Infrastructure Rebuilding and Resilience Commission

Commission Meeting #10

January 22, 2025

GOVERNOR'S OFFICE OF
POLICY INNOVATION AND THE FUTURE

MAINE
EMERGENCY MANAGEMENT AGENCY

Agenda – January 22

1:00 **Welcome**

1:10 **Legislative updates**

- LD 1: An Act to Increase Storm Preparedness for Maine's Communities, Homes and Infrastructure
- State budget: Maine Office of Community Affairs

1:50 **Flood risk data status and analyses**

2:30 **Small group work plans**

2:50 **Closing remarks and next steps**

3:00 **Adjourn**

LD 1: An Act to Increase Storm Preparedness for Maine's Communities, Homes, and Infrastructure

Home Resiliency Program at the Bureau of Insurance
$15 million

- Grant program for homeowners to strengthen primary residences against severe weather damage and reduce insurance losses ($15m)
  - For example, roof strengthening, basement floodproofing.

Funding: LD 1 is funded by existing Other Special Revenues and leverages federal funding. General Funds are not required.

Maine Emergency Management Agency
$12 million

- One-time funding for Disaster Recovery Fund as match for FEMA recovery funds ($10m)
- Establish a Safeguarding Tomorrow Revolving Loan Fund ($750k + 2yr contract/grant specialist)
- Update communications technology and early warning systems ($800k + 2yr communications system manager)

State Resilience Office and Flood-Ready Maine Initiative
$9.6 million

- Establish the State Resilience Office at MOCA (four 5yr positions, federally funded)
- Flood-Ready Maine initiative to improve flood models and maps and develop an online data hub ($5.75m + geospatial data manager)
- Regional Certified Floodplain Manager initiative to increase NFIP participation ($1.6m + program coordinator)

maine Professional & Financial Regulation

Maine Bureau of Insurance

HoME Resiliency Program

Bob Carey, Superintendent
January 2025

HoME Resiliency Program

- Grant program for homeowners to help make their homes more resilient to severe weather events and lower homeowners' insurance premiums.
- Two types of projects may qualify for grants:
  - Roof replacement that complies with the Insurance Institute for Business and Home Safety (IBHS) "FORTIFIED" standards
  - Flood resiliency projects
- Modeled after successful programs in Alabama and other southeastern US states – but modified to focus on perils Maine homeowners face.

HoME Resiliency Program

- New roofs built to withstand hurricane force winds and rain.
  - Roof condition is cited in ~75% of non-renewal notices in which "condition of property" is listed as the reason.
- Homeowners needing to replace their roof could receive grant if new roof is built to nationally-recognized standards developed by IBHS.
- Other home improvements eligible for grants will target flood-related perils that are commonly excluded from homeowners' insurance. These may include:
  - Retrofitting electrical wiring, elevating sockets and switches
  - Sealing ground level openings and foundations
  - Installing French drains or other home modifications to reduce impact of water seepage.

HoME Resiliency Program

- To be eligible, must be a Maine resident's primary home.
- Maximum grant amount would be $15,000 per home.
- Initial roll-out will target 2 or 3 regions of the state, with statewide roll-out to follow.
- Looking to promote a culture of resilience.
  - In Alabama, the state-sponsored program has helped fund 10,000 "FORTIFIED" roofs, while 40,000 "FORTIFIED" roofs were built / replaced without state support.
- BOI is also working with insurers to provide a premium discount for homes that are more resilient.

LD 1 – Maine Emergency Management Agency

Anne Fuchs

LD 1: An Act to Increase Storm Preparedness for Maine's Communities, Homes, and Infrastructure

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Maine Office of Community Affairs

Samantha Horn, Director

MOCA Programs

Proposed to be Created

- State Resilience Office (NOAA funded)
- Flood Ready Maine (in State Resilience Office)

Existing, proposed to move

- Housing Opportunity Program (DECD)
- Municipal Planning Assistance Program (DACF)
- Community Resilience Partnership (GOPIF)
- Maine Floodplain Management Program (DACF)
- Maine Coastal Program (DMR)
- Volunteer Maine (DOE)
- MUBEC/ Code Enforcement (Fire Marshal)

State Resilience Office and the Flood Ready Maine program: Proposed in LD 1

Moves of existing programs: Biennial Budget, part D

Opportunities

By coordinating programs and improving our offerings, we can:

- Provide a one-stop shop for communities
- Align incentives and policies to achieve more consistent results
- Reduce administrative burden on communities and service providers

<u>Sample</u> Initiatives that we are exploring:

Searchable database to bring grant opportunities together in one place

Collaborations with other agencies to provide multi-agency pre-application input

Combine grant programs with a common application form

Work with regional organizations and nonprofits to bring service delivery closer to the community

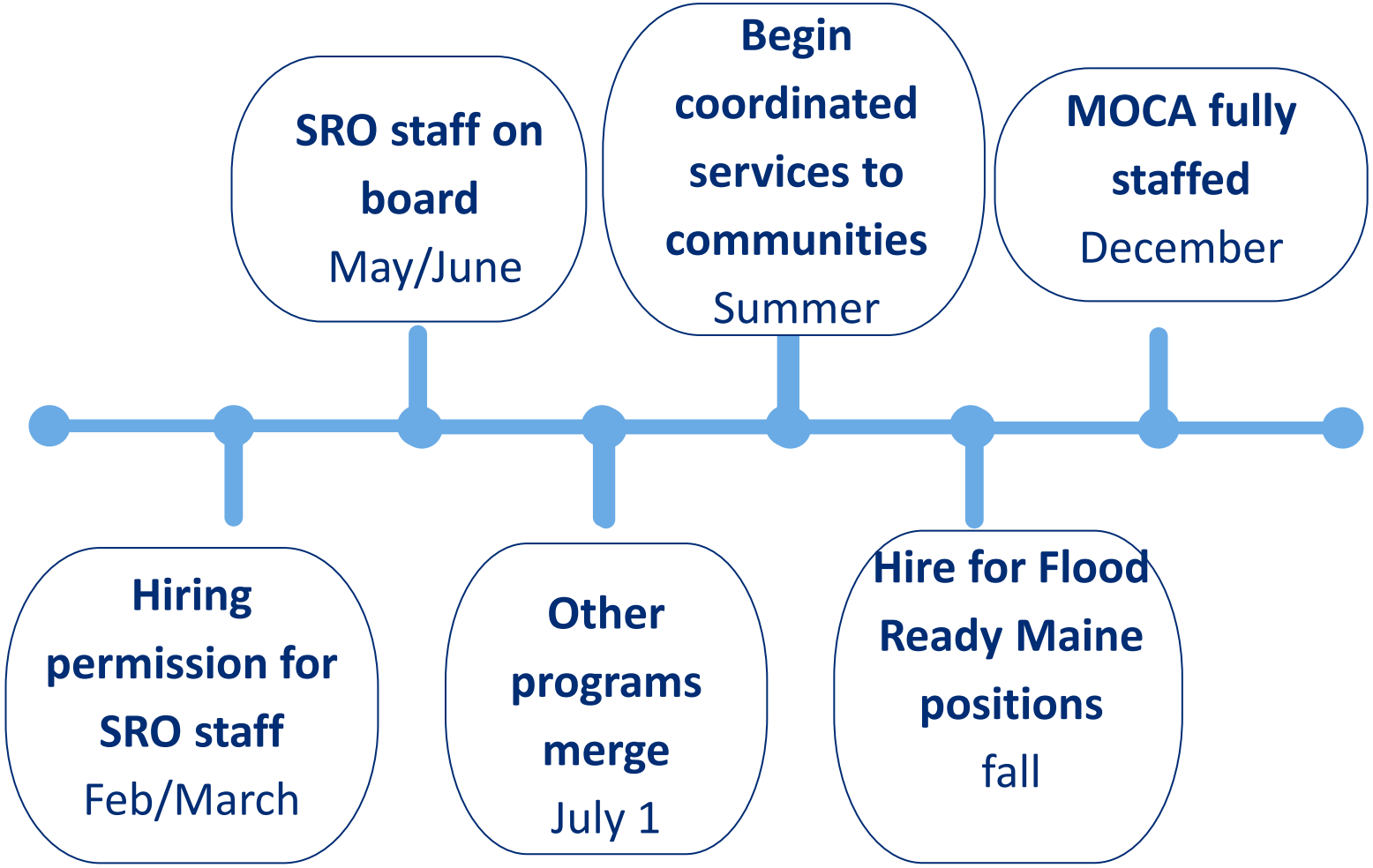
Referral service to provide a “warm handoff” to get community officials and volunteers to the right person the first time

