

Author's summary materials from

Municipal Climate Resilience Activities
and Readiness Interviews

A Report Prepared for the Governor's Office of Policy Innovation and the Future
in fulfillment of Task 1.1 of GOPIF's Community Resilience Pilot Project

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EXECUTIVE SUMMARY

This report contains information about municipal community resilience activities in Maine based on interviews with 45 municipalities, regional planning and regional economic development organizations, nonprofits, and others. Some of the observations that one may take from these interviews are that:

- There is a wide range in capacity and level of resilience activity among municipalities. Many communities do not have a community planner on staff and are served by a regional planning organization with only one or two planners to cover multiple counties. Not many resilience activities are being undertaken in these places unless in partnership with a local nonprofit organization. This is the more common condition. At the far end of the scale are a few communities that have sustainability staff as well as planners and that are creating and implementing community-wide climate mitigation and adaptation plans, like the *One Climate Future* plan recently developed by Portland and South Portland.
- The capacity and readiness of Maine municipalities for continuing or initiating climate-related activities has been slowed but not stopped by the Covid-19 pandemic. Some communities, mostly along the coast, are forming climate-related committees and are moving forward with resilience planning and project development.
- Massachusetts, New Hampshire, and Vermont have resilience-related programs with elements that Maine may wish to look at carefully. The Municipal Vulnerability Program (MVP) in Massachusetts, for example, has a high rate of participation by its cities and towns in doing resilience planning. Once they have obtained an MVP planning grant and completed the vulnerability planning process, Massachusetts municipalities are eligible for implementation grants. For one thing, this means in Massachusetts that inland communities and not just coastal ones are getting grants for resilience planning. The MVP program also enables communities to combine their hazard mitigation planning and MVP planning into one process.
- While the smaller, inland, rural communities in Maine generally have less capacity and activity than coastal and urban places, there are exceptions (e.g., Norway).
- In some places, it is politically possible to pursue resilience projects if they are not forced to be linked to climate change policies or plans.
- Resilience infrastructure projects that save money, such as solar arrays, are well received. This can also be true for planning policies that are demonstrated to be fiscal winners, like denser village center or downtown development. Similarly, pursuing climate resilience as part of economic innovation, like broadband expansion, can be a successful approach.
- Resilience activities that cost money would require financial incentives or grants for many communities that, as it is, are barely able to keep up with immediate needs.
- Municipal resilience activities need to be linked to an integrated local, regional, and national strategy.
- The ability to accelerate municipal climate resilience activities suffers from a decline in the culture of community planning in Maine in which there are less resources to support local and regional planning and less value is given to the pursuit of community planning.
- The amount of State money needed to jump start resilience activities isn't necessarily large. It could, for example, just need to be enough to provide laptops to AmeriCorps staff brought on to

form a “Resilience Corps”¹ whose members are embedded in communities to add resilience capacity.

- Quite a few communities, especially inland towns that have not yet experienced impacts like sea level rise that are attributable to climate change, need to be provided with educational programs before an effort is made to induce any municipal resilience efforts.
- In addition to funding, there also has to be confidence that the method being used to calculate investment risk and timing is sound, as, for example, in choosing which benchmark of sea level rise to plan for.
- Some of the regional organizations are using a portion of pandemic relief funding to support resilience-related projects. If the State were similarly to set aside some of the CARES money, it would enable the RPOs and EDOs to start to scope and get shovel-ready, large transformative recovery projects that could have an environmental and economic resiliency component.
- The more that the regional Comprehensive Economic Development Strategy (CEDS) plans can be updated to recognize climate change and to include resilience criteria, as some EDOs have started doing, the greater the opportunity for obtaining EDA grant funding for resilience projects. Given the large size of EDA grants and the political premium placed on economic development, focusing on CEDs plans could have big resilience payoffs.
- Other than in a few places like Norway and Skowhegan, the threat of a disruption to the food supply from drought or other climate change impacts is not much on people’s radars. The same is true for the threat of wildfire despite the fact that there has been at least one year since WWII—1947—in which large areas of the state suffered from forest fires.
- The importance of the role of nonprofit organizations in leading and supporting local resilience initiatives cannot be overstated. The number of land trusts across the state, for example, is amazing, and some of them are doing sequestration to obtain voluntary carbon credit payments. In other cases, a large amount of money is being given to municipalities for resilience activities from the grant programs of organizations like the Northern Border Regional Commission and the Maine Community Foundation.
- There appear to be potential capacity and efficiency benefits from more closely integrating municipal resilience activities with the county hazard mitigation programs. The Wells Reserve, for example, is working on a project with other partners, in the Midcoast area—[Collaboration to Increase Social Resilience in Midcoast Maine](#). They are looking at the intersection of emergency managers, conservation organizations, and social service organizations to find out how they work and when they should be talking with each other.
- One model to consider is SMPDC’s Southern Maine Regional Sustainability Resilience Program in which six communities contributed funds to support, under a two-year pilot program, the creation of a Sustainability Coordinator position and the expansion of an existing SMPDC land use planner position to include the title of Coastal Resilience Coordinator. Housed within and managed by SMPDC, the Program supports both regional and individual community efforts to enhance sustainability, climate preparedness, and coastal resilience of the individual towns and of the region. The Program is also supporting a formal network of communities to: collectively address climate issues; understand projected climate conditions; evaluate local impacts; and share information, best practices, and lessons learned. The Program is also leveraging resources

¹ A program developed by the Greater Portland Council of Governments (GPCOG).

of individual municipalities in a regional setting to tackle work and position towns and the region to pursue and be more competitive for external funding.

