



Flooding in Weymouth on January 4, 2018

Town of Weymouth

Municipal Vulnerability Preparedness Program

Summary of Findings Report

April 19, 2018

Executive summary

Weymouth's top four natural hazards this century are coastal flooding and sea level rise; extreme storms causing inland flooding; more days of extreme heat; and extended droughts in the autumn. Key stakeholders from the community convened in February 2018 in a workshop to discuss Weymouth's assets, vulnerabilities, and actions to improve resilience to these hazards. The workshop resulted in the following prioritized list of top recommendations for improving resilience. (1) Restoring and expanding aging coastal protection, such as sea walls, is the top priority and warrants further study of the level of protection, flood potential, and coastal land use. (2) Assessing threatened infrastructure is recommended in relation to storms and sea level rise, including sewage pump stations, evacuation routes, storm gates, and low-lying roadways. (3) Investing in improved storm water management and addressing areas with poor drainage is a top concern. (4) A communications plan for raising awareness about the hazards on a sub-community level combined with emergency communication is a priority. (5) Protecting the public water supply and critical environmental resources through conservation tools is a top priority for building resilience.

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OVERVIEW

About the Municipal Vulnerability Preparedness Program

Risks of the past are not the risks of the future. Building resilience is about learning to adapt as changes take place. The Municipal Vulnerability Preparedness (MVP) program was created in September 2016 by Executive Order 569 ("Establishing an Integrated Climate Change Strategy for the Commonwealth") to continue Massachusetts' effort to plan for resiliency. The Order instructs state government to help communities throughout the Commonwealth to complete climate change vulnerability assessments and resiliency planning. Communities who complete the MVP program will become certified as an MVP community and be eligible for follow-up grant funding and other opportunities.

At the Municipal Climate Change Summit on September 12, 2017, Governor Baker, with Energy and Environmental Affairs (EEA) Secretary Matthew Beaton, Transportation Secretary and CEO Stephanie Pollack, and Secretary of Public Safety and Security Daniel Bennett, emphasized the Administration's commitment to implementing the Order. They urged federal, state, and local leaders to work collaboratively with public and private partners to implement small, community changes that will collectively reduce and mitigate emissions, safeguard residents, municipalities and businesses from the impacts of climate change, and create a more resilient Commonwealth.

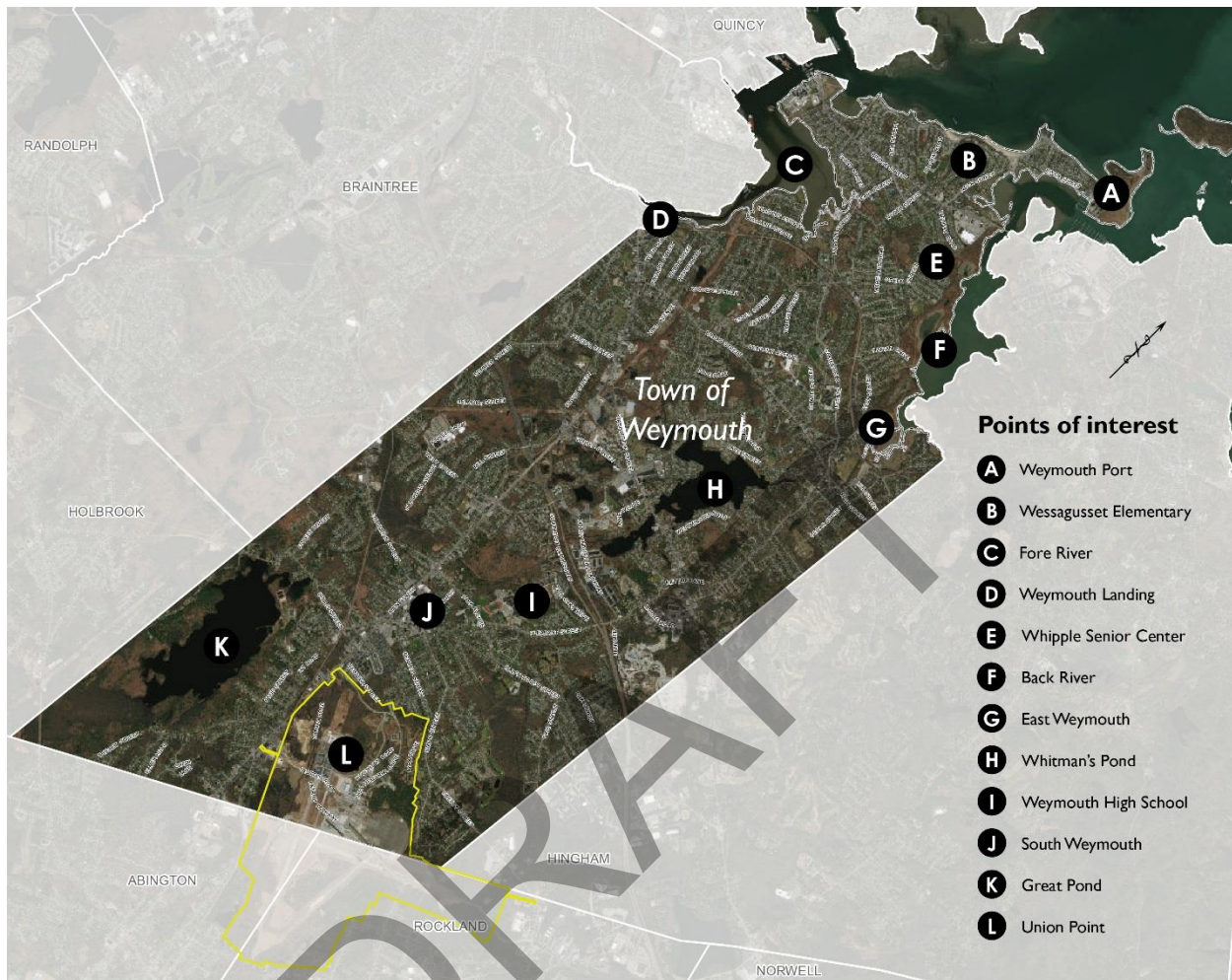
Weymouth applied for the MVP grant program and, along with 70 other communities, was awarded an MVP grant to continue planning for the impacts of climate change. As determined by the Commonwealth, the planning process applies the Community Resilience Building¹ (CRB) Workshop framework. CRB is an "anywhere at any scale" process for developing action-oriented plans to help communities adapt to extreme weather and natural and climate-related hazards. The CRB framework is rooted in the community experiences of The Nature Conservancy, NOAA's Office for Coastal Management, and other partners. CRB employs a community-driven process, infused with information, experience, and dialogue, where participants identify top hazards, current challenges and strengths, and then develop and prioritize actions to improve their community's resilience. CRB's core directive is to foster collaboration with and among community stakeholders that will advance the education, planning, and ultimately implementation of priority actions. The process is centered on the completion of a risk matrix² that captures and organizes community dialogue and helps to generate the momentum needed to advance a community's resiliency plan. With the results of this process, Weymouth can establish mitigation, adaptation, and resilience strategies for vulnerable residents and businesses.

About Weymouth

Weymouth is a coastal community southeast of Boston and Quincy and west of Hingham. The coastline in North Weymouth is bounded by two rivers, the Fore River and the Back River. The lower Fore River is a major industrial hub for the region and includes an official Designated Port Area. The upper Fore River is bounded mostly by residential uses and salt marshes. The Fore River begins at Weymouth Landing, where the Monaquot River joins Smelt Brook in the vicinity of the Weymouth Landing MBTA station. The Back River is an estuary with Area of Critical

¹ Learn more at <https://www.communityresiliencebuilding.com/>

² The completed risk matrix can be found in Appendix 2



Environmental Concern (ACEC) designation, salt water marshes, recreation trails and one of the state's most productive river herring runs. A collection of maps describing various aspects of Weymouth are in Appendix 3.

Weymouth is generally divided into four areas: North Weymouth, Weymouth Landing, East Weymouth, and South Weymouth. Each of these four areas has its own post office and zip code. Within these areas are additional villages and squares, such as Bicknell Square, Jackson Square, and Columbian Square.

In Weymouth Landing, on the Town's west border with Braintree, the US Army Corps of Engineer's Smelt Brook Local Protection Project provides flood protection and a fish gate for rainbow smelt. In East Weymouth, the Herring Brook/Back River fish run passes hundreds of thousands of herring each spring, through Jackson Square and six fish ladders, up to the historic spawning ground at Whitman's Pond. On the Town's southern border, a former naval airbase is being redeveloped into Union Point, a large mixed-use center straddling three municipalities. Union Point is both exciting due to the economic development potential, and concerning due to the potential addition to population, increased demands on public water and sewer, and potential floodplain management issues.

Planning Process

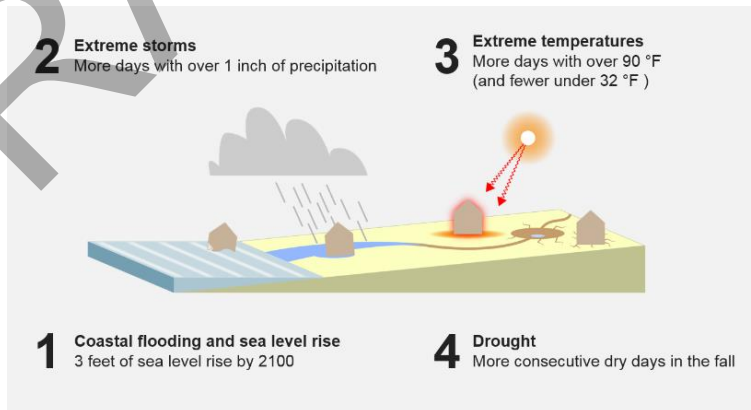
Stantec interviewed key stakeholders including city staff, board and commission members, and representatives of environmental organizations in December 2017 to develop an understanding of community needs. Weymouth project staff and Stantec collaboratively prepared materials in advance of the workshop. Weymouth prepared analytical maps for the workshop. Weymouth staff and Stantec established an invitee list that included elected officials, municipal staff, business community members, community and neighborhood organizations, watershed associations, and boards and commissions to ensure that an open network of stakeholders could provide a diverse set of perspectives on the project.

