CRANSTON

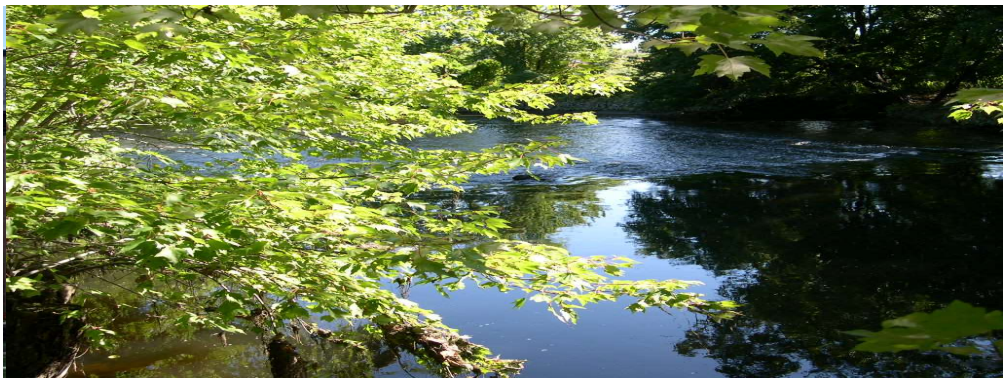

Photo Credit: Livability, Visit Rhode Island, National Weather Service

Municipal Resilience Program

Community Resilience Building

Summary of Findings

October 2023

City of Cranston, 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 and fall of 2023 (i.e., I-95 closure) have reinforced this urgency and compelled leading communities like the City of Cranston 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 summer of 2023, the City of Cranston 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 hazards and climate change impacts, and to surface projects, plans, and policies for improved resilience. In October 2023, Cranston'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 actions for the City of Cranston.

The Cranston 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 City.
- Identify opportunities to collaboratively advance actions to increase resilience alongside residents and organizations from across the City and beyond.

The City of Cranston used 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 Cranston. The Cranston Hazard Mitigation Plan (2022) and Comprehensive Plan (2010) 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 Cranston'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 City of Cranston 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 Cranston Core Team identified the top hazards for the City. The hazards of greatest concern included hurricanes, winter storms and ice, and flooding from rivers and streams as well as in stormwater runoff in the more urban parts of the City. Additional hazards highlighted by participants during the CRB workshop include high wind events, extended drought, and extreme temperature events (both hot and cold). These hazards have direct and increasing impacts on the infrastructure, environment, and residents of and visitors to Cranston. These effects are seen in residential neighborhoods, natural areas (wetlands, rivers, forests, preserves, parks), roads, bridges, businesses, municipal facilities, the waterfront, historic buildings, churches, social support services, and other critical infrastructure and community assets within Cranston.

Current Concerns and Challenges Presented by Hazards

The City of Cranston has several concerns and faces multiple challenges related to the impacts of natural hazards and climate change. In recent years, Cranston has experienced a series of highly disruptive and damaging weather events including severe flooding (March 2010, FEMA DR-1894), Tropical Storm Irene (August 2011, FEMA DR-4027), Superstorm Sandy (October 2012, FEMA DR-4089), Nor'easter Nemo (February 2013, FEMA DR-4107), and Blizzard Juno (January 2015, FEMA DR-4212). Impacts from Irene and Sandy included 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 Cranston to proactively improve their resilience.

As is projected with climate change, the impacts from these severe weather events have been varied and diverse. In Cranston this has included inland flooding of the riverfront; coastal flooding of the shoreline; riverine flooding of critical infrastructure, roads, 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 and lower-income residents who may have difficulty with utility bills for temperature control in their homes. The combination of these issues presents a challenge to preparedness and mitigation priorities and requires comprehensive, yet locally specific actions in Cranston.

The workshop participants were generally in agreement that Cranston 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 COVID-19 pandemic was raised by workshop participants as well.

Specific Categories of Concerns and Challenges

As in any community, Cranston 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.

Municipal Functions, Operations, & Growth:

- Outdated comprehensive plan for Cranston that doesn't address current needs and situations, such as the need for more guiding principles for responsible, climate-enabled growth and development that helps to reduce impacts of hazards like flooding and heat.
- Extreme temperature fluctuations resulted in burst pipes in a Library building and Senior Center which resulted in expensive remediation.
- Community desire for town commitments to reducing municipalities' greenhouse gas emissions via energy efficiency of municipal building, procurement requirements, and switching of municipal vehicle fleet to elective vehicles.
- Interest in additional open space protection. Municipality has the opportunity to take advantage of existing funding through grants and federal/state funds, specifically for the protection of open space and improved public amenities. Municipal grant writer could be directed to generate proposals for open space funding opportunities.
- Recognized housing disparities within the eastern portions of Cranston with a focus there by the Health Equity Zone.
- Perception that there is no real center or downtown area in Cranston.
- Lack of public transportation options for residents with limited east-west transit (e.g., no Park Avenue bus) which presents an equity issue for community members in Cranston.
- Overreliance on personal automobiles due to the lack of adequate public transportation options.
- Limited measures in place by the municipality to require and/or incentive green building codes for new or retrofitted building in Cranston.
- Lack of a long-term strategic plan to remedy the ongoing issues of urban flooding impacts throughout the City. Recent storms producing 2-3" of precipitation in an hour have completely flooded large portions of the City.
- Large population of non-English speaking residents that have need for bi-lingual translation services and municipal forms in different languages.

Specific Categories of Concerns and Challenges (cont'd)

- Inadequate staffing levels for various departments including the Planning Department needed to help accommodate the increase in permitting needs amongst residents and local businesses.
- Majority of municipal signage across Cranston are in English making it challenging for non-English speakers residing in the community – including for nature-based activities like fishing.
- Current zoning codes require high parking minimums that ultimately increase the percentage of impervious surface and acerbate stormwater flooding issues around Cranston.
- Concerns about actual and perceived increases in crime rates in Cranston.
- Elevated risk and increased exposure to property in the more densely developed commercial corridors due to a growing impact from stormwater runoff associated with relatively high percentages of impervious cover and inadequate stormwater management infrastructure.
- High cost of maintaining seawalls and other hard infrastructure installed along Cranston's shoreline with little integration of nature-based solutions in most locations.
- Limited availability of the funding in the annual budget needed to resolve drainage and flooding issues in priority areas of concern in Cranston.
- Inadequate capacity and municipal staff levels to manage new capital improvement projects even if new sources of funding were secured.

Emergency Management & Preparedness:

- Rapidly aging population of residents who have limited mobility and are increasingly isolated during and after disasters.
- Lack of adequate educational, communication, and outreach forums to properly inform residents about emergency preparedness and responses, such as evacuation routes and sheltering locations in advance of major disasters.
- Low-lying areas along the shoreline are subject to erosion due to storm surges and flooding from tides and sea level rise.
- Certain areas of the City lose power routinely during extreme events, which is a particular concern for elderly and underserved populations of Cranston residents.
- Vulnerability of flooding at Dean Estates and the Knightsville Library.
- Flooding issues can limit or prevent access to residents in need of health care and other related services in a timely manner.

Specific Categories of Concerns and Challenges (cont'd)

- Flooding issues resulting in multiple residential units being categorized as repetitive loss properties via the Federal Emergency Management Agency.
- Development adjoining or within designated floodplains is experiencing increased and more regular exposure and impacts from flood water.

Infrastructure: Roads & Road Networks, Sidewalks, Bridges, Dams:

- Lack of adequate drainage on Oaklawn Avenue.
- Sidewalks in various locations in a state of disrepair that may present a safety concern to pedestrians. The heaving and cracking of sidewalks make it difficult to push a baby carriage or operate a wheelchair safely.
- Narragansett Boulevard and Ocean Avenue flood every storm and periodically become impassable due to the amount of standing water, which can have an impact on Stillhouse Cove due to erosion.
- Flooding damages property and impacts access to the historic parts of Cranston along Fort Avenue and Seaview Avenue.
- Flooding can also have an impact on underlying utilities.
- Fill placed at the end of a dead-end road called Indian Road is causing flooding issues for some adjoining homeowners.

Stormwater, Waste Systems, Drinking Water Supply, Electrical Grid:

- Sewer Treatment Plant is vulnerable to flooding during major events.
- Ongoing need for proactive and routine storm drain maintenance and cleaning of debris including the removal of accumulated sediment within the storm drains.
- Lack of capacity in the current stormwater management system to accommodate the increase in more intense and longer duration precipitation events. This coupled with increased percentage of impervious cover is leading to higher volumes of stormwater runoff across Cranston (particularly in the eastern, more developed part of the City).

