Cumberland
Rhode Island





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Municipal Resilience Program

Community Resilience Building Process & Workshop

Summary of Findings

July 2021

Town of Cumberland, Rhode Island
Community Resilience Building Workshop
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 and Super Storm Sandy have reinforced this urgency and compelled leading communities like the Town of Cumberland 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 spring of 2021, the Town of Cumberland embarked on certification within the state of Rhode Island's Municipal Resilience Program (MRP). As part of that 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 July 2021, Cumberland's Core Team helped organized a Community Resilience Building 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 Town of Cumberland.

The Cumberland 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 Cumberland employed a unique "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 Cumberland. The Cumberland Local Hazard Mitigation Plan (2017) and Comprehensive Plan (2016) were particularly instructive. Using the CRB process, rich with information, experience, and dialogue, the participants produced the findings presented in this summary report including an overview of the top hazards, current concerns and challenges, existing strengths, and proposed actions to improve Cumberland'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, are proffered for comments, corrections and updates from workshop attendees and other stakeholders alike. The leadership displayed by the Town of Cumberland on community resilience building will benefit from the continuous participation all those concerned.

Summary of Findings

Top Hazards and Vulnerable Areas for the Community

Prior to the CRB Workshop, the Cumberland Core Team identified the top hazards for the Town. The hazards of greatest concern included riverine and urban runoff flooding due to excessive rainfall events, blizzards and Nor'easters (ice, wind, snow), and periods of extreme and extended cold. Additional hazards mentioned and discussed during the workshop included more intense and longer duration heat waves and droughts as well as high winds associated with major storms and hurricanes. These hazards have direct and increasing impacts on the infrastructure, residents, and environment, including neighborhoods, natural areas (rivers, wetlands, parks), riverfront areas, roads, bridges, businesses and commerce, public transportation, municipal facilities, school system, civic events, churches, social support services and other critical infrastructure and community assets within Cumberland and adjoining municipalities.

Top Hazards and Areas of Concern for the Community

Top Hazards

- Flooding - Excessive Rainfall (riverine, urban runoff, flash floods)
- Blizzards & Nor'easters (ice, wind, snow)
- Extreme Cold
- Heat Waves & Droughts
- Wind (major storms, hurricanes)

Areas of Concern in Cumberland* - Several categories and locations were identified as being particularly vulnerable by workshop participants including:

Infrastructure: Pawtucket Reservoir, Sanitary Sewers, Aging Infrastructure Town-wide, Aging Dams (150-200yo), Sewage Treatment Facilities, Pump Stations, Power Lines, Town Water Supply (reservoir quality and aging pipelines), Vacant Buildings (particularly in the southern parts of Town), Dam Safety Recognition Systems (e.g. buoys at Manville, none at Ashton), Manville Bridge (Manville Hill Road over the Blackstone River), Blackstone River Bikeway, Providence & Worcester Railroad (Lincoln to Cumberland).

Ecosystems/Waterways: Blackstone River and Watershed, Abbott Run Brook (tributaries, reservoirs, lakes, ponds), Diminished Tree Canopy (Valley Falls and Lonsdale), Narragansett Bay, Open Space, Mercy Woods, The Monastery, Trails at McCourt, Diamond Hill, Epheta Park, Blackstone River Bike Path, Old Lonsdale Drive-In Wetland, Pawtucket Water Supply Reservoirs.

Roads, Bridges, and Road Network: Mendon Road, Broad Street, Martin Street, Industrial Drive (north of Route 295), Diamond Hill and Mendon Road (traffic capacity), Local East-West Transportation Corridor.

Neighborhood Areas: Mill Village Districts (Lonsdale, Ashton, and Berkley), Ann and Hope Mill, Cumberland Manor Senior Housing Complex, Businesses Along River - Stop & Shop, Mendon Auto, Del's Lemonade, Roger Williams Buildings, Hasbro, Hope Global, Danis Transportation, Ashton Mill, Residential Areas abutting Monastery.

Top Hazards and Areas of Concern for the Community

Vulnerable Populations: Low-income Population (flood prone areas particularly Broad Street to River), Elderly/Senior Citizens, Indigenous Community Members, Non-English Speakers, Residents with Special Needs and Disabled Residents, Veterans, Long-term Renters, Local Business Owners.

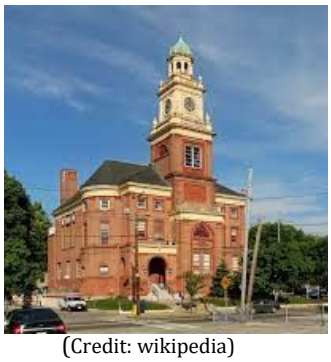
*Information from workshop participants augmented via review of the Town of Cumberland's Local Hazard Mitigation Plan (2017) and Comprehensive Plan (2016). ***See Appendix A for full list of mitigation/adaptation actions from the Town of Cumberland's LHMP.***

Current Concerns and Challenges Presented by Hazards

The Town of Cumberland has several concerns and faces multiple challenges related to the impacts of natural hazards and climate change. In recent years, Cumberland has experienced a series of highly disruptive and damaging weather events including the March floods (2010), Tropical Storm Irene (August 2011), Super Storm Sandy (October 2012), Nor'easter Nemo (February 2013), severe thunderstorm microburst (August 2015), major winters storms (March 2018, November 2020), and other less impactful but more frequent events. Impacts from the March floods included severe flooding, while both Irene and Sandy resulted in significant tree and power line damage. Nemo caused large power outages across the Town. Additional winter storms in 2018 and 2020 caused further tree and powerline damage due to high winds with snow. 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 Cumberland to proactively improve their resilience.

This series of extreme weather events highlights that the impacts from hazards are diverse, ranging from: riverine flooding of critical infrastructure, bridges, roads, and low-lying areas; localized flooding from stormwater runoff during intense storms and heavy precipitation events; and, property damage and extreme utility outages 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, disabled, underserved, and disproportionately disadvantaged residents. The combination of these issues presents a challenge to preparedness and mitigation priorities and requires comprehensive, yet locally-specific actions across the Town.

The workshop participants were in agreement that Cumberland 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 storms, hurricanes (Cat-3 or above)) particularly in the fall/winter months when more intense storms coincide with colder weather. The impact of the current Covid-19 pandemic was raised by workshop participants as well.



(Credit: wikipedia)

(Credit: victorianweb.org)

(Credit: Arnold Mill Parade)

Specific Categories of Concerns and Challenges

As in any community, Cumberland is not uniformly vulnerable to hazards and climate change, and 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 three broad categories - Infrastructure, Societal, and Environmental.

Infrastructure Concerns and Challenges

Roads, Bridges, and Road Networks:

- Frequent flooding from Blackstone River along Mendon Road, Broad Street, and Martin Street.
- Frequent flood damage and loss to structures off Mendon Road including residential houses, historic mills (e.g. Ann & Hope, Ashton), businesses (e.g. Stop&Shop), vacant buildings, and unremediated parcels.
- Proposed revitalization and development in the Ann & Hope Mill/Mendon Road area located in area that routinely floods.
- Cumberland Manor senior housing gets cut-off when access road floods.
- Martin Street flooding results in severe damage to businesses (e.g. 2005 flood - Hope Global, Danis Transportation, etc.).
- Industrial Drive north of Route 295 experiences flash floods associated with Abbott Run Brook overflow.
- Water main breaks are frequent particularly under roads despite best efforts and extremely fast response from Water Department.
- Roads are generally are in poor condition due to inadequate resources for comprehensive, proactive maintenance and repair.

Utilities:

- Water main breaks are frequent (particularly under roads) despite best efforts and extremely fast response from Water Department.
- Reservoirs vulnerable with Pawtucket Water Supply currently considered polluted.
- Frequent power outages in even small storms and seasonal weather events with long waits for restoration by National Grid resulting in strained relationships between utility provider and residents.

Emergency Management and Preparedness:

- Electrical utility and infrastructure susceptible to regular and extended outages puts residents at risk and limits timely dissemination of critical updates and information.
- Residents in need of emergency preparedness and shelter in place training.
- Lack of funding for equipment across Public Works, Water, and Highway Departments impedes ability to maintain, remediate, and proactively address identified vulnerabilities to residents as well as aging infrastructure.

Specific Categories of Concerns and Challenges

Emergency Management and Preparedness:

- North-south access and egress routes (Diamond Hill and Mendon Roads) vulnerable to extreme and seasonal weather.
- Lack of local east-west roads for evacuation due to topography and railroad corridor.
- Lack of comprehensive and robust emergency outreach program with no planned mechanisms to directly reach vulnerable populations or to provide transportation and/or alternate evacuation routes, as needed.

Dams:

- 17 inventoried dams with many 150-200 years old - 4 of which with shared responsibility with Town of Lincoln (Blackstone River).
- Dam failure would result in potentially catastrophic contamination of Narragansett Bay due to large amount of retained pollutants and stored sediment.
- Lack of consistent dam safety recognition system (ad hoc buoy marking in some locations) resulting in reduce recreational safety (e.g. Manville and now Lonsdale follaing accident and loss).
- Projectiles in flood waters striking and potentially damage dams.
- No Emergency Action Plan for High Hazard dams including Miscoe Lake, Diamond Hill Reservoir, and Pawtucket Reservoir as well as Significant Hazard dams including Rawson Pond, Robin Hollow Pond, and Happy Hollow Pond.

Stormwater Management:

- Hilly topography with a high water table and a great deal of development on challenging or inappropriate lots resulting in insufficient stormwater drainage and increased localized flooding.
- Plots of lands in need of remediation in proximity to waterways and water resources present a significant concern as hazardous materials are likely to be exposed due ot surface water runoff in routine to major weather events.

Societal Concerns and Challenges

Vulnerable Populations:

- Historically marginalized communities are more susceptible to extreme weather events, urban heat islands, and power outages and are often underserved in terms of relief and access to public services.
- Majority of Cumberland's low-income population live in flood-prone areas, especially between Broad Street and the River, and thus are more at risk in extreme weather events.
- Power outages are concern for individuals dependent on electric medical devices such as oxygen.

Specific Categories of Concerns and Challenges (cont'd)

Vulnerable Populations:

- Currently insufficient public transportation infrastructure and service as well as reduced road and bridge accessibility in storm and seasonal events. This causes concern about the accessibility of the food pantry (and other services) for those who do not have personal transportation, which is a large portion of those using the service.
- Increased flooding events (riverine and stormwater) as well as higher urban heat island temperatures affecting predominantly low and moderate income populations of Valley Falls/Lonsdale. This is due to and exacerbated by low levels of urban tree cover, large amounts impervious surfaces, and aging housing stock in need of upgrades.

Development:

- Aging housing stock in certain areas that require maintenance or improvements to accommodate amenities such as air conditioning.
- Proposed and ongoing development along Blackstone River may exacerbate existing vulnerabilities.
- Inappropriate development of buildings and parcels at and below natural river level including historic mills, businesses, and facilities.
- Major concern about potential development affecting the quality of the public water supply.
- Limited affordable/accessible housing options for workers, young families, and community volunteers.
- Challenge to limiting suburban residential development and protecting community character and open space, while increasing the availability of affordable housing.
- No comprehensive plan to manage vacant buildings by bringing up to code, demolition, or alternative solutions to minimize danger presented by deteriorating conditions to surrounding residents.

Community Service & Capacity:

- Insufficient staff capacity to meet needs of residents which hinders Town's ability to enforce building and zoning ordinance and violations (e.g. metal scrap storage, debris disposal, inappropriate parcel development, etc.,), develop future plans, address aging infrastructure (dams, watermains, etc), and maintain adequate equipment for maintenance and replacement.
- Challenges in creating community buy-in given the significant costs associated with preparing the community.
- Need for robust communication with public and community participation coupled to capital investments.
- Lack of resident understanding of maintenance and base-function costs/labor investment needed to keep municipality running therefore difficult to achieve a structurally balanced budget so the Town can accumulate emergency funds.

Specific Categories of Concerns and Challenges (cont'd)

Environmental Concerns and Challenges

Trees:

- Increasing impacts on tree health from pests and pathogens resulting in a number of dead and damaged trees posing risks to power lines and blocking roads during emergencies.
- Heavy winds in particular often topple trees into the River which creates hazards for recreational river users and potentially causes problems for the health of the river ecosystems if left unmanaged.
- No formal tree and debris management plan for both routine maintenance and disaster response.
- Need to integrate tree equity score information as guide for comprehensive tree management plan.

Open Space, Watersheds, and Waterways:

- Future flooding projections due to precipitation events of longer duration and higher intensity will present a challenge in rivers, streams, brooks, and wetland systems already experiencing issues.
- Lack of coherent strategy to secure conservation easements in current and future flood zones to help reduce risks to ecosystems and structures.
- Blackstone River watershed faces challenges unique to its industrial history, physical, chemical, and biological features, and contemporary use and management including industrial contaminants, excess nutrients (phosphates and nitrates), invasive aquatic plants (purple loosestrife and particularly water chestnut), thermal pollution, turbidity, and dumping (tires, furniture, construction debris, and general litter).
- Riverine flooding contributes to inland erosion along streams and watercourses (decline in water quality, habitat health, increasingly vulnerable banks and riverside buildings and infrastructure).
- Invasive species are a major concern including water chestnut in the Blackstone River and various types of beetles which are threatening different tree species and natural areas (e.g. emerald ash borer).
- Beaver population can cause problems including localized flooding due to dam construction (e.g. Lonsdale, residential areas abutting the Monastery).

Current Strengths and Assets

Just as certain locations, assets, and populations in Cumberland stand out as particularly vulnerable to the effects of hazards and climate change, other features are notably assets for Cumberland's resilience building. Workshop participants identified the following items as their community's key strengths and expressed interest in using 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 Cumberland. Ongoing collaboration between municipal staff, committee/commission, volunteers, business community, faith-based organizations, non-profit organizations, regional planning entities, adjoining municipalities, and various state-level organizations, among others, on priorities identified herein will help advance comprehensive, cost-effective, community resilience building actions.
- Current and past Town administration demonstrate a unique willingness to listen to new ideas and collaborate by including non-government entities in planning-related decisions and by acting as a tremendous financial and organizational partner to non-profit organizations and related activities.
- Community has a strong sense of place, pride, and allegiance to one another.
- Residents work hard and have persevered with a lot of resilience through challenging times and events over the last decade.
- High level of interconnectedness and precedent for community support (e.g. COVID response, incoming storms, etc): between Town employees, different groups, organizations, and residents, including Public Safety and resident engagement, favorable attitudes amongst residents towards Mayor and administrative throughout trying times (e.g. COVID), and charitable support for individual families in need.
- Presence of Franklin Farm that produces food for the local food banks and pantries.
- Advocacy and work of Friends of the Blackstone River (now part of the Blackstone River Watershed council) and Cumberland Land Trust essential to maintenance of state property and riverside areas.
- Blackstone River Tourism Council part of a needs assessment group currently working on a plan update with a public review period that includes efforts to address invasive species.
- Cumberland featured on PBS Our Town (feature include Ann and Hope Mill).

Current Strengths and Assets (cont'd)

- The City is increasingly preparing for climate change given the concern about current impacts from hazards and the threat of escalation—particularly from storms, flooding, and wind.
- Valley Breeze Paper is a good local source of news coverage and a great resource.
- Environmental education focused on the Blackstone River is integrated into a generally strong public and charter school curriculum.
- Active and resourceful staff that are quick to mobilize in response to issues in a collaborative cross-department fashion.
- Formation of a joint water recovery team (including swift water rescue technicians) by Public Safety, EMS, Police, and Fire which is able to quickly evaluate the occupancy of affected areas and assist with evacuation.
- Highway and Water Departments go above and beyond from immediate dispatch to address water breaks (frequent and regardless of time/weather) to special projects for the Town.
- Conservation Commission and Parks and Recreation Commission also perform duties and services (and in a manner) that exceeds the requirements of their charters and ordinances.
- Several planned infrastructure projects including a RIDOT, Pawtucket/Central Falls, and Cumberland collaboration on Broad Street Corridor improvements.
- Presence of the Blackstone River Bikeway.
- Cumberland acquired a new highway garage site which has composting and machine to process stumps and has potential to be a critical resource and hub for post storm clean up activities.

(Credit: visitrhodeisland.com)

Current Strengths and Assets (cont'd)

- Cap design and reuse assessment for the Peterson/Puritan Superfund site.
- Strong track record of working collaboratively with state and non-profit agencies including Blackstone River Watershed Council, RI Emergency Management Agency, The Nature Conservancy, RI Department of Emergency Management, RI Coastal Resources Management Council, RI Association of Emergency Managers, RI Flood Mitigation Association, and the National Weather Service.
- Lonsdale Drive-In Wetland Restoration Project is an excellent model for flood mitigation in Cumberland (impervious surface removal).
- Ashton Historic District is a key element of the approved Blackstone River Valley National Historic Park (boundaries finalized on July 27th, 2021).
- Relatively high amount of open space and parkland in the community (both reclaimed space and much untouched by high impact development) and the open space and associated recreation are critical to Cumberland's identity and residents.
- Cumberland's Comprehensive Plan specifically recognizes the value of open space and promotes a model of working with developers to maintain it within large residential development proposals so that residents can go out and enjoy proximate open space.
- Monastery grounds and associated projects for example pollinator garden near the Senior Center.
- Lonsdale Drive-In Wetland Restoration Project wetlands stretch across Lincoln and Cumberland town boundaries and helps prevent flooding in Cumberland.
- Pandemic responses by emergency management and social services staff have elevated the respect and support for these services amongst residents.
- Mercy Woods Preserve (200+acres) managed by the Cumberland Land Trust and the Cumberland Highway Department is supported by $400k open space grant from RIDEM matched by the Town, $300k from the Pawtucket Water Supply Board, $100k from the Cumberland Land Trust, among others.
- Diamond Hill Park, a former ski area, serves not only as a venue for popular local events but also has a small trail system and has a trailhead for the 30-mile Warner Trail which extends to Canton, MA.
- Cumberland has hosted the annual RI BioBlitz.

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 Cumberland's vulnerability to extreme weather, climate change and other common concerns raised. To that end, the workshop participants reached agreement on several priority topics requiring more immediate and/or ongoing attention including:

- **Long-term Vision and Growth** (i.e. development/redevelopment, conservation, transportation, commerce/economic growth, diverse demographics, volunteerism, voluntary buyouts, open space protection);
- **Infrastructure Improvements** (i.e. stormwater management systems, impervious cover, prioritization and incentivization of low-impact development, utility infrastructure reliability, wastewater treatment systems and facilities, nature-based solutions (living shorelines), dam safety);
- **Resilient Community Support** (i.e. affordable/accessible housing, sustainability, green infrastructure, tree management, business and residential recovery, senior care support);
- **Emergency Management** (i.e. communications, outreach, education, continuation of services, coordinating and exercise plans, heating/cooling centers/stations)

In direct response, the workshop participants developed the following priority and other action list. Mitigation actions from the Cumberland's local Hazard Mitigation Plan (2017) are provided in Appendix A for cross reference. In addition, actions previously identified in the Cumberland's Comprehensive Plan (2016) were reviewed for consistency with input from workshop participants.

Priority Actions

- Approve a Town Capital Improvement Plan (CIP) to address Cumberland's aging water and dam infrastructure, roadways, insufficient drainage, and equipment which would have a positive affects on the budgets for Public Safety. Public Works, Highway, Fire, EMS, and Water Departments and ensure CIP is in place for future administrations.

Priority Actions (cont'd)

- Incorporate resulting resilience actions from CRB workshop into future updates of Comprehensive Plan and Hazard Mitigation Plan.
- Create a comprehensive and robust framework for resident communication and engagement before, during, and after emergencies including:
  - ⇒ Develop and consolidate procedures for emergency communication and alert systems from Town, in preparation for, and in, emergency scenarios, regarding evacuation routes, shelters, weather events, resources, etc (real-time build on Code Red and Special Needs Registry, and preparation through different media including resident pamphlets);
  - ⇒ Increase resident awareness and engagement with these issues, procedures, and foster buy-in through community engagement, outreach, and education; and
  - ⇒ Increase and diversify regular Town communications (website, social media, sign-up campaigns, etc.) focused on services offered, recreation, and regular updates on needs and activities.
- Comprehensive Flood Mitigation along Blackstone River via projects for specific culverts, undersized drainage pipes, road grading corrections, and catch basins projects (See Appendix A) via following actions:
  - ⇒ Direct and relocate development to areas that are already watered/sewered and are above natural river level, surge, and floodplain to preserve open space and avoid inappropriate parcel development as well as encourage low impact development.
  - ⇒ Identify sites for flood mitigation projects including the removal of impervious surfaces, wetland restoration, and other natural solutions which would establish greens spaces that can accommodate flooding, filter water, and serve recreation and ecosystems.

(Credit: valleybreeze.com)

(Credit: npr.org)

(Credit: alltrails.com)

Priority Actions (cont'd)

- ⇒ Pursue grant opportunities to resume feasibility studies in lower Martin Street area, currently have massive pumps because of development mistakes (excavated and graded too much now below river level), in hopes of returning these areas to green space with relocation of occupants to higher ground; and
- ⇒ Coordinate efforts with Blackstone River Watershed towns, council, and organizations.