The Community Resilience Building Workshop was held on February 8, 2018. The workshop agenda, included as Appendix 1, began with a presentation from Mayor Hedlund. The project team then presented a brief overview of the hazards. The reported hazards were determined by the Major Basins report and relevant existing plans, reports and studies, including the FIRM Analysis, Hazard Mitigation Plan, Open Space and Recreation Plan, and Flood Hazard Mitigation Plan.³ From there, the participants worked in four tables to identify community assets and vulnerabilities. Participants were mixed by sectors and areas of expertise to enable dynamic conversations in each table group. After a break for lunch, participants cross-referenced the hazards and assets and vulnerabilities to identify and prioritize resilience actions. Each table then presented their top actions to the entire workshop. Where applicable, similar recommendations were grouped together by theme, such as sea walls, stormwater, and communications. Workshop participants then voted for their highest priorities.

This report provides an overview of the workshop's resulting top hazards, current concerns and challenges, current strengths, and actions to improve Weymouth's resilience to natural hazards today and in the future.

TOP HAZARDS

The following top four hazards are based on stakeholder interviews and demonstrate an understanding of past and potential future community impacts. The following hazard descriptions use the business-as usual emission levels and basin subarea data for climate predictions from the Statewide and Major Basins Climate Projections report (Executive Office of Energy and Environmental Affairs, 2017).



- Coastal flooding and sea level rise
 - 66% probability that sea level rise will be between 2.0-4.0 feet, with median probability of 3.0 feet (2100)
 - Sea level rise combined with coastal storms and high tides can surge water in larger areas more frequently
 - Salt-water intrusion could alter the composition of ecosystems
- Extreme storms
 - At least 1.3 more days with over 1 inch of precipitation a year (2100)
 - At least 1.1 inches more total precipitation per year (2100), occurring mostly in spring and winter
 - Days with over 4 inches of rain per year ranges from remaining constant to more than doubling by 2100

³ Plans, reports, and studies are available at <http://www.weymouth.ma.us/planning-community-development/pages/plans-reports-studies>

- More intense downpours leading to inland flooding and along rivers, streams, wetlands, and areas with poor drainage
- Extreme heat
 - Looking forward to the end of the century, the climate in Massachusetts could feel more like Myrtle Beach in South Carolina, which will require significant adaptation to the community's facilities
 - At least 3.5 °F overall annual temperature increase (2100)
 - At least 11 more days a year with temperatures over 90 °F (2100)
 - At least 22 fewer days a year with temperature below 32 °F (2100)
 - More days with cooling needs and fewer days with heating needs
 - Heat island effect is especially impactful in urban areas and for vulnerable populations
- Extended drought
 - The range of consecutive dry days in the fall by the end of the century is broad in the climate projections, ranging from 1.4 fewer days to 2.4 more days
 - The fall season is expected to experience an increase of 0-3 consecutive dry days (2100)
 - Droughts threaten local water supply, groundwater recharge, and riverine ecosystems
 - Droughts damage vegetation and weaken tree root systems

CURRENT CONCERNS AND CHALLENGES PRESENTED BY HAZARDS

Workshop participants identified their top concerns about natural hazards based on their knowledge of the community and the project team's presentation. Their concerns are categorized and reflected as follows.

Coastal flooding is a pressing issue, as the highest-ever recorded flood⁴ happened on January 4, 2018, just weeks before the workshop. High water flooded coastal roads and isolated certain residents, who had to be rescued by emergency responders. Looking forward, workshop participants were concerned about the sea level rise, as the storm condition from January 4th becomes the "new normal" during astronomically high tides⁵, and moderate and severe storms reach unprecedented heights and inundation levels. After the workshop, Weymouth was hit by another severe flood on March 2, 2018, which closed schools, forced residents to evacuate, and left thousands without electricity.

Participants identified precipitation resulting from **extreme storms** as an ongoing concern in Weymouth given the number of areas with poor drainage and flooding problems. Stakeholders including the Department of Public Works are aware of problem areas. These areas are often related to developments built in areas with poor soils, high groundwater tables and flat gradients. Problems experienced by property owners include flooded yards and basements, ponding and stagnant water, mosquito breeding, and malfunctioning drainage infrastructure such as clogged inlet grates. Furthermore, Town staff resources to deal with maintenance issues have shrunk considerably over the years.

Participants were concerned about increasingly **extreme heat** in Weymouth, especially for vulnerable populations, as many of Weymouth's buildings were not built with cooling needs in mind. The percentage of Weymouth's population now 65 or older is 18% and is expected to increase to 20% in five years⁶, which means more potentially vulnerable population to heat stress and lack of mobility. Weymouth has several high-rise elderly housing buildings, such as the Senior Center located at 182 Green Street, that welcome seniors and provide supportive programs. Participants did

⁴ <https://www.bostonglobe.com/metro/2018/01/05/official-boston-breaks-tide-record/UPbwDxgF0QXNOWvB9bcQ7L/story.html>

⁵ With 3 feet of sea level rise, the median value of the likely scenario range by end of century.

⁶ Community profile prepared by Esri, April 2018

note that some adaptation measures have already been taken, such as establishing cooling centers at the library and other locations.

The threat of **extended drought** was highlighted in the workshop. Participants noted that with a changing climate, drought could have significant impacts in Weymouth, which manages its own water supply through reservoirs and well extraction. All wastewater is transferred out of the public water supply watersheds via MWRA sewer and so does not contribute to basin recharge. Supply constraints are most challenging in the autumn, when groundwater levels, stream flows and pond levels are typically at their lowest. During the region-wide drought of 2016, the Weymouth Department of Public Works asked residents to limit water use, as the Great Pond reservoir fell to within one foot of an outdoor water ban. Water supply will need to keep up with future increases in demand, including the temporary, transitional provision of water to Union Point and transit-oriented development at the commuter rail stations in future decades.

SPECIFIC CATEGORIES OF CONCERNS AND CHALLENGES

Aging protection from coastal flooding: Elements of Weymouth's coastal protection are failing, including sea walls and revetments mostly built in the 1950s and 1960s. A plan to reconstruct the deteriorating seawall on Fort Point Road has been in the development stages for several years. This is one of the most (if not the most) vulnerable area for coastal storms. Concerned about impacts to views, residents challenged initial designs that would have raised the seawall height substantially. Since that time, the town has obtained a grant to elevate six homes on the point. This area experienced severe flooding during the storms of early 2018. That experience, combined with planning for climate change, may make a higher seawall height more palatable. This year, Weymouth received a \$1.6 million state grant to repair a 324-foot segment of the sea wall along Fore River Avenue. In the January 2018 record-setting storm, the Fore River Avenue and Fort Point Road sea walls were overtopped. However, workshop participants understood that the solution will not be as simple as rebuilding the sea walls, with compounding issues related to sea level rise, residents' perceptions, funding, ownership issues, and hard protection versus living shorelines come into play. For example, coastal residents are concerned about rebuilding the sea walls so high that their views are blocked. In a recent attempt to rebuild the Fort Point sea wall, the city could not apply for funding because it does not own the entire wall and must resolve the ownership issues. The short- and long-term sustainability of sea walls is also in question, as the current sea walls face erosion, and will need to be raised significantly to protect against rising seas. Other parts of the town are better suited for climate adaptation. In the Back River basin, coastal salt marshes are protected by the ACEC. The Cadman Conservation Area in the Fore River and Webb Memorial State Park (at the tip of Weymouth Neck) are also protected coastal areas.

Quality of infrastructure and ability to adapt to sea level rise: Weymouth is a regional hub for evacuation routes (MA 3 and 3A), power generation (Constellation Energy), natural gas facilities, and sewage pumping. Weymouth also has infrastructure that serves the town, including dams (such as Smelt Brook Dam, Iron Hill Dam, Whitman's Pond Dam, and Great Pond Dam), flood control measures, and local roadways. Workshop participants were concerned that today's infrastructure is not adequately prepared against the natural hazards as forecasted by the standard Statewide projections report. Failing infrastructure due to any number of the hazards, including sea level rise, may have significant side effects, such as limiting access on low-lying roads, pollution escaping from brownfield and hazardous materials sites, and infiltration into the regional sewer system.

Drainage and stormwater management: The community's centuries-old system is unable to handle current drainage needs. The drainage systems, including natural streams, are often clogged with vegetation and rubbish. These issues are expected to be exacerbated by the projected increase in heavy rainfall days and sea level rise at the outfalls. Furthermore, unlike other services in the community, stormwater does not have a dedicated utility and is lacking in capital improvement funds. On developed sites, the community does not require green infrastructure or regulate for best management practices. The Town does not have sufficient labor force or funds to conduct recommended maintenance of stormwater infrastructure now, and we know problems are going to get worse with increased storm events.

Emergency communications: Communication, especially to vulnerable populations, was indicated as one of the most critical issues. While the South Shore Hospital, located on a hill at high elevation, and emergency shelters established throughout town are a strength, the stretched town emergency services department operational demands and potentially isolated populations and institutions beyond Weymouth Neck on Weymouth Port are a vulnerability. Workshop participants agreed that the general population needs a better understanding of the hazards presented at this workshop. Lastly, the Town's private fiber network connecting Town Hall, the Police Department, and other municipal functions is an important part of the current communications strategy and could be vulnerable to extreme storms and flooding.

Drinking water supply and watershed protection: Weymouth self-provides water for both drinking and ecological conservation, including the water that enables the town's famous herring run. These competing uses have led to water use conflicts. Weymouth's drinking water is supplied from the Great Pond reservoir and a well field. In dry spells, Great Pond is recharged by pumping water from South Cove. The herring run and other ecological uses also rely on flows from South Cove. Drinking water extraction from the wellfield is also threatened by sodium intrusion from runoff containing salt from road maintenance in the winter. The problem is increased by additional development in Weymouth at Union Point. On the bright side, water use reduction programs have been effective in decreasing overall consumption in recent years.

CURRENT STRENGTHS AND ASSETS

Because of 2018's January 4th and March 2nd floods, the community is currently well acquainted with the town's existing strengths. Residents evacuated and weathered the storm with support from emergency service personnel. Reinforcing and expanding best practices will generate even more resilience against future storms and other hazards.

Workshop participants identified **infrastructural** assets in the community. Transportation assets identified include the Fore River Bridge and commuter rail stations. Emergency and supportive infrastructure include the South Shore Hospital, elderly housing, the Senior Center, the emergency shelter at the high school, and the library's emergency shelter. One of Weymouth's strengths that was highlight is the town's regional interconnectivity, including regional energy infrastructure, extensive and regionally-connected sewer system, and emergency water supply connection to the regional MWRA system.