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

- Pawtuxet River with its 200+ square miles of surface area and associated rainfall capture funnels through Cranston, which is situated in bottom of watershed.
- Low tree canopy cover in commercial corridors results in elevated ambient air temperatures during the summer and early fall, which impacts residents (i.e., heat-island effect).

Specific Categories of Concerns and Challenges (cont'd)

- Ongoing flooding issues adjoining the Pawtuxet River and Pocasset River due to the limited amount of open space and wetlands to receive and retain flood waters within and upstream from Cranston's position in the watershed.
- Increase pressure placed on salt marsh habitat in Stillhouse Cove and along other parts of Cranston's shoreline due to more intense storm surge and rising sea levels resulting in more erosion of protective resource.
- Concerns regarding the vulnerabilities of the coastal shoreline due to erosion and loss of shorelines stability over time with increased intensity of storm surge and the ongoing rise in sea level in Narragansett Bay.
- Ongoing concerns regarding the impact to previous bank stabilization projects along the shoreline including Pawtuxet Cove that require monitoring and maintenance to continue to function properly.

Credit: iStock

Current Strengths and Assets

Just as certain locations, facilities, and populations in Cranston stand out as particularly vulnerable to the effects of hazards and climate change, other features are notable assets for Cranston'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 an appreciated strength within Cranston. Ongoing collaboration between municipal staff, committee/commission volunteers, business owners, land trusts, faith-based organizations, non-profit organizations, adjoining municipalities, and various state-level organizations, among others, on priorities identified herein will be necessary to help advance comprehensive community resilience building.
- Strong commitment and partnership between City leadership and Departments to cooperatively achieve goals and fulfill needs related to infrastructure in Cranston.
- Routine and effective communications between departments which leads to collaborative projects and approaches for Cranston.
- Cranston is a well-run municipality that provides a great deal of quality services to its residents.
- City passed a bond for green projects within last 3-5 years with around $5mm going towards green capital improvement projects.
- Working partnership between City leadership and staff alongside the Community Action Program and Health Services (CCAP) to directly address the provision of basic human needs for residents in Cranston.
- City leadership and staff have strong partnership with federal delegation with mutual desire to address climate change through increased funding for priority projects as identified by municipalities.
- Residents care deeply about their community and routinely show up in numbers for events and opportunities to share perspective in current topics and issues important to Cranston.

Current Strengths and Assets (cont'd)

- Community support and generosity for fellow residents impacted by floods in the form of clothing, food, and gift cards viewed as a tremendous asset across Cranston ("we help each other in times of need").
- Diverse community in Cranston from an ethic, racial, cultural, and demographic perspective.
- Strong place-based neighborhoods that provide a safety net for community members during times of crises.
- Cranston's waterfront is viewed as an outstanding asset to the community offer public access to the water as well as public amenities for enjoyment along the water.
- Non-profit organizations (Save The Bay, Edgewood Waterfront Preservation Association) help to organize and bring together volunteers and strengthen neighborhood connections through engagement on projects that improve the quality of life for residents and their environment in Cranston. Non-profit organizations area also able work cooperatively with City, state, and federal entities to secure and manage grants for community-supported projects (i.e., bank stabilization project in Stillhouse Cove).
- Relatively high amount of protected open space and wetlands in the less developed, western parts of Cranston with an ongoing interest to increase open space in eastern parts of the City. Growing number of residents interested in conserving their land for current and future generations to enjoy supportive ecosystems.
- Library system is a great strength of the community providing an active educational center, place to gather, and cooling/charging center. Cranston Public Library system has received national recognition and regularly receives awards for exemplary and responsive service to the residents of Cranston.
- Supportive community-based services and programs offered through Parks and Recreation Department including outdoor, summer programs for children.
- Cranston Senior Center provides many services and programs for the elderly as well as other adults in the community.
- Efforts within the public school system to promote a greater level of involvement and participation by parents of current students in hopes of fostering more successful family life across Cranston.

Current Strengths and Assets (cont'd)

- Cranston School District engaged with effective approach to reinventing how schools are built and retrofitted to better accommodate the modern educational needs of students, faculty, and staff.
- Strong connection between residents of Cranston and the public school system despite the long-standing rivalry between "East" and "West" Cranston on the athletic fields (i.e. two high schools).
- Strong partnership amongst environmental groups and various associations (Save The Bay, Edgewood Waterfront Association) focused on ensuring that Cranston's shoreline is maintained in a manner favorable to the environment through ecological restoration projects, where possible.
- Solid and reliable road system owned and maintained by the municipality with a responsive Public Works Department.
- Cranston has an interstate system (I-95) that runs through the City, which provides opportunities for commerce and economic growth as well as connections with other prominent transportation routes (Route 37 & 10).
- Cranston is currently experiencing positive economic development and growth in part due to the highway/road system and its geographic location near a major population center.
- Growing interest in establishing a greater number of heating and cooling centers around Cranston in response to an observed need amongst residents.
- Historic, charming neighborhoods in the eastern part of Cranston help to attract visitors that help improve commerce and economic prosperity.
- Urban tree inventory underway between coastline and Interstate 95 that will be completed in October 2023.
- Vibrant local newspaper (Cranston Herald) that reports on important local issues and helps to increase awareness amongst residents of Cranston and surrounding communities.
- Well respected and supported police force in Cranston that has an exemplary relationship with city administration and leadership.

Current Strengths and Assets (cont'd)

- Diversity of land use issues across Cranston with the "East" adjoining Narraganset Bay and the "West" with working farms and an agricultural landscape.
- Diversity of infrastructure needs from urban to rural demands allows for creativity from Engineering Department to ultimately, better serve residents including the recent introduction and use of green stormwater infrastructure such as bioretention basins.
- Hazard Mitigation Plan is routinely updated, enabling Cranston to apply for grants from the Federal Emergency Management Agency.
- Outstanding leadership provided by the emergency management professionals in Cranston helps to ensure the community is well-prepared for a multitude of hazards.
- Effective and efficient mobilization and response from leadership, every Department, and supportive community-based organizations during the COVID-19 crises ("complete team effort that was sustained").
- Municipal Departments including Department of Public Works engaged with entities such as Save The Bay and City of Providence to assist with ecological restoration projects that amplify the need to take a watershed scale approach to water and floodplain management.
- Voluntary buyouts of several residential repetitive loss properties after the floods in the spring of 2010 followed by additional voluntary buyouts along Pontiac Avenue via $5million in funding from through the National Resource Conservation Service's Emergency Watershed Protection Program.

Credit: AllTrails

Credit: Cranston Public Library

Credit: TripAdvisor

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 Cranston'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, conservation & recreation, affordable housing, transportation, shoreline/riverfront, education);
- **Infrastructure improvements** (i.e., roads/bridges, stormwater management systems, green stormwater infrastructure, shoreline, sidewalks, wastewater treatment);
- **Quality of life improvements** (i.e., parks and recreation, open space & shoreline access, sustainability, health & safety, economic prosperity, housing, transit);
- **Emergency management** (i.e., communications, outreach, education, continuation of services, business recovery, evacuation, vulnerable populations).

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 Cranston Hazard Mitigation Plan (2022) are provided in Appendix A for cross reference with actions presented here. Maps provided during the CRB Workshop gathered from the Cranston Hazard Mitigation Plan and Comprehensive Community Plan (2010) are provided in Appendix B.

Priority Actions

Capacity Building

- Review responsiveness of departments city-wide and seek to support municipal responsibilities by looking for ways to improve efficiencies and streamline procedures. This could also include hiring additional staff in certain, overburdened departments such as the Planning Department.

- Identify ways to improve the staffing level and funding for capital improvement projects focused on stormwater management including green stormwater infrastructure.

Priority Actions (cont'd)

Capital Projects

- Continue to move forward the community-based projects at Spectacle Pond in Cranston. Currently, two projects underway and a third lined up at this location.

- Work to establish a rail transit stop along the Wellington Avenue corridor.

Plans/Preparedness/Studies/Outreach

- Continue discussions about securing upcoming Federal Emergency Management Agency Building Resilient Infrastructure and Communities funding, as well as designate a city liaison to work directly with the state of Rhode Island's Emergency Management Agency.

