


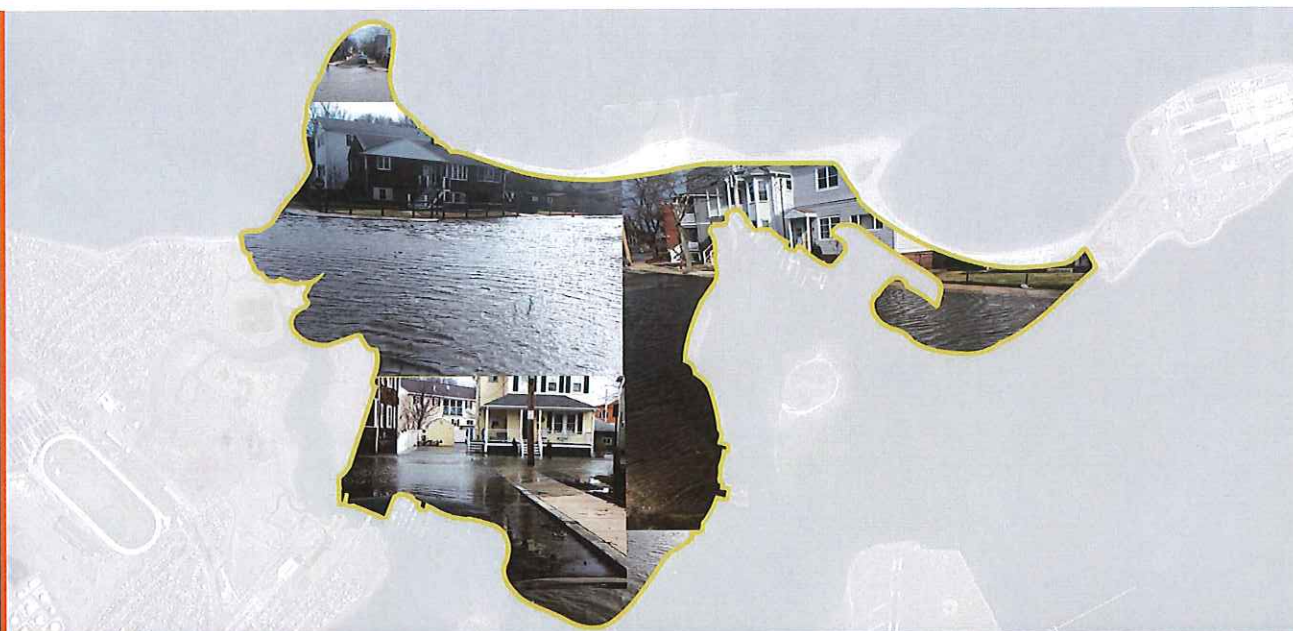
Town Center



An aerial photograph of a coastal city, likely Boston, showing a large harbor filled with sailboats, a residential area in the foreground, and a dense urban skyline in the distance across the water. The text is overlaid on the middle of the image.

GOOD MORNING & WELCOME!

Winthrop Community Resiliency Building Workshop
April 6, 2018



Winthrop, MA

Community Resiliency Building Workshop



April 6, 2018

Community Resiliency Building Workshop

thank you

Community Resiliency Building Workshop



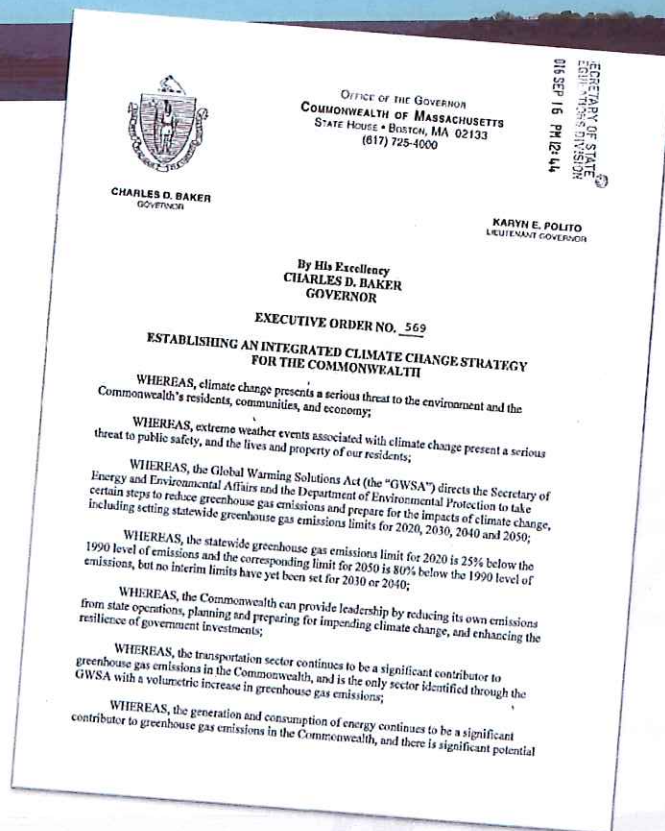


Agenda

- 7:30 – 8:00 | Registration
- 8:00 – 8:30 | Welcome & Overview
- 8:30 – 9:00 | CRB Workshop Why Are We Here?
- 9:00 – 9:30 | Identify Challenges & Goals
- 9:30 – 10:00 | Background Information About Winthrop
- 10:00 – 10:30 | Climate Change (**Mass Audubon**)
- 10:30 – 11:00 | Characterize Natural Hazards
- 11:00 – 12:30 | Identify Community Vulnerabilities & Strengths
- **12:30 – 1:30 | LUNCH!**
- 1:30 – 2:00 | Natural Infrastructure Solutions (**The Nature Conservancy**)
- 2:00 – 3:30 | Identify & Prioritize Community Actions
- 3:30 – 4:00 | CRB Workshop Recap & Wrap Up

Executive Order 569

- In September 2016, Governor Charlie Baker signed Executive Order 569, instructing state government to **provide assistance to cities and towns to complete climate change vulnerability assessments and resiliency planning.**



March 2018 Legislation

- Baker/Polito filed \$1.4B legislation to authorize investments for safeguarding municipalities from the impacts of climate change, protecting environmental resources, and investing in communities.
- Hearing on the Bond Bill held on April 3rd to see if there is enough money available.

CHARLIE BAKER
Governor



KARYN POLITO
Lt. Governor

FOR IMMEDIATE RELEASE:
March 15, 2018

CONTACT

Brendan Moss, Governor's Office

brendan.c.moss@state.ma.us

Katie Gronendyke, Energy and Environmental Affairs

katie.gronendyke@state.ma.us



Baker-Polito Administration Files Legislation Committing Over \$1.4 Billion to Climate Change, Environmental Protection, and Community Investments

Projects Will Continue the Baker-Polito Administration's Strong Leadership on Climate Change Adaptation and Mitigation, and Environmental Stewardship



Municipal Vulnerability Preparedness (MVP) Grant Program

- The MVP grant program provides support for cities and towns in Massachusetts to begin or continue the process of planning for resiliency.
- The state awards communities with funding to complete vulnerability assessments and develop action-oriented resiliency plans.