As mentioned earlier, the recent floods demonstrated Weymouth's strong **societal** capacity to respond to hazards in a well-coordinated and resilient way. Workshop participants identified the well-equipped and active emergency management personnel and National Guard support as assets. Furthermore, participants identified Weymouth's civic groups and faith-based communities as assets. In terms of communication, participants also identified the established evacuation plans and school messenger program as assets.

Elements of Weymouth's physical **environment** were identified by participants as especially resilient assets. Weymouth has parks and conservation land along the shore in flood prone areas that are and will continue to be assets with sea level rise and increasing inundation. Of note are the Weymouth/Hingham Back River Area of Critical Environmental Concern, Webb Memorial State Park, Cadman Conservation Area, and Newell Playground park. Upstream of the coastline, Weymouth's saltmarshes protect floodplains adjacent to Back River and Fore River, and to some extent Mill River and Old Swamp River. In terms of environmental policy, participants identified the water use reduction programs (to reduce water demand during droughts) and sewer inflow/infiltration programs (to reduce sanitary sewer overflow occurrences during storm events) as assets.

TOP RECOMMENDATIONS TO IMPROVE RESILIENCE

1. Build sea walls. Restoring and expanding Weymouth's aging sea walls is the highest priority. An area identified with immediate need is along Fort Point Road. The participants brought up issues related to sea walls, including trade-offs related to height, level of protection, residents' views, ownership, funding sources, and drainage. Furthermore, while sea walls are a priority in the near- to mid-term, participants were interested in long-term land use

change as coastal flooding risks increase, such as elevating homes and retreat from flood-prone areas. With so many issues to consider, consensus is that further sea wall study is warranted.

2. Conduct an infrastructural assessment study. Weymouth's infrastructure serves local and regional communities. Potential infrastructural risks due to natural hazards in Weymouth include flooded sewage pump stations, impacts on evacuation routes, decaying storm gates, flooded critical and low-lying roadways, and insufficient drainage systems.⁷ A specific concern is accessibility to Weymouth Neck on low-lying roads during flood events. These systems and others will be affected by sea level rise. Therefore, a top recommendation is to conduct a thorough assessment of the infrastructure's quality and resilience to climate change.

3. Improve stormwater management. Projected increases in rainfall amounts pose threats to Weymouth, including inland flooding in areas with poor drainage and sodium intrusion from road salt into drinking water aquifers. The workshop participants felt strongly that watershed groups and the water department should identify how to implement a stormwater utility to fund projects and manage changes, such as addressing poor drainage, sodium intrusion, use of best management practices, additional open space and parks, and green infrastructure. State and federal requirements for municipal stormwater management are increasing and town will need enhanced tools and funding to meet these requirements. Areas with poor drainage identified by Weymouth's Department of Public Works can be found in Appendix 3. Map B. Stormwater. The sixteen locations as drainage concerns are not concentrated in any one part of town, but are distributed throughout.

4. Create a communications plan for raising awareness about hazards. Communication was identified as a top priority. Tools such as a communication packet are recommended to increase awareness of hazard mitigation and vulnerabilities at the sub-community level, as the threats from climate change are often hyperlocal. A communication packet could contain pertinent information regarding the sub-area's hazards, adaptation measures, supportive services, and other opportunities for land owners and tenants. Communications about the threats should have graphic representations of the hazard areas under future scenarios. A community communication plan could include public education and provide practical information and answers, such as how to adapt to sea level rise and where emergency shelters are. Townwide emergency communications could be improved with measures such as Reverse 911⁸, maintaining a database of vulnerable populations in conjunction with the health department, maintaining email lists, evacuation route signs, and strengthened coordination amongst community organizations and institutions. Raising awareness about the nature of future hazards for public education can also create "buy in" for the planning and actions the town will need to take to address the concerns.

5. Protect the public water supply and critical environmental resources. Weymouth needs to secure its water supply by balancing supply and competing demands. The use of conservation tools was identified as a priority. Of the many conservation tools available, workshop participants focused on expanding the ACEC to include herring run and Whitman's Pond to capture more of the area associated with public drinking water supply. An ACEC receives special recognition because of the quality, uniqueness, and significance of its resources to be preserved and enhanced. Extending the ACEC could, among other benefits, improve resilience to extreme precipitation, drought, and high temperatures by guarding the area's vegetated areas from additional impervious surfaces. Other conservation efforts relating to open space protection and water conservation measures could also be used to build resilience in this manner, such as developing protocols to balance and optimize pumping schedules and river flows for the South Cove/Whitman's Pond water supply and the Back River herring run and altering water conservation triggers so they reflect water levels in more rivers and ponds than Great Pond alone.

⁷ Weymouth's Department of Public Works Memo (December 2017) on drainage problem areas identifies issues including overtopping of waterways, restricted waterways, outfall clogging, needed relay pipes, undersized drains, untreated stormwater outfalls, broken pipes, and other maintenance problems.

⁸ Weymouth is rolling out a Code Red program for emergency communications in 2018. Code Red is a service that conducts automatic calls to affected zones during emergencies, such as flooding in specific parts of town.

CRB WORKSHOP PARTICIPANTS

Invited and participating entities (* indicates attendees):

Mayor Hedlund*, Mayor
Andrew Hultin*, Recreation Department
Bob Luongo*, Planning Director
Brian Connolly*, Chief Financial Officer
Chip Fontaine*, Town Engineer
Dan McCormack*, Health Director
Dennis Keohane*, Weymouth Chamber of Commerce
Diane Hachey*, Town Council staff
Eric Dykeman*, So. Shore Chamber of Commerce
Eric Schneider*, Principal Planner
Frank Singleton*, Conservation Comm.
Geoff Potter*, North Weymouth Civic Association
George Mutch*, Waterfront Committee
Greg Denton*, Office of Senator Patrick O'Connor
John Mulveyhill*, Emergency Management Director
Ken Morse*, Water/Sewer Superintendent
Linda D'Angelo*, Back River Watershed Association
Mary Ellen Schloss*, Conservation Administrator
Mary Roy*, Representative Murphy's office
Mary Savage Dunham*, Fort Pt resident, Hingham Town Planner
Mike Richardi*, Weymouth-Braintree Regional Recreation Conservation District
Matt Tallon*, Idlewell Neighborhood Association
Nick Bulens*, Administrative Services Coordinator
Paul Milone*, Harbor Master
Robert Feldmann*, Department of Public Works
Samantha Woods*, North-South Rivers Watershed Association
Sean Cleaves*, Weymouth-Braintree Regional Recreation Conservation District
Suneeth John*, LStar (Union Point Master Developer)
Becky Haugh, Town Councilor, District 1
Charlotte Jenkins, Assistant Emergency Management Director
Cheryl Taylor, Pond Plain Improvement Association
David Burke, Whitman's Pond Assoc.
Deborah Blanch, National Grid
Edward Markey, US Senator
Elizabeth Warren, US Senator
Eric Miller, Southfield Residents Association
George Raymond, Herbert Raymond Realtors
Holly Palmgren, MBTA, Environmental
James Murphy, State Representative
Jeff Richards, Director, Department of Municipal Licenses & Inspections
Jim Young, Southfield Redevelopment Authority
Jodi Purdy Quinlan, Fore River Watershed Association
Joe King, US Rep. Stephen Lynch's office

John MacLeod, Director, Department of Asset Management
Kenan Connell, DPW Director
Matt Barry, LStar (Union Point Master Developer)
Michael Smart, Town Council President
Patrick O'Connor, State Senator
Paul Niedwicki, Southfield Redevelopment Authority
Peter Forman, So Shore Chamber of Commerce
Robert McConnell, Weymouth Braintree Regional Recreation Conservation District
Sandra Williams, Planning Board Member
Stephen Lynch, US Representative
Steve Ivas, Ivas Environmental (Consultant)
Steve Reilly, Recreation/Great Esker Park
Ted Langill, Chief of Staff
Tom Berkley, LStar (Union Point Master Developer)
Wayne Mathews, East Weymouth Neighborhood Association

SUGGESTED CITATION

Town of Weymouth (2018) *Community Resilience Building Workshop Summary of Findings*. Stantec's Urban Places. Weymouth, Massachusetts.

PROJECT TEAM

MVP project managers	Frank Singleton	Conservation Commission, Fore River Watershed Association
	Bob Luongo	Planning Director, Town of Weymouth
	Mary Ellen Schloss	Conservation Administrator Town of Weymouth
Project coordinators	Nels Nelson	Stantec's Urban Places
	Larissa Brown	Stantec's Urban Places
Additional facilitators	Jackson Rand	Stantec
	Hillary King	Stantec
	Amelia Casey	Stantec
Table scribes	Alice Arena	
	William Irvine	
	Patricia Fitzgerald	

ACKNOWLEDGEMENTS

Thank you to Mayor Hedlund, Garrett Walsh of Weymouth GIS/IT for mapping, the Weymouth High School for meeting space, Weymouth grant writer Nick Bulens, the Massachusetts Executive Office of Energy and Environmental Affairs Climate and Global Warming Solutions, and the Community Resilience Building workshop guide.

APPENDIX 1. WORKSHOP AGENDA

Time	Activity	Who
8:30 AM	Breakfast, registration	
9:00 AM	Welcome	Mayor Hedlund
9:30 AM	Presentation: about MVP, introduction to workshop, top hazards	Stantec's Urban Places
10:30 AM	Identify municipal vulnerabilities and strengths	Table groups
11:30 AM	Hazards, vulnerabilities, strengths recap and next steps	Large group discussion
12:00 PM	Lunch	
1:00 PM	Identify and prioritize municipal actions	Table groups
2:30 PM	Identify top 5 actions and write on post-its	Table groups
2:45 PM	Short break	
3:00 PM	Report back top 5 actions per table, organize into themes, and vote	Large group discussion
4:00 PM	Further define urgency and timing	Large group discussion
4:30 PM	Closing remarks	Core project team
5:00 PM	Workshop adjourned	

