COVENTRY





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Municipal Resilience Program

Community Resilience Building

Summary of Findings

May 2023

Town of Coventry, Rhode Island
Community Resilience Building
Summary of Findings

Overview

The need for municipalities, regional planning organizations, corporations, states, and federal agencies to increase resilience to extreme weather events and a changing climate is strikingly evident amongst the communities across the state of Rhode Island. Recent events such as Tropical Storm Irene, Super Storm Sandy, severe winter storms (2013 & 2015), and even the recent severe flooding during the summer of 2022 (i.e., I-95 closure) have reinforced this urgency and compelled leading communities like the Town of Coventry to proactively collaborate on planning and mitigating risks. Ultimately, this type of leadership is to be commended because it will reduce the vulnerability and reinforce the strengths of people, infrastructure, and ecosystems and serve as a model for other communities in Rhode Island, New England, and the nation.

In the winter of 2023, the Town of Coventry embarked on certification within the state of Rhode Island's Municipal Resilience Program (MRP). As a prerequisite to certification, the Rhode Island Infrastructure Bank (RIIB) and The Nature Conservancy (TNC) provided the Town with a community-driven process to assess current hazard and climate change impacts and to surface projects, plans, and policies for improved resilience. In May 2023, Coventry's Core Team helped organize their Community Resilience Building process and workshop facilitated by TNC in partnership with RIIB. The core directive of this effort was the engagement with and between community members to define strengths and vulnerabilities and the development of priority resilience and sustainability actions for the Town of Coventry.

The Coventry Community Resilience Building Workshop's central objectives were to:

- Define top local, natural, and climate-related hazards of concern.
- Identify existing and future strengths and vulnerabilities.
- Identify and prioritize actions for the Town.
- Identify opportunities to collaboratively advance actions to increase resilience alongside residents and organizations from across the Town and beyond.

The Town of Coventry employed an "anywhere at any scale", community-driven process called Community Resilience Building (CRB) (www.CommunityResilienceBuilding.org). The CRB's tools, reports, other relevant planning documents, and local maps were integrated into the workshop process to provide both decision-support and visualization around shared issues and existing priorities across Coventry. The Coventry Comprehensive Community Plan (2022) and the Coventry Hazard Mitigation Plan Update (2018) were particularly instructive as references. Using the CRB process - rich with information, experience, and dialogue - the participants produced the findings presented in this summary report. This includes an overview of the top hazards, current concerns and challenges, existing strengths, and proposed actions to improve Coventry's resilience to hazards and climate change today, and in the future.

The summary of findings transcribed in this report, like any that concern the evolving nature of risk assessment and associated action, is proffered for comments, corrections and updates from workshop attendees and other stakeholders alike. The leadership displayed by the Town of Coventry on community resilience building will benefit from the continuous participation of all those concerned.

Summary of Findings

Top Hazards and Vulnerable Areas for the Community

Prior to the CRB Workshop, the Coventry Core Team identified the top hazards for the Town. The hazards of greatest concern included flooding from rivers and streams, Nor'easters and blizzards during fall, winter, and spring months, and high wind events. Additional hazards highlighted by participants during the CRB Workshop included hurricanes and tropical storms, as well as heat waves, particularly during the late summer months. These hazards have direct and increasing impacts on the infrastructure, environment, and residents of and visitors to Coventry. These effects are seen in residential homes, natural areas (wetlands, rivers, forests, preserves, parks), roads, bridges, dams, businesses, transportation systems, municipal facilities, recreational fields, historic building, churches, social support services, and other critical infrastructure and community assets within Coventry.

Current Concerns and Challenges Presented by Hazards

The Town of Coventry has several concerns and faces multiple challenges related to the impacts of natural hazards and climate change. In recent years, Coventry has experienced a series of highly disruptive and damaging weather events including severe flooding (March 2010), Tropical Storm Irene (August 2011), Superstorm Sandy (October 2012), Nor'easter Nemo (February 2013), and Blizzard Juno (January 2015), severe drought (2016), and significant blizzard (2022). Impacts from Irene and Sandy included coastal and widespread inland flooding along with tree damage and associated power outages. The winter storms Nemo and Juno dropped 2-3 feet of snow with 2-3 inches per hour of accumulation at their peak. The magnitude and intensity of these events and others across Rhode Island have increased awareness of natural hazards and climate change, while motivating communities such as Coventry to proactively improve their resilience.

As is predicted with climate change, the impacts from these severe weather events have been varied and diverse. In Coventry this has included riverine flooding of critical infrastructure, roads, bridges, and low-lying areas; localized flooding from stormwater runoff during intense storms and heavy precipitation events; and property damage and utility outages (lasting several days or more) from wind, snow, and ice. Longer periods of elevated heat, particularly in July and August, have raised concerns about vulnerable segments of the population, including elderly and disabled residents who are homebound, residents living in older housing stock without air conditioning, lower-income residents who may have difficulty with utility bills for temperature control in their homes, and the residents living in close proximity to areas with increased potential for wildfires. The combination of these issues presents a challenge to preparedness and mitigation priorities and requires comprehensive, yet locally specific actions in Coventry.

The workshop participants were generally in agreement that Coventry is experiencing more intense and frequent storm events and heat waves. Additionally, there was a general concern about the increasing challenges of being prepared for the worst-case scenarios (e.g., major thunderstorms and hurricanes (Cat-3 or above)) particularly in the late summer and in the fall/winter months when more intense storms coincide with colder weather (i.e., Nor'easters, blizzards). The impact of the recent COVID-19 pandemic was raised by workshop participants as well.

Specific Categories of Concerns and Challenges

As in any community, Coventry is not uniformly vulnerable to hazards and climate change. Certain locations, assets, and populations have been and will be affected to a greater degree than others. Workshop participants identified the following items as their community's key areas of concern and challenges across several broad categories.

Roads & Road Networks, Bridges, & Dams:

- Recognized need for a comprehensive review of all roads, bridges, and culverts but not enough funds to conduct review and resulting identification of maintenance needs ("deferred maintenance default").
- An estimated $52 million is needed to bring the roads and road network up to current standards as well as an estimated $9 million for sidewalk installation and needed repairs.
- Safety of street in Coventry for children, families, and other pedestrians is a concern due to less than adequate traffic control and maintenance of streets. No plan in place to increase the use of roadways and streets for alternate forms of mobility such as walking and biking.
- Impaired and failing condition of the Johnson Boulevard culvert which has fallen into West Lake with pipes that are cracked in close proximity to the Water Authority Pump Stations. These culverts also convey water into Tiogue Lake.
- Lack of a plan that clearly identifies the condition and ownership of dams across Coventry.
- Ongoing and increasing vulnerability of downstream people and property from high-hazard dams and other privately-owned dams that may not be getting the necessary and required maintenance to prevent catastrophic failures.
- Several dams located on private property that are currently in foreclosure. Need to identify whose responsibility it is to address maintenance issues at these dams.
- There are dams within the municipality that need repairs and routine maintenance but are not entirely under control of the town of Coventry.
- Antiquated gatehouse apparatus at Lake Tiogue that dates to the 1890s and requires skilled operator to manage open and closing. Capital improvement of this gatehouse has been in the municipal budget for eight years with preliminary approval by the Town Council each year.

Specific Categories of Concerns and Challenges (cont'd)

Wastewater Treatment Systems, Drinking Water Supply, & Stormwater Systems:

- Sewer system has two pumping stations that need repairs. Town is currently without any redundancies in the event of pump failure.
- Less than 1,000 sewer connections in Coventry.
- Concerns that the sewer system doesn't move effluent through the system quickly enough.
- Private septic systems contributing to the impairment of water bodies in certain locations of Coventry.
- Majority of residents use private wells to supply drinking water which presents a concern during extended power outages because most households do not have back-up generators capable of running the wells.
- Limited number of treatment systems for stormwater mitigation (passive or active such as vortex style of tanks that remove oil and road waste).

Emergency Management & Preparedness:

- Rapidly aging population of residents that have limited mobility and are increasingly isolated during and after disasters.
- Ongoing flooding of residential buildings due to drainage issues during routine and major precipitation events.
- Lack of debris management facility to address the accumulation of fallen trees, limbs, lawn clippings, among other debris generated day to day and, after major storm events.
- Limited capacity for town-wide communications coupled with low participation in townhall meetings. Identified need for new communication methods.

Municipal Functions, Operations, & Growth:

- Challenges recruiting and securing new staff in rural communities like Coventry given the remote nature and the current job market that provides potential employees with many other options.
- Over forty percent of the municipal truck fleet is twenty years old or more.
- Long list of infrastructure needs that is maintained and updated by Department of Public Works, but with limited to no funding to proactively complete needed repairs or replacements.

Specific Categories of Concerns and Challenges (cont'd)

- Public beach at Lake Tiogue does not have funding for lifeguards or gate operator resulting in the beach being used despite closure and almost exclusively by non-residents.
- General reluctance to look for new solutions, ideas, and plans to solve long-term issues in Coventry ("outdated thinking").
- Recurring funding and budgetary challenges can prevent the implementation of more permanent solutions to problems in Coventry.
- Limited staff capacity to identify and write grants to secure additional funding to complete resilience-related projects.
- Lack of engagement with and subsequent participation from town residents on municipal issues of importance.
- Lake associations are strong individually (in terms of local influence) but are not strong collectively.
- Lack of clarity around how to embrace and celebrate the Town's history and historic sites, including the fact that the Town was once a collection of separate villages.
- Limited capacity or ability of local groups - like lake associations - to connect with and coordinate activities with state entities, such as Rhode Island's Department of Environmental Management.
- Town doesn't have a system or way to leverage across all municipal Departments to help further improve the environment in Coventry due to lack of coordination on common objectives and mandates.

Watersheds, Wetlands, Rivers, Open Space, Forests, & Trees:

- Ongoing concerns about dead and standing trees along roadways and proximity to buildings and structures.
- Lack of funding to properly protect waterbodies and associated beaches (Briar Point Beach Area) from the impacts of declining water quality, including unsafe bacteria levels.
- Water quality impacts to lakes and ponds in Coventry due to polluted stormwater runoff flowing across roads and parking lots.

Current Strengths and Assets

Just as certain locations, facilities, and populations in Coventry stand out as particularly vulnerable to the effects of hazards and climate change, other features are notable assets for Coventry's resilience building. Workshop participants identified the following items as their community's key strengths and expressed interest in centering them as the core of future resilience-building actions.

- Clearly, the responsive and committed engagement exhibited by leadership, staff, and residents is a very appreciated strength within and across Coventry. Ongoing collaboration between municipal staff, committee/commission volunteers, business owners, land trusts, faith-based organizations, non-government organizations, adjoining municipalities, and various state-level organizations, among others, on priorities identified herein will help advance comprehensive, cost-effective, community resilience building actions.
- Biggest asset reported was the residents who are dedicated to improving the municipality because multiple generations of many families have lived in Coventry resulting in strong collaboration amongst groups and across departments ("You want where you live to be the best place it can be.")
- New leadership and experience including the Office of Town Manager and various departments such as Engineering.
- Emergency Management Agency strives to build and sustain partnerships and relationships with various other departments, state entities, and organizations to ensure preparedness for hazards, and which assist with response and recovery efforts post storm.
- Recently hired a grant writer to help identify, write, secure, and manage grants that will fund projects that will make Coventry more resilience and sustainable.
- Recent update of the Coventry Comprehensive Community Plan where many resilience issues have been identified along with associated actions to reduce vulnerabilities in Town. Standing Advisory Committee for the Comprehensive Plan represents the collaborative nature of processes utilized by the community of Coventry and commitment to helping ensure the Town realizes a shared vision ("Help us envision a bright future for Coventry").

