ROUTE 114 RESILIENCE PLAN PUBLIC WORKSHOP

June 2024

SL1



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WORKSHOP OVERVIEW

1. INTRODUCTION

2. PLAN OVERVIEW

- I. Plan Motivation
- II. Planning Goals & Outcomes
- III. Planning Approach

3. EXISTING + FUTURE CONDITIONS ASSESSMENT

- I. Methodology
- II. Areas of Vulnerability (AOVs)
- **III. Coastal Flood Assessment**

4. PUBLIC INPUT + FEEDBACK

5. DISCUSSION SESSION

2. PLAN OVERVIEW

AM0

PLAN MOTIVATION

- Route 114 is a key north-south regional connector
- Route 114 is a critical evacuation route
- Vulnerable to the current and future impacts of a changing climate



Route 114 flooding in Barrington during the December 23, 2022 storm





PLAN GOALS

- 1. Develop a purposeful and actionable plan
- 2. Engage towns, residents, and state agencies
- 3. Prioritize flood mitigation actions
- 4. Leverage external funding opportunities

PLAN OUTCOMES

- **1.** Assess current and future vulnerability of Route 114 in Barrington, Bristol, and Warren
- 2. Establish conceptual alternatives for reducing coastal flood risk and overall resilience

PROJECT TEAM

PROJECT MANAGEMENT TEAM

TOWN OF BARRINGTON

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TOWN OF BRISTOL

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Plan







PLANNING APPROACH





3. EXISTING + FUTURE CONDITIONS ASSESSMENT

METHODOLOGY



Existing Plans and Studies:

- Examined **existing plans**, studies, and reports
- Identified plan elements related to the resilience of Route 114

Desktop Analysis:

- **GIS-based analysis** of state and municipal datasets
- Reviewed coastal flood modeling data
- Generated maps highlighting areas of vulnerability



Example ArcGIS screenshot showing depth of flooding along Route 114 in Bristol

METHODOLOGY

Site Visits:

- Photo-documented existing conditions at each area of vulnerability
- Brainstormed possible resilience opportunities

Stakeholder Meetings:

• Discussed **known areas of flooding** and planned projects in the Route 114 corridor





Images from site visits to AOV 2 (Left) and AOV 6 (Top)



Areas of Vulnerability (AOV)

AREAS OF VULNERABILITY (AOVs)

- Areas of concern with respect to the impacts of coastal flooding events
- **Based on the results** of the plan review and desktop analysis
- Confirm with input from Project Management
 Team

DISTRIBUTION OF AOVs

- Barrington AOVs #1-4
- Warren AOV #5
- Bristol AOVs #6-7



TYPES OF COASTAL FLOOD RISK

There are two major types of coastal flood risk:

1. Tidal Flooding & Sea Level Rise (SLR)



 Storm Surge
 Less Intense, More Probable Event (10% Storm Scenario)
 More Intense, Less Probable Event (1% Storm Scenario)
 Future impacts
 Future impacts

Current impacts (e.g., king tides)

Future impacts (SLR)

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TYPES OF COASTAL FLOOD RISK

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Future impacts (SLR) 2. Storm Surge Current impacts Less Intense, More Probable Event (10% Storm Scenario) More Intense, Less Probable Event (1% Storm Scenario) Future impacts Future impacts Future impacts Future impacts Future impacts Future impacts Future impacts

Current impacts (e.g., king tides)

ROUTE 114 Resilience Plan

TIDAL FLOODING + SLR





Flooding events that may be less intense than storm surge events but occur more frequently as a result of tidal fluctuations

TIDAL FLOODING + SEA LEVEL RISE



Photo credit: Barbara L. Green via MyCoast.org



Photo credit: Google Maps Street View

King tide flooding event at Ferry Lane and Mathewson Road on March 10th, 2024

STORM SURGE





Flooding events caused by coastal storm events that range in severity and probability



Photo credit: Anthony Murgo via MyCoast.org



Photo credit: Google Maps Street View

On January 10th, 2024, water surface elevations (approximately 4.65 ft NAVD88) from coastal storms lead to flood levels similar to the 10% storm event

AM0

STORM SURGE



Similarly, on **December 23rd, 2022**, a coastal storm surge caused water surface elevations to rise to 7.1 ft (NAVD 88), which is roughly equivalent to the current 4% storm event

Poppasquash Road, Bristol



Photo credit: Bristol Yacht Clud via MyCoast.org.