- Inventory current urban tree canopy including the extent and condition of street trees in the Downtown area (i.e., Pawtuxet Village) to help prioritize the need and location of future planting under the leadership of the Cranston Tree Warden and other associated municipal staff and supportive organizations and volunteers. These efforts are designed to help reduce the heat island effects on residents and visitors in Cranston. Simultaneously conduct a concerted effort to educate residents on the importance and value that street trees bring to the community (i.e., heat island and localized flooding reduction, cleaner air, habitat, etc.).

- Advance an initiative to improve availability of multi-lingual communications for non-English speaking residents as well as accommodations for residents with vision and hearing impairments.

- Conduct routine outreach to residents in neighborhoods with well-known flooding issues to help improve awareness and potential longer-term risks from hazards.

- Complete a comprehensive strategic plan to address the needs and resilience of municipally owned buildings and facilities, including approaches and modifications to deal with extreme temperature fluctuations and increased precipitation and flooding.

- Work to accelerate the rate and extent of cleaning of storm drains across the City with an emphasis in and around areas known to flood on a regular basis.

Priority Actions (cont'd)

- Identify parcels across the watersheds of the major rivers through Cranston that can be conserved in a natural state and ecologically modified/improved to trap and retain greater amounts flooding to help reduce the overall impacts to the community and at the same time improve the ecological health of the larger rivers.

- Implement measures and projects to further protect coastal wetlands along Cranston's shoreline to ensure salt marshes continue to thrive and provide ongoing protection to the community from storm surge and sea level rise.

Additional Actions

Capacity Building

- Increase enthusiasm about careers within Cranston's municipal system via community outreach to schools and neighborhood functions. Look to make sure residents are aware of opportunities for employment with the City of Cranston.

- Increase staffing levels to help manage a forecasted increase in infrastructure-related capital improvement projects.

- Look for ways to elevate and recognize the work the non-profit organizations and volunteers do for the people and environment of Cranston through an annual community-wide awards ceremony.

Capital Projects

- Look to further fortify the Sewer Treatment Plant to withstand significant flooding into the future.

- Continue to work toward further protecting the public park along Cranston's shoreline that lost ten feet due to erosion during Superstorm Sandy.

- Advance the development and design for Wilbur Avenue, including considerations for bike path and grade corrections.

Plans/Preparedness/Studies/Outreach

- Work to ensure all municipal meetings are made available online to enhance accessibility by residents.

- Provide educational materials and presentations for city leadership and Board of Education on the Green Buildings Act requirements for Cranston.

- Conduct a needs assessment and take steps towards ensuring that more long-term housing needs (beyond 24-48 hours of shelter) amongst community members are meet.

Additional Actions (cont'd)

- Revamp municipal zoning codes to reduce parking minimums with the intent of reducing the overall percentage of impervious surfaces in Cranston. Consider complimenting revamp with incentives to install green stormwater infrastructure such as bioswales.

- Continue to advance the update of the Cranston Comprehensive Plan and ensure content generated through forums such as Community Resilience Building are considered for integration into any future updates to this document as well as the Hazard Mitigation Plan.

- Conduct comprehensive assessment of sidewalk condition across Cranston followed by a prioritization process to identify the areas in most need of immediate attention to improve walkability and health and safety of residents.

- Identify key locations for additional open space protection that can both help reduce flood risk via additional flood storage as well as help improve the quality of life for residents via more areas for passive recreation and family gatherings.

- Build on community engagement and commitments to Stillhouse Cove through an increased attention on more public access and stormwater management projects in collaboration with local organizations, municipal departments, and interested residents. Explore the potential to secure funding through the Ocean State Climate Adaptation Fund (OSCAR) or other State funds to advance these proposed efforts at Stillhouse Cove.

- Conduct a review of the status and progress of the Natural Resource Conservation Service Emergency Watershed Protection Program funding for voluntary buyouts within the Pocasset Watershed.

- Work to include LEED principles and opportunities into planning and zoning documents for Cranston.

- Encourage commercial properties to engage in C-PACE program available through the Rhode Island Infrastructure Bank.

Additional Actions (cont'd)

- Work with RIPTA to expand public transit options for residents that connect the eastern and western portions of Cranston and help to reduce dependence on personally owned automobiles.

- Increase awareness of the cost benefit of drainage improvement projects amongst the residents of Cranston through ongoing outreach efforts in hopes of creating a more receptive populus to resilience-related efforts by municipal departments.

- Commit staff to attend the "Building Community Support for Sustainable Stormwater Funding (& other community initiatives" course offered through the Narragansett Bay Research Reserve.

Credit: TripAdvisor

Credit: Maine Imaging

Credit: Shutterstock

CRB Workshop Participants: Department/Organization

City of Cranston – Office of the Mayor
City of Cranston – City Council Representation
City of Cranston – Emergency Management Agency
City of Cranston – Communications Department
City of Cranston – Finance Department
City of Cranston – Police Department
City of Cranston – Library
City of Cranston – Planning Department
City of Cranston – Senior Services
City of Cranston – Housing Authority
City of Cranston – Resident
City of Cranston – Board of Elections
Edgewood Waterfront Preservation Association
West Bay Land Trust
Hurricane Hill Farm
Save The Bay
OneCranston Health Equity Zone
Pawtucket River Authority
Saccoccio & Associates
Comprehensive Community Action Program (CCAP)
Rhode Island Emergency Management Agency

Cranston Core Project Team

Stephen Craddock – Director of Senior Services – City of Cranston
Jessica Marino – City Council President – City of Cranston
Anthony Moretti – Chief of Staff – City of Cranston

Online CRB Workshop Facilitation Team

Rhode Island Infrastructure Bank - Kim Korioth (MRP Lead)
The Nature Conservancy - Adam Whelchel, Ph.D. (Lead Facilitator/Small Group 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 – Angela Tuoni (Scribe)
The Nature Conservancy – Chris Gaynor (Scribe)
The Nature Conservancy – Kate Pelletier (Scribe)

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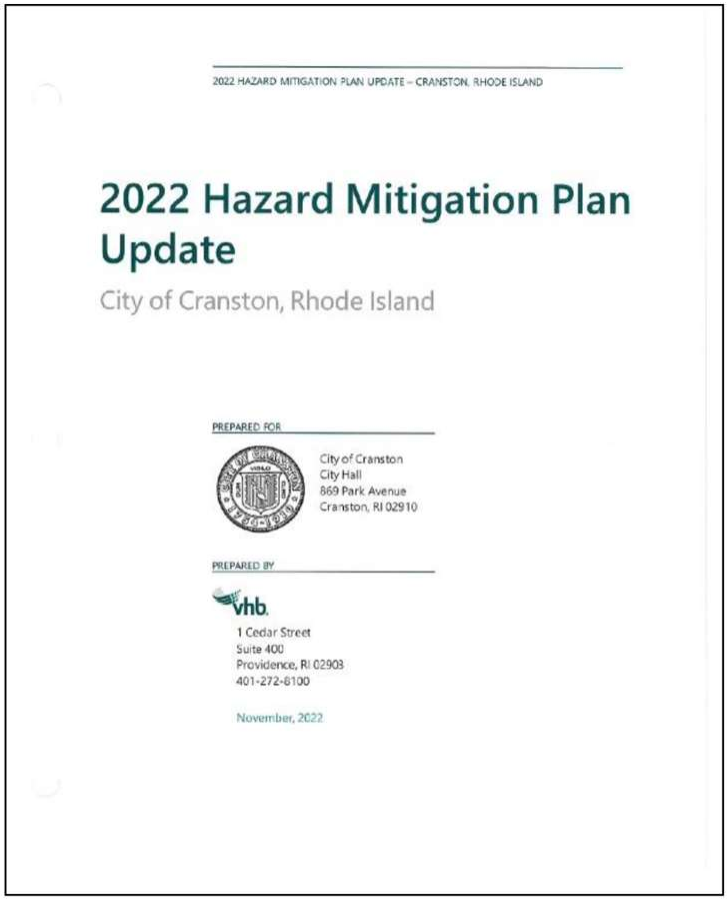
Acknowledgements

Special thanks to the City leadership, staff, and community members for their willingness to embrace the process in hopes of a more resilient future for Cranston. This online Community Resilience Building Workshop was made possible in large part through the dedicated contribution of the facilitation team members who skillfully conducted the Cranston Community Resilience Building workshop in close partnership with the City's Core Project Team.