- Develop and implement a comprehensive tree management plan which both addresses tree maintenance, particular along power lines to prevent outages, and tree canopy expansion in more developed areas with inclusion od the following actions:
  - ⇒ Determine schedule for tree maintenance in coordination with National Grid;
  - ⇒ Provide education and resources to property owners responsible for tree maintenance;
  - ⇒ Develop Pre-/Post-storm event tree procedures to protect electricity infrastructure and prevent outages, limit addition of trees to rivers as projectiles, etc.;
  - ⇒ Increase tree canopy coverage in Valley Falls and Lonsdale areas where a decrease in tree canopy has contributed to rising temperatures, increased flooding, and threats to the health and wellbeing of vulnerable residents;
  - ⇒ Build on social equity ties and integrate tree equity score information (lot-level) into tree management plan; and
  - ⇒ Coordinate with existing tree planting initiatives (e.g. along roadways on private property, jobs programs, etc.) which may not have an explicit resiliency lens but are geared towards economic development.

Other Actions

- Hazardous waste education, training, and events to help remove household hazard waste (e.g. Clean Harbors and Resource Recovery successful paint recycling effort).
- Establish an authorizing ordinance or regulation that requires low-impact development stormwater infrastructure in any new development or redevelopment to increase onsite management of runoff which is the main source of pollution in the Blackstone River.

Other Actions (cont'd)

- Partner with farms and organizations outside of Cumberland to increase food access and equity initiatives for residents.
- Increase outreach to landlords to help weatherize and winterize rental properties and promote energy efficient appliances.
- Collaborate with The Blackstone River Coalition and other existing programs to conduct resident outreach and create booklets on stormwater and pollution management.
- Identify areas for low-impact development and attach incentives, directing development away from along the River (at or below natural and surge river levels), the flood plain and repetitive flooding locations, as well as from open greenspace that is not sewered/watered.
- Look to relocate vulnerable residential and commercial entities to safer, less flood prone locations with an emphasis on the Old Mill Village Districts, Lonsdale, Ashton, and Berkley.
- Increase accessibility and circulation to target areas by developing proximate transit corridors including additional RIPTA lines (currently only one in Cumberland which is insufficient).
- Rezone identified low-impact development areas to allow for denser development particularly around Broad Street.
- Create a receivership program for vacant buildings/properties and consider courts mandating actions on these building to include bringing buildings up to code, demolish them, or finding an alternative solutions.
- Address "repetitive loss" properties, critical facilities, and critical infrastructures subject to repeated through impervious surface remediation and culvert and drainage construction/replacement, as well as greening through buy-outs and other natural based solutions.
- Conduct outreach to local businesses to educate on safeguards to prevent chemical spills during natural disasters.
- Strengthen partnership with RIDOT to accelerate remediation for Mendon Road flooding due to surcharging of two catch basin structures likely associated with blockage of state-owned drainage system.

Other Actions (cont'd)

- Explore developing a disaster relief program for small local businesses.
- Outfit all dam areas open to recreation with Dam Safety Recognition Systems and dovetail with increased accessibility of the Blackstone River for recreation with community outreach and education on the River and Watershed to increase community buy-in and cooperation.
- Formulate Emergency Action Plans for High Hazard dams including Miscoe Lake, Diamond Hill Reservoir, and Pawtucket Reservoir as well as Significant Hazard dams including Rawson Pond, Robin Hollow Pond, and Happy Hollow Pond.
- Develop a comprehensive mitigation plan for water mains particularly under roads.
- Expand local stormwater drainage capacity by addressing gaps in infrastructure, upgrading drainage systems, replacing undersized drainage pipes, and/or replacing ineffective culverts in identified locations including Abbot Run Valley Road, Angell Road, Theater Drive, Ann and Hope Way, Bear Hill Road, Club Drive, Crestwood Court, Fairview Avenue, Franklin Street, Fredrick Lane, Grundy's Way, Hannah Drive, Highridge Road, Hines Road, Industrial Road, Kings Row, Laurel Lane, Martin Street, Meadow Brook Drive, Mendon Road, New York Avenue, Oakwood Drive, Old Reservoir Road, Reservoir Road, Jason's Grant, Ridgewood Drive, Seneca Street, Shirley Drive, Sneech Pond Road (state road), Tower Hill Road, Wildwood Drive, Ronald Avenue, Broad Street (state road), and Hilltop Road.
- Repave and correct grading for proper drainage on roads where deteriorated street pavement has caused low points and ponding areas including Canning Street, Dutchess Road, Follett Street, Maybury Street, and Windsong Road.
- Develop and retain staff capacity (in planning, zoning and building enforcement through full time staff additions and/or partnerships) to apply broadly for and manage grant funding (federal and otherwise), particularly for long-term projects which support climate resilience.
- Resident education on local storm drain connectivity to water supply in a coordination with the upcoming anniversary celebration of the Blackstone Valley Beautiful Program.
- Develop strategy to increase involvement from state representatives with the Town and gather support for targeted funding and staffing capacity to secure and manage grants.

Other Actions (cont'd)

- Explore how the Town could support environmental education especially for K-12 students through sponsorship or hosting at recreation sites, Heritage Park, Citizen Science, and/or Franklin Farms.
- Commit to more proactive open space acquisition with a focus on purchasing and restoring flood-prone properties to help increase flood storage as well as public amenities, where appropriate.
- Create a comprehensive strategy to ensure all stakeholders are involved in Town decision-making processes particularly those that will disproportionately burden vulnerable populations and frontline communities.
- Create a framework for soliciting participation from communities and community advocates (e.g. Food Pantry, Affordable Housing, Senior Services).
- Comprehensively identify and address the needs of vulnerable populations through data acquisition, mapping tools, and community collaborations to inform improvements and enhancements to emergency action plan.
- Formalize procedures regarding warming and cooling centers to ensure they are open and accessible to residents during extreme cold and warm events (especially during power outages) as well as expanding to include transportation of vulnerable populations to designated centers.
- Accelerate new highway garage site upgrade and outfitting through the allocation of available resources.

(Credit: valleybreeze.com)

CRB Workshop Participants: Department/Organization

Town of Cumberland - Office of the Mayor
Town of Cumberland - Planning Department
Town of Cumberland - Emergency Management Services
Town of Cumberland - Community Outreach
Town of Cumberland - Building & Zoning Enforcement
Town of Cumberland - Police Department
Town of Cumberland - Conservation Commission
Cumberland Land Trust
Blackstone Valley Tourism Council
Northern Rhode Island Food Pantry

Cumberland Core Project Team

Glenn Modica - Town Planner, Town of Cumberland

Sarah King - Community Outreach Coordinator, Town of Cumberland

Online CRB Workshop Facilitation Team

Rhode Island Infrastructure Bank - Shaun O'Rourke (MVP Program Lead)

The Nature Conservancy - Adam Whelchel (Lead Facilitator)

The Nature Conservancy - Sue AnderBois (Lead Coordinator/Small Group Facilitator)

Narragansett Bay Research Reserve - Jennifer West (Small Group Facilitator)

The Nature Conservancy - Samantha Lash (IT Management/Scribe)

Rhode Island Infrastructure Bank - Kim Korioth (Scribe)

The Nature Conservancy - Jasmine Li (Scribe)

Rhode Island Infrastructure Bank - Kellie King (Scribe)

The Nature Conservancy - Jeremy Bell (Scribe)

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Appendix A

Town of Cumberland
Local Hazard Mitigation Plan
(2017)

Mitigation Strategies and Actions

PUBLIC EDUCATION AND AWARENESS

Action #1

Distribute Informational Natural Hazards Pamphlet

Develop a pamphlet to be distributed to all residents and business owners that describes the natural hazards that threaten the community and describes steps they can take for each hazard to mitigate damages to their property. Include evacuation routes and shelter locations along with items that can and cannot be taken to the shelters as well as information regarding the risk to our community for brush/forest fires and how residents can help prevent them.

Action #2

Develop an Emergency Management Agency website for the Town.

The website will include the Hazard Mitigation Plan, Emergency Operations Plan, as well as phone numbers and information on what to do in case of emergencies.

PROPERTY PROTECTION

Action #3

Acquire residential properties in the flood area.

The Town will work with private homeowners in these areas to identify an acquisition project (s), obtain approval by the State and FEMA, and seek funding to purchase the property. By purchasing these residential properties, the Town is utilizing an effective program designed to remove people and property from high-risk areas and reduce disaster losses. The buildings are either demolished or relocated, and the land is then restricted to open space in perpetuity.

Action #4

Prepare an "After the Storm Recovery" Plan for the Community.

The Town should utilize the opportunity of a disaster to improve its' disaster resilience. Once critical life and safety issues and vital public services have been addressed and re-established, emphasis should be placed on the long-term recovery of the community, balancing the need to rebuild rapidly and return to normal against the objective of building back better and stronger. Additional items for consideration as part of the Plan's development include the completion of Community Assessments, a Recovery and Reconstruction Ordinance and development of a Debris Management Plan. The Town to coordinate with Statewide Planning to review the permitting processes, develop and adopt an ordinance to streamline the process in the aftermath of a hazard impact including the process to allow homeowners to retrofit structures in order to reduce risk. Formalize the existing process, and also maintain current policy to waive permit fees for building permits to repair storm-damaged properties.

Action #5

Replacement of Abbott St. Wastewater Pump Station

The Abbott Street Wastewater Pump Station was constructed and began service in 1993. This station serves approximately twenty residential households and one commercial customer. This facility is an underground pneumatic pumping system that receives and pumps wastewater to the existing sanitary sewer within Havens Street. This station is located in the Valley Falls section of Cumberland. Since 2005, the station has required multiple, periodic repairs and maintenance service calls as a result of various failures of the pneumatic (compressor) equipment in conjunction with the malfunctioning of instrumentation control. It is further noted that parts for this station's equipment are difficult to obtain, and some are no longer in production. As a result of the frequent maintenance history and the possibility of a total pump station failure in the future, the Sewer Department has recommended the replacement of this station.

Action #6

Develop an implementation strategy to address Property and Streets Subject to Flooding from Poor Drainage and Run-Off.

Determine what mitigation activities...maintenance (catch basin cleaning) v. monitoring (State road) v. structural/replacement (undersized pipes) v. pavement management (roadway crown/ponding) can alleviate the problem while creating the most benefit to the community for each street. (e.g. address those roads that are part of the town evacuation route first, then main thoroughfares, etc.). If structural/replacement, identify general costs associated with each.

Streets/Properties Subject to Flooding

Maintenance (Included here to illustrate a comprehensive review of flooding issues, however, not applicable for funding under any hazard mitigation grant programs)

Abbott Run Valley Road

- Specific Flooding Area: Jenna Way
- Flooding Cause: Reduced detention basin due to heavy rates of sedimentation from upstream construction sites in conjunction with catch basin blockage. Ongoing accumulation of debris in culvert which requires periodic monitoring and clean-out.

Angell Road (State road)

- Specific Flooding Area: Easterly end at Diamond Hill Road
- Flooding Cause: Blocked catch basins require periodic cleaning by RIDOT.

Theater Drive

- Specific Flooding Area: Scott Road culvert
- Flooding Cause: Culvert was previously blocked and subsequently cleaned. Still requires periodic monitoring and maintenance, particularly due to ice dam blockage during winter months.

Crestwood Court

- Specific Flooding Area: Culvert location
- Flooding Cause: Continual maintenance and clean-out of debris to prevent entering drainage system.

Fairview Avenue

- Specific Flooding Area: Select driveways

Highridge Road

- Specific Flooding Area: Entire street
- Flooding Cause: Continual clogging and blockage of drainage catch basins due to leaves in heavily-treed area. Periodic monitoring and clean-up maintenance required.

Laurel Lane

- Specific Flooding Area: Grandview
- Flooding Cause: Periodic clogging of slotted drain pipes during interim period of maintenance and cleaning.

Meadow Brook Drive

- Specific Flooding Area: End of street near rear gate to development for Chimney Hill Apartments
- Flooding Cause: Drain obstructions in the form of toys from a private property continue to accumulate in pipe requiring continual monitoring and clean-up and removal. Also, upland wooded area also periodically floods.

Oakwood Drive

- Specific Flooding Area: Culvert location
- Flooding Cause: Catch basin and culvert blockage associated with debris and roots which have been removed periodically. Maintenance issue.

Ridgewood Drive

- Specific Flooding Area: Entire street
- Flooding Cause: Blockage of drainage pipe as a result of persistent root growth during interim periods of maintenance and removal.

Tower Hill Road

- Specific Flooding Area: Diamond Hill Road end
- Flooding Cause: Silt build-up. Requires dredging and clean-up.

Monitoring

Ann and Hope Way

- Specific Flooding Area: Periodic surcharge and overflow of drains due to Blackstone River elevation during select heavy storm water events.
- Flooding Cause: Flood Plain area.

Club Drive

- Specific Flooding Area: Lippitt Estates/Low Point of Club Drive

Franklin Street

- Specific Flooding Area: Dead-end section near Wildwood Drive
- Flooding Cause: Flood Plain area.

Fredrick Lane

- Specific Flooding Area: N/A
- Flooding Cause: Underground infiltration galleys installed to address, but drainage and time for stormwater to recede is delayed due to slow infiltration rate.

Grundy's Way

- Specific Flooding Area: N/A
- Flooding Cause: Underground infiltration galleys installed to address, but drainage and time for stormwater to recede is delayed due to slow infiltration rate.

Hannah Drive

- Specific Flooding Area: Dead end/cul de sac area
- Flooding Cause: Underground infiltration galleys installed to address, but drainage and time for stormwater to recede is delayed due to slow infiltration rate.

Industrial Road

- Specific Flooding Area: Lower and relatively flat section of roadway near Diamond Hill Road adjacent to Okonite commercial property
- Flooding Cause: Additional catch basins installed and drainage pipe modifications recently installed to improve drainage. New drainage modifications not in place long enough to subject to sufficient number of heavy storm events to confirm effectiveness. However, other measures will be required at upstream commercial and industrial areas where holding ponds will require maintenance and other onsite drainage improvements to mitigate probable additional flows to this area.

Kings Row

- Specific Flooding Area: N/A
- Flooding Cause: Underground infiltration galleys installed to address, but drainage and time for stormwater to recede is delayed due to slow infiltration rate.

Mendon Road

- Specific Flooding Area: Westerly end of Marshall Avenue (State road) and intersection of Old Mendon Road
- Flooding Cause: Surcharging of two catch basin structures in this area due to probable blockage of state-owned drainage system within Mendon Road. State (RIDOT) has been notified and is scheduled to investigate same for remediation of same.

Broad Street (State road)

- Specific Flooding Area: Lusitania Avenue/Town Hall area
- Flooding Cause: No existing drainage system between Colonial Bakery area (located north of Town Hall) and the area near the Blackstone River Bridge at the Cumberland/Central Falls line. State (RIDOT) has been contacted to investigate this section of the street, which floods and inundates the sidewalks during heavy rain events, specifically at the crosswalks to Town Hall.

Hilltop Road

- Specific Flooding Area: Allens Avenue
- Flooding Cause: Undersized drainage pipes serve this area. However, there are physical restrictions preventing construction in this area due to the existence of NGRID diffuser facilities.

Structural/Replacement

Bear Hill Road

- Specific Flooding Area: Crestwood Court
- Flooding Cause: Deteriorated and undersized drainage pipes in conjunction with periodic blockage of pipes with debris.

Hines Road

- Specific Flooding Area: Northerly section at Miller's Brook
- Flooding Cause: Undersized drainage pipes.

Martin Street

- Specific Flooding Area: Blackstone River and railroad area
- Flooding Cause: Existing flood plain area associated with Blackstone River.
- Supplemental: Possible collapse or deterioration of drains below railroad crossing also contributing to flooding condition.

Old Reservoir Road

- Specific Flooding Area: Jason's Grant
- Flooding Cause: Drainage system in this area requires upgrading.

New York Avenue

- Specific Flooding Area: Miller's Brook area
- Flooding Cause: Undersized drainage pipe.

Reservoir Road

- Specific Flooding Area: Old Reservoir Road

Jason's Grant

- Specific Flooding Area: N/A
- Flooding Cause: Drainage system in this area requires upgrading.

Seneca Street

- Specific Flooding Area: Culvert location
- Flooding Cause: Undersized culvert pipe is considered the probable cause.

Shirley Drive

- Specific Flooding Area: Swale associated with CVS property.
- Flooding Cause: Deterioration of drainage pipes. Replacement required.

Ronald Avenue

- Specific Flooding Area: North Brook area
- Flooding Cause: Undersized culvert and drainage pipes are the probable cause at this location.

Pavement Management

Canning Street

- Specific Flooding Area: Easterly end of street
- Flooding Cause: Street pavement deterioration causing improper drainage and ponding. Re-paving and grading correction (restoration of crown of road) is required for proper drainage.

Dutchess Road

- Specific Flooding Area: Entire street
- Flooding Cause: Deteriorated street pavement causing low points and ponding areas. Re-paving and grading correction required for proper drainage.

Follett Street

- Specific Flooding Area: Entire street
- Flooding Cause: Deteriorated street pavement causing low points and ponding areas. Re-paving and grading correction required for proper drainage.

Maybury Street

- Specific Flooding Area: Entire Street (Meadowcrest subdivision)
- Flooding Cause: Deteriorated street pavement causing low points and ponding areas. Re-paving and grading correction required for proper drainage.

Sneech Pond Road (State road)

- Specific Flooding Area: Entire street
- Flooding Cause: Impeded drainage. Low points and ponding areas as a result of significantly deteriorated pavement. Requires complete rehabilitation.

PLANNING AND PREVENTION

Action #7

Develop Emergency Action Plans (EAP's) for both High and Significant hazard dams (publicly-owned) within the Town of Cumberland, including:

- Diamond Hill Reservoir Dam
- Arnold Mills Reservoir Dam
- Happy Hollow Reservoir Dam
- Robin Hollow Dam

An EAP is a plan of action to reduce potential property damage and loss of life in an area affected by a dam failure. An EAP identifies the areas, structures, facilities and roads that could be affected by dam failure. It also establishes a monitoring system which can activate the plan. Lastly, it identifies the corresponding official(s), organizations, and agencies along with their responsibilities in regards to implementing the plan.

All high and significant hazard dams must have an EAP - it's the law (RIGL § 46-19-9 http://webserver.rilin.state.ri.us/Statutes/TITLE46/46-19/46-19-9.HTM.) An EAP is not considered complete until it is approved by both Rhode Island Emergency Management Agency (RIEMA) and Rhode Island Department of Environmental Management (RI DEM).

Action #8

Develop Emergency Action Plans (EAP's) for both High and Significant hazard private dams (privately-owned), including:

- Miscoe Lake Dam
- Rawson Pond Dam

An EAP is a plan of action to reduce potential property damage and loss of life in an area affected by a dam failure. An EAP identifies the areas, structures, facilities and roads that could be affected by dam failure. It also establishes a monitoring system which can activate the plan. Lastly, it identifies the corresponding official(s), organizations, and agencies along with their responsibilities in regards to implementing the plan.

All high and significant hazard dams must have an EAP - it's the law (RIGL § 46-19-9 http://webserver.rilin.state.ri.us/Statutes/TITLE46/46-19/46-19-9.HTM.) An EAP is not considered complete until it is approved by both Rhode Island Emergency Management Agency (RIEMA) and Rhode Island Department of Environmental Management (RI DEM).

Action #9

Implement Public Outreach Campaign for residents/businesses located within a dam inundation zone.

Once EAPs have been developed for both High and Significant hazard dams (both public and private), it is important to conduct a public information session for residents and businesses within the various inundation areas regarding what they should do in the event of a dam breach. This could be completed in one general session, or individual sessions for each structure and affected neighborhood.

Action #10

Evaluate New Development/Projects for Drainage and Runoff Issues.

Establish procedures within the Land Development and Subdivision Regulations to review new developments/projects with respect to drainage and run-off issues. When new developments are proposed, establish a standard to review not just the proposed development, but the entire surrounding area to evaluate how the development will affect drainage and run-off in surrounding areas to make the community more resilient and in conjunction with continued NFIP compliance.

Action #11

Update Land Development and Subdivision Regulations regarding protocol for holding ponds.

Presently, holding ponds on private property are not being maintained, and thus, due to accumulation of debris and increased sedimentation and run-off which minimizes the carrying capacity of the pond, adjacent areas are being flooded.

In coordination with DPW, amend regulations (and distribute information to owners of holding ponds) to include:

- New developments to utilize Homeowner Associations to put holding ponds into joint ownership with fees assessed for periodic upkeep and maintenance.
- For existing developments, DPW to develop one-page Fact Sheet for use by pre-existing and future owners of holding ponds with applicable information and schedule for cleaning and maintenance.
- Incorporate Fact Sheet into Administrative Subdivision Checklist
- Develop supplemental provisions and incorporate into deed restrictions

Action #12

Coordinate with National Grid to develop and distribute SOPs for residents within the Scott Rd. neighborhood in the event of an emergency at the National Grid LNG site.