Create technical assistance materials to address the housing crisis and other key municipal needs

Startup Insights

- Not much overlap in functions, but lots of complementarity
- Understanding how to make networks visible and approachable will be one of key challenges
- Some of the staff have never met or were not aware of each other's programs – office is needed
- The office will have many active grant programs – administrative support is essential

State Resilience Office and LD 1 Staffing



Resilience Office

Practices to ensure success:

- Maintain transparency to manage expectations, identify opportunities, and build trust
- Invest in sustainable data delivery products and practices that will outlive the grant and OSR funding
- Keep low-resource communities top of mind at all times
- Problem-solving mindset
- Prioritize building local capacity

Thank you

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Flood Risk Data Status and Analyses

Sam Brody & Wes Highfield

Flood Data for Maine:

A Survey of the Landscape

For discussion with IRRC

January 22, 2025

Agenda

- Overview of Current Data Landscape
- Recommendations
- Future Data Analyses
- Discussion

Introduction and Objectives

A strong factual basis is critical for making disaster resilient decisions. Accurate and accessible data on local conditions is essential for accurately assessing flood risk and developing effective mitigation solutions, as it provides the foundation for understanding the hazards, risks, vulnerabilities, and impacts of potential events, and mitigating those impacts through informed planning, decision-making and resource allocation.

The objective of this presentation is to provide a summary of the current data landscape in Maine and identify any noteworthy gaps in available data*. The data sets reviewed can be categorized as:

- Natural features
- Flood risk products
- Structures and their attributes
- Socio-demographic and economic attributes

** Analysis focused on data sets that are applicable on a state-wide basis. In several cases, municipalities, counties, and townships may have datasets that are applicable to only those scales.*

The State's data foundation for flood risk is robust and exceeds that of many other states

Table 1. Data sources for flood risk analyses in Maine. *Green denotes complete and authoritative data, Yellow denotes older or lack of geographic coverage, Red denotes missing.*

Description	Age	Type/Resolution	Source
Natural Features			
NHD Plus (Hydrology)	2023	Various, generally 1:24,000	USGS
Elevation	Varies	Varies	MGL, USGS
NOAA Coastal Land Cover (CCAP)	2016	30m Raster (10m available)	NOAA
Open Space / Protected Areas (Maine)	2024	Vector	MGL
Open Space / Protected Areas (USGS)	2024	Vector	USGS
Soils (SSURGO)	2024	Vector / Tabular	NRCS
Precipitation (Atlas 14)	2019	Raster	NOAA
Stream gage data	Current	Point level, tabular	USGS
Flood Risk Products			
SLOSH Model Outputs	2018	Raster	MGL
ADCIRC Model Outputs	2014	Raster	USACE/ERDC
FEMA Floodplains	1974-2024	Vector Polygons	FEMA
Structures and Attributes			
National Inventory of Dams	2024	Point-level vector	USACE
Maine Dams	2022	Vector	State of Maine
First Floor Elevations			
National Structure Inventory	2024	Point-level vector	USACE
Critical Infrastructure	2023	Unknown	MEMA
Critical Infrastructure	Varies	Point-level vector	DHS-HIFLD
State Owned Assets	Unknown	Point-level vector	State of Maine
Socio-demographic			
Population and characteristics	2020, 2024	Census Geography	USCB
Social Vulnerability	2024	County / County Subdivision	State of Maine / TNC
Social Vulnerability	2022	County / Tract	CDC

Future Analyses

Table 2: Future analyses based on data availability

Category	Tasks	Status
Risk Status and Measurements		
Floodplain map status and ages	Standardized by structure	
	Standardized by population	
SLOSH / ADCIRC	Storm surge risk to structures	
	Storm surge risk to populations	
LiDAR status	Assess readiness of improved flood & surge models based on high-res elevation data	
Critical facilities	Assess the risk of state and community based critical facilities	
Social vulnerability	Analyze the flood risk status of socially vulnerable communities with Maine SV measures	
	Health-based measures from the Behavioral Risk Factor Surveillance System (BRFSS)	
Natural-Technical (NATECH) hazards	Assess the risk of NATECH events based on federal Toxic Release Inventory (TRI) and EPA Superfund locations	
Flood risk outside of delineated floodplains	Analyze High-Water Marks (HWM) that occur outside of mapped floodplains, with depth where available	
	Assess X-zone NFIP claims and policies	
Catalogue agricultural losses from past events	Cross-reference with publicly available USDA funded recovery grants	
Mitigation		
NFIP-based analyses	Develop a current assessment of existing NFIP policies (mapped), by flood risk	
	Estimate known structures in high-risk zones using the National Structure Inventory (NSI)	
	Assess the state of Pre-FIRM claims / policies	
	Analyze the status of Repetitive Loss/Severe Repetitive Loss properties	
	Links to potential funding opportunities	
Evaluate Maine's Community Hazard Mitigation Plan Statuses	Will provide gaps in a community's ability to apply for funds and identify areas where HM plans can be developed.	
Hazard Overlay Districts	Provide a conceptual methodology to delineate HODs based on analyses performed above in combination with areas of potential growth/development	
Watershed planning districts	Provide a conceptual methodology to delineate Watershed planning districts based on analyses above in combination with areas of potential growth/development	

The current state of data on **Natural Features** is robust. Sufficient data exists for the development of H&H models and efforts to maintain and update these are healthy.

Description
Natural Features
NHD Plus (Hydrology)
Elevation
NOAA Coastal Land Cover (CCAP)
Open Space / Protected Areas (Maine)
Open Space / Protected Areas (USGS)
Soils (SSURGO)
Precipitation (Atlas 14)
Stream gage data

Potential Gaps:
High-resolution elevation data is vital for performing H&H modeling, identifying flood-prone areas, mapping flood events and modeling waterflow. Current data is a patchwork of resolutions and ages of elevation datasets, like many other states. Stream gage data might not be an immediate concern, but an evaluation of the necessity of additional upstream gages for riverine floods may be warranted.

The most recent LiDAR data is available for the Downeast coastal region of the state. The southern portion of the coast, including Portland and the majority of the state population has the oldest available data.

