



# Caribou Maine



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## Community Resilience Pilot Community Resilience Building Workshop Summary of Findings July 2021



# City of Caribou, Maine

## 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 Maine. Recent events such as the multi-year drought, impactful ice out conditions, and extreme winter blizzards have reinforced this urgency and compelled leading communities like the City of Caribou 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 Maine, New England, and the Nation.

In the summer of 2021, the City of Caribou embarked on participation within the state of Maine's Community Resilience Pilot via the Office of Policy Innovation and the Future. As part of that participation, the Northern Maine Development Commission (NMDC) and the Nature Conservancy (TNC) provided the City 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, the Caribou's Core Team helped organized a Community Resilience Building Workshop facilitated by TNC in partnership with NMDC. 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 Caribou.

The Caribou 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, regionally, and the state of Maine.

The City of Caribou employed a unique “anywhere at any scale”, community-driven process called Community Resilience Building (CRB) ([www.CommunityResilienceBuilding.org](http://www.CommunityResilienceBuilding.org)). The CRB’s tools, reports, other relevant planning documents, and local/county maps were integrated into the workshop process to provide both decision-support and visualization around shared issues and existing priorities across Caribou. The Aroostook County Hazard Mitigation Plan (updated 2021) and City of Caribou Comprehensive Plan (2014) 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 Caribou’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 City of Caribou 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 Caribou Core Project Team identified the top hazards for the City. The hazards of greatest concern included excessive rainfall leading to flooding (riverine and some urban runoff), extreme winter storms (ice, wind, snow), and drought due to extended heat waves. As discussed by participants, these hazards have direct and increasing impacts on the infrastructure, residents, and environment including agricultural operations, natural areas (rivers, wetlands), riverfront areas, residential 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 Caribou.

# **Top Hazards and Areas of Concern for the Community**

## ***Top Hazards***

- Excessive Rainfall - Flooding (riverine & urban runoff)
- Extreme Winter Storms (including ice, wind, and/or snow)
- Drought & Heat Waves

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

**Infrastructure:** Communications Towers, Land Fill, Pipes, Culverts, Pumps, Private Drinking Water Wells, Aroostook River Dam (in Caribou), Electric Power Grid, Broad-band Network, Dry Fire Hydrants.

**Ecosystems/Waterways:** Aroostook River, Little Madawaska River, Nichols Brook, Wetlands, Parks, Lakes, Trails, Farnham Brook.

**Roads, Bridges, and Road Network:** Otter Brook Bridge (Hatchery Bridge), Limestone Street, Grimes Road, Grimes Mill Road, River Road, Route 1, Route 205, Route 161, Route 89, Fort Street Bridge, Road Segments (adjoining open agricultural fields - snow drifts), Plant Road, Ogren Road, Limestone Street.

**Vulnerable Populations:** Elderly/Senior Citizens, Non-English Speakers, Residents with Special Needs, Disabled Residents, Local Business Owners, Veterans, Low-Income Residents, Working Poor, Seasonal Farm Workers.

\*Information from workshop participants augmented via review of the Aroostook County Hazard Mitigation Plan (updated 2021) and the City of Caribou Comprehensive Plan (2014). ***See Appendix A for full list of mitigation/adaptation actions from the Aroostook County's Hazard Mitigation Plan.***



## **Current Concerns and Challenges Presented by Hazards**

The City of Caribou has several concerns and faces multiple challenges related to the impacts of natural hazards and climate change. In recent years, Caribou has experienced a series of highly disruptive and damaging weather events including severe thunderstorms and microburst activity (2011) which knocked out power and caused flash flooding, annual blizzard conditions that close the roads and shut down the City, severe drought conditions that impact water availability for agricultural uses and drinking water consumption beginning in 2019 along with other less impactful but more frequent events. The magnitude and intensity of these events and others across Aroostook County have increased awareness of natural hazards and climate change, while motivating communities such as Caribou 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 persistent 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 City.

The workshop participants were in agreement that Caribou is experiencing more intense and frequent storm events and heat waves leading to extended drought. Additionally, there was a general concern about the increasing challenges of being prepared for the worst case scenarios (e.g. major storms and blizzards) 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: q961.com)



(Credit: thecounty.me)



(Credit: caribourec.org)

## ***Specific Categories of Concerns and Challenges***

As in any community, Caribou 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:**

- Roadway flooding during major storms - Grimes Road.
- Otter Brook Bridge at Limestone Street (Hatchery Bridge).
- Repeated slippage and washout of River Road.
- Growing concerns about ice jams and their potential impacts on bridges and adjoining roads as well as collapse and loss of agricultural fields.

#### **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.
- Ability to keep roads clear during winter storms particularly roads with limited wind breaks (fencing or living fencing (trees) adjoining road corridor) and high winds resulting in snow drifts in the roadway.
- Limited availability of equipment and maintenance resources needed to respond to major events due to reduced budgets, staff, and cost of contracting.
- Aging population that is living more and more remotely presents challenges when sheltering in place is less than adequate and unsafe (e.g. long power outages in winter months).
- Warmer than normal winters lately creates more ice versus snow conditions which could continue to impact equipment and resource needs to respond to emergencies as well as maintain transportation and service networks.
- No single community-wide communications option (robo text or call system) unlike other communities in the area.

#### **Stormwater & Wastewater Management:**

- New pipeline system from landfill to wastewater treatment plant for leachate gets overwhelmed seasonally during extreme weather events.
- Declining condition and/or mismatched sizing of culvert in many locations across municipality.
- Wastewater pumping issues during large flooding events with pumps not capable of pumping required volumes (i.e. low capacity pumps with high flows).
- Lack of maintenance on old railroad beds as they cross streams with culverts that inadequately manage current flows.

## *Specific Categories of Concerns and Challenges (cont'd)*

### **Societal Concerns and Challenges**

#### **Vulnerable Populations:**

- Power outages are concern for individuals dependent on electric medical devices such as oxygen.
- Extensive number of private drinking water wells at private homes that go dry during drought season leaving many residents without an adequate and reliable water source.
- Many residents without secondary heat source in the event of power failures or limitations on other primary heat sources in the winter months.
- Lack of assistance for private home drilling of new and/or deeper drinking water wells.
- Large elderly population that often lack resources to meet aging-in-place needs including homecare agencies and providers.
- Significant impacts to the agricultural community due to increasingly severe drought which has ramifications on local economies and wellbeing of residents.
- Isolated population segments coupled with limited mobility and access to food, prescriptions, and supplies during crisis situations.
- Aging and shrinking population which is causing a decline in the number of available employees and places a strain on the potential for economic growth.
- Recent influx of new residents without knowledge of northern Maine winters may not be prepared for emergency situations where the remoteness often leads to longer response times.
- Food insecurity amongst residents, which is magnified during emergency situations.

#### **Development:**

- Aging housing stock in certain areas that require maintenance or improvements.
- Cybersecurity of local and county government systems that could jeopardize operations and information as technology advances.
- Lack of adequate broadband connectivity and capacity for existing residents coupled to an influx of new residents during and post-pandemic.
- Frequent blackouts due to vulnerability of above ground power lines to storms and high winds coupled with aging power infrastructure, great distances required to cover, and low population density which results in low prioritization of routine maintenance across Aroostook County.
- Localized ground contamination within wellhead protection area for drinking water (potential heating oil from proximate trailer park).

## *Specific Categories of Concerns and Challenges (cont'd)*

### **Environmental Concerns and Challenges**

#### **Forests:**

- Increasing intensity, distribution, and length of fire season (300% annual increase in 2020) due to increasingly severe drought conditions which impacts local and regional economies and jobs tied to forestry and forest product production.

#### **Agriculture, Open Space, and Waterways:**

- Maintaining connected vegetated stream course and waterways.
- Non-irrigation farms experienced 25% yield drop in the 2020 drought.
- Large agricultural use of lands can result in declining water quality due to high nutrient loads into receiving rivers, streams, and wetlands around Caribou.
- Historically crop rotation did not exist (potatoes on potatoes) resulting in poor soil health vulnerable to erosion.
- Future flooding projections due to precipitation events of longer duration and higher intensity will present a challenge in rivers, streams, brooks, and wetland systems.
- Lack of unified strategy to secure conservation in current and future flood zones to help reduce risks to ecosystems and structures.



(Credit: pinterest.com)

## **Current Strengths and Assets**

Just as certain locations, assets, and populations in Caribou stand out as particularly vulnerable to the effects of hazards and climate change, other features are notably assets for Caribou'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 Caribou. Ongoing collaboration between municipal staff, committee/commission, volunteers, business community, faith-based organizations, NGOs, adjoining municipalities, and various state-level organizations, among others, on priorities identified herein will help advance comprehensive, cost-effective, community resilience building actions.
- The City has highly experienced staff with access to adequate resources for most emergency situations coupled with coordination amongst various departments including leadership, Public Works, Police, Fire, Ambulance, and Community Emergency Response Team (CERT) as well as adjoining municipalities was cited as a highly valued community strength.
- Public Works have a deep understanding of what is needed to improve the resilience of existing infrastructure in partnership with other Departments and Agencies.
- Strong sense of pride amongst residents that get involved with their community coupled with a tight-knit community.
- City Board and City Management very open to innovating and being on the forefront of resilience projects such as siting and installing solar and road improvement projects coupled with the institutional knowledge of how to engage state level entities and organizations for funding and expertise.
- Aroostook County Emergency Management Agency provides a strong online presence to notify residents and travelers of flooding and road closures via television, social media, and radio. including a dedicated group of HAM radio operators with mobile repeaters for emergency communications.
- Well positioned and integrated healthcare services system between the Cary Medical Center, residential care facilities, regional office of the state Department of Health Services, and veterans care that is responsive to the needs to the community and region.