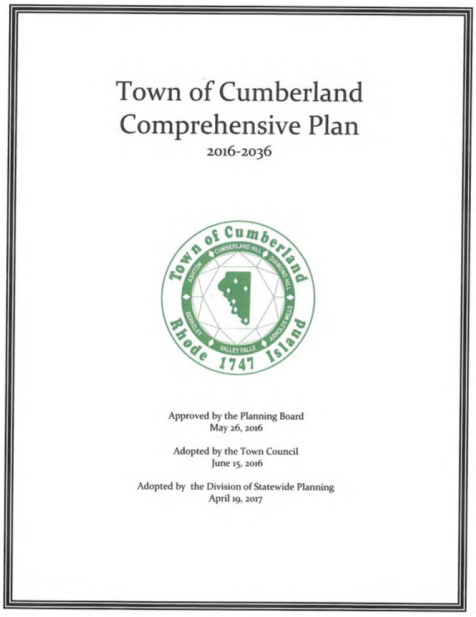
Action #13

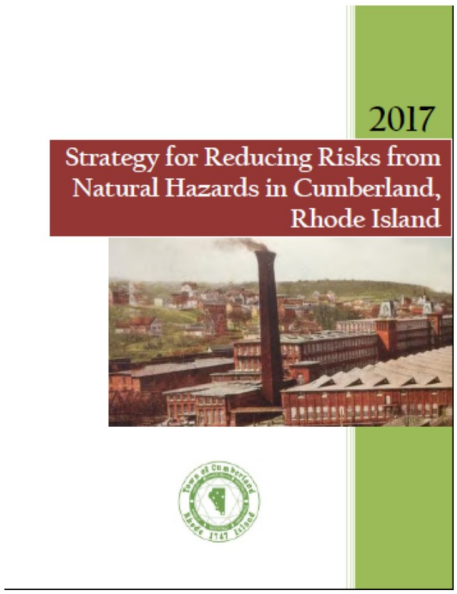
Identify Alternative Storage Location and/or Strategy for Critical Town Records/Documents

To determine if an alternate on or off-site location, or conversion to electronic records filing is the best course for the Town to undertake.

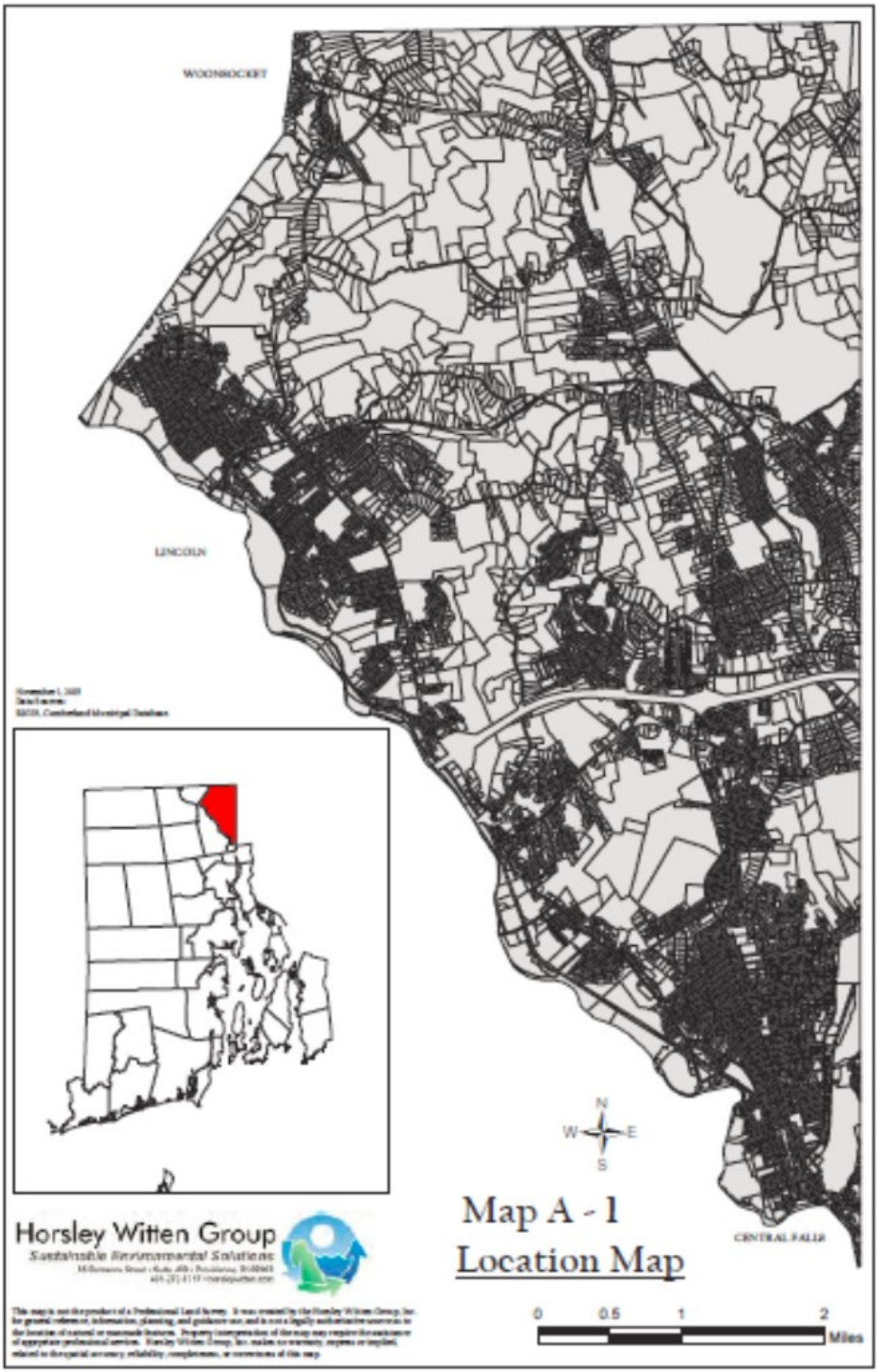
Appendix B

Cumberland
Map Resource Packet*
Used During
Workshop





***Gathered from Cumberland's Local HMP (2017) & Comprehensive Plan (2014)**


WOONSOCKET
LINCOLN
CENTRAL FALLS
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Horsley Witten Group
Sustainable Environmental Solutions
Map A - 1
Location Map
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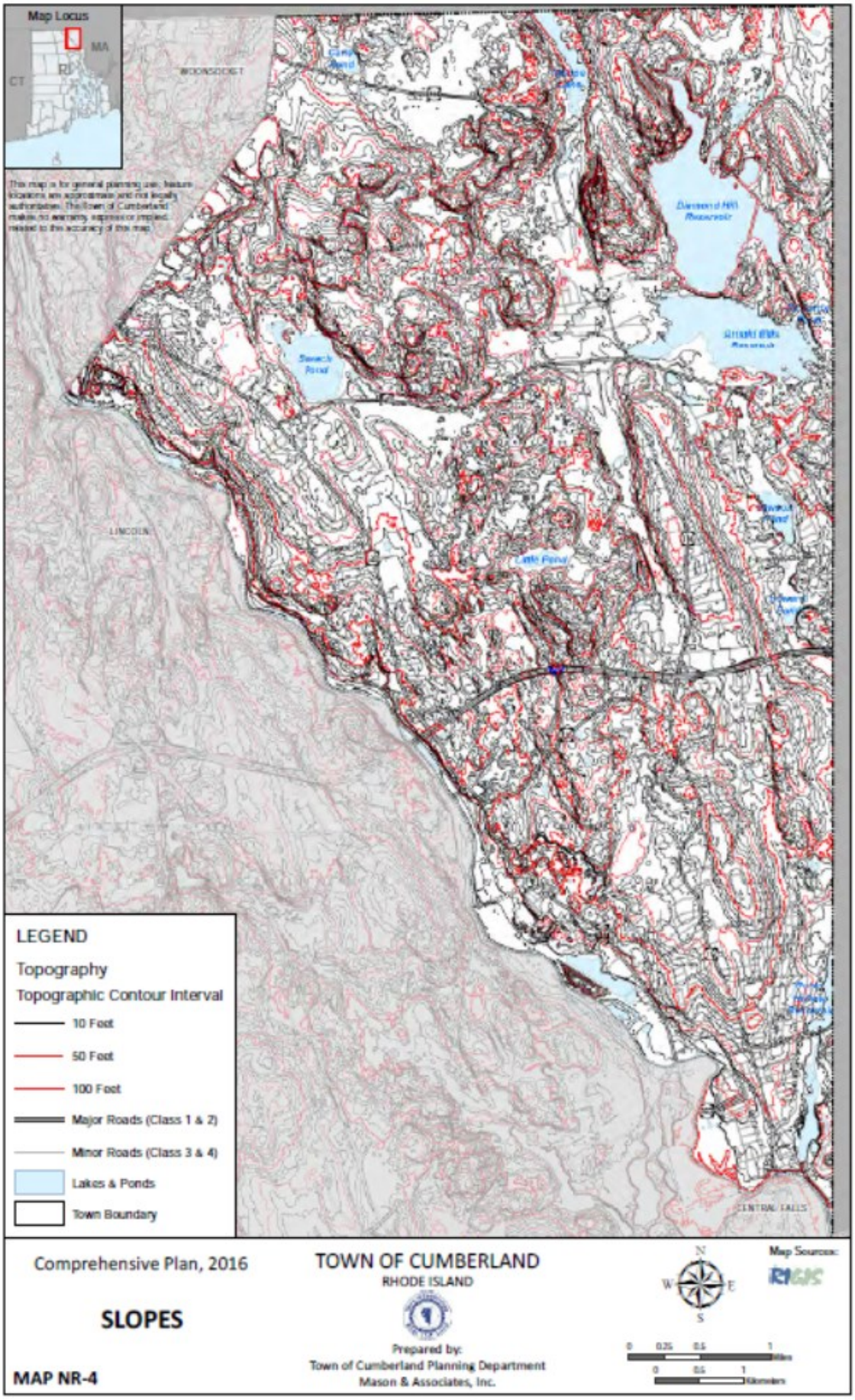
1
2
Miles


Map Locus
MA
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CT
WOONSOCKET
LINCOLN
CENTRAL FALLS
LEGEND
Topography
Topographic Contour Interval
10 Foot
50 Foot
100 Foot
Major Roads (Class 1 & 2)
Minor Roads (Class 3 & 4)
Lakes & Ponds
Town Boundary
Comprehensive Plan, 2016
SLOPES
MAP NR-4
TOWN OF CUMBERLAND
RHODE ISLAND
Prepared by:
Town of Cumberland Planning Department
Mason & Associates, Inc.
N
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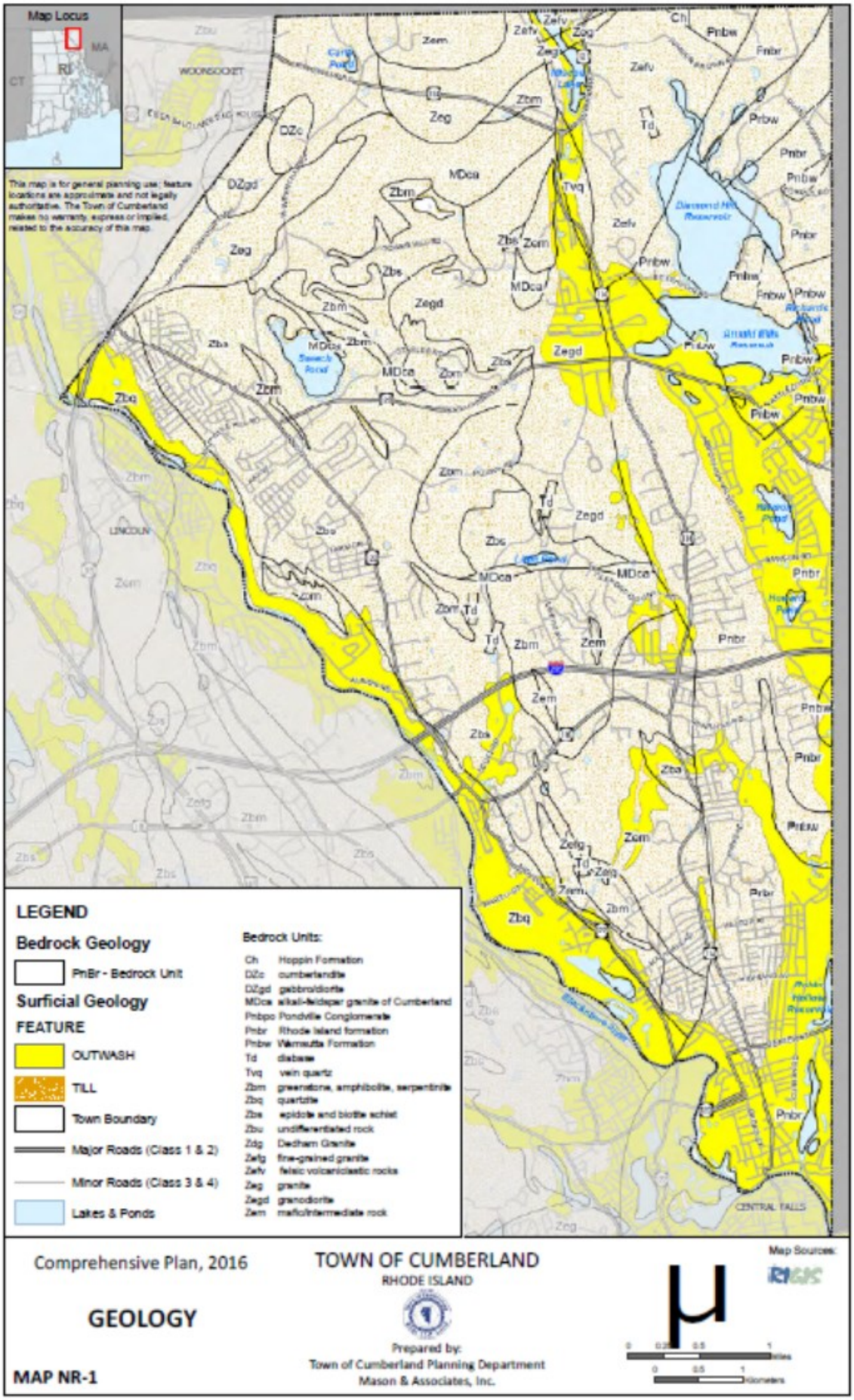
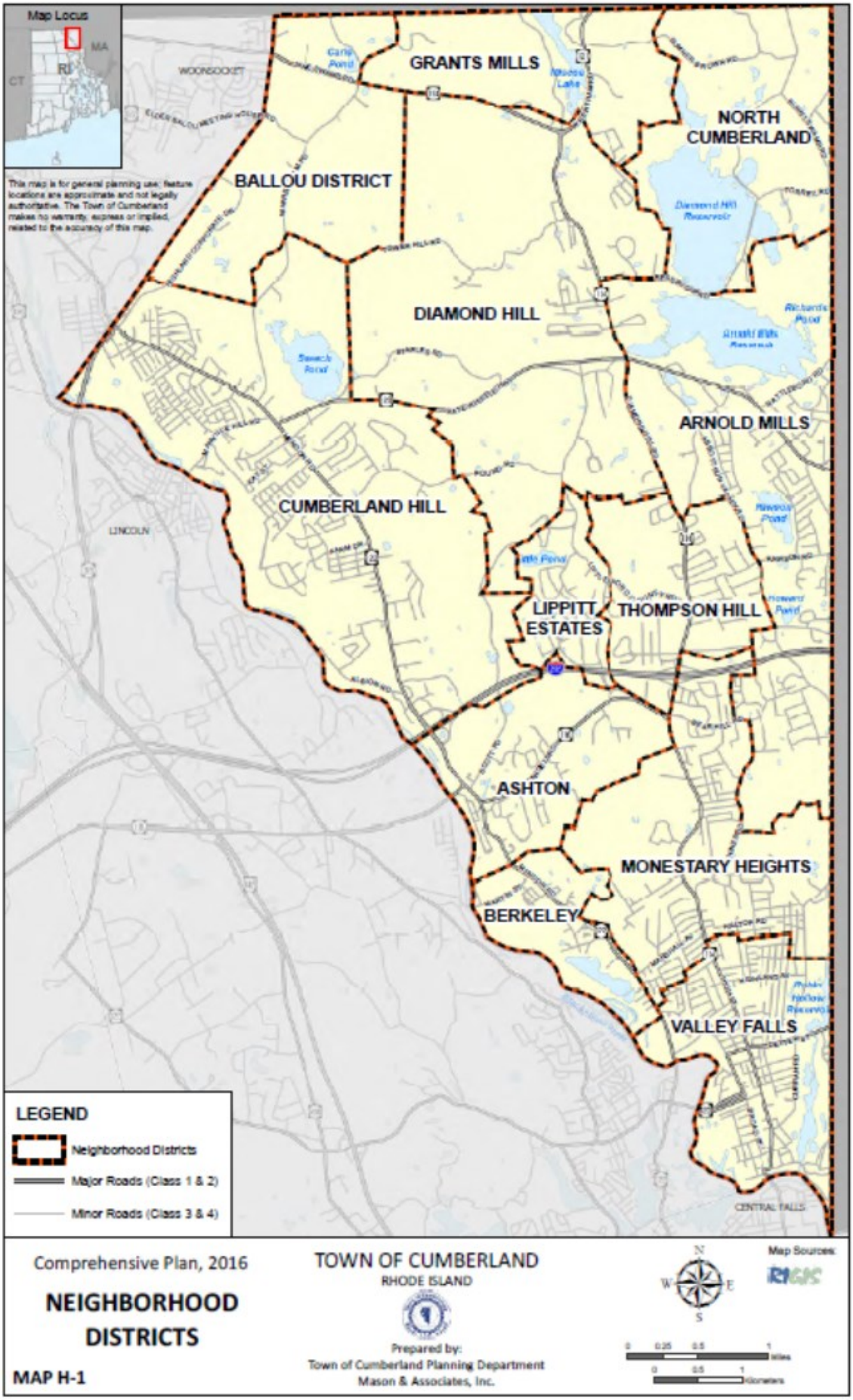
Map Sources:


Map Locus
MA
RI
CT
This map is for general planning use. Feature locations are approximate and not legally authoritative. The Town of Cumberland makes no warranty, express or implied, related to the accuracy of this map.
LEGEND
Bedrock Geology
PnBr - Bedrock Unit
Surficial Geology
FEATURE
OUTWASH
TILL
Town Boundary
Major Roads (Class 1 & 2)
Minor Roads (Class 3 & 4)
Lakes & Ponds
Bedrock Units:
Ch Hoppin Formation
DZc cumberlandite
DZgd gabbro/diorite
MDca alkali-feldspar granite of Cumberland
Pnbpo Pondville Conglomerate
Pnbr Rhode Island formation
Pnbw Wamsutta Formation
Td diabase
Tvq vein quartz
Zbm greenstone, amphibolite, serpentinite
Zbq quartzite
Zbs epidote and biotite schist
Zbu undifferentiated rock
Zdg Dedham Granite
Zefg fine-grained granite
Zefv felsic volcaniclastic rocks
Zeg granite
Zegd granodiorite
Zem mafic/intermediate rock
Comprehensive Plan, 2016
GEOLOGY
MAP NR-1
TOWN OF CUMBERLAND
RHODE ISLAND
Prepared by:
Town of Cumberland Planning Department
Mason & Associates, Inc.
Map Sources:
RIGIS


