

Town of East Greenwich, RI Hazard Mitigation Plan Public Workshop #2



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Project Manager – Horsley Witten Group

Monday, April 25, 2022
Hybrid – Virtual/In-Person



Town of East Greenwich Local Hazard Mitigation Committee

- Andrew Nota, Town Manager
- Stephen Brown, Police Chief
- Bernard Patenaude, Fire Chief
- Joseph Duarte, Director of Public Works
- James Fogell, Highway Superintendent
- Ernest Marinaro, Building Official
- Fred Gomes, Special Projects Manager
- Mark Conboy, Assistant Town Engineer
- Lea Hitchen, Director of Planning
- Aaron Lindo, Planning Technician
- Craig Pereira, Horsley Witten Group, Inc.

Why Hazard Mitigation Planning

Disaster Mitigation Act of 2000, Interim Final Rule, 44 CFR Parts 201 and 206 states, “All communities must have an approved Multiple Hazards Mitigation Plan in order to qualify for future federal disaster mitigation grants”.

Reduction or elimination of long-term risk to life, property, and the environment.

Mission Statement

Preserve and enhance the quality of life, property, and resources by identifying areas at risk from natural hazards and implementing hazard mitigation actions to protect East Greenwich's population, infrastructure, and historical, cultural, and natural resources towards increased resiliency.

Mitigation Process

- Assess Risks
- Establish Goals
- Identify Projects/Actions
- Update/Maintain Plan

Risk Assessment...Hazards

- Flood-Related
- Winter-Related
- Wind-Related
- Geologic-Related
- Drought-Related
- Extreme Heat-Related
- Urban Fire/Wildfire-Related
- Invasive Species-Related

Climate Change...As one of the most pressing issues with both direct and indirect impacts on the range of natural hazards the town is vulnerable to, it has been included as a 'climate change impacts on' section to each natural hazard profiled.

Risk Assessment...Process

Project Webpage

Municipal Interviews

Local Hazard Mitigation Committee Meetings

- February 9, 2021
- May 20, 2021
- November 16, 2021
- March 8, 2022

Public Workshop #1

- June 2, 2021

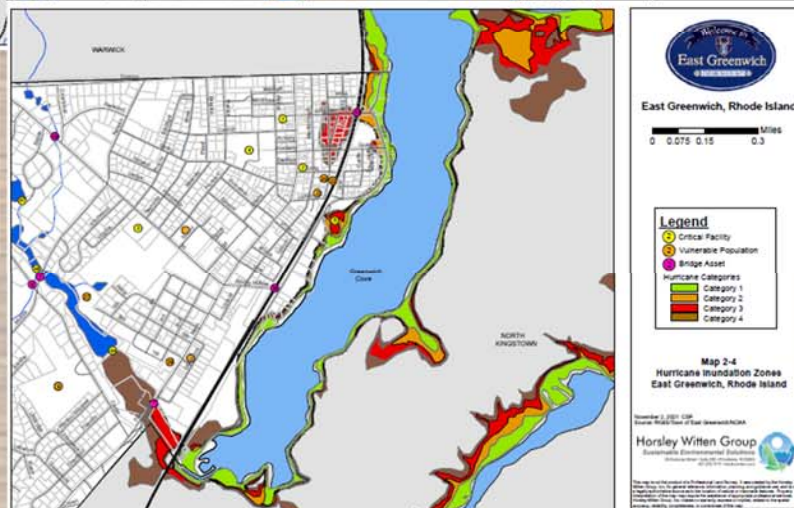
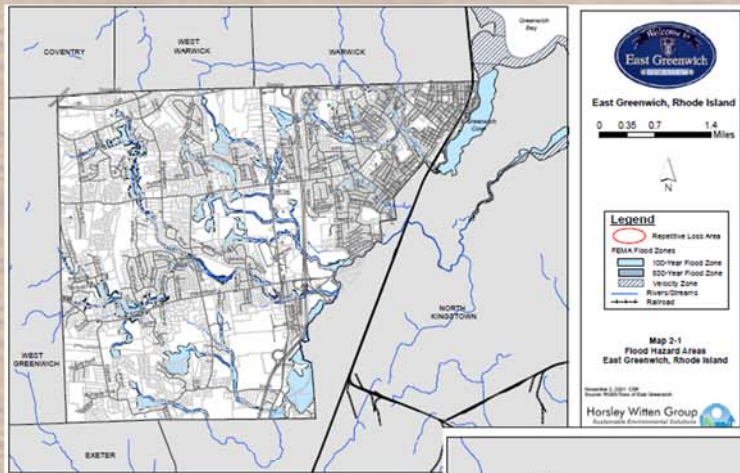
Online Community Survey