## **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, drought, and snow.
- Active CERT that trains regularly under the direction of Caribou Emergency Management Agency Director that responds to severe weather and public safety events, as well as supporting various community functions.
- Maine Forest Service communicates with local emergency management agencies about public safety and potential conflicts with communications towers.
- Recreation Departments wellness center and shelter has a generator.
- Mutual-aid response agreement with Connor Township.
- Local presence and involvement of a state drought task force.
- Water division is currently working on a project to replace and add new water mains throughout the South Main Street area that including looping connections and the addition of two new fire hydrants to increase fire protection.
- Wastewater is finishing up on a complete overhaul of the treatment lagoons including sludge removal to increase capacity for inputs from future additional development.
- Establishment of a 15-acre solar farm in 2020 called Caribou Solar directly across from the water treatment plant.
- Long history within Public Works of dealing with extreme winter storms and snow removal across the City's roads and bridges network.
- Opportunity to increase flood storage at Collin's Pond in the downtown area and potentially other wetlands in proximity to rivers that flood.
- The experience and expertise of the Mi'kmaq is viewed as a critical strength for the Caribou community as well as the Aroostook Band of Micmac.
- USGS stream gauge station at Hardwood Brook used by Maine Department of Transportation to help plan and schedule work is paid for by the Mi'kmaq tribe.
- Presence of a National Weather Service - National Oceanic and Atmospheric Administration weather station and office in Caribou.
- Extensive investment in the educational infrastructure and school system that has a strong and supported presence within the community.

## **Current Strengths and Assets (cont'd)**

- Pandemic responses by emergency management and social services staff have elevated the respect and support for these services amongst residents.
- Upgrades in 2011 allow for landfill leachate to be piped to the wastewater treatment plant which increases ability to handle increased flows particularly during extreme precipitation, rapid snowmelt, and storm events.
- Recent upgrades to Grimes Mill Road results in greater safety and resilience.
- Roadway maintenance program in place with emphasis on being proactive and anticipating issues before they become safety hazards.
- City-wide culvert program that identifies and upsizes culvert to address pinch points that cause localized flooding and conveyance issues.
- Culverts sizing is being address at railroad crossings to help minimize any water conveyance related issues.
- Readily available source of water for irrigation via the Aroostook River (primary source) and the Little Madawaska River (secondary source).
- Community members are close knit and know where to go to get problem solving expertise.
- Presence of a productive and engaged agricultural community in Caribou and the surrounding areas.
- Recent road improvement investments along Route 205 and Route 161 to address impacts and issues related to flooding.
- Route 1 has always received attention and appropriate funding as the primary route into and out of the City.
- Presence and assistance for planning and other services from the Northern Maine Development Commission.
- Strong partnership with the Northern Maine Regional Office of the Maine Department of Environmental Protection.
- Location and capacity of the Caribou Municipal Airport near the downtown area.
- Presence of a relatively large veteran population in and around Caribou.
- Faith-based organizations engaged and providing support for those in need within the community routinely and during times of crisis.

## **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 Caribou'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. conservation, transportation, commerce/economic growth, population trends, diverse demographics, volunteerism, open space protection in Special Flood Hazard Areas);
- **Infrastructure Improvements** (i.e. stormwater management systems, prioritization and incentivization of low impact resilience development, utility infrastructure reliability, wastewater treatment systems and facilities, electrical grid, broadband);
- **Resilient Community Support** (i.e. affordable/accessible housing, sustainability, mobility, business and residential recovery, senior care support);
- **Emergency Management** (i.e. communications, outreach, education, continuation of services, coordinating and exercise plans)

In direct response, the workshop participants developed the following priority and other action list. Mitigation actions from the Aroostook County Hazard Mitigation Plan (update 2021) are provided in Appendix A for cross reference. In addition, actions previously identified in the Caribou's Comprehensive Plan (2014) were reviewed for consistency with input from workshop participants.

### **Priority Actions**

- Look to develop an automated community-wide emergency communications platform to ensure critical and timely information about preparedness and recovery steps and resources are provided to as many residents as possible as often as needed (i.e. robo call and text).
- Increase the capacity and access to broadband for as much of the population in Caribou as is possible with considerations of future growth and development.
- Continue to conduct design, engineering, and construction along River Road to ensure this important transportation corridor is maintained over time.

## Priority Actions (cont'd)

- Incorporate resulting resilience actions from CRB workshop into forthcoming updates to the Caribou Comprehensive Plan and Aroostook County Hazard Mitigation Plan.
- Update and upgrade the power grid infrastructure to ensure connectivity and reduction in the increasing number of power outages across the municipalities and the surrounding region including hardening (underground) critical sections of power-lines.
- Gather engineering expertise to explore and implement projects that include green infrastructure to help minimize flooding along Grimes Road.
- Increase and improve the capacity and ability of the wastewater treatment system to handle increasing impactful seasonal extreme events by reducing inflow and infiltration, increasing onsite storage of landfill leachate, reducing stormwater runoff with an “uphill” focus and commitment to reducing this vulnerability within the “downhill” Utility District.
- Explore potential of expanding the partnerships between the Caribou CERT team and Aroostook Regional Transportation System (as broker or provider) to enhance dispatched transportation during events for all at risk, home-bound residents.
- Increase soil conservation practice amongst the agricultural community including plunge pools and perpendicular planting proximate to roads to help address runoff and water quality issues in receiving water bodies.
- Reinstitute a fencing and living-fence (trees) program along critical roadway adjoining open agricultural fields to help reduce the impacts of snow entering and drifting and preventing passage and safety of transportation corridors during the winter months.



(Credit: downeast.com)



(Credit: City of Caribou - Christina Kane-Gibson)



(Credit: Farmflip.com)

## Priority Actions (cont'd)

- Work to recharge prior programs and support (i.e. USDA soil programs) to once again help the agricultural community with increased education and outreach regarding better land use and conservation practices including reduction in bare soil sediment runoff and drought issues.
- Target installation of living fence (tree planting) efforts (10-15 perpendicular rows) to reduce impacts of snow drifting along roads running north and south adjacent to open, wind swept fields as a pilot for modeling across region in partnership with MDOT.

## Other Actions

- Explore in cooperation with farmers and landowners the potential opportunities to increase the native vegetation to help reduce impacts of flooding and erosion along Route 1.
- Identify agencies and organizations that can help incentive and support investments by the farming community in better agricultural equipment and methods for coping with the increasing impact of drought.
- Identify ways that residential homeowners can reduce water use in advance of and during intense drought conditions.
- Improve the overall testing for pollutants in private wells by setting up a micro-loan program to support testing by families and provide support to low-income families especially for determining the levels of radon in drinking water.
- Establish and administer outreach resources and tool via the Drought Task Force to help determine the extent of drying up of private wells on a seasonal basis (i.e. explore the “fix-it” app for use in Caribou).
- Hazardous waste education, training, and events to help remove household hazard waste.
- Examine ways and approaches to help reduce tax-payer burden via a database of funding sources administered by the municipality.
- Continue to work towards realizing a comprehensive culvert and road maintenance program that proactively handles issues versus reactive responses to issues.



## Other Actions (cont'd)

- Conduct outreach to local businesses to educate on safeguards to prevent chemical spills during natural disasters.
- Look to increase capacity for grant writing and management within the municipal structure and potentially in partnership with supportive organizations within the municipality.
- Institute stormwater regulations that require low-impact development for all new and redevelopment projects within Caribou which should include limits on impervious surfaces to certain percentage of the lot size (e.g. MS4).
- Identify and implement projects at the Aroostook Waste Solutions Landfill to increase storage capacity.
- Increase outreach to landlords to help weatherize and winterize rental properties and promote energy efficient appliances.
- Look to build a culture of preparedness amongst residents through routine and broadly available educational outreach via a trained volunteer network and look to promote shelter-in-place strategies for residents with limited access to transportation.
- Scope and sequence actions to reduce the degraded and non-compliant condition of the Caribou Stream Watershed.
- For Collins Pond, initiate a series of projects that would repair the dam, add a fishway, and restore the impoundment behind it for flood protection, critical waterfowl and wading bird habitats, fisheries, and recreation.
- Continue to support and look to expand the telehealth program offer to residents at the Caribou Library.
- Outreach to the local, regional, and state business community to explore techniques and approaches for attracting and retaining qualified employees to fill critical municipal staff positions as well as exploring local workforce development opportunities via vocational and community educational facilities.
- Utilities District seeking options to connect Caribou Solar to a liquid metal battery bank to continuously feed and recharge power to supply auxiliary or primary power to the water treatment plant and pump station and eliminate ongoing grid supply issues.

## Other Actions (cont'd)

- Continue to find ways to support the activities of the CERT and maintain a strong flow of volunteers.
- Complete a comprehensive assessment of all culvert issues and needs and develop a flow chart and costs that define sequence of upgrades, replacement, and maintenance over a 10-year period.
- Work with FEMA and MEMA to map projected flood prone areas given the expected increases in high impact precipitation events with a focus on impacts to existing infrastructure and vulnerable populations.
- Work with private property owners via Small Community Grants and CUD to help minimize septic discharge into area waterways.
- Advocate for modifications to the Stream Crossing grant program to ensure the process is better geared to smaller communities across the state.
- Conduct an energy audit of all municipal facilities to help identify efficiency and cost saving opportunities.
- Explore ways to increase the number and diversity of retail businesses in Caribou.
- Clean up and reuse of the identified Riverfront Redevelopment District.
- Increase setbacks from water resources to allow space for flooding without impacting structures.
- Promote and require the use of low impact development approaches and green stormwater infrastructure installation in new development and redevelopment to help reduce additional stress on stormwater infrastructure and maximize onsite infiltration.
- Examine the potential impacts of the Caribou snow dumping property on the Caribou Stream watershed system.
- Look to install air conditioning in the high school to reduce impacts on students and staff.
- Gain better understanding of the extent and level of impacts on river systems due to sedimentation and nutrient loading related to agricultural operations and practices.