APPENDIX 2. COMPLETED COMMUNITY RESILIENCE BUILDING WORKSHOP MATRIX

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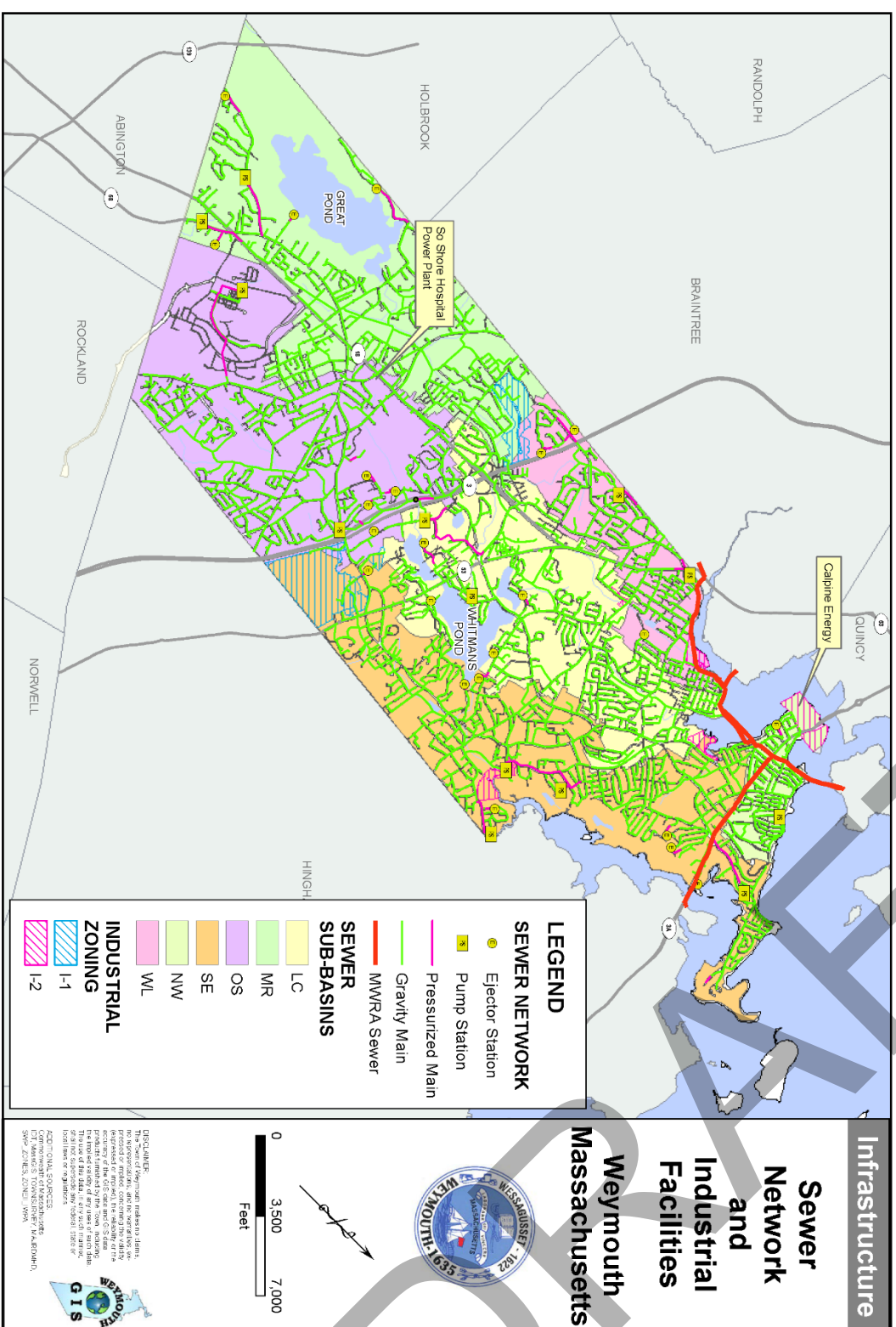
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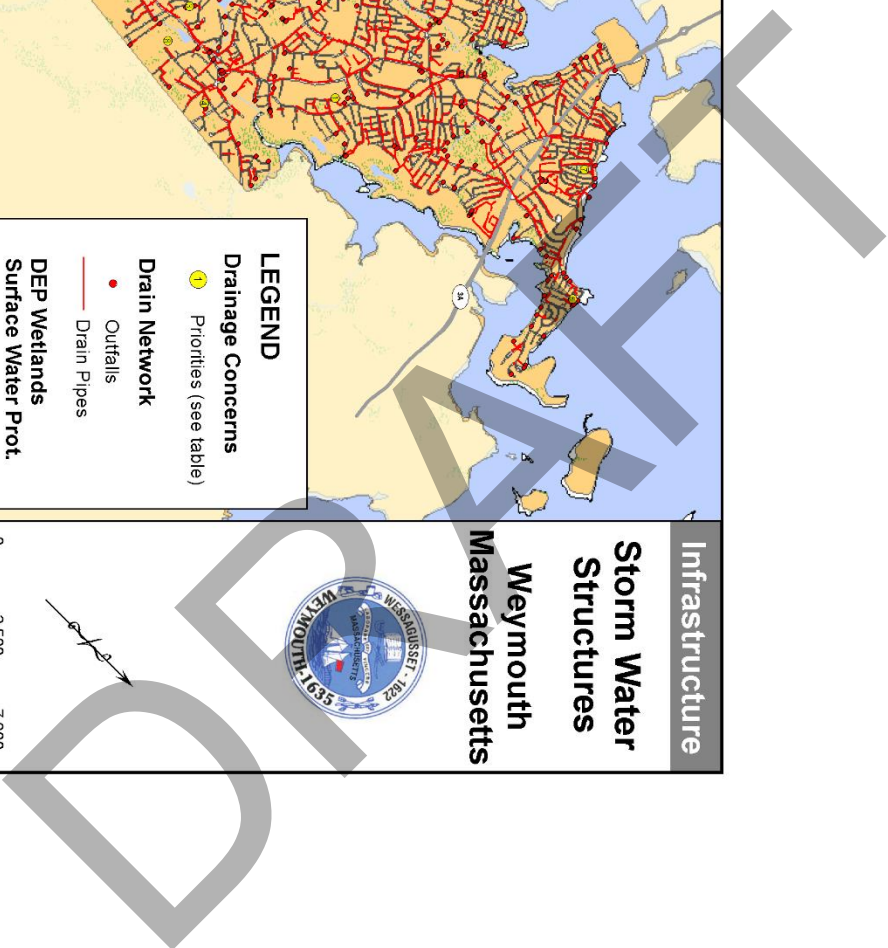
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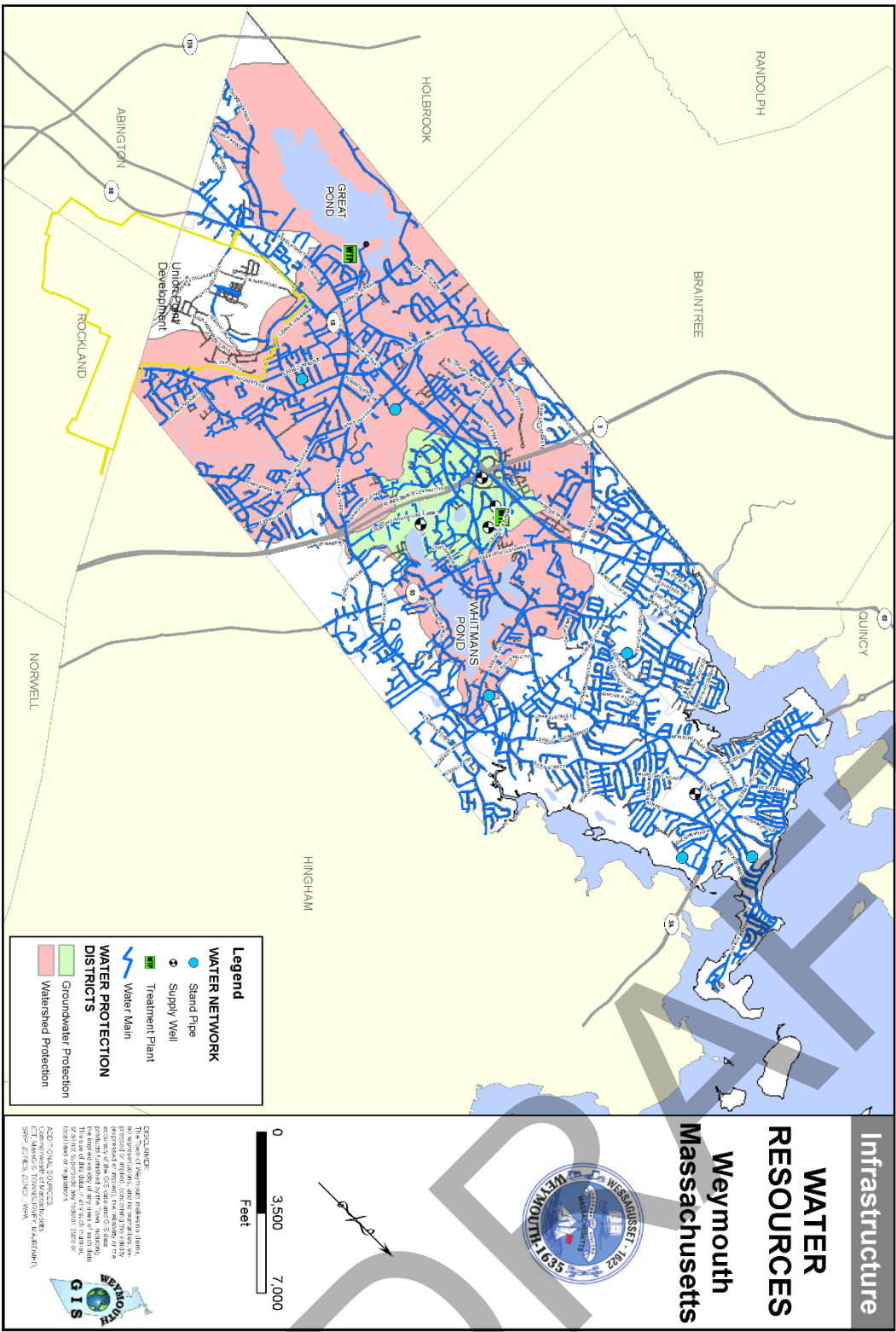
APPENDIX 3. MAPS