Map Locus
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This map is for general planning use; feature locations are approximate and not legally authoritative. The Town of Cumberland makes no warranty, express or implied, related to the accuracy of this map.
GRANTS MILLS
NORTH CUMBERLAND
BALLOU DISTRICT
DIAMOND HILL
ARNOLD MILLS
CUMBERLAND HILL
LIPPITT ESTATES
THOMPSON HILL
ASHTON
MONESTARY HEIGHTS
BERKELEY
VALLEY FALLS
LINCOLN
CENTRAL FALLS
LEGEND
Neighborhood Districts
Major Roads (Class 1 & 2)
Minor Roads (Class 3 & 4)
Comprehensive Plan, 2016
NEIGHBORHOOD DISTRICTS
MAP H-1
TOWN OF CUMBERLAND
RHODE ISLAND
Prepared by:
Town of Cumberland Planning Department
Mason & Associates, Inc.
N
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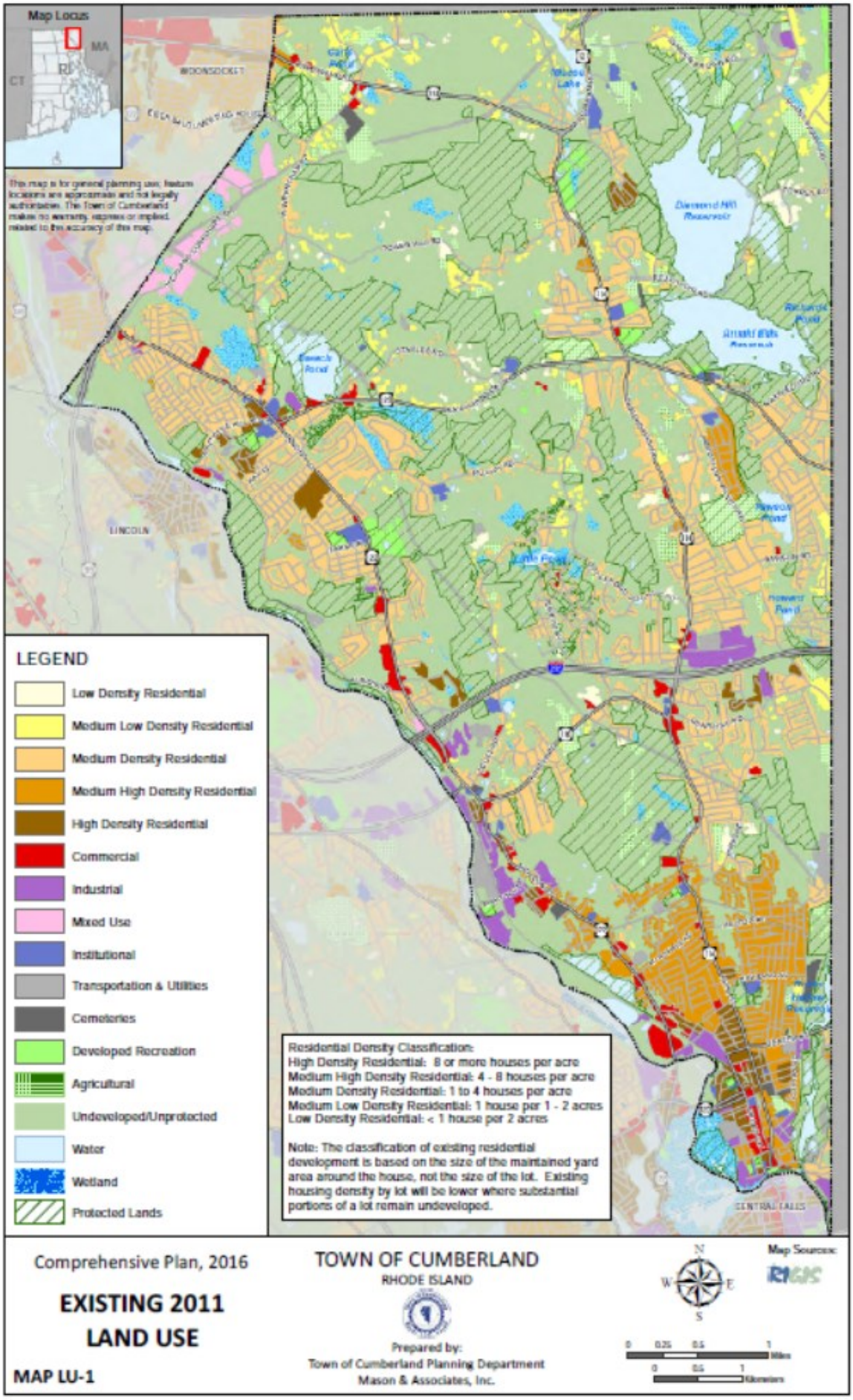
Map Sources:


Map Locus
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WOONSOCKET
LINCOLN
CENTRAL FALLS
This map is for general planning use; feature locations are approximate and not legally authoritative. The Town of Cumberland makes no warranty, express or implied, related to the accuracy of this map.
LEGEND
Low Density Residential
Medium Low Density Residential
Medium Density Residential
Medium High Density Residential
High Density Residential
Commercial
Industrial
Mixed Use
Institutional
Transportation & Utilities
Cemeteries
Developed Recreation
Agricultural
Undeveloped/Unprotected
Water
Wetland
Protected Lands
Residential Density Classification:
High Density Residential: 8 or more houses per acre
Medium High Density Residential: 4 - 8 houses per acre
Medium Density Residential: 1 to 4 houses per acre
Medium Low Density Residential: 1 house per 1 - 2 acres
Low Density Residential: < 1 house per 2 acres
Note: The classification of existing residential development is based on the size of the maintained yard area around the house, not the size of the lot. Existing housing density by lot will be lower where substantial portions of a lot remain undeveloped.
Comprehensive Plan, 2016
EXISTING 2011 LAND USE
MAP LU-1
TOWN OF CUMBERLAND
RHODE ISLAND
Prepared by:
Town of Cumberland Planning Department
Mason & Associates, Inc.
N
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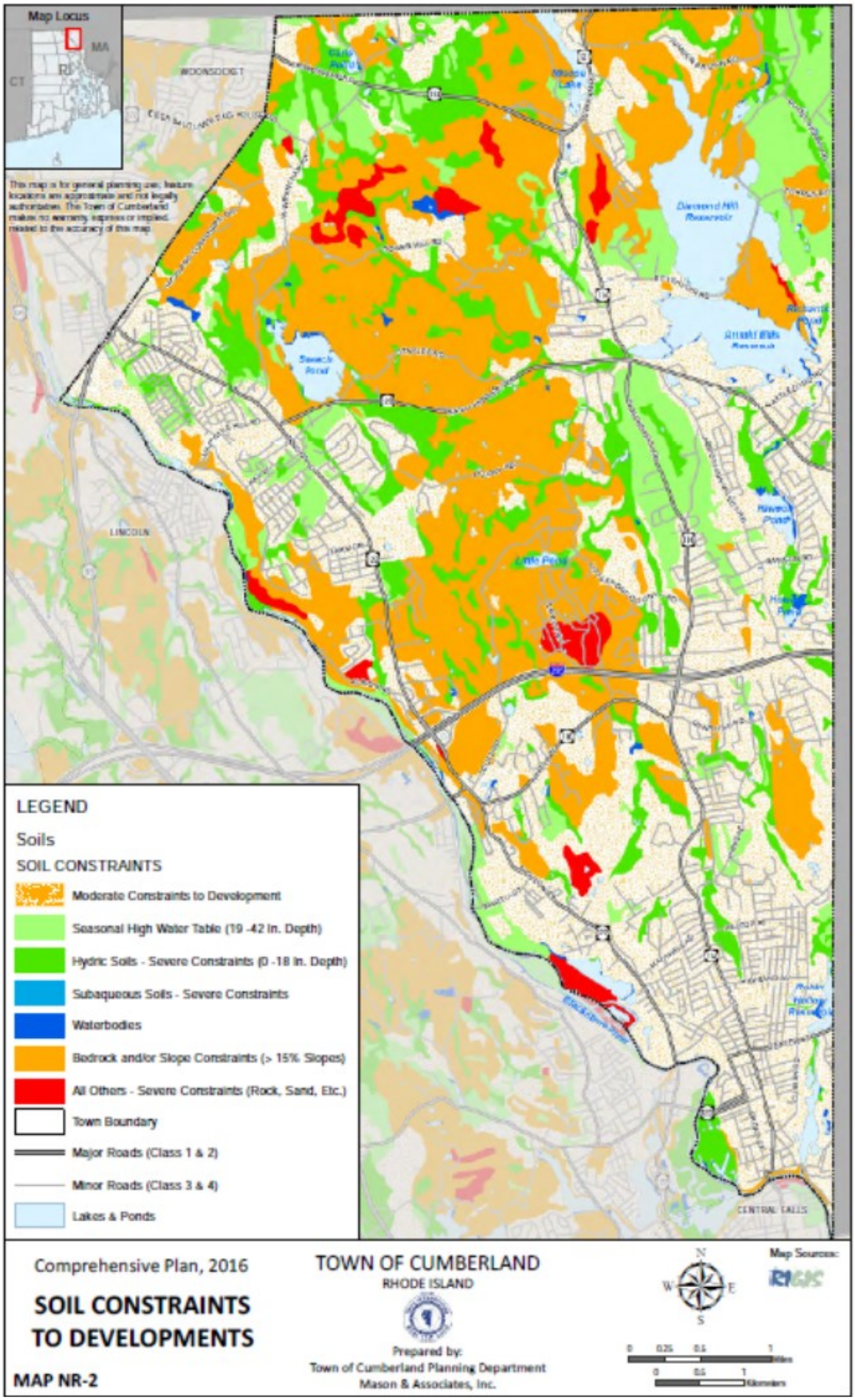
Map Sources:
RIGIS
Miles
Kilometers


Map Locus
MA
RI
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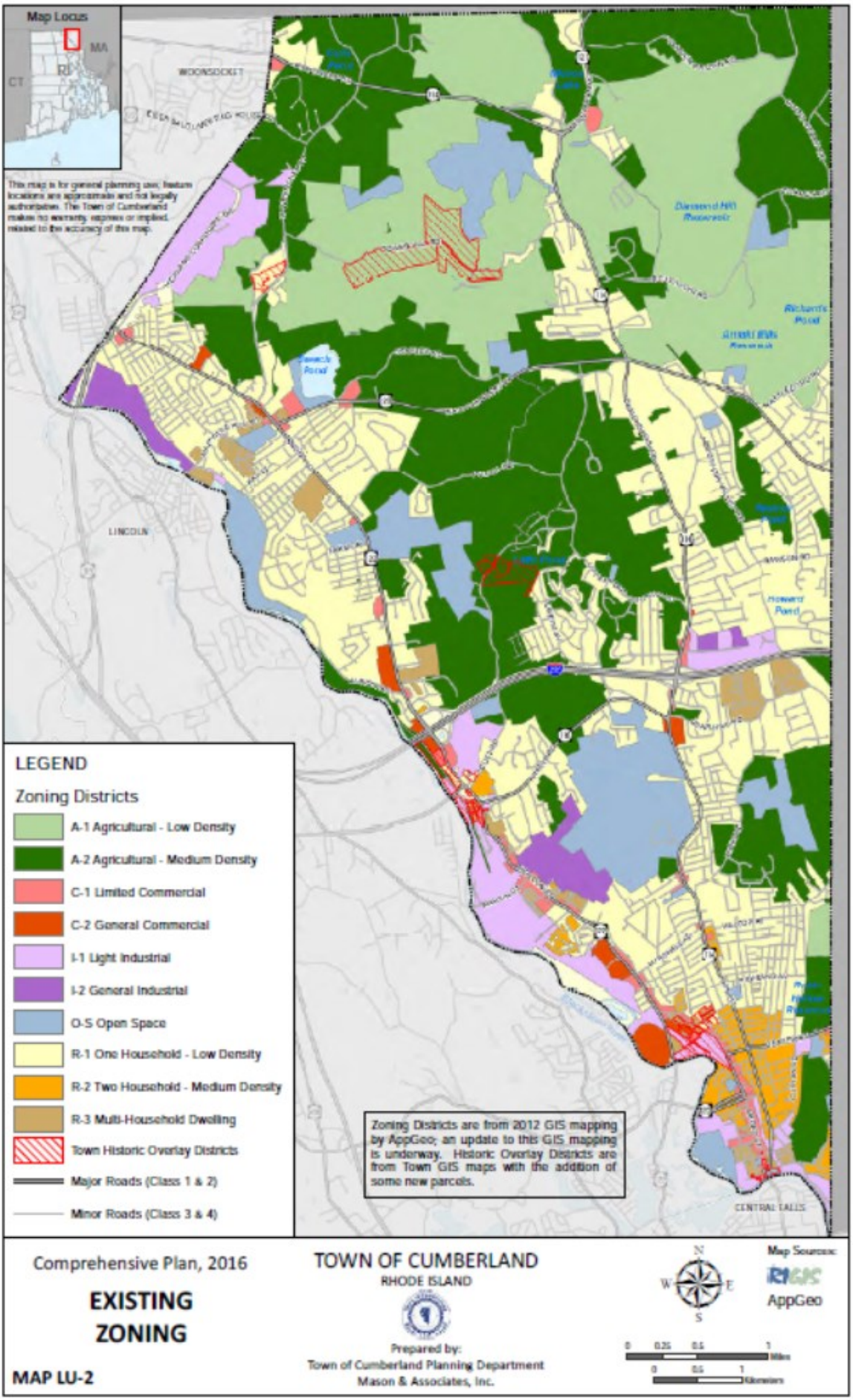
LINCOLN
LEGEND
Soils
SOIL CONSTRAINTS
Moderate Constraints to Development
Seasonal High Water Table (19 -42 In. Depth)
Hydric Soils - Severe Constraints (0 -18 In. Depth)
Subaqueous Soils - Severe Constraints
Waterbodies
Bedrock and/or Slope Constraints (> 15% Slopes)
All Others - Severe Constraints (Rock, Sand, Etc.)
Town Boundary
Major Roads (Class 1 & 2)
Minor Roads (Class 3 & 4)
Lakes & Ponds
Comprehensive Plan, 2016
SOIL CONSTRAINTS TO DEVELOPMENTS
MAP NR-2
TOWN OF CUMBERLAND
RHODE ISLAND
Prepared by:
Town of Cumberland Planning Department
Mason & Associates, Inc.
Map Source:


Map Locus
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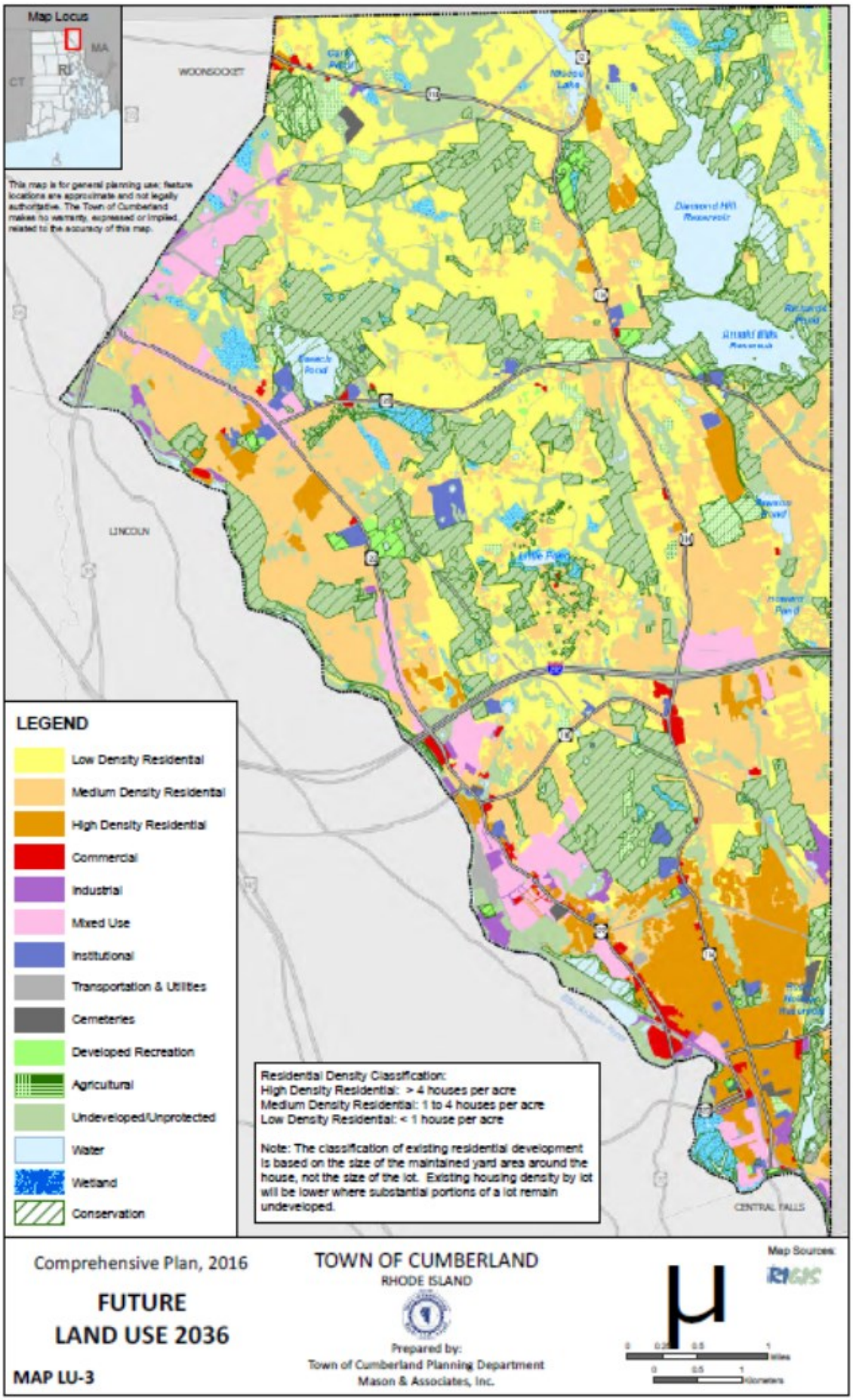
WOONSOCKET
LINCOLN
CENTRAL FALLS
LEGEND
Zoning Districts
A-1 Agricultural - Low Density
A-2 Agricultural - Medium Density
C-1 Limited Commercial
C-2 General Commercial
I-1 Light Industrial
I-2 General Industrial
O-S Open Space
R-1 One Household - Low Density
R-2 Two Household - Medium Density
R-3 Multi-Household Dwelling
Town Historic Overlay Districts
Major Roads (Class 1 & 2)
Minor Roads (Class 3 & 4)
Zoning Districts are from 2012 GIS mapping by AppGeo; an update to this GIS mapping is underway. Historic Overlay Districts are from Town GIS maps with the addition of some new parcels.
Comprehensive Plan, 2016
EXISTING ZONING
MAP LU-2
TOWN OF CUMBERLAND
RHODE ISLAND
Prepared by:
Town of Cumberland Planning Department
Mason & Associates, Inc.
Map Sources:
RIGIS
AppGeo