Current Strengths and Assets (cont'd)

- Chapter (#10) in the Coventry Comprehensive Community Plan is dedicated to natural hazards and climate change, which includes a review and mention of summary impacts and actions provided by the Coventry Hazard Mitigation Plan (2018).
- Three lake associations in Coventry all have a shared vision for the largest freshwater water resources.
- Coventry has an extensive network of well-utilized and ecologically significant open spaces and preserves, including the Coventry Green Way and Merrill Whipple Woods.
- Natural environment is viewed as a key strength in Coventry.
- Ample availability of freshwater resources with major river running through Coventry.
- Strong support from Department of Public Works and municipal leadership regarding Lake Tiogue with water quality testing in place by the URI Watershed Watch.
- Coventry provides more comprehensive "in-house" services as compared to other comparable municipalities including snow plowing, street sweeping, catch basin cleaning, among other services.
- Currently optimistic that the residential section on the eastern end of Coventry will eventually be part of an expanded sewer system currently confined to the commercial areas.
- Active Conservation Commission that works to help ensure development of properties is done in an environmentally responsible and sustainable manner.
- Strong, well connected municipal team in place currently with a solid consultant on board to manage the Sewer Facilities Plan, which has included a survey to the community that had high response rates.

Credit: South County Tourism Council

Credit: Town of Coventry

Credit: Coventry Telegraph

Recommendations to Improve Resilience

A common theme among workshop participants was the need to continue community-based planning efforts focused on developing adaptive measures to reduce Coventry's vulnerability to extreme weather, climate change and other common concerns raised. To that end, the workshop participants helped to identify several priority topics requiring more immediate and/or ongoing attention including:

- **Long-term vision and growth** (i.e. responsible/sustainable growth, volunteerism, conservation & recreation, economic development, education, funding, water quality);
- **Infrastructure improvements** (i.e. road/bridge/dams, stormwater management systems, green stormwater infrastructure, sanitary sewer system);
- **Quality of life improvements** (i.e. parks and recreation, open space & access, sustainability, health & safety, economic prosperity, water quality);
- **Emergency management** (i.e. communications, outreach, education, continuation of services, evacuation, vulnerable populations, alert systems).

In direct response, the Community Resilience Building workshop participants developed the following actions and identified, but did not rank, them as priority or as additional actions. Mitigation actions from the Coventry Comprehensive Community Plan (2022) and Coventry Hazard Mitigation Plan (2018) are provided in Appendix A for cross reference with actions developed during the CRB workshop presented below. Maps provided during the CRB Workshop gathered from the Coventry Comprehensive Community Plan and the Hazard Mitigation Plan are provided in Appendix B.

Priority Actions

Capacity Building

- Work to ensure dedicated funding is made available on an annual basis to conduct necessary improvements and upgrades of municipal infrastructure, including stormwater management systems, installation of green stormwater infrastructure, fleet updates, culvert replacement, and public building upgrades.

Priority Actions (cont'd)

- Create a Sewer Department to manage existing and future expansion of the sewer system per the 20-year Sewer Facilities Plan which will involve increasing the number of users and sewer use fees.

<u>Capital Projects</u>

- Continue to advance projects identified within the Capital Improvement Plan and the American Rescue Plan Act request for Coventry.

- Follow through on completing the Tiogue Lake gatehouse improvement project. Project is currently listed in the 2024 Capital Improvement Plan.

- Fix the two sewer pump stations to help increase rate and volume capacity on the sewer system. Ensure sewer pump stations are upgraded prior to installing any additional sewer lines.

- Complete the Upper Dam Pond project, which is estimated to cost approximately $800K.

- Conduct culvert replacement and installation project on Johnson Boulevard. Permits and plans for the project have been completed, so the project is ready to move forward once funding is secured.

- Secure generators for most of the municipally owned facilities.

- Replace antiquated cesspools associated with lake homes (were once seasonal and are now full-time) with septic systems or potentially sewer systems. Prioritize the southwest end of Lake Tiogue.

- Extend and connect sewer system to the High School and explore further expansion to the neighborhoods north of the High School on Reservoir Road.

Priority Actions (cont'd)

Plans/Preparedness/Studies/Outreach

- Continue to encourage the State to incentivize multi-municipal, regional approaches to planning for and managing larger-scale impacts of climate change and extreme weather (i.e., "regional resiliency districts").

- Update the Coventry Hazard Mitigation Plan on a routine basis and ensure that all priority projects are listed and described to create funding opportunities via the Federal Emergency Management Agency.

- Explore mechanisms to track impervious surfaces and identify green stormwater infrastructure projects to help reduce localized flooding issues.

- Create a curriculum for educating the public in Coventry about climate change through examining current impacts on the community. Share with residents what steps they can take to improve resilience of their community.

- Create a comprehensive emergency action and response plan for dams across Coventry to help minimize impacts to people and property in the event of catastrophic failure(s).

Additional Actions

Capacity Building

- Examine Community Resilience Building Summary of Findings from neighboring municipalities to find areas of common interest, shared value, and capacity availability to begin creating regional partnerships and networks to collaboratively tackle issues.

Capital Projects

- Clearly identify condition and ownership of the twenty-two dams in Coventry and look to remove unnecessary and/or problematic dams on a regular and ongoing basis.

- Update and repair the on-site waste treatment system at the High School.

- Restore and further protect Coventry's water resources and quality by regulating the size of landscapes that require irrigation, require the use of conservation plumbing, require vegetative buffer zones, among other related activities.

- Look to acquire back-up generators for all critical municipal facilities in Town.

Plans/Preparedness/Studies/Outreach

- Cross reference actions generated during the Coventry Community Resilience Building workshop with recently completed Comprehensive Community Plan (2022).

- Look to update the Coventry Hazard Mitigation Plan and ensure that appropriate actions identified in the Comprehensive Community Plan (2023) and in the Community Resilience Building Summary of Findings are considered and included where appropriate in the update.

- Work towards more restoration and protection of freshwater resources in Coventry through stormwater regulations.

- Prevent encroachment on land features that naturally help to increase the resilience of Coventry.

Additional Actions (cont'd)

- Develop a tree inventory and maintenance program in Coventry.

- Work with Rhode Island Department of Transportation employees to ensure the state maintains both the state roads as well as the adjoining state sidewalks, versus leaving the sidewalk maintenance to the municipality.

- Continue to work towards keeping water quality at acceptable levels in Lake Tiogue despite ongoing challenges with development issues around the Lake. These include aging cesspools and septic system as well as overuse of fertilizers and pesticides at private residents in proximity to the Lake.

- Explore ways to reduce and/or slow down automobile traffic on Arnold Avenue to help increase safety to residents.

- Identify and implement processes that will help to retain municipal employees for the long term.

- Encourage commercial and industrial buildings to incorporate more renewable energy generation (such as solar and wind) to help shift and attract more environmentally conscious commercial and industrial companies and development in Coventry.

- Alter building codes and zoning to help encourage and support low-impact development and green building practices.

- Expand environmental stewardship certification program for business.

- Develop a drought coordination and mitigation plan, including providing a way for residents to monitor and share condition information. This could help generate a better understanding of the geographic extent of drought over time.

- Conduct an in-depth vulnerability and strengths analysis of all municipal buildings and facilities in Coventry.

Additional Actions (cont'd)

- Condition planning board approvals on specifying that new landscape planting will require the use of native species and that the planting take place in the spring.

- Identify, monitor, and seek to correct water quality issues in lakes and ponds caused by stormwater runoff.

Credit: LoopNet

Credit: Town of Coventry

Credit: YouTube

CRB Workshop Participants: Department/Organization

Town of Coventry – Office of the Town Council
Town of Coventry – Office of the Town Manager
Town of Coventry – Department of Public Works
Town of Coventry – Human Services Department
Town of Coventry – Police Department
Town of Coventry – Engineering Department
Town of Coventry – Historic Preservation Commission
Town of Coventry – Conservation Commission
Town of Coventry – Comprehensive Plan Advisory Committee
Town of Coventry – Housing Authority
Upper Dam Pond Conservation Association

Coventry Core Project Team

Maria Broadbent – Assistant Town Manager – Town of Coventry

Online CRB Workshop Facilitation Team

Rhode Island Infrastructure Bank - Kim Korioth (MRP Lead)
The Nature Conservancy - Adam Whelchel, Ph.D. (Lead Facilitator)
The Nature Conservancy – Sue AnderBois (Small Group Facilitator)
State of Rhode Island – DEM – Jennifer West (Small Group Facilitator)
The Nature Conservancy - Kai Lo Muscio (MRP Coordinator/IT Manager/Scribe)
The Nature Conservancy – Rafeed Hussain (Scribe)

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Appendix A

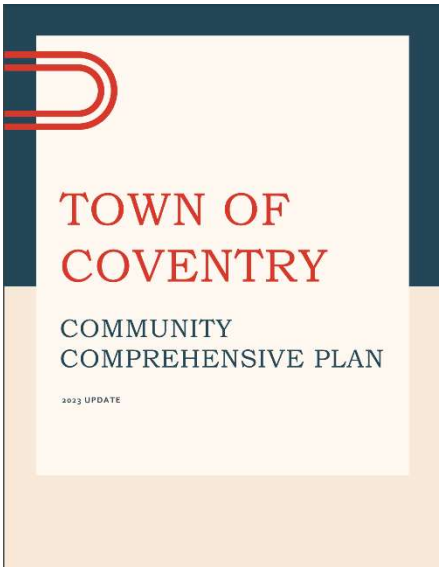
Town of Coventry

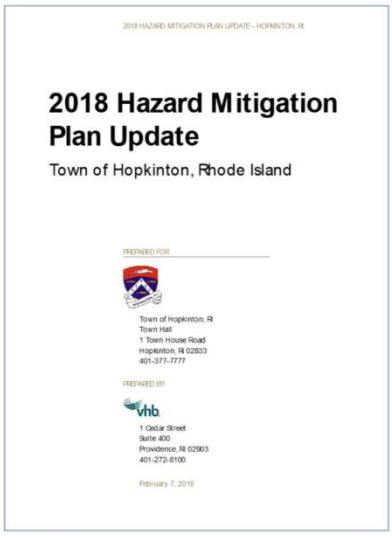
Comprehensive Community Plan (2022)

Natural Hazards and Climate Change (Section 10)

Hazard Mitigation Plan Update (2018)

Mitigation Actions (Section 6)





Natural Hazards and Climate Change | Goal 1

Coventry's plans and land use regulations guide development and maintenance in a manner that will prevent encroachment on floodways, freshwater wetlands, and other natural and man-made features that provide protection from storms, flooding, and the impacts of climate change.

POLICIES FOR DECISION MAKING

1. Ensure consistency between the Hazard Mitigation Plan, the Comprehensive Plan, and municipal land use regulations.
2. Design all new public buildings or improvements to public properties to include stormwater management best practices and reduce overall impervious surface.
3. Keep all plans related to mitigation measures up-to-date, and ensure plans take action to protect the most vulnerable populations and places within Coventry.

IMPLEMENTATION ACTIONS

1. Update the Town's Hazard Mitigation Plan – The first step to ensuring Coventry is prepared for a natural hazard event it through the mandatory update of its hazard mitigation plan, last updated in 2018. This plan will provide more in-depth strategies for the mitigation of natural hazards after a thorough review of the Town's capabilities and most vulnerable areas.
2. Develop a tree inventory and maintenance program – Diseased and damaged trees can be impacted by or exacerbate certain natural hazard events, so maintaining a program to monitor and remove at-risk trees could decrease overall damage in a natural hazard event.
3. Develop a Drought Coordination and Mitigation plan to protect water resources in town as climate change impacts the frequency and severity of drought events
4. Review land uses in exposed areas to determine whether restrictions are necessary to prevent or lessen potential losses during large storm events.
5. Explore mechanisms to track impermeable surfaces to better manage stormwater and plan for the use of stormwater best management practices in future developments.

