



MUNICIPAL CLIMATE RESILIENCE ACTIVITIES AND READINESS INTERVIEWS

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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.

ACTIVITIES BY SELECTED MUNICIPALITIES AND REGIONAL PLANNING ORGANIZATIONS AND REGIONAL ECONOMIC DEVELOPMENT ORGANIZATIONS

This section contains the information gathered from the interviews with 17 municipalities, selected to provide a robust representation of the different regions of the state, and the 9 regional planning organizations and economic development organizations. It is organized by geography within the categories specified for the pilot program task (Governance & Capacity, Land Use Planning, and Hazard Mitigation, etc.). The geographical categories used are:

- East Inland
- West Inland
- East Coastal
- Midcoast
- South Coastal

Although somewhat lengthy, the previous section to a certain extent was a summary of activities; if several different municipalities or RPOs/EDOs mentioned the same activity, it was generalized into a single bullet. In this section, all of the relevant information from the individual interviews has been extracted and placed in its appropriate place in the framework. In addition, some of the entries are closer to the interviewee's own words and have not been heavily condensed. This is intended to make the information more meaningful by providing the context for the interviewee's points.

East Inland	Governance & Capacity
Municipalities	
Aroostook Band of Micmacs	The Micmacs are unusual in that their tribal council meetings allow anyone to speak on any topic for as long as they want and with discussion from others in attendance.
Town of Orono	<p>The Town Planner is working to get internal buy-in for a complete streets policy—which is a type of resilience institutionalization.</p> <p>In terms of what would help in the future, it would be good not to have to argue the merits of individual projects one by one but to have some broader language and resources that could be applied across the board. They have activities that in some way aim to achieve resilience objectives but it's hard to connect them into a bigger vision. This is one reason why the town has created an Environment Committee—to institutionalize resilience by evaluating how individual projects fit with resilience objectives. But it would help to have some assistance at the state level to be able to help a group like that.</p>
City of Presque Isle	Technical assistance as well as funding would help communities address climate change. For example, to address rental housing and blight, Presque Isle has brought in a variety of State officials who are experts in the field and who can provide them with good guidance.

Voluntary checklists of items to consider when planning that are part of guiding documents are also welcome.

RPOs/EDCs

Eastern Maine
Development
Corporation

It's a bit disingenuous to say that EMDC provides planning services when the coverage includes four large counties and there's just one planner.

Some of the larger cities—Bangor, Ellsworth—have a full-time planner who is doing some climate/resilience planning work. They are clued into the need and are trying to work resilience to a degree into their plans. For example, in Old Town they are working on flood mitigation, and they are looking at climate data to see how it will affect things. They contacted EMDC to see if the Commission has a regional flood mitigation plan, but they do not. Old Town would need to work on their own plan with neighboring communities.

EMDC more or less inherited the area covered by the Penobscot Valley Council of Governments—PVCOG closed over a decade ago—and Hancock County Planning Commission isn't operating right now [it just started back up], so EMDC covers an area that historically had had planning services. They are trying to reinstate some of those services but really are almost starting from scratch in terms of regional planning efforts. Apparently some people are wary of working with regional institutions because of a concern that the RPOs won't last. Why should we team up with somebody when they are not going to be around (and there also is no State Planning Office)? Also, some of the towns don't know that there now is another option for getting planning services.

One recommendation is that the State look seriously at bolstering the RPOs, especially if they are not going to reopen the State Planning Office. EMDC gets questions about model marijuana legislation, property taxes, zoning and coding, land use, conservation projects, etc. The vacuum of help for the small towns is such that they don't know what to look for or who to ask. It's frustrating for them to have to call a dozen offices in Augusta and be told there is no one who can help them.

The bottom line is that many (most?) towns do not have any planning capacity, and it's going to be an uphill battle for EMDC to roll out programs throughout the counties in any meaningful way.

Information in [*Strong Towns—A Bottom-Up Revolution to Rebuild American Prosperity*](#), by Charles Marohn, Jr., has resonated soundly with a few of the EMDC towns. The book shows how the cost of infrastructure is a net positive in compact areas and a net negative in more suburban areas. The EMDC Planner has spoken with folks in Millinocket, for example, to say that the cost of being very spread out is something you should be concerned about. Especially being in a low population rural area where the costs are borne by a small number of people. This came up in the context of a

multijurisdictional comprehensive plan that EMDC is working on with Millinocket, East Millinocket, and Medway. The committee people there read *Strong Towns* and found it compelling for maintaining/promoting compact development.

One doesn't have to be a Republican or Democrat to appreciate a fiscally responsible decision by a town. If people are willing to pay for spread out development, that's fine, as long as everyone understands the fiscal realities.

People assume two things about planners: 1. that they want to talk about zoning, which many towns don't want to talk about; and 2. that they are there to talk about high-rise apartment buildings or super-dense townhouse development. Talking about fiscal responsibility helps overcome some of these assumptions, as does talking about approaches that have multiple benefits (like those from the Stream Smart model). Using these approaches is a good way to open doors to talking about tougher issues (like resilience and climate mitigation).

The EMDC Planner would like to see the State Planning Office re-opened. It would be a big help in coordinating some of the things they're doing and help get a voice to some of their towns. One hears about towns calling the Municipal Assistance Program on a specific policy issue, but there are just two staff members there who don't have the time or resources to help the towns, so the towns get referred to people who refer them to other people, etc. The longer it takes to have a culture of planning, the harder it's going to be to break into some of these communities. There already is the dynamic in Maine where it's seen as two states—one with communities that are healthy and proactive and do things like planning, and the other with towns who say we're not them and we don't want to have any part of that. The latter would be concerned about reopening anything that looked like PVCOG. A lot of these places feel neglected and that they're not part of the conversation. It's not simply enough to invite them; there has to be some kind of coordinated outreach to these places. Like anybody, if they are neglected and left out, they're just going to want to be left alone unless there's a good reason for them to come to the table. And that's the big challenge for climate change in Maine—if you don't have any buy-in at the local level, from the towns, you won't have it at the state level.

Northern Maine
Development
Commission

Given that they also are potentially affected by flooding and other climate change impacts, not having the equivalent of the Maine Coastal Program is seen as unfair given that inland communities do not have available to them something comparable to this robust source of funding and technical assistance.

Relative to funding, the simple truth is that if there isn't money provided to pay for resilience activities, in many cases the towns will not pursue them.

As the Madawaska Town Manager said, it's not that they're not interested in resilience, it's just that they have a staff of 3, are being pulled in every direction, have no funds, and have to take care of the potholes. They can't plan for 15 years in the future.

There also is a feeling of economic development at all costs with little respect for planning/planners.

East Inland

Land Use, Planning & Hazard Mitigation

Municipalities

Aroostook Band of
Micmacs

The tribe is in the draft phase of preparing a climate adaptation plan for the tribe. The awareness of the need for this comes in part from examples like a tribe in Alaska that has to leave their traditional island home due to sea level rise.

Town of Orono

The Town's comprehensive plan was last updated in 2015. Since then they have mainly been working on implementing the plan's recommendations. Somewhat relevant to resilience is the zoning amendment they are creating for the downtown area to promote higher density, mixed-use, walkability, and reduce sprawl. Otherwise there is no specific climate change policy outlined in the comp plan.

The Council this past July did establish an Environment Committee that will focus on aspects that contribute to global warming and climate change.⁵ This will have an aspect of institutionalizing resilience as individual projects will be evaluated for how they fit with the wider environmental goal.

The Penobscot County Hazard Mitigation Plan is not something that the Town planning staff have much contact with. The main hazard management issue at present is planning for the return of university students to the large apartments downtown that mostly are occupied by students.

Orono for many years has also had a shuttle bus that is funded equally by the Town and the University.⁶

In addition to their Downtown Zoning amendment, Orono is working to accommodate large-scale solar facilities into its land regulations.

⁵ Order 20-120, creating a Special Ad Hoc Committee of the Town Council focused on the Environment and matters that impact the environment with an initial charge to develop a draft comprehensive plan for Council consideration that would provide guidance for policy and operational decision-makers related to decreasing Orono's environmental footprint and increasing its ability to withstand the impacts of climate change; appointing Councilor Robertson as the Chair of this special Environment Committee; and, in accordance with Town of Orono Ordinances Section 2-30(b), authorizing the Council Chair to appoint up to one additional Council member and community experts to serve on said Committee. From the July 13, 2020 Orono City Council Meeting Agenda.

⁶ Orono funds its share of the shuttle through a "Downtown and TOD TIF District." Transit Oriented Development (TOD) TIF districts are a method for funding transit services—which help reduce GHG emissions associated with transportation. See [Orono's Transit-Oriented Development TIF District](#). TOD TIFs can be used for operations and maintenance as well as for capital expenses, and they are exempt from the maximum area cap for TIFs. Nevertheless, only a few communities in Maine have taken advantage of this funding tool.

Another part of their downtown zoning is to reduce the required parking standards which, in part, is driven by a desire to reduce impervious area for stormwater runoff and to improve water quality.

City of Presque Isle

The City's comprehensive plan is 10 years old, and they are in a renewed process of completing an update after a delay in which the state-provided data got too old. It does not address resilience, although staff feel that Presque Isle does want to be part of the solution. It would be better for advancing climate resilience to listen to the local population and use a vehicle other than the comp plan which tends to be big and sits on a shelf. In Pennsylvania, the state allows municipalities to do "implementation plans" which are more geared toward the issues the people in the local community feel are important:

One solution that states are exploring are implementable plans. These action plans can be developed by planning consultants or municipal staff, but the beauty of this document is that they can be formed by communities with limited resources by their residents. Implementable plans act as a substitute to a traditional comp plan, instead offering communities the opportunity to focus on the challenges facing their community. This change in document structure requires communities to propose solutions and timelines to meet these goals. I have found that this planning style excites citizens to get involved with municipal planning efforts as people generally are passionate about certain issues (i.e. open space preservation, recreation, public safety, downtown revitalization, cultural promotion, housing/blight, etc.) This plan allows for them to be part of the solution. Implementable Plans are similar to my experience creating a Downtown Redevelopment Plan for the City of Presque Isle in that the state gives a user-friendly checklist of topics or items for a community to consider, but it is set into stone. Instead the community formulates the plan (sometimes with state DECD staff listening in to help as needed) and submits it for review by state agencies who then offer feedback into areas the community could potentially explore further. I have enclosed a link to an implementable plan to provide a greater context regarding the content contained in these documents <https://cityofjeannette.com/uploads/6/9/5/4/69549785/r17-01.pdf>.

Maine's resiliency plan will greatly benefit from exploring innovative changes to our state's comprehensive planning process as we lead beyond our bicentennial. Again, many thanks for your valued time and if you have interest in discussing this further, I will happily accommodate my schedule for a zoom/teleconference meeting.⁷

The County Hazard Mitigation Plan is not a factor in their community policy-making or operations.

The City has a City Councilor who works for UMaine Cooperative Extension, and this has been beneficial to the discussion of such agricultural issues as reducing soil erosion and increasing productivity through in-row cropping between the rows of potatoes. They have had drought this summer. They have excellent soils and have a chance to be another breadbasket in specialty crops for the US. The aquifers here are not being depleted like they are in other parts of the country (for irrigating broccoli or when the potatoes need water).

⁷ From a 9/10/2020 email from Galen Weibley to Tex Haeuser, Jared Woolston, and Kara Wilbur.

In transportation, they are in the process of expanding their rail line; rail does reduce carbon emissions compared with trucking. Investments in rail are needed.

Presque Isle keeps its Shoreland Zoning regulations up to date. In addition, they allow for wind and solar in-town.

RPOs/EDCs

Eastern Maine
Development
Corporation

EMDC is hoping to start a regional resilience plan that will include elements of climate change resilience.

The EMDC Planner recommends [Climate Ready Communities](#)⁸, a program developed by Geos Institute out of Oregon. It seems like a good program for developing resilience practices. It includes the idea of building resilience considerations into how towns do meetings and other practices. It seeks to make resilience part of an organization's culture and integrating it vertically as well as horizontally in decision-making. Some of the key principles are:

- **Build resilience** – While climate change is global, the impacts are felt and addressed at the local level. Local governments have to handle floods, droughts, storms, sea level rise, etc.
- **Create multiple benefits** – Many, if not most, effective resilience strategies create multiple benefits across the community, which makes them very low risk to implement, even with an uncertain future. Co-benefits may include increased public safety, greater equitability in housing or health, or economic opportunities.
- **Address other community goals** – Many existing sustainability frameworks and compacts provide additional points or status for measurable efforts to increase climate resilience, such as the STAR Communities Program, Global Covenant of Mayors, and FEMA's Community Rating System. (Could also include Energy Star Benchmarking Program, LEEDS, etc.)
- **Mainstreaming** – Mainstreaming refers to the integration of climate change consideration into every planning process and all decisions. Currently, decisions are made with an assumption of a future climate similar to the past. In mainstreaming, that assumption gets replaced with the explicit consideration of likely future climate trends and related impacts, based on the best available science.⁹

The reality at EMDC is that they only recently have hired a Planner, so they do not have the time or resources at the moment for resilience planning, but it is something they hope to roll out in the next year to two years.

EMDC is in the process of drafting their Comprehensive Economic Development Strategy (CEDS) plan. The previous CEDS plan did not

⁸September 2, 2020, email from Geoff Weaver, Business Manager, Climate Ready Communities at the Geos Institute: "We haven't worked with a Maine community yet, though we have a connection with the Eastern Maine Development Corporation (EMDC) and if EMDC is able to secure funding there is a possibility we could begin working with a few of the communities within their geographic scope and where they already have a substantial ongoing relationship. These communities could form a climate resilience cohort, which is an approach we're using now in one state and working on in a few others; a cohort can bring benefits to its members beyond using our Climate Ready Communities (CRC) program on an individual community by community basis. ..."

⁹ "Climate Ready Communities—A Practical Guide to Building Climate Resilience." *Climate Ready Communities*. Version 3, updated July 2019, <https://climatereadycommunities.org/>. Accessed 12 August 2020.

mention climate change; this one will. This is significant because the CEDS plans are the basis for potentially large EDA grants and projects.¹⁰

In terms of comprehensive Plans, the EMDC towns generally are reluctant to include any strong language about resilience, carbon emissions, etc., for fear that the plans will get voted down when up for adoption. Therefore, it is recommended to not include climate policies in the comp plan but to pursue separately them and to focus on education.

Towns in the EMDC area are somewhat hostile to planning or don't see the point in planning when they know there aren't the means to implement. In addition, many of the communities haven't seen any direct impacts from climate change.

Comprehensive Plans are being done by the wealthy towns that have \$15,000 - \$20,000 to throw at a consultant for a plan; the other towns without those resources don't do comp plans. A bigger issue is that CDBG funding, DEP programing, and various grant programs, are all tied to having up-to-date, certified comp plans. As such, mandating the inclusion of climate policies in comp plans won't have any effect except for the wealthier towns.

All that said, a few communities are forward thinking. Brooksville (in Hancock County), for example, is a peninsula on a peninsula. They are very much aware of the threat from climate change. One of the issues EMDC is talking about with them is how to guide development to less vulnerable areas. Relative to road infrastructure, they have two major thoroughfares into the town, and in one section of the town there's only one road providing access. These are all subject to storm surge and tidal surge. Brooksville folks apparently don't want to alienate the seasonal residents by restricting development as it is the seasonal people who are keep the town afloat in terms of tax revenue and financing road and resilience projects. On the other hand, they understand it's unsustainable to keep developing in marginal areas that may be inaccessible during a hurricane or other large storm.

Brooksville is an example of a community where the residents understand the danger of climate change but are having a hard time is moving from a mindset of managing the effects of climate change and sea level rise to proactively taking resilience and mitigation steps.

In terms of ordinances, in Brooksville the folks have a concern that if they put restrictions on development, the neighboring towns will not and builders will go to these other places (with a resulting loss of tax base, etc.). This has led EMDC to start to talk with area towns to see if there is a possibility of taking a regional approach to managing growth. The trouble in part is that

¹⁰ One might argue that incorporating climate mitigation and resilience into CEDS plans is more important than doing so with comprehensive plans, at least in terms of the potential for a more immediate and larger impact.