PROJECT OVERVIEW

This report is part of a community resilience pilot project commissioned by the Governor’s Office of Policy Innovation and the Future (GOPIF). It fulfills Task 1.1, which is to:

Catalog the mitigation and adaptation actions already taken by municipalities in Maine. In addition to engaging individual municipalities, research may draw on information from state agencies, regional planning organizations, academic and extension programs, and nonprofit organizations.

The purpose of the overall pilot project is to assist Maine communities in addressing climate change as well as increasing their ability to weather other kinds of stress, such as economic crises and pandemics. The remainder of the pilot involves working with six communities to develop a core framework of resilience standards and best practices that can then be used by other towns and cities in Maine. It is hoped that the information contained in this report will enable GOPIF to be better able to design the next steps in its pilot program.

The method proposed and approved for compiling the municipal resilience activity inventory was teleconference (Zoom) interviews with municipal officials and other knowledgeable individuals from towns and cities, regional planning organizations (RPOs), regional economic development organizations (EDOs), nonprofit organizations, State and university programs, and neighboring New England states. As required, the selection of the municipalities and RPOs/EDOs was based on seeking representation from each region of Maine, inland as well as coastal, and on including rural as well as urban communities. The following table shows the number of interviews that were actually conducted compared with the number originally proposed:

	RPOs/EDOs	Municipalities	Nonprofits	State Agencies	Other States	Total
Proposed	13	16	4	3	2	38
Actual	9 ²	17	10	5	4	45

The geographic grouping of the municipalities and RPOs/EDOs for which interviews were conducted is as follows:

	East Inland	West Inland	East Coastal	Midcoast	South Coastal
Municipalities	Aroostook Band of Micmacs ³	Augusta	Deer Isle	Bath	Kittery
	Orono	Jay	Lubec	Brunswick	Scarborough
	Presque Isle	Lewiston		Camden	South Portland
		Norway			
		Skowhegan			
		Unity			
RPOs/EDOs⁴	Eastern Maine Development Corporation	Androscoggin Valley Council of Governments	Hancock County Planning Commission	Lincoln County Regional Planning Commission	Greater Portland Council of Governments
	Northern Maine Development Corporation	Kennebec Valley Council of Governments		Midcoast Economic Development District	Southern Maine Planning and Development Commission

² Some of the RPOs currently are not functioning or have dissolved, and in one case a planner for one RPO had until recently been on the staff of another RPO, thus enabling a “two-for.”

³ For the purposes of the inventory, the Aroostook Band of Micmacs was counted as municipality.

⁴ In several cases the EDO encompassed more than one area. In those situations, the EDO was included in the area with the fewer number of RPOs/EDCs.

The other interviews for the project included:

Nonprofits	State and University Programs	Neighboring States Programs
Center for Ecology-Based Economy	Land Use Planning Commission	Massachusetts Vulnerability Program
Coastal Enterprises, Inc.	Municipal Planning Assistance Program	New Hampshire Coastal Program and the Coastal Adaptation Workgroup
Community Concepts	Maine Emergency Management Agency	Vermont—Community Planning and Revitalization Division
Gulf of Maine Research Institute	University of Maine Climate Change Institute	Vermont—Watershed Management Division
Maine Community Foundation	University of Maine Cooperative Extension	
Maine Municipal Association		
Maine Organic Farmers and Gardeners Association		
Sierra Club—Portland Climate Action Team		
Watershed School		
Wells National Estuarine Research Reserve		

As put forth in the GOPIF RFP, the report addresses the following three areas:

1. Activities by municipalities in Maine (60% of effort)
2. Capacity and readiness of Maine municipalities (25% of effort)
3. Activities by municipalities in other states (15% of effort)

Based on the scope of the pilot task addressed by this report, the questions asked during the interviews included:

1. Activities by municipalities in Maine:
 - a. What mechanisms are municipalities using to plan for climate change, greenhouse gas reductions, adaptation, and resilience? (e.g. comprehensive plans, hazard mitigation plans, climate action plans, capital improvement plans, economic development plans, regional plans)
 - b. How are municipalities using their charters, ordinances, codes, and other tools to implement policy changes related to climate change?
 - c. What infrastructure, engineered, or nature-based projects are municipalities implementing?
 - d. How are municipalities paying for this work?
 - e. How are nonprofits, regional planning organizations, and economic development organizations leading or supporting municipalities in this work?
 - f. How are municipalities or their partners monitoring and evaluating progress towards climate resilience?
 - g. Of interest are activities undertaken by municipalities that address one or more of the following categories:
 - i. **Governance & Capacity** – Activities that institutionalize decision-making regarding climate change and community resilience. Activities that increase the capacity of municipalities or regions to implement new policies, programs, and projects.
 - ii. **Land Use, Planning, and Hazard Mitigation** – Activities that assess vulnerabilities, prioritize responses, and implement risk reduction strategies.
 - iii. **Economic Resilience** – Activities that diversify, insulate from shocks, or build the adaptive capacity of local economic engines, workforces, and resources.
 - iv. **Clean Energy, Electrification, & Efficiency** – Activities that reduce greenhouse gas

emissions from municipal, residential, and commercial sectors.