Natural Hazards and Climate Change | Goal 2

The town is proactive in preparing for and reducing vulnerability to natural and man-made hazards and climate change.

POLICIES FOR DECISION MAKING

1. Require municipal departments to incorporate climate change in all long-range planning and critical public infrastructure projects.
2. Educate and engage the public about the impacts of climate change and the concept of community resilience.

IMPLEMENTATION ACTIONS

I. Complete in-depth vulnerability analysis of municipal infrastructure, buildings, and other critical facilities to determine priorities for adaptation and determine which areas of development are most at risk of damage during a natural hazard event.

II. Ensure the approval of Dam Emergency Action Plans (EAP) by Rhode Island Emergency Management Agency (RIEMA) - EAPs must be recorded and approved by RIEMA for the most effective response in case of a dam emergency.

III. Form a Town committee or curriculum to teach the public about climate change through examining the extent of climate change impacts on Coventry and share how the town and residents can prepare for future resilience.

Goal #	Action #	Implementation Actions	Responsibility: Town Council	Responsibility: Planning Board	Responsibility: Department	Time Frame: Priority	Time Frame: Intermediate	Time Frame: Long-Term	Cost	Label	Check-In Status
Natural Hazards and Climate Change											
NHC1	NHC-1	Update the Town's Hazard Mitigation Plan – The first step to ensuring Coventry is prepared for a natural hazard event it through the mandatory update of its hazard mitigation plan, last updated in 2018. This plan will provide more in-depth strategies for the mitigation of natural hazards after a thorough review of the Town's capabilities and most vulnerable areas.			Coventry Emergency Management	•					
NHC1	NHC-2	Develop a tree inventory and maintenance program – Diseased and damaged trees can be impacted by or exacerbate certain natural hazard events, so maintaining a program to monitor and remove at-risk trees could decrease overall damage in a natural hazard event.			Department of Parks and Recreation and Town Engineer		•				
NHC1	NHC-3	Develop a Drought Coordination and Mitigation plan to protect water resources in town as climate change impacts the frequency and severity of drought events			Coventry Emergency Management and the Kent County Water Authority		•			WR	
NHC1	NHC-4	Review land uses in exposed areas to determine whether further development restrictions are necessary to prevent or lessen potential flood losses during large storm events.			Coventry Emergency Management	•				SW	
NHC1	NHC-5	Explore mechanisms to track impermeable surfaces to better manage stormwater and plan for the use of stormwater best management practices (BMPs) in future developments.			DPW and Town Engineer	•				SW	
NHC2	NHC-6	Complete in-depth vulnerability analysis of municipal infrastructure, buildings, and other critical facilities to determine priorities for adaptation and determine which areas of development are most at risk of damage during a natural hazard event.			Planning and Zoning Departments and Coventry Housing Authority		•			AM	
NHC2	NHC-7	Ensure the approval of Dam Emergency Action Plans by RIEMA - EAPs must be recorded and approved by RIEMA for the most effective response in case of a dam emergency.			Coventry Emergency Management	•					
NHC2	NHC-8	Form a Town committee or curriculum to teach the public about climate change through examining the extent of climate change impacts on Coventry and share how the town and residents can prepare for future resilience.			Coventry Emergency Management and Conservation Commission			•		SC	

Timeframe
Short-Term = Complete in < 2 years
Intermediate = complete in < 5 years
Long-Term = Complete in < 10 years

AM: Asset Management
SC: School Curriculum
SM: Stormwater Management
WR: Water Resources

Flood Prone Drainage Systems

Through this planning process, the Committee identified two types of street flooding issues. One is nuisance flooding in which streets are temporarily flooded during a heavy rain event but then quickly drain. The Committee has decided that educating residents and drivers about these hazards is the best way to protect life and property. The second type of street flooding is when the water does not drain quickly, indicating an inadequate drainage system. The following proposed actions address improvements to these areas that could benefit from structural enhancements.

- **Action 1** – Install larger culverts at bridge trestle at Main St. (Between Route 116/Knotty Oak Rd. and Route 33/Sandy Bottom Road).

  Mitigation Action Type: Property Protection and Structural Projects
  Priority: Low
  Lead: RIDOT
  Support: Coventry DPW
  Financing Options: FEMA Pre-Disaster Mitigation, FEMA Flood Mitigation Assistance, RI DEM, RIDOT
  Cost Estimate: $500,000
  Time Frame: Long Term
  Benefit: Reduce street flooding at the corner of Sandy Bottom Road and Main Street during a heavy rain event.

- **Action 2** – Install additional culverts along Maple Valley Road

  Mitigation Action Type: Property Protection and Structural Projects
  Priority: Low
  Lead: Coventry DPW
  Support: RIDOT
  Financing Options: FEMA Pre-Disaster Mitigation, FEMA Flood Mitigation Assistance, RI DEM, RIDOT
  Cost Estimate: $500,000
  Time Frame: Medium Term
  Benefit: Reduce street flooding along Maple Valley road during a heavy rain event

- **Action 3** – Improve drainage with larger collection system along Knotty Oak Road/Route 116. Repaved 2015 but drainage did not improve. Area slow to drain during the floods in 2010.

  Mitigation Action Type: Property Protection and Structural Projects
  Priority: Low
  Lead: RIDOT
  Support: Coventry DPW
  Financing Options: FEMA Pre-Disaster Mitigation, FEMA Flood Mitigation Assistance, RI DEM, RIDOT
  Cost Estimate: Unknown. $500,000
  Time Frame: Long Term
  Benefit: Reduce street flooding at Knotty Oak during a heavy rain event.

- **Action 8 (Step 1)** – Perform an engineering study for Tiogue Avenue (state owned) from Hopkins Hill Road to Jefferson Drive.

  Mitigation Action Type: Planning
  Priority: Low
  Lead: RIDOT
  Support: Coventry DPW
  Financing Options: Coventry DPW budget
  Cost Estimate: $45,000
  Time Frame: Medium Term
  Benefit: To better inform drainage infrastructure improvements

- **Action 8 (Step 2)** – Install a larger drainage pipe along Tiogue Avenue (state owned) from Hopkins Hill Road to Jefferson Drive.

  Mitigation Action Type: Property Protection and Structural Project
  Priority: Low
  Lead: RIDOT
  Support: Coventry DPW
  Financing Options: RIDOT
  Cost Estimate: $150,000 (depending on the results of the engineering study)
  Time Frame: Long Term
  Benefit: Reduce street flooding at Saint John and Paul's Church and Jiffy Lube during a heavy rain event

- **Action 9** – Update Zoning Ordinance and Subdivision & Land Development Regulations to reflect prohibition of land development in SFHA.

  Mitigation Action Type: Prevention and Natural resource protection
  Priority: Low
  Lead: Coventry Zoning Department
  Support: Coventry Planning Department
  Financing Options: Coventry Zoning budget
  Cost Estimate: staff time
  Time Frame: Medium Term
  Benefit: Consistency, encouraging development outside of the more hazardous floodway.

Water

During extended drought conditions, the Town is most concerned about the fresh water wells used by most residents, as well as water available for fire suppression.

- **Action 10** – Add 4 more dry hydrants in the rural areas of town.

  Mitigation Action Type: Property Protection and Structural Project
  Priority: Low
  Lead: Coventry Fire Department Chief Brown
  Support: RIDEM
  Financing Options: RIDEM dry hydrant grants
  Cost Estimate: $2,000 to $6,000 per location
  Time Frame: Medium Term

Electrical Facilities

The electrical distribution substation at St. Vincent DePaul Street and Washington Street floods. The site is located less than 400 feet from the South Branch of the Pawtuxet River (elevation). Temporary flooding has not caused any disruption in service. The site and equipment is owned by Narragansett Electric.

Dams

The Town of Coventry is currently undergoing efforts to develop dam Emergency Action Plans (EAPs) as well as regular inspections. If dam conditions change or if the natural or built environments change, the Committee may propose additional hazard mitigation actions. Coventry has no jurisdiction over the private and state-owned dams and can only suggest improvements. Prior projects have built up dam resiliency throughout the town.

- **Action 11** – Inventory the operating systems of the dams. Most have antique gates that may not effectively open if necessary.

  Mitigation Action Type: Planning
  Priority: Low
  Lead: Coventry EMA Assistant and DPW staff
  Support: none
  Financing Options: Emergency Management and DPW budget
  Cost Estimate: Staff time
  Time Frame: Short term
  Benefit: Defective gate systems could be recommended for replacement by the owner. This would lead to better protection of residents both upstream and downstream of the dam.

  As a note, private owners recently spent $100,000 to replace the antique gates at Tiogue dam. These projects are large undertakings.

Populations

The Group Homes, and Assisted Living complexes are not managed by the Town. However, the following actions are proposed to improve pre-and post-disaster communication among the owners, residents, and local responders.

- **Action 12** – Review copies of the Group Home Emergency Action Plans which should be on file with the Department of Health.

  Mitigation Action Type: Planning
  Priority: Low
  Lead: Coventry EMA Assistant and Fire Chief
  Support: None
  Financing Options: Emergency Management and Fire Department budget
  Cost Estimate: Staff time

Time Frame: Short term
Benefit: Improve ability of the first responders to assist should there be a need for a mass evacuation or other emergency.

- **Action 13** – Coordinate with RI Department of Health to encourage Summer Villa (Assisted Living) to develop an Emergency Action Plan.

  Mitigation Action Type:
  Priority: Medium
  Lead: Coventry EMA Assistant and Fire Chief
  Support: RIDOH and Coventry Human Services
  Financing Options: Emergency Management and Fire Department budget
  Cost Estimate: Staff time
  Time Frame: Short term
  Benefit: Improve ability of the first responders to assist should there be a need for a mass evacuation or other emergency. Especially since Summer Villa has no overnight staff.

Businesses

Several businesses within Coventry store hazardous materials on-site.

- **Action 14** – Review and educate local response team on the Emergency Action Plans for Boston Scientific, Suburban Propane, Rhodes Technologies, BioSci, and Pasteryak Asphalt

  Mitigation Action Type: Planning
  Priority: Low
  Lead: Coventry EMA Assistant and Fire Chief
  Support: LEPC4
  Financing Options: Emergency Management and Fire Department budget
  Cost Estimate: staff time
  Time Frame: Short term
  Benefit: Improve ability of the first responders to assist should there be a need for a mass evacuation or other emergency.

Recreation Facilities

There are over 35 local parks, fields, and access points within the town. See Appendix B.

- **Action 15** – Create a Forest Management Plan which includes an inventory and map of the natural resources on the land, objectives for the land, a defined schedule of activities that will help meet the Town/State goals while protecting the health of the forest.

  Mitigation Action Type: Natural Resource Protection
  Priority: Low
  Lead: Parks and Recreation Department
  Support: RIDEM

Financing Options: Natural Resource Conservation Service (NRCS) RI, RI DEM Division of Forest Environment, USDA Forest Service, Northeastern Area State & Private Forestry.
Cost Estimate: $25,000
Time Frame: Medium term
Benefit: Reduce the risk of widespread and dangerous forest fires.

Residents

The Committee agreed that Coventry residents could benefit from education to reduce their risk from hazards that are not an everyday occurrence.

- **Action 16**- Create an online hazards education public library which houses informational material on extreme temperatures, drought, wildfires, tornadoes, earthquakes, and lightning.