Northern Maine
Development
Commission

there is a disparity in the wealth of the communities, and the non-wealthy towns—which are the large majority—are wary of helping the wealthy towns without getting much in return.

Resilience is primarily seen in their hazard mitigation planning. Each town has a section in the County Emergency Management Plan. The hazards commonly prioritized include:

- Forest fires
- Flooding
- Severe storms

The amount of comprehensive planning being done is relatively low; NMDC did 4 or 5 last year. The amount of attention in the plans to resilience and adaptation is cursory.

Until now climate related considerations have not been included in the annual CEDS plan, but this year NMDC will be starting to include resilience components. CEDS plans can affect economic development grant funding, and it's surprising that participation by the towns isn't more enthusiastic.

NMDC recently received a \$400,000 grant from EDA relative to climate change and adaptation.

There is good participation in FEMA's Community Rating System program. This has been helped in part by LIDAR data they have obtained. The Maine Office of GIS has said that they will be providing LIDAR data soon for the St. John Valley.

The water and sewer utilities are somewhat in the forefront relative to infrastructure projects. Two of them have put in large (1 MW) solar arrays. They also are working to reduce stormwater runoff and infill & infiltration. Limestone recently put in a solar farm, not so much for the GHG emissions reductions but because of the \$10,000 annual savings.

The communities as yet have not been adding resilience or mitigation provisions into their ordinances, but developing ordinances with such provisions will be part of the work that EMCD will be doing as part of the EDA grant. The larger towns/cities will be the most receptive.

Biking is much more popular now. It used to be that snowmobiling was the dominant recreational activity. In recent years ATV recreation has become significant, and now there is a lot more bicycling. EMDC was successful in obtaining designation of a federal bicycle route, U.S. Bike Route 510, from Bangor to Allagash, that has helped. It connects to two scenic byways—Katahdin Woods & Waters and St. John Valley Cultural Byway, and the Katahdin Woods & Waters National Monument. Along the way one can experience the region's tribal, Amish, Swedish, and Acadian cultures.

EMDC is working with Aroostook County Tourism in promoting this tourism asset.

East Inland

Economic Resilience

Municipalities

Aroostook Band of
Micmacs

Food security is addressed in that the tribe is involved in several agricultural activities. They have a farm that employs tribal members. Also, the tribe got a grant five years ago that led to the creation of a brook trout fish hatchery. They have been able to provide food for the community as well as selling the fish. It's not a moneymaker yet but ultimately will be.

Town of Orono

Orono has created a corporation in partnership with neighboring towns to run fiber for broadband:

Old Town - Orono Fiber (OTO Fiber) is a non-profit 501(c)(3) corporation formed with three members, the City of Old Town, Town of Orono and the University of Maine System. OTO Fiber was formed to improve the access to ultra-high-speed broadband for businesses and residents of Old Town and Orono. OTO Fiber's service area is bounded by the municipal boundaries of the City of Old Town and Town of Orono. A pilot project has been successfully funded by the combination of a Northern Border Regional Commission grant and City and Town money.¹¹

Other than the student housing apartments, the pace of development in Orono has been relatively slow. However, with the onset of COVID, there have been more people looking into doing home businesses or trying to find alternate uses of their properties. They have been granting conditional permits to restaurants and bars, food trucks, and home businesses with final approvals coming when things have normalized.

City of Presque Isle

Presque Isle has a Downtown Redevelopment Plan overseen by a Downtown Revitalization Committee. Their economic resilience will be helped, they feel, by establishing a stronger identity for the City and developing a marketing plan. Staff have created some interactive GIS mapping to assist with this; it has provided the City Council with actionable data. The plan also addresses a shortage of affordable housing. In addition, they are looking to utilize their renewable assets for economic development purposes, such as more water recreation. Conservation efforts relative to streams and watersheds are included as well.

COVID has thrown the City a rough curve-ball. They have made efforts to try to help the local businesses, primarily with information. Grant resources and loan administration have mainly come through NMEDC.

Canadians did come to places like Lowe's and the mall, but less than in previous times due to the strong US dollar. The border closing has an impact, if not a big one.

¹¹ "Home." OTO Fiber Corporation, <http://www.otofiber.com/>. Accessed 27 August 2020.

For broadband, there is a strong broadband backbone, possible due to the former military base (or UMaine?). However, it's been difficult to find out from the local internet service providers what infrastructure is available due to their not wanting their competitors to have this information. Therefore, the City is pursuing a project with UMaine student to map the existing fiber lines. They are looking for funding for that. There is a lot of real estate interest in where broadband is located and at what speeds.

RPOs/EDCs

Eastern Maine
Development
Corporation

Encouraging mixed uses in the downtown provides additional customers as well as increasing housing options. It also provides another source of revenue for building owners who otherwise might just have a storefront.

EMDC has developed a holistic approach to economic development through the creation of Economic Opportunity Response Teams (EORTs). A multi-discipline approach like this that has the potential to integrate a climate resilience perspective into economic development would seem to be useful. At a deeper level there is the question of the proper value and measurement of growth and wealth and how to pursue economic development that is sustainable and equitable. The EORT approach shows that EMDC is going beyond traditional economic development and is thinking about the larger policy issues.

Northern Maine
Development
Commission

Like Maine as a whole, EMDC gets a lot of Brownfields grants. These can help with economic as well as other kinds of resilience, such as one in Eastport that enabled the redevelopment of a former cannery site into a lobster storage facility that strengthened the area's lobster fishery.

Northern Maine is another area seeing a lot of homes being bought sight unseen by out-of-area buyers. The real estate market had been dead; now suddenly there is a lot of activity. Much of this is from people who plan to work remotely. These immigrants have different municipal service expectations. One such is wanting transit—the regional transit only provides service to a community one day a week.

On a related note, northern Maine towns are looking much harder at broadband. A few are exploring municipally-owned arrangements.

Aroostook still has farming as well as forestry. There has been a big increase in families doing gardens, keeping chickens or a few livestock, and in loans made for locally grown food operations.

East Inland

Clean Energy, Electrification & Efficiency

Municipalities

Aroostook Band of
Micmacs

The tribe also has recently been able to fund construction of an 8-acre solar project for the tribe. It is going to provide all of the electricity for all of the administrative buildings, the farm, and some of the houses. They will have a screen in the administrative building lobby that will show people the amount of electricity currently being produced, how much carbon dioxide is being prevented, etc. The tribe members will have a phone app doing the same thing. The project has been well-received.

Town of Orono

Orono is working on incorporating solar photovoltaic standards into its ordinances in order to allow larger solar farms.

City of Presque Isle

Presque Isle is getting 50% of its City facilities electricity from a solar array on City land, and there are five other solar farms on private land that are coming. They are installing an EV charging station at their farmers' market and have converted their streetlights to LEDs.

They also are encouraging biofuels, in part due to a new pellet log mill that will be starting up in Ashland in the former Levesque Mill.

RPOs/EDCs

Eastern Maine
Development
Corporation

CEI is assisting municipalities with solar arrays. (See the CEI interview in the Nonprofits section of this report.) Trenton might be such a town.

Solar has made a good impact in the EMDC area. Brooksville is under contract with ReVision Energy to do an array. Solar PV is attractive because it saves communities money. The panels are inexpensive enough now that solar is competitive, and municipal projects are financially feasible. Reducing electric costs for a town is ideal and attractive. It's not just a feel-good environmental cause—it will have positive bottom line impact on municipal budgets.

Not much in the way of EV charging stations has occurred as people have to drive relative long distances and the range of the vehicles hasn't improved enough yet.

Northern Maine
Development
Commission

Two of the water and sewer utilities have put in large (1 MW) solar arrays to offset their large electricity usage.

East Inland

Healthy & Connected People

Municipalities

Aroostook Band of
Micmacs

Some of the tribe's climate work relates to health issues. One was a project with the tribal youth on vector-borne diseases being carried by mosquitoes

and ticks into the region. The tribe has written a proposal to the Bureau of Indian Affairs for further study of mosquitoes in the area.

In general, the Micmacs are a resilient people, in part due to their sense of taking care of each other and their welcoming attitude. Historically they have had to survive a lot of prejudice and abuse. Their concern for each other is evident in how they conduct their public meetings. Anyone can attend, and anyone can raise an issue and talk about it without a time limit with others in the room being able as well to raise their hands and contribute to the discussion.

They also have a support system. They have a department that provides LIHEAP (Low Income Energy Assistance Program) assistance. They have a housing department, a food pantry, and an emergency shelter. They have a domestic violence program and a Little Feathers Head Start program. These are open programs that you don't have to be a tribal member to attend.

In terms of preserving their traditions—which can be part of community resilience—they have a cultural director and a tribal historic preservation officer. In August every year they have a gathering of tribes with dancing, singing, food, sweat lodges, and sweat ceremonies. It's free and open to the public.

Town of Orono

Orono works a lot with the [Orono Land Trust](#) on trails projects and other efforts.

City of Presque Isle

Presque Isle is an AARP Age Friendly Community. Part of their downtown revitalization housing work includes creating elderly housing.

RPOs/EDCs

Eastern Maine
Development
Corporation

Aging population issues is one of the things EMDC hears about the most. The population is quite old, except in cities like Bangor, Ellsworth, and Brewer that have younger populations. The median age in Brooksville is 57—so the population is quite old. This raises concerns about how to keep schools open and how people can stay healthy. The concerns jibe well with smart growth principles. Since the towns for the most part are not on the way to anywhere, they don't have access to transit. There's a shuttle that runs from Stonington and Deer Isle that goes to Ellsworth and can connect with shuttles that go to Bangor, but they run once a week. In terms of connectedness, making things walkable, and having access to transit, even if its rural transit, is important. One of the common comments from towns is that they don't have enough money for sidewalks, so they can't make their communities walkable. However, even ensuring there is a shoulder on the road can help. It does a lot to keep pedestrians and cyclists out of traffic. There is a logical progression of going from a country lane, to one with shoulders, to one with sidewalks and a bike lanes.

There have been conversations about improving access to public facilities for people with limited mobility, but it's hard for small towns with limited resources to make this a priority.

This actually is where the pandemic has had some beneficial aspects because it's opened up a lot conversations about internet and broadband access. To be able to have town meetings and other public functions remotely is liberating, especially for people who up to now haven't had that opportunity. Broadband also is beneficial for education and learning—it opens up a lot of doors. There is a lot of excitement because there are so many conversations about working remotely and being able to live wherever you want. There have been a lot of calls from towns wanting to know how they can improve their broadband access so they can market themselves as being places where you can work remotely. EMDC advises them not to put all their eggs in that basket as there are jobs that can't be done remotely, and you want to keep a mix in your economy. Spending a lot of money on your own town's broadband project, therefore, may not make sense. It may make more sense for towns to team up to do regional broadband projects. The Katahdin region, for example, could be an area for this. In truth, if you live in Millinocket and don't have to drive an hour and 45 minutes to Bangor every day, it will save you a good deal of energy, money, and CO₂ emissions at the end of the day.

The State of Vermont had a program where they were giving people \$5,000 stipend if they moved to the state and worked remotely. It was especially marketed to younger people.

Northern Maine
Development
Commission

There is a lot of interest in wellness and walkable communities, due in part to the Aroostook Area Agency on Aging and having an active regional hospital.

East Inland

Natural Spaces & Resources

Municipalities

Aroostook Band of
Micmacs

One of the climate-related issues the tribe is addressing is the onset of the emerald ash borer, an invasive species from China. The Micmacs have a basket making tradition, and they use the ash tree for this. The ash tree is extremely significant to the tribe; in their tradition the tribe came from an ash tree originally. So, there is a lot of concern about the inevitable arrival of the ash borer on Micmac lands. There is a [Maine Indian Basketmakers Alliance](#) that has been meeting about this. One activity has been to collect and preserve seeds. The tribe also will be partnering with the Passamaquoddies to fly a drone over forest areas to assess the health of the trees. The Aroostook County Emergency Preparedness Director also is interested in seeing if the tribe could use the drone to help with things like ice-out date decisions.

Town of Orono	One of Orono's natural resource assets is the Orono Bog, a bog that covers 600 acres and is part of the Caribou Bog complex in Penobscot County. It has a long boardwalk open to public use, and, in addition to protection conferred by municipal and University of Maine ownership, it was made a National Natural Landmark in 1973.
City of Presque Isle	Presque Isle has an abundance of natural resources that it endeavors to protect, in part, through various land use regulations, such as Shoreland Zoning, floodplain development standards, buffer area requirements, watershed protection zones, and timber harvesting requirements. Presque Isle also seeks, for example, to work with the Maine Department of Inland Fisheries and Wildlife to better inventory wildlife and fisheries resources, support local and regional efforts to restore Atlantic salmon to the Aroostook River and its tributaries, and work with adjoining towns to preserve and conserve water resources for recreational pursuits.
RPOs/EDCs	
Eastern Maine Development Corporation	<p>The primary work in Brooksville has been doing riprap and armored shorelines to try to prevent erosion. They've had problems with water undermining roads, especially in some locations with public beaches where people tend to park on the shoulder.</p> <p>There has been some traction talking with towns about the Stream Smart culvert program. Its multiple benefits are that not only can you save wildlife, but you can also save money and improve safety by preventing washouts.</p> <p>Unlike on Deer Isle, there haven't been many reports about private property owners doing shorefront riprapping. However, EMDC is aware that in terms of natural erosion control, MNRCP (Maine Natural Resource Conservation Program) uses state and federal mitigation funds to award competitive grants for projects that protect and restore natural resources across the state. They assisted a study that looked at the Amethyst Parking Lot in Portland. The idea is to replace an armored shoreline with a natural one using plants and other natural features to stabilize the shore. This can be expensive and, if not done right, can fail to stop erosion.</p>
Northern Maine Development Commission	A significant action to preserve natural spaces and protect ecosystem resilience was the adoption in 2017 by the Maine Legislature of a mining law that has some of the toughest protections against mining pollution in the country. The bill was triggered in part by the prospect of a large open pit mine at Bald Mountain near Portage Lake and Ashland. Despite the potential economic boost to the area, public opinion was strongly against the project, primarily due to its potential threat to the area's water quality. The bill had enough votes to overcome a veto by then Governor Paul LePage.

Municipalities

City of Augusta

They've looked seriously at their internal procedures relative to the pandemic to try to isolate teams and key individuals to make sure they don't lose their leadership capacity and command structure all at once. This gets at how to change your operations in an emergency situation so that you can continue to serve the public. The Economic Development Department, for example, shifted entirely from the normal business and development attraction mode to assisting businesses and the residents with accessing the federal and state disaster relief programs and working with the private and nonprofit partners to get the word out.

Town of Jay

Climate resilience is not a topic that Town or Select Board is focused on. No groups are currently raising climate resilience as an issue. What Jay would want or need from the State if offered more resources or assistance relative to resilience and climate mitigation would be an education piece—what would Jay's role be?

City of Lewiston

Lewiston has an ongoing complete streets program to ensure that alternative modes of transportation are considered when doing road projects. In addition, Lewiston is working on a Smart Infrastructure Strategy that will institutionalize a variety of community resilience policies through a program of linking municipal infrastructure to public benefits. (See the *Economic Resilience* section below.)

Town of Norway

Norway has a Lake Biologist, which is a good investment. They've done surveys around all four of their lakes looking at stormwater runoff from driveways to the road. They've come up with plans about how to maintain the water quality by preventing some of that water from going directly into the lake. They've identified probably 30 or 40 sites around Norway Lake and probably 20 sites that are town roads that they will be working on for the next three years. They just got a three-year grant.

Town of Skowhegan

Skowhegan is a thriving community but is somewhat vulnerable due to the Sappi paper mill accounting for over 40% of the City's tax base. The community is taking a variety of steps to increase its capacity to weather downturns, such as the Run of River project described in the *Economic Resilience* section below.