- v. **Healthy & Connected People** – Activities that promote public health. Activities that build social cohesion, networks, and capacities that can be activated or drawn on in emergencies.
 - vi. **Natural Spaces & Resources** – Activities that preserve natural spaces or restore natural functions with benefits for community resilience, carbon sequestration, and ecosystem resilience (and may have co-benefits for recreation and other non- climate-related goals).
- h. Particular attention should be given to activities that resulted in durable, transformative changes to policy, decision-making, capacity, or operations. For example, GOPIF would be more interested in a municipal capital investment policy that prioritized resilience considerations in all projects, rather than a standalone project that elevated a seawall or other municipal asset.

2. Capacity and readiness of Maine municipalities:

- a. Given the context of Covid-19 and the related economic situation, are municipalities continuing their previous climate-related activities?
- b. Are communities initiating new resilience-related activities (climate or otherwise)?
- c. What is the readiness and capacity of municipalities to participate in the remainder of the GOPIF Community Resilience Pilot Project?

Relative to several of the terms used in this report, “resilience” is generally meant as climate change resilience, but, as mentioned above, the interviewees were informed that the conversation could also include community resilience in a broader sense, such as the health and connectedness of citizens and the ability of a community to withstand stress from economic downturns or pandemics. When used in the narrower climate change sense, the meaning of “resilience” often included mitigation (greenhouse gas emission reduction) as well as adaptation to climate change impacts.

Another term sometimes used beyond its normal scope in the interviews and report is “town.” On occasion it used for efficiency to mean cities as well as towns. This usually can be understood from context.

The interviews that form the basis of this report were conducted in August and September of 2020. Overall, almost all of the organizations asked for interviews agreed to do them except in the case of the municipalities where the rate of those acquiescing was approximately 80%. There was one nonprofit organization that suggested a replacement. The municipalities who declined either did not respond to repeated requests, cited the lack of any resilience activities to talk about, or simply refused. In general, however, there was good participation and a substantial amount of interest in the project. The length of the interviews averaged around 45 minutes.

Except in a couple of cases where it was forgotten to be done, all of the interviews were recorded, after permission was granted. Upon completion of an interview, the audio file was run through an on-line transcription algorithm creating a rough transcript of the interview. This was then edited to create a record of each interview. The transcripts and interview write-ups are not included in this report but will be provided separately to GOPIF. However, as will be seen, an extensive amount of information has been pulled from each interview record and included in this report in several formats. An explanation of the formats is included in the introductions to the report sections that follow.

SUMMARY OF MUNICIPAL RESILIENCE ACTIVITIES ACCORDING TO CATEGORY

In order to understand how best to proceed with its pilot project, GOPIF was interested in how municipal resilience activities vary by region across Maine, and a geographic format accordingly is used in the next section for the compilation of resilience activities by selected municipalities and RPOs/EDOs. However, there was also a desire to see how resilience activities fit within the following framework:

- **Governance & Capacity** – Activities that institutionalize decision-making regarding climate change and community resilience. Activities that increase the capacity of municipalities or regions to implement new policies, programs, and projects.
- **Land Use, Planning, and Hazard Mitigation** – Activities that assess vulnerabilities, prioritize responses, and implement risk reduction strategies.
- **Economic Resilience** – Activities that diversify, insulate from shocks, or build the adaptive capacity of local economic engines, workforces, and resources.
- **Clean Energy, Electrification, & Efficiency** – Activities that reduce greenhouse gas emissions from municipal, residential, and commercial sectors.
- **Healthy & Connected People** – Activities that promote public health. Activities that build social cohesion, networks, and capacities that can be activated or drawn on in emergencies.
- **Natural Spaces & Resources** – Activities that preserve natural spaces or restore natural functions with benefits for community resilience, carbon sequestration, and ecosystem resilience (and may have co-benefits for recreation and other non- climate-related goals).

The following lists are an effort to summarize the municipal and RPO/EDO community resilience activities according to these categories based on the interview questions included in the project's scope of services.

Governance – Examples of Institutionalizing Activities

- Municipal adoption, in a few cases, of one of the global covenants for climate and energy and/or adoption of goals for reducing greenhouse gas emissions and increasing the use of renewable energy. Some communities are considering adopting resolutions in support of the federal *Energy Innovation and Carbon Dividend Act* in order to create a federal carbon tax.
- Adoption of complete streets policies is fairly widespread.
- Creation of official resilience-related committees, in some cases with Council or Select Board representation, such as: Environment Committee, Sustainability Committee, Climate Adaptation Committee, and Sea Level Rise Committee.
- Relative to crisis management, establishment of procedures to prevent complete loss of leadership capacity and creating a command structure for dealing with emergencies.
- Lewiston has created a Smart Infrastructure Strategy linking municipal infrastructure to public benefits in the areas of public health, public safety, mobility, and economic development.
- Creation of a municipal Lake Biologist position for maintaining water quality.
- Provision of quality, interactive maps on municipal websites help to educate and provide data for sound decision-making.
- Education and training from nonprofits, State agencies, and RPOs. In Bath, for example, a team from the American Institute of Architects (AIA) provided resiliency training that involved looking at the downtown and thinking about green initiatives that could make the area more resilient.
- Maintenance of a revolving loan fund for small businesses, like fisherman. This ongoing program provides a measure of economic resilience for a community.