## **CRB Workshop Participants: Department/Organization**

City of Caribou - Office of the Mayor\*

City of Caribou - Office of the City Manager

City of Caribou - Code Enforcement Department

City of Caribou - Public Works Department

City of Caribou - Utility District

Aroostook County - Emergency Management

Aroostook Waste Solutions

Cary Medical Center

Northern Maine Development Commission

State of Maine - Department of Environmental Protection

State of Maine - Department of Transportation

State of Maine - Forest Service

State of Maine - Office of Policy Innovation and the Future

\* invited but unable to attend.

### **Caribou Core Project Team**

Ken Murchison - Zoning Administrator, Code Enforcement Officer, City of Caribou

Penny Thompson - City Manager, City of Caribou

Michael Gahagan - Police Chief, City of Caribou

### **Online CRB Workshop Facilitation Team**

Northern Maine Development Commission - Jay Kamm (Project Lead)

The Nature Conservancy - Adam Whelchel (Lead Facilitator)

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

The Nature Conservancy - Drew Goldsman (Small Group Facilitator)

The Nature Conservancy - Kristie Giannetto (Small Group Facilitator)

Northern Maine Development Commission - Jon Gulliver (Scribe)

The Nature Conservancy - Diana Nguyen (Scribe)

The Nature Conservancy - Alyssa Campbell (Scribe)

### **Recommended Citation**

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### **Acknowledgements**

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# **Appendix A**

## **Aroostook County Hazard Mitigation Plan (updated 2021)**

### **Updated Mitigation Strategies and Actions**

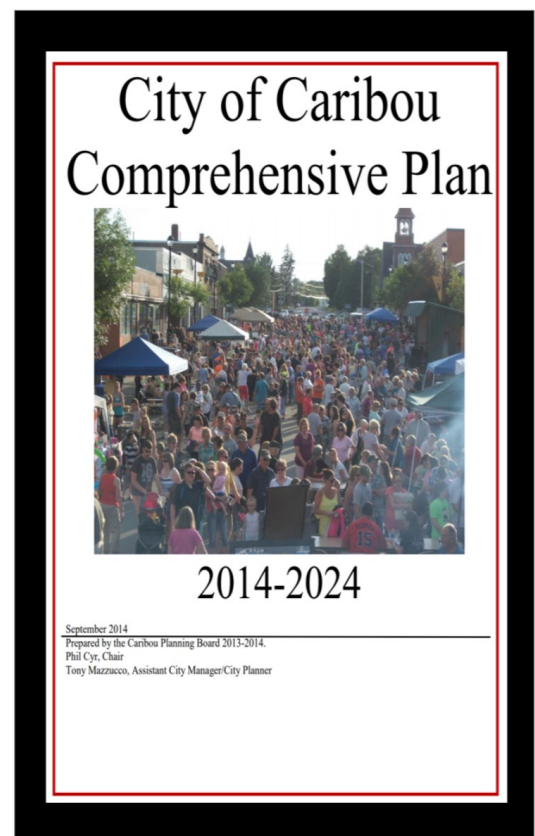
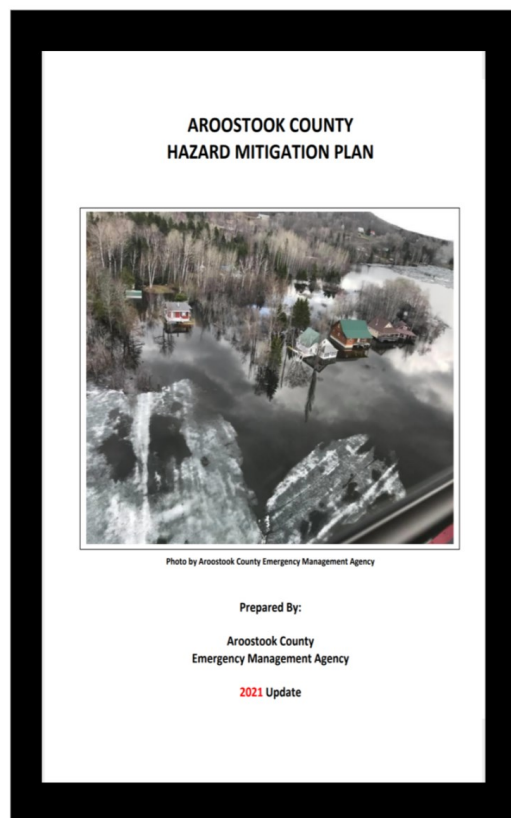


## AROOSTOOK COUNTY HAZARD MITIGATION PLAN – 2021 Update

Town Aroostook Co.	Project (in Priority Order)	Estimated Cost	Time Frame	Responsible Agency	Status
Caribou	1) Madawaska Road – Upsize culvert	\$10,000	Completed	Public Works	Completed
	2) Plant Road – Upsize culvert	\$15,000	Completed	Public Works	Completed
	3) Ogren Road – Upsize culvert	\$9,000	Completed	Public Works	Completed
	4) River Road – Easements, engineering and soil evaluations	\$156,000	Long Term	Public Works	Deferred – Lack of funds
	5) Install dry hydrants	\$1,000	Short Term	Public Works	Deferred – Lack of funds
	6) Farnham Brook – upsize culvert and rip rap	\$150,000	Completed	Public Works	Completed
	7) Limestone Street – stabilize bank that is eroding into river	TBD	Short Term	Public Works	Deferred – Lack of funds
	8) Generator(s) – Install generators as needed at critical facilities	\$10,000	Short Term	Contractor	Deferred – Lack of funds

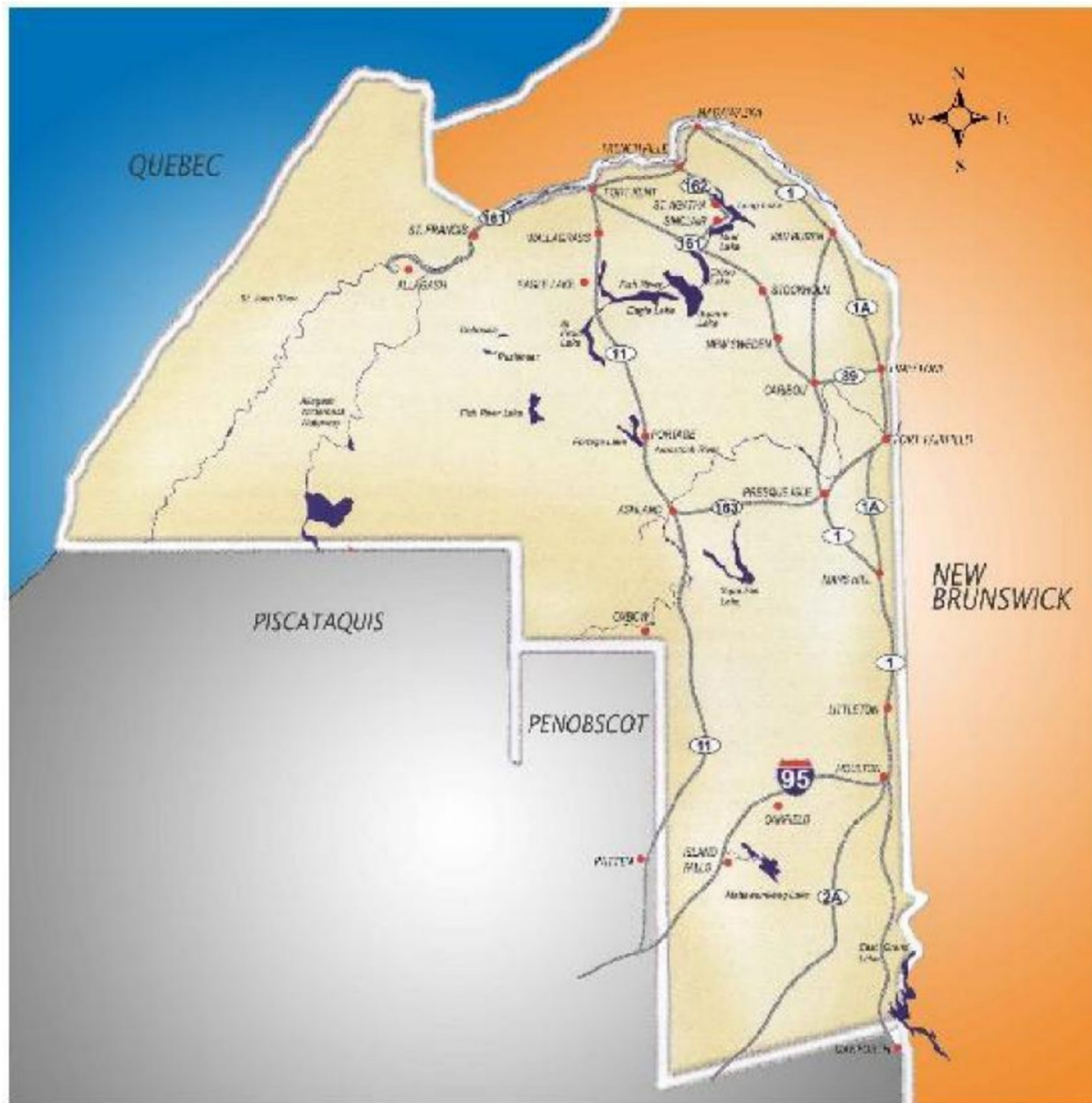
# Appendix B

## Caribou Maine Map Resource Packet\* Used During Workshop



**\*Gathered from Aroostook County HMP (updated 2021), City of Caribo Comprehensive Plan (2014) and via Northern Maine Development Commission map resources.**