Skowhegan officials learned through an energy efficiency project that there is a state statute that allows schools to enter into energy projects with performance leasing without having to hold a voter referendum or town meeting; municipalities don't have that ability. If the legislators thought that it was a good idea for schools to be able to do that, then municipalities should be able also. Some of the other communities have a council form of government, so it's easier for them to do projects that otherwise require a town meeting.

In addition to several nonprofit economic development organizations, Skowhegan gets support from the Kennebec Valley Council of Governments (KVCOG). Joel Greenwood from KVCOG serves as the Town Planner for Skowhegan.

Town of Unity

Unity College is talking about selling its campus, and the chances are that it likely will. They have property in Portland as well as connections in Jackson and the Pineland Center. They don't do much in the way of payment in lieu of taxes, so it won't affect the municipal budget much, but some of the faculty serve on the Town committees, and the students provided a lot of volunteer assistance that now will have to be paid for.

RPOs/EDCs

**Androscoggin Valley
Council of
Governments**

Having just one land planner on the AVCOG staff is a significant reduction from the five or six planners they had in the eighties when there was a lot of money for comprehensive planning. Recently they've lost a GIS position and an environmental engineer. In terms of where the agency gets its funding, it's more member dues than State funding at this point.

AVGOG's contract with the State used to involve training money. They used to do annual conferences, such as subdivision workshops. The training going on now by the RPOs is much less extensive and consistent than in the past. It's a case of doing the best you can but it's not the level that new planning board members or new code enforcement officers need. The latter aren't getting much training from the State now either. When there is a new CEO there is a fair amount of handholding and answering questions about how to handle various types of applications. These are questions like, "What do I do with this application? Do I review it or does it go to the Planning Board? What type of permit is needed? Does it need a Shoreland Zoning permit? Does it need some site plan approval?" There have been conversations about this with the Northern Maine Development Commission. (This issue was echoed by Camden Planning Director and CEO, Jeremy Martin.) For the two agencies, both of which are inland and have only one planner each, a fair amount of what they do is this type of work with the code enforcement officers, as well as the planning work. A lot of what they do is help the municipalities function and stay out of court!

In general, in the rural towns, the roads are considerably underfunded; it's something of a whack-a-mole situation. There is the Stream Smart Crossings grant program, which the communities have relied on heavily, in part because it gets them the engineering needed to apply for construction funding. It would not be popular for a town to spend its own money, say \$12K, for engineering assistance for a sustainable \$125,000 design—and then not get the construction grant the first time around. It would be safer instead to just go with the less sustainable \$50K option. The communities want to know, is funding available?

Kennebec Valley
Council of
Governments

In terms of the level of resilience planning, KVCOG helps the small communities with populations of just several hundred people to some mid-level towns that are 5,000 to 6,000 people in size; the larger communities have their own resources to do planning. KVCOG helps the small to mid-size towns that don't have their own capacity. For these communities there is very little activity in the way of mechanisms that specifically address resiliency.

As much as they would like to try to get communities to address climate change issues, there isn't the capacity at this stage or the will to do so. Most of the towns only have the State-mandated Shoreland Zoning and no other local regulations.

KVCOG traditionally has had two land use planners; now it has perhaps two and a half with their environmental coordinator. They would need more capacity if the State wanted them to do more resilience work. Interestingly, they just received a two-year \$400K grant from EDA for COVID response and recovery. There may be an opportunity to include some resiliency efforts in the work they will be doing. But generally, they have their plate full just dealing with the 67 towns they have to cover.

West Inland

Land Use, Planning & Hazard Mitigation

Municipalities

City of Augusta

Augusta is updating its comprehensive plan, but climate resilience isn't being featured. In terms of the Hazard Mitigation Plan, Augusta has put some additional focus in recent years on incident response and managing storms and other emergencies. They haven't necessarily changed any of the standards in Shoreland Zoning or Floodplain Management.

Augusta is in the process of building a new fire station and thinking about a new police station, and they are taking resilience into account with their facilities planning. For example, they want the fire station to be constructed to Risk Category IV¹² standards.

One of the important factors that they've been looking at with respect to siting and hazard mitigation has been that a lot of people wanted to locate in the downtown, but they have flood issues in the downtown because of the Kennebec. The Augusta staff consequently worked with an architect on how to deal with those issues—how you could make sure that everything was raised up to meet Risk Category IV, which requires buildings to be significantly above the 500-year floodplain and not just the 100-year. It probably is going to have to be at least three feet above the 500-year floodplain in order to meet Risk Category IV standards. They had a basement garage designed that they had to abandon because of needing to

¹² Risk Category IV, the highest risk category, includes buildings and structures that, if severely damaged, would reduce the availability of essential community services necessary to cope with an emergency.

get everything above the floodplain. However, due as well to the current national reexamination of police programs and other issues, the idea of moving the Police Station downtown, into the floodplain, may be given up entirely.¹³

In terms of infrastructure, the City's communications infrastructure is vulnerable because, to connect both sides of the City across the Kennebec River, all of their fiber and hard-wired communications crosses the river on a low bridge, and the river does occasionally rise to the bottom of the bridge during flooding.

The water and sewer utility has done a lot of resilience work related to water quality and sewer separation. The water supply comes from wells that are very close to the highway. The overturning of a tanker truck in that area seven or eight years ago created a scare, and they now are looking at finding alternative water supply locations.

The Code Enforcement Officer is active in ensuring that new structures meet MUBEC (Maine Uniform Building and Energy Code). Not all communities are thorough about this (particularly the energy efficiency part).

Town of Jay

The Jay Comprehensive Plan was done years ago and there are no updates in the works. The current plan does not have any climate resilience policies.

In terms of the hazard mitigation plan, there are no grant applications at present, and it's usually the public works director who is involved. The \$100,000 Morse Hill road project listed in the Franklin County Hazard Mitigation Plan (2016 update)¹⁴ is not being pursued due to its cost and the fact that while the brook does flood, the impact is not considered to be serious.

City of Lewiston

The Lewiston Comprehensive Plan was adopted in 2017. There are sections about keeping things green, but nothing specifically aimed at climate change or reducing greenhouse gas emissions. It's mostly about smart growth and how to do development in an appropriate, thought-out manner. This would still be true if the comp plan were to be updated now.

Inland communities haven't seen the kinds of high tide and other flooding events as those along the coast, so there is less likelihood that inland communities see climate change as a problem that needs to be addressed. The precipitation amounts for stormwater modeling has changed, so they have had to revisit their stormwater calculations, but otherwise there hasn't been much in the way of climate change planning. As mentioned below, they have seen heavier rainfall events which are impacting the City's stormwater systems.

¹³ If nothing else, at least a municipality's emergency management facilities should be resilient!

¹⁴ The hazards addressed in the Plan are: flooding; winter storms; wildfires; and landslides. Of these, wildfire was projected to have the largest potential financial impact.

The hazard mitigation plan for Androscoggin County involved only peripheral involvement by Lewiston Planning. Their only contact with it had to do with making sure the plan included some tweaks related to the City maintaining its standing in the FEMA CRS (Community Rating System) program.

The CRS program has different levels. It starts at 10 and goes up to one, one being the highest and giving a community the most credit. Lewiston is at an eight, which gets them a 15% discount on the premium for flood insurance. In order to get that, you have to take certain measures. Every year they have to fill out a report that says they're doing outreach and are keeping their records up to date. You need to say that you are discouraging development in flood prone areas and that you are administering your floodplain ordinance. They've been changing them a little bit over the last two years. It's not a bad thing, but there is a certain amount of work for relatively little reward given that Lewiston, unlike a coastal community, doesn't have very many policies.

There has been no move to change the standard for elevation above base flood to something higher than the State required one-foot.

Lewiston staff feel that better integrating the work of the Planning Department with the County Hazard Mitigation process might be an interesting conversation to have in the future.

In terms of infrastructure for resilience, Lewiston has seen heavier rainfall events that are impacting their stormwater systems. They have been doing sewer separation work to reduce CSOs (combined sewer overflows) which will give them some added storm sewer capacity.

Lewiston is planning through its capital improvement plan to replace three of their fire stations, and resilience will be brought to bear in their design. They also have a five-year plan to replace the City's water line from Lake Auburn. The City is served by this single line which makes their water supply quite vulnerable. They want to build some redundancy. Most of the land around the lake has been acquired by the [Lewiston-Auburn Water Pollution Control Authority](#) (LAWPCA). The lake is heavily protected with no boating on half the lake and very limited access.

There is a lot of discussion about whether to allow development around the lake; it would be an economic shot in the arm for Lewiston and Auburn. It's a big deal in that they are steps away from having to build a \$30M treatment plant and it matters if that can be later rather than sooner. Presently they do very little water treatment, so the balance between development patterns, taxes, and water quality is significant for the two communities.

LAWPCA has another project where they are burning off methane to generate electricity as they are a big electricity user.¹⁵

Relative to transportation, the idea of a train from Portland does not appear to have any chance of materializing. The Concord Coach Lines bus service, however, has been successful.

Relative to agriculture, Auburn has a very large agriculture zoning district and is having discussions about updating it to allow the nearly 100 acres of solar projects that have expressed interest in Auburn. Lewiston has had some interest in possible expansions or allowances for urban agriculture, but it's not big on their radar screen.

Town of Norway

The Norway comprehensive plan is around seven years old, and they are starting to think of doing a new one. A nonprofit organization, the Center for Ecology-Based Economy (CEBE), is based in Norway. They work on issues related to climate change, affordable housing, and food insecurities, and the Town has partnered with them on a couple of projects—a pair of EV charging stations some solar panels on top of a kiosk downtown. (See the CEBE interview in the Nonprofits section of this report.) They would like to work with the Town on an enhanced, comprehensive planning process for climate change activities. The Town Manager had just started talking with them when the pandemic hit and threw the timing off on beginning the comp plan. They were ahead of schedule in any case. Otherwise, the Town does not have climate policies written in any plans.

Blessed with Norway Lake and other water bodies, Norway has an active nonprofit lake association that the Town works with and helps fund. The association hires some folks through the Town to do milfoil monitoring and some boat inspections. They also have been going around all of the lakes looking at erosion control issues. They identify sites, develop plans, and apply for various grants, and then the Town does the work. As such, there is a strong awareness that climate change could potentially affect the quality of the water in these lakes and what the economic impact would be if those lakes got to the point where there were algae blooms.

Relative to infrastructure, Norway occasionally gets microburst storms, which can cause the Town to have to replace big culverts in the roads, and they've been installing larger sizes, making the ditches deeper, etc. It's non-sexy stuff, but it's necessary to protect the residents and their homes. Also, Norway recently replaced all of their streetlights with LEDs. It was a savings, and they actually added some other lights where there were known traffic issues.

¹⁵ "The new facility allows the LAWPCA to further process wastewater sludge using two new anaerobic digesters, which produce enough methane gas to power two 230 KW cogeneration engines. The cogens produce enough electricity to cut energy consumption at the entire facility by 50%, plus reducing CO2 emissions by 80%. In addition, the cogens provide the heat required for further sludge treatment, reducing Biosolids Management Costs by 35%." "Experience." *Methuen Construction*, 2020, <https://www.methuenconstruction.com/projects/Combined-Heat-and-Power-Facility-Lewiston-Auburn>. Accessed 6 September 2020.

Norway has a fairly large wastewater treatment plant and to operate it takes a lot of energy. The Town is doing upgrades, looking at every single pump and motor trying to find more efficient ways of operating them. For example, a number of years ago the superintendent installed SolarBees, which is a solar panel that floats on top of the lagoons and provides power to oxidize the water.

Running the wastewater treatment plant and all the pump stations is the highest energy use of the town. Rather than putting in a new plant they would prefer to update with technologically improved equipment. The Town received a \$30,000 rural development grant to develop a master plan, and there potentially are federal or additional rural development funds that they could apply for.

There is not much farming apart from community gardens. CEBE does work on the food insecurity issue.

The Town wanted to get electric vehicles for the Police but are buying hybrids for now.

Town of Skowhegan

The Town's Economic & Community Development Director recently signed off on a \$2.5 million energy project that the Town has been working on with Siemens. They made improvements throughout the municipal buildings to include window replacements, installing mini-splits, and switching to propane. In addition, they also are changing over their streetlights to LED fixtures.

Skowhegan's comprehensive plan is just barely current. They plan to start an update later this year. The current plan does not include climate change or resilience policies. Nor do they have a climate plan. The Town addresses resilience needs more on an organic, project by project basis.

The Town did approve the recent county hazard mitigation plan update, but the Fire Chief would be the only staff person to have contact with it.

Skowhegan does not have zoning (other than Shoreland Zoning).

The Town has a car charging station and is working with a solar company to put a solar field on the capped landfill.

In terms of how the infrastructure projects are paid for, the solar firm is leasing the land and is paying the Town. (The Town will buy some of the electricity at a below market rate.) The EV charging station is a lease. The large energy project with Siemens is an energy saving performance contract. They also are using reserve accounts, TIF funds, and some borrowing that gets a project started and that then more than pays for itself.

Town of Unity

Not much climate related activity is occurring in Unity as they are not on the coast, don't have much flooding, and people haven't yet seen much in terms of direct ramifications of climate change.

The Unity comprehensive plan is on the old side. The Town started to get it updated several years ago, but that effort fell apart, and the plan was never put into an editable format. Then COVID struck and so the effort is again on pause. They do have a land use ordinance, and shoreland zoning, and floodplain regulations.

They have an EMA Director who is involved in the Waldo County Hazard Mitigation planning, but hazard mitigation planning is not front and center in Unity.

RPOs/EDCs

Androscoggin Valley Council of Governments

AVCOG provides a lot of guidance for doing comprehensive plans, although they don't get many contracts to do the plans. They're not involved with the content of comp plans with many towns. A lot of the towns follow whatever minimum the State requires and only include climate and resilience policies if they are interested in the topic. A lot of the AVCOG communities' comprehensive plans are twelve or more years old and are due for an update. Which raises the question of whether there is any State funding for updating comp plans?

The towns want to know what AVCOG can do for them free. It's a lot for the towns to pull together a committee, put together funding to have some assistance, and to move the project forward in a timely fashion. A lot of communities know they're due for a comp plan update, but there's a bit of a stall and not always a lot of incentive, especially when most of the communities in the region aren't experiencing much growth. They aren't seeing the types of pressure or change that in the past might have pushed them to want to do comprehensive plans. Some are, but a lot of them are not because their population is flat and there's not a lot of benefit from taking two years to engage in an activity that whose value is not clear to the community.

The Androscoggin County hazard mitigation plan was updated in 2017. A lot of it has to do with culvert sizing and transportation. Much of the resiliency relates to culvert sizing. After some of the disasters there has been FEMA money to upsize bridges and culverts.

It seems as if there are State standard ordinances that haven't been updated in fifteen years or as required/needed. Communities do not appear to be going above and beyond with their floodplain ordinance, and the Shoreland Zoning ordinances appear to be quite out of date and lacking any resilience enhancements.

In Franklin County FEMA hasn't updated the flood maps, and they have been told that FEMA doesn't plan to anytime soon. Some parts of

Androscoggin and Oxford Counties, on the other hand, have gotten newer mapping. The AVCOG staff refer home owners with floodplain questions to the [FEMA Flood Map Service Center](#), but in the end the recommendation usually is for the resident to hire a surveyor to figure out whether a structure is in the floodplain and, if necessary, to submit a letter of amendment request. With better mapping it might be that fewer people would have to spend their own money to do field surveying.

It is not clear how many AVCOG communities are using the [National Flood Insurance Community Rating System](#) (NFIP) to help reduce insurance rates. The Maine Floodplain Management Program has a Flood Insurance [webpage](#) with information about community participation in NFIP and also a link to FEMA's [FloodSmart](#) web site that has information about flood insurance policies and coverage in one's area. The Community Rating System (CRS) is a voluntary incentive program for communities who participate in the NFIP. The residents and businesses of communities who participate in the CRS program receive a discount (typically 5-10%) on their annual flood insurance premiums

Not being coastal, AVCOG doesn't have examples of sea level rise and similar coastal resilience projects. However, the Town of Canton had a devastating flood in 2003. This has led to a managed retreat program to move some sixty structures out of the floodplain. It appears this project has had some success. As of 2007, Canton had secured \$3.3 million through FEMA's Pre-Disaster Mitigation and Hazard Mitigation Grant Programs for acquisition and demolition of homes in the floodplain. Assistance was also provided through CDBG and Maine State Housing funds. One effect of the reduction in homes, however, has been an increase in the cost of water and other services to the remaining residents due to the overall population decrease.