- 269 responses

Risk Assessment...Hazard Index Update

<i>Natural Hazard</i>	<i>Frequency (i.e. Very Low, Low, Medium, High)</i>	<i>Location (i.e. small/local, medium/regional, large/multiple communities)</i>	<i>Severity (i.e. minor, serious, extensive, catastrophic)</i>	<i>Hazrd Index (i.e. ranked by combining frequency and severity; 10 - high, 1 - low)</i>
Flood-Related Hazards				
- Riverine/Flash Flooding	High	Medium/Regional	Serious	6
- Inland/Urban Flooding/Heavy Rain	High	Medium/Regional	Extensive	7
- Climate Change	Medium	Large/Multiple	Serious	5
- Dam Failures	Low	Small/Local	Minor	3
- Coastal Flooding	High	Medium/Regional	Extensive	7
- Sea Level Rise	High	Large/Multiple	Serious	6
- Storm Surge	High	Large/Multiple	Extensive	7
- Coastal Erosion/Shoreline Change	High	Medium/Regional	Extensive	7
Winter-Related Hazards				
- Blizzards/Snow/Nor' easter	High	Large/Multiple	Extensive	7
- Ice	Medium	Medium/Regional	Minor	4
- Extreme Cold	Low	Small/Local	Minor	2
Wind-Related Hazards				
- Hurricanes	High	Large/Multiple	Extensive	7
- Tornadoes	Very Low	Medium/Regional	Serious	3
- High Winds	High	Medium/Regional	Extensive	7
- Lightning/Thunderstorms	High	Small/Local	Minor	5
- Hail	High	Small/Local	Minor	5
- Tropical Storm	Medium	Large/Multiple	Serious	5
Geologic-Related Hazards				
- Earthquakes	Very Low	Medium/Regional	Serious	3
Drought				
- Drought	High	Medium/Regional	Minor	5
Extreme Heat				
- Extreme Heat	High	Small/Local	Minor	5
Urban Fire/Wildfire				
- Urban Fire/Wildfire	High	Small/Local	Extensive	7
Invasive Species				
- Multiple	Medium	Small/Local	Minor	4

Economic Vulnerability Analysis Various Scenarios



Economic Vulnerability

- NFIP-Insured properties
- Impacts of:
 - FEMA Flood Zones
 - Sea Level Rise
 - Sea, Lake and Overland Surge from Hurricanes
 - Business interruptions

Table 2-17 Total Vulnerability FEMA AE/100-Year Flood Zone Summary

Land Use	No. of Parcels Impacted	Total Value
Cemetery	3	\$3,577,600
Civic	2	\$4,103,600
Commercial	35	\$84,577,400
Ex Charter	6	\$9,829,400

Table 2-19 Total Vulnerability Sea Level Rise 1-Foot Scenario

Land Use	No. of Parcels Impacted	Total Value
Commercial	7	\$11,030,100
Federal	1	\$1,196,700
Municipal	4	\$10,082,000
Residential, Multi-Family	1	\$563,700
Residential, Single-Family	6	\$3,211,200
Vacant, Improved (Town)	8	\$1,431,600
Total	27	\$27,515,300

Source: East Greenwich Tax Assessor CAMA data, Rhode Island Property Tax Use Code.

Table 2-16 Summary of National Flood Insurance Program Activity in East Greenwich, RI

Total Policies	Coverage Value	Policies in A-Zone	Policies in X-Zone	Policies in V-Zone	Losses Paid (since 1978)
122	\$39,905,500	55	67	0	\$497,713.24

Source: RIEMAFEMA, NFIP through December 2020.