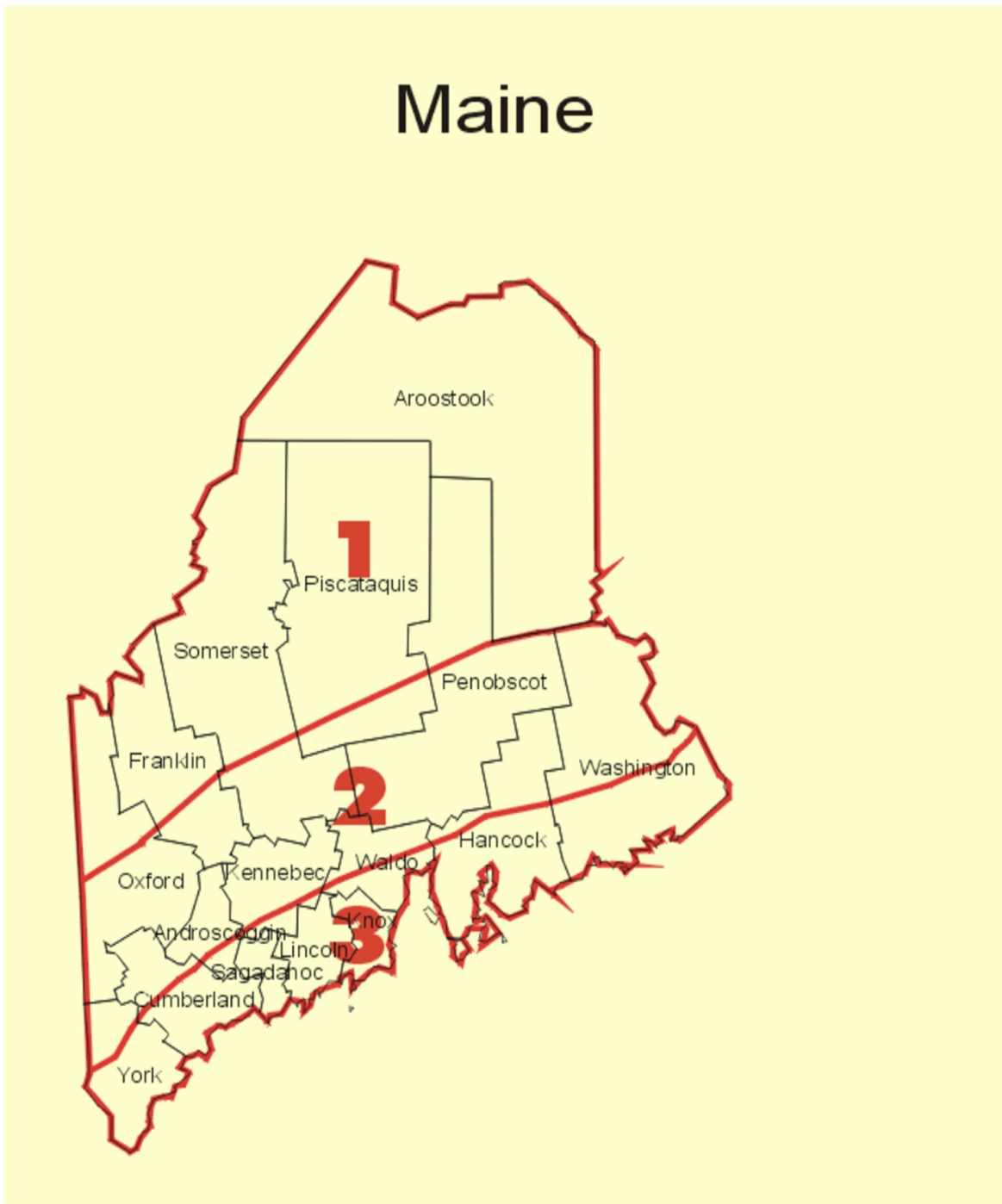


Aroostook County, ME | [www.appme.org](http://www.appme.org)



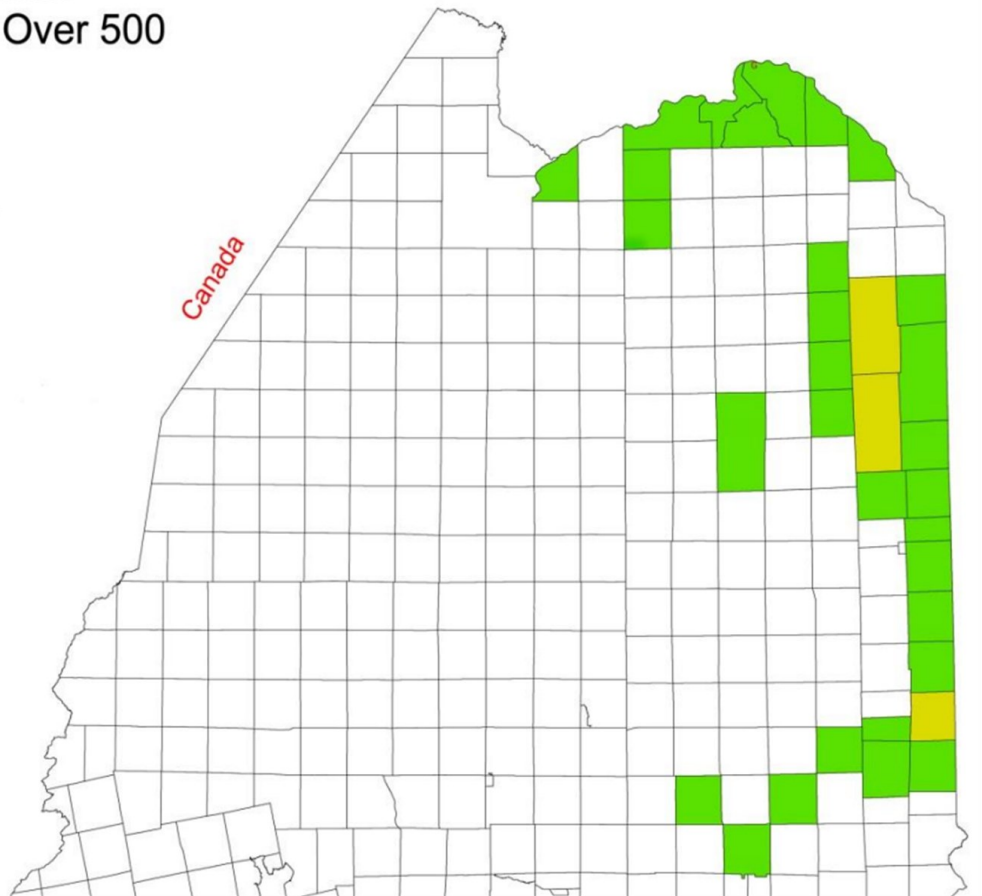
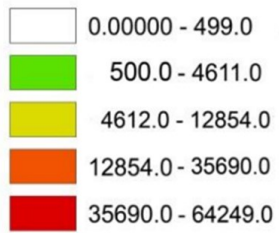
# AROOSTOOK COUNTY HAZARD MITIGATION PLAN – 2021 Update