Kennebec Valley
Council of
Governments

The easiest way to start the climate/resilience conversation probably is within the comprehensive planning process. That is where KVCOG does its most in-depth work with the communities. Currently, resilience is addressed only tangentially in the comp plans. Specifying resilience in comp plans would be a good place to start. A lot of towns are happy to work on comp plans every ten years. That is about as much active planning as they see get done. They get ordinance projects every now and then, but very few communities that KVGOG works with have specific plans or policies regarding climate resiliency.

Towns may have hazard mitigation plans in conjunction with the County emergency management systems, but that doesn't seem to translate into ordinance work.

The Kennebec River is tidal along seven of their communities, and KVCOG hopes to work with them using Abbie Sherwin's Flood Resiliency Checklist. Gardiner is a community where they finally have gotten some traction in terms of addressing flooding issues. One project was to try to implement

low-impact development (LID) requirements for larger scale developments to deal with the stormwater impacts. They also have been doing mapping and working on stormwater management requirements in general. In midsize communities like Gardiner and Hallowell they have been able to chip away at a few of the resilience issues. They also have worked with Chelsea and are talking with them about a collaborative project dealing with the Togus watershed. KVCOG hopes to incorporate some resilience recommendations into that study.

West Inland

Economic Resilience

Municipalities

City of Augusta

In terms of broadband, few places in the state are going to have better broadband than the developed area of Augusta given the National Guard headquarters, a state university, and the Capitol building. However, Augusta has a large area (56 square miles), and in the rural areas many people are still on dial-up. Augusta, therefore, is thinking about how to expand internet service.

Town of Jay

The Town doesn't have an economic development plan but works with the [Greater Franklin Development Council](#). Jay is a mill town. One of the mills, Verso, was recently sold to [Pixelle](#). They had a large digester explosion and have downsized, so it's been a roller coaster for the town. The mill is 46% of the town's tax base, so they've been doing significant budget tightening. Consequently, the pandemic hasn't changed much; they were already trimming the budget. The other mill in Jay was purchased by a scrap yard and is slowing being demolished.

Tourism is not much of a factor in Jay. Travelers go through on way to Sugarloaf but don't often stop.¹⁶

Jay is more timber and less farming; there are just a couple of farms in operation at this time.

City of Lewiston

A project that combines several types of resilience is Lewiston's Smart Infrastructure Strategy. Begun in 2019, it is intended to address community priorities around public health, safety, and economic development. The project will inventory existing infrastructure, identify desired public benefits, and assess and prioritize the feasibility of incremental upgrades to the City's infrastructure. With an emphasis on data collection and analysis, the strategy involves consideration of sensors, high-speed internet connectivity, databases, and data security. The public benefits include governmental efficiency (e.g., reduced costs), public health (e.g., reduced lead poisoning),

¹⁶ One wonders whether there is an opportunity here worth pursuing.

public safety (e.g., reduced crime rates), mobility (e.g., improved transit), and economic development (e.g., better high-speed internet).¹⁷

Town of Norway

Norway is in better shape from an economic standpoint than some other towns. It has a somewhat diverse tax base (e.g., CMP is its largest taxpayer due to a large substation). The lakefront properties provide a lot of value. This is another reason why maintaining the lakes' water quality is so important. The Town also helps fund the Norway Downtown Association and, for the most part, the businesses have hung in there with the pandemic. They have quality homes, a good school system, and a nearby medical center. Perhaps due to these advantages, Norway has been growing for the last two years. The lakes are the driver for the economy.

In terms of broadband, the town is not sure what its role should be yet, but it is definitely looking at the issue. The Community Concepts Finance Corporation (CCFC) has been a strong advocate for Oxford County broadband and has been working with a number of stakeholders about it. (See CCFC interview in the Nonprofits section of this report.)

Town of Skowhegan

In terms of economic resilience, Skowhegan does a lot of collaborating. They now have an Economic Development Council that pulls together all of their economic development resources. They have Main Street Skowhegan, the Skowhegan Economic Development Corporation, Somerset Economic Development Corporation, and the Skowhegan Area Chamber of Commerce. All of these groups are joined into one council now, and they're providing grant opportunities, technical assistance, and other resources to help local businesses. The community members pride themselves on the food movement that's going on in Skowhegan¹⁸, as well as recreation. The Town has a [Run of River](#) whitewater park that they are putting in the downtown of Skowhegan. They feel that the whitewater park is going to be a game changer for Skowhegan in terms of attracting visitors.

The growing area of telemedicine is another reason why there is a need for better broadband service. Skowhegan has the Three-Ring Binder project running through it, so there are opportunities for improved internet resources. There are no projects underway at this time for that, however.

Skowhegan is another community in Maine where there are anecdotal stories of out-of-staters buying homes within hours of their going on sale. Better broadband service would support this trend.

Town of Unity

The local farm economy is important and growing. They have MOFGA and the Common Ground Fair. They also have a large Amish community.¹⁹

¹⁷ "Lewiston's Smart Infrastructure Strategy." *Lewiston, Maine – Official Website*, <https://www.lewistonmaine.gov/DocumentCenter/View/10294/Lewiston-One-Pager-1-002>. Accessed 20 September 2020.

¹⁸ See, for example, information about the Somerset Grist Mill at [Maine Grains](#).

¹⁹ "The youngest community in Maine, at cheerily-named Unity in Waldo County, was founded in 2008. Some families arrived at this location from the settlement near the town of Smyrna in Aroostook County. Other areas contributing settlers included [Amish settlements in Missouri](#) and [Kentucky](#)."

There are lots of little farms, but the town has lost all of the farm infrastructure, such as railroads, milk haulers, a cannery, a produce packing plant that made coleslaw and onions for McDonald's. There used to be potato farms and big vegetable farms. Without the trickle-down they lost a trucking company and lost people that hauled timber shavings to farms. They still have a few dairy farms nearby if not actually in Unity—Clinton, next door, is Maine's dairy capital.

There was drought this summer in Unity, and the spring's late frost killed the strawberries. It shows that if you rely on one area to produce an item and something happens there you can be in trouble. Look, for example, at the all the corn fields that flooded in Iowa. It makes the price go up, and then who can afford the food? One Town official usually makes her own strawberry jam, but this is going to be a Smucker's year.

RPOs/EDCs

Androscoggin Valley
Council of
Governments

AVCOG provides a variety of business and economic development services, such as business financing, business counseling, and a partnership with the Maine Manufacturers Extension to provide assistance to small and medium-sized manufacturing firms in the tri-county area (Androscoggin, Oxford, and Franklin Counties).

Kennebec Valley
Council of
Governments

KVCOG does the regional economic development strategy—the EDA's Comprehensive Economic Development Strategy (CEDS) plan. It has to be updated every three years. Resiliency is going to be a new aspect. It's not entirely new, but it will be more emphasized going forward.

West Inland

Clean Energy, Electrification & Efficiency

Municipalities

City of Augusta

Augusta has done a lot of work to cut its carbon footprint, primarily through the angle of financial savings. The work they've done putting in solar panels, gas lines, and, in the city center, a co-gen plant has all ended up costing their taxpayers less. It's done to achieve savings but it's also an effort to do the right thing for the environment.

They have several private solar farms under construction or seeking approvals. One is 40 acres. One location is in some of the interstate roundabouts in off-ramp areas that the MDOT is leasing to solar developers. Augusta is supposed to have review authority but isn't making a big deal out of it.

The Amish have cooperated with locals and have opened small businesses, including wood businesses and a farm stand featuring doughnuts one day a week. "We've been welcomed by the community. The community has been what we expected. They've welcomed us and helped us any way they can," explained Ervin Hochstetler, Deacon of the Unity church. "Farmers have a lot in common, although our method of farming would be quite different than most farms." ("Amish families reviving farms in Thorndike, Unity", *Bangor Daily News*, Walter Griffin, October 23, 2009)." From [Amish America – Maine Amish](#). See also the [Amish Community Farm and Bakery](#), and the [Amish Charcuterie](#) (specialty meats and cheeses).

	All the streetlights have been converted to LEDs with smart photocells. ²⁰
Town of Jay	Non-Town solar farms are in the works. One had a public information meeting recently as part of its Site Location application. EV is not on anyone's radar, although there is a charging station in Farmington.
City of Lewiston	Lewiston has approved three solar farms and it looks like others will be filing applications.
Town of Norway	<p>The Town has partnered with the Center for Ecology Based Economy (CEBE) on a couple of EV charging stations some solar panels on top of a kiosk downtown.</p> <p>CEBE is looking at installing a solar facility on a capped landfill located near the wastewater treatment plant such that the plant could tie into the array. It is in the planning stages.</p> <p>The Town received a \$100,000 grant from the Volkswagen Settlement to replace one of their old diesel trucks with a new, much cleaner diesel truck.</p>
Town of Skowhegan	ReVision Energy is building a solar power farm in Skowhegan for municipalities only, with federal dollars being funded by USDA Rural Development, which provides financial backing for qualifying projects in rural areas.
Town of Unity	Unity has a couple of 20-acre solar farms, and there is a 750-acre solar farm coming nearby. Their Hawk Ridge plant turns municipal waste from around the state into compost.
RPOs/EDCs	
Androscoggin Valley Council of Governments	One of the solar projects planned for the region is a 490-acre, \$110 million, 76.5-megawatt solar farm in Farmington. This is one of the largest planned solar projects in New England.
Kennebec Valley Council of Governments	Relative to private solar projects, the 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. KVCOG has been holding meetings with communities, including a regional one coming up, about regulating solar development but also about the potential impacts and benefits to local communities and the region. Previously the big issue was wind farms—where they should be allowed, how they should be regulated, and so on.

²⁰ Smart photocells allow the streetlights to be networked for central management. This enables better maintenance, time-of-night light level adjustments (which can save significant amounts of energy and money if the electric utility accepts the accuracy of the photocells), and, via the communications network, the addition of other "smart city" types of devices to the utility poles.

Solar arrays are great for certain landowners who may, for example, have a field that they hay once a year and that they can lease for 20 years. The concern about protecting farmland is not so much of an issue in the KVCOG area (Kennebec and some of Somerset and Waldo Counties) as they have a great deal of open land. It's a question of allowing people to do what they want with their land while making sure there isn't too much in the way of negative impacts, either on the environment or neighboring property owners. There are a lot of solar projects coming in. In fact, there is competition to see who can get connected first to the local substation because the substations have a limited amount of capacity. Until recently the projects were all coming in just under a 5 MW threshold.

EV charging stations are present in the region, such as at the colleges in Skowhegan, through an Efficiency Maine program. There also is the idea of creating an electric byway on Rt. 201 to Quebec so that if someone wants to make the trip in an electric vehicle they would have places where they can charge up and do so comfortably.

West Inland

Healthy & Connected People

Municipalities

City of Augusta

In terms of resilience to various kinds of shocks, their emergency preparedness is in relatively good shape. The Fire Chief is their Emergency Management Coordinator. They have well-staffed fire and police departments and close connections with their regional hospital, such as in dealing with the current pandemic. The hospital has sent over a doctor who works closely with their EMS staff and the EMTs and who has sat down with senior staff to lay out a plan for functioning internally as well as for dealing with a major infectious outbreak. They actually had a pandemic plan in place before COVID hit.

The [Kennebec Land Trust](#) is a big player in the area; the City does a lot of work with them relative to land conservation and trails work.

The City has a complete streets mindset and tries to ensure that all road projects include bicycle and pedestrian facilities. Unfortunately, Augusta had a couple of pedestrian fatalities that have caught people's attention. So, both MDOT and the City are trying to improve sidewalks and crosswalks along the main corridors. Augusta has a state-of-the-art traffic signal system that will have the capability for various kinds of smart city intelligent systems.

Town of Jay

How has the town come together to face its challenges? At least it hasn't fallen apart. Two years ago, the Town made an effort similar to Heart and Soul that had some engagement with the churches, Town officials, and local groups to give support to the mill workers. The State came in with a job fair, for example. But there wasn't the capacity in the Town or community for it to

turn into a formal program. In addition, a lot of the mill workers were reluctant to take advantage of any help that was being offered.

Jay has groups like the Chamber of Commerce, a local grange, and an historical society. They do have an active recreation committee focused on trails. It's a small but active group with volunteers who do trail maintenance.

City of Lewiston

There is a lot of interest for both Lewiston and Auburn to develop a connected trail system and work with the [Lewiston Complete Streets Committee](#).

Town of Norway

The Town has a strong recreation program, and New Balance, which has a manufacturing facility in Norway, helped fund a rails-to-trails walking path. Norway also is working on a master plan for a downtown recreation center that will have a skating rink, tennis courts, basketball court, etc. There is an active land trust that supports trails. The Town helps to support healthy activities.

Town of Skowhegan

In terms of wellness, Skowhegan is fortunate to have the Redington-Fairview General Hospital which promotes community health, especially through [Somerset Public Health](#). Somerset Public Health has programs that address obesity, nutrition, drug addiction, increasing physical activity, and other challenges.

Town of Unity

The AARP is active in Unity, and area walking trails includes the 47 mile Hills to Sea Trail that connects Unity with Belfast.

RPOs/EDCs

Androscoggin Valley
Council of
Governments

A lot of the struggle that AVCOG communities have is that they are not getting the volunteerism that they had in bygone times. It's harder to get folks to volunteer to be on committees, like a comprehensive plan committee, who aren't under the age of 60. They always have to go back to the same limited pool of people to serve on committees. Similarly, fire departments are having a hard time getting volunteer firefighters. There needs to be more of an active effort by communities and the State to reach out to people and to have good public messaging. It's a problem that is just going to get worse as the population ages.

It also doesn't help trying to get volunteers when a committee can work for many months on a project only to have it suffer an unceremonious death at town meeting.²¹

Kennebec Valley
Council of
Governments

There isn't much available at present relative to social cohesion, but it is something they are becoming more aware of as an organization—that there is a role for a regional agency like KVCOG. They can provide a coordinated response to situations and a place for people to organize. It's something

²¹ This underscores the need for professional facilitation services, by planners or others, at regional and local levels.

they would like to explore if they had the capacity in terms of time and funding. Some of this may happen through the EDA COVID relief grant.

They've worked in the past on improving health, primarily through the transportation angle. This includes bicycle and pedestrian planning. The age-friendly community efforts thus far have been mainly through the hospitals.

West Inland	<i>Natural Spaces & Resources</i>
Municipalities	
City of Augusta	<p>At this point Augusta is not looking at natural, living shorelines kinds of solutions for the downtown area along the Kennebec that floods.</p> <p>Relative to smart stream crossings, Augusta has had to cancel a couple of projects because they couldn't afford the culverts. They knew from working with the Army Corps and DEP that they were going to have to put in a specific type of culvert, and the cost was phenomenal. They wanted to do it because they were redoing the road and wanted to take care of the culvert at the same time—it didn't make sense to do otherwise and is their standard operating procedure. However, it was just too expensive to do that culvert, so they said the existing one was good enough.</p>
Town of Jay	<p>Jay owns a couple of woodlots that they harvest occasionally. The Town also has a large recreation area that they've harvested before. It is used in conjunction with the School Department as a Christmas tree farm that classes visit for science education.</p>
City of Lewiston	<p>A project that won an award from the Androscoggin Valley Council of Governments and that combines preserving green areas with water quality management and recreation is the Lewiston Riverside Greenway. It is a 5-mile corridor along the Androscoggin River that contains a paved trail for bicycling and walking and connects civic, employment, retail, service, and cultural destinations in downtown Lewiston with a number of the City's neighborhoods. The Greenway is the direct result of the City building a new 36" interceptor sewer along the river to pick up all the sewers previously discharging directly into the Androscoggin River.</p>
Town of Norway	<p>As described above, Norway has Norway Lake (Pennesseewassee Lake) as well as other lakes and ponds. Preserving the water quality and ecosystem resilience of these natural assets is a high priority for the Town given their tax base and tourism importance as well as for environmental values. Members of the community appear to see the connection between climate change and the health of their water bodies.</p>
Town of Skowhegan	<p>The Kennebec River is a key natural resource in Skowhegan. The Run of River whitewater recreation facility will enhance the natural environment by</p>

removing hazardous materials from the riverbed—debris from the collapse of a pedestrian bridge during the flood of 1987—and enhancing fish habitat.