Map Locus
MA
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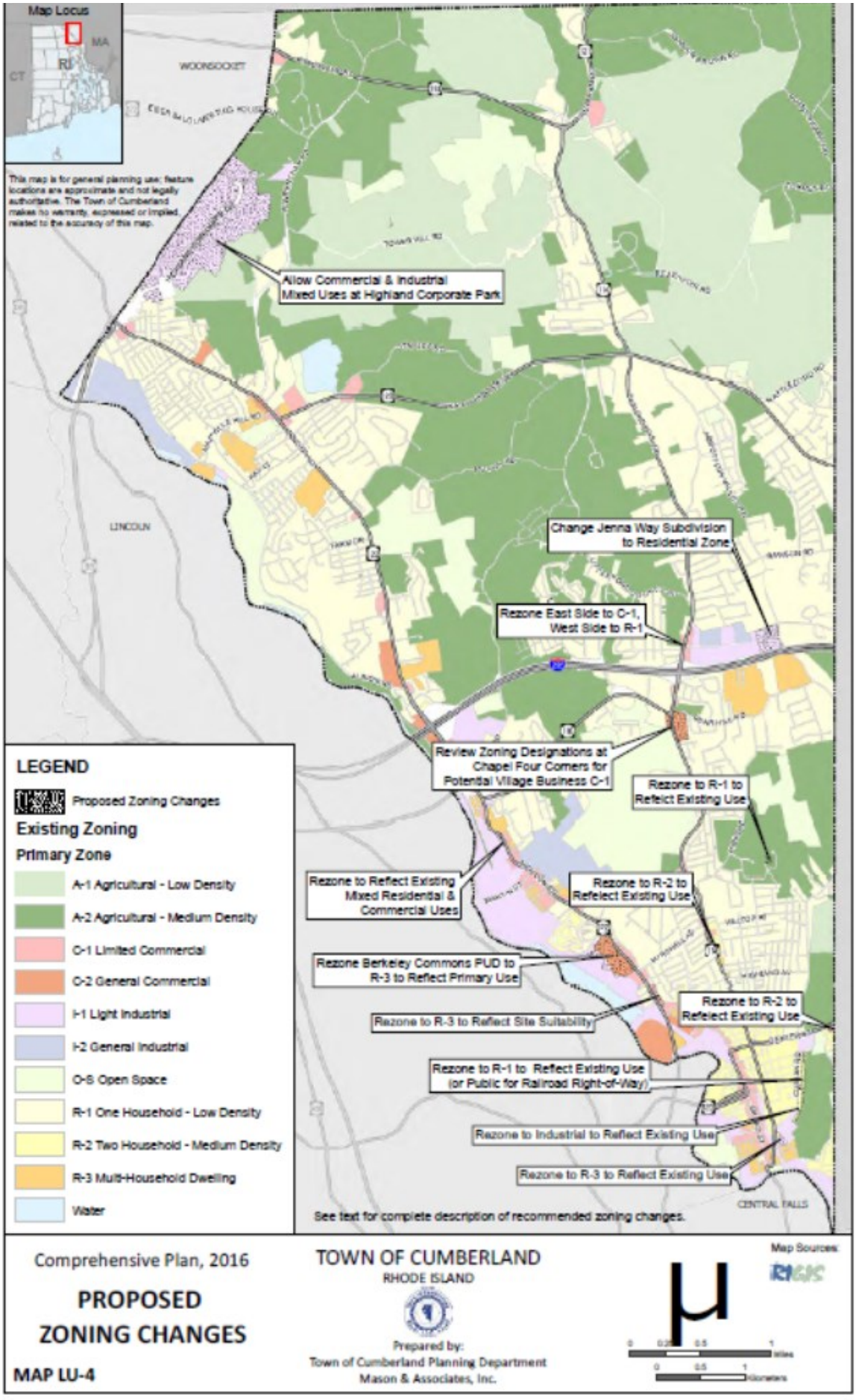
WOONSOCKET
LINCOLN
CENTRAL FALLS
This map is for general planning use; feature locations are approximate and not legally authoritative. The Town of Cumberland makes no warranty, expressed or implied, related to the accuracy of this map.
LEGEND
Low Density Residential
Medium Density Residential
High Density Residential
Commercial
Industrial
Mixed Use
Institutional
Transportation & Utilities
Cemeteries
Developed Recreation
Agricultural
Undeveloped/Unprotected
Water
Wetland
Conservation
Residential Density Classification:
High Density Residential: > 4 houses per acre
Medium Density Residential: 1 to 4 houses per acre
Low Density Residential: < 1 house per acre
Note: The classification of existing residential development is based on the size of the maintained yard area around the house, not the size of the lot. Existing housing density by lot will be lower where substantial portions of a lot remain undeveloped.
Comprehensive Plan, 2016
FUTURE
LAND USE 2036
MAP LU-3
TOWN OF CUMBERLAND
RHODE ISLAND
Prepared by:
Town of Cumberland Planning Department
Mason & Associates, Inc.
Map Sources:
RIGIS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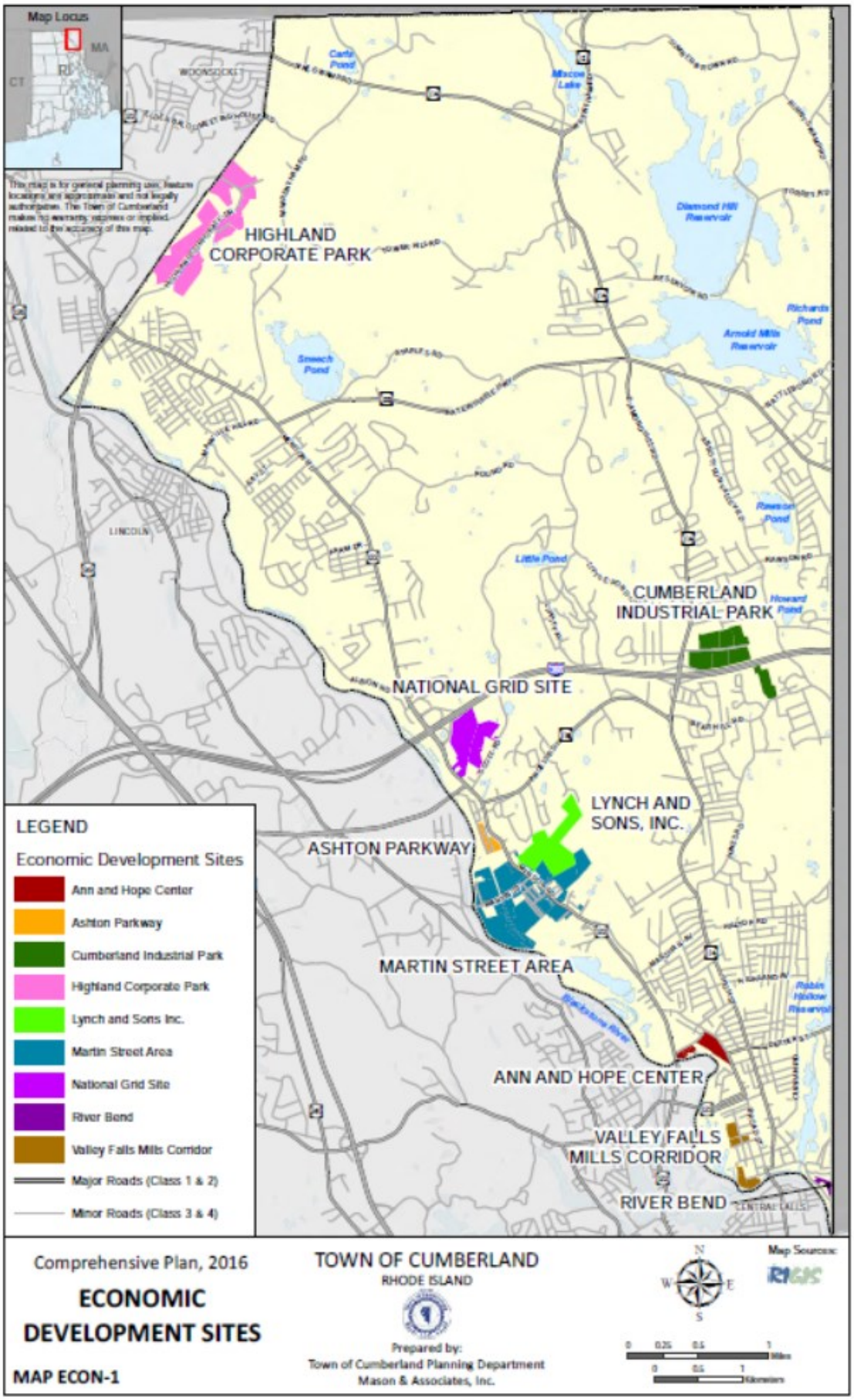
This map is for general planning use; feature locations are approximate and not legally authoritative. The Town of Cumberland makes no warranty, expressed or implied, related to the accuracy of this map.
Allow Commercial & Industrial Mixed Uses at Highland Corporate Park
Change Jenna Way Subdivision to Residential Zone
Rezone East Side to C-1, West Side to R-1
Review Zoning Designations at Chapel Four Corners for Potential Village Business C-1
Rezone to R-1 to Reflect Existing Use
Rezone to Reflect Existing Mixed Residential & Commercial Uses
Rezone to R-2 to Reflect Existing Use
Rezone Berkeley Commons PUD to R-3 to Reflect Primary Use
Rezone to R-3 to Reflect Site Suitability
Rezone to R-2 to Reflect Existing Use
Rezone to R-1 to Reflect Existing Use (or Public for Railroad Right-of-Way)
Rezone to Industrial to Reflect Existing Use
Rezone to R-3 to Reflect Existing Use
LINCOLN
CENTRAL FALLS
LEGEND
Proposed Zoning Changes
Existing Zoning
Primary Zone
A-1 Agricultural - Low Density
A-2 Agricultural - Medium Density
C-1 Limited Commercial
C-2 General Commercial
I-1 Light Industrial
I-2 General Industrial
O-S Open Space
R-1 One Household - Low Density
R-2 Two Household - Medium Density
R-3 Multi-Household Dwelling
Water
See text for complete description of recommended zoning changes.
Comprehensive Plan, 2016
PROPOSED ZONING CHANGES
MAP LU-4
TOWN OF CUMBERLAND
RHODE ISLAND
Prepared by:
Town of Cumberland Planning Department
Mason & Associates, Inc.
Map Sources:
RIGIS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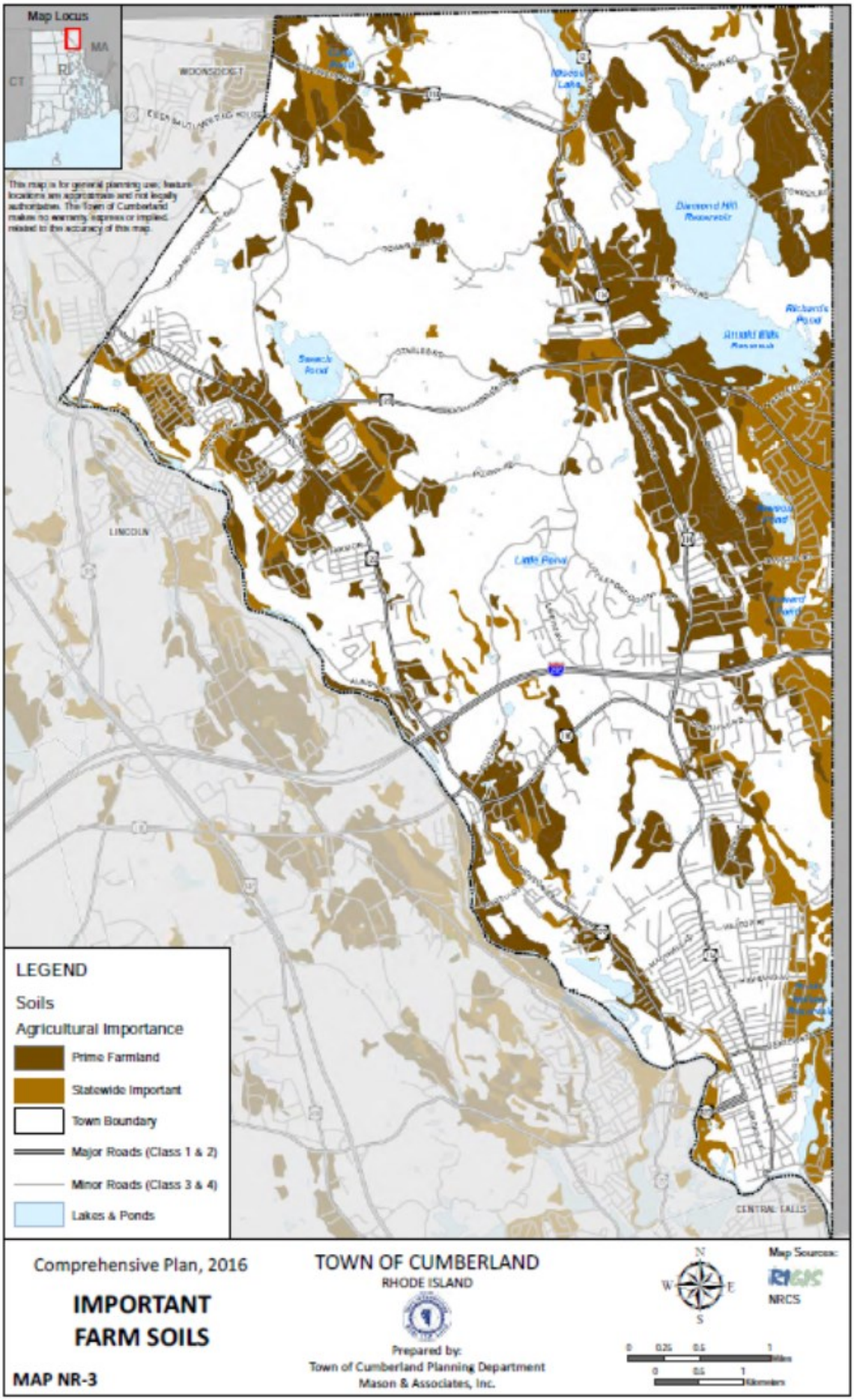
HIGHLAND CORPORATE PARK
CUMBERLAND INDUSTRIAL PARK
NATIONAL GRID SITE
LYNCH AND SONS, INC.
ASHTON PARKWAY
MARTIN STREET AREA
ANN AND HOPE CENTER
VALLEY FALLS MILLS CORRIDOR
RIVER BEND
LEGEND
Economic Development Sites
Ann and Hope Center
Ashton Parkway
Cumberland Industrial Park
Highland Corporate Park
Lynch and Sons Inc.
Martin Street Area
National Grid Site
River Bend
Valley Falls Mills Corridor
Major Roads (Class 1 & 2)
Minor Roads (Class 3 & 4)
Comprehensive Plan, 2016
ECONOMIC DEVELOPMENT SITES
MAP ECON-1
TOWN OF CUMBERLAND
RHODE ISLAND
Prepared by:
Town of Cumberland Planning Department
Mason & Associates, Inc.
Map Sources:


Map Locus
MA
RI
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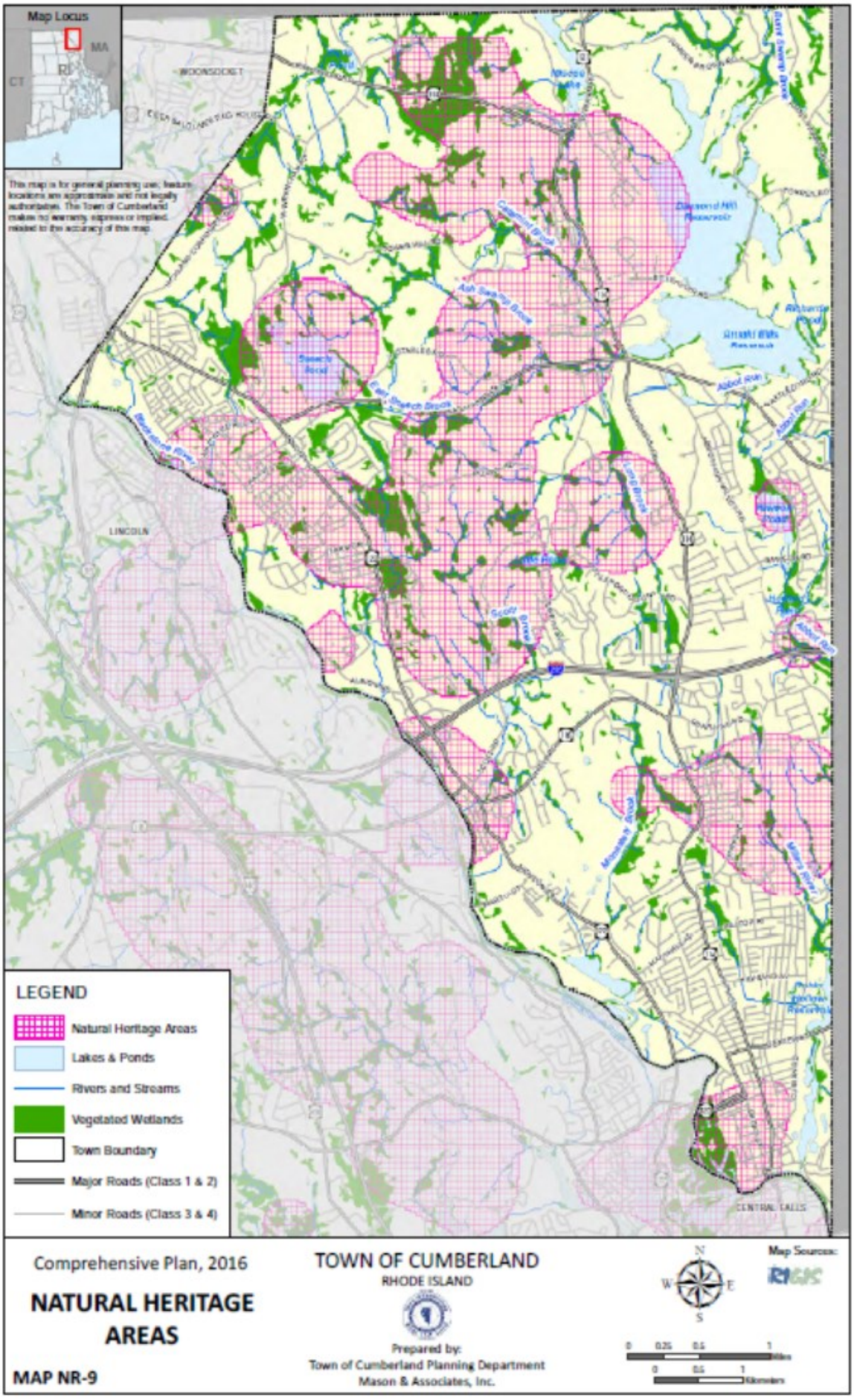
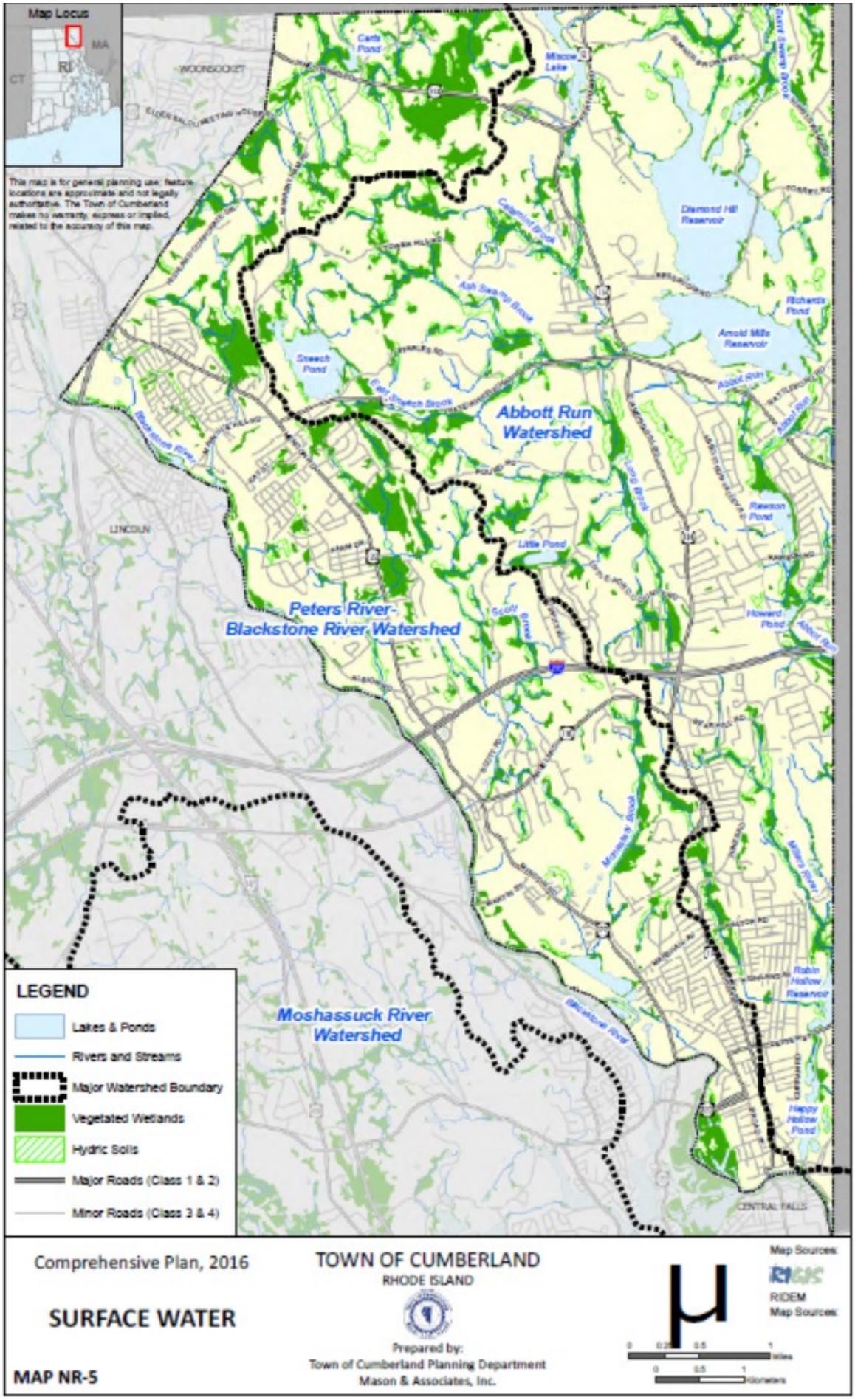
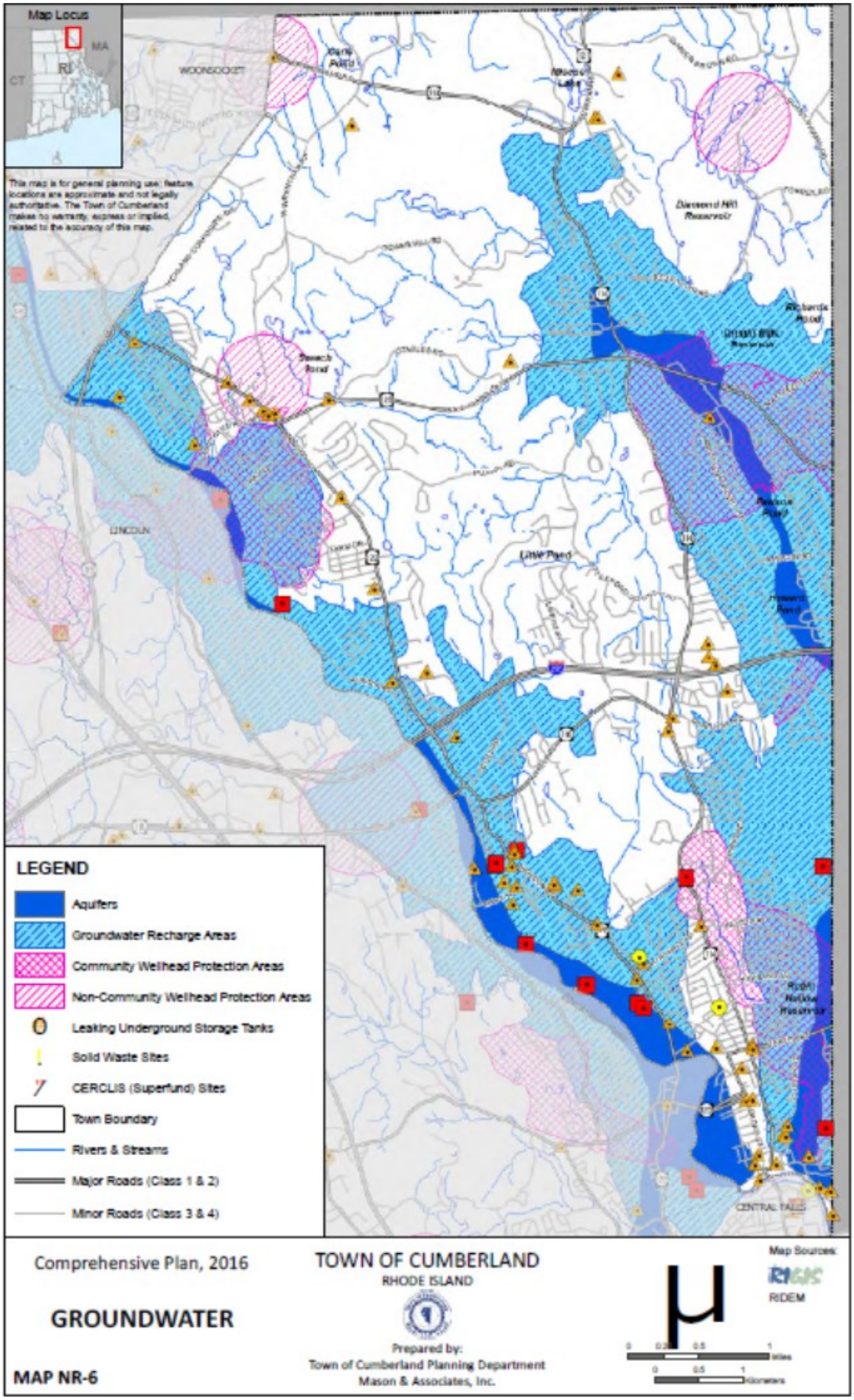
LINCOLN
CENTRAL FALLS
LEGEND
Soils
Agricultural Importance
Prime Farmland
Statewide Important
Town Boundary
Major Roads (Class 1 & 2)
Minor Roads (Class 3 & 4)
Lakes & Ponds
Comprehensive Plan, 2016
IMPORTANT FARM SOILS
MAP NR-3
TOWN OF CUMBERLAND
RHODE ISLAND
Prepared by:
Town of Cumberland Planning Department
Mason & Associates, Inc.
Map Sources:
RIGIS
NRCS