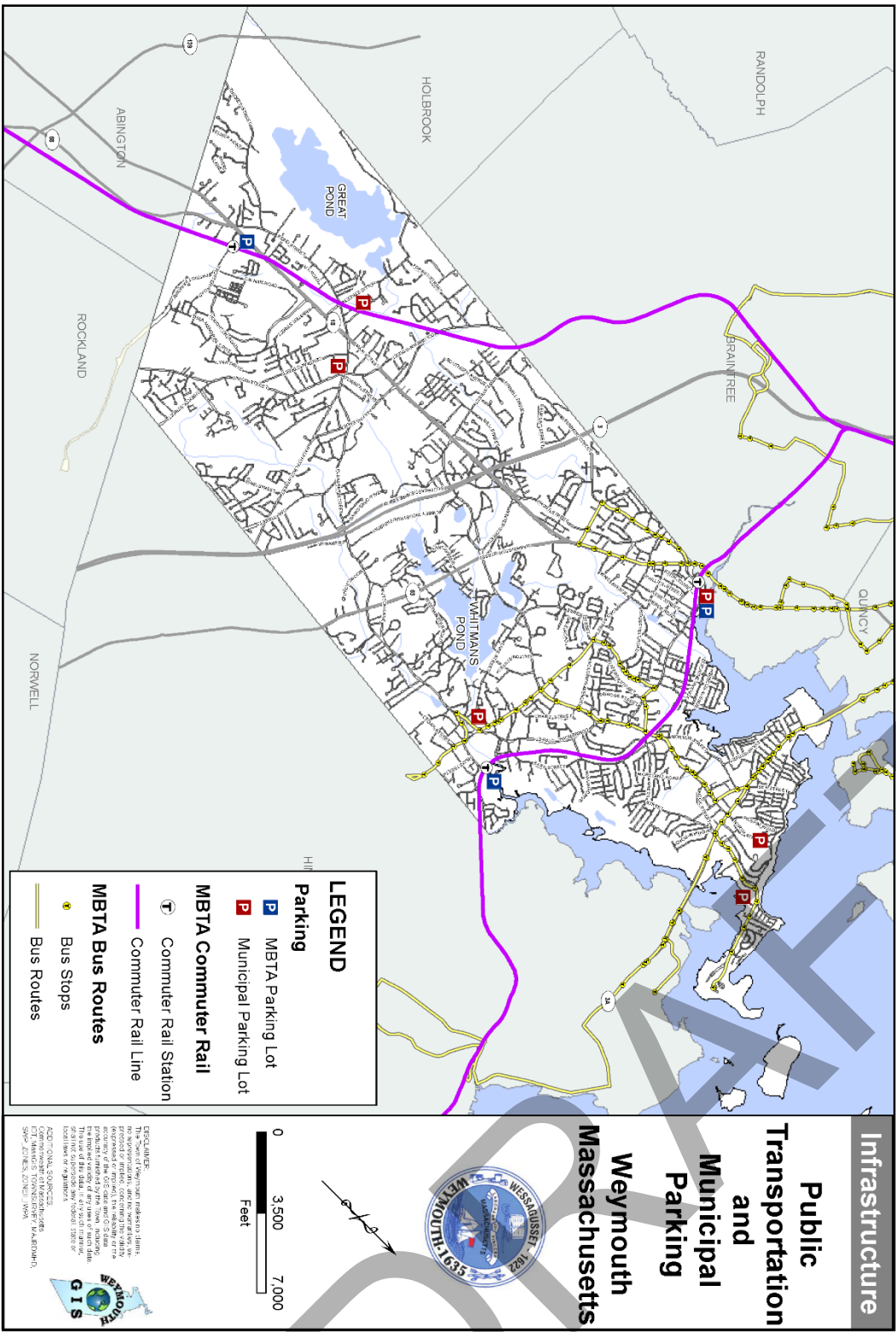
- A. Sewer Network and Industrial Facilities
- B. Storm Water Structures
- C. Water Resources
- D. Public Transportation and Municipal Parking
- E. Vulnerable Populations
- F. Recreation
- G. Open Space
- H. Impervious Surfaces
- I. Wetlands and Floodplain
- J. Landscape
- K. MassDEP Regulated Sites
- L. Aerial
- M. Heat Index
- N. Relative Vegetation
- O. ResilientMA online map export for Weymouth's coastline (accessed March 2018)

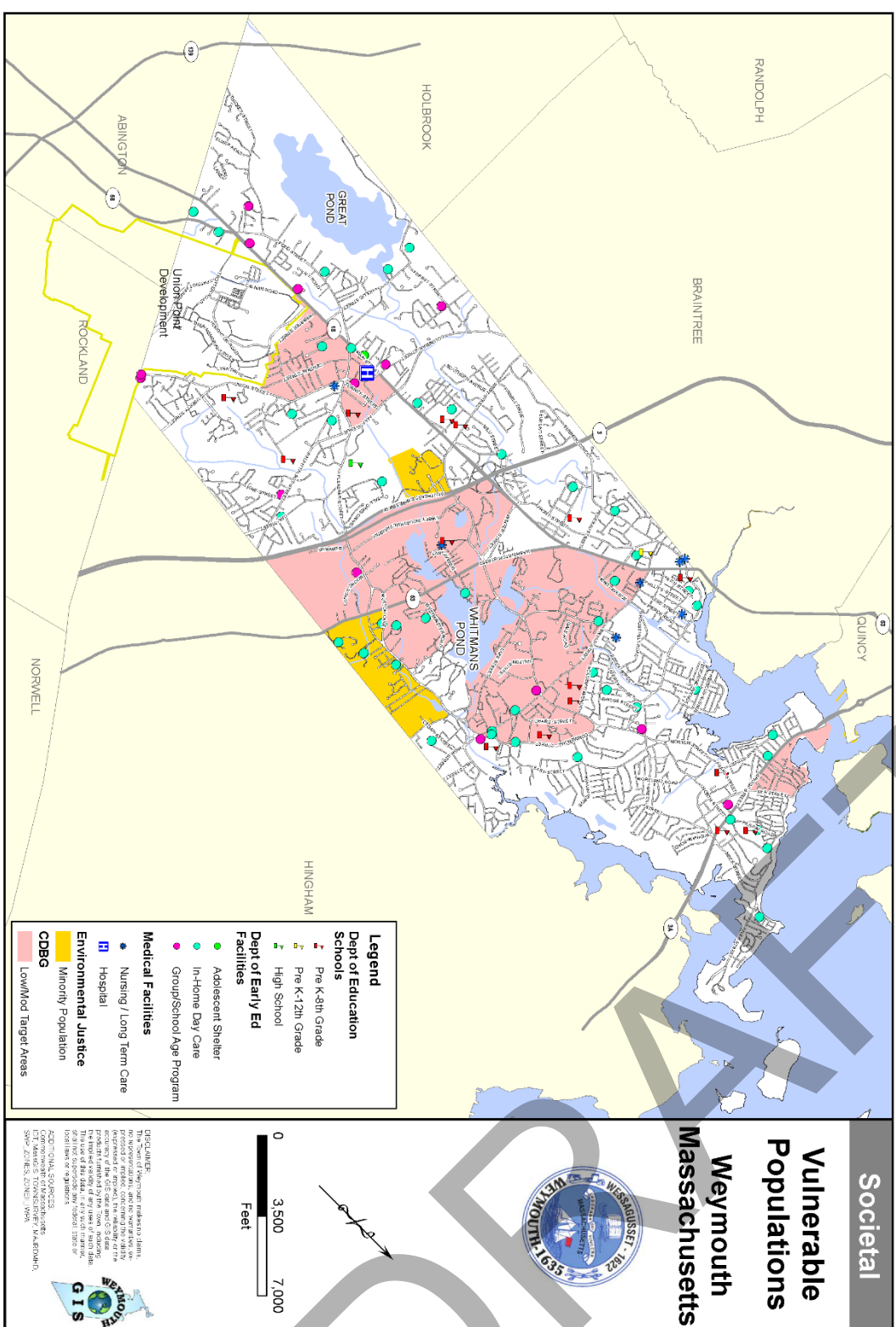
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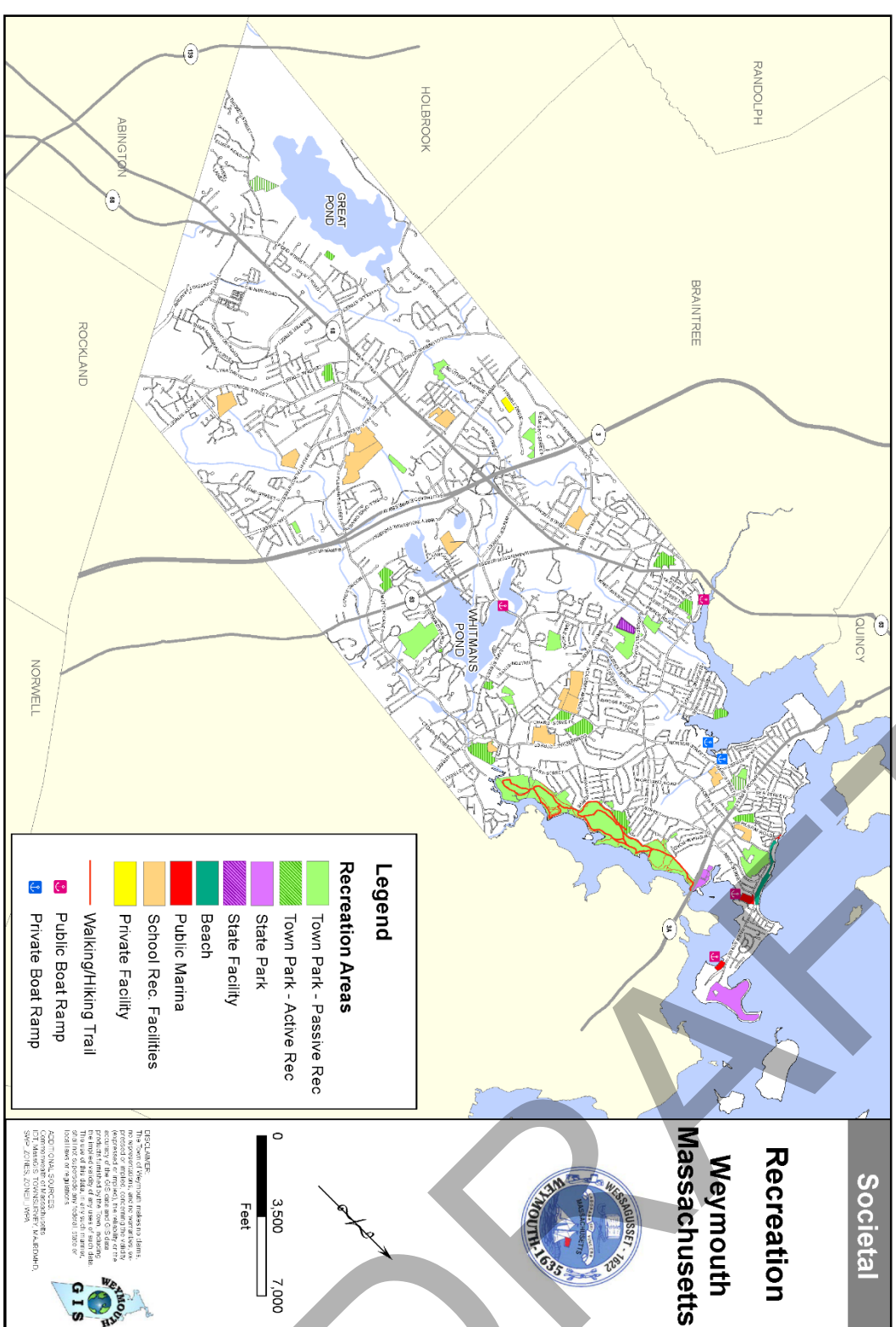