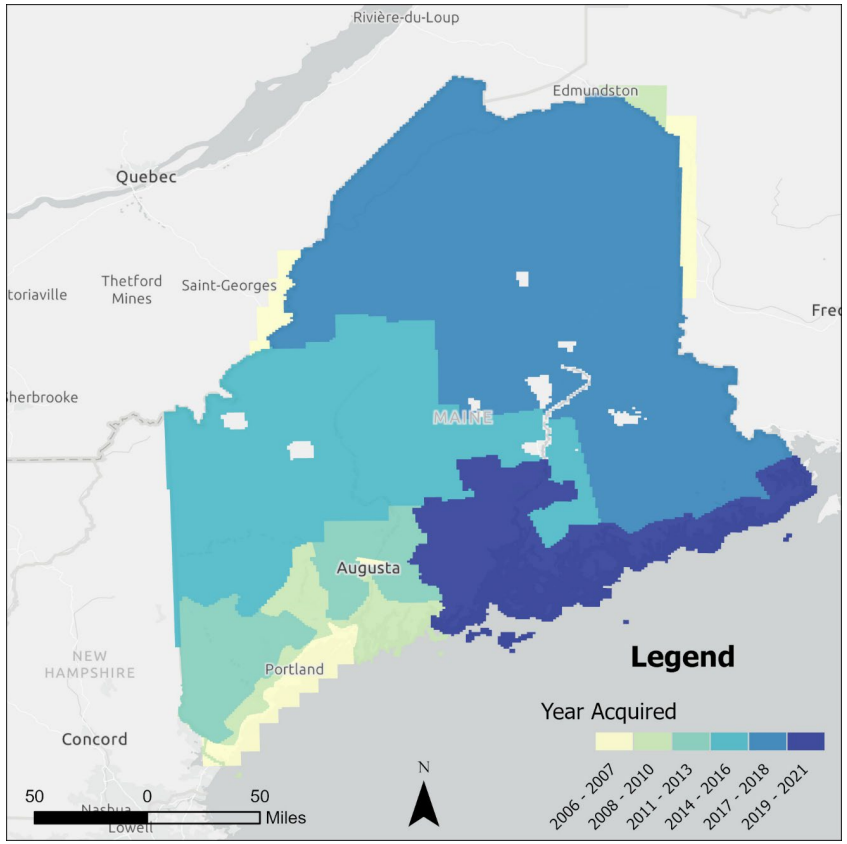


Figure 1. LiDAR-based DEM coverage by year of acquisition. *Source: Maine Geospatial Catalog. Years may not reflect all current LiDAR collection efforts.*

The area with gaps to fill are **Flood Risk Products**. Issues include age and resolution of maps, as well as lack of coastal flood models, although important efforts are underway.

Flood Risk Products	Age
SLOSH Model Outputs	2018
ADCIRC Model Outputs	2014
FEMA Floodplains	1974-2024

Potential Gaps:

By geographic area, much of Maine does not have many floodplains delineated—approximately 43% of the State has no floodplain information (although less than 1% of residents live in an area without any flood risk products).

To our knowledge, no ADCIRC products currently exist for the State, however Maine DOT and Woods Hole are leading a project to develop the Maine Coastal Flood Risk Model (ME-CFRM) scheduled for release in 2025.

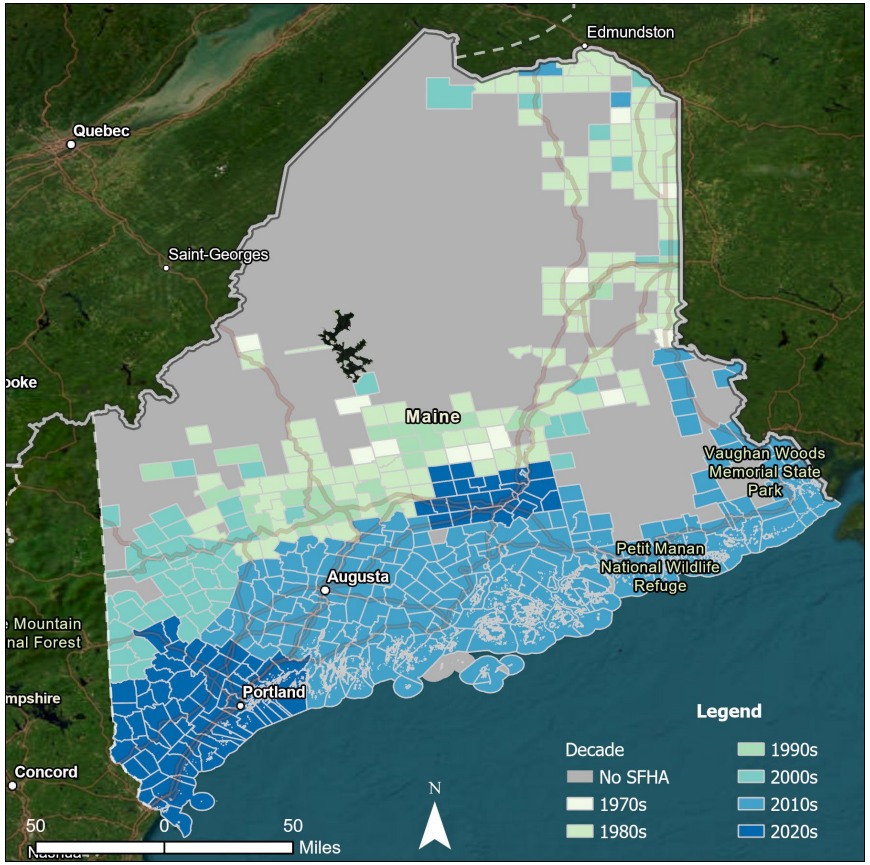


Figure 2. Year of FEMA floodplain development. *Source: FEMA community status book. No SFHA denotes that FEMA floodplains do not exist.*

Floodplain age appears to be a much larger issue that geographic coverage. The average age of delineated floodplains in Maine is 2016—8 years old. Changing conditions and outdated models have rendered existing maps less accurate and useful for planning and risk communication. Further analyses should be conducted to prioritize areas for updated or new floodplain delineations.

Data on **Structures and Attributes** is also robust. The statewide organization and cataloguing of dams exceeds that of USACE datasets. State assets are also clearly catalogued and developed.

Structures and Attributes	
National Inventory of Dams	2024
Maine Dams	2022
First Floor Elevations	
National Structure Inventory	2024
Critical Infrastructure	2023
Critical Infrastructure	Varies
State Owned Assets	Unknown

Potential Gaps:
First floor elevations (FFEs) are a critical attribute to assess flood risk and perform damage assessments. Collection of FFEs is historically difficult and very few municipalities have an inventory of this data. However, beginning the centralized collection of FFEs allows for accurate damage estimation, more rapid disaster declarations based on expected damage, and a key measure to conducting realistic scenario-based planning.