Municipal Vulnerability Preparedness (MVP) Grant Program

- The program helps communities achieve the following objectives:
 - Define extreme weather and natural and climate related hazards
 - Identify existing and future vulnerabilities and strengths
 - Develop and prioritize actions for the community
 - Identify opportunities to take action to reduce risk and build resilience



Winthrop, MA

Photo: Inlandside Park (2017)



Photo: January 2018

Photo: Banks at

Photo: Fico Avenue (March 2018)

Photo: Morton at Banks (March 2018)

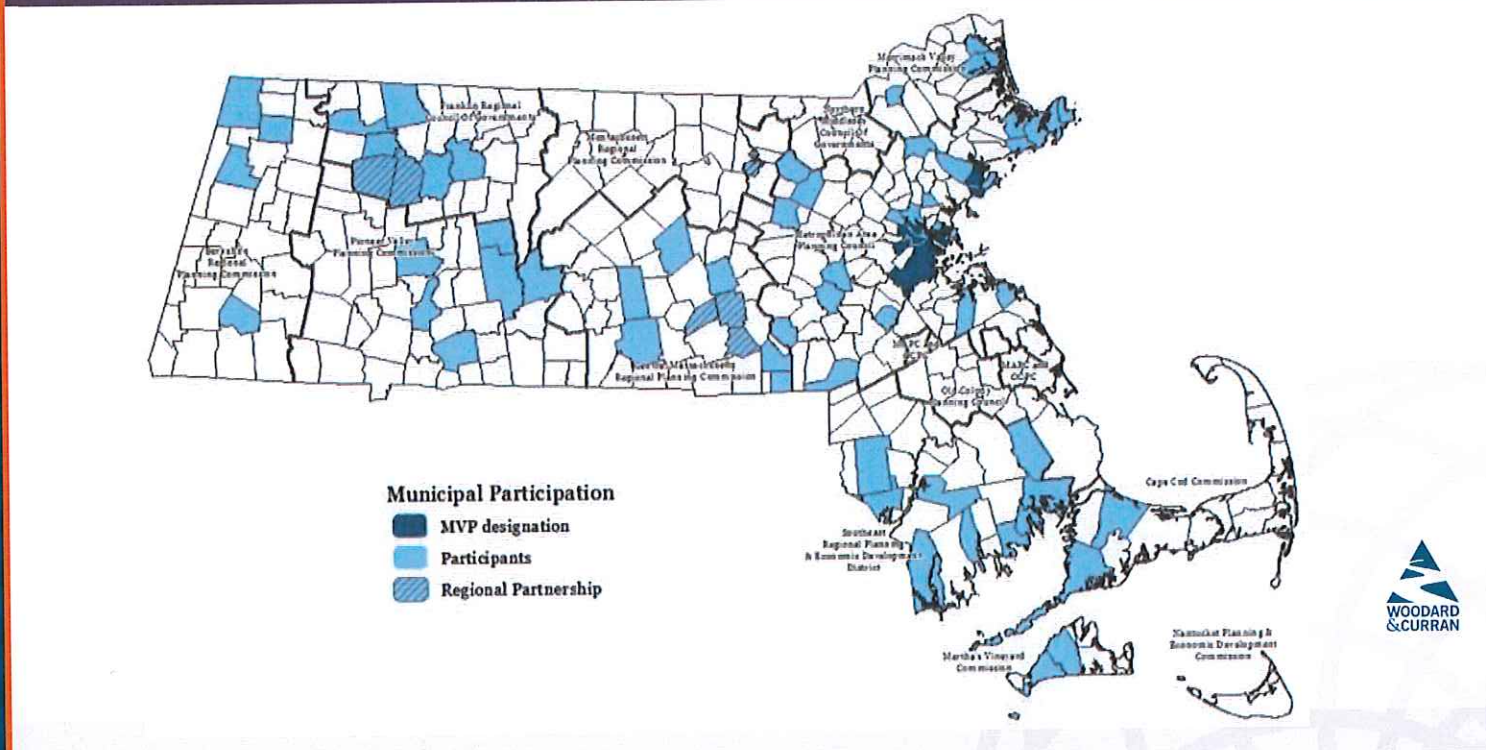
Photo: Inlandside Park (2017)

Municipal Vulnerability Preparedness (MVP) Grant Program

- Communities who complete the MVP program become certified as an MVP community and are eligible for potential follow-up grant funding and other opportunities.



What Other Communities Are in the MVP Program?



Community Resiliency Building Workshop

- As part of the MVP program, participating communities **MUST** complete a Community Resiliency Building Workshop!
- Upon completion of the workshop, a summary report will be submitted to EEA.
- Winthrop will continue to use this guiding report to reinforce future planning and action item implementation.



Community Resiliency Building Workshop
Friday | April 6, 2018
MWRA Training Room at Deer Island, Winthrop, MA
8:00am - 4:00pm



WORKSHOP OBJECTIVES

- Define extreme weather and natural and climate related hazards impacting Winthrop.
- Identify existing and future vulnerabilities and strengths.
- Develop and prioritize actions for the community and broader stakeholder networks, and
- Identify opportunities for the community to advance actions to reduce risks and build resilience.



WORKSHOP AGENDA

- 7:30am - 8:00am Registration
- 8:00am - 8:30am Welcome & Overview (Town Manager and Assistant Town Manager)
- 8:30am - 9:00am Community Resiliency Building Workshop - Why Are We Here? (Woodard & Curran)
- 9:00am - 9:30am Identify Challenges & Goals (Facilitated Activity - What Do You Think Winthrop's Biggest Challenges Are? What Are Your Goals/Do You Hope to Gain From Participating in the Workshop?)
- 9:30am - 10:00am Background Information About Winthrop (Woodard & Curran)
- 10:00am - 10:30am Climate Change (Mass Audubon)
- 10:30am - 11:00am Characterize Natural Hazards
- 11:00am - 12:30pm Identify Community Vulnerabilities and Strengths
- 12:30pm - 1:00pm Lunch!
- 1:30pm - 2:00pm Natural Infrastructure Solutions (Sara Burns, Nature Conservancy)
- 2:00pm - 3:30pm Modify and Prioritize Community Actions
- 3:30pm - 4:00pm CRB Workshop Recap and Wrap Up

Thank you for participating in Winthrop's Community Resiliency Building Workshop!





Two Questions for You!

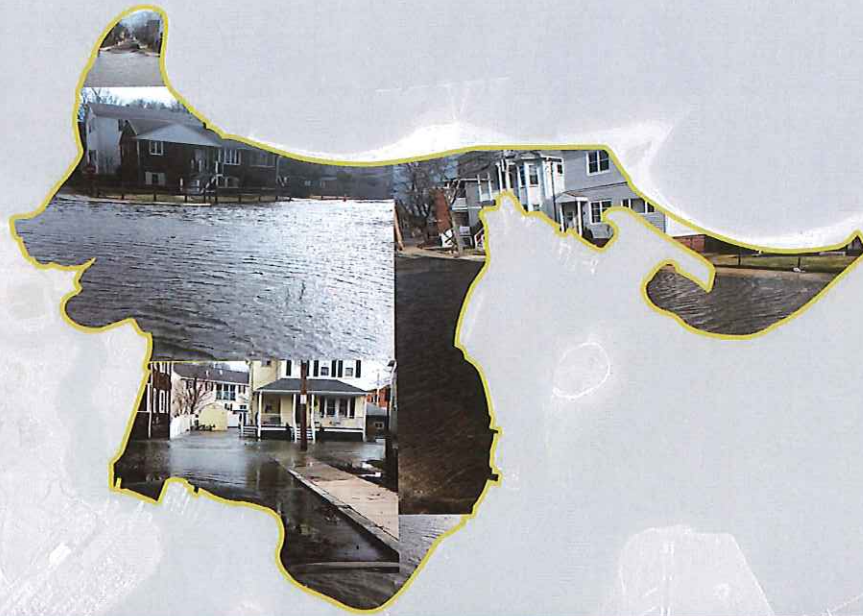
The goal of the workshop is to listen and learn from attendees regarding your thoughts and ideas for meeting workshop objectives!