Table 2-21 Total Vulnerability Hurricane Category 1

Land Use	No. of Parcels Impacted	Total Value
Commercial	9	\$12,932,000
Ex Charter	2	\$2,296,000
Federal	1	\$1,196,700
Municipal	4	\$10,082,000
Residential, Multi-Family	2	\$853,000
Residential, Single-Family	9	\$4,596,400
Vacant, Commercial/Industrial	1	\$123,400
Vacant, Improved (Town)	10	\$1,836,900
Vacant, Residential	2	\$51,300
Missing Data	1	
Total	41	\$33,967,700

Source: East Greenwich Tax Assessor CAMA data, Rhode Island Property Tax Use Code

Social Vulnerability

- Public Infrastructure/Emergency Lifelines
 - Drinking Water System
 - Wastewater System
 - Transportation System
- Evacuation/Population at Risk

Environmental Vulnerability

- Direct Impacts
 - Loss of habitat
 - Salinization of land and groundwater
- Indirect Impacts
 - Inland damage to the built environment
 - Threats to ecosystems and species
 - Contamination of potable water

Capability Assessment

- Planning and Regulatory
- Administrative
- Financial

Goals

1. To reduce the potential for loss of life and impacts to property, critical facilities, infrastructure, and cultural, historical, economic and environmental resources resulting from all natural hazards.
2. Educate residents and policy makers regarding vulnerabilities to natural hazards, climate change and steps to take towards increased resiliency.
3. To implement cost effective and feasible mitigation projects, funded whenever possible through grant programs.
4. To ensure that mitigation measures are context-sensitive to natural features, historic resources and community character.
5. Integrate hazard mitigation planning as an integral element in all relevant municipal departments, committee, boards and projects.

Mitigation Measures...Categories

- Planning and Prevention
- Property Protection
- Natural Resource Protection
- Structural Projects
- Emergency Services, and
- Public Education and Awareness

Mitigation Strategy...

Prioritization of Actions...STAPLEE Method

- **Social**...is the action socially acceptable?
- **Technical**...is the action technically feasible and provide appropriate level of protection?
- **Administrative**...does the Town have the capability to complete the action?
- **Political**...will the Town support or oppose the project?
- **Legal**...does the Town have the legal authority to complete the action?
- **Economic**...is the action cost-effective?
- **Environmental**...will the action affect the natural environment?

Mitigation Actions

Time Frames

- Short Term: 0 – < 6 months
- Medium Term: > 6 – < 18 months
- Long Term: 18 months – 5 years

Cost Ranges

- Staff Time: Municipal personnel time
- Minimal: < \$5,000
- Moderate: > \$5,000 but < \$25,000
- Significant: > \$25,000

2022 Mitigation Strategy

PUBLIC EDUCATION AND AWARENESS

Action #1

...2015 Plan

Implement a public education series focusing on available building code resources, compliance and retrofitting.

Action #2

...2015 Plan

Utilize school curriculum to educate students and their parents about hazard risks.

Action #3

...LHMC

Develop an education and awareness campaign that includes the Town's natural hazard vulnerabilities for residents, businesses, tourists, and harbor users including:

- *Develop/distribute informational natural hazards pamphlet.*
- *Develop/Implement an annual disaster mitigation workshop for businesses, industry and harbor users.*
- *Distribute tourist evacuation and shelter information.*

2022 Mitigation Strategy

PUBLIC EDUCATION AND AWARENESS

Action #4

...RI State Hazard Mitigation Plan 2018

Implement mitigation education and incentive program.

Action #5

...RI State Hazard Mitigation Plan 2018

Implement a public outreach campaign to inform citizens about evacuation routes and which bridges and roads are subject to periodic flooding.

PROPERTY PROTECTION

Action #6

...2015 HMP

Participate in the FEMA National Flood Insurance Program's Community Rating System.