  Mitigation Action Type: Prevention
  Priority: Medium
  Lead: Coventry EMA Assistant
  Support: None
  Financing Options: Emergency Management budget
  Cost Estimate: Staff time
  Time Frame: Short term
  Benefit: Smarter citizens make smarter choices

- **Action 17**- Distribute messaging on road closures due to temporary flooding. Run a public service campaign about temporary street flooding and the danger of trying to drive through water.

  Mitigation Action Type: Prevention
  Priority: Low/Medium
  Lead: Coventry Police Department
  Support: Coventry EMA Assistant, Coventry DPW
  Financing Options: Police Department budget
  Cost Estimate: Staff time
  Time Frame: Short term
  Benefit: Smarter citizens make smarter choices

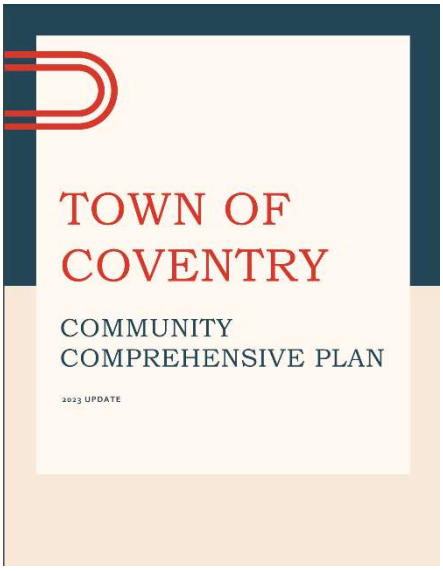
Appendix B

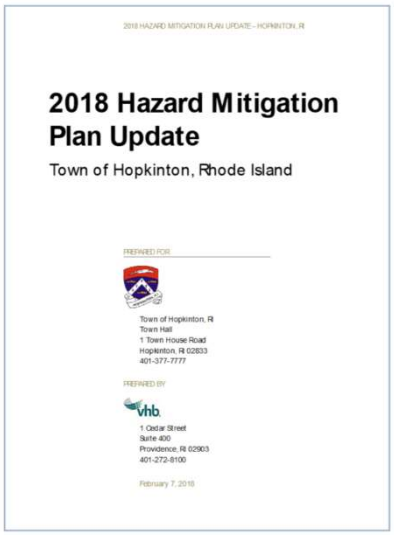
Town of Coventry

Map Resource Packet*

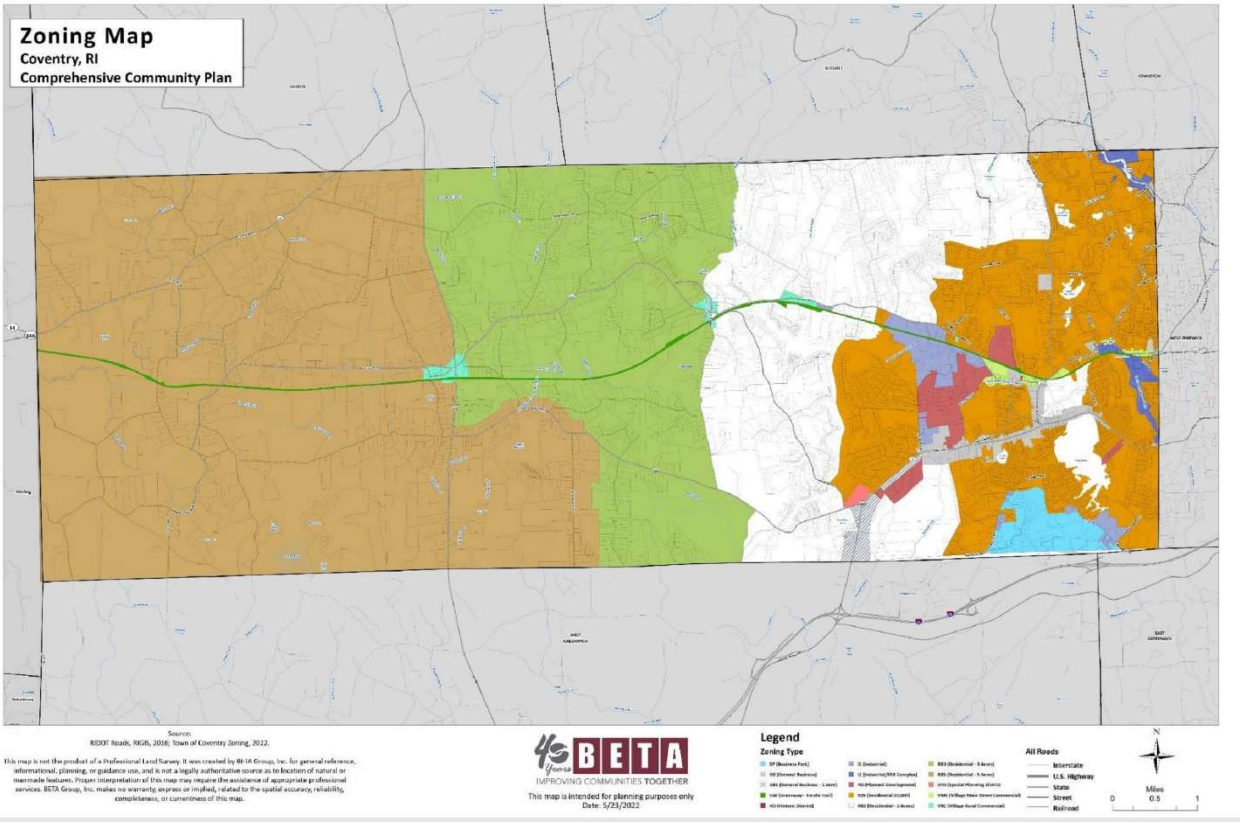
Used During

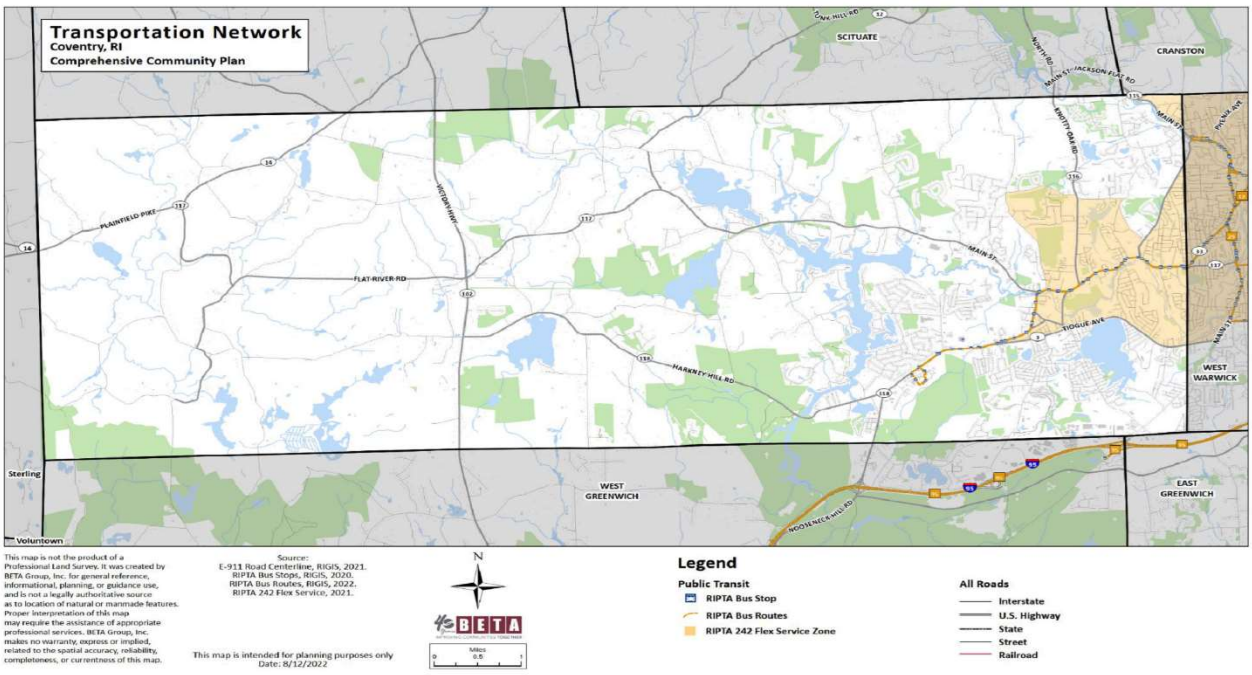
Workshop



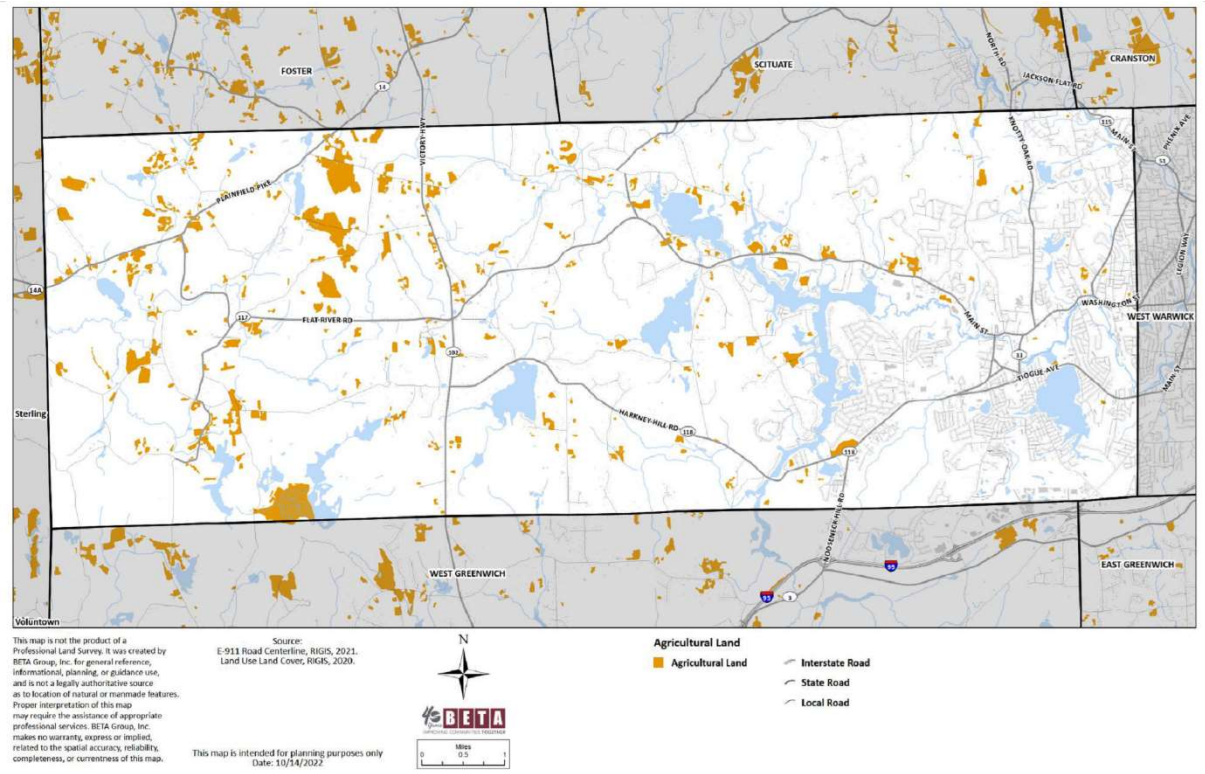