- **What are Winthrop's biggest challenges?**
 - Think infrastructure, societal, environment
- **What are your goals for the day and do you hope to gain from your participation in the workshop today?**



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Winthrop, MA

Community Resiliency Building Workshop

April 6, 2018





Winthrop, MA

Background Information



April 6, 2018

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Background Information

- Population: 17,497 (as of 2010 Census)
- Located on a peninsula
- 1.6 square miles | 7 mile shoreline
- Connected to Revere by a narrow piece of land and to East Boston by a bridge over the Belle Isle Marsh
- Densely populated
- One of the oldest communities in the United States (settled in 1630)



Winthrop Age Distribution

- Median Age in 2010: 43.7

Table 3 Age Distribution: 2000 and 2010				
Age Group	2000 Number	2000 Percentage	2010 Number	2010 Percentage
Under 5 years	906	4.95	886	5.06
5 to 9 years	947	5.17	850	4.85
10 to 14 years	1,020	5.57	871	4.97
15 to 19 years	900	4.92	893	5.10
20 to 24 years	970	5.30	894	5.10
25 to 34 years	2,820	15.41	2,150	12.27
35 to 44 years	3,248	17.75	2,551	14.56
45 to 54 years	2,697	14.74	2,974	16.98
55 to 59 years	1,029	5.62	1,300	7.42
60 to 64 years	742	4.05	1,234	7.04
65 to 74 years	1,443	7.88	1,518	8.67
75 to 84 years	1,140	6.23	987	5.63
85 years and over	441	2.41	409	2.33
Total	18,303	100.00	17,517	100.00
<i>Source: U.S. Census</i>				

Population Projections

- Population projected to get older
- Slight increase in age 25 – 34

Table 9
Population Projections by Age Group: 2010-2030

Age Range	2010	2020	2030	Change 2010- 2020
00-04	884	896	909	+12
05-09	880	838	889	-42
10-14	978	892	905	-86
15-19	949	835	763	-114
20-24	1,109	1,043	921	-66
25-29	1,194	1,344	1,187	+150
30-34	1,120	1,280	1,222	+160
35-39	1,355	1,285	1,477	-70
40-44	1,534	1,231	1,412	-303
45-49	1,487	1,158	1,082	-329
50-54	1,479	1,383	1,115	-96
55-59	1,154	1,289	986	+135
60-64	926	1,069	952	+143
65-69	752	994	1,094	+242
70-74	607	919	1,063	+312
75-79	570	687	911	+117
80-85	505	449	687	-56
85+	642	638	731	-4

Environmental Justice Population – English Isolation



Legend:

- Minority
- Income
- English Isolation
- Minority and Income
- Minority and English Isolation
- Income and English Isolation
- Minority, Income and English Isolation

Background Information

- Winthrop is the only landside connection to the Massachusetts Water Resource Authority Deer Island Wastewater Treatment Plant
- The plant removes human, household, business and industrial pollutants from wastewater that originates in homes and businesses in 43 greater Boston communities.



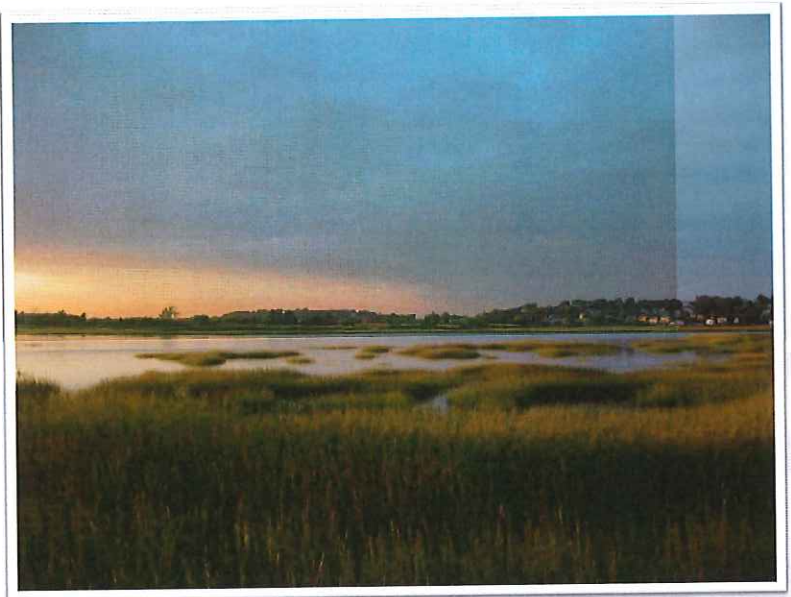
Transportation, Water, Sewer & Solid Waste

- Winthrop is served by State Route 145 which connects community to Revere.
- Served by bus service.
- Water is supplied by the MWRA.
 - The Town maintains an extensive distribution system.
- Sewer is Town owned and maintained – connects to MWRA interceptor and is treated at Deer Island.
- Curbside solid waste recycling contract managed by DPW.



Environmental Features

- Located in Mystic River Watershed.
- Only body of surface water in town is Lewis Lake.
- Home to a portion of Belle Isle Marsh – the last remaining salt marsh in the metro Boston area.
- Major wetland areas in Town are all coastal/tidal.



Environmental/Natural Features & Parks

- Winthrop Beach
- Yirrell Beach
- Donovan's Beach
- Pico Playground & Beach
- Fisherman's Bend
- Belle Isle Marsh
- Lewis Lake/Winthrop Golf Club
- Coughlin Park
- Ingleside Park



Severe Weather

- 16 coastal flood events between 2006 – 2014 resulting in over \$3M in property damage
 - **3 coastal flood events during the first quarter of 2018!**
- 40 heavy snowfall events between 1996 – 2014
- 10 severe winter storms recorded between 1978 – 2013 – seven of which occurred after the year 2000

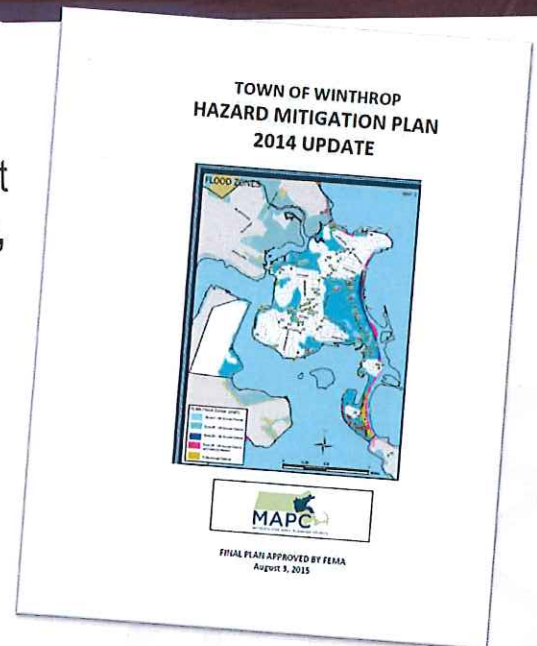


Winthrop Hazard Mitigation Plan

- FEMA Approved
- Identifies the following natural hazards that impact Winthrop: **flooding, wind, hurricane, nor'easter, wildfire, tornado, landslide, earthquake**

Hazard Mitigation Goals

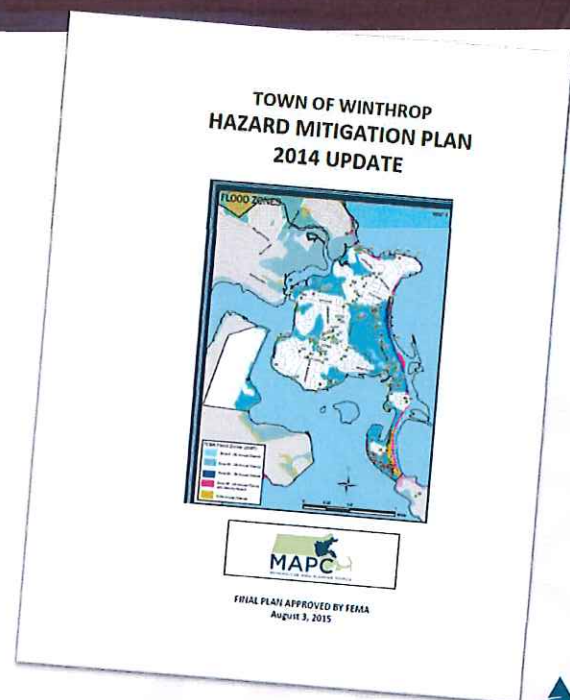
1. Ensure that critical infrastructure sites are protected from natural hazards.
2. Protect existing residential and business areas from flooding.
3. Maintain existing mitigation infrastructure in good condition.
4. Continue to enforce existing zoning and building regulations.
5. Educate the public about zoning, flooding and building regulations, particularly with regard to changes in regulations that may affect tear-downs and new construction.
6. Encourage future development in areas that are not prone to natural hazards.
7. Educate the public about natural hazards and mitigation measures.
8. Make efficient use of public funds for hazard mitigation.
9. Protect the Town's ability to respond to various natural hazard events.