Map Locus
MA
RI
CT
LINCOLN
LEGEND
Natural Heritage Areas
Lakes & Ponds
Rivers and Streams
Vegetated Wetlands
Town Boundary
Major Roads (Class 1 & 2)
Minor Roads (Class 3 & 4)
Comprehensive Plan, 2016
NATURAL HERITAGE AREAS
MAP NR-9
TOWN OF CUMBERLAND
RHODE ISLAND
Prepared by:
Town of Cumberland Planning Department
Mason & Associates, Inc.
Map Sources:


Map Locus
MA
RI
CT
This map is for general planning use. Feature locations are approximate and not legally authoritative. The Town of Cumberland makes no warranty, express or implied, related to the accuracy of this map.
Abbott Run Watershed
Peters River-Blackstone River Watershed
Moshassuck River Watershed
LINCOLN
CENTRAL FALLS
LEGEND
Lakes & Ponds
Rivers and Streams
Major Watershed Boundary
Vegetated Wetlands
Hydric Soils
Major Roads (Class 1 & 2)
Minor Roads (Class 3 & 4)
Comprehensive Plan, 2016
SURFACE WATER
MAP NR-5
TOWN OF CUMBERLAND
RHODE ISLAND
Prepared by:
Town of Cumberland Planning Department
Mason & Associates, Inc.
Map Sources:
RIGIS
RIDEM
Map Sources:


Map Locus
MA
RI
CT
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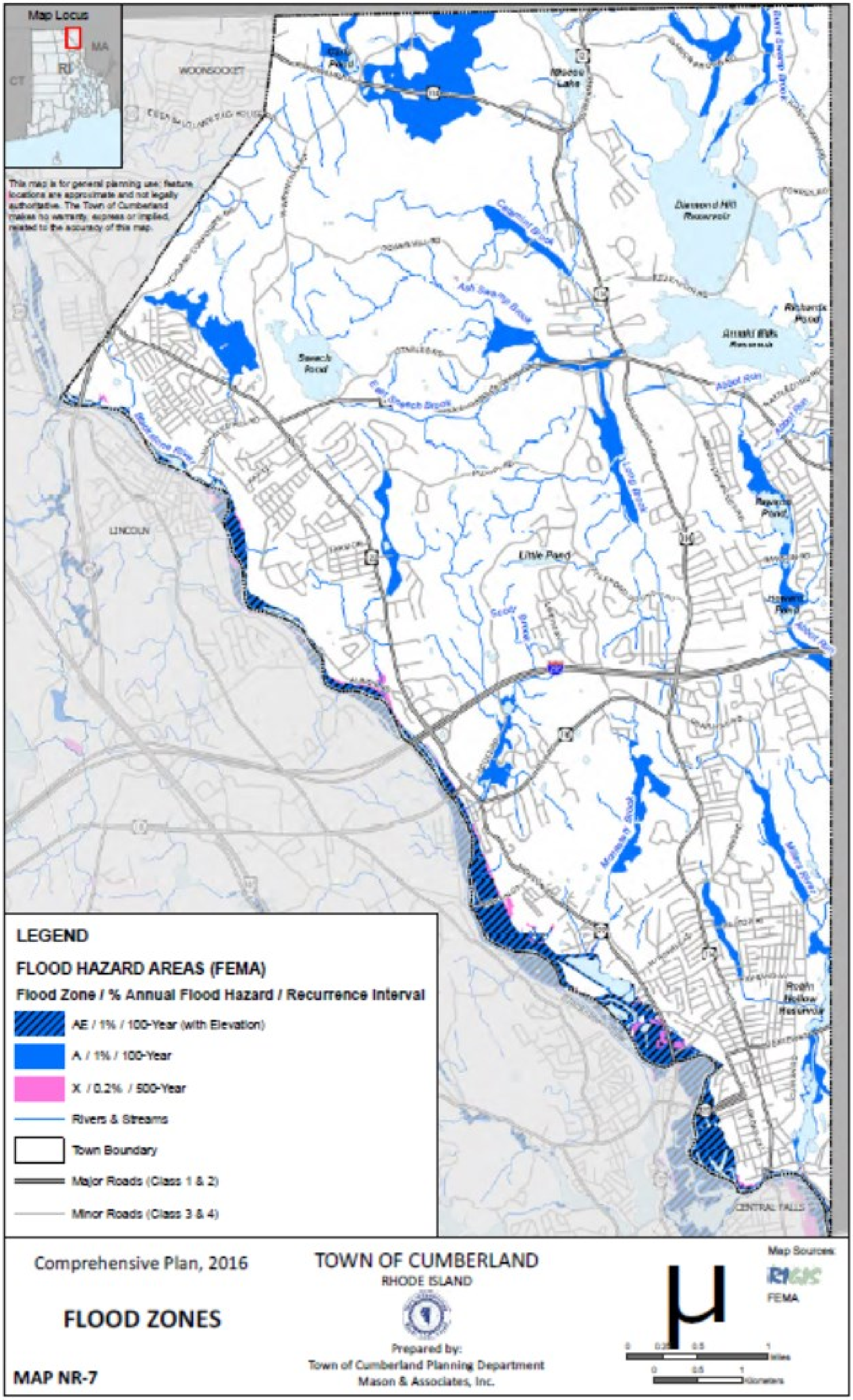
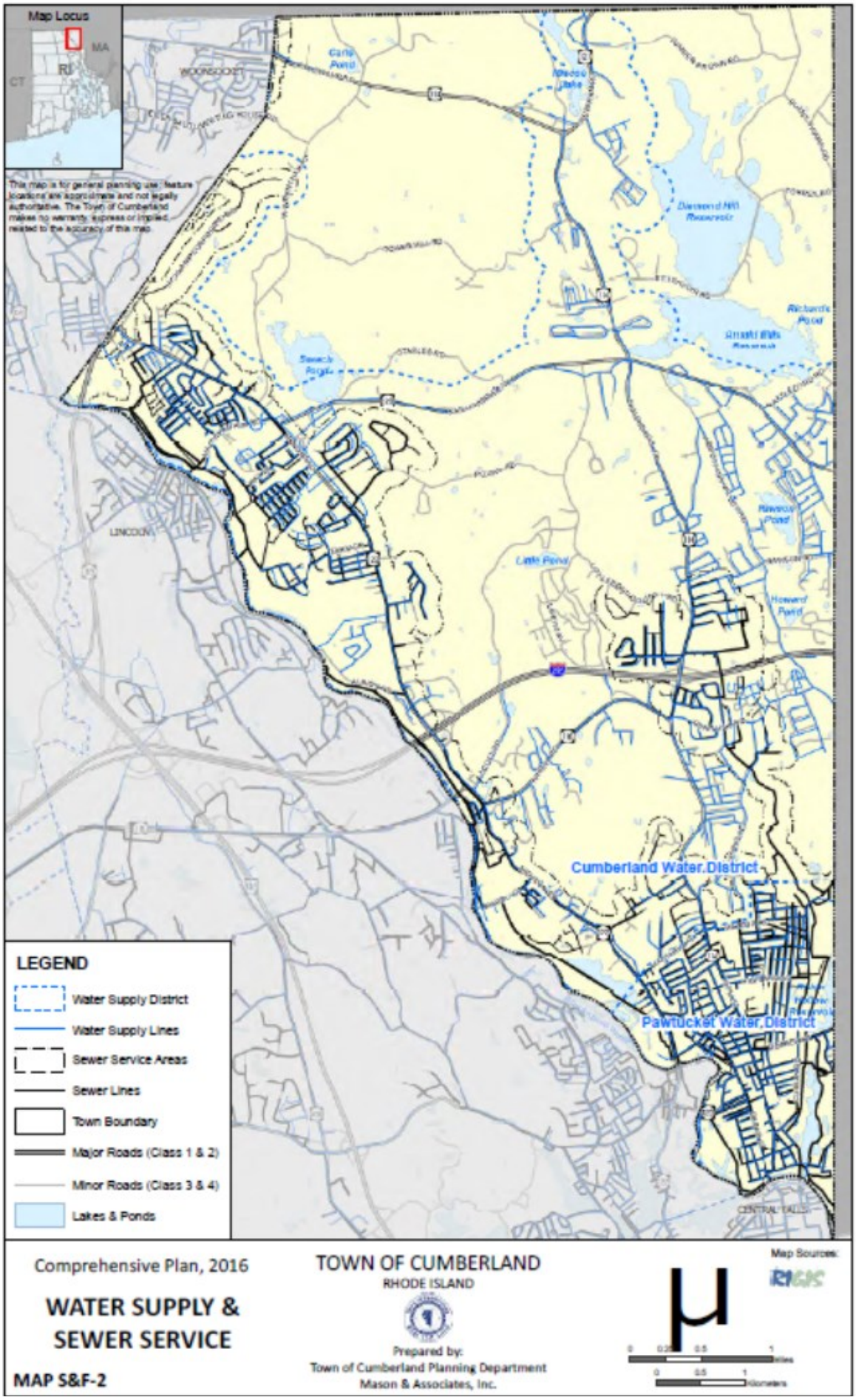
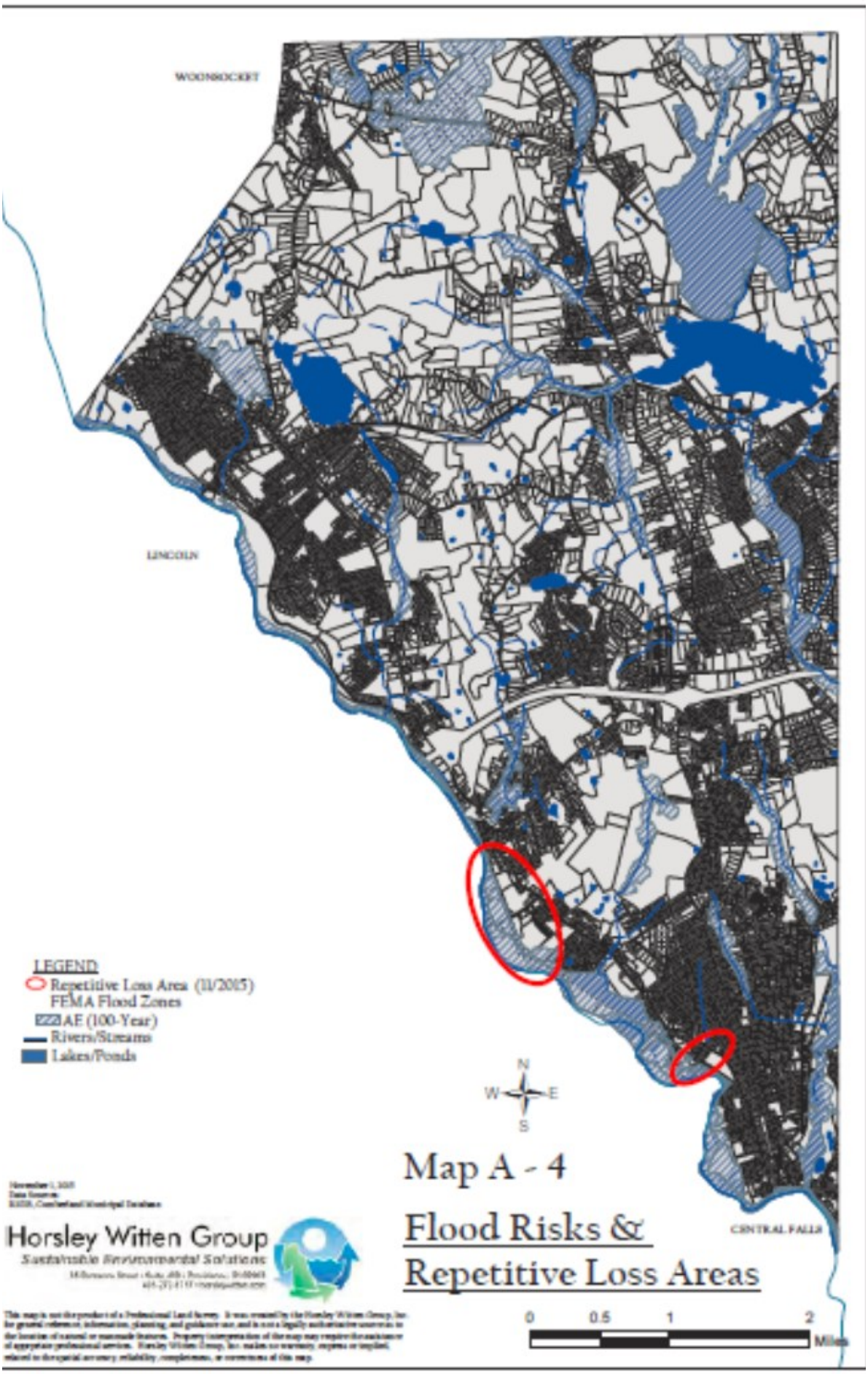
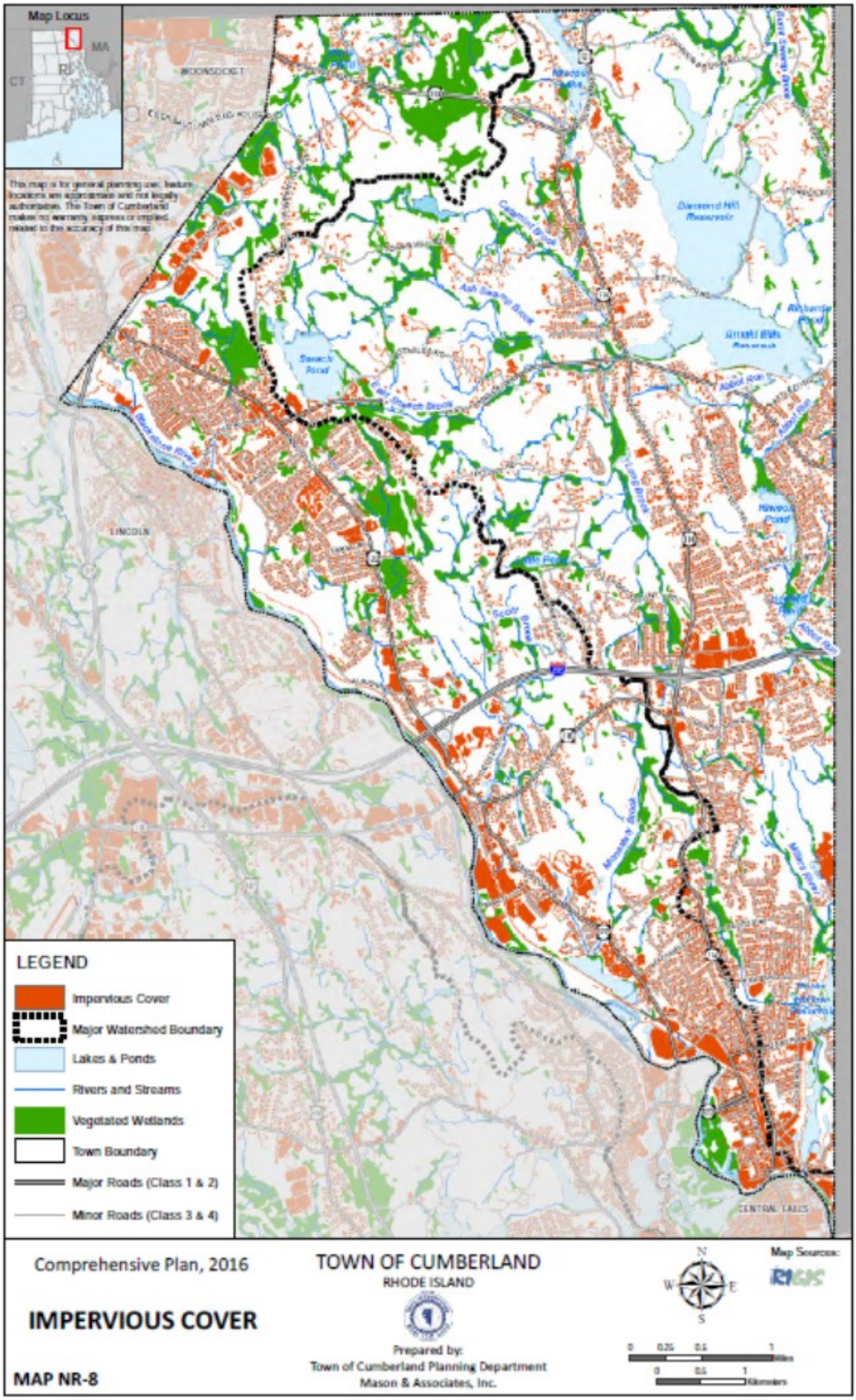
WOONSOCKET
LINCOLN
CENTRAL FALLS
LEGEND
Aquifers
Groundwater Recharge Areas
Community Wellhead Protection Areas
Non-Community Wellhead Protection Areas
Leaking Underground Storage Tanks
Solid Waste Sites
CERCLIS (Superfund) Sites
Town Boundary
Rivers & Streams
Major Roads (Class 1 & 2)
Minor Roads (Class 3 & 4)
Comprehensive Plan, 2016
GROUNDWATER
MAP NR-6
TOWN OF CUMBERLAND
RHODE ISLAND
Prepared by:
Town of Cumberland Planning Department
Mason & Associates, Inc.
Map Sources:
RIGIS
RIDEM