## Climate Divisions of Maine



## Towns with Population Over 500

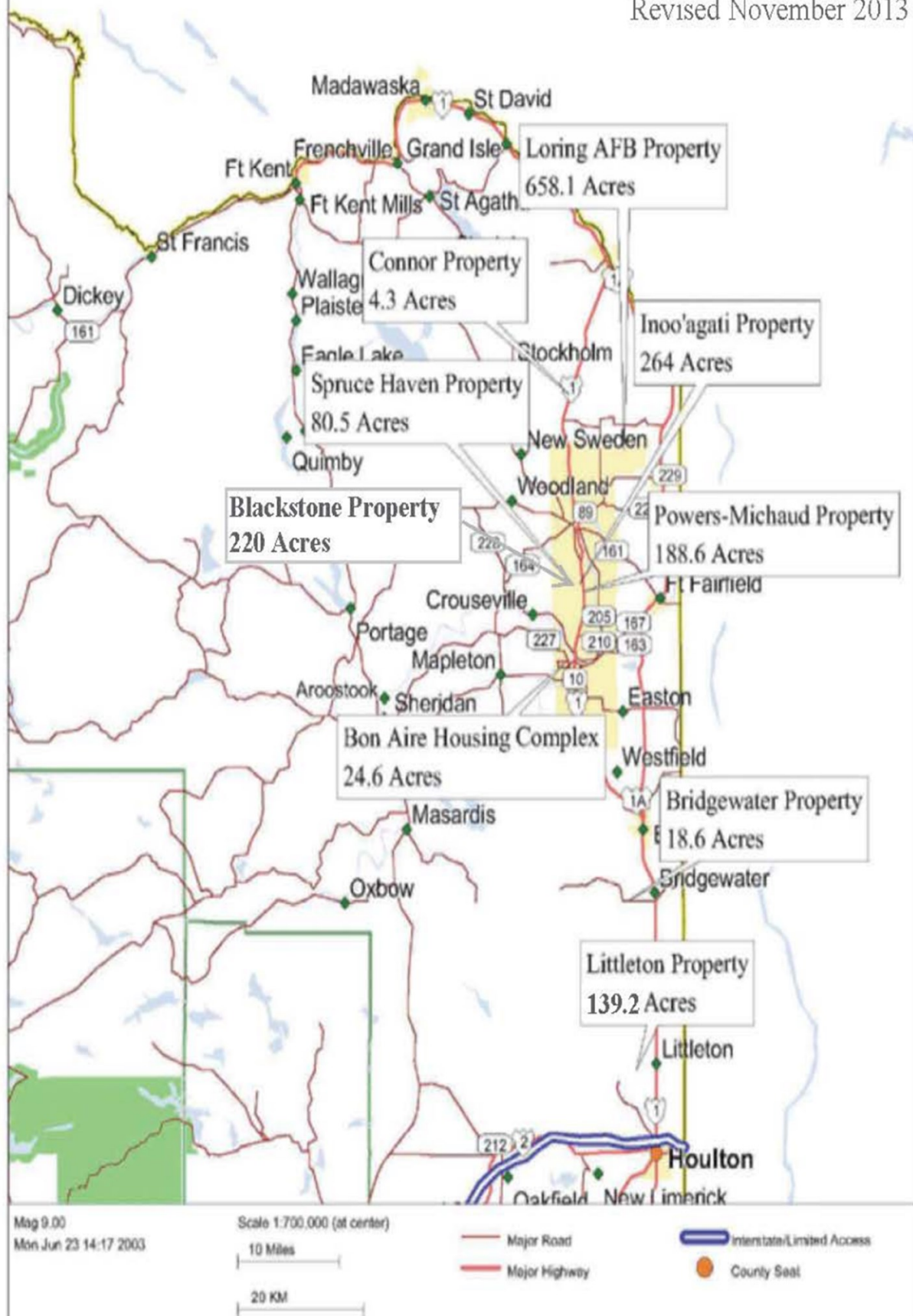
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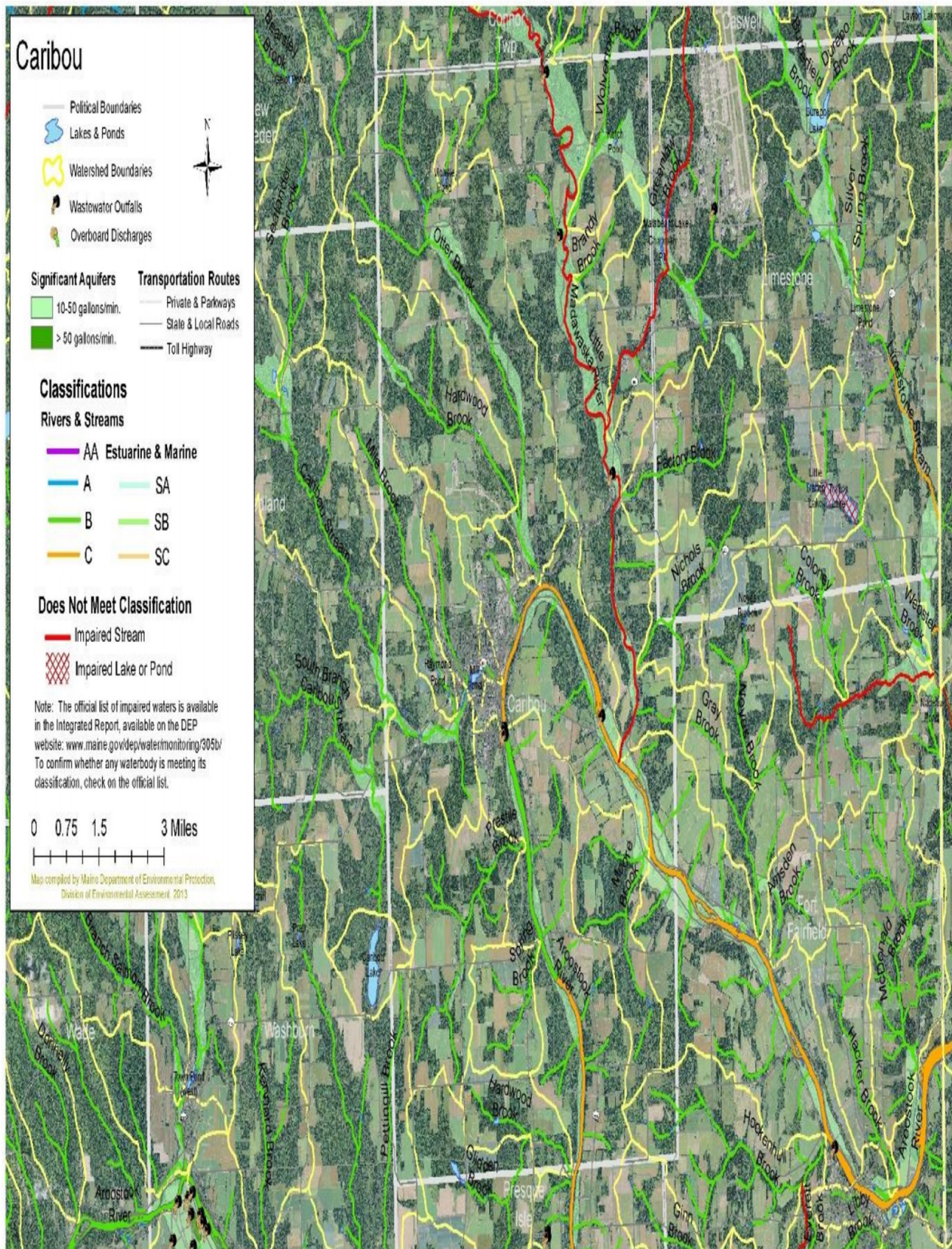


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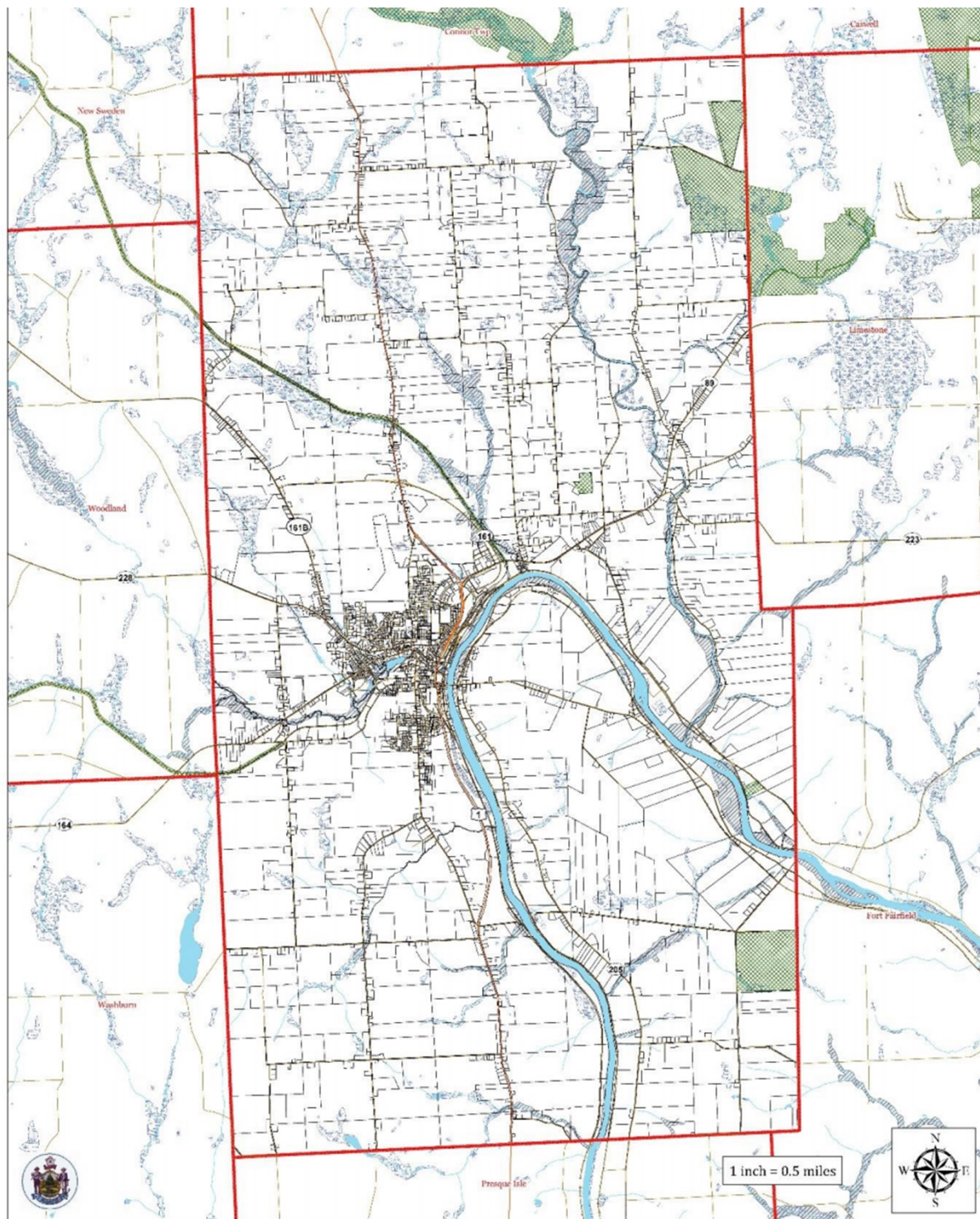
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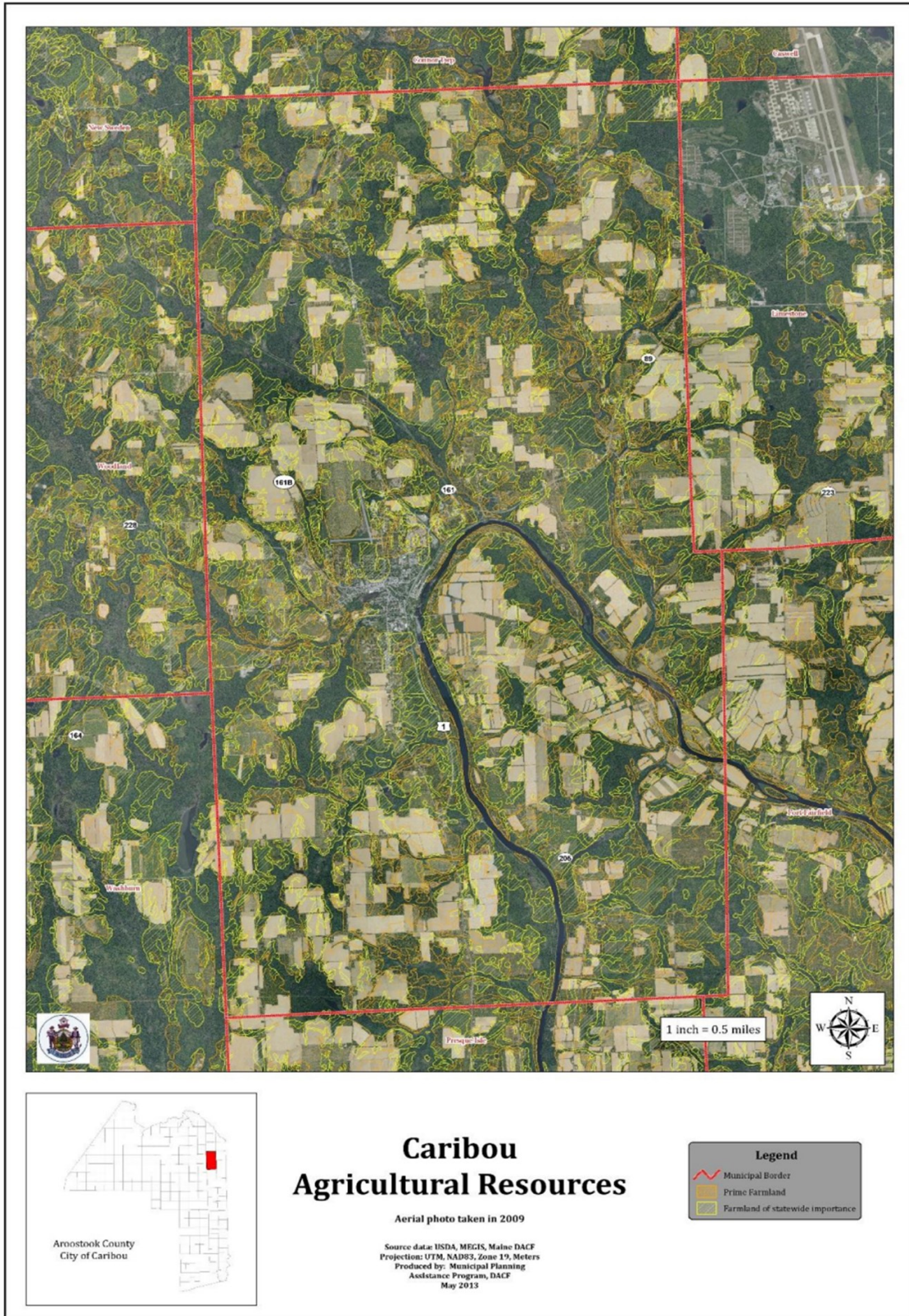