Winthrop Hazard Mitigation Plan

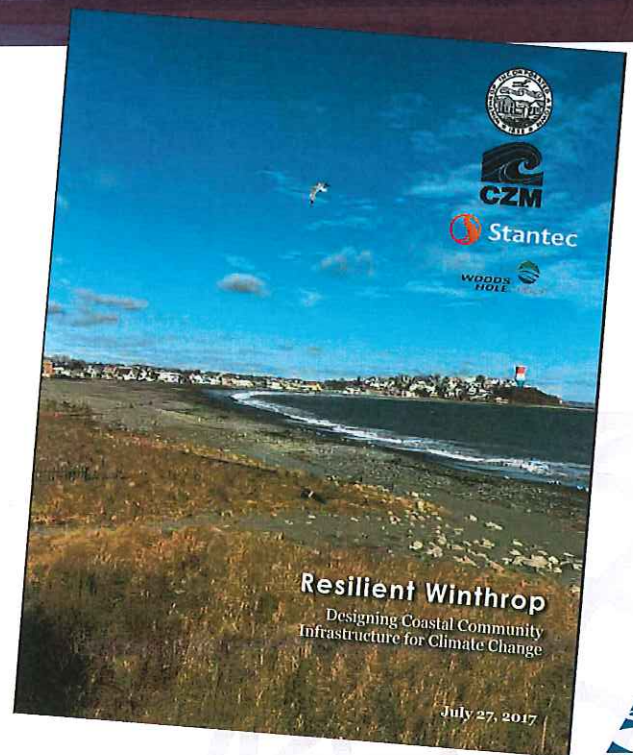
Highlighted Potential Hazard Mitigation Actions

- Complete the Yirrell Beach seawall extension.
- Upgrade the storm drain system in the area between Winthrop Shore Drive and Lewis Lake.
- Add coastal storm surge and flooding protection for the Shirley Street neighborhood adjacent to Winthrop Shore Drive.
- Complete the drainage assessment at Ingleside Park and upgrade existing drainage infrastructure.
- Provide for more frequent maintenance of Town-owned drainage infrastructure.
- Finish mapping all stormwater outfalls and catch basins on GIS.
- Incorporate hazard education awareness, mitigation planning and natural hazard incentives into Town planning and community development operations.



Resilient Winthrop

- Goal of project to identify and prioritize critical public infrastructure and explore adaptation measures to improve infrastructure and natural resource resilience in a number of future conditions.
- Within mapped coastal flooding areas are critical public infrastructure assets/facilities that support daily life in Winthrop
 - Sewer Pump Stations, Evacuation Routes, Substation, Pressure Reducing Valve Stations, Winthrop High School, Fire Station, Town Landing, others...



Critical Public Infrastructure

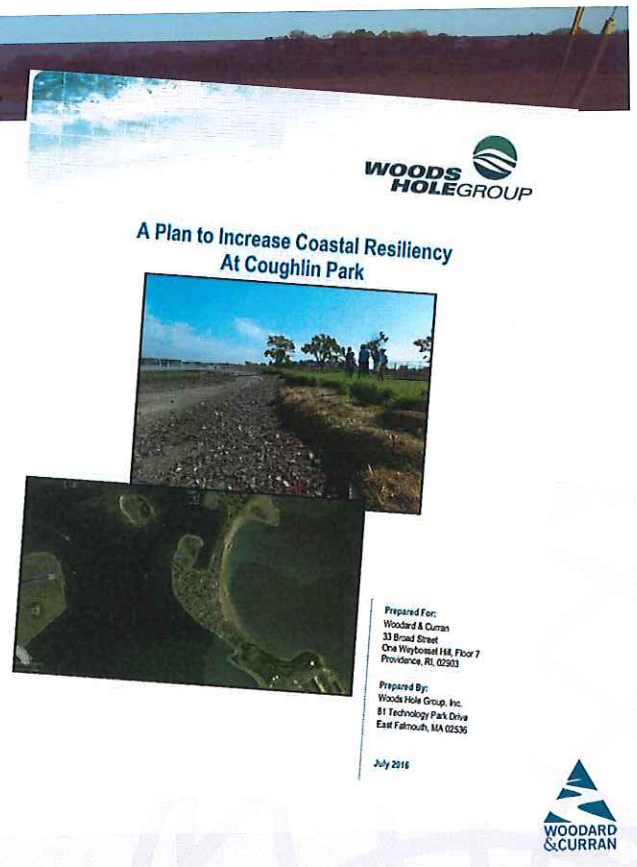
- | | |
|--------------------------------------|--|
| Ⓐ Beach Fire Station | Ⓘ Pressure Reducing Valve Station (Bayview Ave) |
| Ⓑ Belle Isle Bridge | Ⓝ Pressure Reducing Valve Station (Revere St) |
| Ⓒ Loring Rd. Boat Ramp | Ⓚ Pressure Reducing Valve Station (Underhill St) |
| Ⓓ Main Street (evacuation route) | Ⓛ Public Landing |
| Ⓔ Pico Sewer Pump Station | Ⓜ Revere St. Sewer Pump Station |
| Ⓕ Pleasant Court Sewer Pump Station | Ⓤ Shirley Street (evacuation route) |
| Ⓖ Pleasant Street (evacuation route) | Ⓞ Washington Street (evacuation route) |
| Ⓗ Power Substation (Argyle Street) | Ⓟ Winthrop High School |



Figure 4-1 Town-Identified Critical Public Infrastructure Locations

Coastal Resiliency at Coughlin Park

- Specific plan to increase resiliency at Coughlin Park.
- Report evaluated installations that could help slow erosion and identified green infrastructure along the western shoreline as the best alternative to increase coastal resilience of the park.



Prepared For:
Woodard & Curran
33 Broad Street
One Waybaset Hill, Floor 7
Providence, RI, 02903

Prepared By:
Woods Hole Group, Inc.
81 Technology Park Drive
East Falmouth, MA 02536

July 2016

WOODARD
& CURRAN

Other Work in Winthrop

- Winthrop Harbor Plan
- Improvements along Winthrop Shore Drive, Winthrop Beach, Tafts Avenue, Lewis Lake
- Community Development Plan

Winthrop Harbor Assessment and Plan



Prepared for:
The Town of Winthrop, Massachusetts

Prepared by:
The Cecil Group
with
FVM Associates
Vine Associates

April 2005

Winthrop Harbor Assessment and Plan
The Cecil Group

Report



Other Work in Winthrop

- Sewer improvements on Putnam Street, Putnam Place and Walden Street. Project included water main replacement on Jefferson Street and Fremont Street and upgrades to a section of the drainage system at the intersection of Jefferson Street and Putnam Street.
- Sewer, water, drain and sidewalk improvements on Walden Street, Lincoln Street, Read Street, Walden Place and Jerald Street. Drainage improvements included upgrading existing drainage to increase capacity in portions of Walden St., Lincoln St. and approximately 550 LF along Brookfield Rd. to the outfall structure at Donovan's Beach.
- Water main, drain and sewer improvements on Bellevue Avenue, Prescott Street, Somerset Avenue, Nahant Avenue and Sewall Avenue.
- Water main improvements with some sewer repairs on Plummer Ave., Woodside Ave, Woodside Park, Frances St., Sunnyside Ave, Pico Ave, Corinha Beach Rd. and throughout the neighborhoods surrounding the water tower.
- Sewer and water main improvements on Franklin Street and Harvard Street.