Town of Unity

Agriculture renewal in Unity, if it can be accomplished, has the potential for some carbon sequestration.

RPOs/EDCs

Androscoggin Valley
Council of
Governments

Ski resorts represent an active participation in the natural environment, and the mountain resorts in Franklin County and other parts of the AVCOG region are becoming more aware of the need for climate resilience and mitigation. Sugarloaf, for example, has a goal of having a net-zero carbon footprint by 2030.

Kennebec Valley
Council of
Governments

KVCOG has had some reasonable success working the State's culvert replacement program and giving technical assistance to the smaller towns to help them with the applications and the sustainable, ecologically friendly designs. This has been a big help for the towns. And it's important when, for example, a fire truck might have to go 15 miles to get around a road washout. The culvert replacement program provides a tangible benefit for the town to see, and they are getting some money—a good way to start getting local adoption of climate policies.

East Coastal

Governance & Capacity

Municipalities

Town of Deer Isle

Although not unique to Deer Isle, the maps that the Town provides on its website are notable for their availability in such a small community. The list includes such examples as: Shoreland Zoning Map, Transportation Map, Road Ownership Map, Street Light Map, Flood Zone Map, Sea Level Rise Maps, Solar Power Siting Map, and a Coastal Resilience Map. These maps, and particularly the energy and resilience ones, increase the capacity of the community members to see resilience issues and to make better decisions for the future.

Town of Lubec

Lubec has CDBG-capitalized revolving loan fund to help small businesses that it has nurtured since the early 1980's. Given the long-term success of this program and the resilience awareness evident in the community's environmentally sound tourism and economic development approach²², it may be that the RLF could be expanded or replicated for sustainability projects.

RPOs/EDCs

Hancock County
Planning Commission

In Canada, where the HCPC Planning Director used to work, there was a lot of funding and capacity. It was a different system. If a town didn't have its own planner they would have to pay a certain amount—not necessarily very

²² See, for example, the [Association to Promote and Protect the Lubec Environment](#).

much—to the regional service commission. In Maine the member dues typically only cover a portion of the overhead costs.

Simply put, if funds aren't provided for people to work on resilience issues, not much is going to get done. The biggest pot of money that HCPC has is from MaineDOT, and MaineDOT will pay for work that protects their infrastructure but not on living shorelines, housing, sustainability, GHG emissions reduction, etc. Conversations about this issue need to happen—and the conversations are harder north of Brunswick.

In rural places, talking about climate is a non-starter. Somewhat paradoxically, the places in Maine that are the most pristine and have the most intact ecosystems are areas where, generally speaking, the populations don't really care about the environment and to an extent take it for granted. As such, Washington and Hancock Counties are a tough environments in which to try to advance the State's climate policies. The work is going to have to go through the RPOs because if Augusta comes in with this or that regulation, the people are going to resist, and strongly. The conversation needs to come from an official who, ideally, grew up locally or who lives in the area and is someone the residents can get to know and see all the time. Essentially what's needed is a professional with local street cred who can guide conversations with some care and skill. Again, if there is no State funding, then they can only work on what a town is willing to pay for, and towns don't have money to pay for anything.

East Coastal

Land Use, Planning & Hazard Mitigation

Municipalities

Town of Deer Isle

Deer Isle is engaged in a community planning project—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

In terms of floodplain mapping, the Town Manager, in his former role as a planner with the Hancock County Planning Commission and currently as a volunteer, has done a lot of GIS mapping for towns with the new LIDAR (laser imaging, detection, and ranging) data. Some programs available on websites now appear to do this work automatically. Generally, what has been needed is better building footprint data. Flood mapping is being done now for Blue Hill to see what potential impact there may be on municipal buildings.

The pandemic has actually created a very hot real estate market with big city immigrants wanting to buy Maine property and work remotely. It may be seen as an accelerated climate migration phenomenon. In addition, seasonal residents are coming earlier and probably will stay longer.

The Town and its residents are concerned about a causeway that connects Deer Isle with the bridge to the mainland. The water overtops the road during some king high tides. It is a major threat to their economy as well as to safety, and the Town is seeking FEMA assistance.

The nearby Blue Hill Sea Level Rise Committee a good example of a local effort to identify impacts of sea level rise on a community. In addition, Stonington just received a substantial grant for some improvements in their village to deal with the increasing threat to coastal flooding.

Town of Lubec

The Lubec comprehensive plan is from 2010. They have talked about updating it, but the process hasn't started yet. The current plan is light on resilience considerations.

Lubec participated in the update two years ago of the Washington County hazard mitigation plan. There are no current activities associated with it.

The Town adopted their floodplain ordinance in 2016. The Code Enforcement Officer refers to it frequently in the course of monitoring development activity. The Town has 90 miles of shoreline!

Sea level rise hasn't gotten as much attention as you might think, especially after the "great brining shed catastrophe" of 2017. (An old brining shed collapsed during a January 2018 blizzard and floated into Canadian waters, creating a minor international incident. The cause was an astronomical high tide with high winds.) Sea level rise is considered to be primarily a concern for the property owners and not the municipality. The Town does not have public buildings that are at risk, but a back road along a beach is vulnerable and has been brought to MaineDOT's attention.

Lubec recently completed a bike lane project funded by a philanthropist. A sidewalk project on a state road was funded from a MaineDOT grant.

RPOs/EDCs

Hancock County Planning Commission

In Washington County, Machias is working on a FEMA flood mitigation structure. Ransom Environmental Consultants, in partnership with [Baker Design](#), is developing a large berm or seawall in anticipation of extreme high tides and storm surges. The project includes discussion of using living shoreline techniques and green/soft infrastructure. The following is additional information from the Maine Coastal Program case study:

PROJECT DESCRIPTION (Project completed January 2019) The Machias village center lies at the head of tide for the Machias River estuary. The Town is working to revitalize the downtown by improving waterfront access while making it more resilient to storm surges and sea level rise. This multi-year effort will involve significant changes

to transportation infrastructure, water treatment, landscaping, and shoreline stabilization.

THE CHALLENGE and PROJECT APPROACH: Flooding threatens the health, safety, and welfare of the people of Machias. More specifically, downtown businesses and infrastructure are vulnerable to flooding under a variety of scenarios. The aging Machias dike is at risk of being overtopped by flooding (and possibly failing). The health of Machias, surrounding communities, and surrounding ecosystems depends on effective wastewater treatment. Flooding of the sewage treatment plant could cause a release of raw sewage to the Machias River that would have multiple negative impacts on water quality and would result in closure of significant shellfish harvesting areas in Machias Bay.

The approach taken in this project was threefold including: 1. Creation of a conceptual design, next steps and cost estimates required to develop a final design and build for flood protection against future sea level rise while also meeting FEMA requirements to protect against the 1% annual chance flood so that the flood maps could be revised after it is built. 2. Quantifying the potential economic impacts of flooding and sea level rise and inform stakeholders as they will need to make complex and potentially contentious decisions. 3. Integrating seawall improvements into downtown revitalization efforts to restore historic wharf and riverfront access to the river including initial assembly of historical photographs and oral histories so that interpretation along the future river walk is grounded in the town's rich history.²³

Eastport applied for a CDBG public infrastructure grant to protect pumping stations and other wastewater collection and treatment system infrastructure in response to anticipated climate change threats. They didn't get it but were invited to reapply next year.

In Hancock County, HCPC has been involved in a conversation with Blue Hill residents who are exploring ideas around climate change, sea level rise, and living shorelines.

In Washington County, the towns generally still take comprehensive plans seriously. To a certain extent, they still think it is required, and they may feel that they need them to be eligible for CDBG and/or private foundation money. Machias is doing a comp plan update. In Hancock County, four towns requested the State's data packs this year (a prerequisite for beginning comp plans). EMDC has obtained commitments from two of the towns to assist with their plans—in part due to vacuum at HCPC over the last year due to the embezzlement scandal. If possible HCPC will assist the other towns with their comp plans.

In terms of incorporating resilience and mitigation into the plans, Machias specifically required that resilience and the FEMA mitigation work be included in the downtown master plan. Going forward, when a planning professional like an HCPC planner is given an opportunity to assist a community with planning, the planner will be making an effort to exercise professional responsibility to have resilience and mitigation conversations. Even if committee members profess not to believe in climate change, they

²³ Town of Machias Downtown Waterfront Resilience and Renewal. *Maine Municipal Planning Assistance Program of the Department of Agriculture, Conservation and Forestry*, Coastal Community Grant Case Studies, 2019, <https://www.maine.gov/dacf/municipalplanning/casestudies/docs/machias-waterfront-resilience-renewal.pdf>

respect the planner as a professional and won't argue, for the most part, with positions supported by scientific data.

In Hancock County, Deer Isle has concerns about the vulnerability of their infrastructure to climate change impacts. The Town of Penobscot similarly is quite worried about their roads given the very low elevation of many of their culverts (some are almost below sea level).

Inland communities do not see climate change as much of an immediate threat as the coastal ones. Also, there is a large economic divide between some of the towns.

In Washington County there is very little zoning other than Shoreland Zoning. There is more opportunity in Hancock County to do ordinance work that would include resilience components.

East Coastal

Economic Resilience

Municipalities

Town of Deer Isle

The Town has obtained a grant to help businesses adapt to the pandemic.

The Town's highest priority for economic resilience is fiber-based broadband internet service. This relates to the phenomenon of people in recent months moving into the community from out of state and working remotely from their homes and of summer residents arriving several months earlier than in the past. The Town would like to support this as it helps out the stores and the tax base.

There have been continued challenges to the fishing industry—e.g., right whale entanglement in lobster lines—and the Town sees this as a sign that they need to diversify their economy.

Town of Lubec

The Town has an Economic Development Committee whose primary focus lately has been to expand internet access to the unserved areas of the community. They have a revolving loan fund that's been operating since the eighties and is actively and successfully used to help fishermen and small businesses. They also provide microenterprise grants.

COVID has caused people to flee New York and Connecticut, and they are buying up property in Lubec. This is partially helping to offset the reduced tourism trade. Fisheries are the number one economic driver in Lubec; tourism is number two.

RPOs/EDCs

Hancock County Planning Commission

HCPC collaborates with the Eastern Maine Development Corporation (EMDC) for regional economic development planning and investment prioritization. The COVID pandemic has sharply impacted the lodging

industry, but visits to Acadia National Park have started to increase. In addition, the Hancock County economy is somewhat diversified with a relatively high percentage of jobs in Health Care and Professional, Scientific, and Technical Services. These jobs provide some balance to the Accommodation and Food Service and Retail Trade sectors.

East Coastal

Clean Energy, Electrification & Efficiency

Municipalities

Town of Deer Isle

Solarize MDI was a highly successful solar photovoltaic program. It included a regional high school, and it probably represents the largest mitigation effort in Hancock County. Other towns are following their lead and are trying to sign up for renewable energy or work with corporate partners to build solar systems.

The Town put in LED lighting in municipal buildings, heat pumps, and is working on LED streetlight conversions for their relatively few streetlights.

Town of Lubec

Lubec was approached by a developer for putting a solar array on the Town's capped landfill, but there wasn't three-phase power serving the site, so the project evaporated. However, the Town owns 43 acres with waterfront access, and there is an idea for a green campground that would also provide coastal access to Lubec's 70 self-employed clam diggers. This would help address the problem that some of the private property owners are closing traditional waterfront access points. There would be room for a solar array, but Town officials aren't sure if it would be worth it given that Lubec probably is one of the foggiest communities in the country. More research is being done.

RPOs/EDCs

Hancock County
Planning Commission

On September 21, the Maine Public Utilities Commission approved 17 renewable power projects, one of which is the Swift Current Three Rivers 100 megawatt solar project in Hancock County. The first year of the contract calls for a price of 3.5 cents per kilowatt hour, and the price will increase every year until the tenth year, when it will be 4.37 cents per kilowatt hour. According to the PUC, the 3.5 cents is less than ISO New England wholesale rate of 4.2 cents per kilowatt hour in October 2018.

East Coastal

Healthy & Connected People

Municipalities

Town of Deer Isle

Apart from COVID, there still is a serious obesity problem, so there is a need for more trails and bikeways for walking and bicycling.

Many Hancock County towns, like Deer Isle, are age-friendly communities and are working to help meet the need of seniors. This includes volunteer

driver programs, such as through the [Downeast Community Partners](#), which helps low-income and at-risk people in Washington and Hancock Counties.

Town of Lubec

The town has Meals on Wheels for the shut-ins, and they have an active Lubec Community Outreach Program that includes a food pantry, thrift store, summer recreation programs, and other community-oriented projects. The Town partially pays for the program, but the rest comes from grants and private donors.

RPOs/EDCs

Hancock County
Planning Commission

[Healthy Acadia](#), which serves both Hancock and Washington Counties, is active, as is the Island Institute.

The advanced median age of the population is not sustainable. There is a strong need for younger citizens who want to participate and be involved. The only way for that to happen is to demonstrate being a leader around climate resiliency and change and, and more so than even just climate, but also in terms of societal issues. On the current trajectory there increasingly are going to be two Maines that get further exacerbated by the way the housing market is becoming insane in rural places. There are bidding wars now on houses in Calais. There are a lot of people who are fleeing other parts of the country who make six figures and who can work from home. They are buying up properties at unheard of prices that are driving young, LMI families out of the market. Homes Downeast used to be affordable, but that's not valid anymore. It's gotten even worse in Hancock County. This is going to impact a town's future growth. People will have to keep moving further into the willy-wags, thus forcing them to be commuting more. The other side of the coin is that towns that don't have the ability to offer broadband or don't have the amenities to appeal to a certain demographic will be at risk of not being sustainable due to an inability to attract younger people.

In rural places we don't see the homeless, but homelessness exists—it's just hidden, out of sight. It's not as upfront. It's much harder to get communities in areas like Washington and Hancock Counties to take housing seriously; it's kind of covert as it takes a while for the bad symptoms to manifest. It just keeps building and building.

East Coastal

Natural Spaces & Resources

Municipalities

Town of Deer Isle

Many private property owners are applying to do riprapping to slow down coastal erosion. There is a strong need for the regional planning organization to assist with developing and assisting residents with natural solutions such as one recently proposed by an applicant to the Deer Isle Planning Board.

Town of Lubec

There is erosion occurring along the shoreline, and private property owners are doing riprapping (but not with living shoreline approaches).

Lubec does have culvert issues, but they are mainly due to beavers. Stream crossing washouts are not common in Lubec; consequently, the Town has not pursued Stream Smart grants.

Almost 27% of the land in Lubec is protected by virtue of being land trust or park land. This is a positive for the environment but a negative for the mil rate.

RPOs/EDCs

Hancock County
Planning Commission

HCPC sees a lot of potential for solutions involving living shorelines and green or soft infrastructure. It is popular in many places. It is in something of an experimental phase in southern Maine while there still is a fairly prevalent attitude in Washington County that the way to protect against storm events is to dump a lot of riprap. This is largely true in Hancock County also, although Hancock is a little more diverse in terms of perceptions and opinions.

There may be a greater opportunity to start propagating these ideas further up the coast. Living shorelines and green infrastructure are very big in the gestalt right now of the landscape architecture profession.

The reason for the living shorelines approach, in addition to reducing the way riprapping tends to shift erosion to the next property over, is that when you install riprap, you basically are blocking the interface or the communication between ecosystems, and it affects the sedimentation and intertidal habitat. The other factor is long-term cost and sustainability.