## City of Caribou Development Constraints

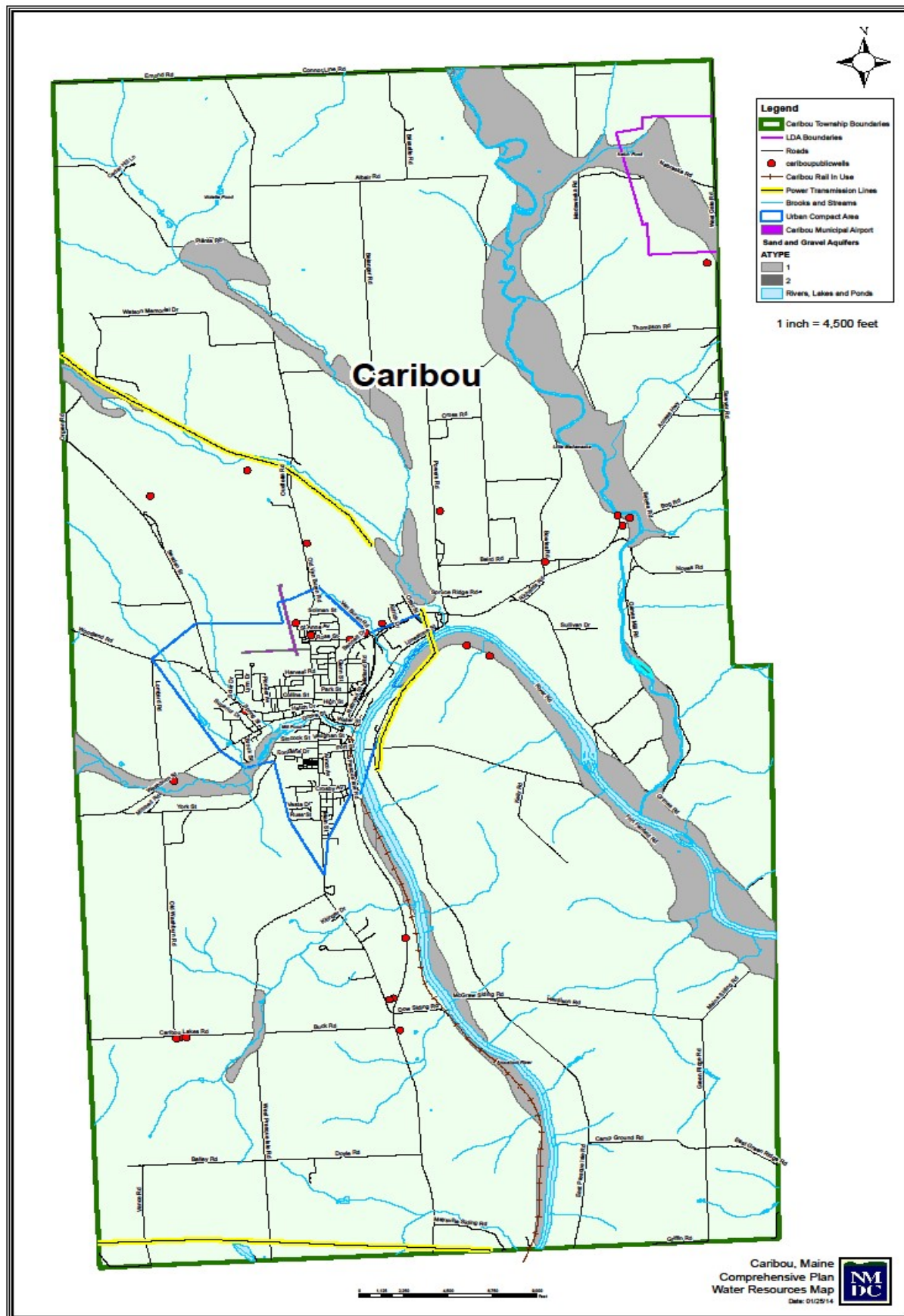
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Produced by: Municipal Planning  
Assistance Program, DACF  
May 2013