***Gathered from Coventry's Comprehensive Community Plan (2022) and Hazard Mitigation Plan (2018)**

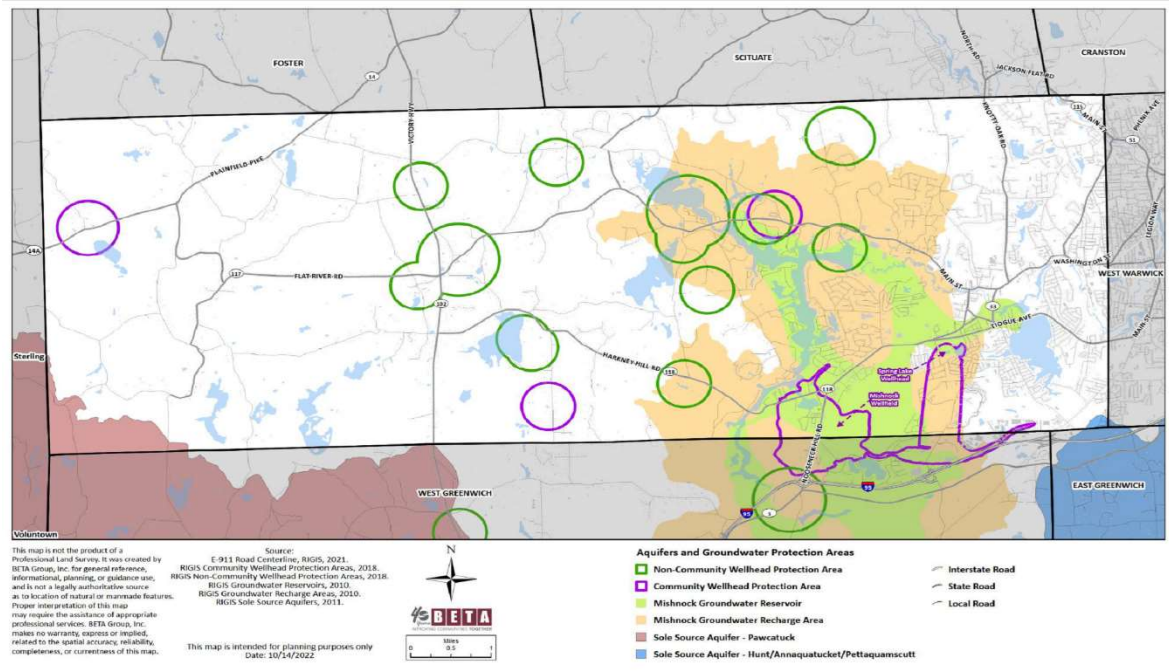




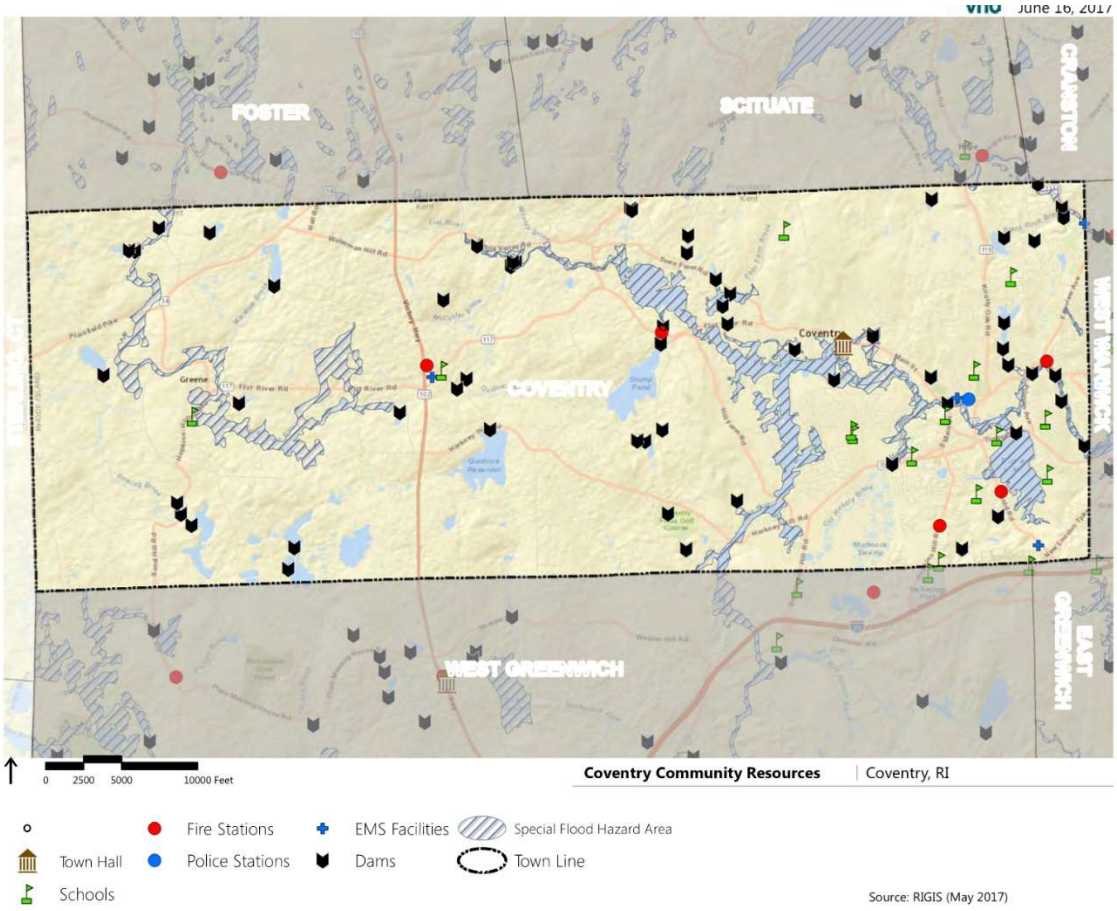
Map 1.2 Public Transportation

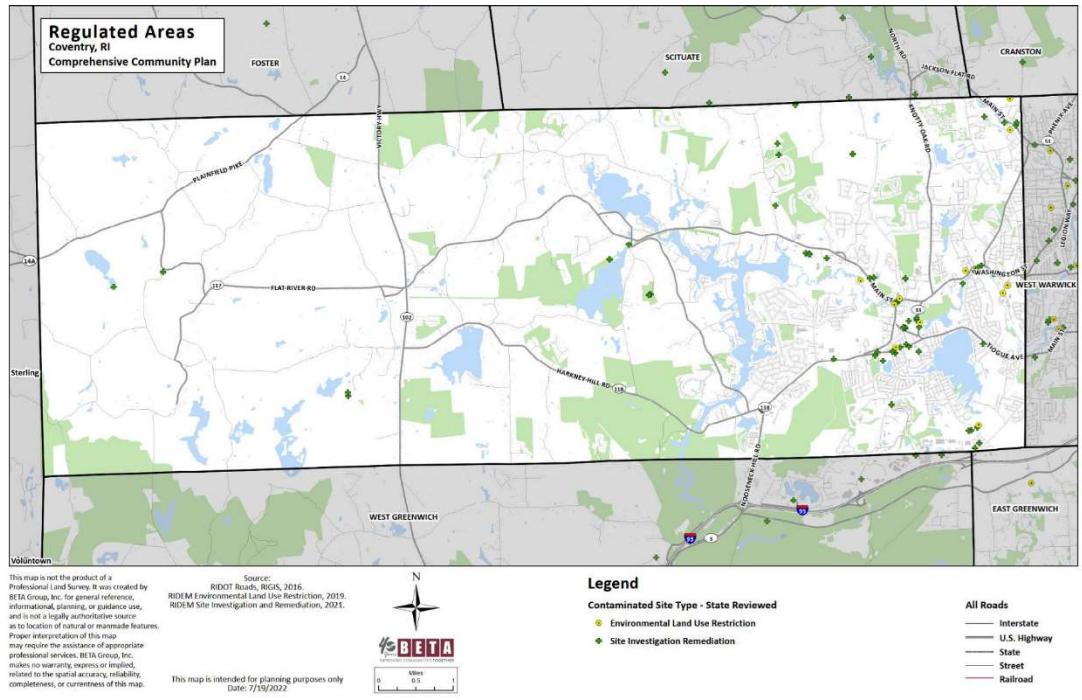


Map 5.5. Agricultural Land

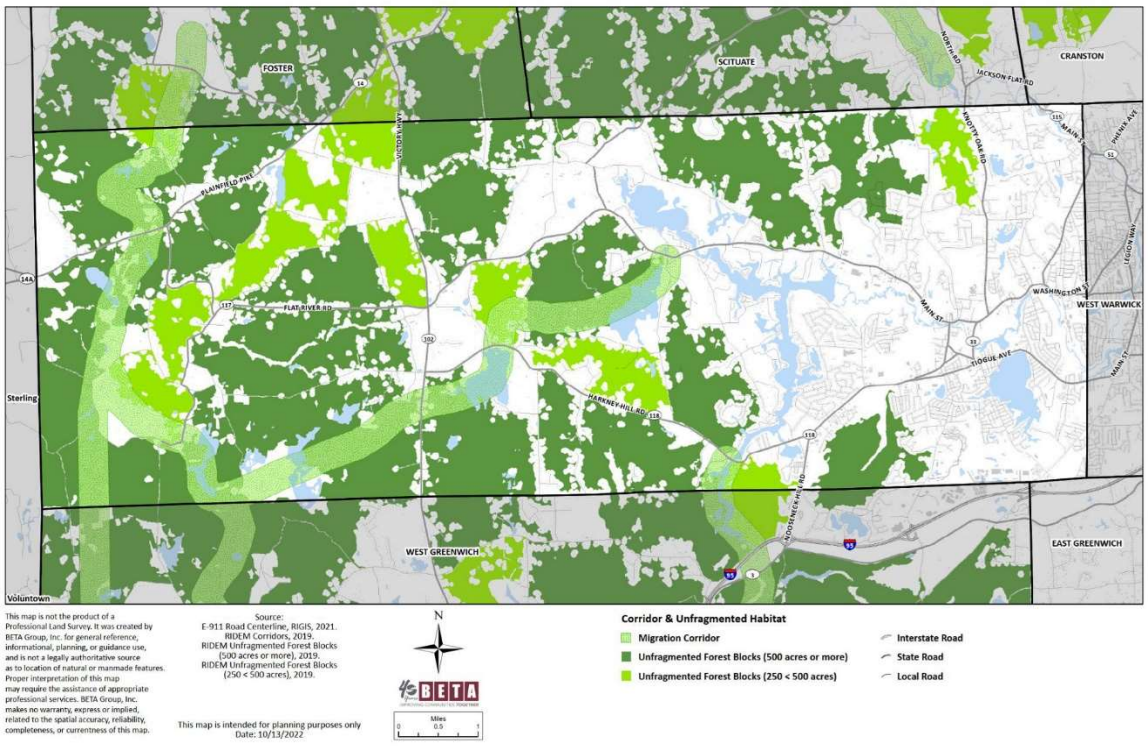


Map 5.10 Aquifers and Groundwater Protection Areas

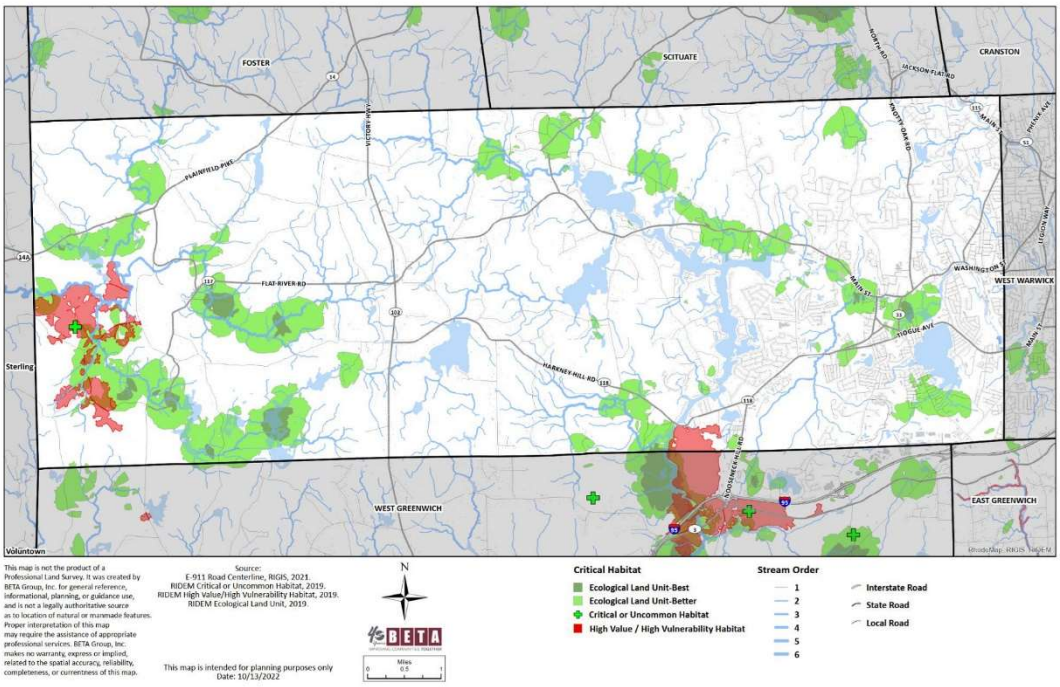




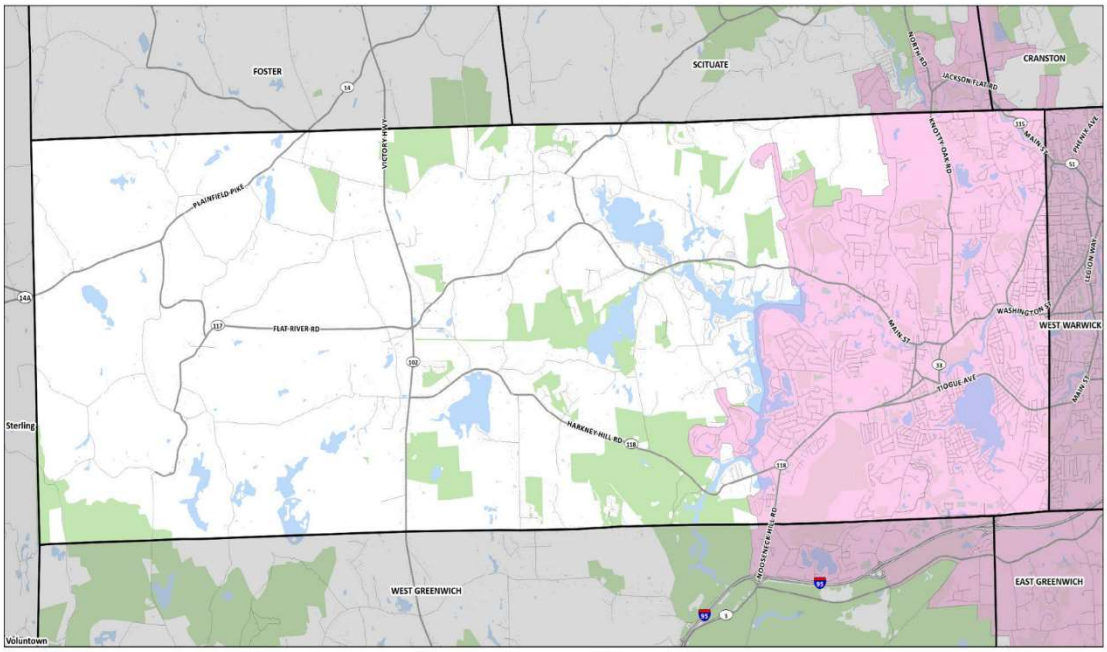
Map 9.4: State Designated Regulated Areas



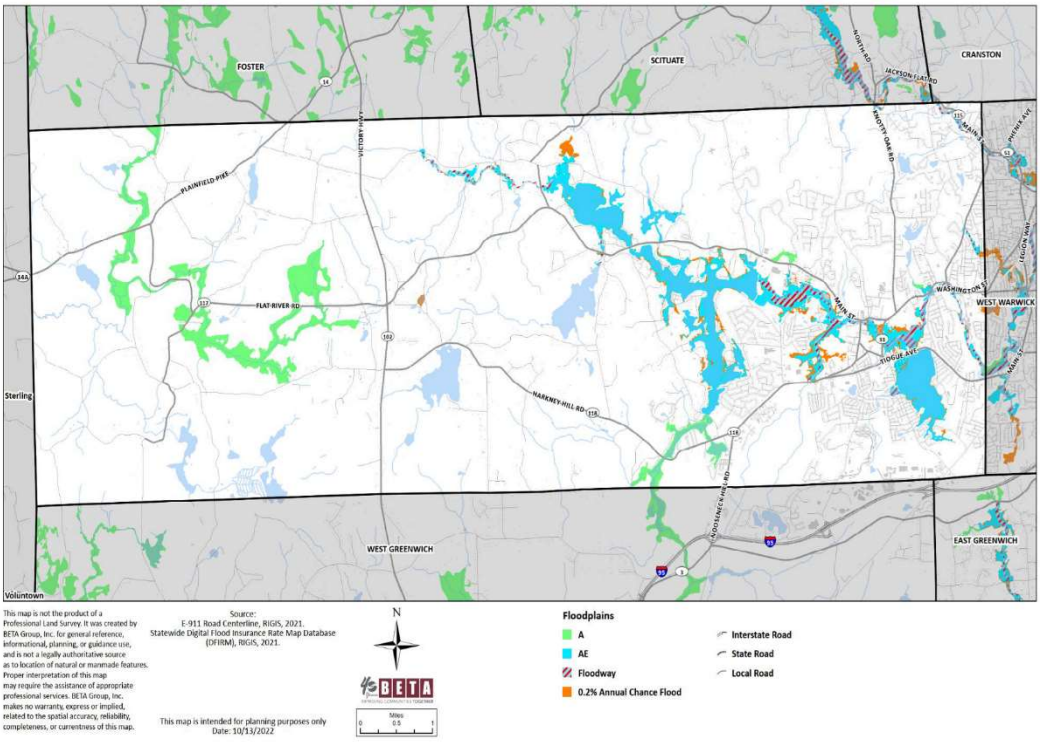
Map 5.13. Corridor and Unfragmented Habitat