2022 Mitigation Strategy

PROPERTY PROTECTION

Action #7

...LHMC

Acquire properties in the Special Flood Hazard and Repetitive Flood Loss Areas.

Action #8

...LHMC

Monitor and clear town detention basins, catch basins, and drainage ditches. Town staff to identify basins, intern to GPS basins/ditches and determine responsible party for maintenance (Town/Homeowner's Association/Private). The town needs to keep detention basins, catch basins, and drainage ditches clear of debris in order to prevent flooding of nearby streets and property.

Action #9

...LHMC

Re-evaluate the feasibility of extending/mandating fire hydrant coverage one-half mile to either side of Carr's Pond Road, Shippee Road and South Road.

2022 Mitigation Strategy

NATURAL RESOURCE PROTECTION

Action #10

...East Greenwich Comprehensive Plan

Acquire and Identify key areas for preservation and protection such as marine areas, wetlands, water courses, river and stream banks, floodplains, and agricultural land, and establish criteria for conservation development.

Action #11

...East Greenwich Comprehensive Plan

Preserve and protect land along Frenchtown, Mawney, and Bleachery Brooks, Frenchtown Park Pond, and the marshlands of East Greenwich Cove.

Action #12

...LHMC

Work with Kent County Water Authority to evaluate the risks associated with a well facility and well field located within the 100-year (A Zone) Flood Zone.

2022 Mitigation Strategy

STRUCTURAL PROJECTS

Action #13

...2015 HMP/LHMC

Improve/Upgrade drainage infrastructure and capacity.

EMERGENCY SERVICES

Action #14

...2015 HMP

Identify evacuation routes around all culverts.

Action #15

...2015 HMP

Identify evacuation routes around all dams.

2022 Mitigation Strategy

EMERGENCY SERVICES

Action #16

...2015 HMP

Update/upgrade/improve the DPW internal communication system, antennas and equipment to improve overall communications and integrate the DPW with the other Town essential services during emergencies. Network extender implemented in 2017 to portion of the Highway Garage (Superintendent's Office). To be complete, action to be implemented at WWTF, Parks and Grounds Building and Highway Garage.

Action #17

...2015 HMP

Identify alternate routes in the event of critical road closures due to flooding. Many roads in town are located in A-Zones (Special Flood Hazard Areas) making them vulnerable to intermittent flooding. Alternate routes need to be identified to ensure safe evacuation.

Action #18

...2015 HMP

Develop partnerships with businesses to provide public/private collaboration for coordinated mitigation, preparedness, response and recovery (Business Continuity Plans).

2022 Mitigation Strategy

PLANNING AND PREVENTION

Action #19

...2015 HMP

Notify private dam owners of their responsibility for inspection, maintenance and repair of their dams. Dam owners are responsible for the upkeep of their dams to ensure public safety and property protection. The town owns and monitors the road on the Gale Farm Road Dam.

Action #20

...2015 HMP

Retrofit electrical wires and other suspended cables. On existing streets where utilities are above ground, i.e. Main, Hill and Harbor area and older subdivisions, the utilities should be placed underground.

Action #21

...East Greenwich Harbor Management Plan

To prevent the loss of life and property in the harbor by:

- A. Properly preparing for storm events***
- B. Develop an enforceable response and recovery plan***
- C. Work in cooperation with harbor and shorelines users to ensure that a coordinated approach is applied to hazard mitigation***



Horsley Witten Group
Sustainable Environmental Solutions

2022 Mitigation Strategy

PLANNING AND PREVENTION

Action #22

...LHMC

Prevent power outages to critical facilities during and following emergencies by equipping facilities with back-up generators and developing micro-grid and energy storage systems.

Action #23

...Resilient Rhody

Design and implement a comprehensive, targeted strategy addressing energy security vulnerabilities at the municipal and/or facility level, based on findings of the Energy Assurance Plan.

Project Schedule

Draft Update available for comment

- <https://www.eastgreenwichri.com/163/Planning-Department>
- April 5, 2022 – May 5, 2022

Draft Update to RIEMA

- end of May 2022

Contact Us...

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THANK YOU!