Other Work in Winthrop

- Water main on Central Street, South Main Street, Hutchinson Street, Taylor Street and Underhill Street. Drainage improvements on Taylor Street and Hadassah Way. Pavement and sidewalk improvements on Winthrop Street.
- Lewis Lake Tide Gate – Replace existing failed automated tide gate with new automated tide gate. Provided a manually operated tide gate on seaward side to provide needed redundancy.
- Miller Field/Lewis Lake Drainage and Site Improvements: Complete renovation of Miller Field including site drainage improvements and improvements to swales along the Veterans Road and Cross Street at the Winthrop Golf Club.
- Various water and sewer emergency repairs.
- Current projects include infrastructure improvements in the Centre Business District and shoreline stabilization at Coughlin Park.

Severe Weather

■ Areas of local flooding include:

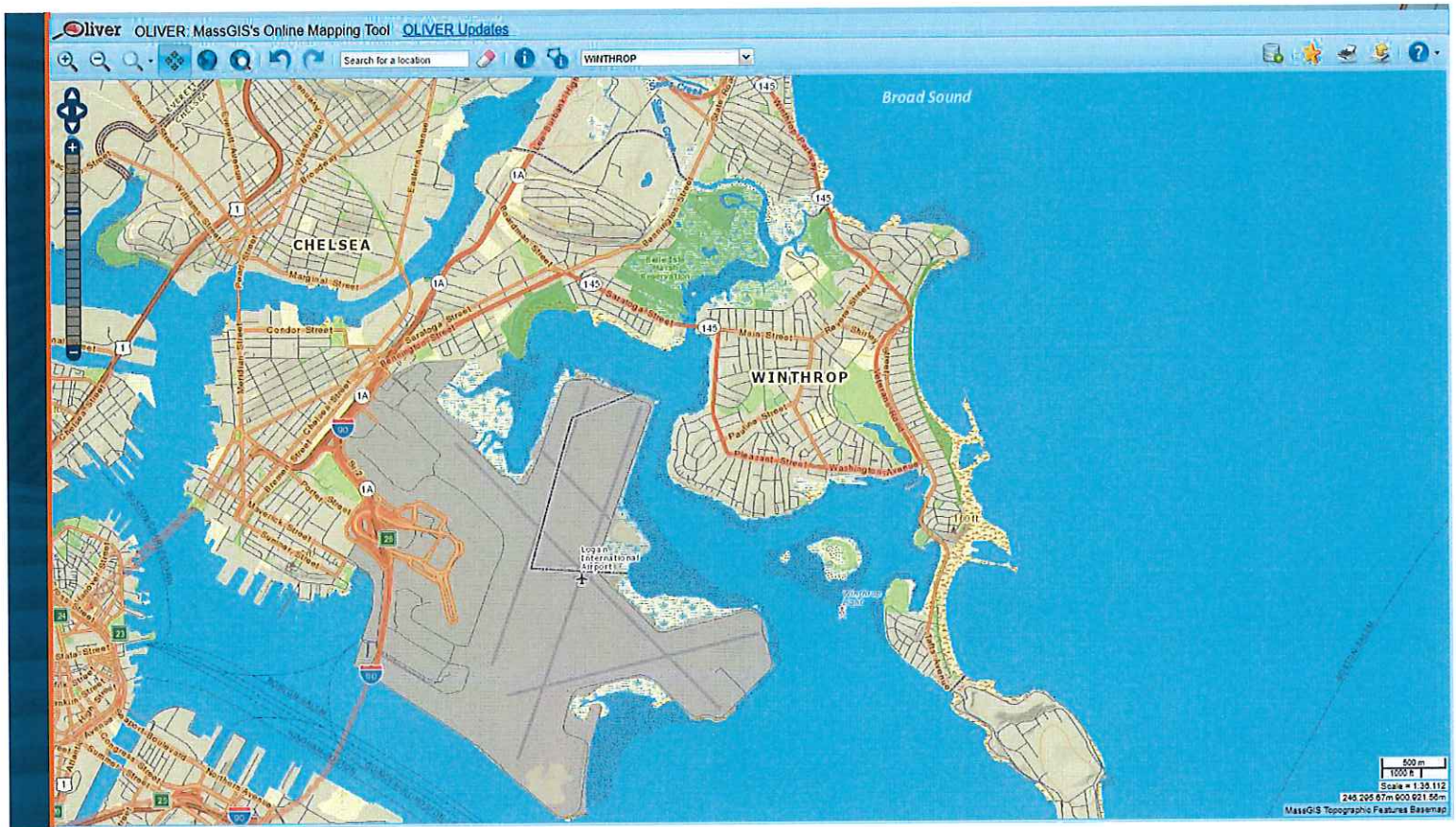
- Yirrell Beach
- Nahant Avenue
- Belle Isle Marsh
- Winthrop Beach
- Point Shirley
- Lewis Lake
- Ingleside Park
- Lower Nahant Avenue
- Coughlin Park
- Fisherman's Bend Marsh
- Pico Avenue
- Morton Street