Emphasizing fish passage for culvert replacements isn't a big winner for many towns in the area, but when the message is geared toward preventing repetitive washouts it has the potential to gain traction.

Midcoast

Governance & Capacity

Municipalities

City of Bath

In fulfillment of its Climate Action Plan, Bath is in the process of creating a Climate Action Committee to ensure continuing progress on implementing the Plan.

Bath is working on a complete streets policy. They've had a de facto policy for a number of years; this would make it official.

Town of Brunswick

Brunswick does not have a sustainability staff position, but they do have a volunteer Recycling & Sustainability Committee for which the Town provides staff support. They also have a Bicycle & Pedestrian Advisory Committee.

Relative to the need for regional approaches and resources, Brunswick is one of the “hub” communities in Maine. It is a service center that provides more services than other places and so is a place, for example, that displaced people come to. This includes the homeless, asylum seekers, and climate change refugees from other states. The community resilience of the hub municipalities needs to be improved with regional approaches to social and economic issues.

Town of Camden

Camden was the first town in Maine to sign onto the global covenant of mayors for climate and energy. It was pushed by the Watershed School, a local, private, independent high school. (See the Watershed School interview in the Nonprofits section of this report.) The school is pushing for the Town to create a sustainability position, but having a regional person for this probably makes more sense.

RPOs/EDCs

Lincoln County
Regional Planning
Commission

LCRPC has two planners not counting the Executive Director.

It's still very early in terms of municipalities responding to climate change. Communities are learning from each other. Whatever Damariscotta is doing in terms of engineering and sea level rise is going to benefit Boothbay Harbor, at least indirectly, because there is one town doing significant planning that others can learn from. It will spill over partly because people sit on the LCRPC Board and they learn from each other. However, until LCRPC gets some more work on ordinances and can sit down with the planning boards and the ordinance review committees it's hard to say how resilience will fare in the future. It is one of the things they are looking forward to when they have a full staff depending to a degree on how the strategic plan they are developing turns out. As part of that plan they are trying to understand all of the broad list of planning and technical assistance needs of the towns.

LCRPC sees itself as having a significant role in moving forward with climate mitigation and resilience policies at the local level. They are only able to do a little bit of the work today due to being in-between staffing, but they started this work in 2011 and it is apparent how it can lead from data, to community recognition, to two or three kinds of community plans, and then to implementing projects. However, at the other end of the spectrum, LCRPC has towns that are not integrating the changing climate into their local ordinance work. LCRPC is looking forward to being able to work with communities more, perhaps not this fall as they are bringing on new staff, but more in 2021. Note that in Lincoln County only two towns have their own part-time planners, and the rest have none.

This is a capacity fact of life that they have been tuned into for the last twenty years. Not that every town wants them to do their planning work or has much belief in planning. But LCRPC tries to support people where they are. And they in fact are seen as a resource when towns have an

opportunity to apply to DEP for a culvert grant, etc. In this sense, whether the work involves plans, ordinances, or implementation steps, LCRPC expects to be an active partner.

Much of the Commission's funding comes from the County. They also get some funds from the Maine Department of Agriculture, Conservation and Forestry (DACF), and DACF is a prime supporter of work on coastal issues. Something that hopefully has become apparent is that the RPOs learn from each other. For example, the Southern Maine staff developed the Flood Resilience Checklist. It is a great municipal tool. So LCRPC doesn't have to reinvent it. In Maine the RPCs and COGs try to work with each other. There is a lot of focus on that and a lot of State support for it.

Midcoast Economic Development District

The MCEDD is the Council of Governments for the region (Midcoast COG). The Mid-Coast Regional Planning Commission disbanded, and MCEDD has taken over that territory. They have a contract with Knox County to serve all the towns as they do with Sagadahoc County. As far as the District goes, they cover Harpswell and Brunswick, all of Sagadahoc, Lincoln, and Knox Counties. They also have a couple of towns in Waldo County. They are established legally as a Council of Governments, but they go by Midcoast Economic Development as they are the EDD district for the area. They are a full-service planning and economic development agency.

Relative to the overlap with the Lincoln County Regional Planning Commission, LCRPC has their own planners and they do some community development, CDBG work, etc. MCEDD works in collaboration with them. Where the RPC mostly does grant work, the District is very involved with the EDA and with the EPA brownfield programs. This is their major foothold in many of the communities. Due to match requirements for these programs, the District spends a lot of time doing foundational economic development—getting towns to have the mechanism to grow match amounts. Consequently, they do a lot of TIF work and capital improvements planning.

The systematic problem with these efforts is funding. They had two towns in their region who succeeded in obtaining the very competitive DEP culvert grants who had to give them back because they could not find the match given the prices for the jobs. On some of them it's approaching half to three-quarters of a million dollars, and \$95,000 (now \$125,000) from DEP just isn't enough.

This is for something like a four to five-foot box culvert, not even a bridge. The engineering costs are coming in at \$250-300K. They can do low cost, scoping engineering that DEP will accept to generate a budget, but the next stage is to engineer it the way they want it, and that takes a lot of money.

(Relative to the MaineDEP's Smart Stream Crossing Upgrade program:

Maine voters approved multiple bond packages that include \$5 million dollars annually for municipal stream crossing upgrades. These monies fund a competitive grant

program that matches local funding for the upgrade of municipal culverts at stream crossings to improve fish and wildlife habitats and increase community safety.²⁴

In the 2019 Round 2 of the grant program, MDEP received 49 applications from municipalities and other qualifying organizations and awarded 27 of them. In most cases the award amount was \$95,000. The standard amount has now increased to \$125,000.)

In terms of capacity, there is no capacity! MCEDD has a great deal on its radar screen, which is why the District needs to be extremely practical in dealing with them. If one is talking about risks 10 or 20 years away, the District and its communities have got too much to deal with right now to be able to pay attention. Capacity is a big issue. There are only a handful of local planners, so MCEDD provides backup service and has contracts with three communities to provide onsite planning and economic development. At MCEDD, besides the Executive Director, they have one planner and are getting another due to the demand.

What is needed to further resilience is 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 perhaps some matching federal funds, which is a different issue.

In Harpswell the District spent a lot of time talking about deciding on the timeframe for a project, such as should it be good for 10 years or should it last longer? It's a question of how to invest the dollars most wisely. It came to what benchmark should they be rebuilding to—two feet, three feet, six feet, etc. There have to be funds available, and there has to be confidence that the best project alternative is being selected.²⁵ The funding has to be long-term so it can be rolled out over a 20- or 30-year period.

Midcoast

Land Use, Planning & Hazard Mitigation

Municipalities

City of Bath

Bath is in the middle now of updating its comprehensive plan. Last year they also updated a climate action plan, as an appendix to the comp plan, with community-wide greenhouse gas emission reduction objectives.

Once Bath completes the rewrite of its comprehensive plan, the City will spend the next three to five years working on its recommended ordinances and other implementation pieces. Otherwise, the floodplain ordinance was updated in 2015. Bath may consider a benchmarking ordinance like South

²⁴ "Stream Crossing Upgrade Grant Program." *Maine Department of Environmental Protection*, 2019, <https://www.maine.gov/dep/land/grants/stream-crossing-upgrade.html>. Accessed 28 August 2020.

²⁵ In a conversation last year, former State Economist Dr. Charles Colgan indicated his consulting firm uses an approach to investment risk and timing that is commonly used by private corporations. Such an approach can be used to find the "sweet spot" for a major sea level rise project, for example, between spending money too soon or too late.

Portland and Portland have. They will be working on solar enabling/regulating ordinances.

Bath's historic downtown district properties can experience king tide flooding, most of which, interestingly, are in the same ownership. Bath is reviewing the resilience activities of other city's with waterfront historic downtowns, such as Portsmouth. They also are exploring the assistance that the Maine Community Foundation may be able to provide (see the MCF interview in the Nonprofits section of this report).

Town of Brunswick

The Brunswick comprehensive plan is from 2008, and there is a steering committee established to work on an update. There had been discussion about including climate and resilience policies, but that has fallen by the wayside, and they likely will just include the recently added required sections for coastal communities. This is due in part to the fact that Brunswick is planning to update their Climate Action Plan (CAP), which also is fairly old. To date the effort to fund the CAP update has been unsuccessful.

Brunswick Planning staff were assisting the Fire Department with a five-year update of the Brunswick section of the Cumberland County Hazard Mitigation Plan, but COVID interrupted the process. The plan is geared toward infrastructure and identifying point persons in case of emergencies. It has procedures to follow in case of different kinds of crises.

The Town's Capital Improvement Plan does not include resilience projects as such, but they do have a Parks, Recreation, and Open Space Plan that includes language for acquiring property for recreation or conservation.

Brunswick is home to the [Midcoast Redevelopment Authority](#) (MRRRA). MRRRA's mission is to "implement the Reuse Master Plans for Naval Air Station Brunswick and the Topsham Annex, manage the transition of base properties from military to civilian uses, redevelop base properties, and create new high-quality jobs for Maine."²⁶ The [BNAS Reuse Master Plan](#) includes an Open Space System as follows:

Over 1,500 acres (49%) of the site are dedicated to open space and natural areas, where wetlands, drainageways, wildlife corridors and other sensitive natural systems are prevalent. Urban parks and formal open spaces are envisioned in the more developed areas, with pedestrian linkages to ensure connectivity not only throughout the property, but also into the adjacent neighborhoods and community. This approach promotes the concept of conservation and preservation of site and area-wide natural systems, while also providing a variety of locations and conditions for both active and passive recreational activities.²⁷

Brunswick is not currently served by a Regional Planning Organization. (The Midcoast Council of Governments does not appear to be in operation at present.) Not being able to have a cohesive approach to various issues with

²⁶ "MRRRA." *Midcoast Redevelopment Authority*, 2017, <http://mrrea.us/>. Accessed 19 August 2020.

²⁷ Matrix Design Group. The BNAS Reuse Master Plan. *Midcoast Redevelopment Authority*. Midcoast Redevelopment Authority.us. 2007, http://mrrea.us/wp-content/uploads/2013/03/Section_6_BNAS_Reuse_Master_Plan.pdf

other area towns is felt to be a serious lack. They occasionally compare notes with other towns, but there is no ongoing program for regional progress.

Town of Camden

Last year, for the first time, the Town amended its section of the Knox County Hazard Mitigation Plan to reflect climate change and sea level rise. The climate related hazards discussed in the Plan included increased precipitation and sea level rise.

The Town has also completed a draft for amending their 2017 comprehensive plan to include a section on climate change and sea level rise.

The Town is taking into account climate change, sea level rise, increased storm events, and increased intensity of those events as part of their capital planning. The public landing is an example of a project in the Capital Improvements Program that is a resiliency project. Also, the seawall at Harbor Park is failing; the area can get inundated at high tide—a situation in which it was recognized that climate change is happening and that it is a significant problem.

In terms of the wastewater treatment system, the Town has been working to remove illegal discharges from homes into the system; they removed over 200 such discharges in the last two years. Now they have to work on replacing their four miles of clay pipe which has a \$3 million price tag. They have had to sign a consent agreement with DEP due to their sanitary sewer stormwater overflows. The treatment plant needs a \$16 million upgrade. They will be doing a climate adaptation plan for the Town's wastewater utility for which they may be eligible for a principal forgiveness loan from a state revolving loan fund.

The Town is also looking at the possibility of underground stormwater storage in the neighborhoods that are getting inundated.

Camden has obtained a National Fish & Wildlife Foundation grant for a comprehensive plan looking at the possible removal of six dams on the Megunticook River. Besides being obstacles for fish, the dams have artificially changed the course of the river which has had a serious impact on the Harbor Park retaining wall. This sea wall and park—designed by the Olmsteads—is a national historic landscape feature.

The public landing is another significant asset for the Town. The landing and its slips and floats are being damaged each year from storm surges. The Town, therefore, took part in a Penobscot Bay resiliency project last year funded by the Department of Marine Resources. The Wood consulting firm did a report that included an assessment of the public landing for improvements needed to plan for sea level rise. It recommended \$5 million in improvements. It is challenging because if the Town raises the elevation

of its boardwalk it will put it at a different height than the abutting private boardwalks.

The Army Corps of Engineers reached out to Camden because it felt the harbor needed protection due to its economic value to the state. There are upwards of 800 moorings in the harbor. The Corps did a preliminary assessment for a breakwater; the price tag came in at \$18 million.

The comprehensive plan recommends participating in the Community Rating System under FEMA's flood insurance program and to raise the base flood elevation higher than the current requirement.

RPOs/EDCs

Lincoln County
Regional Planning
Commission

Only a few towns at present are looking at resilience and climate change in their comprehensive plans. Two of their towns are doing comp plans, but they are just at the beginning stage. They likely will address climate change, but for other towns that wrapped up their work a few or more years ago, they are not looking to add a chapter or something new to their comp plans.

Probably at least 12 of the 18 towns in Lincoln County have satisfactory comprehensive plans. The others are old and need updating. Some of the towns take the position that they are small, they know what's going on, and they are not interested in doing a comp plan.

LCRPC has been doing economic development and planning since the 1990s. Their approach is to try to persuade and keep people informed about the value of plans, and certainly the climate crisis presents another opportunity to talk with their communities given that so many of them, both inland and coastal, are seeing the impact on the environment of sea level rise, increasingly severe storm events, etc.

The County Emergency Management Office does hazard mitigation updates every few years, which represents a resilience planning opportunity.

LCRPC is doing a strategic plan for their organization that will be wrapped up by the end of the year. Climate sustainability is going to be, without a doubt, one of the priorities.

Relative to coastal planning, since 2011 the Commission has done a lot of mapping to show various flooding scenarios as well as waterfront planning for Boothbay, Wiscasset, and Damariscotta Harbor. The Commission has used either the Maine Coastal Program's Shore and Harbor grant funds or Coastal Communities money to do some of that work. In addition, Monhegan is doing a project now that has a climate connection to it. LCRPC expects to do more of the Coastal Program work in the future, after they get a new planner in the next month or so. This will enable them to be more active in 2021.

Damariscotta is a good example of a place where they have gone beyond just doing assessments and are doing actual implementation. Around 2011 Damariscotta received a Shore and Harbor grant to plan for its waterfront. That project came up with a great design for the waterfront and harbor. It included a Heart and Soul public engagement process. Damariscotta now has a Waterfront Management Committee. They came up with some very technical recommendations involving, for example, raising the waterfront parking lot and engineering solutions for the buildings facing the harbor. Damariscotta has a Town Manager who is aggressive around funding, and he was very creative in obtaining federal and State infrastructure money. For example, he never had a meeting with the Governor when he wasn't showing pictures of flooding in the harbor. Recently, the Midcoast Economic Development District obtained some EDA money and some left-over FEMA resilience money. This has enabled the town to now go out to bid for final engineering for constructing the various elements that are part of protecting the harbor—raising the parking lot, improving the underground utilities, and so on. It's an example of a project that went forward because it not only made a good case and had plenty of public education, but it also was able—through a creative and persistent municipal champion and having agency teamwork—to obtain enough funding to make it economically viable.

RPOs do like to hear that plans get implemented. Boothbay Harbor did a comprehensive plan in 2015, so it likely did not address climate change directly. But LCRPC obtained a Coastal Communities grant to do a similar project as was done in Damariscotta, which is to work with willing volunteers, including owners of commercial properties that front on the harbor. It involves working with an engineer and designing custom solutions to help the protect buildings. For one thing, this project demonstrates that Boothbay Harbor has been quite aware of the climate change and sea level rise issues. In addition, they have spent some money on a significant design project using [Baker Design Consultants](#) on raising and replacing the footbridge that goes across the harbor. There has been a lot of public discussion, and the town likely will get two or three opinions before they make a decision.

Quite a few of the towns have modified their Shoreland Zoning ordinances in recent years, and it may be that some of them have increased the minimum first floor elevation about base flood. In general, the communities are just starting to respond in more meaningful ways.