- Creation of a “Green CIP” so that every year there will be one or more sustainability or resilience projects in the Comprehensive Improvements Program.
- In a couple of cases, adoption of an environmentally sound tourism and economic development policy.
- In a few cases, creation of one or two municipal or RPO sustainability positions. Some municipalities feel that supporting a sustainability position at their RPO makes more sense than having one of their own.
- In one case, development of a policy of internal carbon pricing for municipal projects. It has not yet been decided if this is to be a shadow price or an actual amount that would need to be included in the project budget and that would go into a sustainability fund.
- Adoption stormwater management policies for treating stormwater with nature-based systems, low impact development (LID) techniques, and best management practices (BMPs).
- In one case, consideration for a future Resilient Power Plan to identify critical facilities that could most benefit from backup power, assess critical power loads, and commission assessments to meet power needs.
- Creation by one RPO (GPCOG) of a “Resilience Corps” consisting of AmeriCorps workers embedded in municipalities to provide additional capacity for a range of resilience activities.
- Participation by many towns and cities in FEMA’s Community Rating System (CRS) in order to benefit from a flood insurance rate reduction incentive.
- Adoption of energy and water use benchmarking in South Portland and Portland intended to induce private building owners to increase the efficiency of their buildings over time.

Governance – Available Capacity

- Staff capacity for municipalities and RPOs/EDOs, such as for community planners, generally is small (or nonexistent) except in the larger cities.
- State funds for planning and training are reduced from previous decades.
- There is some reluctance from towns to work with an RPO when there has been a disruption in planning services and the stability and longevity of the RPO is in question.
- It would be an uphill battle for some RPOs to roll out a climate resilience program on their own.
- The inland communities and RPOs to an extent feel that not having an equivalent program providing assistance and resources like the Maine Coastal Program is unfair.
- Without funding being provided for resilience activities, smaller towns and cities can only take care of immediate issues—e.g., “fixing the potholes”—and cannot plan ahead.
- Capacity usually is prioritized for economic development and not for planning.
- While limited in many cases, municipalities do receive support for resilience activities from nonprofits and the regional planning and economic development organizations. In some cases, an RPO planner serves as the planner for a municipality. In addition, municipalities are often supported by volunteers on their boards and committees who have various kinds of expertise by virtue of working for an institution, like a college, located in or near the community. In some cases, like in Norway and Camden, a nonprofit with a direct climate action mission is actively involved in providing leadership and assistance.

- It is not just that RPOs don't have enough money, it's that they are restricted in what they can do by the sources of their funds. In at least two cases, most of the RPO's funds came from MaineDOT, and MaineDOT does not support non-transportation related resilience activities.
- The RPOs generally see themselves as having a significant role in moving forward with climate resilience and mitigation policies at the local level. The RPOs try to help communities "where they are."
 - RPOs have some capacity and a broad understanding of the types of sustainability issues and how something that is done in one community can be applied to others.
 - RPOs have every reason to partner with the State to connect the resilience dots because it isn't possible to tease apart climate and economic impacts—they are the same thing. To the extent possible local, state, regional, and federal efforts need to be leveraged into a single strategy. RPOs have a lot of tools and some financial capacity, but they don't have enough to do the big regional projects that are needed.
- Community resilience is impacted in Maine's service center communities due to their having to provide services to displaced people, including climate refugees, without the benefit of regional approaches to the social and economic issues.
- The county emergency management agencies are a source of available capacity that has the potential to be more fully utilized.

Governance – Capacity – Suggestions by Interviewees for What's Needed

- A municipality's individual resilience efforts need to be connected into a broader vision and a broader framework of assistance and resources. To further resilience there needs to be a long-term strategy and funding. If the RPOs are to partner with municipalities to address infrastructure improvements in particular, there needs to be reliable, consistent funding mechanisms to supplement local taxation and federal funds.
- Technical assistance, such as providing access to State officials who are experts in various areas, as well as funding would help communities address climate change impacts.
- Voluntary checklists of items to consider when planning are useful (and politically palatable).
- The State Planning Office should be reopened to increase staff available to provide planning assistance to communities—there are only two staff members in the current Municipal Assistance Program—and to restore a culture of planning in which planning is seen as useful and smaller towns are not feeling neglected and, therefore, are just wanting to be left alone.
- Some smaller communities feel they would need an education effort to help them understand why they need to care about climate change and why they should be undertaking any resilience and mitigation activities.
- Amend State statutes to enable municipalities, as is currently allowed only for school systems, to enter into energy projects with performance leasing without having to hold a voter referendum.
- In addition to funding, there also has to be confidence that the method being used to calculate investment risk and timing is sound, as, for example, in choosing which benchmark of sea level rise to plan for.
- Resolve the State work on MUBEC and stretch code options so that municipalities can proceed with their own building code amendments.
- In general, incentives appear to be favored over mandates, but if you offer incentives and only expect municipalities that have capacity to engage the incentive, you wind up back in the Growth Management Act from the 1990s where a community like South Portland is going to be able to

figure it out, but a community like Thomaston probably not so much. Point systems as well as other techniques can be used for incentives as well as financial rewards.