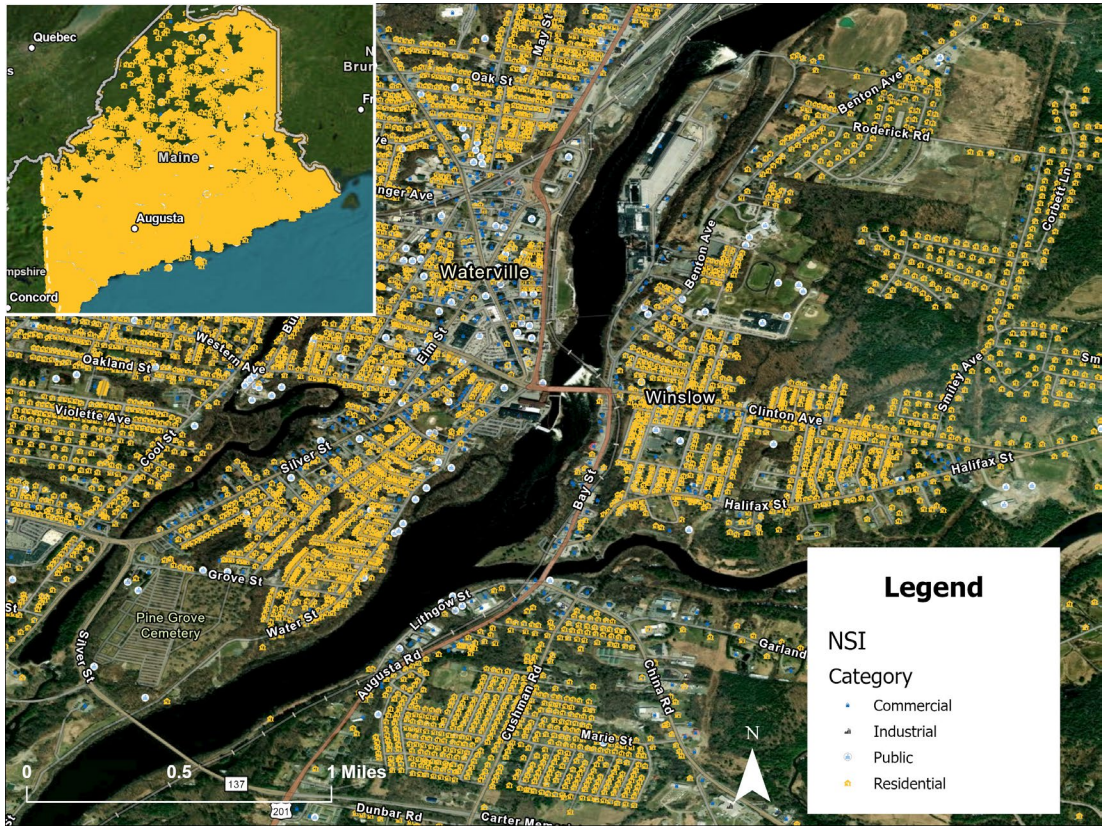
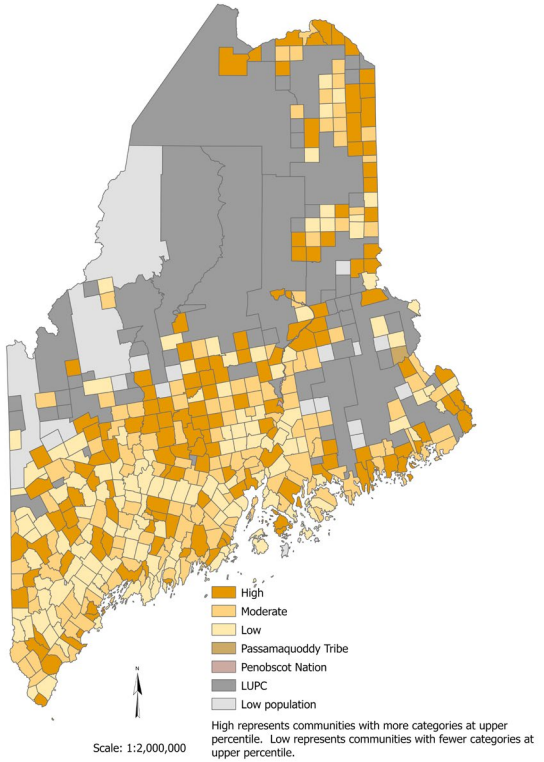


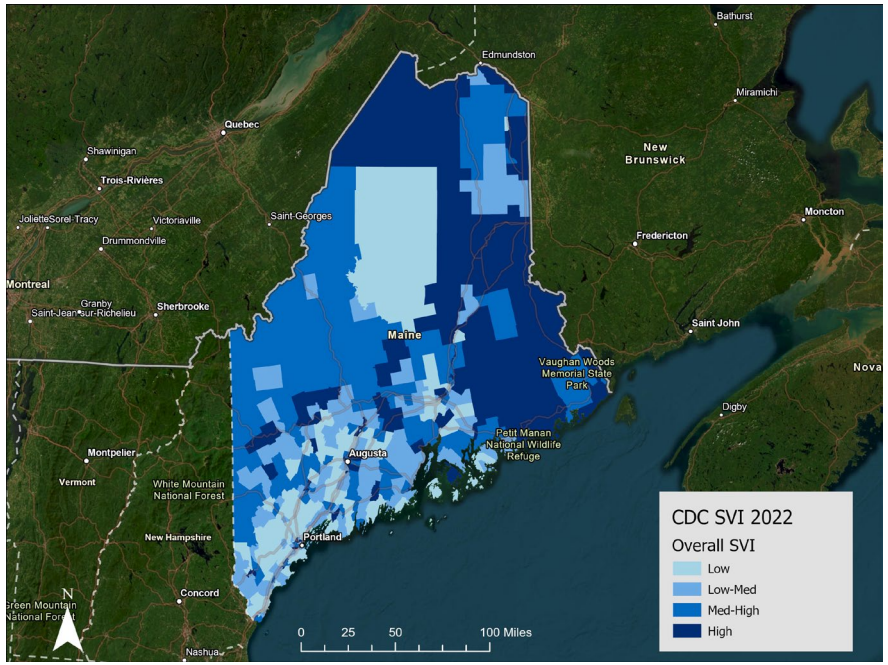
Figure 3 Example of National Structure Inventory Data. *Source: USACE.*

Socio-demographic data and social vulnerability measures are also timely and intact.

Socio-demographic	
Population and characteristics	2020, 2024
Social Vulnerability	2024
Social Vulnerability	2022

No gaps of note. Maine has created a customized social vulnerability index (SVI) for the state that provides local knowledge and context to the federal CDC SVI, including a county subdivision-level geographic scale that is more representative of Maine's population distribution.