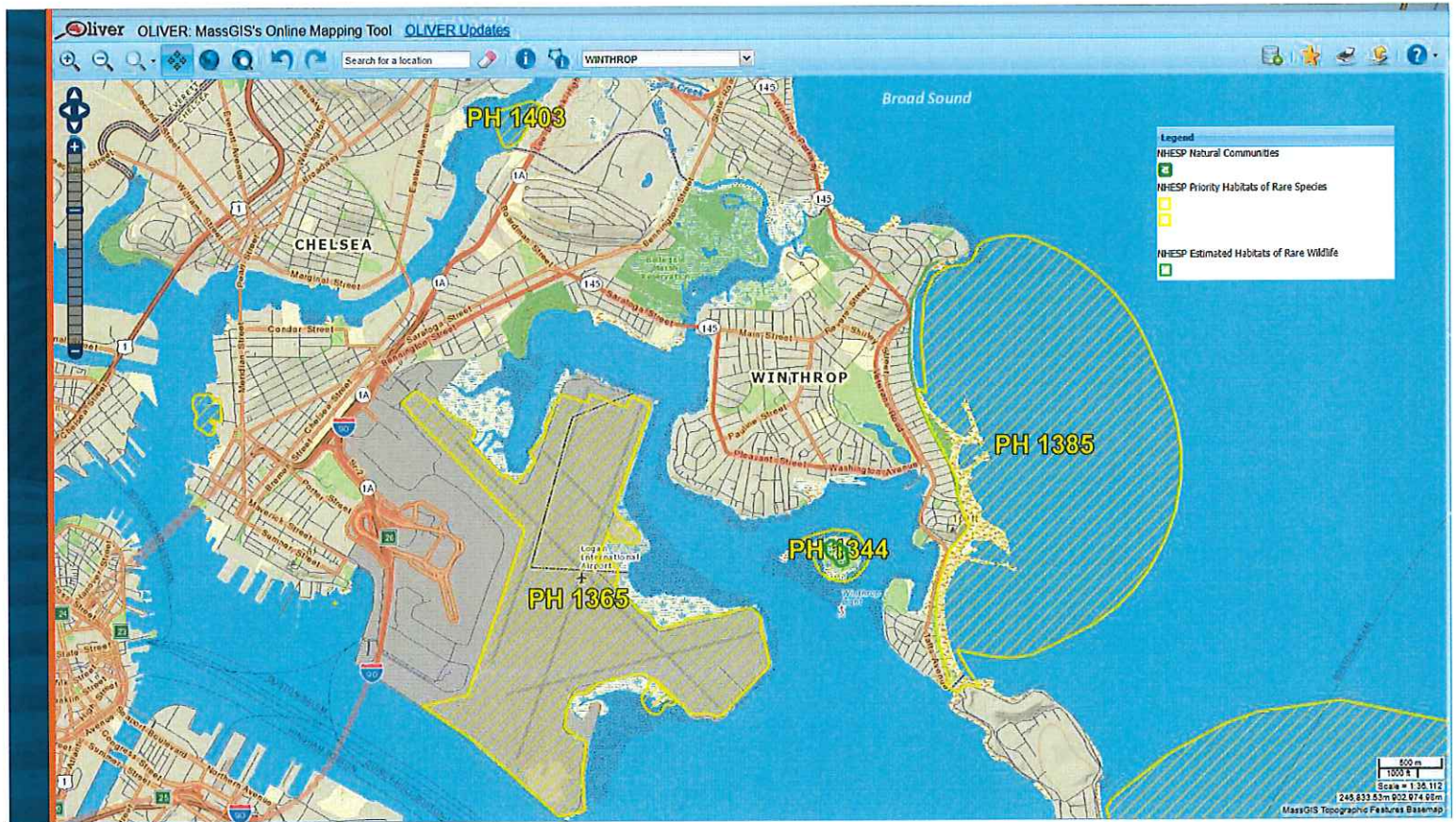


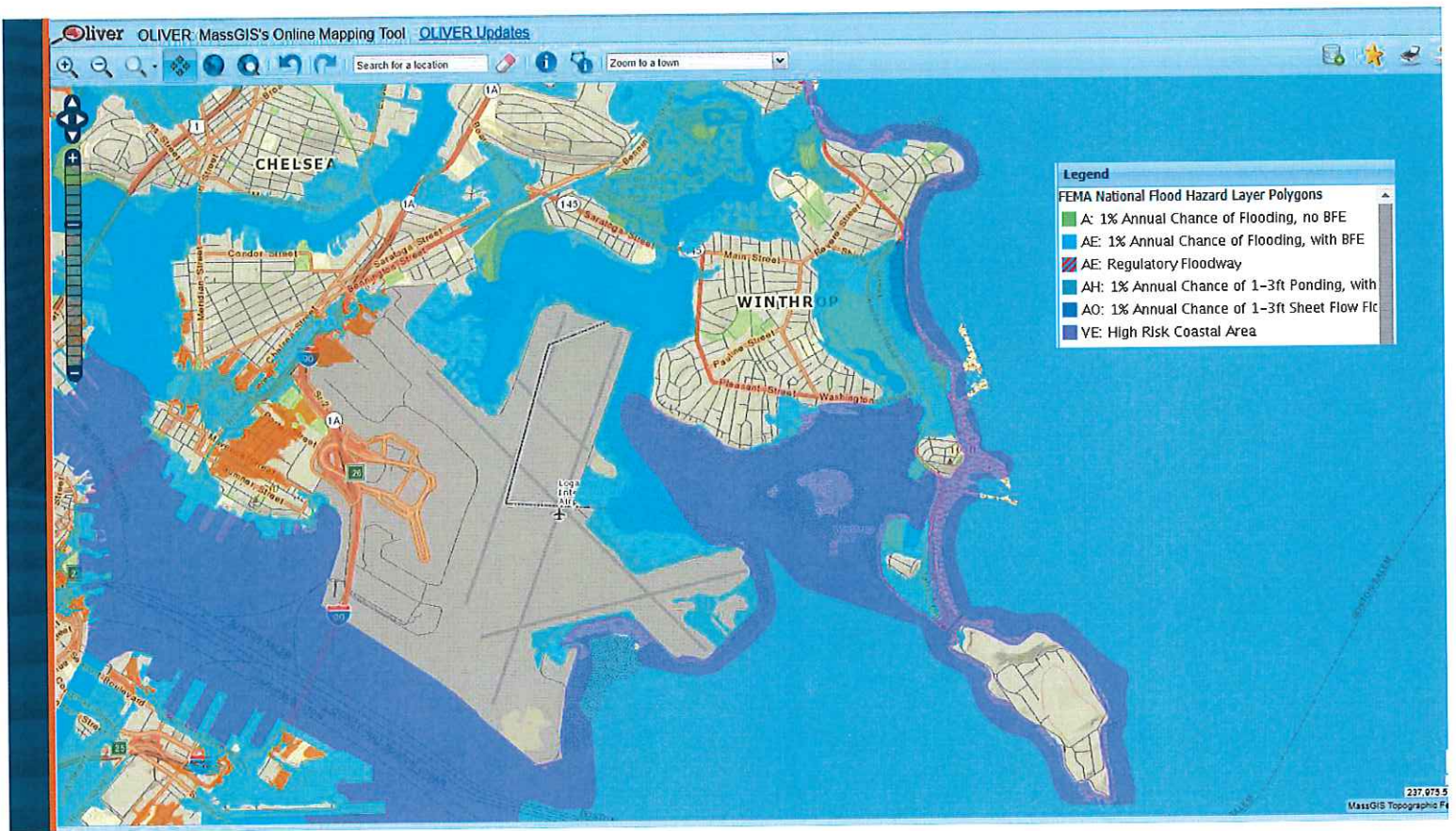
Severe Weather

- Flooding at Jefferson Street/Putnam Street intersection: Previous improvements helped reduce the frequency of flooding in this area. Additional infrastructure improvements planned under the Centre Business District project are designed to provide additional capacity for larger storm events.
- Ingleside Park/Walden Street: Area floods when intense storm events coincide with rising tides. Previous improvements have reportedly helped alleviate the frequency and duration of flooding in this area. Additional improvements to the outfall and outfall structure at Donovan's Beach and the drainage system in Ingleside Park have been recommended to further alleviate flooding issues.
- Flooding continues at the Winthrop Golf Course. Grading proposed to improve these conditions under the Miller Field/Lewis Lake Drainage and Site Improvements project were not constructed due to funding concerns.
- Morton Street, Pico Avenue, Washington Avenue and Shirley Street: Significant flooding has occurred in these areas during recent storms. The Town will be evaluating options to improve these conditions.
- Coughlin Park shoreline: Significant erosion continues to occur along this shoreline. The Town is in the process of permitting improvements for a shoreline stabilization project. Construction of these improvements is anticipated to begin in late 2018 or early 2019.










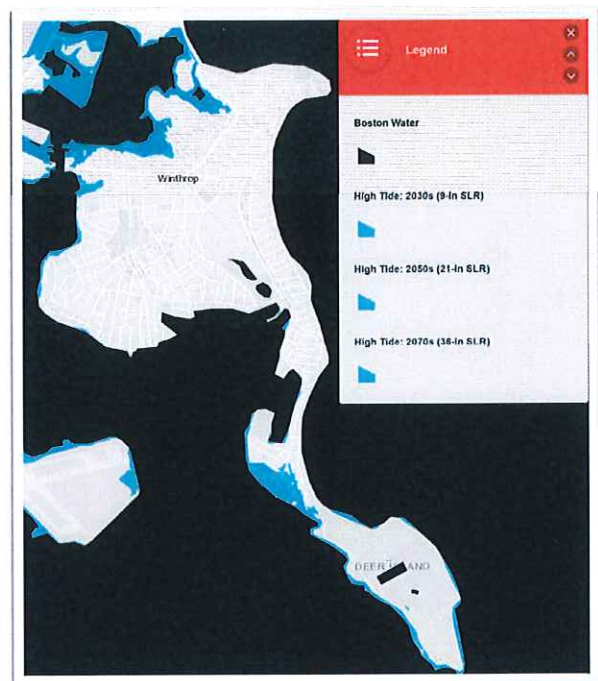


An aerial photograph of a coastal city, likely New York City, showing the harbor, the city skyline, and a lighthouse on a small island. The text "WHAT ABOUT THE FUTURE?" is overlaid in large, bold, dark letters.