Some of this comes down to Code Enforcement Officers. LCRPC has wondered how it could better help the towns given that CEOs occasionally retire or get ill. Perhaps half a dozen of the Lincoln County towns are doing code work really well. The other communities are just doing what they can. The small towns don't have the higher level of building code that you find in larger towns. Adding climate change to more of their coastal town's codes so they can address climate issues is something LCRPC wants to be working with people on in the future.

Midcoast Economic
Development District

The District does at least two comprehensive plans a year with municipalities and has now started to incorporate sustainability and climate change factors into the plans. The approach they take with towns, as they have to be extremely practical, is to use a capital improvement planning angle and identify particular public infrastructure improvements. That gives us them a segue into the private sector in terms of properties located private roads, etc. It gets people to start thinking of the cost and timeframes involved to address some of these things. This seems to work very well. The other angle that they use is to work with the Department of Marine Resources (DMR) which has appropriated some money to do basic resiliency planning for some of the coastal communities in Knox County.

The Lincoln County Regional Planning Commission has worked with such communities as Saint George, Phippsburg, Harpswell, Brunswick, and Bath over the past decade. Consequently, some of the basic coastal resilience work is already done. MCEDD compliments these activities by providing information, helping to identify projects, and looking for funding. With South Thomaston, for example, the District obtained a [Northern Border Regional Commission](#) grant for \$400K for a road upgrade. Also, in February, they collaborated with Knox County on doing a Maine Flood Resiliency Checklist process.

MCEDD has slowly been going through a coastal planning process in Harpswell for the last five or six years. The last phase with them was trying to pull together a strategic plan that they could bring to the Select Board and start looking at investing monies into their capital plan to address some of the resilience issues. It can be a slow process. Sometimes when they seek to get communities involved in doing the Checklist, the communities don't want to bother doing it. But where they find an area where they can talk with the town about the benefit of starting to invest now to avoid a huge expense later, the towns are willing to look at putting together a capital plan. Sometimes a good way to initiate this is to get the emergency management people to talk about preparedness for storms and flooding. Everybody loves the fire department! It is a way of running the discussion that works for the District. Bringing emergency management into the discussion and starting to talk about a road flooding more, the conversation takes on a life of its own. You have to build organically.

In terms of the Comprehensive Economic Development Plan, the District already has a component in the CEDS plan to look at resilience planning for municipalities and businesses, such as promoting renewable energy. MCEDD recently received supplemental COVID-19 funding for additional planning and strategies to address the economic downturn. In general, they are widening the subject now; it's starting to be a front burner item.

Regarding ordinances, whenever the District does comp plans they take the opportunity to talk with the towns about considering raising the base flood elevation. Not many communities are very receptive, however. They do have two communities in their region that require the first-floor elevation to

be two feet above base flood.²⁸ They actually don't have a lot of properties with recurring flooding. What does very much concern some of the coastal villages, however, is what the rising water level—that they do see happening—is going to do to their piers and wharves. MCEDD definitely has traction there.

MCEDD recently was successful in obtaining a \$3 million EDA grant for Damariscotta to redo the parking and floodplain control for the downtown area. They similarly got a \$2 million EDA grant for the Darling Center two years ago.

Midcoast

Economic Resilience

Municipalities

City of Bath

One of Bath's economic development goals is to induce Amtrak to extend its Downeaster service from its current northern terminus in Brunswick at least to Bath if not all the way to Rockland. In terms of the downtown, Bath unsuccessfully applied for the Maine Community Foundation grant program involving layering in a focus on supporting entrepreneurship and innovation onto the National Main Street model. However, the process of meeting with the downtown businesses as part of a self-assessment required for the grant application was useful in showing what is going well and what needs improvement.

Town of Brunswick

The primary tool that communities like Brunswick have for economic development is tax increment financing (TIF). The town has one or more of the federal Opportunity Zones, but so far they have not led to new investment.

Town of Camden

Diversifying is a challenge for Camden. The Town lost its big employers and have a tourist-driven, small retail economy. The Army Corps breakwater, if built, would make the marinas more viable.

RPOs/EDCs

Lincoln County
Regional Planning
Commission

Damariscotta has looked closely at its harbor for the last ten years. They have gone through a lot of storm surges, and they have many pictures showing extensive flooding. It may be that at some point the discussions should include retreat as a consideration. Perhaps the community should consider looking for another growth area where commercial and industrial activity could occur. Maybe the town will migrate away from the waterfront in the next 25 to 50 years.

Midcoast Economic
Development District

Some of the major projects, like comprehensive planning, have all but stopped due to COVID as some projects like that are not conducive to Zoom meetings. The pandemic has not slowed down the grant writing that

²⁸ The standard requirement is one foot above base flood.

MCEDD does, however. It's actually increased dramatically. They are not operating their regular loan program as businesses can get better deals from the Small Business Administration and the [Paycheck Protection Program](#).

Midcoast

Clean Energy, Electrification & Efficiency

Municipalities

City of Bath

There are no municipal solar projects to date. The City did receive a grant last year for EV chargers that will be installed at their train station.

Town of Brunswick

There are a number of EV charging stations provided at various businesses but as yet the Town doesn't provide any, nor does it have a solar pv project. The Midcoast Regional Redevelopment Authority, on the other hand, has a large solar array.

Town of Camden

Camden has a municipal solar farm. It could be expanded, but the Town does not have much spare land, and affordable housing may be a better use of the available land. Two solar developers are looking to do private large-scale solar arrays. In addition, Knox County received CARES funds that it plans to use in part on a county solar farm.

The Police Chief's new vehicle is a hybrid.

One of the Town's trust funds is intended to help low income people, and it is being used to double Efficiency Maine weatherization grants. There is a lot of positive feeling for this program.

RPOs/EDCs

Lincoln County Regional Planning Commission

Lincoln County is relatively small, but a number of their municipalities have added solar capacity to their schools or transfer stations, which benefits the municipality. A sizable project is proposed to be added to the Wiscasset airport property. There's probably a new project almost every other month. The momentum has certainly picked up.

Midcoast Economic Development District

MCEDD worked with Sundog Solar a couple of years ago on a solar promotion in the region. They have been thinking of restarting it but have been too busy, and with the new net metering and other State rules there may be less of a need. Overall, there is a lot of interest. MCEDD gets questions from municipalities on how to structure agreements to get solar on municipal landfills and buildings. They worked with ReVision Energy and Sundog Energy on various projects, including one in Pittsfield. It's an interesting phenomenon to see very conservative communities, that won't spend an extra dollar on a road, jump onto solar due to the cost savings.

In terms of EV chargers, MCEDD has written a couple of grants for chargers and has three or four of them in the region. They also were able to get some

of the Volkswagen settlement money to buy more efficient diesel trucks for Waldoboro and another community.

Midcoast

Healthy & Connected People

Municipalities

City of Bath

The City is working closely with the [Kennebec Estuary Land Trust](#) on walking trails. They are trying to see if the trail system property in the flood areas (mostly northern Bath) can be expanded to help deal with flood events.

Bath is served by the Midcoast Community Alliance, an organization located at the Bath Skatepark, that serves youths with programming that encourages physical, social, emotional, and academic development. One of the motivations for the program is the high rate of depression and thoughts of suicide among high schoolers in Sagadahoc County.

Town of Brunswick

Brunswick participated in the MaineDOT's [Pedestrian Safety Program](#) as part of an overall effort to increase walking and bicycling—which enhances resilience by reducing GHG emissions and improving people's health.

Town of Camden

Camden has a very engaged citizenry, as seen by the many Town committees. The residents are linked by a number of online social networks.

In terms of opportunities for outdoor exercise, the Town has the Camden Snow Bowl and the Ragged Mountain Recreation Area. The community has many miles of trails in the woods. The [Coastal Mountains Land Trust](#) is a partner.

RPOs/EDCs

Lincoln County Regional Planning Commission

[Healthy Lincoln County](#) is a local community health non-profit agency that works to build thriving, healthy communities in Lincoln County. They provide services in substance abuse prevention, nutrition education, and healthy foods for the community. They are funded through a combination of state, federal, and local grants including the Office of National Drug Control Policy (ONDCP), and the Department of Health and Human Services (HHS), Substance Abuse and Mental Health Services Administration (SAMHSA) Drug Free Communities Grant, and the US Department of Agriculture (USDA) and Maine DHHS SNAP-Ed Grant.

Midcoast Economic Development District

Their only foray into wellness has been to assist towns with a lot of recreation projects, like trails. Their involvement is to facilitate or start groups and to do a lot of grant writing.

In terms of getting volunteers for the municipal committees, everyone struggles. Anecdotally, however, it appears with Zoom meetings that participation has increased. It's a little more convenient for people. But for

most of the statutory boards, like Board of Appeals, Conservation Commission, and Planning Board, it's a real struggle to get people.

Midcoast

Natural Spaces & Resources

Municipalities

City of Bath

One interesting project they had involved a team from the American Institute of Architects (AIA) doing resiliency training. It included looking at the downtown and thinking about green initiatives that could make the downtown more resilient.

The City is working closely with the [Kennebec Estuary Land Trust](#) on walking trails. They are trying to see if the trail system property in the flood areas (mostly northern Bath) can be expanded to help deal with flood events.

Town of Brunswick

Brunswick hosted two of three demonstration sites as part of The Nature Conservancy's [Maine Living Shoreline](#) project. The funds came from a NOAA Coastal Resilience Grant:

This regional effort to increase resilience to sea level rise in New England is focused on increasing the effective use of nature-based infrastructure for reduced erosion and enhanced wave attenuation. The project team will develop region-specific information on suitable natural infrastructure types and benefits and will work with several communities to implement and monitor a range of nature-based coastal infrastructure projects. The experience gained here will benefit communities across the region and help to advance local, state, and national policies to promote effective use of the approach to reduce erosion and offer co-benefits to the community. The Nature Conservancy, in partnership with a consortium of state coastal zone management programs, is leading the project.²⁹

Brunswick has soft, erosion-prone bluffs, so the town has a need for effective and sustainable erosion control.

Brunswick had a culvert replacement project in a critical habitat area (salmon), and the permitting process with the U.S. Fish & Wildlife Service ran into an issue. There is an exemption in Maine's NRPA 480-Q to replace crossings if they are embedded and allow fish passage. Unfortunately, that exemption is not consistent with the Army Corps of Engineers jurisdiction that allows replacement of the same size culvert with no permit but anything bigger would trigger review. This poses a catch-22 for public works departments in organized parts of the state resulting in their essentially needing a permit for any crossing, new or replacement. The Corps General Permit may have corrected this.

Unfortunately, Maine towns have learned that they can save money by building "bad" culvert designs that nevertheless will get permitted. The designs have extra rock fortification or wing walls but do not allow fish

²⁹ Shoreline Erosion Management. *Brunswick Maine*, <https://www.brunswickme.org/239/Shoreline-Erosion-Management>. Accessed 19 August 2020.

passage and may have other negative impacts on the stream channel or habitat health. Some change in the State's stream regulations may be in order.

Brunswick has a 2002 Recreation and Open Space Plan that has been the basis for an extensive amount of land acquisition for public purposes. The have a large Town Commons property.

Ecosystem resilience is important for Brunswick as the Town has an extensive estuary system that provides rich habitat resources for shellfish, birds, and other wildlife.

Town of Camden

In addition to sea level rise, one of the reasons that the Town is making resilience efforts is the increase in the intensity of storms and the volume of water that they are getting, which is inundating infrastructure in some neighborhoods. They are seeing impacts greater than ever before from summer (and winter) storm events, so they are going to be looking at storm water management. This will include developing impervious surface standards for certain neighborhoods and looking at ways to mitigate some of the impacts by allowing water to be absorbed naturally into the soils and vegetation.

RPOs/EDCs

Lincoln County Regional Planning Commission

Nature-based solutions haven't come up in the Damariscotta designs, but it was discussed to an extent in Boothbay Harbor relative to the Town-owned asphalt parking area located next to the harbor. In this day and age, they likely will need to look at a living shorelines technique and not just riprap.

Science support is a key asset of the region. The area is fortunate to have [Bigelow Lab](#) and the University of Maine's [Darling Marine Center](#). Both facilities have scientists, which is front and center because of the impact in the Lincoln County communities of climate change on fisheries. The scientists are looking at ocean acidification, how to support aquaculture, how to support lobstering, and charting the impact on ocean species. It's not clear what the end game will be, but the state is having to deal with the changing fisheries, which is a foundation of Maine culture and economy. It's all in play, unfortunately.

Therefore, it's important to have institutions like these (Bigelow Labs and the Darling Center) where researchers are working with the local fisherman and with other scientists across the globe. Maine could be very well-placed in terms of anticipating changes in our natural resources.

Midcoast Economic Development District

The Maine Coast Heritage Trust (MCHT) works to protect the Maine coast and ensure that everyone has access to it. They are concerned about the negative impacts of climate change on native plants and animals. The MCHT has many preserves in the Midcoast region, including, for example:

- Aldermere Farm, Rockport

- Battle Island, Penobscot
- Harriman Point, Brooklin
- Lookout Rock, Brooksville
- Seal Bay and Winter Harbor, Vinalhaven
- Witherle Woods, Castine

South Coastal	Governance & Capacity
<p>Municipalities</p> <p>Kittery</p>	<p>The Climate Adaptation Committee, with Town Council representation, has a seat on the Town’s Capital Improvement Program Committee. This represents an ongoing commitment to funding resilience and sustainability projects.</p> <p>The Town contributed funding for the establishment of a Regional Sustainability and Resilience Program housed within SMPDC, which included the creation of a sustainability coordinator position and expansion of an existing land use planner position within SMPDC to include coastal resilience coordinator title and responsibilities.</p>
<p>Scarborough</p>	<p>COVID has slowed activity down in Scarborough. The Sustainability Committee hasn’t been able to meet, and there have been staff furloughs and reductions in hours.</p> <p>The comprehensive plan for the Town lays the vision, and then looks at how to achieve that vision. There are several factors that would help Scarborough in its resilience efforts, one of which is knowing what the building codes in Maine will be and whether there will be a stretch code option. Coupled with this is making some smart investments in new infrastructure and having developers buy into the vision so they’re not always just doing the bare minimum but are adding things like EV chargers because it’s a good feature and it can help with their business model.</p>
<p>South Portland</p>	<p>In South Portland, the City Council provides strong climate action goal-setting and leadership. The work has been institutionalized through creating and supporting two sustainability staff positions to lead and do the work.</p> <p>In addition, the City has a “Green CIP” such that every year one or more of the projects proposed for the capital improvements plan will be a sustainability or resilience project.</p> <p>Other ongoing, institutionalized climate activities include:</p> <ul style="list-style-type: none"> • Internal carbon pricing for municipal projects. <ul style="list-style-type: none"> ○ Either shadow pricing or requiring project budgets to include an amount that would go into a fund.

- Based on difference in cost between the green option for a project and the traditional approach.
- Proposed explicit goal of “capturing first inch” of rainwater citywide through investment in nature-based systems, green infrastructure installations in capital projects, stronger incentives for (re)development, etc.
- Strengthened complete streets policies and development of a planning and design manual.
- Development and implementation of a 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.
- In long-term, development of a phased investment approach for capital investments that aligns timeframes for road upgrades with climate risk.

Despite COVID-19, the South Portland City Council has continued to support sustainability and climate action, including a budget increase for a new Sustainable Transportation Coordinator position, but there will need to be continued and increased commitment of resources (financial and staff) in the coming years to make progress towards goals.

And despite the pandemic, the City continues to initiate new resilience related activities, such as a partnership and grant with the Maine Silver Jackets for dynamic inundation modeling and the many recommendations that will be coming out of the *One Climate Future* plan.

RPOs/EDCs

Greater Portland
Council of
Governments

GPCOG is approaching innovation and resilience as different sides of the same coin. The Director of Innovation & Resilience focuses on economic development, sustainability, and connected infrastructure. In a part-time capacity he also runs the [Maine Broadband Coalition](#).

Regarding regional organizations, RPOs have some capacity and a broad understanding of the types of sustainability issues and how something that happens in one community could be applied to others.