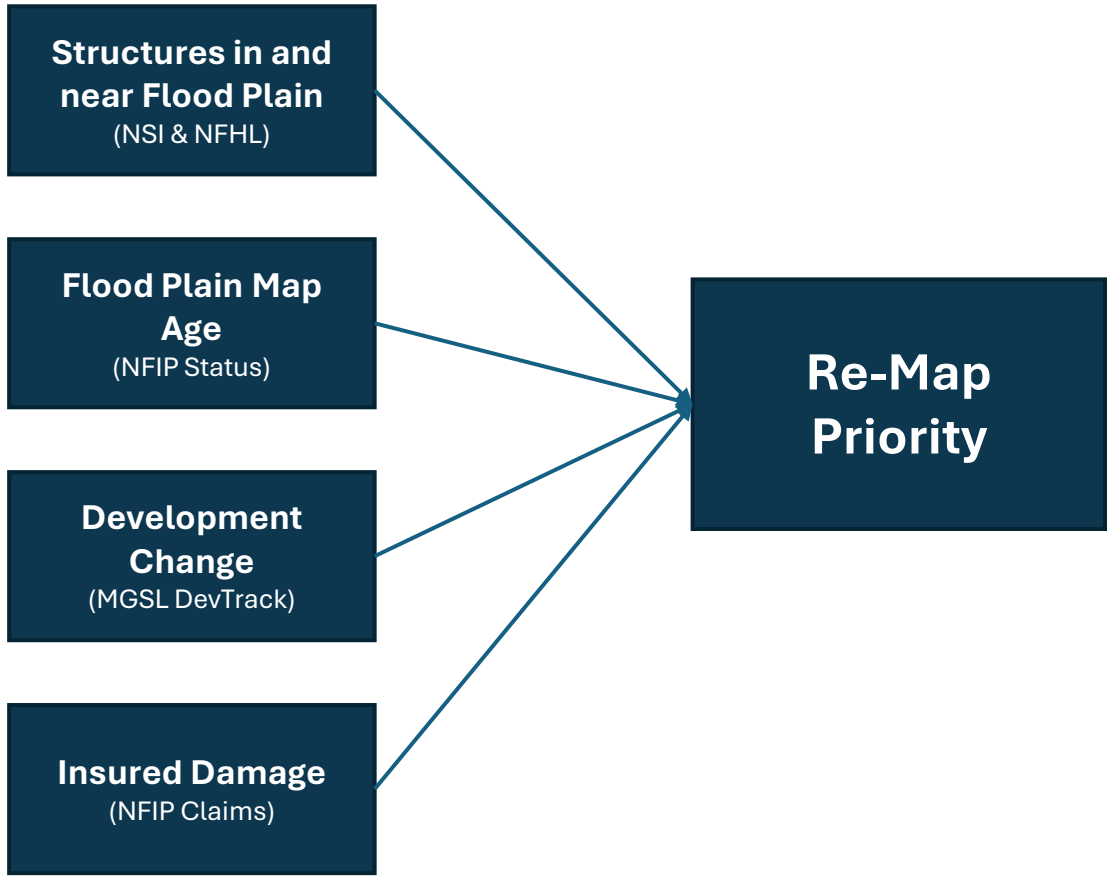
Figures 4 & 5. Examples of Social Vulnerability Data. *Source: (left)* Eileen Johnson, Bowdoin College and Jeremy Bell, TNC; (right) CDC SVI.