WHAT ABOUT THE FUTURE?

Flood Risk

- According to Boston Harbor Flood Risk Model – 480 acres (45%) of Winthrop's 1.6 miles is within a coastal flooding area.
- By 2070, 800 acres (60%) will be within a coastal flooding area.
- The flood area does not expand dramatically, but the depth of flooding during a storm event DOES.



Areas of Probable Flooding

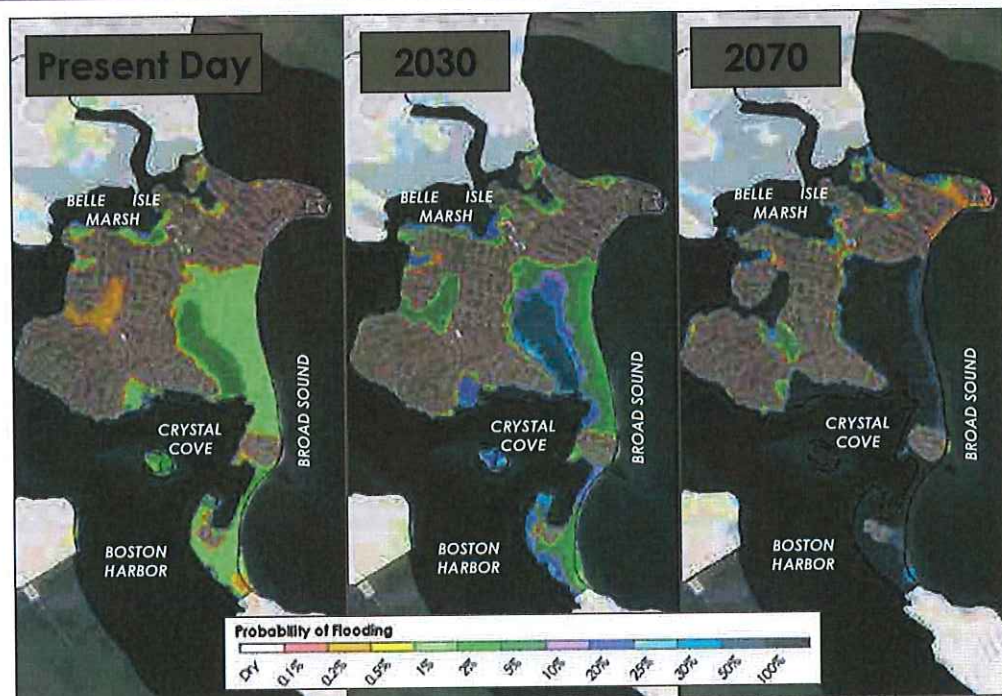


Figure 3-3 Winthrop Areas of Probable Flooding

Depth of Flooding (1% Change Water Level)

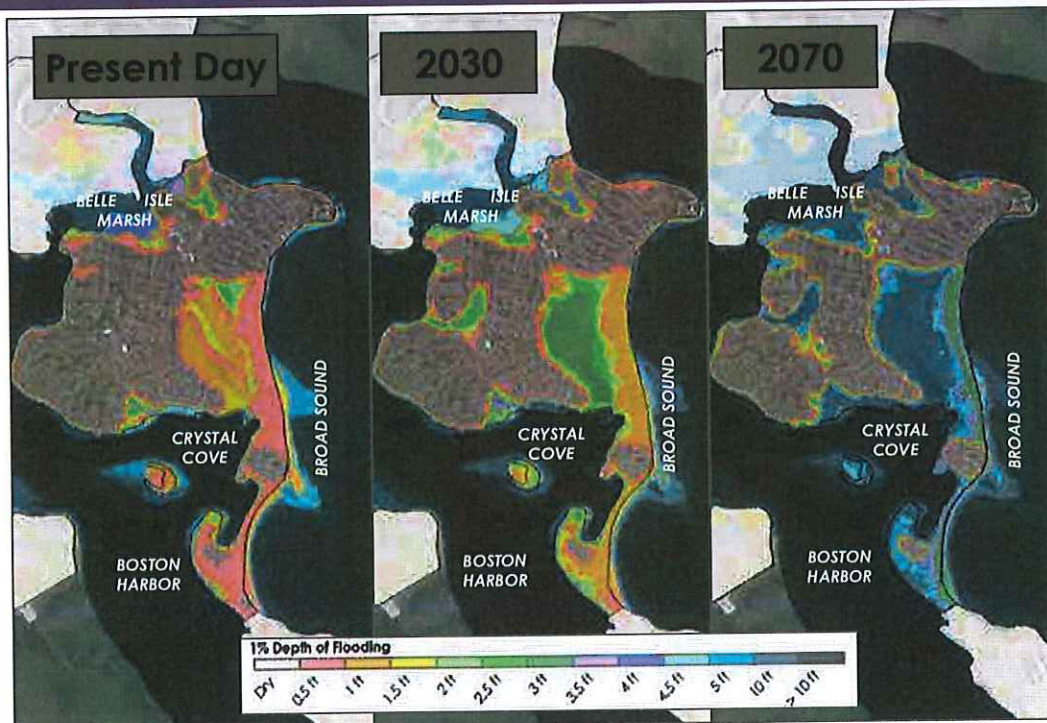
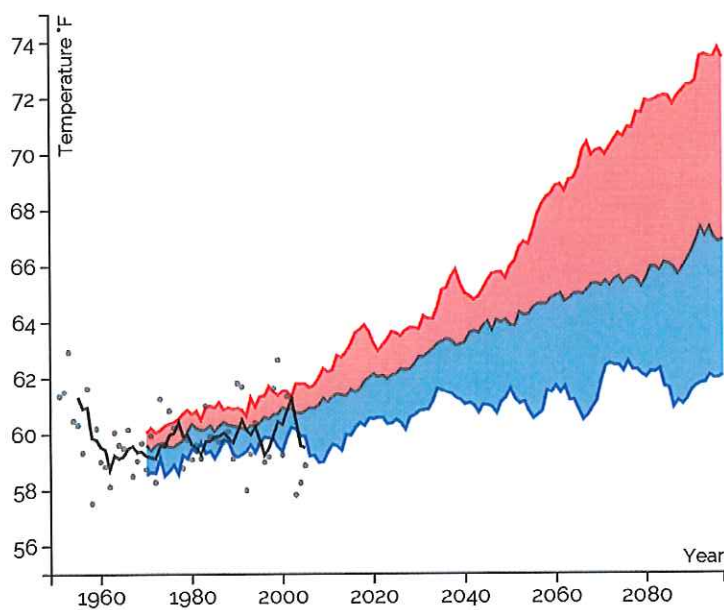


Figure 3-4 Winthrop Depth of Flooding (1% Chance water level)

Annual Maximum Temperature

Annual Maximum Temperature
Suffolk County, MA



Observed		°F
5-yr Mean		
Modeled °F 2056-2060		
Max	68.44	
Median	64.64	
Min	61.53	
Changes from 1971-2000 for:		
2020 -	3.40*	
2049	F	
2040 -	4.64*	
2069	F	
2060 -	5.69*	
2089	F	
2080 -	6.38*	
2097	F	