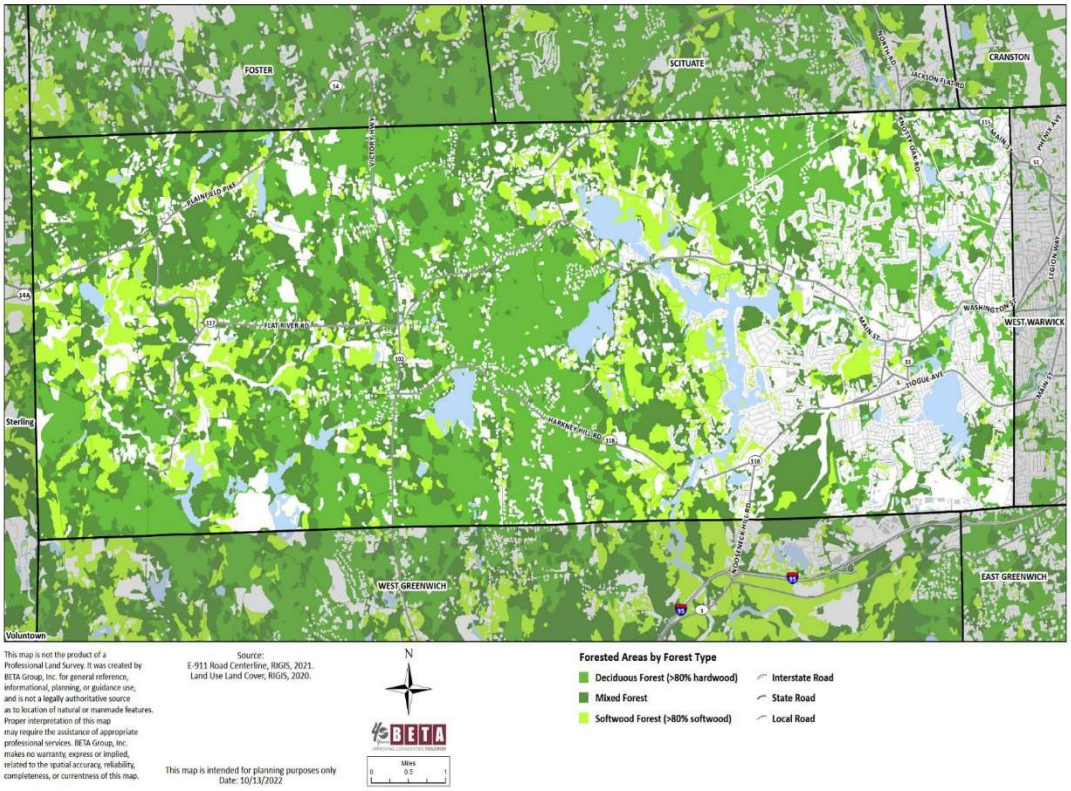
Map 5.15. Critical Habitat in Coventry



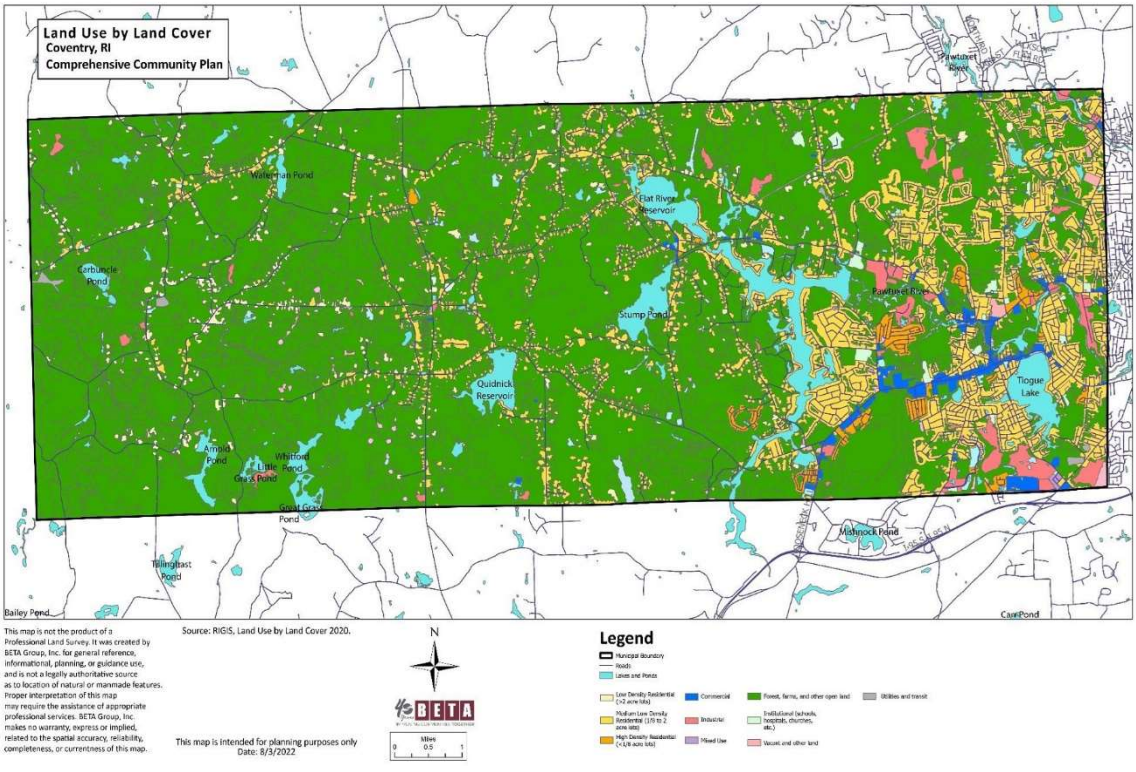
Map 10.1 Drinking Water Service Areas

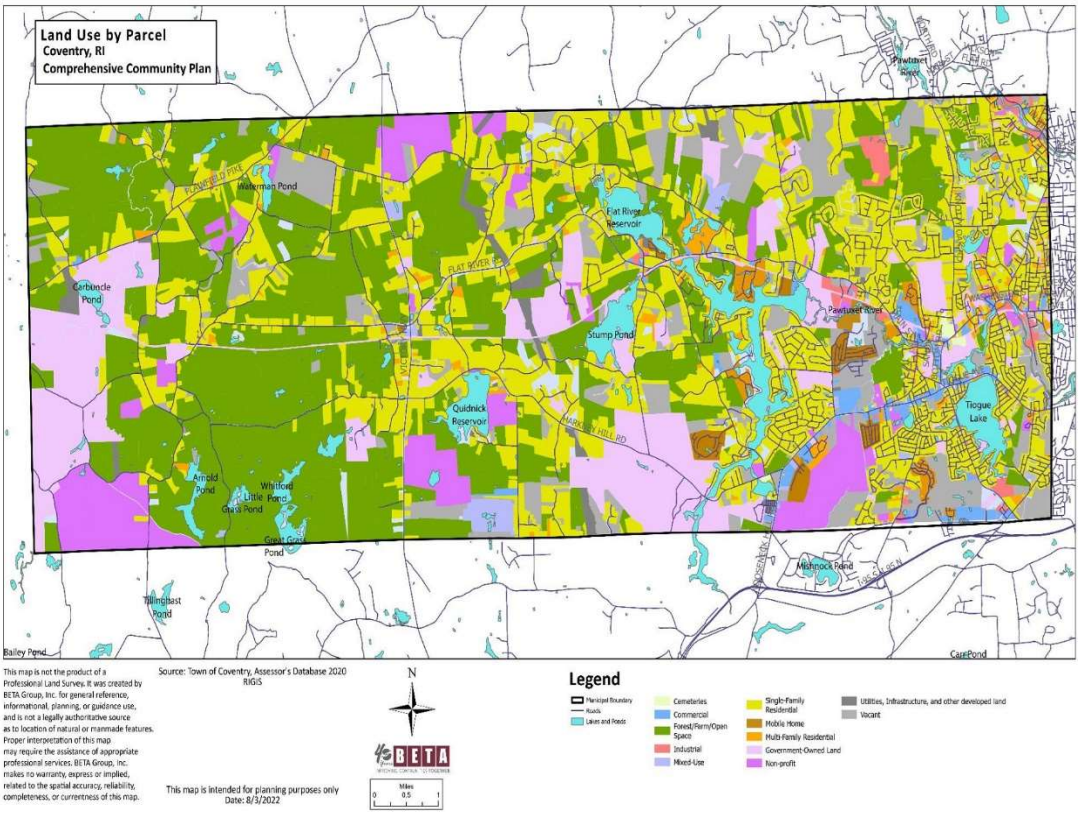


Map 12.2 Wetland and Surface Water – Floodplains in Coventry, RI



Map 5.12. Forested Areas by Forest Type




Land Use by Parcel
Coventry, RI
Comprehensive Community Plan
Waterman Pond
Flat River Reservoir
Carbuncle Pond
Stump Pond
Quidnick Reservoir
Tiogue Lake
Arnold Pond
Whitford Pond
Little Ghost Pond
Great Ghost Pond
Tillinghast Pond
Bailey Pond
Mishnock Pond
Carr Pond
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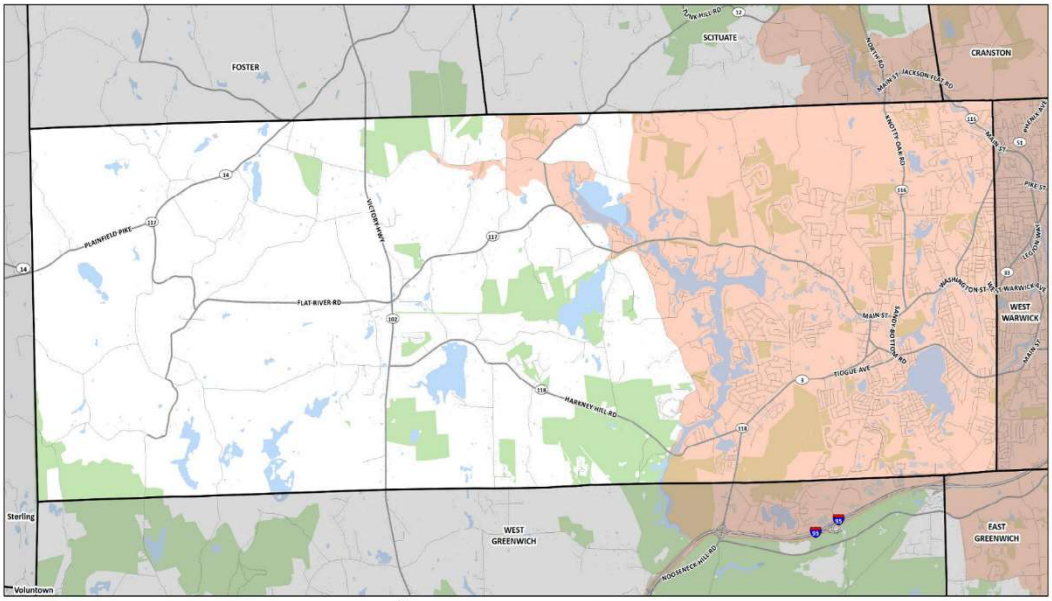
Source: Town of Coventry, Assessor's Database 2020
RIGIS
This map is intended for planning purposes only
Date: 8/3/2022
N
BETA
Miles
0
0.5
1
Legend
Municipal Boundary
Roads
Lakes and Ponds
Cemeteries
Commercial
Forest/Farm/Open Space
Industrial
Mixed-Use
Single-Family Residential
Mobile Home
Multi-Family Residential
Government-Owned Land
Non-profit
Utilities, Infrastructure, and other developed land
Vacant


FOSTER
SCITUATE
CRANSTON
WEST WARWICK
WEST GREENWICH
EAST GREENWICH
Sterling
Volunstown
PLAINFIELD PIKE
FLAT RIVER RD
HARKNEY HILL RD
TIOGUE AVE
MAIN ST
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Source:
E-911 Road Centerline, RIGIS, 2021.
RIDEM MS4 Regulated Area, 2021.
This map is intended for planning purposes only
Date: 10/14/2022
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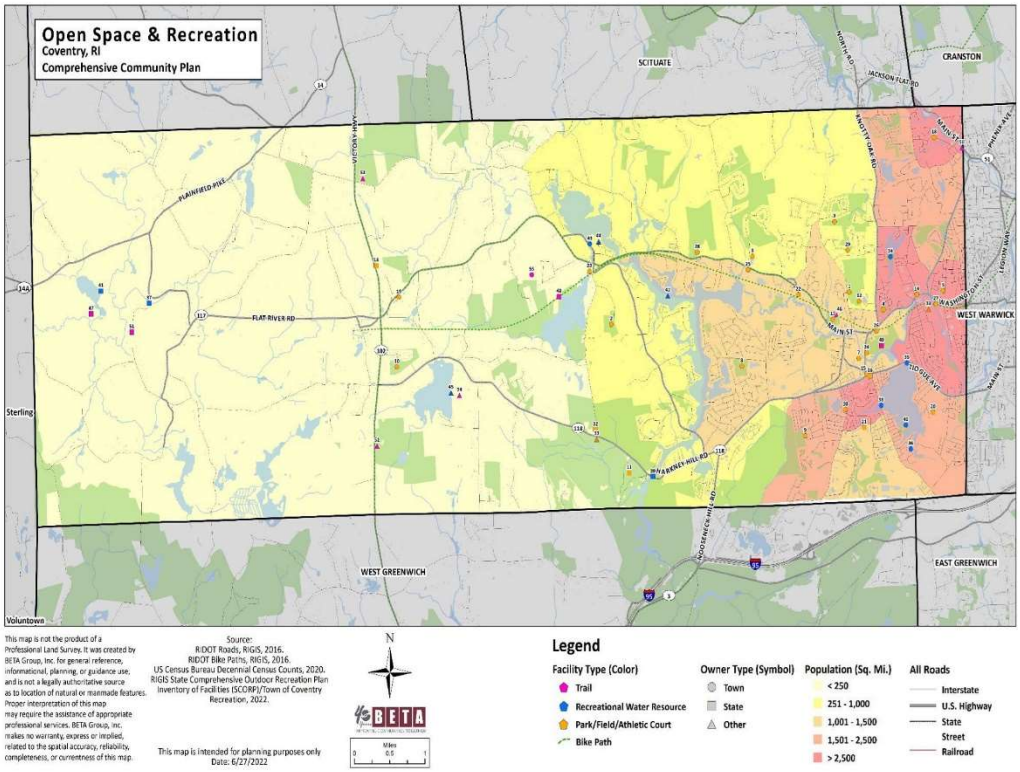
MS4 Regulated Areas
MS4 Urbanized Areas 2010 Census
Interstate Road
State Road
Local Road


Open Space & Recreation
Coventry, RI
Comprehensive Community Plan
SCITUATE
CRANSTON
WEST WARWICK
Sterling
WEST GREENWICH
EAST GREENWICH
Voluntown
PLAINFIELD PIKE
FLAT RIVER RD
HARKNEY HILL RD
NOOSENECK HILL RD
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Source:
RIDOT Roads, RIGIS, 2016.
RIDOT Bike Paths, RIGIS, 2016.
US Census Bureau Decennial Census Counts, 2020.
RIGIS State Comprehensive Outdoor Recreation Plan Inventory of Facilities (SCORP)/Town of Coventry Recreation, 2022.
This map is intended for planning purposes only
Date: 6/27/2022
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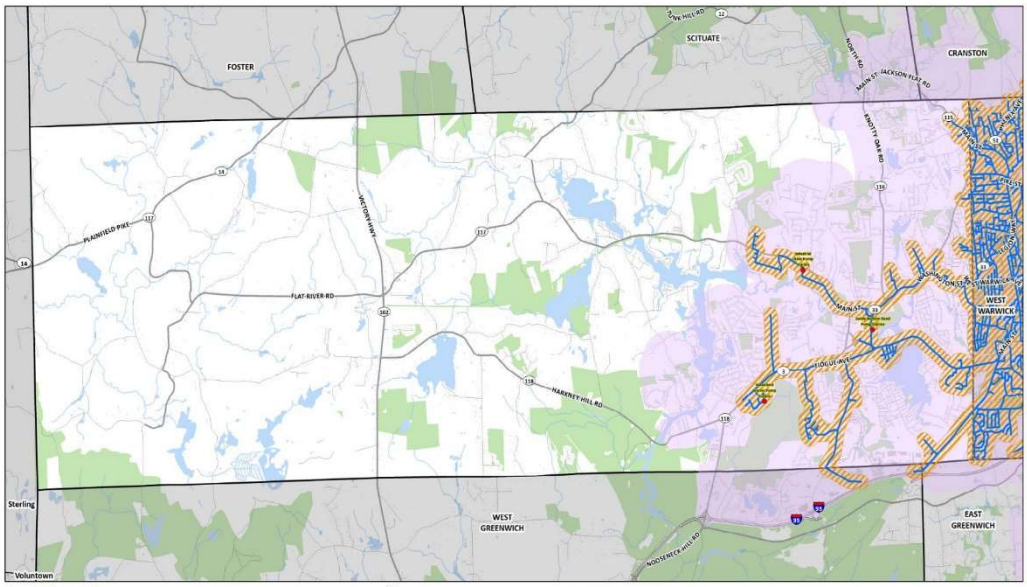
BETA
Miles
0
0.5
1
Legend
Facility Type (Color)
Trail
Recreational Water Resource
Park/Field/Athletic Court
Bike Path
Owner Type (Symbol)
Town
State
Other
Population (Sq. Mi.)
< 250
251 - 1,000
1,001 - 1,500
1,501 - 2,500
> 2,500
All Roads
Interstate
U.S. Highway
State
Street
Railroad