- The State should bolster the RPOs in order to provide resilience and other planning services to smaller communities, especially if the State Planning Office is not going to be reopened.
 - An RPO planner who knows the area communities and who is known by them has a better chance than a State official in getting a climate conversation going, especially in the rural communities.
 - RPOs provide opportunities for member communities to learn from each other.
- Consider the Canadian system where all communities without their own planners pay a fee to the RPO. This helps the RPOs to have larger staffs than in the US and be able to provide more extensive service to the towns.
- In order to have a portfolio of fully engineered, shovel-ready projects that would be available when stimulus money is passed by the federal government—to be able to compete federally for transformational capital investments—the RPOs are going to need substantial funding to do the kind of planning necessary to bring those projects forward so that they are ready to be funded when the federal government makes cash available. Therefore, set aside some of the CARES funding to be used for project development and to be administered jointly between MaineDECD and MaineDOT. This would allow RPOs to start to scope and get shovel-ready, large transformative recovery projects that could have an environmental and economic resiliency component or purpose.
- Replicate the “Resilience Corps” program by the Greater Portland Council of Governments (GPCOG) across Maine and have the State provide a small amount of financial assistance.
- Fund regional vulnerability assessments and resiliency recommendations so that there are regional plans that then could be implemented through technical assistance to the municipalities that have roles in implementing that plan.
- The State standard ordinances, like Shoreland Zoning and the floodplain regulations, which are somewhat elderly, should be updated for climate change resilience.
- One model to consider is SMPDC’s Southern Maine Regional Sustainability Resilience Program in which six communities contributed funds to support, under a two-year pilot program, the creation of a Sustainability Coordinator position and the expansion of an existing SMPDC land use planner position to include the title of Coastal Resilience Coordinator. Housed within and managed by SMPDC, the Program supports both regional and individual community efforts to enhance sustainability, climate preparedness, and coastal resilience of the individual towns and of the region. The Program is also supporting a formal network of communities to: collectively address climate issues; understand projected climate conditions; evaluate local impacts; and share information, best practices, and lessons learned. The Program is also leveraging resources of individual municipalities in a regional setting to tackle work and position towns and the region to pursue and be more competitive for external funding.

Land Use, Planning & Hazard Mitigation – Plans

- Some communities have a climate adaptation plan (CAP) or something similar. Some have had CAPs for a decade or more and are now updating them (e.g., Brunswick). Several others are talking about it or have started the process. Deer Isle, for example, has community planning project underway—Deer Isle Futures—in which the following climate issues have been identified as being of concern to the town:
 - Loss of coastal land

- Impact on drinking water
- Impacts on transportation network
- Impacts on marine occupations – esp. ocean acidification
- Invasive species
- The new gold standard for community-wide climate mitigation and adaptation planning in Maine is the *One Climate Future* plan recently jointly developed by Portland and South Portland. This plan could be a model for regional as well as individual community climate plans.

- Comprehensive Plans
 - Most do not have specific policies or recommendations related to climate change adaptation or mitigation, although there are exceptions.
 - There is a range of levels of what communities have for comprehensive plans and a range of interest and willingness to do comprehensive plans or comprehensive plan updates. Many smaller communities do not see either sufficient reward or sufficient penalty for doing/not doing what often is a lengthy and expensive process.
 - Some comprehensive plans have smart growth policies—i.e., higher density, mixed-use, walkable village centers with surrounding areas of agriculture, forestry, and open space—that indirectly support climate resilience and mitigation.
 - Communities that are not experiencing growth pressure see less of a need to do comp plans. In other areas, the RPO reports that towns are happy to do comprehensive plans every 10 years and that the easiest way to start the climate/resilience conversation is within the comprehensive planning process.
 - Some communities “want to be part of the solution” but feel it would be better to use another vehicle than the comp plan which tends to be big and sit on the shelf and which, after two or three years of work, might get voted down at town meeting if containing climate policies. These towns address resilience needs more on an organic, project by project basis.
- County Hazard Mitigation Plans
 - Municipalities generally do not have much interaction with the county hazard mitigation plans other than through the fire chief or public works director, if they have one.
 - Camden is one example where a town amended its section of the county hazard mitigation plan to include a section on climate change and sea level rise.
- Comprehensive Economic Development Strategy (CEDS) – The EDA designates a regional planning organization or economic development organization in each region of the state to be responsible for preparing and periodically updating the CEDS for that area. The CEDS is the planning document that prioritizes projects for potential EDA funding. Some of the organizations have included climate resilience considerations and others plan to include them at the next update. EDA grants are comparatively large, so getting the CEDS to include climate resilience criteria in its prioritizing could be significant.
- At least one RPO (Eastern Maine Development Corporation) would like to start a regional resilience plan that would include elements of climate change resilience.
- There are consulting firms, like Climate Ready Communities, that have pre-packaged programs they can conduct for a town or a group of towns to enable them to develop resilience practices. There are many other consultants who specialize in doing climate plans based on a municipality’s request for proposals.
- Some areas of the state have not yet had LIDAR mapping done by the Maine Office of GIS. LIDAR provides more accurate data for floodplain mapping and can reduce the number of instances in which a homeowner would be required by the municipality to commission a survey to see if a building is in or out of the floodplain. As such, it is an important resilience planning tool.
- Several communities reported being involved in facilities planning for municipal and school projects. Usually this is for individual buildings, but in some cases there is more of a comprehensive facilities planning effort. One factor is ensuring the facility is resilient in terms of its location (e.g., not subject to flooding); another is looking for opportunities like solar electricity

or geothermal heating. Energy efficiency in the building construction is another consideration. Bringing in a full service facilities consulting firm to do a comprehensive facilities plan geared toward resilience has the potential to save municipalities a lot of money, reduce unexpected and unbudgeted building repairs, and at the same time reduce greenhouse gas emissions.

