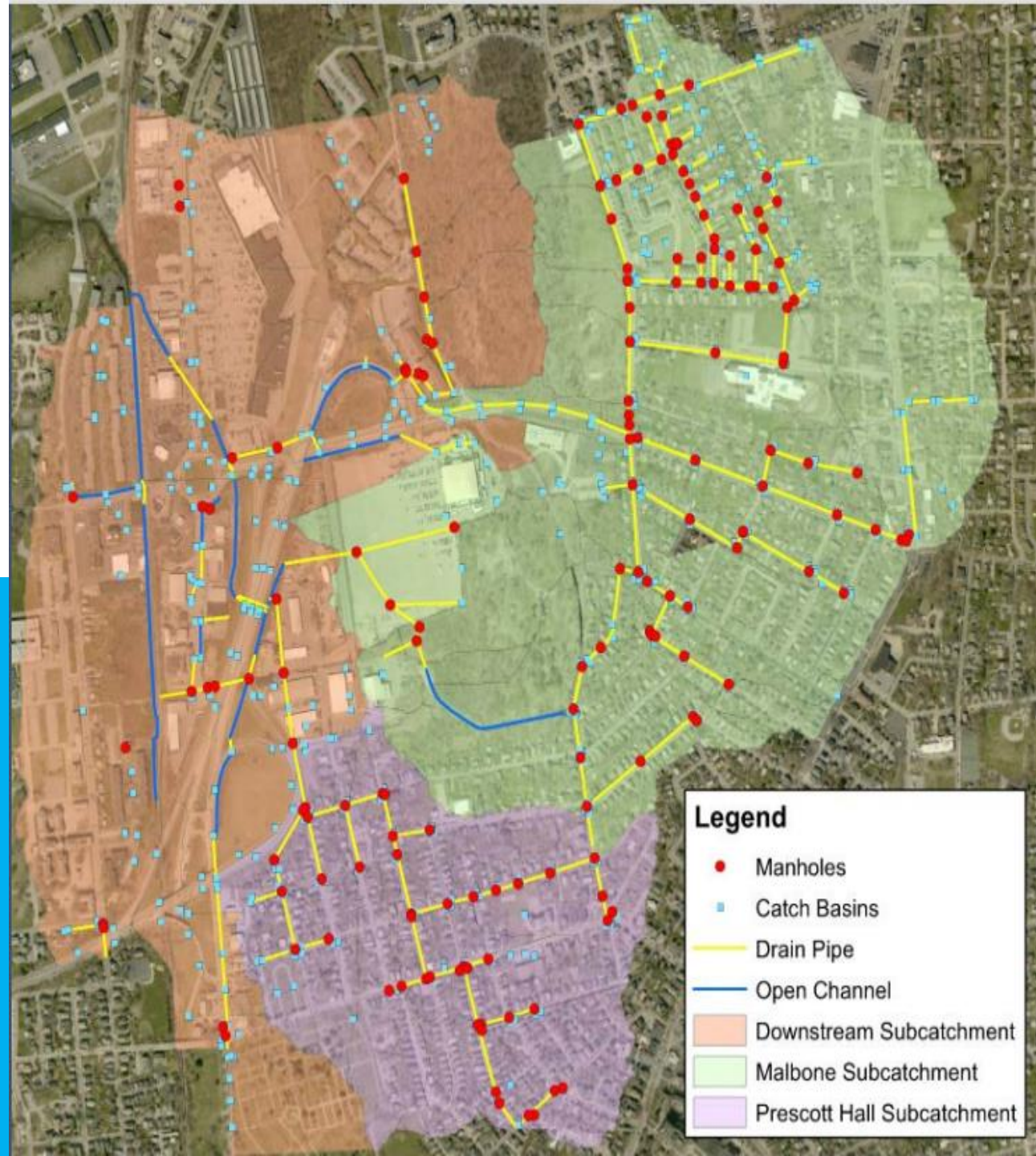
## IN NEWPORT + MIDDLETOWN

**50% IMPERVIOUS COVER** | 6% AVERAGE SLOPE

MAX ELEVATION: 157.8 FT | **MIN ELEVATION: 0.8 FT**
PRIMARILY SILTY AND SANDY LOAM SOIL TYPES
**SHALLOW GROUNDWATER**

**EXISTING DRAINAGE INFRASTRUCTURE**

- CITY STORM DRAIN OUTLETS TO RIDOT DRAINAGE CHANNELS AND CULVERTS
- **OUTFALLS TO HARBOR AT ELEVATION 1 FT**
- **NO TIDE GATES**



# A (POTENTIAL) VISION FOR THE FUTURE

## DAYLIGHTING ELIZABETH BROOK

## $65 MILLION

*A large-scale concept designed to uncover Elizabeth Brook and establish a more resilient floodplain.*