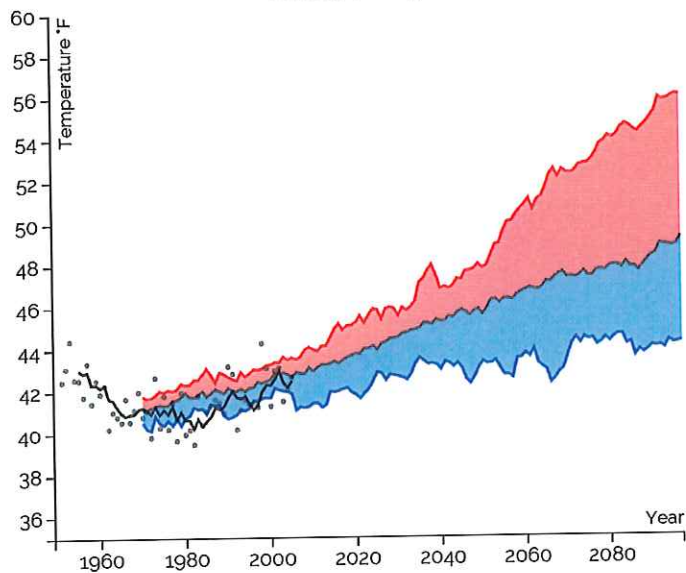
resilient MA

NECSC
Northeast Climate Science Center

WOODARD & CURRAN

Annual Minimum Temperature

Annual Minimum Temperature
Suffolk County, MA



Observed		°F
5-yr Mean		~
Modeled °F		
Max	52.15	~
Median	47.52	~
Min	42.82	~
Changes from 1971-2000 for:		
2020 -	3.62°	
2049 -	F	
2040 -	5.02°	
2069 -	F	
2060 -	6.25°	
2089 -	F	
2080 -	6.81°	
2097 -	F	

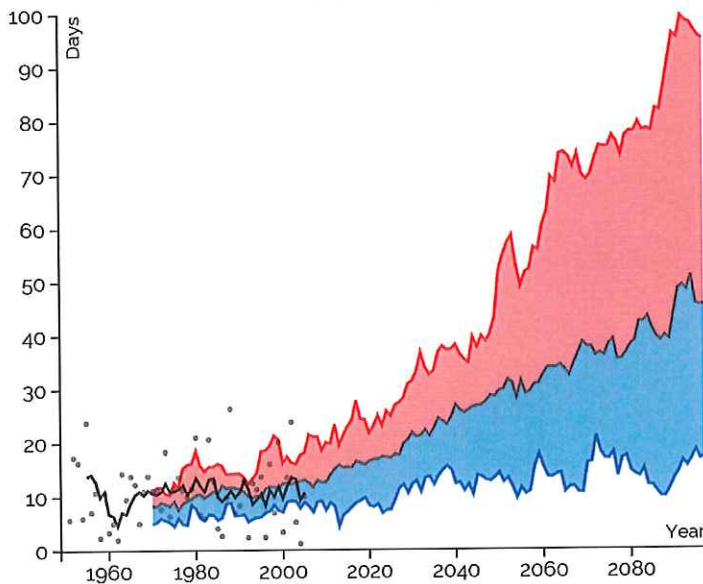
 resilient MA

 NECSC
Northeast Climate Science Center

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& CURRAN

Annual Days With Maximum Temperature Above 90

Annual Days with Maximum Temperature Above 90°F
Suffolk County, MA



Observed	
5-yr Mean	days
Modeled days 2094-2098	
Max	95.7 days
Median	45.52 days
Min	16.77 days
Changes from 1971-2000 for:	
2020 -	11.19 days
2049 -	days
2040 -	19.09 days
2069 -	days
2060 -	25.96 days
2089 -	days
2080 -	31.69 days
2097 -	days

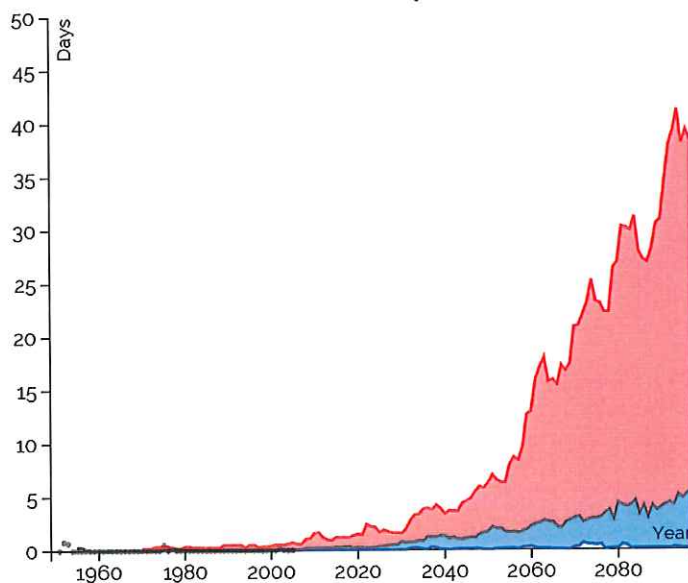
 resilient MA

 NECSC
Northeast Climate Science Center

 WOODARD
& CURRAN

Annual Days With Maximum Temperature Above 100

Annual Days with Maximum Temperature Above 100°F
Suffolk County, MA



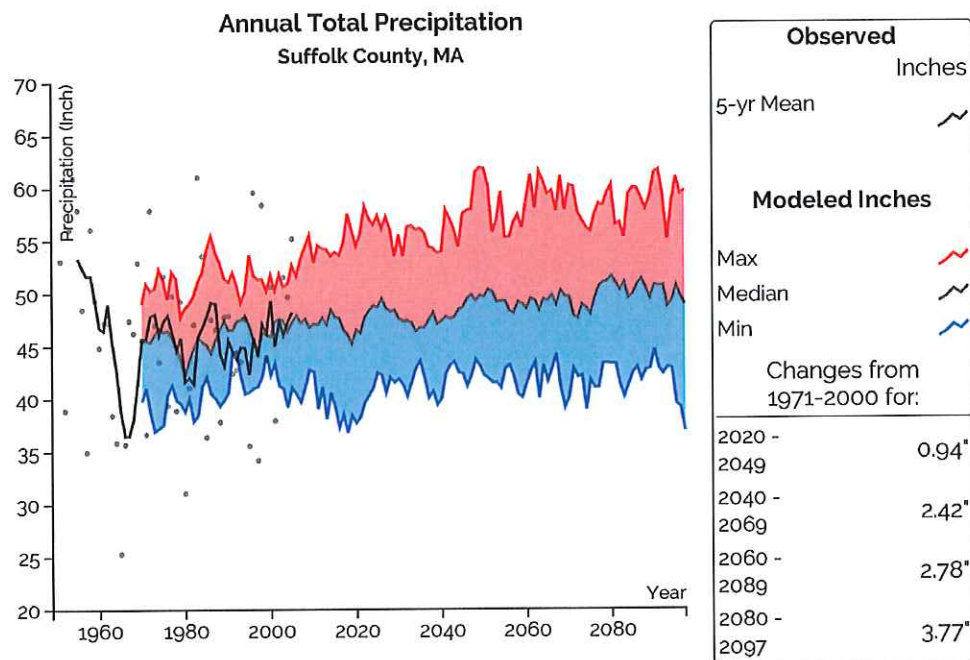
Observed	
5-yr Mean	days
Modeled days 2077-2081	
Max	26.44
Median	2.88
Min	0.1
Changes from 1971-2000 for:	
2020 - 2049	0.85days
2040 - 2069	1.75days
2060 - 2089	2.95days
2080 - 2097	4.19days

resilient MA

NECSC
Northeast Climate Science Center

WOODARD
& CURRAN

Annual Total Precipitation



resilient MA

NECSC
Northeast Climate Science Center

WOODARD & CURRAN

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Winthrop, MA

Community Resiliency Building Workshop

April 6, 2018



www.CommunityResilienceBuilding.com

Top Priority Hazards (tornado, floods, wildfire, hurricanes, earthquake, drought, sea level rise, heat wave, etc.)



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