- More generally, some communities are using the capital improvements program planning process to address climate change issues, like sea level rise, such as for pier improvements and seawall construction.
- With a few exceptions, there wasn't much evidence of municipalities or RPOs doing or being involved in planning for such critical facilities as those for gas, electricity, water, and communications. One exception was finding a substitute water supply after a town well was shown to be vulnerable to spills from accidents on a nearby highway. This may be more of a state and federal resilience activity.
- There also was no mention of planning against the threat of wildfires. A few of the county hazard mitigation plans included wildfire as a priority hazard but had no meaningful proposals for dealing with it.
- Some communities are adjusting their stormwater modeling to take higher precipitation rates into account.
- Some communities are doing land use planning around their lakes to protect water quality, especially when the lake is the community's waters supply.
- The Town of Canton, which had a devastating flood in 2003 and which received a large FEMA grant for the acquisition and demolition of homes in the floodplain, is the only example reported of doing retreat planning.
- One RPO is working toward doing a watershed plan with one of the towns that would incorporate resilience recommendations.
- In some coastal communities, especially those without vulnerable municipal facilities, less planning is occurring than might be expected based on a feeling that sea level rise is primarily a concern of the private property owners.
- Some (coastal) downtown master plans have required that resilience and FEMA mitigation work be included in the plan.
- Some municipalities have open space and trail plans that include steps for acquiring property for recreation and/or natural resource protection.
- Some communities have gone through a preliminary planning process based on the Maine Flood Resilience Checklist.
- Unique to Kittery, the Town is working with the Portsmouth Naval Shipyard on a Joint Land Use Study that recognizes the threat to military readiness from sea level rise.
- Some communities have undertaken climate change and resilience education efforts. In South Portland, 90 participants attended one of three book discussion group meetings after receiving and reading free copies of a climate change book that the local library was able to obtain at discount.

Land Use, Planning & Hazard Mitigation – Ordinances

- While some communities do not have town-wide zoning, most have Shoreland Zoning and the related Floodplain Management regulations. Some towns indicated their Shoreland Zoning was up-to-date where other's weren't, and some indicated that theirs was carefully enforced while others aren't. Communities generally have not gone beyond the State requirements to increase

resilience, although Saco and a few others increased the required first floor elevation for buildings to be higher than the one-foot above base flood elevation.

- Related to the point above, there is a need for stronger training programs for code enforcement officers. The State used to provide more resources for such training.
- Most communities have not been adding resilience or mitigation provisions into their ordinances, but for a few communities and RPOs, some work in this direction is expected soon.
- Many communities have been amending their ordinances to enable the development of solar farms.
- A number of communities have adopted ordinances restricting certain types of pesticides when used for aesthetic purposes.
- Many communities have recycling ordinances; some have fees on plastic bags and polystyrene bans.
- Portland and South Portland have energy and water use benchmarking ordinances.
- South Portland is considering creating resilience overlay districts so that all new buildings and developed sites would help to minimize the collective impact of climate hazards from sea level rise, more intense storms, and higher temperatures, as well as to protect and strengthen community and ecosystem assets that contribute to resilience.

Land Use, Planning & Hazard Mitigation – Infrastructure Projects

- Presque Isle is expanding its rail line, which will help reduce greenhouse gas emissions.
- There are various coastal infrastructure projects, such as a seawall in Machias that will be integrated in the Town's downtown revitalization plan and improvements in Damariscotta for its waterfront and harbor. The Maine Coastal Program has provided a great deal of assistance to coastal communities with planning and implementation grants, but, as compared, for example, with their New Hampshire counterpart, the Program is understaffed, underfunded, and housed where relatively few of the other staff share the resilience mission.
- Some towns see that a road or causeway is threatened by sea level rise and are looking for funds to begin to address the problem.
- Some of the cities are doing stormwater projects to reduce inflow and infiltration as well as separation projects to reduce combined sewer overflows. In one case a bike-ped walkway was created on top of a new sewer line. In addition, a number of the water and sewer utilities, which are big electricity users, are making efficiency upgrades to their facilities. One community is looking at underground stormwater storage in neighborhoods that are getting inundated during heavy rainfall events.
- Some regions have obtained designation for bikeways as federal bicycle routes, such as U.S. Bike Route 510, from Bangor to Allagash.
- Many municipalities have stream crossing projects. Some are able to take advantage of the Maine Stream Crossing Upgrade grant program to build culverts and other crossings that are large enough and appropriately designed to allow fish passage and to be able to accommodate the larger storm events of the future. Other communities are unable to come up with the matching money in light of their other priorities.
- Apart from an aquaculture project and the work of some nonprofits, not many communities are doing land-based agriculture-related projects. There does not seem to be much awareness of the threat of food supply disruption from climate change. The threat to the fisheries is well understood, however.

- Some of the towns reported making window replacements, installing mini-split heat pumps, and making other efficiency improvements to municipal buildings. It may be that other communities had already completed projects like this in the past.
- There are a number of dam removal projects that will help restore fish passage.
- Early on there were landfill closure projects, which reduced the release of methane. One city reported a landfill methane electricity generation project.
- Many communities have solar and other electrification projects, as described in the section on Clean Energy, Electrification, and Efficiency.