FOSTER
SCITUATE
CRANSTON
WEST WARWICK
Sterling
WEST GREENWICH
EAST GREENWICH
Voluntown
PLAINFIELD PIKE
FLAT RIVER RD
HARKNEY HILL RD
NOOSENECK HILL RD
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Source:
E-911 Road Centerline, RIGIS, 2021.
RIGIS Sewer Lines, 2021.
RIGIS Sewered Areas, 2021.
RIGIS Urban Services, 2021.
Town of Coventry Pump Stations, 2022.
This map is intended for planning purposes only
Date: 10/13/2022
N
BETA
Miles
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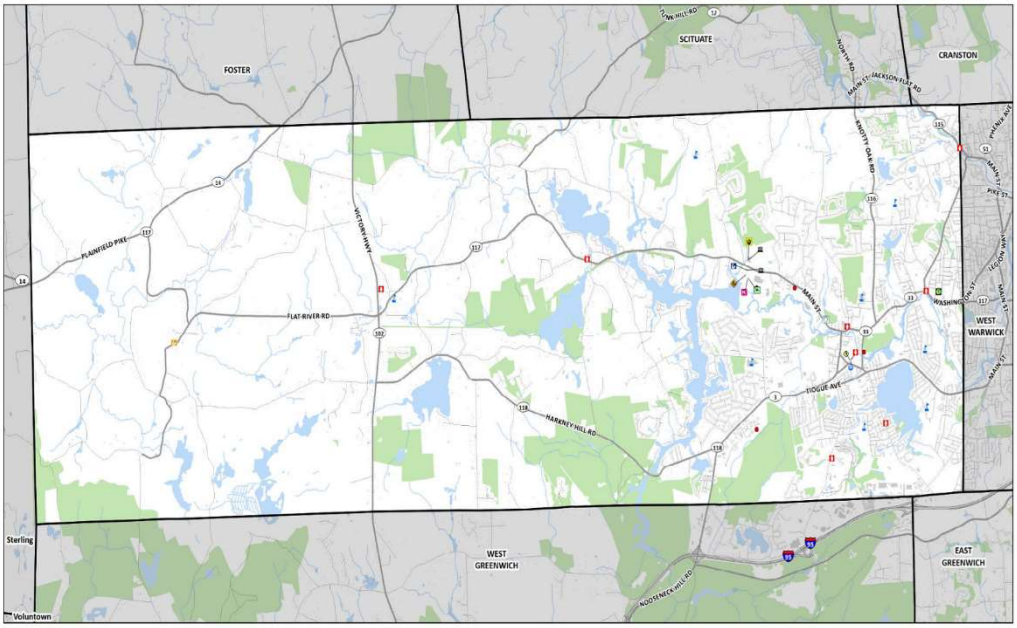
0.5
1
Coventry Sewer Facilities
Sewered Area
Sewered Area (Proposed)
Sewer Line
Pump Station
Interstate Road
State Road
Local Road



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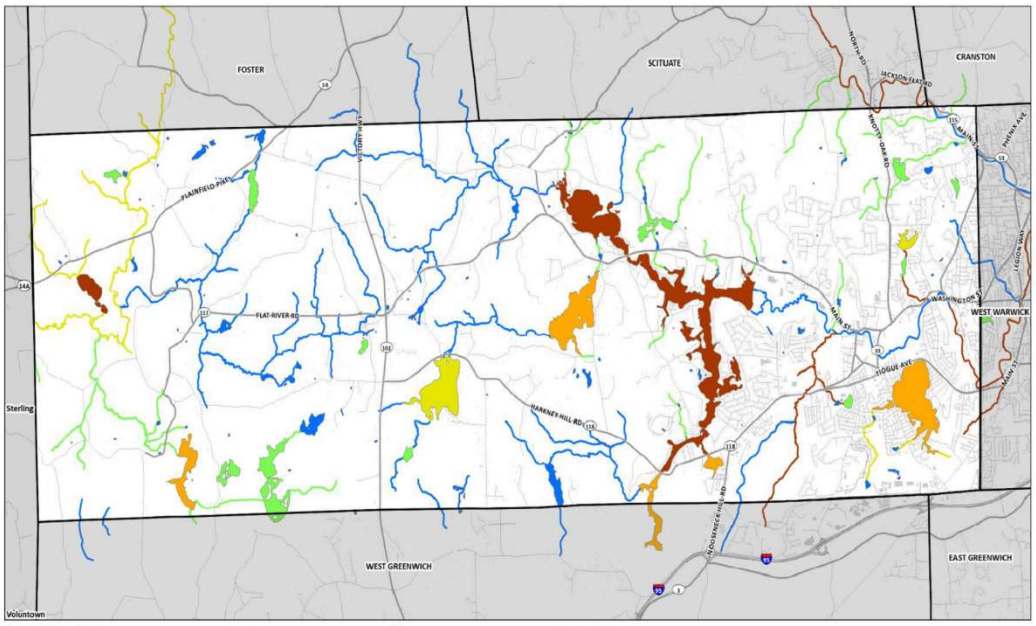
Source:
E-911 Road Centerline, RIGIS, 2021.
Town of Coventry Pump Stations, 2022.
Town of Coventry Services & Facilities, 2022.

This map is intended for planning purposes only
Date: 10/14/2022



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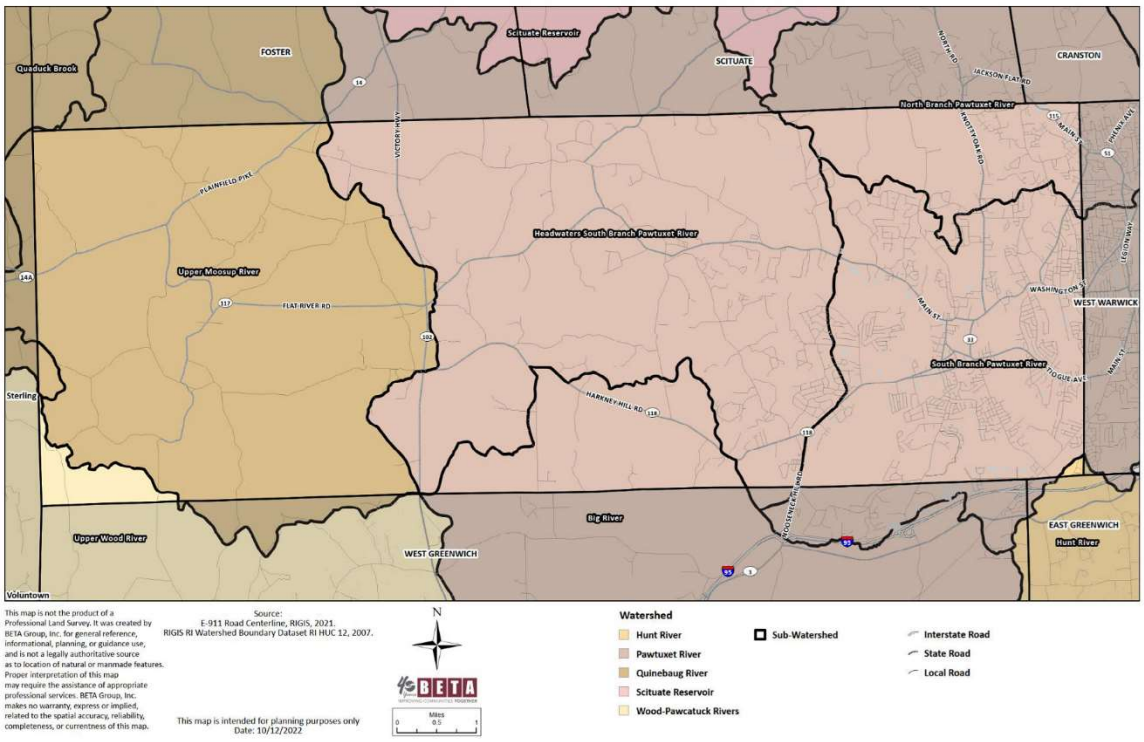
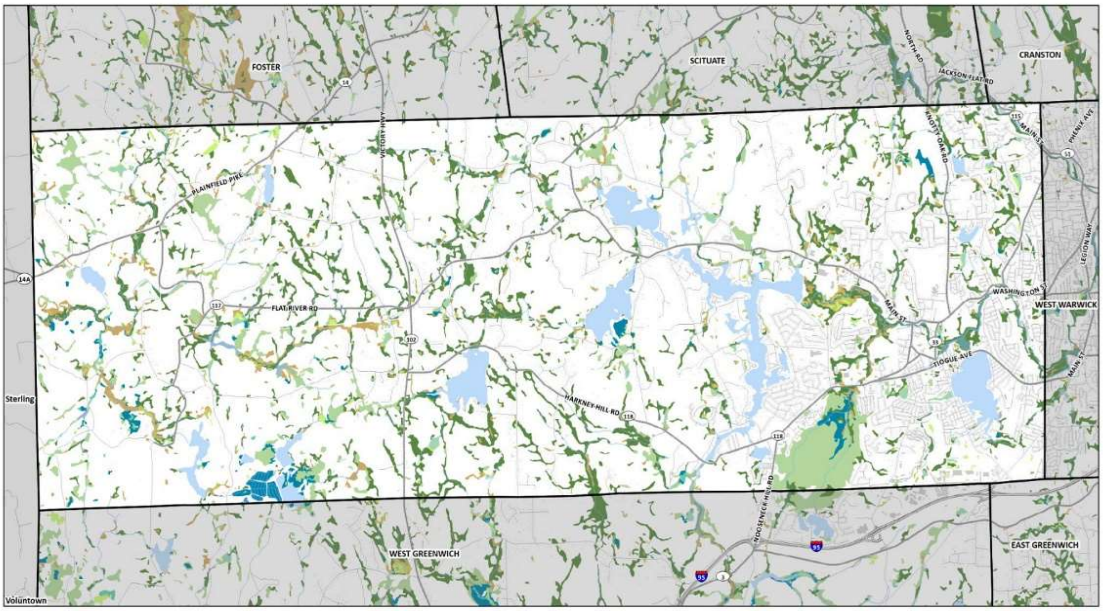
Source:
E-911 Road Centerline, RIGIS, 2021.
RIGIS Rivers and Streams,
RI Integrated Water Quality Monitoring Assessment, 2022.
RIGIS Lakes, Ponds, and Reservoirs,
RI Integrated Water Quality Monitoring Assessment, 2022.

This map is intended for planning purposes only
Date: 10/13/2022





Map 5.7. Wetlands and Surface Water

www.CommunityResilienceBuilding.org