Ferry Lane, Barrington



Photo credit: Barbara Green via MyCoast.org





COASTAL FLOOD RISK: AOV 1 (BARRINGTON)

- Flood-vulnerable services and facilities include:
 - Natural resources
 - · Health facilities
 - Education centers
- Low-lying portions of Route 114 become impassable during tidal flooding and less intense (more probable) storm event
- Flooding from more intense (less probable) events extend westward and threatens more AM1 residential properties and access to critical services



LEGEND

SL0

- Tidal Flooding in 2023
- Less intense (more probable) storm event in 2023
- More intense (less probable) storm event in 2023





COASTAL FLOOD RISK: AOV 2 (BARRINGTON)

- Flood-vulnerable properties and services during Less Intense (More Probable) Event include:
 - Residences along Barrington River
 - Transportation services and bridges
 - · Educational and religious institutions
- Low-lying portions of Route 114 become impassable during less intense (more probable) storm events
- Flooding from more intense (less probable) events extend to the Barrington High School and restrict access to Prince Pond pump station



LEGEND

- Tidal Flooding in 2023
- Less intense (more probable) storm event in 2023
- More intense (less probable) storm event in 2023



EXISTING + FUTURE CONDITIONS





COASTAL FLOOD RISK: AOV 3 (BARRINGTON)

- Flooding from more intense (less probable) events causes portions of Route 114 to become impassable, preventing access to the Barrington Shopping Center and Civic Center.
- Tidal flooding and less intense (more probable) events impact riverfront residential properties.
- Flooding from more intense (less probable) events impact neighborhoods, historic properties, and religious and education institutions.



LEGEND

Tidal Flooding in 2023

Less intense (more probable) storm event in 2023

More intense (less probable) storm event in 2023





COASTAL FLOOD RISK: AOV 4 (BARRINGTON)

- Less Intense (more probable) event impacts:
 - Flood events currently prevent access to the Barrington and Warren Bridges
 - Municipal and transportation services
- Low-lying portions of Route 114 become impassable during less intense (more probable) storm events
- Flooding from more intense (less probable) events extends to Mathewson Road and Jennys Lane



LEGEND

- Tidal Flooding in 2023
- Less intense (more probable) storm event in 2023
- More intense (less probable) storm event in 2023





COASTAL FLOOD RISK: AOV 5 (WARREN)

- Low-lying portions of Route 114 become impassable during less intense (more probable) storm events
 - Evacuation route limited through Child Street
- Flood-vulnerable properties and services during Less Intense (More Probable) Event include:
 - Residences along Palmer and Warren River
 - Transportation services and bridges
 - Municipal services
 - · Educational and religious institutions
- Flooding from more intense (less probable) events extend along Route 114

LEGEND

- Tidal Flooding in 2023
- Less intense (more probable) storm event in 2023
- More intense (less probable) storm event in 2023







COASTAL FLOOD RISK: AOV 6 (BRISTOL)

- Low-lying portions of Route 114 become impassable during less intense (more probable) storm events
 - Evacuation route through Sherry Ave or Metacom Ave
- Flood-vulnerable properties and services during Less Intense (more probable) Event include:
 - Residences along Bristol Harbor
 - Transportation services and bridges
 - Health Services
- Flooding from more intense (less probable) events extends to the Guiteras Elementary School and other community services

LEGEND

- Tidal Flooding in 2023
- Less intense (more probable) storm event in 2023
- More intense (less probable) storm event in 2023







COASTAL FLOOD RISK: AOV 7 (BRISTOL)

- Low-lying portions of Route 114 become impassable during less intense (more probable) storm events
 - Evacuation route through Wood Street or Metacom Ave
- Less intense (more probable) event impacts properties between Bristol Harbor and Route 114
- Flooding from more intense (less probable) Event extends to the Bristol Water Pollution Control and Sewer Plant



LEGEND

- Tidal Flooding in 2023
- Less intense (more probable) storm event in 2023
- More intense (less probable) storm event in 2023



EXAMPLE ADAPTATION OPPORTUNITIES

Retreat



Existing conditions



Flood event under existing conditions



Restoration in areas where future buyouts have the potential to occur



Restoration areas during flood event



Restore





Plan

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4. PUBLIC INPUT + FEEDBACK

Next Steps



Open discussion – Visit our stations to learn more!

Station 1: Overall Resilient 114 project information

Station 2: Barrington AOVs

Station 3: Warren AOVs

Station 4: Bristol AOVs



Scan Here for the RIDSP Project Website to learn more!

Guidelines for Discussions

- Ask great questions
- Speak your truth,
- Actively listen with full attention
- Speak once on the topic then allow others their opportunity to speak
- Leave disputes, prejudices and closed minds at home
- Comments on the mapping:
 - One idea per "sticky note"
 - 3-5 words per "sticky note"
- Ideas not focused on today's specific topics/goals go on the "Parking Lot"



Scan Here for the RIDSP Project Website to learn more!



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