## POTENTIAL BENEFITS INCLUDE

**IMPROVING FLOOD AND WATER MANAGEMENT DURING EXTREME WEATHER EVENTS**

**• REDUCING STORMWATER RUNOFF • IMPROVING CLIMATE RESILIENCE**

**• IMPROVING WATER QUALITY • PROVIDING PUBLIC GREENSPACE**

**• RESTORING NATURAL WATER FLOW • RESTORING AQUATIC AND RIPARIAN HABITATS**

**• PROVIDING EDUCATIONAL OPPORTUNITIES**

# EXPLORING ALL OPTIONS

## COLLABORATORS, PARTNERS & PROGRAMS

NOAA

Eastern Rhode Island Conservation District

Naval Station Newport

Rhode Island Infrastructure Bank

FEMA

NRCS Natural Resources Conservation Service

DEM Rhode Island

SNEP Network

USDA United States Department of Agriculture

***Taking Proactive Steps to Improve Stormwater Management Throughout Newport***

# NOAA CLIMATE RESILIENCE REGIONAL CHALLENGE

APPROXIMATELY $575 MILLION IS AVAILABLE FOR PROJECTS THAT BUILD THE RESILIENCE OF COASTAL COMMUNITIES TO EXTREME WEATHER

## STEP 1

SUBMITTED LETTER OF INTENT

## DECISION

DECISIONS EXPECTED IN EARLY OCTOBER

**OUR GOAL IS TO BUILD RESILIENT NEIGHBORHOODS ACROSS THE CITY**

As we work toward a comprehensive solution

# THE CITY WILL

- COMPLETE INFRASTRUCTURE PROJECTS THAT WILL MITIGATE FLOODING AND/OR IMPROVE AWARENESS OF FLOODING CONDITIONS
- INSPECT AND CLEAR CATCH BASINS (APPROXIMATELY 300) IN CHRONIC FLOODING LOCATIONS PRIOR TO PREDICTED STORMS
- DEPLOY STAFF TO REMOVE DEBRIS, CLEAR DRAINAGE BLOCKAGES AND CLOSE ROADS
- DEPLOY STAFF TO FLOODED ROADWAYS AND SUPPORT BASEMENT DEWATERING WHEN ABLE
- MONITOR SANITARY SEWER SYSTEM IN REALTIME

As we work toward a comprehensive solution

# RESIDENTS SHOULD

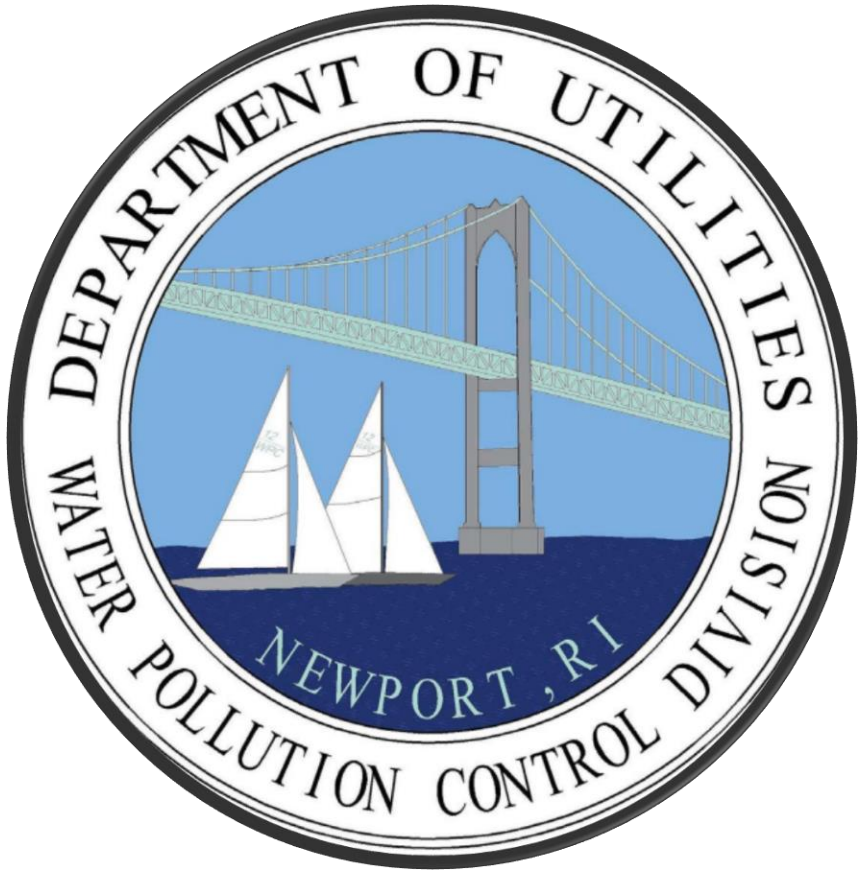
- CONSIDER FLOOD INSURANCE AND IDENTIFY WAYS PROTECT YOUR PROPERTY AGAINST FLOODING
- HAVE AN EMERGENCY PREPAREDNESS PLAN FOR YOUR HOUSEHOLD
- CLEAR DEBRIS FROM THE CURB LINE AND TOP OF CATCH BASINS
- ADOPT A CATCH BASIN PROGRAM
- CONSIDER SANDBAGS, DEPLOYABLE BARRIERS, AND OTHER TOOLS TO PROTECT YOUR PROPERTY WHEN INTENSE STORMS ARE EXPECTED
- RELOCATE MECHANICALS FROM FLOOD PRONE AREAS.

# WE'RE MAKING INVESTMENTS, BUT MORE IS NEEDED

**We're planning $18.75 MILLION in capital improvements over the next 5 years, including:**

- *$900,000 for Catch Basin Separation*
- *$3.5 million in Storm Drain Improvements*
- *$4.5 million in Sanitary Sewer Improvements*
- *$1.875 million in Flood Mitigation*
- *$2.5 million in CSO Master Plan Implementation*

***Another $130 million in projects is currently underfunded or unfunded.**




# THANK YOU

***The Department Is Always Welcoming New Ideas And Constantly Seeking Better Ways To Evolve***

## RESOURCES

- **Resident's Guide to Stormwater Management**
- **North End Urban Plan**
- **Comprehensive Land Use Plan**

***All available on the City's website, including this presentation at CityofNewport.com/NorthEndFlooding***