Appendix A

City of Cranston
Local Hazard Mitigation Plan
(2022)

Mitigation Actions



2022 HAZARD MITIGATION PLAN UPDATE – CRANSTON, RHODE ISLAND

2022 Hazard Mitigation Plan Update

City of Cranston, Rhode Island

PREPARED FOR

City of Cranston
City Hall
869 Park Avenue
Cranston, RI 02910

PREPARED BY

vhb

1 Cedar Street
Suite 400
Providence, RI 02903
401-272-8100

November, 2022

VULNERABLE AREA: Flood Prone Drainage Systems, Streets, or Infrastructure

MITIGATION ACTION	MITIGATION TYPE	ALIGNMENT WITH PLAN GOALS	ACTION PRIORITY
1. Address ongoing flooding at Wedge Street.	☐Local Plans and Regulations ☒Structure and Infrastructure ☐Natural Systems Protection ☐Education and Awareness	☒1 ☐2 ☐3 ☐4 ☐5	☒High ☐Medium ☐Low **ACTION STATUS** New

RATIONALE- WHY IS THIS IMPORTANT?

During high intensity rain events localized flooding occurs at the intersection of Wedge Street and Cranston Street. The Wedge Street Watershed drains from west to east to a low point in the vicinity of the Dean Estates Apartments, where a culvert carries storm runoff under the Washington Secondary Bike Path to an antiquated open swale and closed conduit drainage system at Wedge and Cranston Streets. Stormwater runoff is divided to two outfall pipes, discharging to unnamed tributaries of Meshanticut Brook. The primary cause of flooding is insufficient stormwater conveyance capacity in the closed conduit and open swale drainage system. A secondary cause of flooding is sediment buildup at the outfall locations and receiving streams.

BENEFITS	OBSTACLES	
Reduce local flooding		
LEAD/CHAMPION	**SUPPORT**	
State DOT	Public Works	
POTENTIAL FUNDING SOURCES	**ESTIMATED COST**	**TIMELINE**
Natural Resources Conservation Services (NRCS)	$1M	☐Short Term (0-3 years) ☐Medium Term (3-5 years) ☒Long Term (more than 5 years)

OTHER NOTES

VULNERABLE AREA: Flood Prone Drainage Systems, Streets, or Infrastructure

MITIGATION ACTION	MITIGATION TYPE	ALIGNMENT WITH PLAN GOALS	ACTION PRIORITY
2. Continue buyouts along Meshanticut Brook, Pocasset, and Pawtuxet Rivers.	☐Local Plans and Regulations ☒Structure and Infrastructure ☐Natural Systems Protection ☐Education and Awareness	☒1 ☐2 ☐3 ☐4	☐High ☒Medium ☐Low **ACTION STATUS** New

RATIONALE- WHY IS THIS IMPORTANT?

During storm events of approximately one-half inch or greater, access to private properties is severely limited, pedestrian access through the public way is impossible, frozen floodwaters create dangerous road conditions, and prolonged flooding can damage the roads.

BENEFITS	OBSTACLES	
Public safety and reduction in flood claims	Cost Benefit (higher real estate prices)	
LEAD/CHAMPION	**SUPPORT**	
Planning	Public Works	
POTENTIAL FUNDING SOURCES	**ESTIMATED COST**	**TIMELINE**
FEMA BRIC and HMP grants Natural Resources Conservation Services (NRCS), Army Corps	$2M*	☐Short Term (0-3 years) ☒Medium Term (3-5 years) ☐Long Term (more than 5 years)

OTHER NOTES

Part of a larger ongoing project. The City has applied for HMGP funding for the Meshanticut Brook Floodplain Restoration Scoping Study.

*The flood control project for the Pocasset River is upwards of $52 million total, the bulk of the work in Cranston.

VULNERABLE AREA: Flood Prone Drainage Systems, Streets, or Infrastructure

MITIGATION ACTION	MITIGATION TYPE	ALIGNMENT WITH PLAN GOALS	ACTION PRIORITY
3. Complete hydraulic mapping of the stormwater drainage system.	☒Local Plans and Regulations ☐Structure and Infrastructure ☐Natural Systems Protection ☐Education and Awareness	☒1 ☐2 ☐3 ☐4 ☐5	☐High ☒Medium ☐Low **ACTION STATUS** New

RATIONALE- WHY IS THIS IMPORTANT?

First, this is a MS4 Requirement. There is some documented stormwater connectivity but still need additional info from RIDOT. Need to add it to the City data, then do hydraulic modeling.

BENEFITS	OBSTACLES	
Better understanding of the stormwater system can help identify areas for improvements.		
LEAD/CHAMPION	**SUPPORT**	
Public Works	RIDOT	
POTENTIAL FUNDING SOURCES	**ESTIMATED COST**	**TIMELINE**
City Operating Budget	$2M	☐Short Term (0-3 years) ☒Medium Term (3-5 years) ☐Long Term (more than 5 years)

OTHER NOTES

VULNERABLE AREA: Flood Prone Drainage Systems, Streets, or Infrastructure

MITIGATION ACTION	MITIGATION TYPE	ALIGNMENT WITH PLAN GOALS	ACTION PRIORITY
4. Enhance stormwater education. Publish seasonal reminders on keeping catch basins clean.	☐Local Plans and Regulations ☐Structure and Infrastructure ☐Natural Systems Protection ☒Education and Awareness	☐1 ☐2 ☐3 ☐4 ☒5	☐High ☒Medium ☐Low **ACTION STATUS** New

RATIONALE- WHY IS THIS IMPORTANT?
Clogged catch basins can result in minor street flooding, creating a nuisance for motorists, pedestrians and businesses. Oftentimes, it doesn't take much more than a thin layer of leaves to block these critical drainage elements.

BENEFITS	OBSTACLES	
Reductions in preventable street flooding.		
LEAD/CHAMPION	**SUPPORT**	
City Administration	Public Works	
POTENTIAL FUNDING SOURCES	**ESTIMATED COST**	**TIMELINE**
City Operating Budget Southeast New England Program Providence Stormwater Innovation Center	Staff time	☐Short Term (0-3 years) ☐Medium Term (3-5 years) ☒Long Term (more than 5 years)

OTHER NOTES

Potential outreach methods:

-Press release with local news outlets Channel 10 and Channel 12.

-Press release in local newspaper (Cranston Herald)

-Use of the Administration/Mayor's multiple social media outlets.

VULNERABLE AREA: Wastewater

MITIGATION ACTION	MITIGATION TYPE	ALIGNMENT WITH PLAN GOALS	ACTION PRIORITY
5. Rebuild the Mayflower, Howard, and Plainfield pump stations and elevate pump station generators.	☐Local Plans and Regulations ☒Structure and Infrastructure ☐Natural Systems Protection ☐Education and Awareness	☒1 ☐2 ☐3 ☐4 ☐5	☒High ☐Medium ☐Low **ACTION STATUS** New

RATIONALE- WHY IS THIS IMPORTANT?

Mayflower pump station is at risk of inland flooding from the Pawtuxet River and sea level rise. Howard pump station is in the floodplain. Localized flood impacts likely for the Plainfield pump stations.

BENEFITS	OBSTACLES	
	funding	
LEAD/CHAMPION	**SUPPORT**	
Sewer Enterprise Dept.		
POTENTIAL FUNDING SOURCES	**ESTIMATED COST**	**TIMELINE**
Sewer Enterprise Fund	$1M per station rebuild. $4M for all 3 station rebuilds and elevating generators.	☐Short Term (0-3 years) ☒Medium Term (3-5 years) ☐Long Term (more than 5 years)

OTHER NOTES

Climate Vulnerability Summary http://www.dem.ri.gov/programs/benviron/water/pdfs/cvscranston.pdf

Implications of Climate Change for RI Wastewater Collection & Treatment Infrastructure. http://www.dem.ri.gov/programs/benviron/water/pdfs/wwtfclimstudy.pdf

VULNERABLE AREA: Other Services/Utilities

MITIGATION ACTION	MITIGATION TYPE	ALIGNMENT WITH PLAN GOALS	ACTION PRIORITY
6. Coordinate with National Grid on more frequent tree trimming around powerlines.	☒Local Plans and Regulations ☐Structure and Infrastructure ☐Natural Systems Protection ☐Education and Awareness	☐1 ☒2 ☐3 ☐4 ☐5	☒High ☐Medium ☐Low **ACTION STATUS** New

RATIONALE- WHY IS THIS IMPORTANT?

The City would like to see improved coordination between National Grid and their own tree maintenance efforts in urban areas. Keeping hanging limbs away from power lines reduces the chances for limbs to take out overhead powerlines.