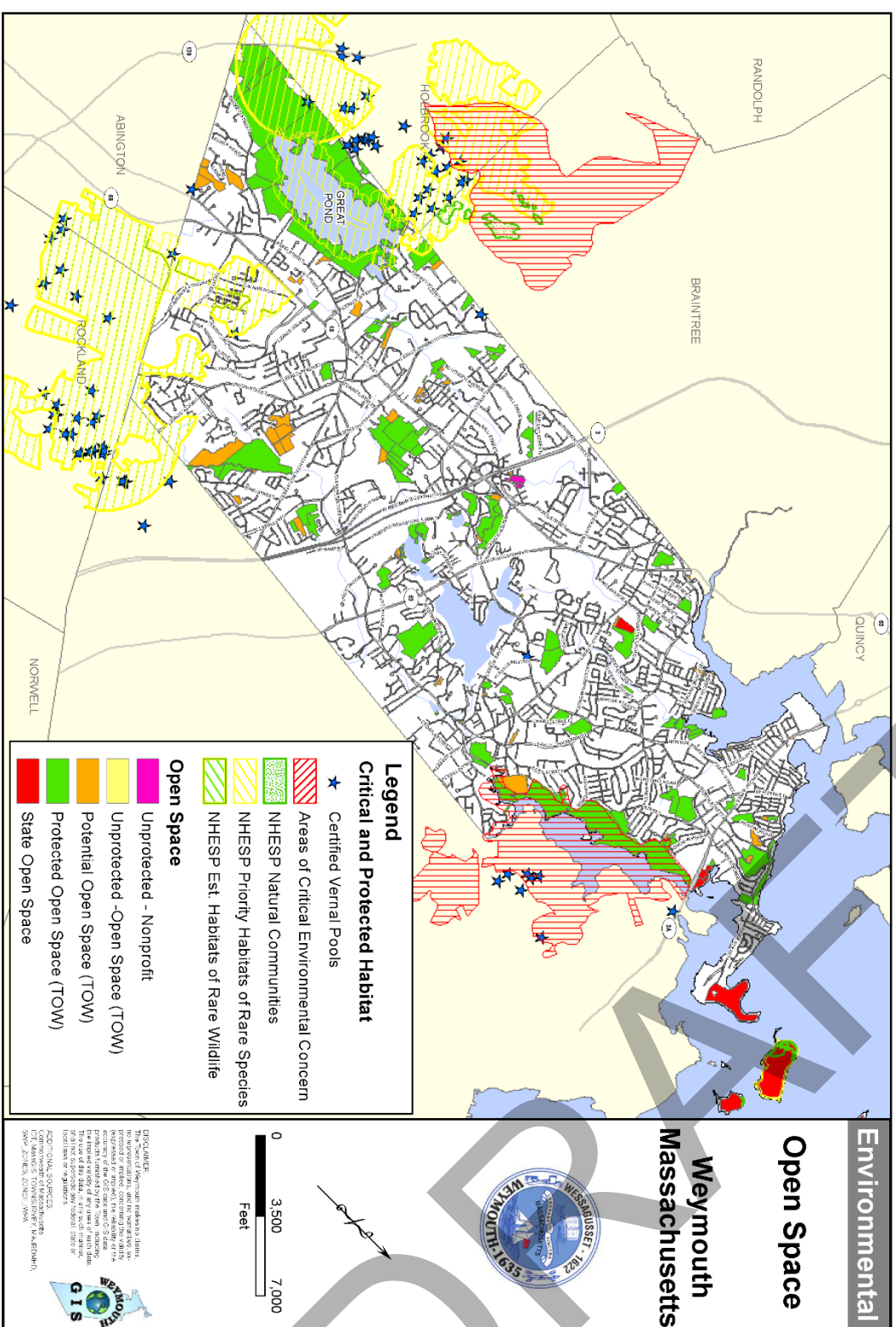


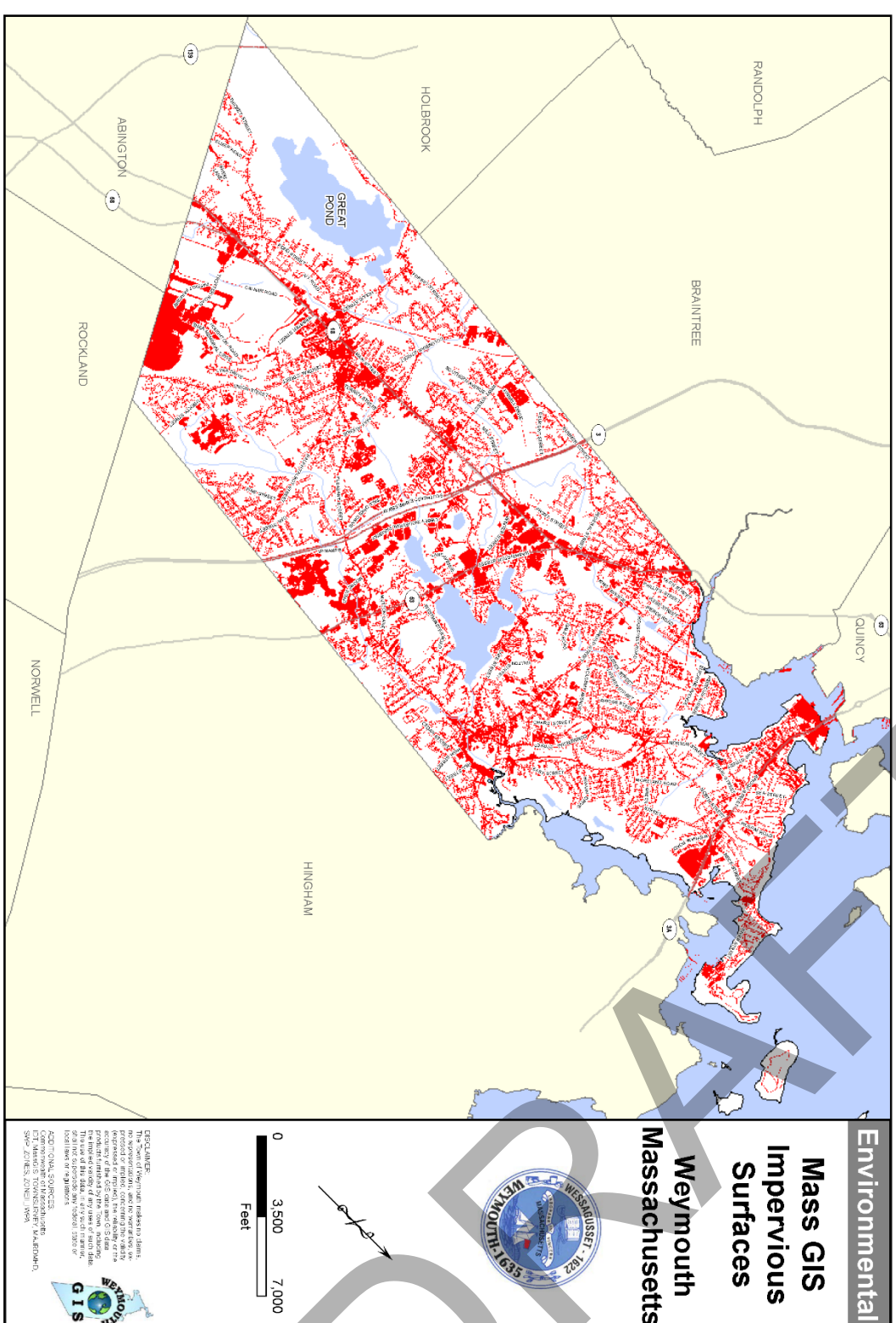


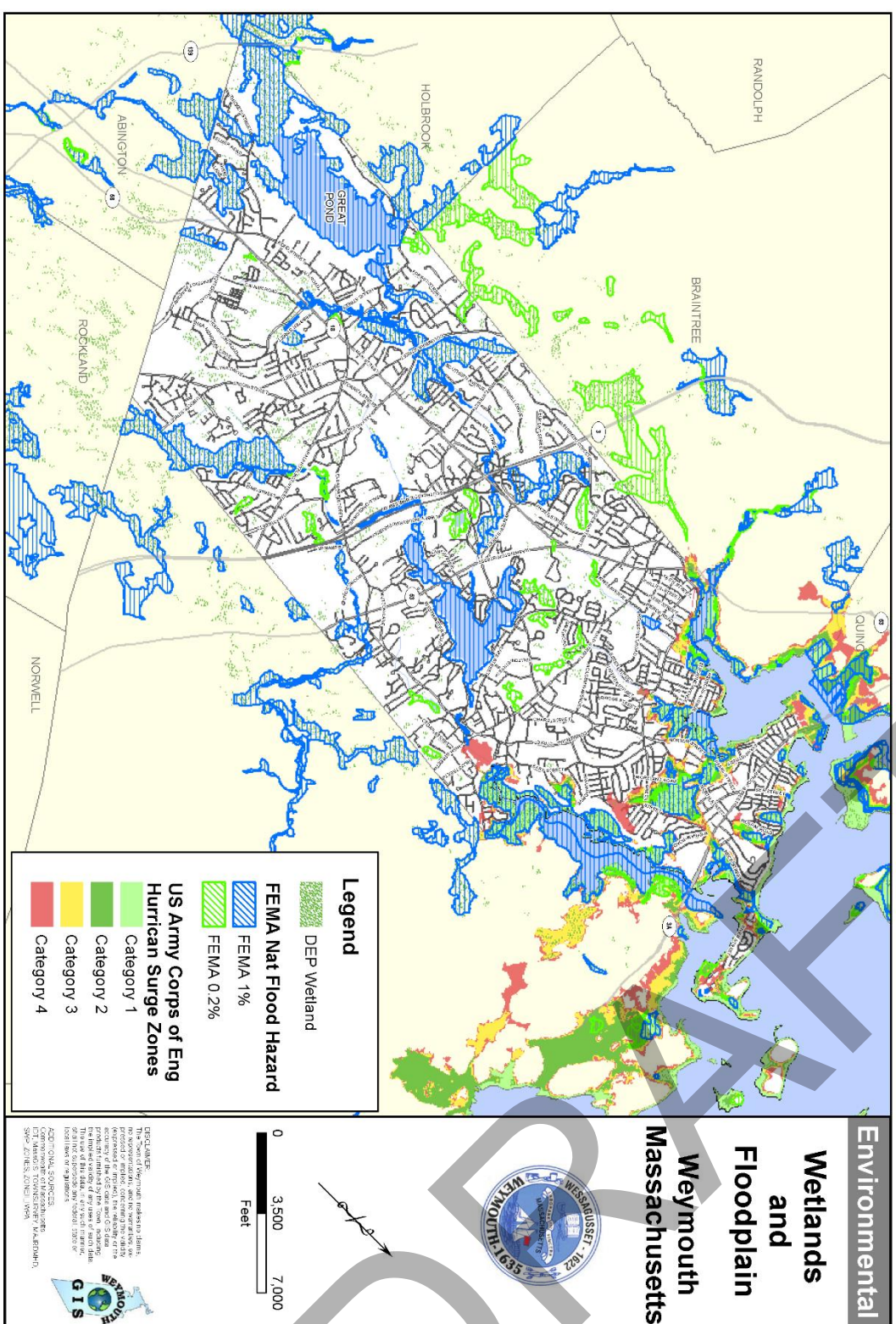




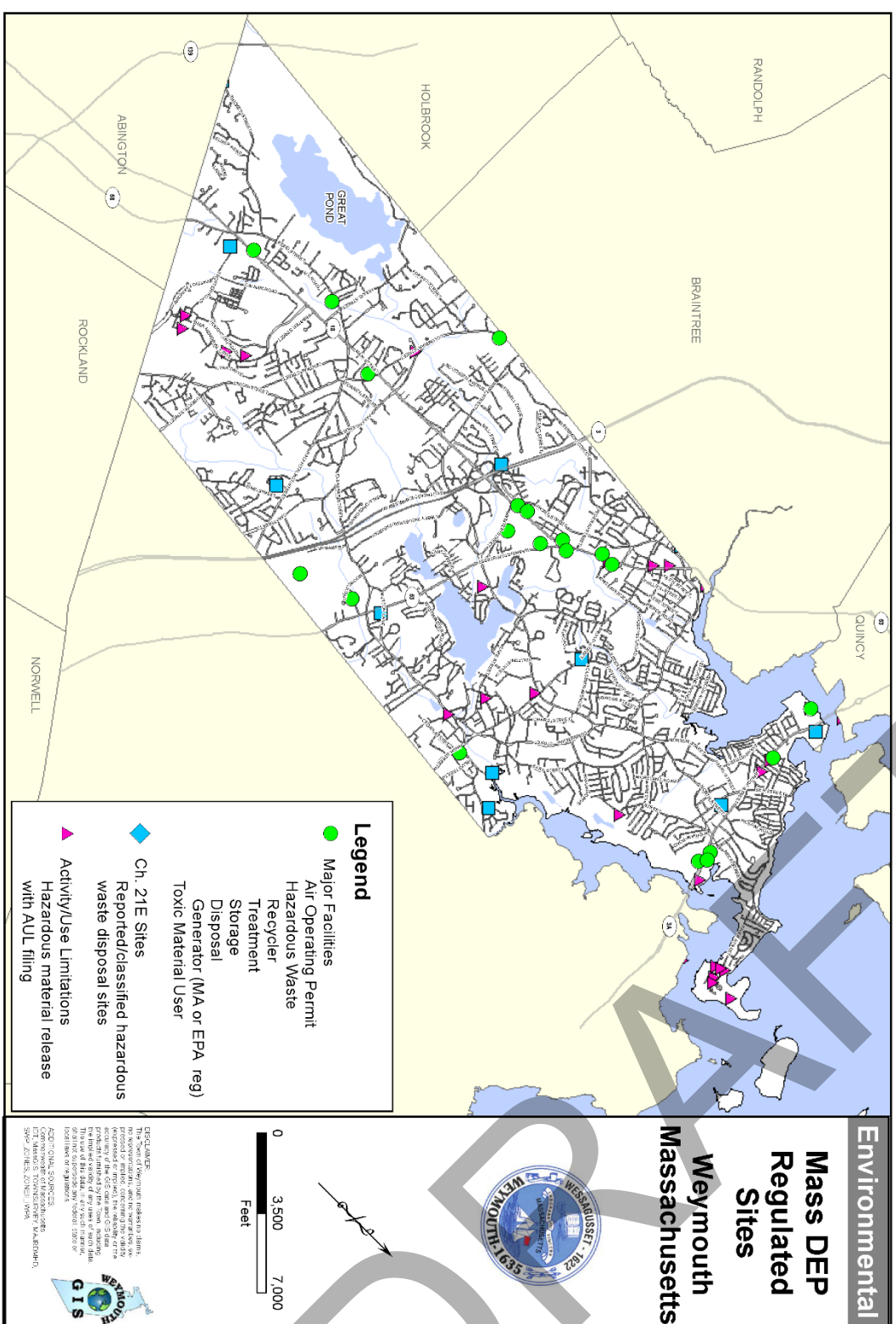


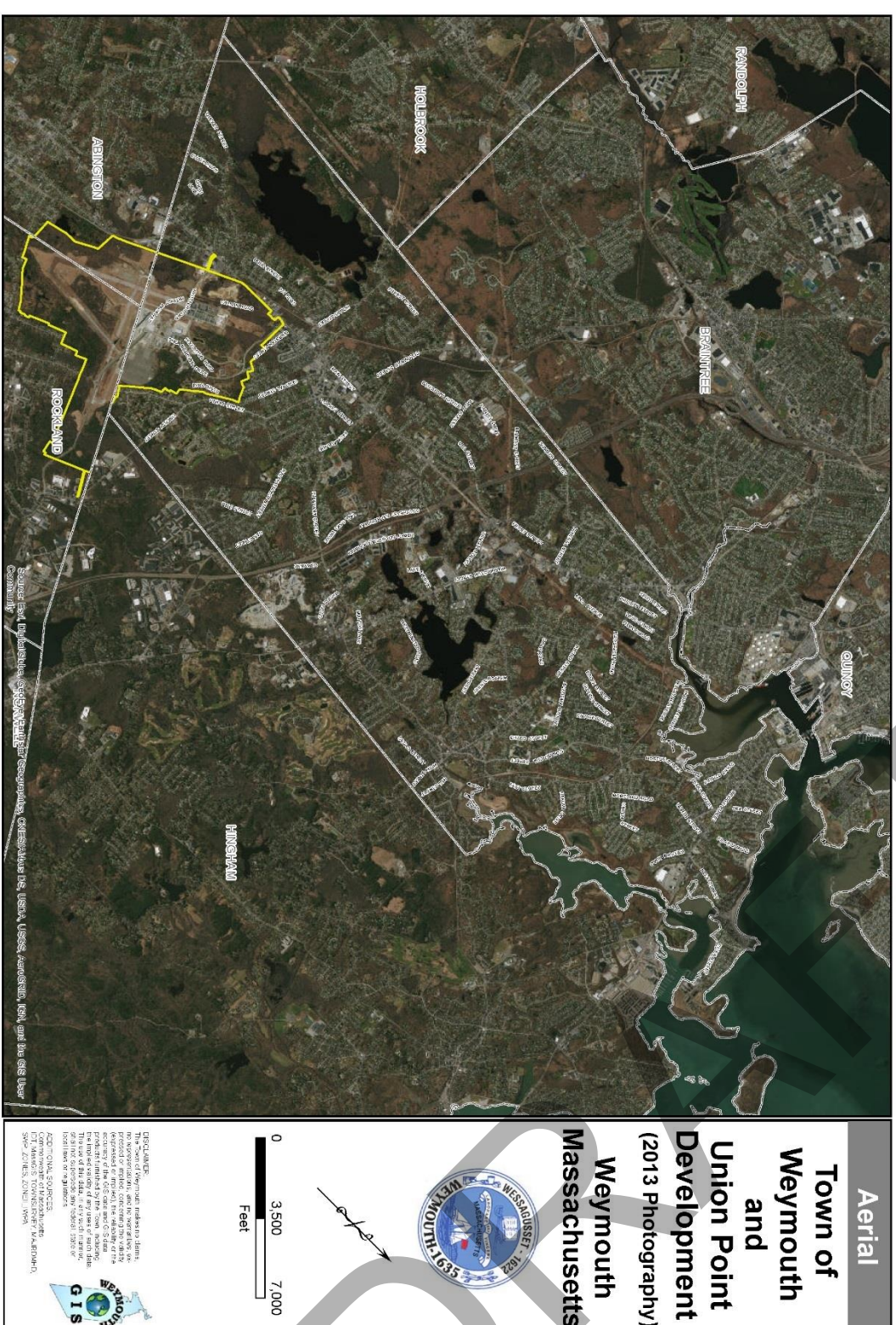


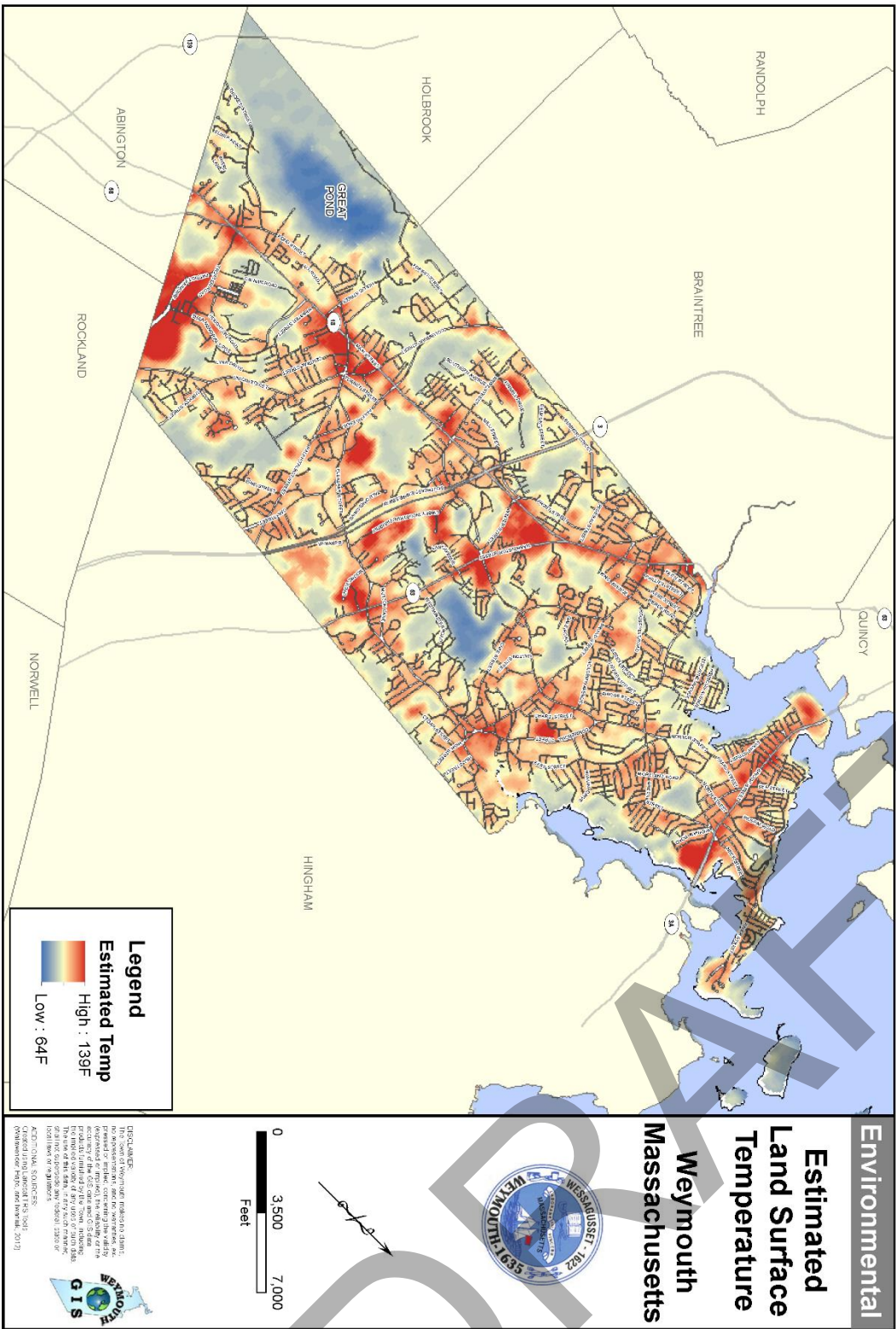