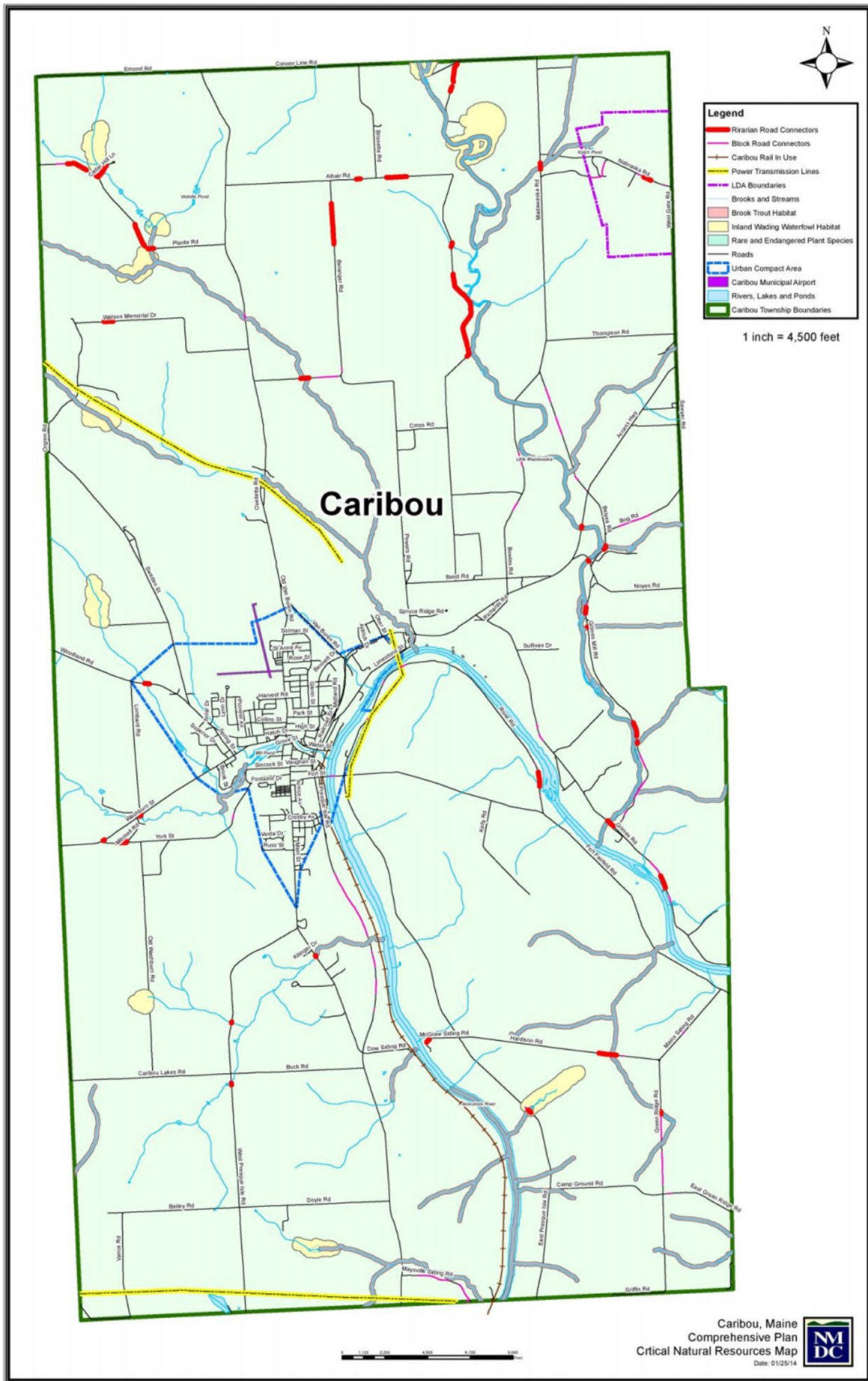




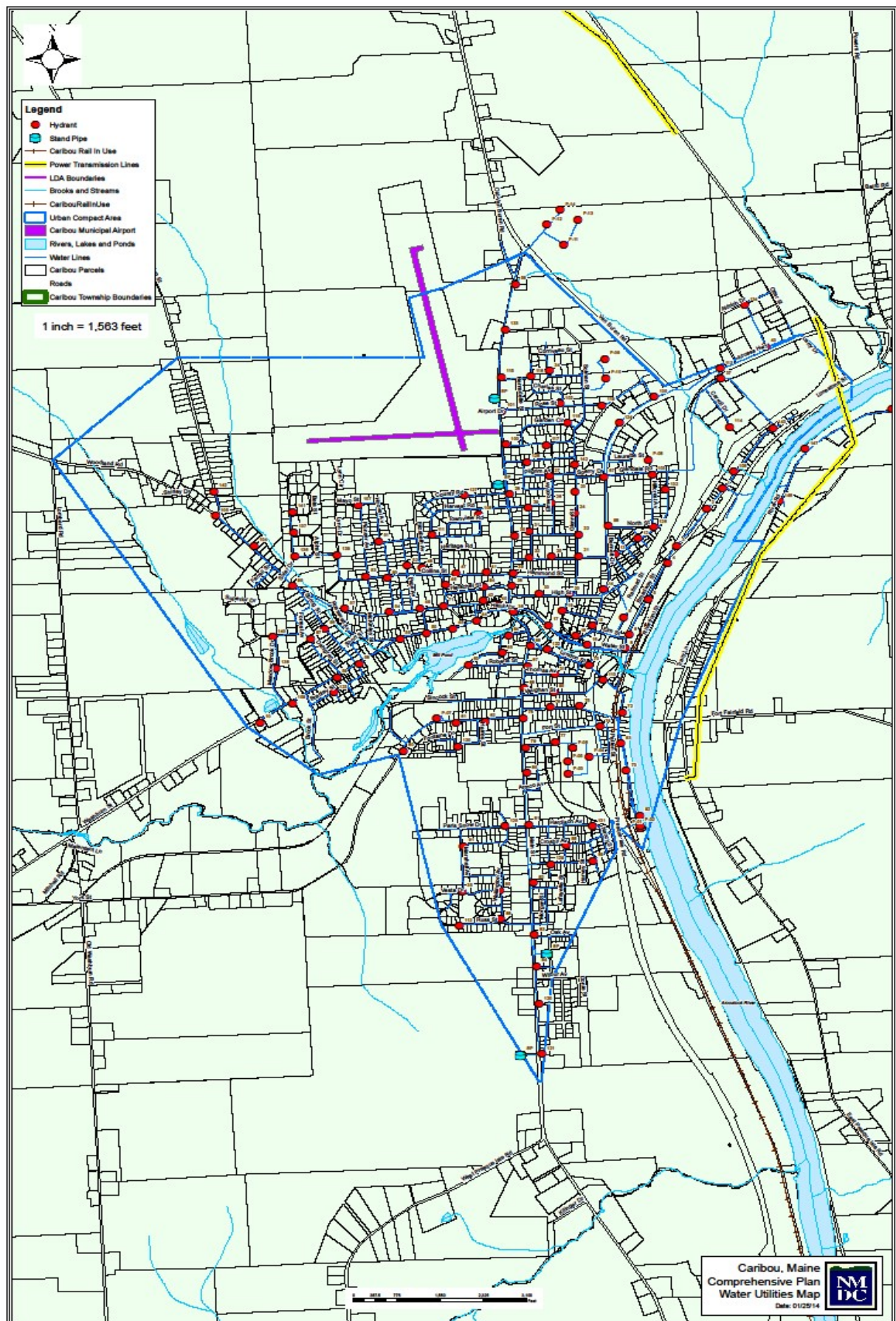




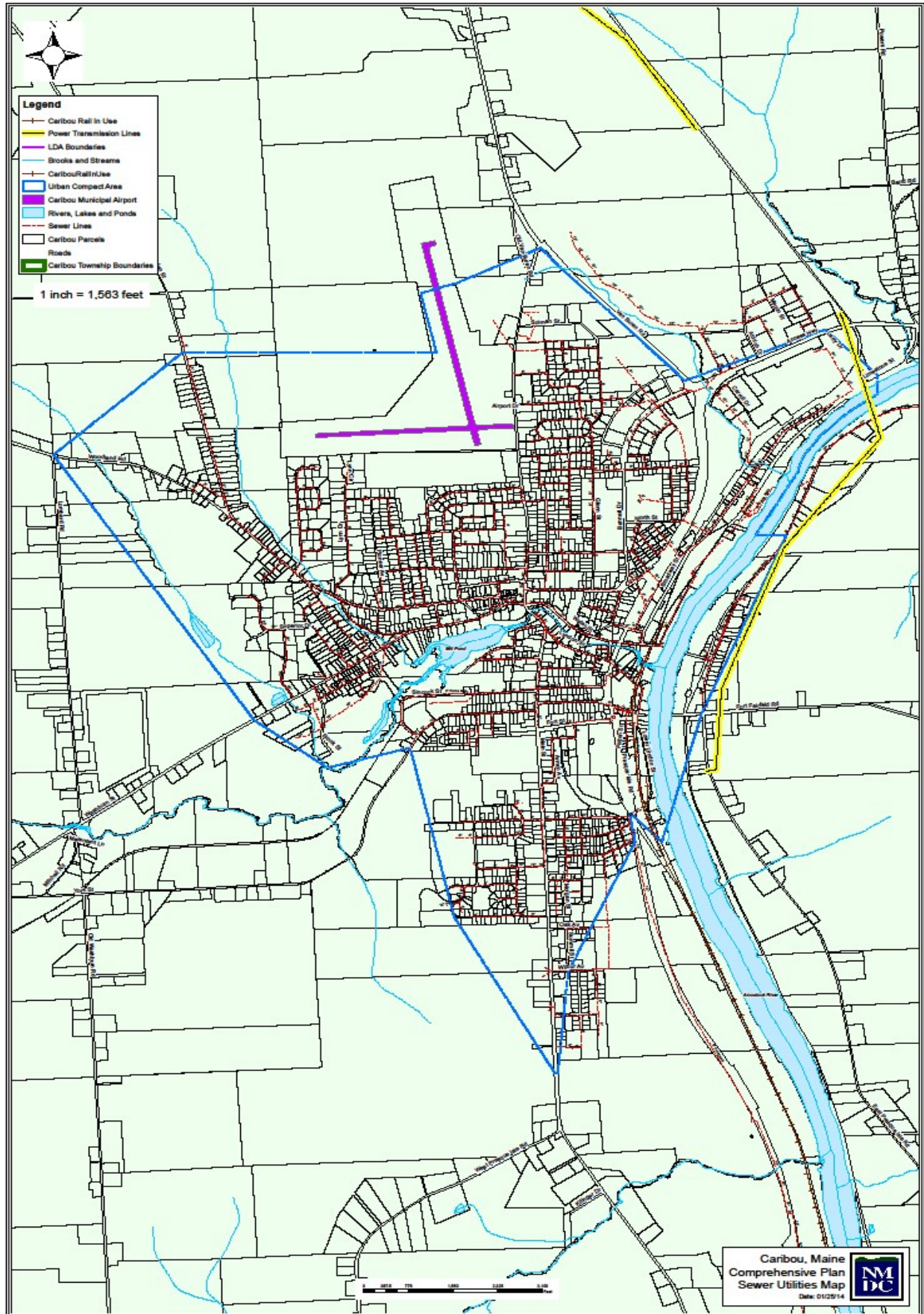




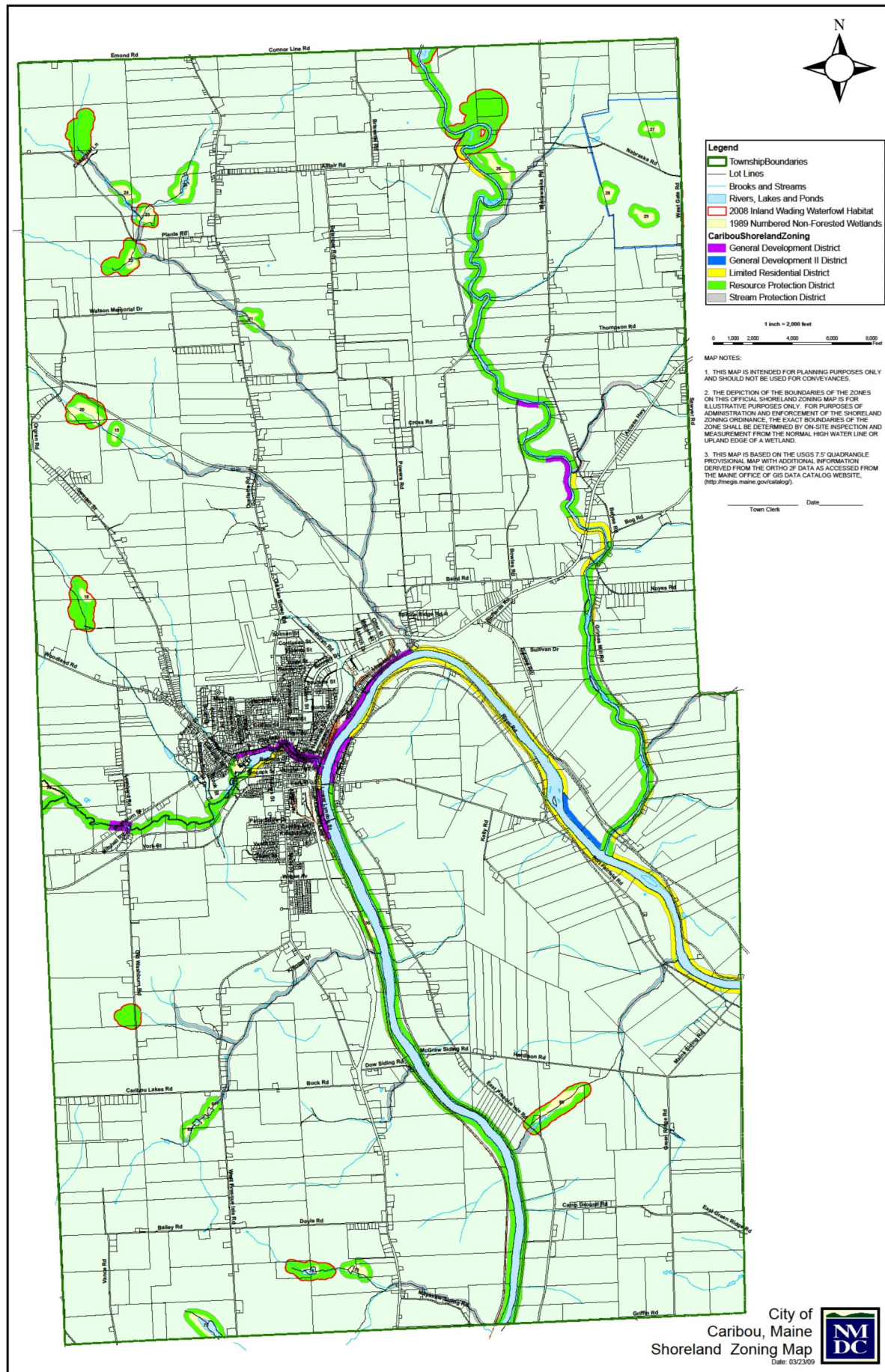