BENEFITS	OBSTACLES	
Healthier tree canopy, fewer damages from storms.		
LEAD/CHAMPION	**SUPPORT**	
Tree Warden		
POTENTIAL FUNDING SOURCES	**ESTIMATED COST**	**TIMELINE**
Staff time	Staff time	☒Short Term (0-3 years) ☐Medium Term (3-5 years) ☐Long Term (more than 5 years)

OTHER NOTES

Consider an Urban Tree Management Plan.

VULNERABLE AREA: Communication Equipment

MITIGATION ACTION	MITIGATION TYPE	ALIGNMENT WITH PLAN GOALS	ACTION PRIORITY
7. Assessments and upgrades throughout the City's Information Technology System.	☐Local Plans and Regulations ☒Structure and Infrastructure ☐Natural Systems Protection ☐Education and Awareness	☐1 ☐2 ☐3 ☒4 ☐5	☐High ☐Medium ☐Low **ACTION STATUS** New

RATIONALE- WHY IS THIS IMPORTANT?
Improve system redundancy and reliability.

BENEFITS	OBSTACLES
Uninterrupted and faster service.	
LEAD/CHAMPION	**SUPPORT**
City IT Manager	

POTENTIAL FUNDING SOURCES	ESTIMATED COST	TIMELINE
Help American Vote Act Cybersecurity and Infrastructure Security Agency American Rescue Plan Act of 2021	$500,000	☒Short Term (0-3 years) ☐Medium Term (3-5 years) ☐Long Term (more than 5 years)

OTHER NOTES

VULNERABLE AREA: Critical Municipal Hazard Response Facilities

MITIGATION ACTION	MITIGATION TYPE	ALIGNMENT WITH PLAN GOALS	ACTION PRIORITY
8. Three aging fire stations need to be relocated into larger facilities to safely accommodate equipment and staff.	☐Local Plans and Regulations ☒Structure and Infrastructure ☐Natural Systems Protection ☐Education and Awareness	☐1 ☐2 ☐3 ☒4 ☐5	☐High ☒Medium ☐Low **ACTION STATUS**

RATIONALE- WHY IS THIS IMPORTANT?
Undersized buildings have fallen behind in space requirements of a growing fire department.

BENEFITS	OBSTACLES	
Safer critical response facilities.	Locations	
LEAD/CHAMPION	**SUPPORT**	
Fire Department		
POTENTIAL FUNDING SOURCES	**ESTIMATED COST**	**TIMELINE**
Cranston Capital Improvements Operating Budget Federal Infrastructure Bill (ARPA) Federal funding for improved air quality	$9M for the headquarters, and $5M per station.	☐Short Term (0-3 years) ☐Medium Term (3-5 years) ☒Long Term (more than 5 years)

OTHER NOTES
Need to first conduct assessments and to find locations.

VULNERABLE AREA: Populations

MITIGATION ACTION	MITIGATION TYPE	ALIGNMENT WITH PLAN GOALS	ACTION PRIORITY
9. Develop public education and outreach programs on disaster mitigation and preparedness.	☐Local Plans and Regulations ☐Structure and Infrastructure ☐Natural Systems Protection ☒Education and Awareness	☐1 ☐2 ☐3 ☐4 ☒5	☒High ☐Medium ☐Low **ACTION STATUS** 2016

RATIONALE- WHY IS THIS IMPORTANT?

The City would like to create a more comprehensive public education program that is centered around helping its citizens be better prepared to reduce their risks from disasters.

BENEFITS	OBSTACLES	
Better informed residents.		
LEAD/CHAMPION	**SUPPORT**	
Cranston Emergency Management Official		
POTENTIAL FUNDING SOURCES	**ESTIMATED COST**	**TIMELINE**
FEMA BRIC and HMGP U.S. Fire Administration	$35,000	☒Short Term (0-3 years) ☐Medium Term (3-5 years) ☐Long Term (more than 5 years)

OTHER NOTES

The City will seek assistance from the Cranston Emergency Management Official (CEMO) and the American Red Cross (ARC) as a Phase I effort to develop public education and outreach programs on disaster mitigation and preparedness, and distribute and make material available concerning: evacuation routes, emergency shelters, critical facilities and maps of City risks.

Consider posting information on a dedicated space on the City's website.

U.S. Fire Administration https://www.usfa.fema.gov/prevention/outreach/
Flood Safety at Ready.gov https://www.ready.gov/flood-toolkit
Flood Insurance https://www.fema.gov/flood-insurance/outreach-resources

VULNERABLE AREA: Businesses

MITIGATION ACTION	MITIGATION TYPE	ALIGNMENT WITH PLAN GOALS	ACTION PRIORITY
10. Small Business Hazard Mitigation Training and Disaster Outreach Program.	☒Local Plans and Regulations ☐Structure and Infrastructure ☐Natural Systems Protection ☐Education and Awareness	☐1 ☐2 ☐3 ☐4 ☐5	☐High ☒Medium ☐Low **ACTION STATUS** 2016

RATIONALE- WHY IS THIS IMPORTANT?

BENEFITS	OBSTACLES	
LEAD/CHAMPION	**SUPPORT**	
EMA Director	Economic Development Coordinator	
POTENTIAL FUNDING SOURCES	**ESTIMATED COST**	**TIMELINE**
Small Business Association FEMA BRIC CDBG	Staff time	☐Short Term (0-3 years) ☒Medium Term (3-5 years) ☐Long Term (more than 5 years)

OTHER NOTES

See FEMA Small Business Program: https://www.fema.gov/business-industry/doing-business/small-business

VULNERABLE AREA: Businesses

MITIGATION ACTION	MITIGATION TYPE	ALIGNMENT WITH PLAN GOALS	ACTION PRIORITY
11. Elevate utilities for Rhodes-on-the-Pawtuxet.	☐Local Plans and Regulations ☒Structure and Infrastructure ☐Natural Systems Protection ☐Education and Awareness	☒1 ☐2 ☐3 ☐4 ☐5	☐High ☐Medium ☒Low **ACTION STATUS** New

RATIONALE- WHY IS THIS IMPORTANT?

This historic recreation facility is located on the banks of the Pawtuxet River and has flooded multiple times. Fortunately, the floodwaters have mainly been contained to the basement. But unfortunately that is where the utilities are located.

BENEFITS	OBSTACLES	
Historical preservation		
LEAD/CHAMPION	**SUPPORT**	
Engineering Department	Rhodes-on-the-Pawtuxet	
POTENTIAL FUNDING SOURCES	**ESTIMATED COST**	**TIMELINE**
FEMA funding for repetitive loss properties.	$500,000	☐Short Term (0-3 years) ☒Medium Term (3-5 years) ☐Long Term (more than 5 years)

OTHER NOTES

New owners may be interested in elevating utilities.

In 2022, the City asked the Engineering Department to assess the extent of scour on the pilings.

VULNERABLE AREA: Natural Resources

MITIGATION ACTION	MITIGATION TYPE	ALIGNMENT WITH PLAN GOALS	ACTION PRIORITY
12. Converting city and state land between Interstate 295 and Warren Ave. to wetlands/floodplains.	☐Local Plans and Regulations ☐Structure and Infrastructure ☒Natural Systems Protection ☐Education and Awareness	☒1 ☐2 ☐3 ☐4 ☐5	☐High ☒Medium ☐Low **ACTION STATUS** New

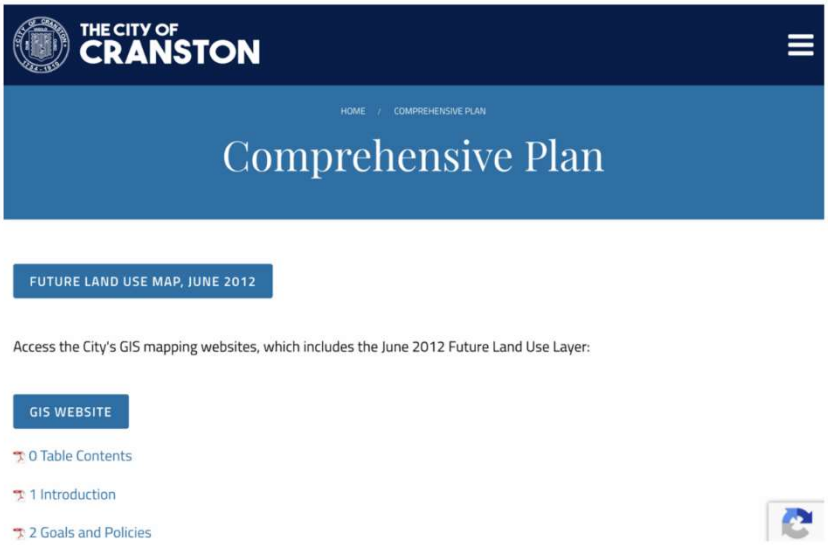
RATIONALE- WHY IS THIS IMPORTANT?
Localized flooding, removing a neighborhood from floodplain.