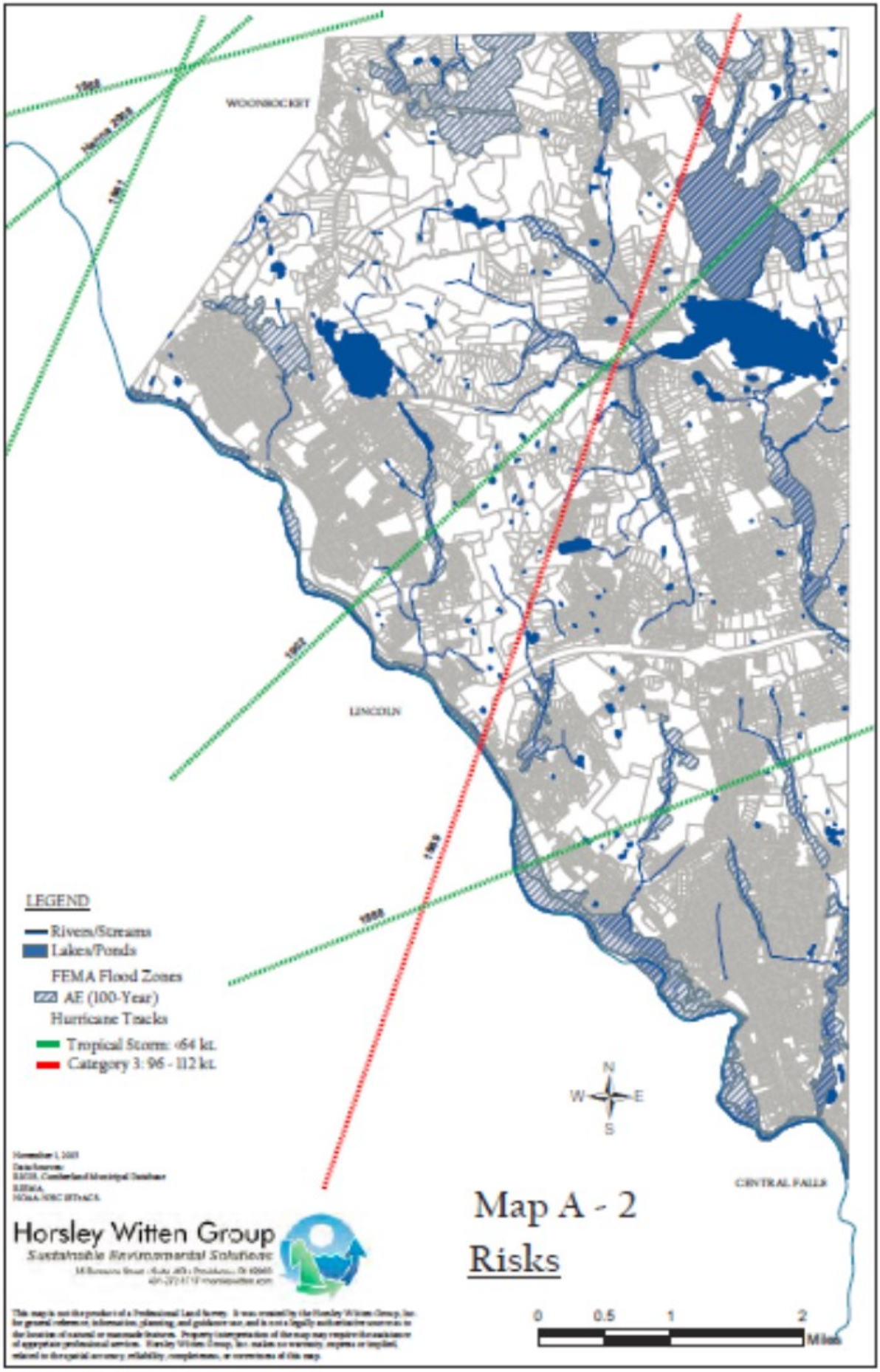


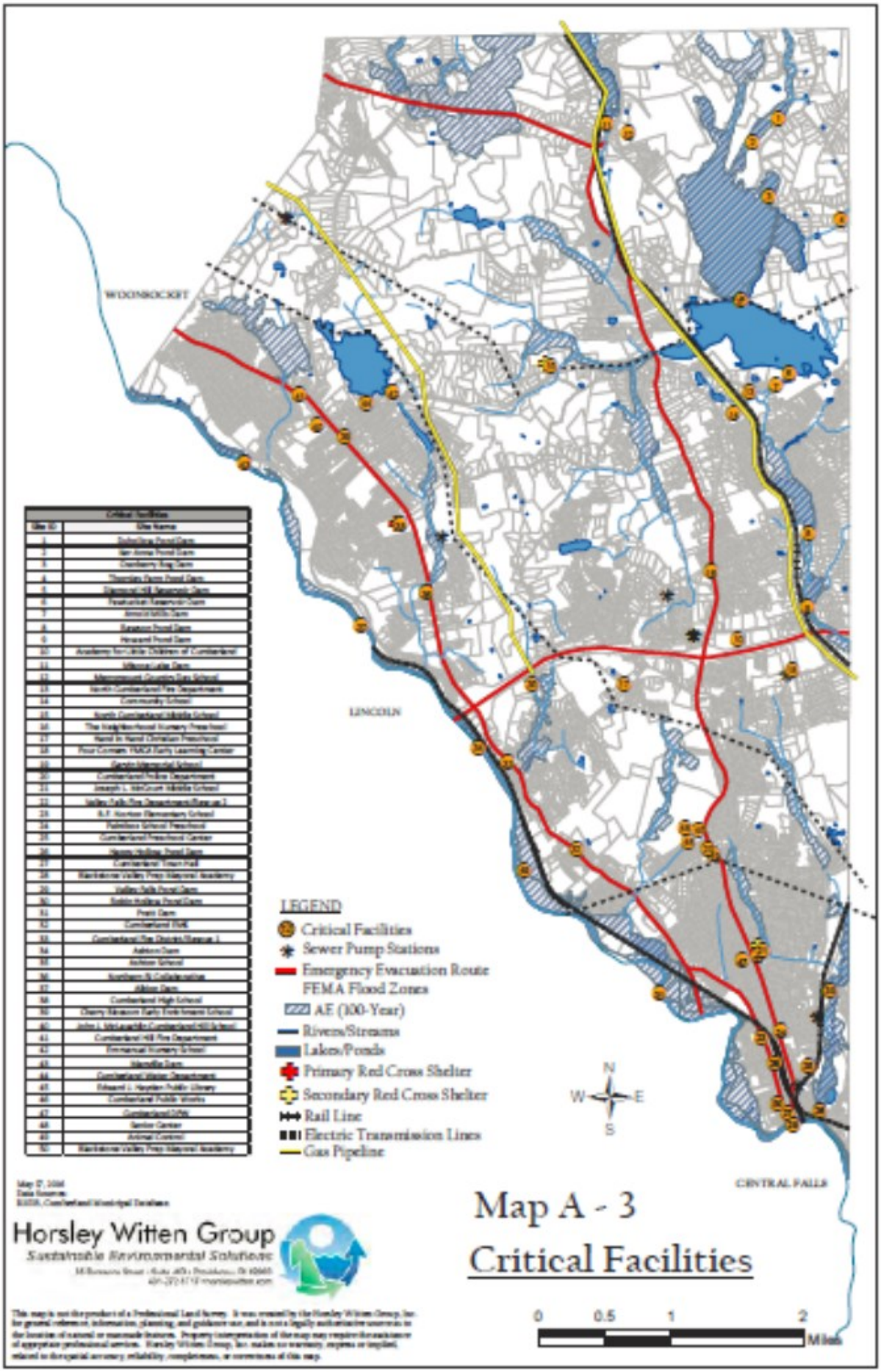
Map Locus
This map is for general planning use; feature locations are approximate and not legally authoritative. The Town of Cumberland makes no warranty, express or implied, related to the accuracy of this map.
LEGEND
FLOOD HAZARD AREAS (FEMA)
Flood Zone / % Annual Flood Hazard / Recurrence Interval
AE / 1% / 100-Year (with Elevation)
A / 1% / 100-Year
X / 0.2% / 500-Year
Rivers & Streams
Town Boundary
Major Roads (Class 1 & 2)
Minor Roads (Class 3 & 4)
Comprehensive Plan, 2016
FLOOD ZONES
MAP NR-7
TOWN OF CUMBERLAND
RHODE ISLAND
Prepared by:
Town of Cumberland Planning Department
Mason & Associates, Inc.
Map Sources:
RIGIS
FEMA

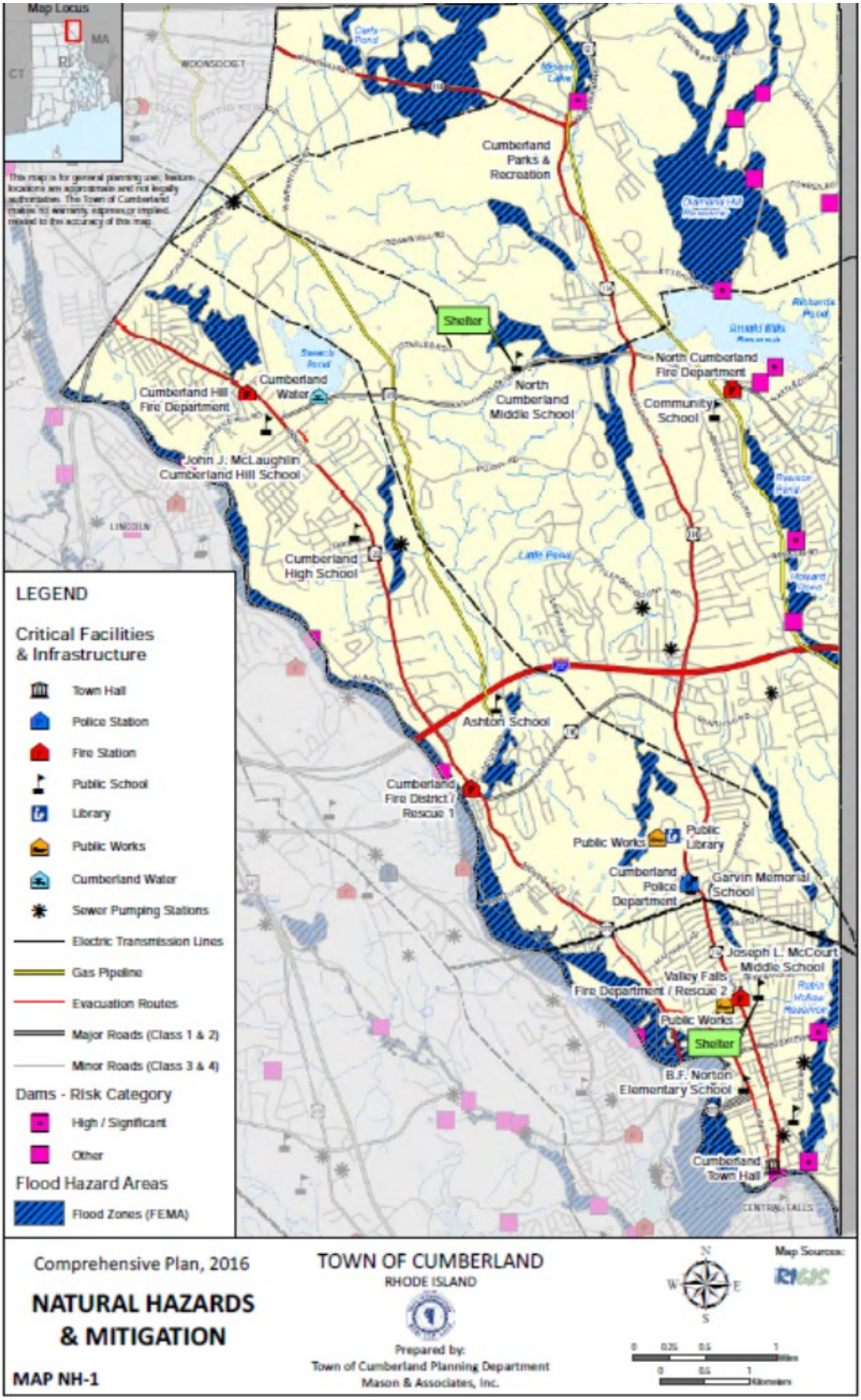

Map Locus
MA
RI
CT
WOONSOCKET
This map is for general planning use. Feature locations are approximate and not legally authoritative. The Town of Cumberland makes no warranty, express or implied, related to the accuracy of this map.
Diamond Hill Reservoir
Arnold Mills Reservoir
LINCOLN
Cumberland Water District
Pawtucket Water District
CENTRAL FALLS
LEGEND
Water Supply District
Water Supply Lines
Sewer Service Areas
Sewer Lines
Town Boundary
Major Roads (Class 1 & 2)
Minor Roads (Class 3 & 4)
Lakes & Ponds
Comprehensive Plan, 2016
WATER SUPPLY & SEWER SERVICE
MAP S&F-2
TOWN OF CUMBERLAND
RHODE ISLAND
Prepared by:
Town of Cumberland Planning Department
Mason & Associates, Inc.
Map Sources:
RIGIS


WOONSOCKET
LINCOLN
CENTRAL FALLS
LEGEND
Repetitive Loss Area (11/2015)
FEMA Flood Zones
AE (100-Year)
Rivers/Streams
Lakes/Ponds
N
W
E
S
Map A - 4
Flood Risks &
Repetitive Loss Areas
Horsley Witten Group
Sustainable Environmental Solutions
0
0.5
1
2
Miles

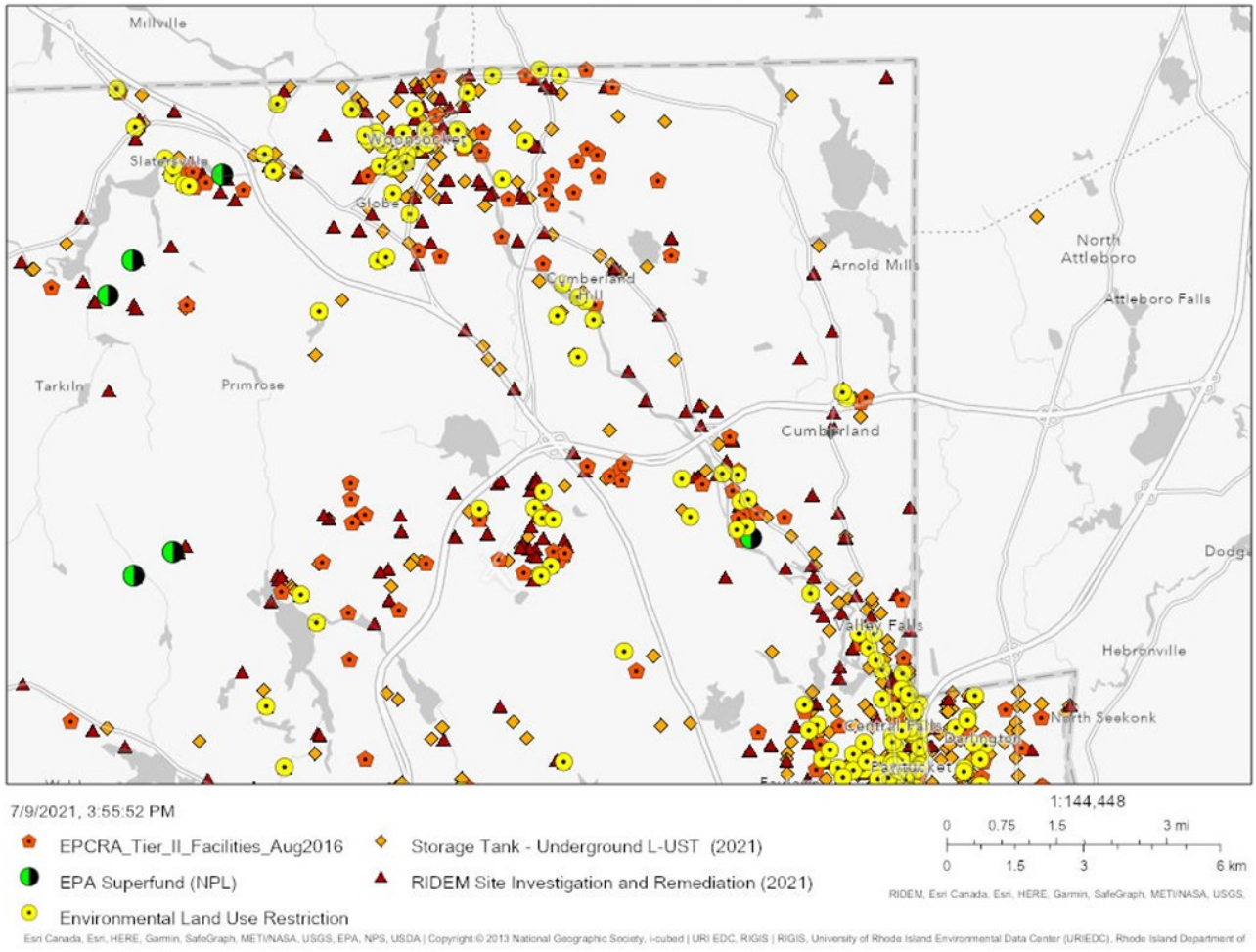

Map Locus
MA
RI
CT
LEGEND
Impervious Cover
Major Watershed Boundary
Lakes & Ponds
Rivers and Streams
Vegetated Wetlands
Town Boundary
Major Roads (Class 1 & 2)
Minor Roads (Class 3 & 4)
Comprehensive Plan, 2016
IMPERVIOUS COVER
MAP NR-8
TOWN OF CUMBERLAND
RHODE ISLAND
Prepared by:
Town of Cumberland Planning Department
Mason & Associates, Inc.
Map Sources:
LINCOLN
CENTRAL FALLS

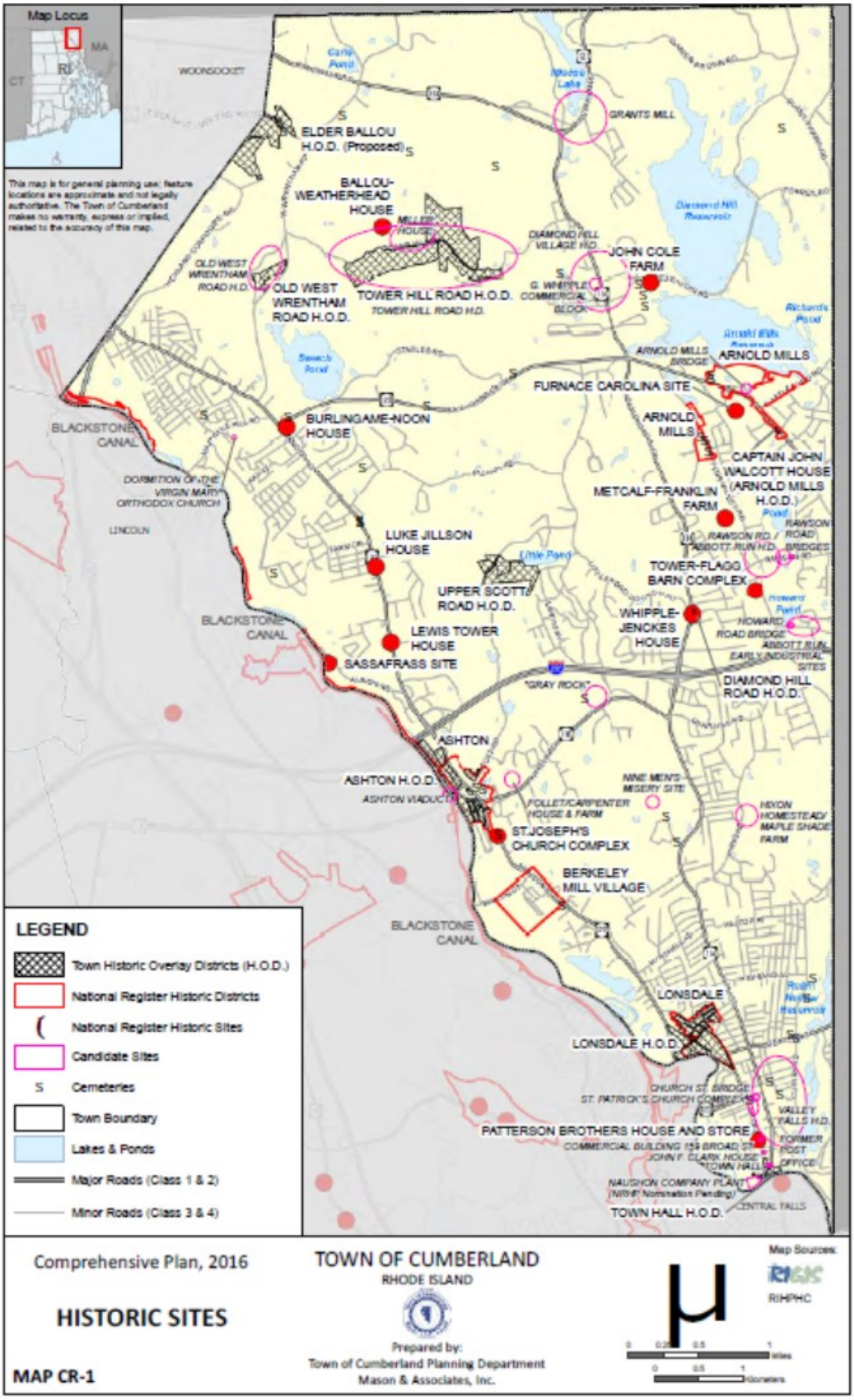

WOONSOCKET
LINCOLN
CENTRAL FALLS
LEGEND
Rivers/Streams
Lakes/Ponds
FEMA Flood Zones
AE (100-Year)
Hurricane Tracks
Tropical Storm: <64 kt.
Category 3: 96 - 112 kt.
N
W
E
S
Horsley Witten Group
Sustainable Environmental Solutions
Map A - 2
Risks
0
0.5
1
2
Miles