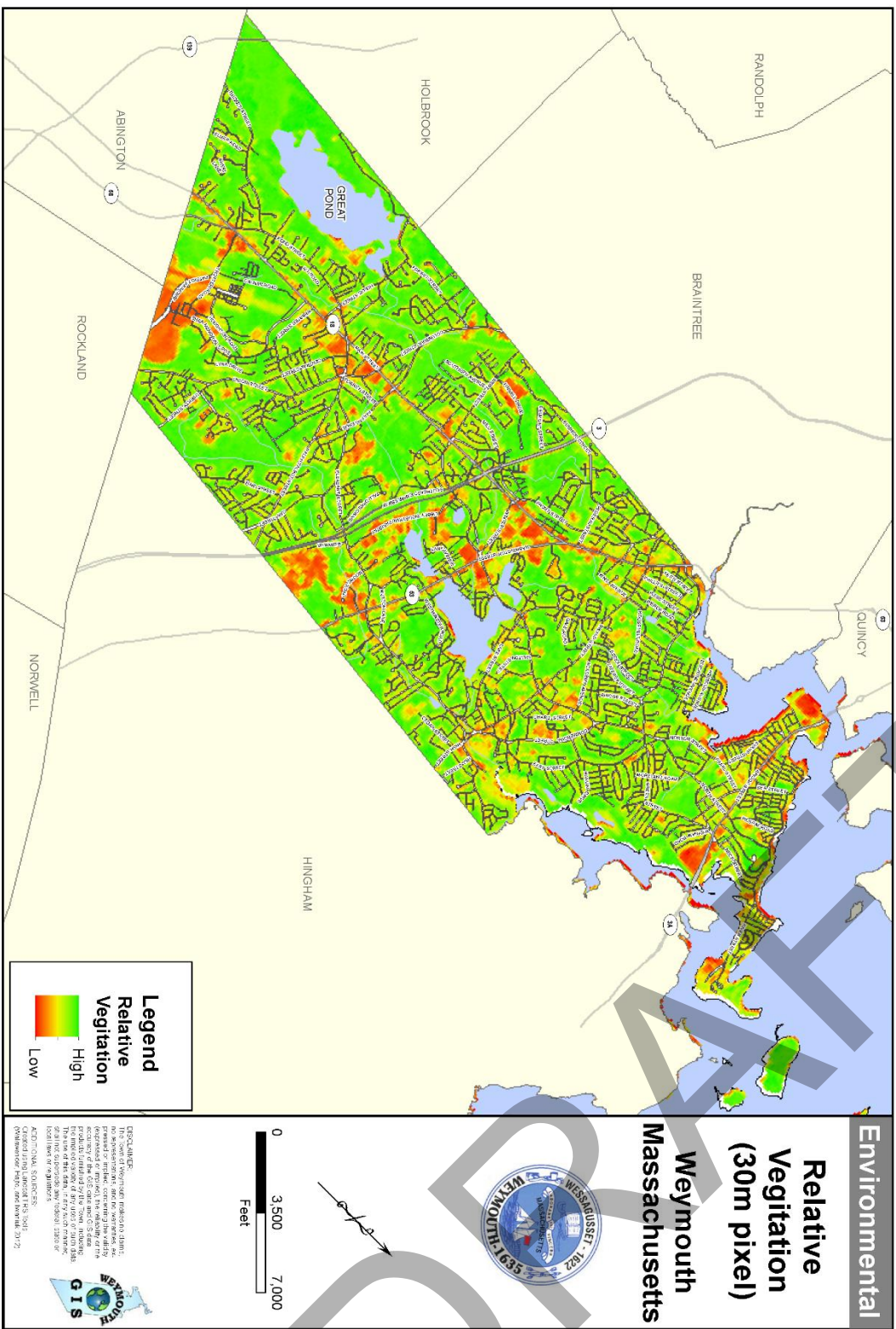


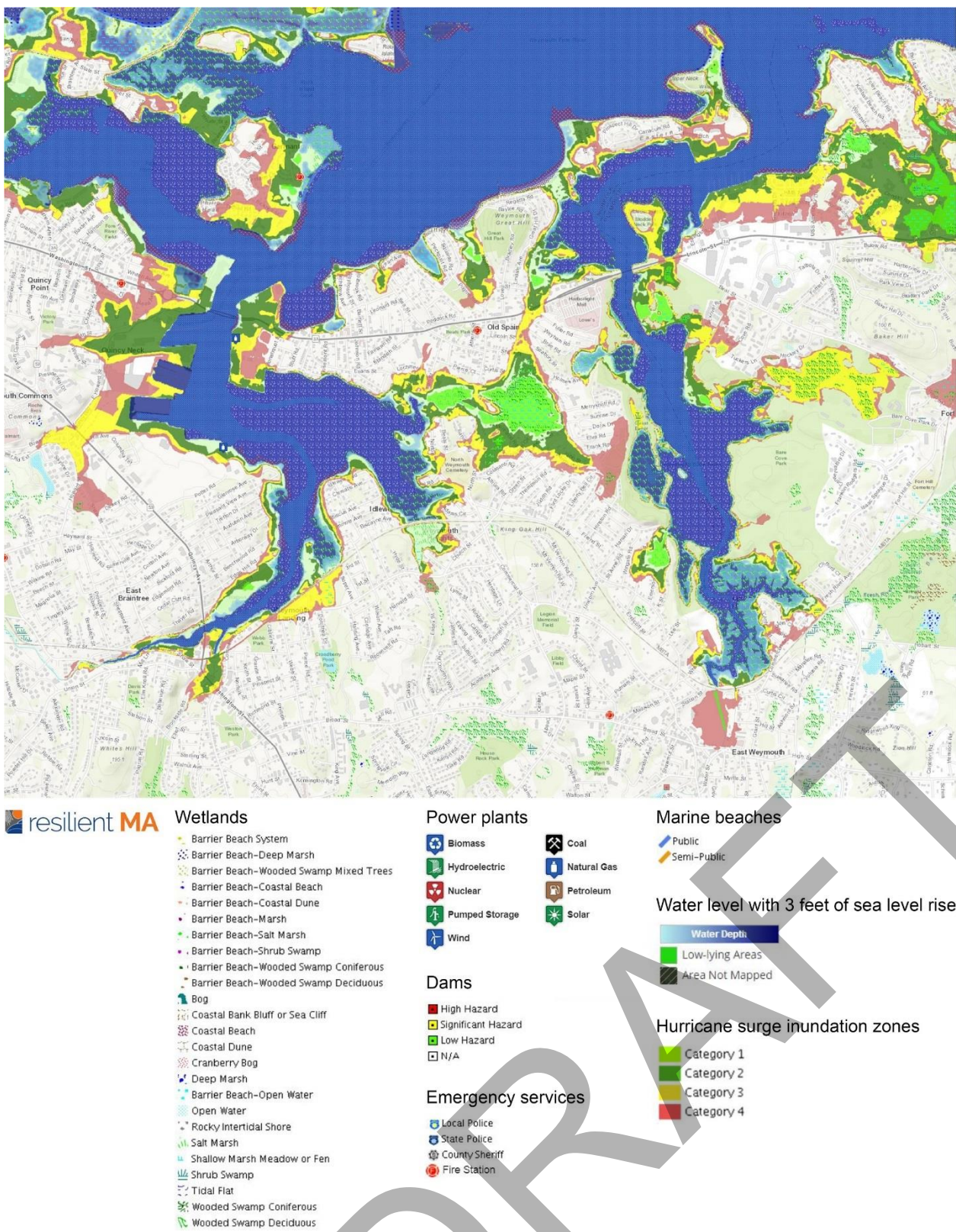












APPENDIX 4. NOTES FROM WORKSHOP

- A. Green table
 - a. Annotated Map
 - b. Completed matrix
 - c. Table scribe notes
- B. Red table
 - a. Annotated map
 - b. Completed matrix
 - c. Table scribe notes
- C. Yellow table
 - a. Annotated map
 - b. Completed matrix
 - c. Table scribe notes
- D. Blue table
 - a. Annotated map
 - b. Completed matrix
 - c. Table scribe notes