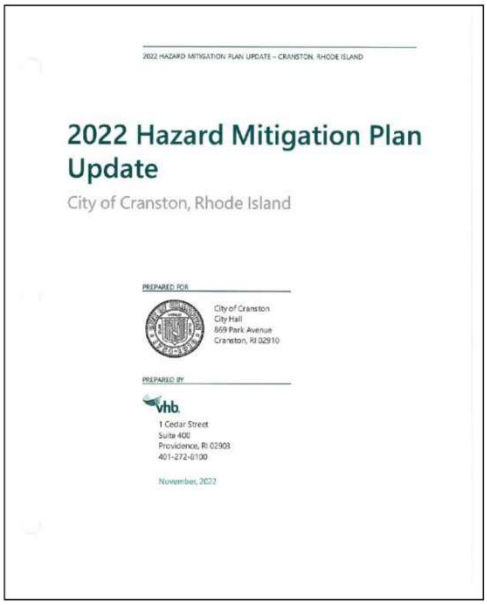
BENEFITS	OBSTACLES	
Increase floodplain capacity.		
LEAD/CHAMPION	**SUPPORT**	
Public Works		
POTENTIAL FUNDING SOURCES	**ESTIMATED COST**	**TIMELINE**
FEMA HMGP and BRIC funding. RIDEM	$3M	☒Short Term (0-3 years) ☐Medium Term (3-5 years) ☐Long Term (more than 5 years)

OTHER NOTES
City is currently working on a FEMA grant for $300,00 to complete engineering and plans.