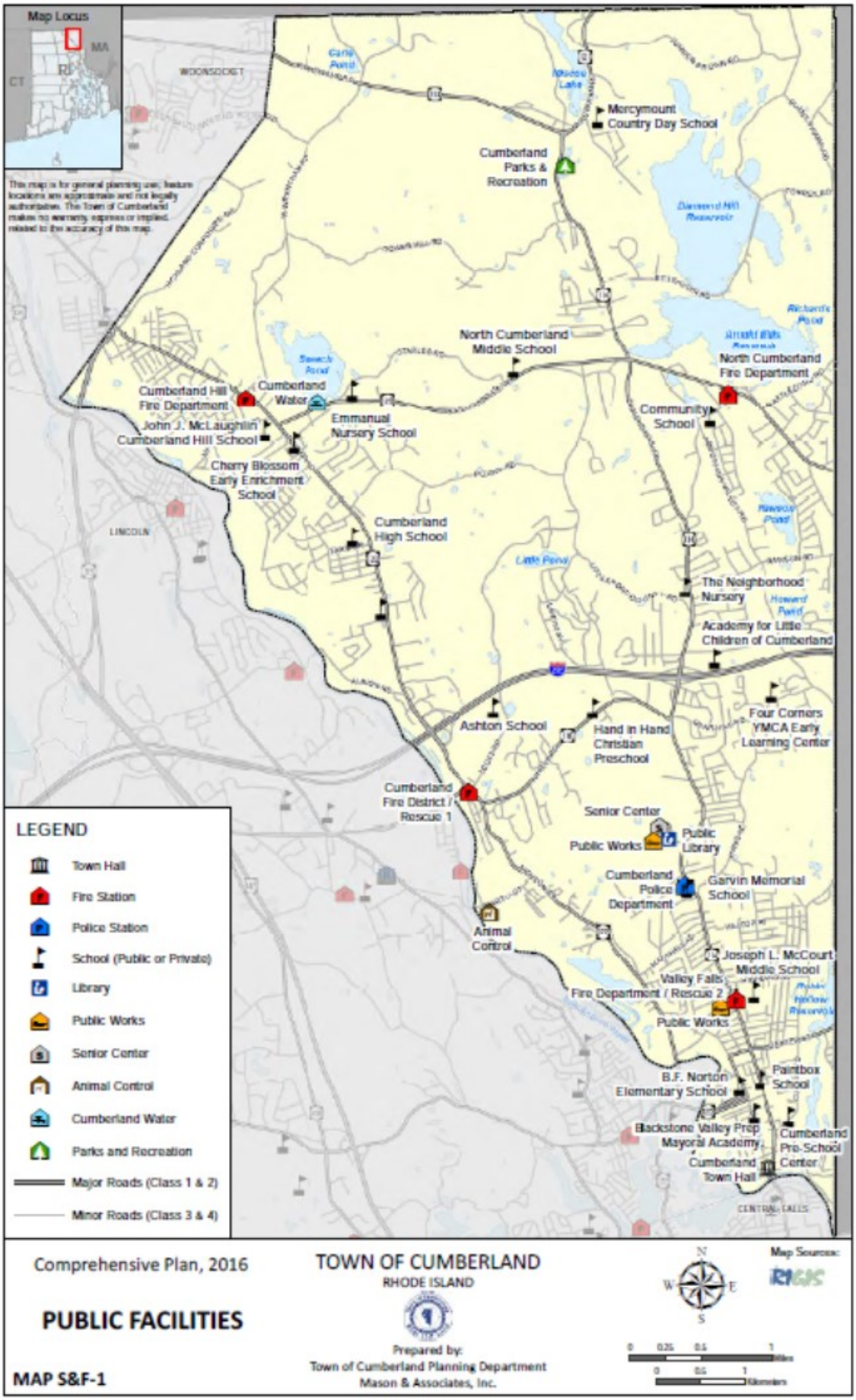

WOONSOCKET
LINCOLN
CENTRAL FALLS
LEGEND
Critical Facilities
Sewer Pump Stations
Emergency Evacuation Route
FEMA Flood Zones
AE (100-Year)
Rivers/Streams
Lakes/Ponds
Primary Red Cross Shelter
Secondary Red Cross Shelter
Rail Line
Electric Transmission Lines
Gas Pipeline
N
W
E
S
Horsley Witten Group
Sustainable Environmental Solutions
Map A - 3
Critical Facilities
0
0.5
1
2
Miles

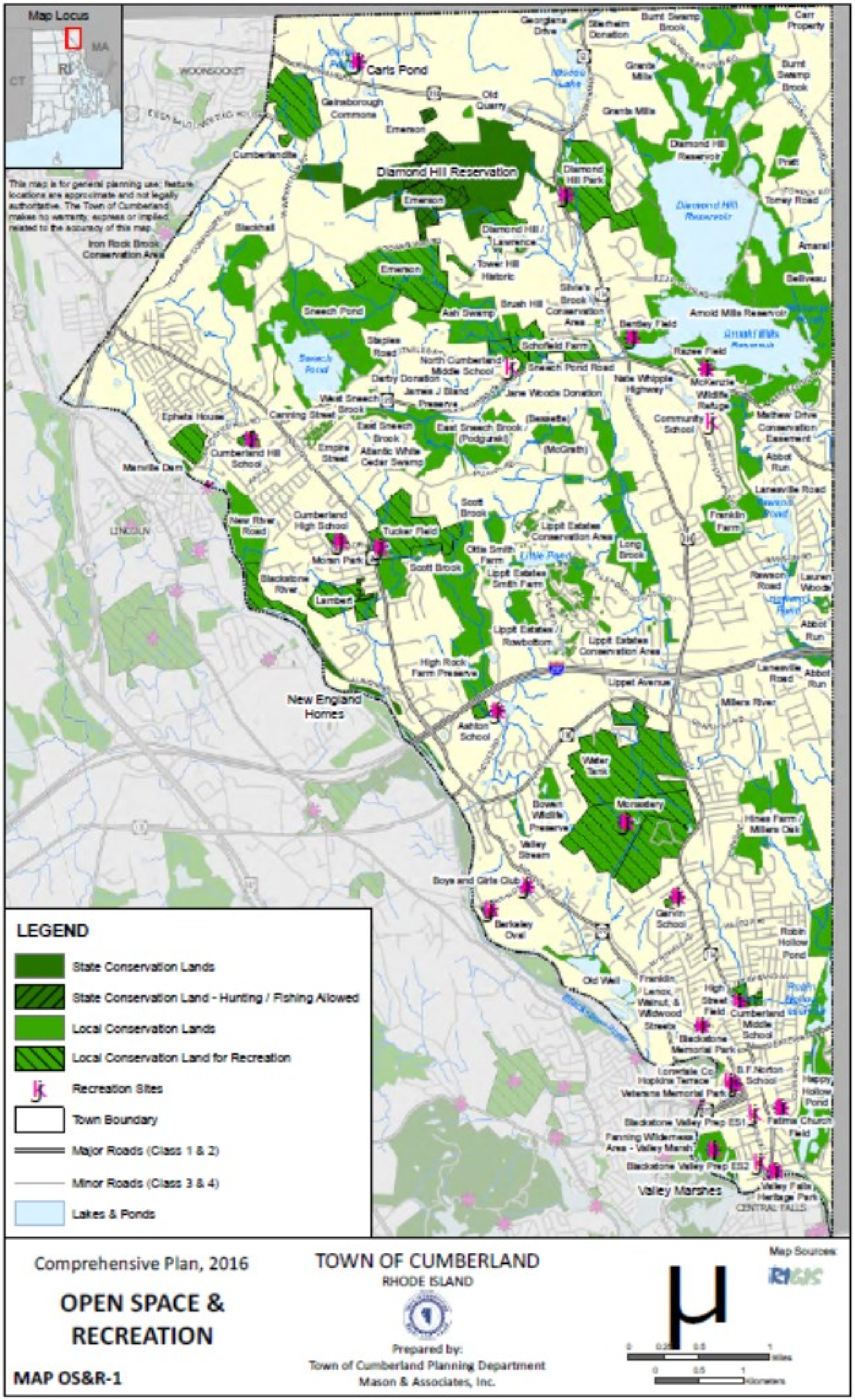

Map Locus
MA
RI
CT
WOONSOCKET
LINCOLN
CENTRAL FALLS
Cumberland Parks & Recreation
Shelter
North Cumberland Fire Department
Community School
North Cumberland Middle School
Cumberland Water
Cumberland Hill Fire Department
John J. McLaughlin Cumberland Hill School
Cumberland High School
Ashton School
Cumberland Fire District / Rescue 1
Public Works
Public Library
Cumberland Police Department
Garvin Memorial School
Joseph L. McCourt Middle School
Valley Falls Fire Department / Rescue 2
Public Works
Shelter
B.F. Norton Elementary School
Cumberland Town Hall
LEGEND
Critical Facilities & Infrastructure
Town Hall
Police Station
Fire Station
Public School
Library
Public Works
Cumberland Water
Sewer Pumping Stations
Electric Transmission Lines
Gas Pipeline
Evacuation Routes
Major Roads (Class 1 & 2)
Minor Roads (Class 3 & 4)
Dams - Risk Category
High / Significant
Other
Flood Hazard Areas
Flood Zones (FEMA)
Comprehensive Plan, 2016
NATURAL HAZARDS & MITIGATION
MAP NH-1
TOWN OF CUMBERLAND
RHODE ISLAND
Prepared by:
Town of Cumberland Planning Department
Mason & Associates, Inc.
Map Sources:
RIGIS

RIDEM Web Map




Map Locus
MA
RI
CT
This map is for general planning use; feature locations are approximate and not legally authoritative. The Town of Cumberland makes no warranty, express or implied, related to the accuracy of this map.
WOONSOCKET
ELDER BALLOU H.O.D. (Proposed)
BALLOU-WEATHERHEAD HOUSE
OLD WEST WRENTHAM ROAD H.O.D.
TOWER HILL ROAD H.O.D.
GRANTS MILL
JOHN COLE FARM
DIAMOND HILL VILLAGE H.D.
ARNOLD MILLS
FURNACE CAROLINA SITE
BURLINGAME-NOON HOUSE
BLACKSTONE CANAL
DORMITION OF THE VIRGIN MARY ORTHODOX CHURCH
LINCOLN
LUKE JILLSON HOUSE
METCALF-FRANKLIN FARM
CAPTAIN JOHN WALCOTT HOUSE (ARNOLD MILLS H.O.D.)
TOWER-FLAGG BARN COMPLEX
UPPER SCOTT ROAD H.O.D.
WHIPPLE-JENCKES HOUSE
LEWIS TOWER HOUSE
SASSAFRASS SITE
DIAMOND HILL ROAD H.O.D.
ASHTON
ASHTON H.O.D.
ST. JOSEPH'S CHURCH COMPLEX
BERKELEY MILL VILLAGE
LONSDALE
LONSDALE H.O.D.
PATTERSON BROTHERS HOUSE AND STORE
TOWN HALL H.O.D.
LEGEND
Town Historic Overlay Districts (H.O.D.)
National Register Historic Districts
National Register Historic Sites
Candidate Sites
Cemeteries
Town Boundary
Lakes & Ponds
Major Roads (Class 1 & 2)
Minor Roads (Class 3 & 4)
Comprehensive Plan, 2016
HISTORIC SITES
MAP CR-1
TOWN OF CUMBERLAND
RHODE ISLAND
Prepared by:
Town of Cumberland Planning Department
Mason & Associates, Inc.
Map Sources:
RIGIS
RIHPHC


Map Locus
MA
RI
CT
WOONSOCKET
LINCOLN
CENTRAL FALLS
Mercymount Country Day School
Cumberland Parks & Recreation
North Cumberland Middle School
North Cumberland Fire Department
Community School
Cumberland Hill Fire Department
Cumberland Water
John J. McLaughlin Cumberland Hill School
Emmanual Nursery School
Cherry Blossom Early Enrichment School
Cumberland High School
The Neighborhood Nursery
Academy for Little Children of Cumberland
Four Corners YMCA Early Learning Center
Ashton School
Hand in Hand Christian Preschool
Cumberland Fire District / Rescue 1
Senior Center
Public Works
Public Library
Cumberland Police Department
Garvin Memorial School
Animal Control
Joseph L. McCourt Middle School
Valley Falls Fire Department / Rescue 2
Public Works
B.F. Norton Elementary School
Paintbox School
Blackstone Valley Prep Mayoral Academy
Cumberland Pre-School Center
Cumberland Town Hall
LEGEND
Town Hall
Fire Station
Police Station
School (Public or Private)
Library
Public Works
Senior Center
Animal Control
Cumberland Water
Parks and Recreation
Major Roads (Class 1 & 2)
Minor Roads (Class 3 & 4)
Comprehensive Plan, 2016
PUBLIC FACILITIES
MAP S&F-1
TOWN OF CUMBERLAND
RHODE ISLAND
Prepared by:
Town of Cumberland Planning Department
Mason & Associates, Inc.
N
W
E
S
Map Sources:


Map Locus
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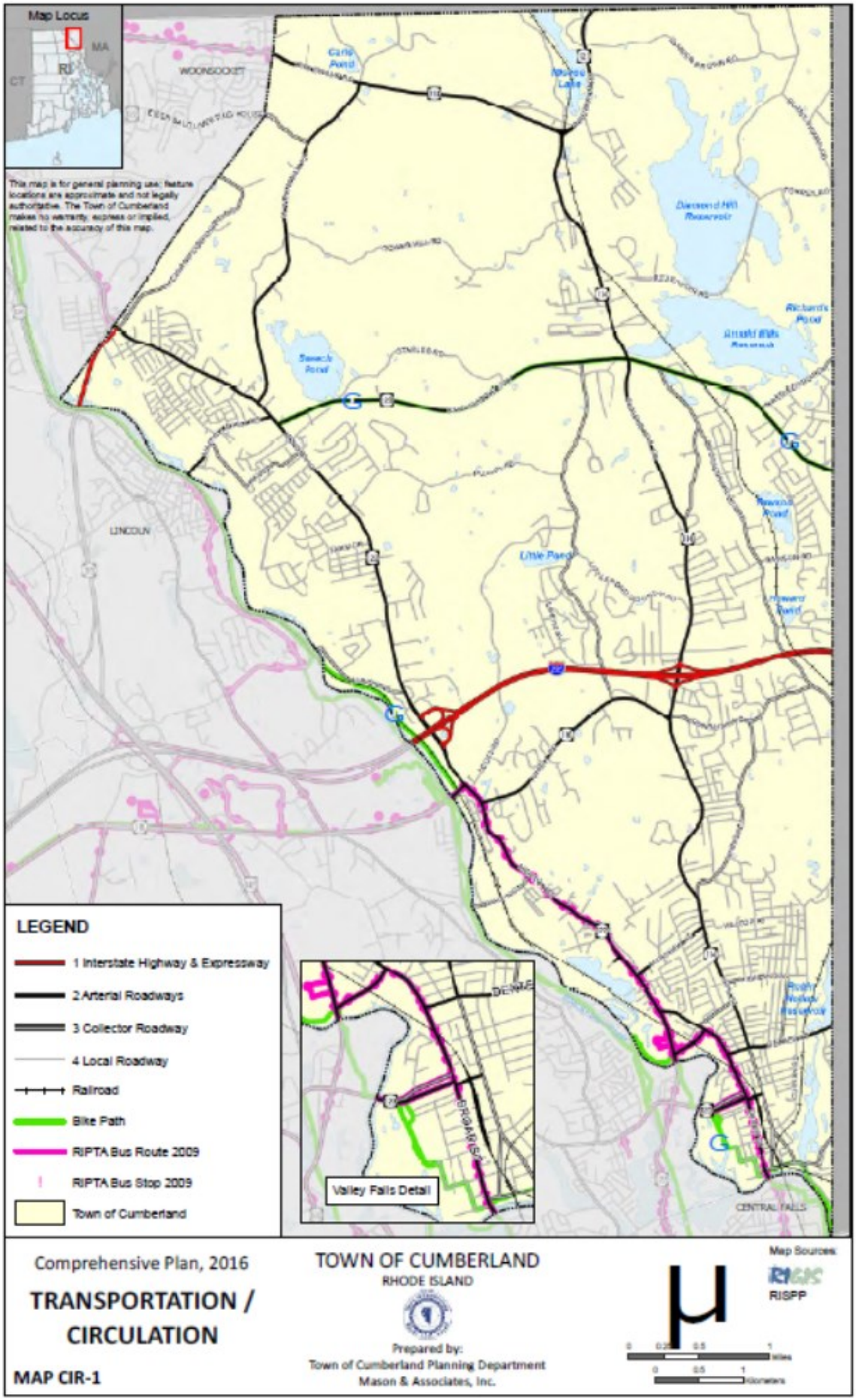
Carls Pond
Diamond Hill Reservation
Diamond Hill Reservoir
Arnold Mills Reservoir
Sneech Pond
New England Homes
Valley Marshes
LEGEND
State Conservation Lands
State Conservation Land - Hunting / Fishing Allowed
Local Conservation Lands
Local Conservation Land for Recreation
Recreation Sites
Town Boundary
Major Roads (Class 1 & 2)
Minor Roads (Class 3 & 4)
Lakes & Ponds
Comprehensive Plan, 2016
OPEN SPACE & RECREATION
MAP OS&R-1
TOWN OF CUMBERLAND
RHODE ISLAND
Prepared by:
Town of Cumberland Planning Department
Mason & Associates, Inc.
Map Sources:
RIGIS


Map Locus
MA
RI
CT
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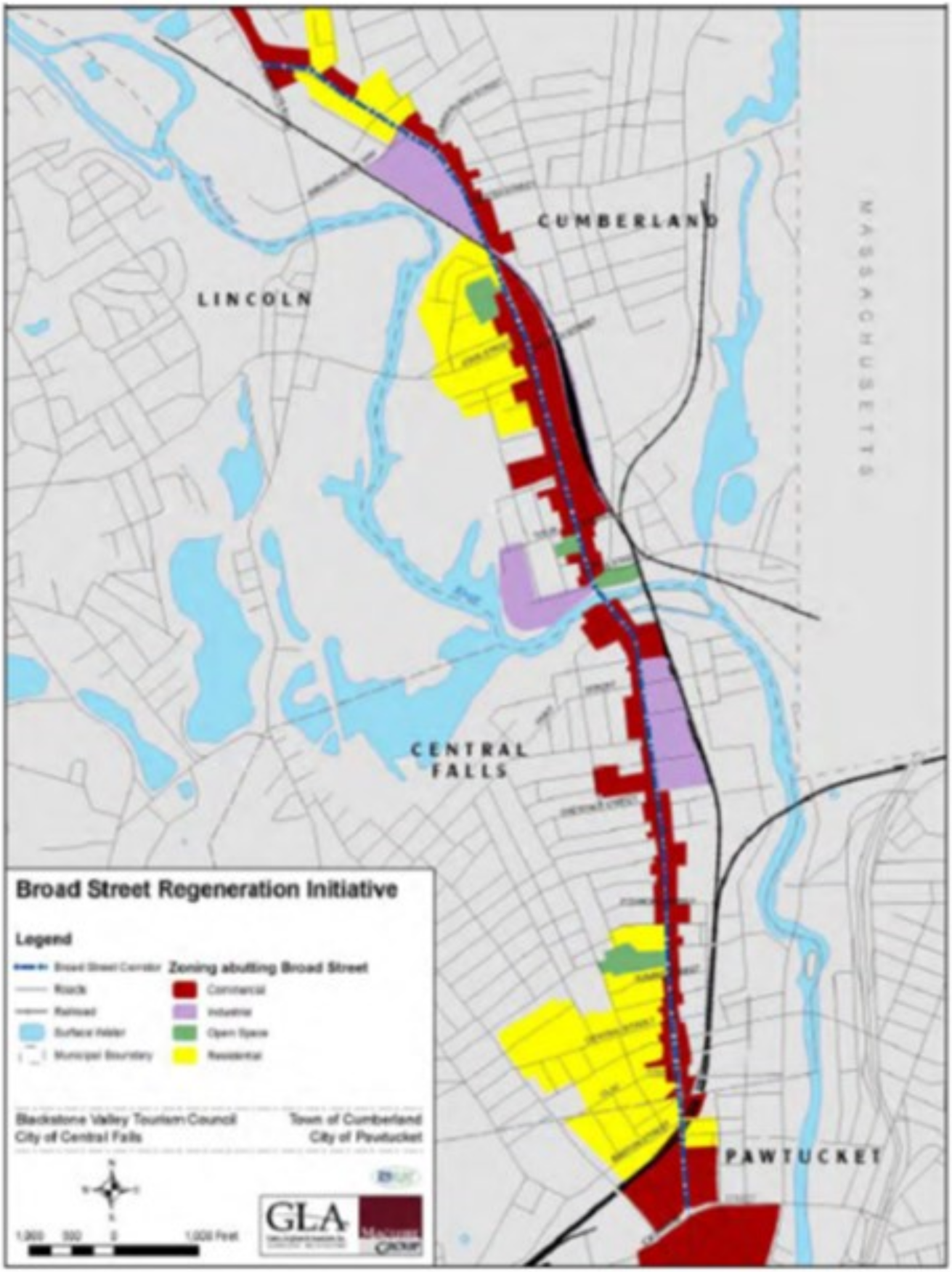
WOONSOCKET
LINCOLN
CENTRAL FALLS
Valley Falls Detail
LEGEND
1 Interstate Highway & Expressway
2 Arterial Roadways
3 Collector Roadway
4 Local Roadway
Railroad
Bike Path
RIPTA Bus Route 2009
RIPTA Bus Stop 2009
Town of Cumberland
Comprehensive Plan, 2016
TRANSPORTATION / CIRCULATION
MAP CIR-1
TOWN OF CUMBERLAND
RHODE ISLAND
Prepared by:
Town of Cumberland Planning Department
Mason & Associates, Inc.
Map Sources
RIGIS
RISPP



Broad Street Regeneration Plan

www.CommunityResilienceBuilding.org