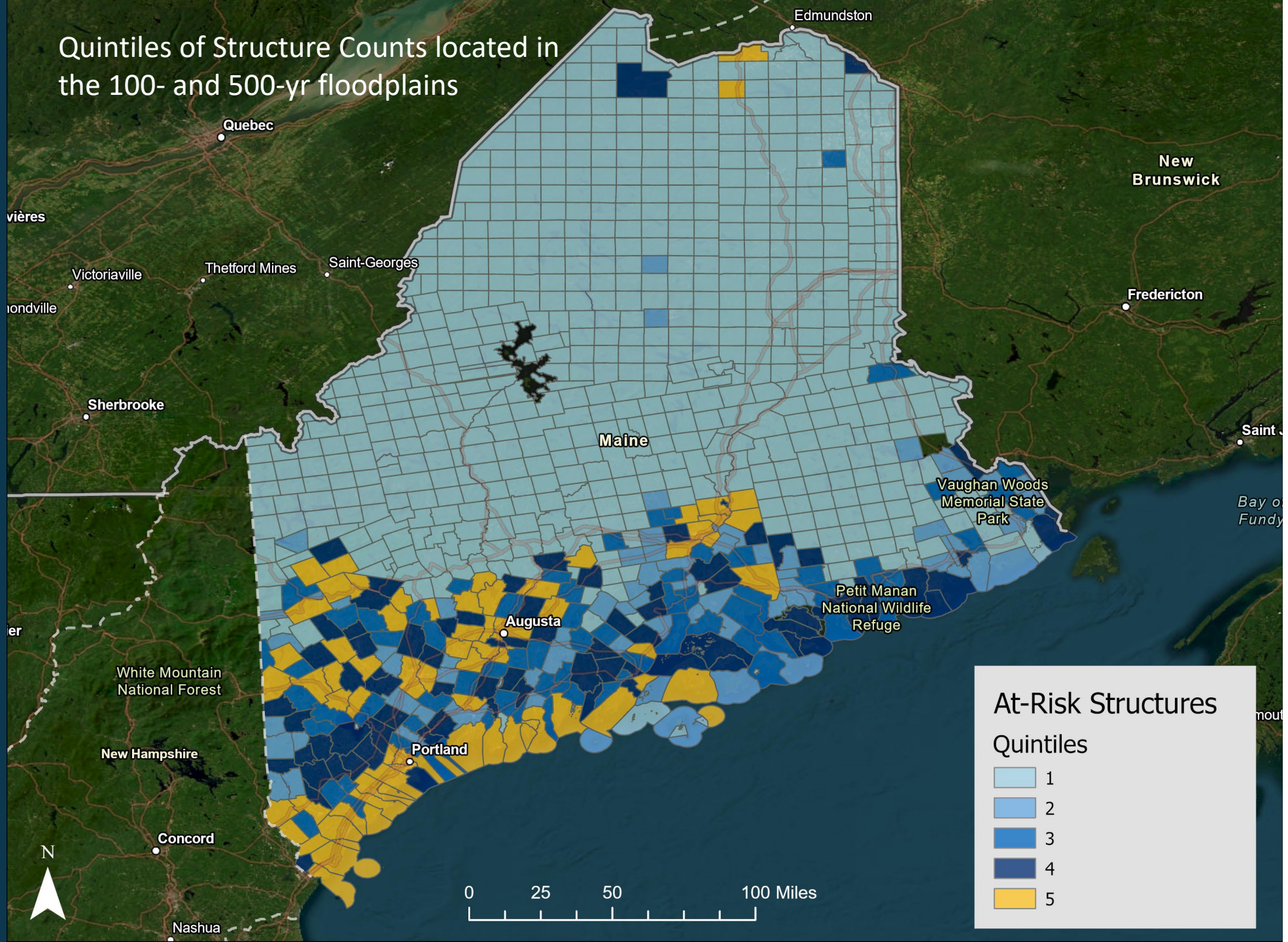
Recommendations

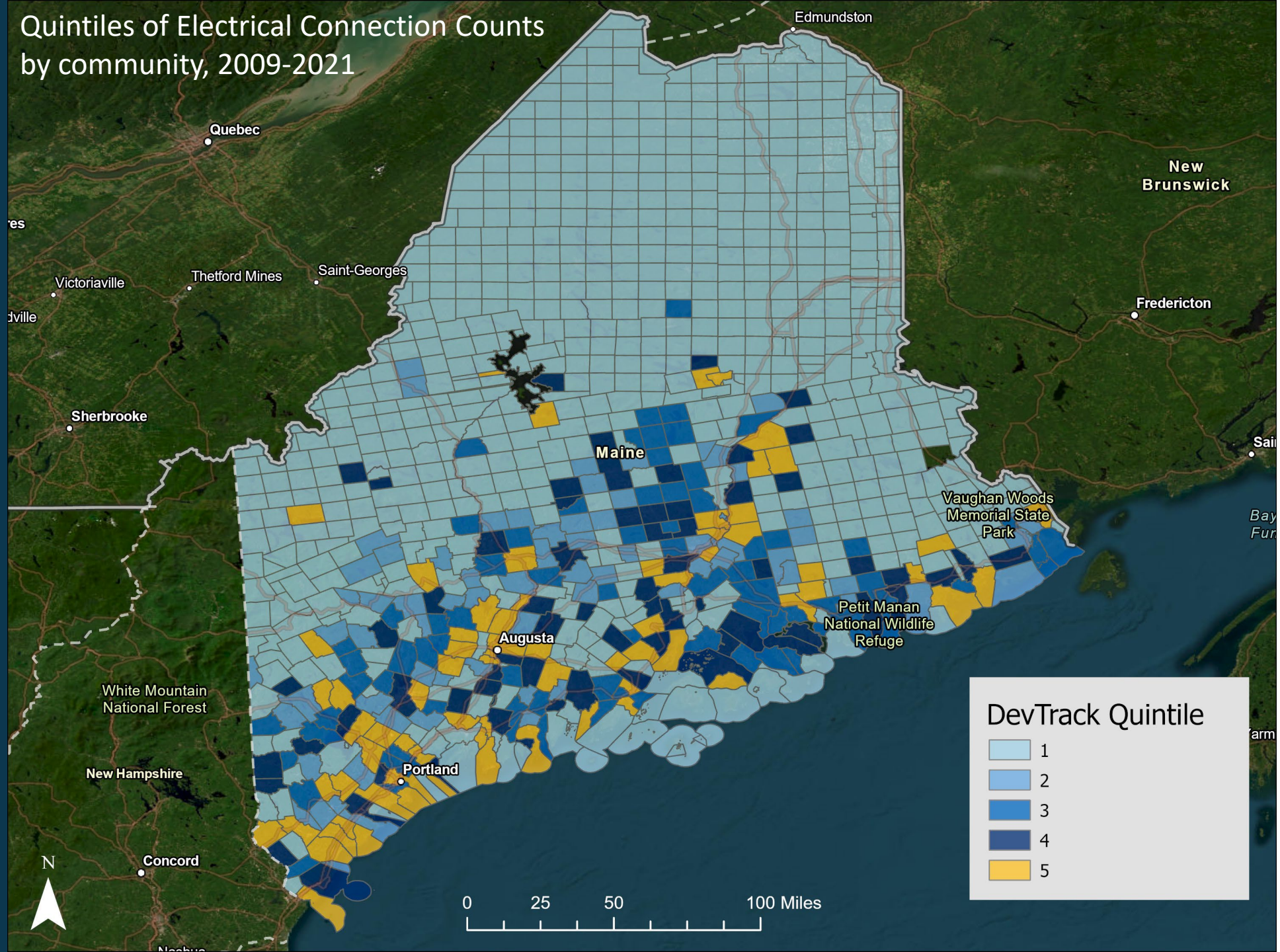
Based on the results of the flood data gap analysis, we recommend the following actions:

1. *Establish pathways to revise floodplains and flood risk products (See State of Maine Infrastructure Rebuilding and Resilience Commission November 2024 Interim Report, Recommendations 4, 6).*
    - Develop a prioritization scheme(s) based on map date, population, land cover change, and projected development
2. *Leverage the work of the MaineDOT-funded Maine Coastal Flood Risk Model (See Interim Report, Recommendations 4, 6).*
    - To improve coastal floodplains
    - To establish realistic coastal base flood elevations
3. *Determine the need and source for additional stream gages (See Interim Report, Recommendation 4).*
    - Understanding the length of record and upstream/downstream location of gages relative to population centers would prioritize funds and efforts.
4. *Seek community input to better define and determine critical facilities* (*See Interim Report, Recommendations 4, 5)*
    - Many critical facilities are readily defined, but non-traditional critical facilities may exist in rural areas and only be revealed through community input.
5. *Begin assembly of a state-wide dataset of first-floor elevations based on elevation certificates (See Interim Report, Recommendations 4, 5).*
    - Integrate FFEs into a living dataset of structure footprints and attributes.
6. *Establish a single location for authoritative hazard and disaster data (See Interim Report, Recommendation 4).*
    - This provides the ability to use the highest-resolution data available for data-rich areas while still providing coverage for less detailed areas in a quilt-like fashion.
    - The Maine Geospatial Library appears to be uniquely positioned to accomplish this task. Founding statutes for the MGL do not list a MEMA representative as a required board member.

Conceptual Approach to Prioritizing Flood Plain Re-Mapping




Quintiles of Structure Counts located in the 100- and 500-yr floodplains
Edmundston
Quebec
New Brunswick
Victoriaville
Thetford Mines
Saint-Georges
Fredericton
Sherbrooke
Maine
Vaughan Woods Memorial State Park
Petit Manan National Wildlife Refuge
Augusta
White Mountain National Forest
New Hampshire
Portland
Concord
Nashua
N
0 25 50 100 Miles
At-Risk Structures
Quintiles
1
2
3
4
5