Appendix B

Cranston
Map Resource Packet*
Used During
Workshop





***Gathered from Cranston's Comprehensive Plan (2010) and Local Hazard Mitigation Plan (2022)**

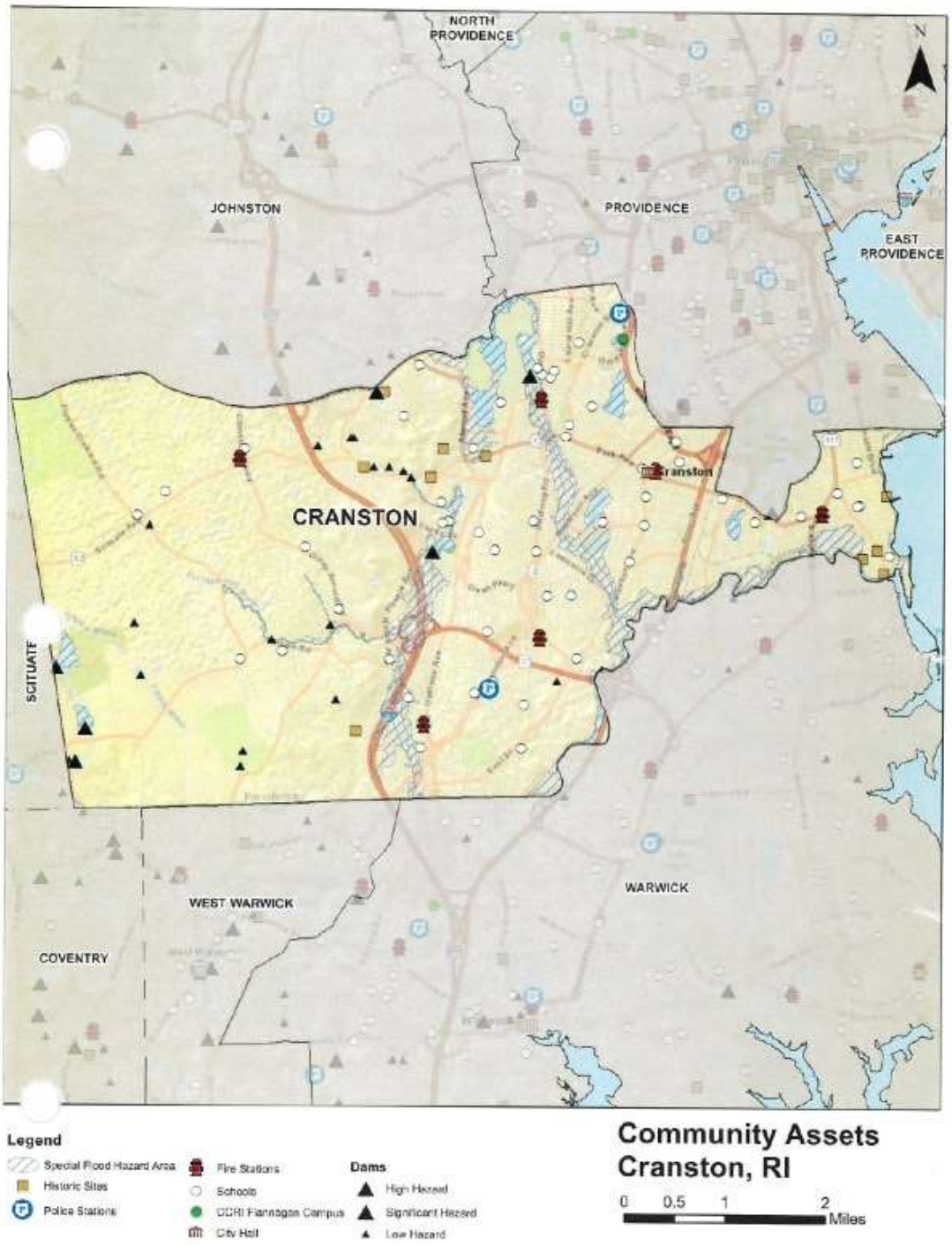
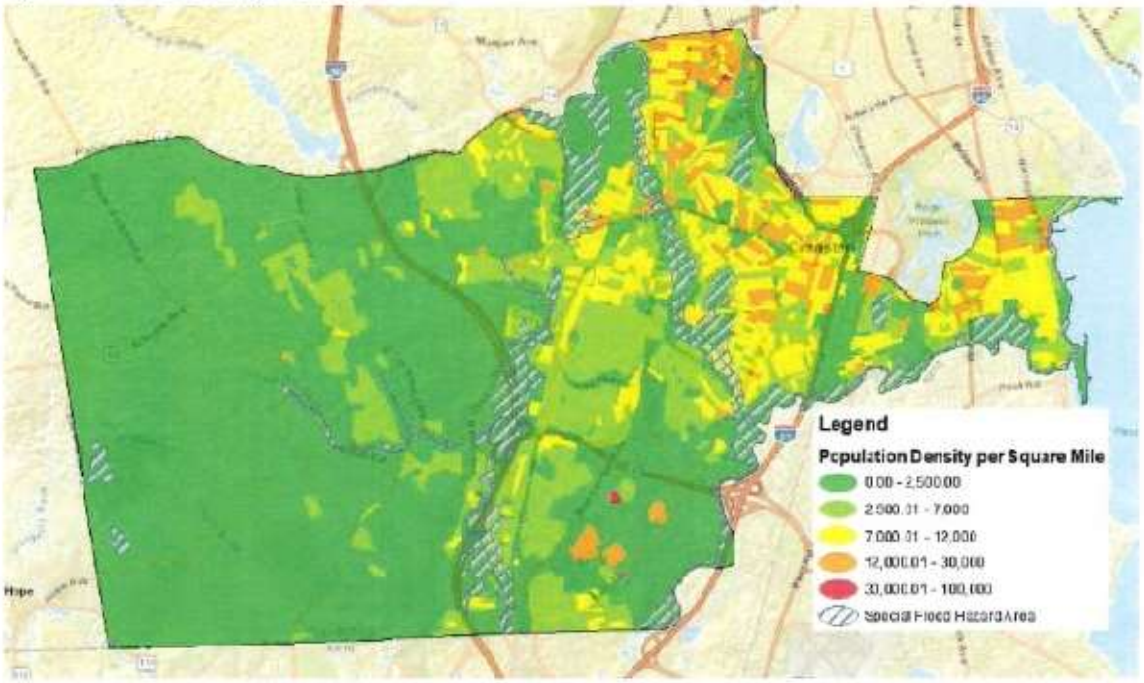
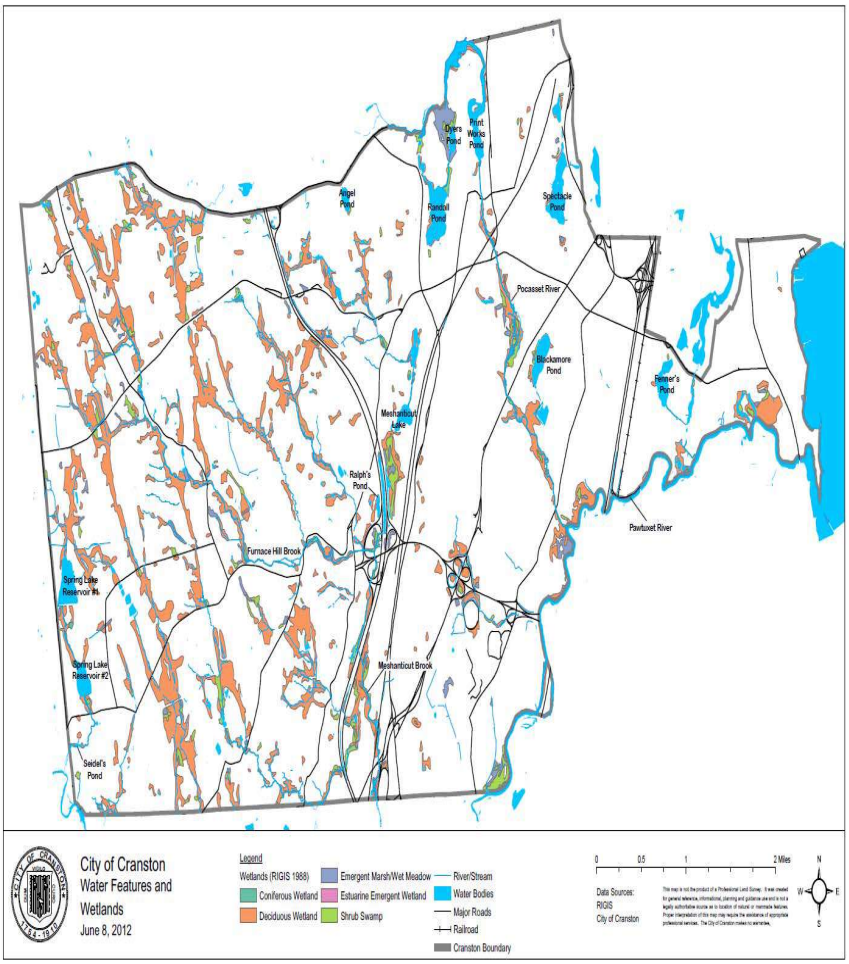
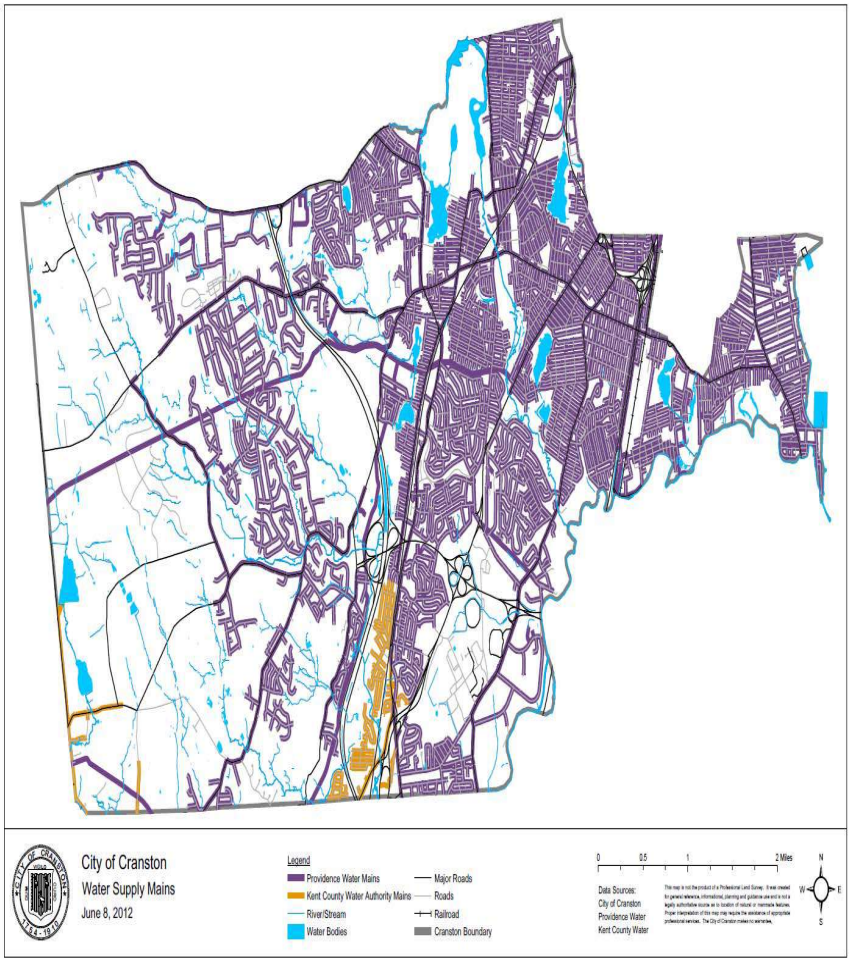