Economic Resilience

- The Aroostook Band of Micmacs built a brook trout fish hatchery in an effort to create some food and economic resilience.
- Broadband was mentioned by most of the municipalities and RPOs as something that is desired or is being implemented. Orono, for example, created a corporation in partnership with neighboring towns to run fiber for broadband. Broadband is needed in many urban districts as well as in underserved rural areas.
- Many communities are doing town-wide economic development plans or downtown master plans. Presque Isle is doing a downtown revitalization plan that includes utilizing renewable assets, such as using water features for recreation. Skowhegan is going even further with its Run of River whitewater park—which is very much an economic development venture.
- The Eastern Maine Economic Development Corporation (EMDC) has developed a holistic approach to economic development through the creation of Economic Opportunity Response Teams (EORTs). By including a planner on the team, the approach has potential to integrate a climate resilience perspective into economic development.
- Communities are using Brownfields grants to clean up sites and put them back into productive use, sometimes, as in the case of an Eastport lobster storage facility, with a resilience supporting activity.
- For many towns, lake-related tourism and real estate is a backbone of their economies and municipal budgets. These towns are actively engaged in protecting the water quality of the lakes.
- Some areas, both Downeast and in the western part of the state, see economic value in their natural resources and have tourism and business attraction policies that seek to preserve these assets rather than sacrifice them for economic development.
- Some areas of the state have been growing; others have not. Some new growth is now occurring outside of the main population centers from pandemic and climate refugees.
- Farming is making a bit of a comeback, but infrastructure like packing plants and distribution facilities are needed. There continues to be an urgent need to protect farmland and farm soils to be able to increase the state's food security in the future.
- Incorporating resilience criteria as part of the Comprehensive Economic Development Strategy (CEDs) plans is starting to be done in one or two regions, and it has great promise due to the large EDA grants to which the CEDs are connected. Related to this, the EDA has pivoted dramatically in the last five years away from asking their regional partners what can be built, or what's the next big building we can invest in, to trying to get people to come together regionally to identify economic disruption that is foreseeable.

- At least one community (Lubec) has a revolving loan fund for small businesses that they've managed to keep running since the 1980s. These have potential for resilience-related business ventures.
- Some of the coastal communities, e.g., Camden, Damariscotta, and Machias, are undertaking sea level rise related projects in large part due to the threat of economic disruption.
- Some communities, like Kittery and South Portland, are planning for a more sustainable, mixed-use redevelopment of their large shopping centers and malls. This will improve water quality and reduce vehicle miles travelled as well as having other resilience benefits. Many other retail centers across the state similarly will be facing the online purchasing disruption and will need to plan for housing, supported by infrastructure like broadband, to replace the stores and parking lots.
- GPCOG has created The Greater Portland Resilience Exchange (GPREx), which is designed to match needs from disrupted organizations and agencies and match with available resources from businesses, organizations, and institutions.

Clean Energy, Electrification, and Efficiency

- A number of communities are working to reduce their carbon footprint, primarily through the angle of financial savings.
- Many communities report doing municipal solar energy projects, such as on capped landfills or on the roofs of their buildings. Many also have, or will soon be getting, large solar farms on private land. Municipal solar projects are attractive because they save money as well as reduce greenhouse gas emissions. Note that on 9/21/2020, the PUC approved 17 renewable power projects, one of which, a 100 megawatt solar project in Hancock County, will have a price of 3.5 cents per kilowatt hour!
- Most communities generally seem in favor of solar development as long as there is an adequate level of site review and there won't be any power service effects locally. There also is a concern about protecting farmland except in areas that are mostly forested.
- Some areas have had successful solarize bulk purchase programs (e.g., Solarize MDI).
- Lubec is thinking about a green campground on the waterfront, with a solar array, that would provide waterfront access for self-employed clam diggers who are being displaced by private landowners from their traditional access points.
- Wind projects seem to have been completed a number of years ago, and there were few reports of new wind projects from the organizations interviewed.
- A few municipalities are buying one or two electric vehicles while others are buying a few hybrids for the staff that need municipal cars for their work.
- Some towns are installing a few EV charging stations at their municipal facilities, both for their small electric fleets and for the public, and some businesses are installing them for rent to the public. There is a potential plan for creating an electric byway on Rt. 201 to Quebec to ensure adequate and comfortable electric charging for that drive.
- Many communities have replaced their streetlights with LED fixtures to save money and reduce greenhouse gas emissions.
- At least one municipality (Norway) replaced an old diesel truck with a new, much cleaner truck using the Volkswagen Settlement.

- A number of communities are switching their municipal building heating systems to electric heat pumps.
- Camden benefits from some trust funds, and one meant to help low income people is being used to double Efficiency Maine weatherization grants. This is having a strong positive impact.