Quintiles of Electrical Connection Counts
by community, 2009-2021
Edmundston
Quebec
New
Brunswick
Victoriaville
Thetford Mines
Saint-Georges
Fredericton
Sherbrooke
Maine
Vaughan Woods
Memorial State
Park
Petit Manan
National Wildlife
Refuge
Augusta
White Mountain
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DevTrack Quintile
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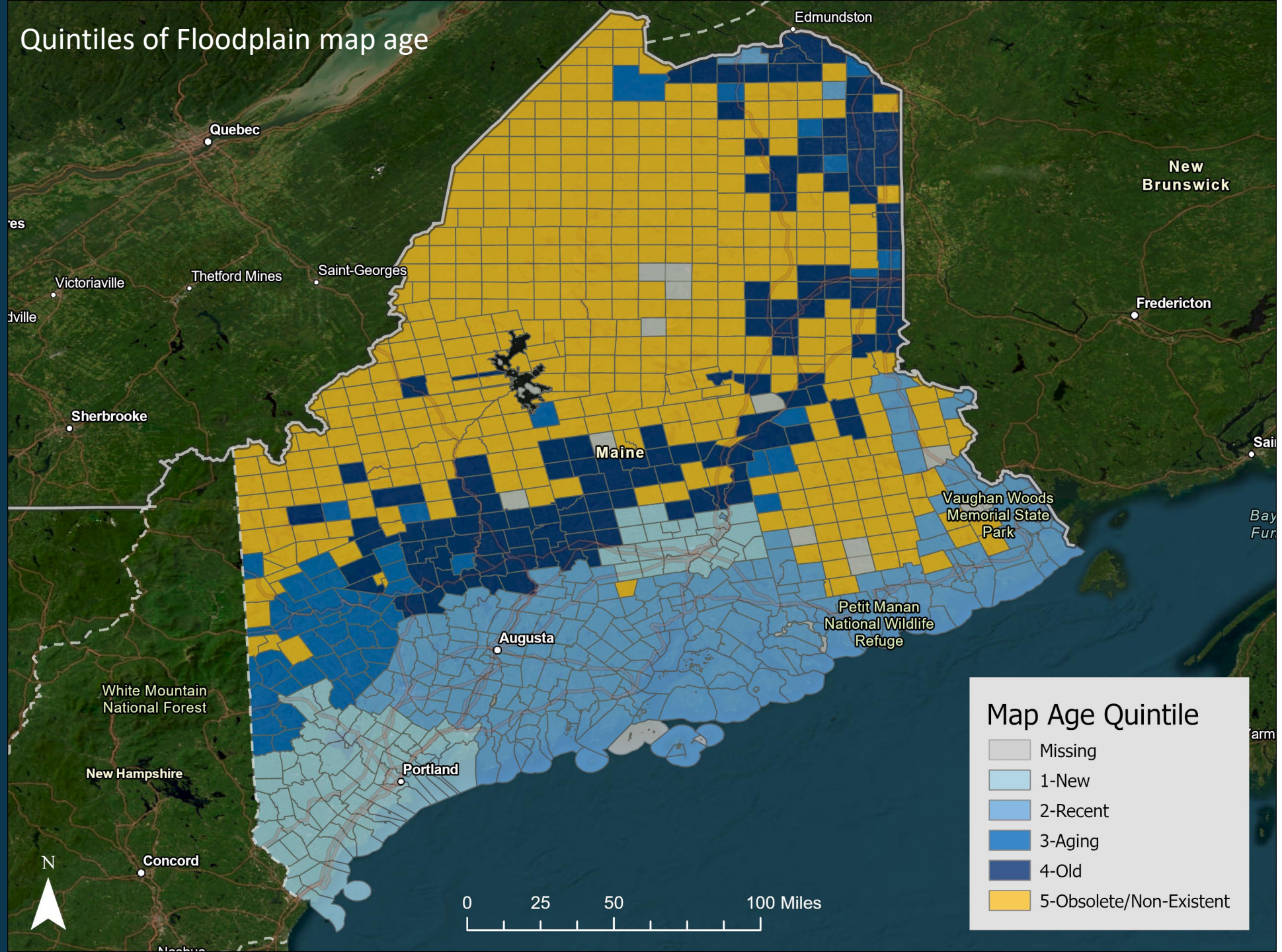
Quintiles of Floodplain map age
Edmundston
Quebec
New Brunswick
Victoriaville
Thetford Mines
Saint-Georges
Fredericton
Sherbrooke
Maine
Vaughan Woods Memorial State Park
Petit Manan National Wildlife Refuge
Augusta
White Mountain National Forest
New Hampshire
Portland
Concord
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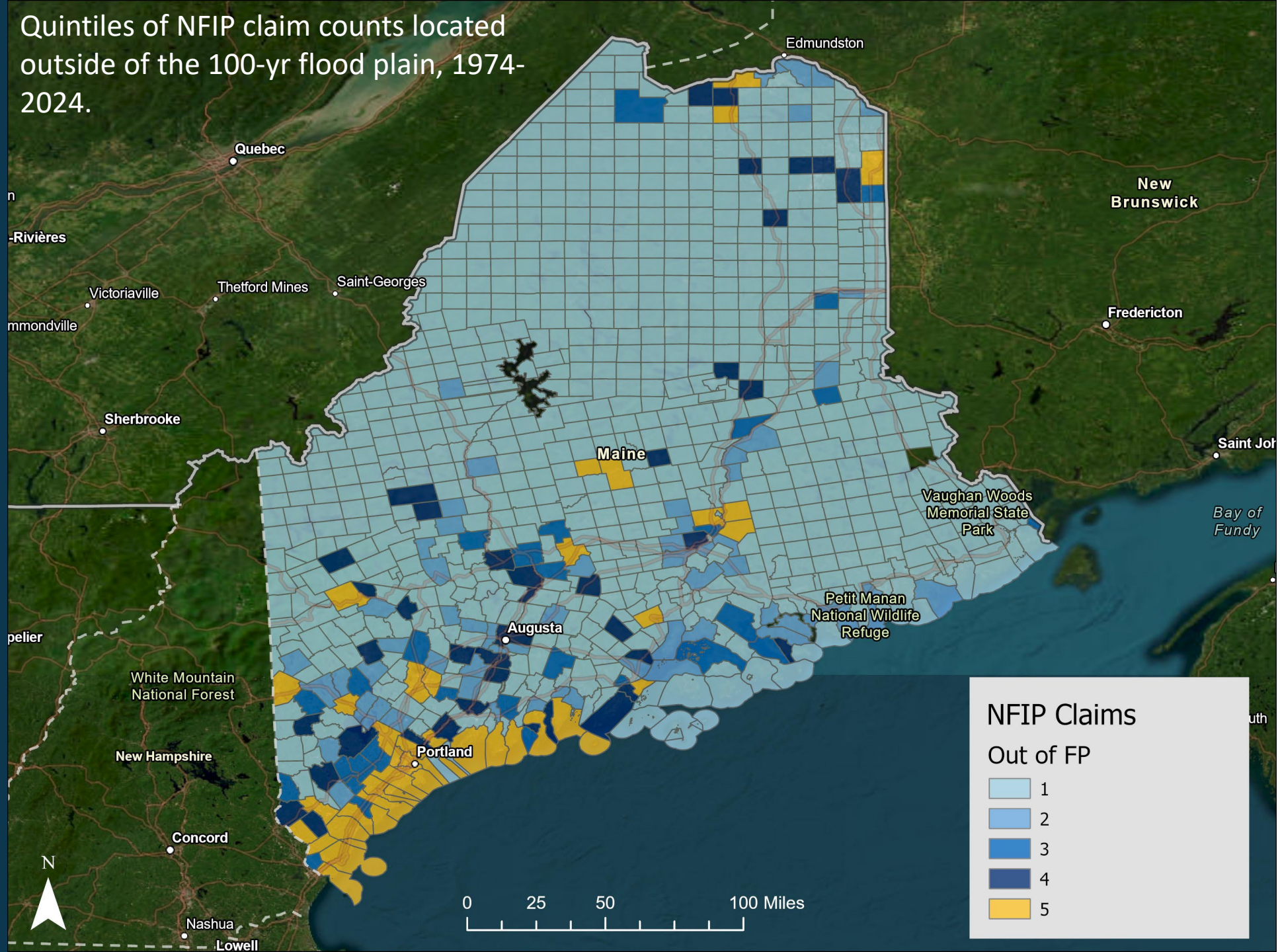
Map Age Quintile
Missing
1-New
2-Recent
3-Aging
4-Old
5-Obsolete/Non-Existent