NORTH PROVIDENCE
N
JOHNSTON
PROVIDENCE
EAST PROVIDENCE
CRANSTON
SCITUATE
WEST WARWICK
WARWICK
COVENTRY
Legend
Special Flood Hazard Area
Historic Sites
Police Stations
Fire Stations
Schools
CCRI Flanagan Campus
City Hall
Dams
High Hazard
Significant Hazard
Low Hazard
Community Assets
Cranston, RI
0 0.5 1 2
Miles

Figure 5 Population Density of Cranston

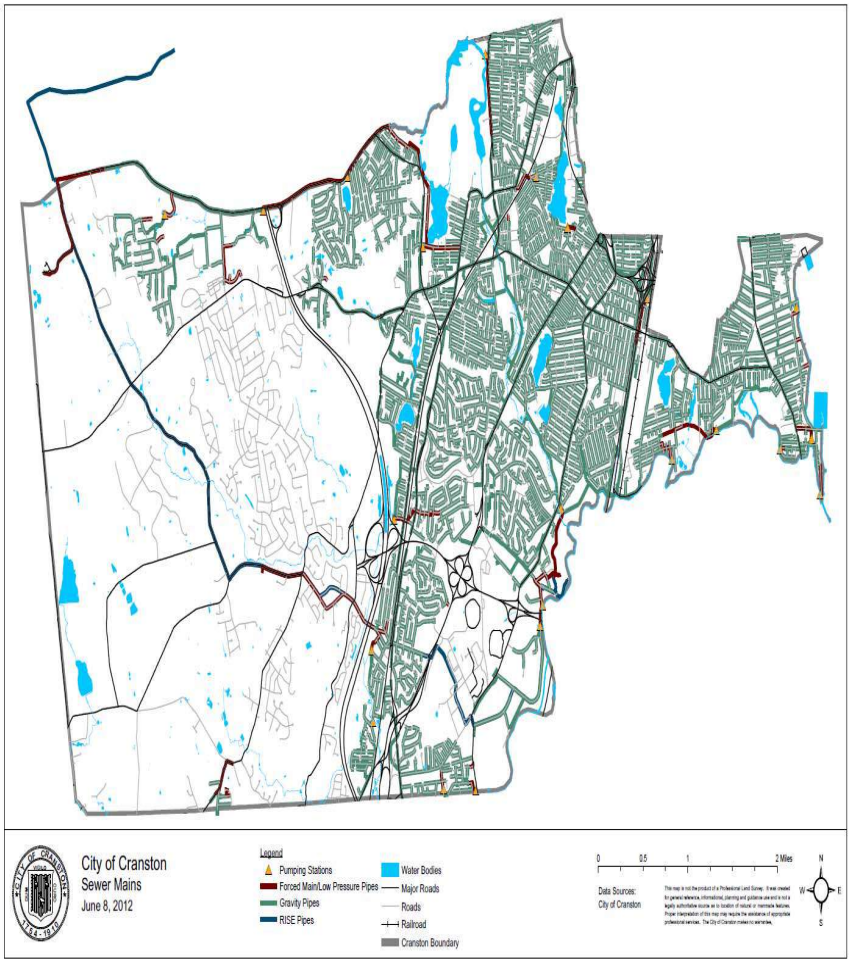




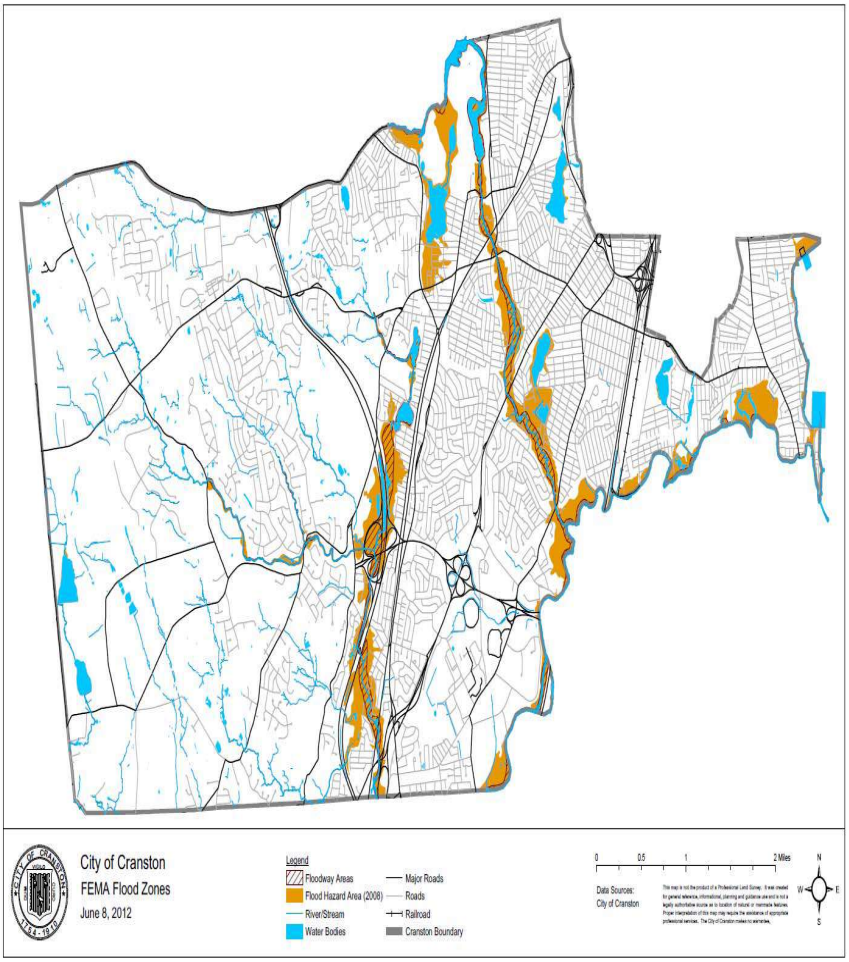
Map 5-2 *Water Features and Wetlands*



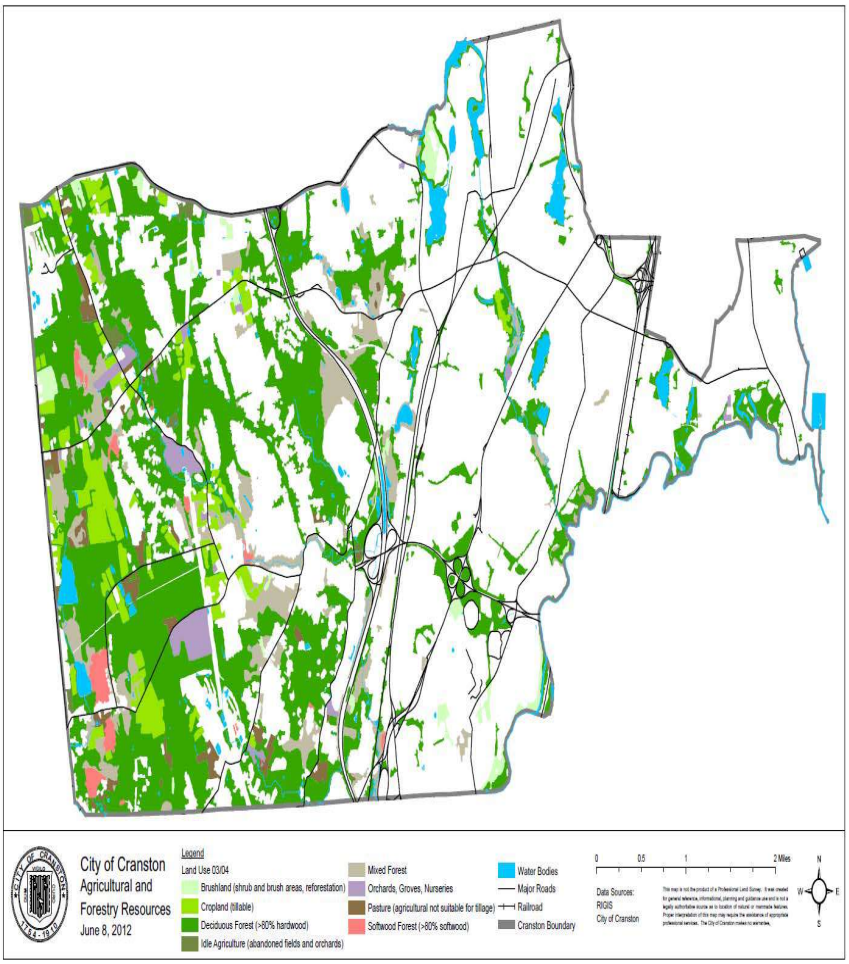
Map 6-2 City Water Supply Mains



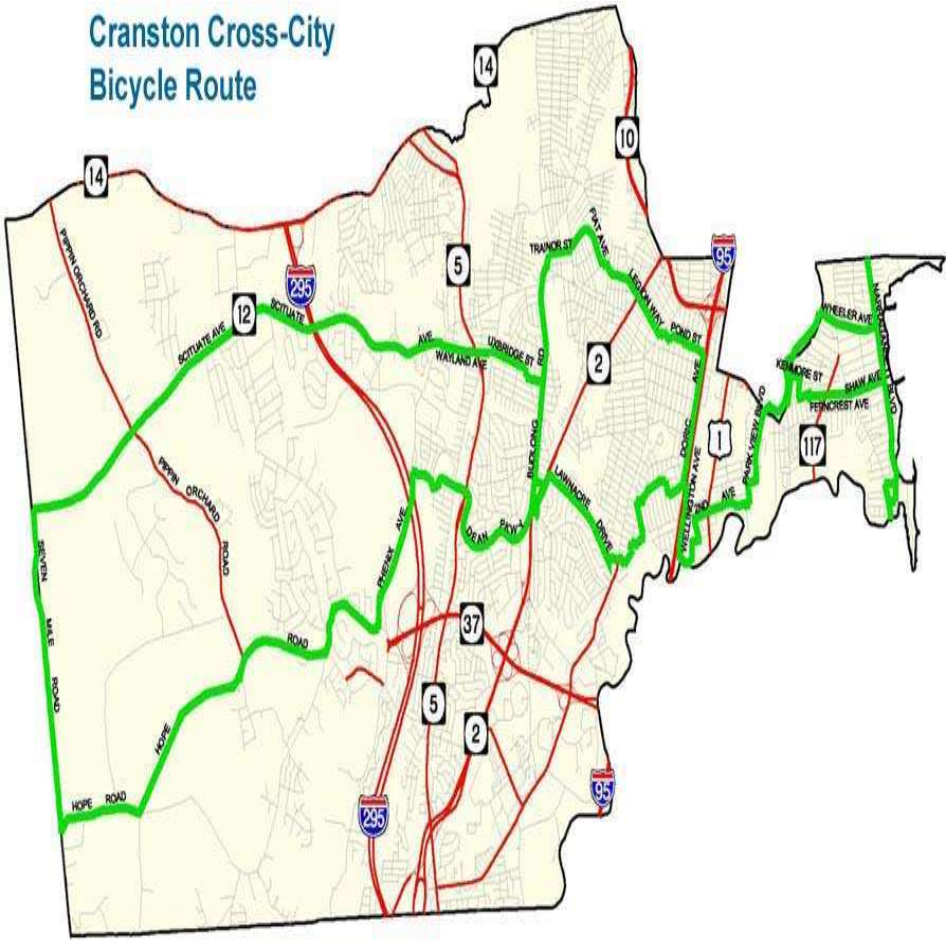
Map 6-1 City Sewer System



Map 5-3 *2008 FEMA Flood Insurance Rate Map*



Map 5-1 Agricultural and Forestry Resources



Map 7-2 Cranston Bicycle Network
Source: RI DOT web site, www.dot.ri.us, 2004.

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www.CommunityResilienceBuilding.org