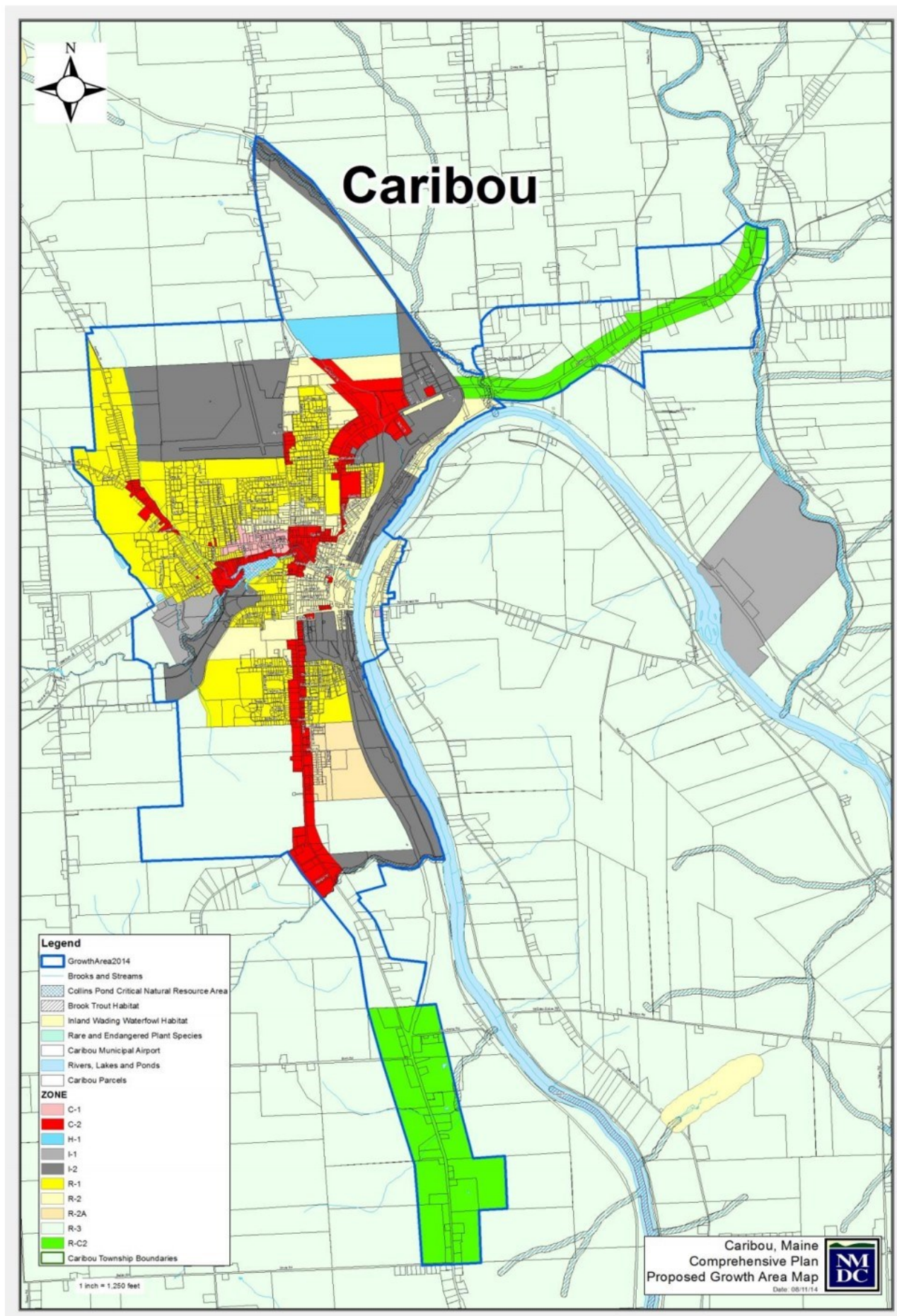






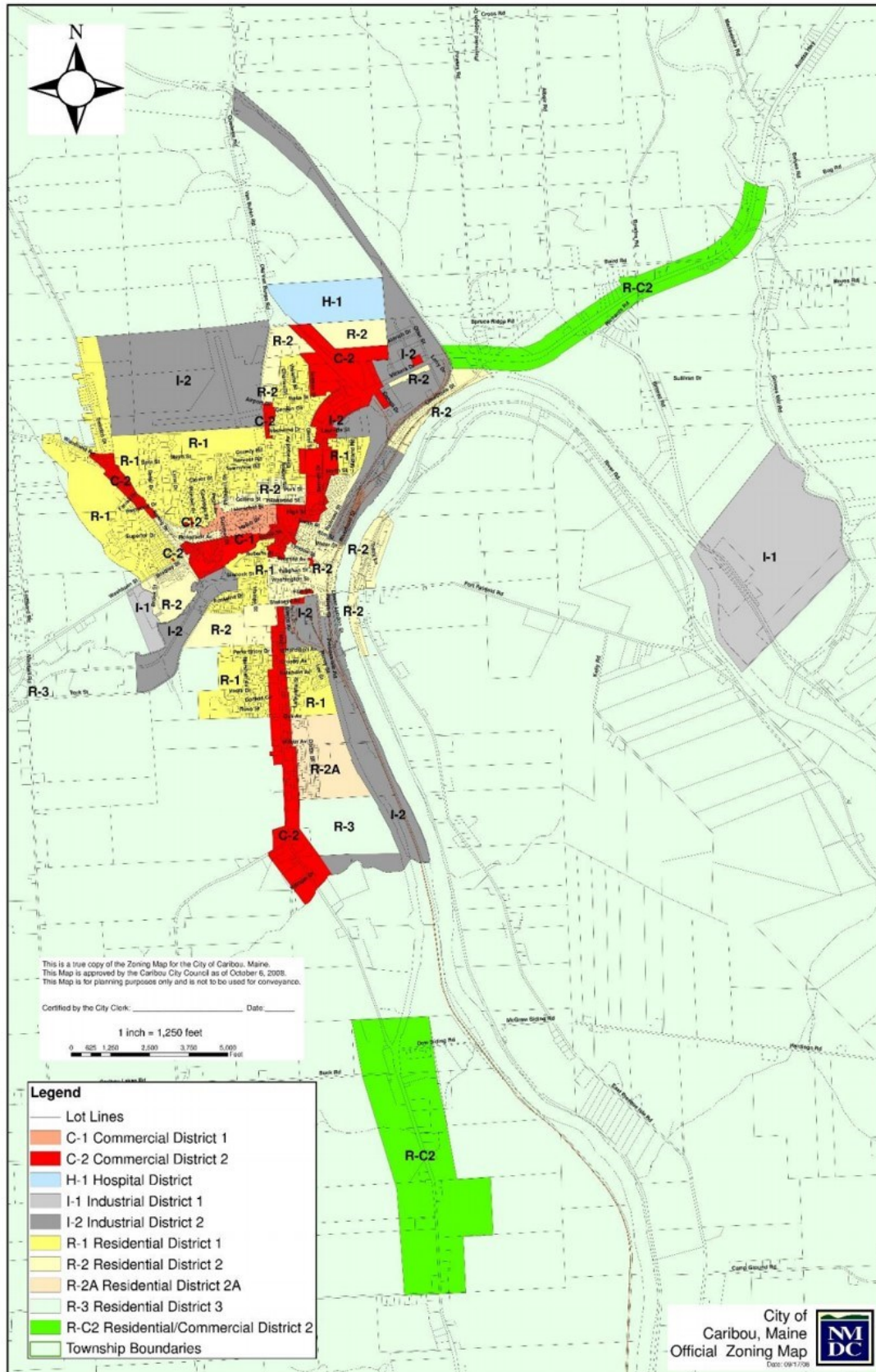








# City of Caribou Current Zoning Map



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