Quintiles of NFIP claim counts located outside of the 100-yr flood plain, 1974-2024.
Edmundston
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Thetford Mines
Saint-Georges
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Fredericton
Sherbrooke
Maine
Saint Joh
Vaughan Woods Memorial State Park
Bay of Fundy
Petit Manan National Wildlife Refuge
Augusta
pelier
White Mountain National Forest
New Hampshire
Portland
Concord
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NFIP Claims
Out of FP
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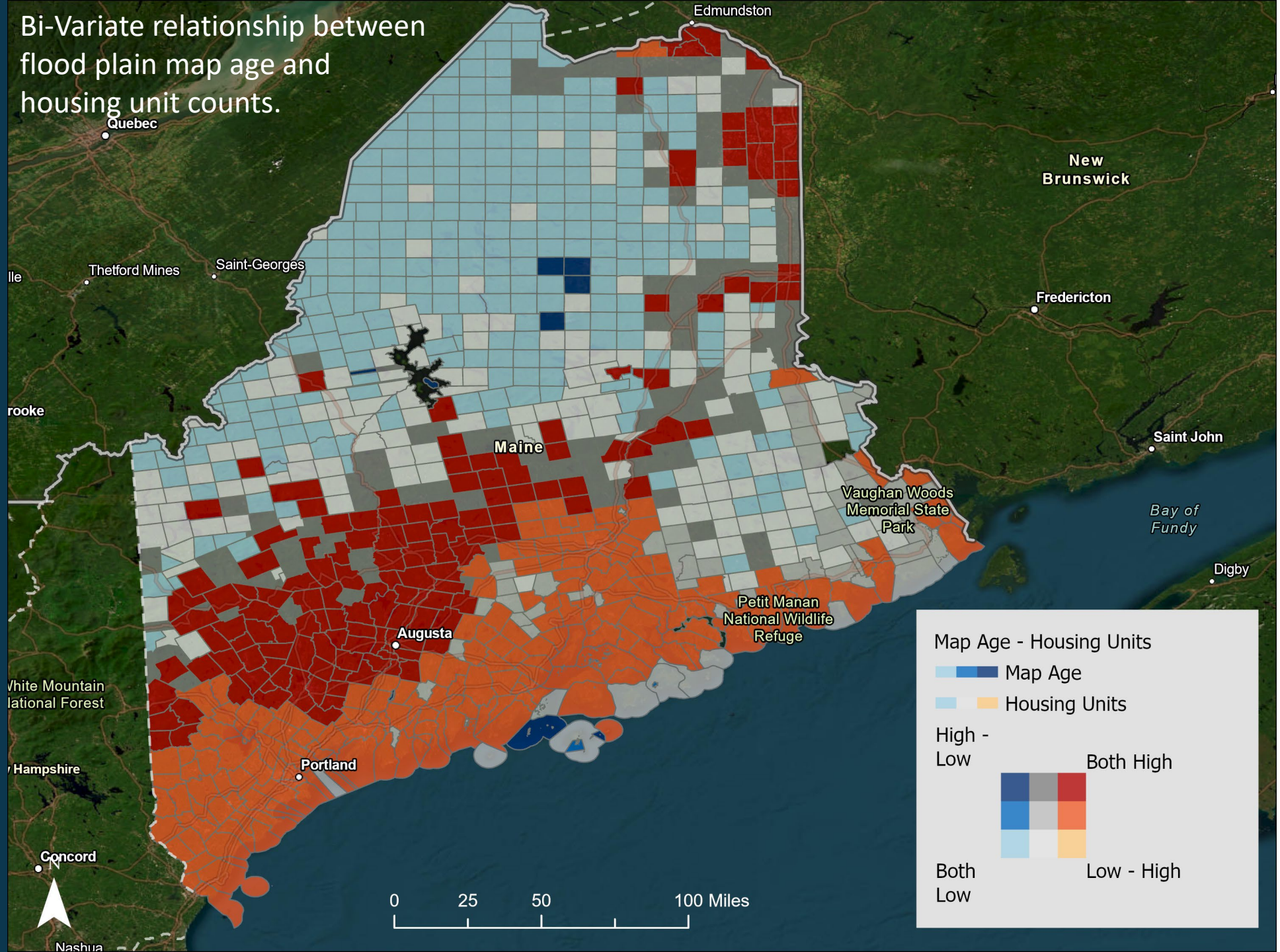
Bi-Variate relationship between flood plain map age and housing unit counts.
Edmundston
Quebec
New Brunswick
Thetford Mines
Saint-Georges
Fredericton
Maine
Saint John
Vaughan Woods Memorial State Park
Bay of Fundy
Digby
Petit Manan National Wildlife Refuge
Augusta
Portland
Concord
Nashua
0 25 50 100 Miles
Map Age - Housing Units
Map Age
Housing Units
High - Low
Both High
Both Low
Low - High

Small Groups - Work plan

1. GOPIF staff will provide logistics and support:
   - scheduling, light facilitation, research, notetaking, summary writing
2. Groups will receive:
   - initial “landscape” information, research, and/or presentations
   - 2-4 potential topics to explore and make recommendations
3. Groups should narrow the potential topics to 2 for deeper focus
4. Two 2-hour meetings in February and March
   - Meeting 1 – receive “landscape” info, narrow focus to 2 topics, frame key questions, set intended deliverables, determine agenda for 2nd meeting
   - Meeting 2 – discuss topics, shape recommendations, identify lingering questions, provide staff with sufficient detail to draft the group’s summary of recommendations
   - By email – review and approve summary of recommendations

Small Groups – changes to groups

Group 1: Energy Resilience **merged** into Vulnerable Infrastructure Prioritization

Project Implementation Challenges **split** into two groups:

- Group 2: Capacity to Implement Projects
- Group 3: Permitting

Group 4: Funding & Financing for Resilience Projects - **no change**

Group 1 – Vulnerable Infrastructure Prioritization

Topics	**Transportation, electricity, water, and working waterfront infrastructure** • What are potential criteria the state might utilize to prioritize infrastructure projects for funding and implementation? • What is the estimated cost for resiliency improvements to various infrastructure categories? (e.g., $X million for wastewater treatment facilities over the next 10 years, $Y million for culverts) • Identify the communities with the highest impact from outages. Make recommendations for a community microgrid program.			
Members	<u>First Choice</u> Noël Bonam Sam Brody Curt Brown Dan Burgess Judy East Anne Fuchs	Shiloh LaFreniere Hannah Pingree Joe Purington Sam Roy Pete Slovinsky Joyce Taylor	<u>Second Choice</u> Charlie Colgan Pat Keliher Melanie Loyzim Emily Rabbe	<u>Staff</u> Maggie Kelly-Boyd Hannah Silverfine Lindsay Gilton, GEO
Meeting dates	Thursday, February 13 Wednesday, February 26	1:00pm – 3:00pm 1:00pm – 3:00pm		

Group 2 – Capacity, workforce, and business development

Topics	**Capacity, workforce, and business development** – Ensuring Maine has: 1. municipal and regional capacity to identify, develop, and execute projects, 2. skilled workers and firms for all aspects of project development and construction, and 3. firms with the specializations needed for coastal infrastructure projects, green infrastructure, wastewater and stormwater projects, etc.		
Members	<u>First Choice</u> Melanie Loyzim Jack Parker Emily Rabbe	<u>Second Choice</u> Curt Brown Bob Carey Charlie Colgan Judy East Deborah Ellwood Shiloh LaFreniere Joyce Taylor	<u>Staff</u> Dan Matz Maggie Kelly-Boyd
Meeting dates	Monday, February 10 11:00am – 12:30pm Monday, March 3 1:00pm – 3:00pm		

Group 3 – Permitting

Topics	• Understand the state's current actions to reform permitting. • Suggest additional actions the state should consider related to permitting.		
Members	First Choice Melanie Loyzim Jack Parker Emily Rabbe	Second Choice Curt Brown Bob Carey Charlie Colgan Judy East Deborah Ellwood Shiloh LaFreniere Joyce Taylor	Staff Brian Ambrette Hannah Silverfine
Meeting dates	Wednesday, February 12 1:00pm – 2:30pm Monday, February 24 2:00pm – 3:30pm		

Group 4 – Funding & Financing Resilience Projects

Topics	• Review federal Bipartisan Infrastructure Law investments in Maine. Suggest ongoing annual investment need for infrastructure as federal funding winds down. • Suggest long-term funding and finance mechanisms • Suggest long-term roles for philanthropy		
Members	<u>First Choice</u> Bob Carey Charlie Colgan Deborah Ellwood Pat Keliher Bruce Van Note	<u>Second Choice</u> Sam Brody Anne Fuchs	<u>Staff</u> Brian Ambrette Sarah Curran
Meeting dates	Thursday, February 13 3:30pm – 5:00pm Monday, March 3 2:00pm – 4:00pm		

Small Groups – next steps

1. Please confirm or edit your group selection via the survey link, especially if…
   - …your group has merged or split
   - …you want to join a second group
   - Please complete the survey by this Friday.
2. Staff will confirm scheduling with calendar initiations shortly
3. Staff will send agendas and materials ahead of meetings

Workplan: Meeting schedule

December 19	State and federal funding
January 22	Legislation, Risk data, Small groups
February	No full meeting, small groups meet 2 times
March 19	Small groups report back
April 10	Review draft report
May 7	Release final report

Thank you

- More information on the Resilience Commission, including meeting dates and a Commission Contact form, is available on the Maine Governor's Office of Policy Innovation and the Future's website:
- https://www.maine.gov/future/infrastructure-commission