Healthy and Connected People

- Some of the climate work the Micmacs are doing involves studying vector-borne diseases coming into their area, such as those from mosquitoes and ticks.
- With support from land trusts and other nonprofits, there is an extensive amount of trails development and land conservation to provide healthy outdoor recreation.
- Many communities have complete streets policies or are otherwise taking steps to expand and improve sidewalks, cross walks, bus stops, and bike lanes to make it easier for people to get places by walking or biking. Some municipalities are also working to improve various forms of public transportation.
- At least two of the cities participated in MaineDOT's Pedestrian Safety Program in an effort to improve safety by better educating pedestrians and drivers and fixing problem facilities.
- Some of the communities have AARP age-friendly community programs to provide better connections and support for their seniors. Related to this, some municipalities, seeing that the aging of the population is becoming unsustainable, are taking steps to attract younger individuals and families, such as through affordable housing programs.
- Being forced by the pandemic to offer public meetings online and to provide other services over the internet has in some ways created greater access to municipal affairs than in the past. In general, broadband has the potential to help build social cohesion and reduce vulnerability to negative changes. Some communities are starting to investigate or implement one of a number of web-based public engagement applications. These applications enable citizens to have a much greater and more satisfying involvement with their towns than ever before. In order to get the most out of them, having the capacity to be able to devote staff time to site maintenance is needed.
- Some communities, like those with a mill closure or others hard hit by the pandemic, have had their cohesion sorely tested. The response has been to pull together a variety of municipal, state, religious institution, and nonprofit personnel and resources to assist laid off workers and their families. These efforts have helped but more could have been done, it is reported, if there had been more capacity.
- Many communities and regions benefit from community health programs offered through nonprofit organizations or regional hospitals. These programs address challenges like obesity, nutrition, drug addiction, and the need for greater physical activity.
- The creation of networks and community engagement depends in large degree on the level of volunteerism in a city or town. Some municipalities and regions report a decline in citizens volunteering for town boards and committees; others report a high level of engagement. This relates to the aging population issue and the need for "fresh blood" on a community's committees. The same is true for the volunteer fire departments that are declining as members retire or pass away.
- One regional planning organization, Kennebec Valley Council of Governments (KVCOG), feels there is a role for a regional agency to provide a coordinated response to difficult situations and a

place for people to organize. They may explore this through some of the COVID relief money they've received.

- Some towns, like Lubec, have a community outreach program that operates a food pantry, thrift store, summer recreation programs, and other community oriented projects.
- The income gap has continued to widen in Maine and housing needs continue to grow. For example, there is homelessness in rural areas as well as in the cities—it's just harder to see. Some of the RPOs hope to be able to do more in the area of affordable housing in the future.

Natural Spaces & Resources

- The Micmacs, for whom the ash tree is a sacred and functional part of their basket-making traditions, have been collecting and preserving ash tree seeds and establishing monitoring programs in anticipation of the coming of the emerald ash borer.
- Many communities have taken steps to preserve their significant natural resources, such as the Orono Bog and the Scarborough Marsh, and to provide education and limited access opportunities.
- Municipalities are protecting natural resources to a greater or lesser extent through ordinances like Shoreland Zoning, floodplain development standards, site plan and subdivision ordinances, buffer area requirements, watershed protection zones, and timber harvesting requirements. Nonregulatory approaches being used include such methods as conservation easements and transfer of development rights.
- Some communities are partnering with environmental agencies to better inventory wildlife and fisheries resources.
- Some communities are working to improve fish habitat in streams, like the effort to restore Atlantic salmon to the Aroostook River and its tributaries, through dam removal, improved road culverts, and other activities.
- Many communities are using the Maine Stream Crossings program, when they can afford the project costs not covered by the grant, to improve stream ecosystems as well as reduce road washouts in big storms.
- Some municipalities and RPOs report that property owners are installing riprap to stop coastal erosion. There are a few efforts or experiments by towns with using natural shoreline techniques. One of these is the Nature Conservancy's Maine Living Shoreline demonstration project in Brunswick. There is a lot of interest in the topic.
- Some towns, like Jay, own and manage their own woodlots and forested recreation areas. These have some potential for sequestration. Sequestration may also accrue from efforts to grow local agriculture.
- Lake communities demonstrate a strong economic and fiscal motivation to protect the water quality of their natural assets.
- An example of a recreation project with co-benefits for natural resource protection and resilience is the development of the Run of River whitewater park in Skowhegan which includes the removal of hazardous materials from the riverbed and the enhancement of fish habitat. In a related manner, several ski resorts are making efforts to reduce their carbon footprint.
- The coastal regions of the state are fortunate to have scientific institutions like Bigelow Lab, GMRI, and the Darling Center whose scientists are helping people to understand and respond to the impact of climate change on the ocean and Maine fisheries. They similarly are benefitted

from having the services of nonprofits like the Island Institute and the Maine Coast Heritage Trust, to name just two.

Examples of How are Municipalities are Paying for this Work

- Transit Oriented Development TIF for public transit (e.g., Orono shuttle bus).
- EDA grants, like the \$400,000 grant that NMDC obtained for climate change and adaptation planning, a \$3 million grant for Damariscotta to redo downtown flood control, and a \$2 million grant for the Darling Center.
- Energy efficiency improvements through performance contracting.
- Power purchase agreements and leases for renewable energy projects.
- Tax Increment Financing (TIF) funds.
- Operating budget reserve accounts.
- Borrowing.
- CDBG public infrastructure grants.
- Northern Border Commission grants.
- Maine Community Foundation grants.
- Principal forgiveness loans from a Maine revolving loan fund for wastewater treatment facilities.
- National Fish & Wildlife Foundation grants.
- Maine Coastal Program Shore and Harbor grants and Coastal Community grants.
- FEMA grants.
- Army Corps of Engineers grants.
- MaineDEP Waste Diversion Funds.
- Volkswagen Settlement funding.
- Urban Sustainability Network grants.
- Efficiency Maine rebates.
- EPA Brownfields grants.
- CARES funds (e.g., in Knox County as part of the funding for a county solar farm).
- USDA Rural Development grants.
- Maine Natural Resource Conservation Program grants.