GPCOG will be bringing on board 14 AmeriCorps workers to be embedded with host sites, local government agencies, towns, and municipalities to provide capacity for them on a range of resilience issues. This will include data capture and support on digital services. These “Resilience Corps” members will also be working with GPCOG as an agency on a handful of regional projects. The Resilience Corps will help achieve a regional orientation with a standardized process and platform for data collection.

GPCOG has every reason to partner with the State to connect the resilience dots because it really isn’t possible to tease apart some of the climate and some of the economic impacts—they are the same thing. To the extent

possible we need to leverage together local, state, regional, and federal efforts into a single strategy. RPOs like GPCOG actually have a lot of tools and some financial capacity, but they don't have enough to do the big regional projects that are needed. This may be the first time since the 1980s that state government has thought seriously about how to move forward, not just with planning, but on actually mitigating climate change impacts.

GPCOG's Resilience Corps program represents a unique opportunity to identify the needs, priorities, and capacity of the communities the Corps members will be working in as well as offering potential solutions and resources to those communities. The Corps members will be serving as a cohort that are doing common benchmarking, research, and identification of resources for the communities that they're embedded in. If one is looking for a couple of easy wins with a multiple geography impact, the Resilience Corps program will create around a dozen projects that will be teed up for partnership and will be aligned with statewide climate goals and objectives.

When a PACTS (the transportation branch of GPCOG) subcommittee worked on land use recommendations for the Climate Council, they ended in a place of saying that there needs to be some state guidance with incentives and or sticks. GPCOG generally supports carrots over sticks. One can't just expect a municipality to go and do something or prioritize something through a requirement to integrate it into their comprehensive plan or into their capital planning. There have to be some resources to be able to help.

It's critical to look carefully at what success there has been in other parts of the country. Normally what happens is a regional planning organization, like MAPC in Boston, provides the technical assistance to individual communities to meet the incentives being offered by the state. If you put incentives out there 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. In the Lakes Region, GPCOG has this problem of equity. The urban core has municipal capacity, but the rest of Cumberland County does not. As such, one needs to reflect on what happens in Georgia or Colorado or Massachusetts, where they have great success using incentives to move communities in the directions that are needed. Point systems as well as other techniques can be used for incentives as well as direct financial rewards.

Regional planning agencies like GPCOG are very constricted in how they can use their funds. Almost all of GPCOG's planning money is federal highway money, which has a multitude of restrictions. GPCOG literally has no resources right now to help their villages and retail centers redevelop in this pandemic. They have a small amount of coastal money through DACF, but here again there is relatively little flexibility in how the funds can be used. It has become extremely difficult for an RPO to fulfill its mission.

Put another way, the co-chair of the Governor's Economic Recovery Committee recently suggested to GPCOG that they prepare as a region a portfolio of shovel-ready projects that would be available when stimulus money is passed by the federal government. In this context "shovel-ready" means pre-permitted, fully engineered, and ready to go. However, GPCOG knows that they don't have money to do that kind of planning. So, in order 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. They have talked already with the Co-Chairs, the Chamber of Commerce, with USM, and with their whole team about putting this forward as a legislative priority so that some recovery funds can be dedicated to preparing shovel-ready projects. Otherwise, they don't have any resources. Nor will anybody else in Maine have any reason to try to compete with the rest of the country. It is another illustration of the underfunding that has happened over the last many decades for economic and environmental planning.

The following are three ideas for how meaningfully to advance resiliency:

1. Provide some co-funding for GPCOG's Resilience Corps program and maybe make it even broader statewide. GPCOG could pilot it. GPCOG presently is using their municipal dues money to buy the computers. If the State could provide the \$70K for the Corps members' computers, it would help establish a useful partnership.
2. Set aside some of the CARES funding to be used for project development to be administered jointly between DECD and DOT. This would allow GPCOG to start to scope and get shovel-ready, large transformative recovery projects that could have an environmental and economic resiliency component or purpose.
3. 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.

Southern Maine
Planning &
Development
Commission

Municipal capacity for addressing and preparing for climate change is limited, even in southern Maine where communities generally have more staff and greater access to resources than elsewhere in the State. This capacity shortfall is more notable in inland communities. Even communities with planning staff, and those that have identified planning for climate change impacts and sea level rise as priorities, largely lack the resources, expertise, and information necessary to take meaningful action on climate change without additional assistance and funding.

Coastal York County communities have long been interested in sustainability and coastal resilience issues. However, limited resources, time, and expertise constrain each town's ability to implement programs and initiatives. In 2019, the towns of Kittery, Kennebunk, Kennebunkport, Ogunquit, Wells, and York sought to create a regional program to support their sustainability

and coastal resiliency efforts. In partnership with SMPDC, they created the Southern Maine Regional Sustainability and Resilience Program, the first of its kind in the State of Maine. The towns contributed a combined \$180,000 in funding to support the 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.

The pilot program objectives are:

1. Establish a baseline of sustainability and resilience efforts and needs in individual communities and the Coastal York County region.
2. Enhance inter-community communication and collaboration on sustainability and coastal resilience efforts.
3. Help each community develop the capacity to complete community wide greenhouse gas emissions inventories.
4. Help towns expand sustainable transportation in their communities and strengthen regional collaboration on transportation initiatives
5. Assist with the evaluation of coastal hazards and associated impacts in individual municipalities and the broader coastal York County region.
6. Support towns and the region with the implementation of sustainability and coastal resilience strategies and projects.

In addition to providing needed technical assistance and regional coordination to the member towns, the Program is coordinating with other SMPDC departments and staff to incorporate sustainability and resilience into all activities at SMPDC. This includes working with the Transportation Department, which includes the York County MPO, to develop sustainable and resilient transportation projects, and collaborating with the Economic Development program to develop a regional Economic Resilience Plan with support from an EDA Disaster Grant.

SMPDC provides and taps into experts and advanced practitioners on climate change topics to leverage resources, enhance information sharing within the State, and assist towns within and outside of the SMPDC region with specific projects, including sea level rise assessments and planning and municipal solar projects.

A number of SMPDC member communities have worked to institutionalize climate change and sustainability efforts within their municipalities. Many towns have their own sustainability, climate change, or energy efficiency committee that advises and advances the municipality on climate change resilience efforts. Kennebunk and York have committed to the Global Covenant of Mayors for Climate and Energy, pledging to inventory greenhouse gas emissions, set targets for emissions reductions, and develop climate action plans for reducing emissions. Biddeford is passing a resolution to declare a climate emergency and develop a climate action plan. Many of the coastal communities have or are working to incorporate climate change, sea level rise, and coastal hazards into their comprehensive plans.

As mentioned, in Maine, even the well to do municipalities do not have the resources to tackle climate change right now. In other states where there has been more action there usually are state programs that provide staff support, technical guidance and expertise, tools, resources, and funding for municipalities to assess their individual vulnerabilities to climate impacts and then to begin to identify and actually implement action.

In Maine, one of the big hindrances at the state level is that there is no one program that a person can go to for climate related information. There are no staff available to assist except people who are strapped with their regular work and are providing assistance just because they care. It is important for them, but it's not in their official job description. In New Hampshire, for example, there are coastal resilience specialists whose job description is to work with regional planning organizations and municipalities to address priority coastal climate issues. That kind of staffing is very much lacking at the state level in Maine.

The coastal program in New Hampshire and other states is structured differently such that there are specific staff people responsible for assisting municipalities and regions with the type of work that SMPDC is providing—not only guidance, resources, and tools but also technical assistance. Staff people who have it in their job descriptions to be able to support initiatives and assist communities take action. This includes, for example, helping to write grant proposals and funding applications as part of their regular jobs.

South Coastal

Land Use, Planning & Hazard Mitigation

Municipalities

Kittery

The Kittery comprehensive plan was updated in 2018, and it includes goals, objectives, and strategies for climate resilience and mitigation. Its goal for coastal community resilience is “to establish short, medium and long term plans to address the effects of climate change, including increased storm frequency and strength, coastal erosion and rising ocean levels, and

transition of both public and private energy consumption to low and zero impact methods.”³⁰

The plan’s strategies to address the effects of climate change include:

- Identify, monitor, plan, and mitigate the potential impacts of sea level rise.
- Review and Update the Town's emergency plan in case of extreme storm conditions.
- Develop a regional approach to addressing the potential impacts of climate change.
- Monitor, plan for, and mitigate the potential effects of climate change on Kittery's natural resources.
- Identify potential impacts, monitor, plan for, and mitigate the potential effects of climate change on Kittery's built environment.
- Identify, mitigate and take advantage of opportunities created by the potential impacts of climate change on Kittery's economy.
- Monitor, plan for and mitigate potential impacts of climate change on public health.
- Increase public awareness regarding potential impacts of climate change.

The plan’s strategies to reduce energy consumption and transition to low and zero impact methods include:

- Develop a plan to transition to low and zero impact energy sources
- Consider Town policy changes that encourage the use of renewable energy sources
- Develop a public awareness campaign to focus attention on the need to transition to renewable energy sources

Coming from the Comp Plan has been the creation of a very active Climate Adaptation Committee, with Town Council representation, and its various subcommittees.

The Town has signed on for a regional sea level rise plan, also facilitated by Abbie Sherwin.

Kittery is in the process of doing a joint land use study with the Portsmouth Naval Shipyard. With its facility on an island, the Navy clearly understands the potential impacts of climate change. The Joint Land Use Study (JLUS) is a collaborative planning effort between the Portsmouth Naval Shipyard, the Town of Kittery, and the Southern Maine Planning and Development Commission (SMPDC) to protect and preserve military readiness while

³⁰ Kittery Comprehensive Plan 2015-2025, Volume I. *Town of Kittery*, KitteryMe.gov, p. 272, https://www.kitteryme.gov/sites/g/files/vyhlif3316/f/uploads/000-complete_comp_plan_vol_1_final_no_exec_summary_3.22.18.pdf. Accessed 23 September 2020.

supporting continued community growth and economic development. It includes a recognition that fluctuations in climate may include sea level rise, increased storm and local surges, persistent flooding, heavy rainfall, drought, wildfires, and can present operational and planning challenges.³¹

The Climate Adaptation Committee recently did a Maine Flood Resiliency Checklist project assisted by Abbie Sherwin at SMPDC. This included getting baseline data on resilience activities as well as potential impacts on infrastructure and critical facilities.

One resilience project was the rebuilding the Town Wharf which included raising it.

There are conversations going on by the Climate Adaptation Committee with the Planning Board and others about amending the requirements for elevating the first floor a certain number of feet above the 100-year flood level.

They have adopted language for allowing solar apparatus. The DEP has made an interpretation that solar panels on a single pole do not need shoreland zoning permitting.

Relative to stormwater, the Town has re-written the Code to require Low Impact Development (LID) techniques and Best Management Practices (BMPs) in certain sensitive areas. A major update of the stormwater regulations is expected to be required as part of the Town's upcoming MS4 stormwater discharge permitting.

The Town has adopted mixed-use zoning for its mall retail district to increase the sustainability and resilience of the Spruce Creek watershed area.

Scarborough

Scarborough has a new draft of their comprehensive plan, and resilience is written in now in more detail than ever before. This includes things like shoreline stability and energy efficiency in new construction. It's not just one added section but includes the financial chapter, the built environment chapter, and so on. Updating ordinances will follow. Scarborough has not signed one of the national or international climate pledges, but they are being lobbied by Maine Citizens Climate Lobby to support the [*Energy Innovation and Carbon Dividend Act*](#).

The pandemic has not slowed Scarborough development. There are big projects under construction, like at the Scarborough Downs and industrial parks in the Haggis Parkway, as well as residential subdivisions and apartments. Scarborough supports mixed use compact development to achieve smart growth and sustainability goals.

³¹ "Open House Presentation January 7, 2020." *Southern Maine Planning & Development Commission*, 2020, p. 7, https://smpdc.org/vertical/Sites/%7B14E8B741-214C-42E2-BE74-5AA9EE0A3EFD%7D/uploads/JLUS_Final_Public_Mtg_Presentation.pdf. Accessed 17 August 2020.

It is hard to get developers to do more than they are required. There have to be incentives. In Scarborough, there are a lot of investments in the (Scarborough) Downs. Perhaps there could be a solar field there. Or maybe there's an opportunity for a microgrid. There are all kinds of possibilities, but the Town is still a bit lacking in terms of its codes; they need to be stiffened up. This gets back to the State effort and not knowing what will be happening with the building code. The State's work on MUBEC (Maine Uniform Building & Energy Code) has been put on pause by COVID, but it needs to start back up again.

Relative to energy use benchmarking, the 2030 group in Portland is benchmarking buildings.³² (The EPA's Energy Star) [Portfolio Manager](#) has been around for a long time and has matured. It gets better as time goes on. Back when ARRA funds were available, Efficiency Maine ran a program that required pre- and post-development EUI (Energy Use Intensity) calculations using Portfolio Manager. And they've used this in on all of the municipal buildings in Scarborough. However, small businesses generally don't have the bandwidth to do benchmarking.

Although some municipal officials have struggled to get whole building data and other data out of CMP, Efficiency Maine generally is able to get the utility data they need. For instance, the AMI (Advanced Metering Infrastructure) data from the smart meters is important for their work. Efficiency Maine uses the data for marketing and outreach and to show firms where there may be opportunities.

One of the ordinance pieces the Town is working in is language to support large-scale solar. Their current ordinance has a 5 MW limit, and as Scarborough has the largest town land area in the state, there is the possibility for larger solar farms. (Not that all the rural parts of Scarborough are ready to go with three-phase wiring or have close proximity to a substation.)

South Portland

The City signed on to the U.S. Mayors' Climate Protection Agreement in 2007. (Staff would not necessarily recommend that a community take such an action as it forces the community into accepting the framework and reporting requirements of the agreement.)

The South Portland City Council formally adopted a [Municipal Climate Action Plan \(MCAP\) in 2014](#). To inform development of the MCAP, the City compiled a comprehensive [GHG Emissions Inventory in 2011](#).

The City contracted with the Greater Portland Council of Governments (GPCOG) to compile an [updated GHG Emissions Inventory in 2017](#) using 2014 energy data from buildings, facilities, and vehicles so that changes in

³² As is South Portland in it Mill Creek commercial center.

emissions could be quantified and progress toward the emissions reduction goal could be measured.

There have been two City Council Resolves adopting climate goals and (pushed by students) declaring a climate emergency.

Ordinances have been adopted targeting specific strategies (e.g. Benchmarking, Pesticides & Fertilizers, Plastic Bag fee & Polystyrene Ban, future net zero energy (NZE) Stretch Code, business & multifamily Recycling, performance standards, etc.)

Official adoption of the OCF (*One Climate Future*) plan will be the beginning of a new climate action push by the City.

The City is engaged in advocacy at the state level.

The City has undertaken a variety of climate action planning activities, such as:

- Resilience checklist (provided baseline assessment of current gaps and position us well to receive additional funding, but has stopped short of changes across departments.)
 - The Maine Flood Resilience Checklist assisted by Abbie Sherwin.
- Vulnerability Assessment report
- Implementation funded through “Green CIP” and other sources
- Establishment of Municipal Energy Priorities (August 2020 communication to the Maine Climate Council) that includes:
 - Energy data accessibility and aggregation:
 - Provide whole-building data to property owners with an appropriate customer privacy standard.
 - Provide monthly citywide energy consumption data to municipal governments broken out into residential, commercial, and industrial sectors.
 - Net zero energy stretch code:
 - Establish a pathway for all new residential and commercial buildings to be Net Zero Emissions by 2030.
 - Include solar-ready and EV-ready code requirements.
 - Funding for energy efficiency and clean energy transition:
 - Adopt a C-PACE law that allows municipalities to use their lien authority to help commercial property owners finance energy projects.
 - Create a green bank in Maine to leverage private sector capital and finance clean energy projects and supporting infrastructure.

- Require Efficiency Maine to use all revenue from electric and natural gas ratepayer conservation charges to fund beneficial electrification programs, weatherization, behind-the meter renewable energy projects, and battery storage programs.
- Regulatory reform to support beneficial electrification:
 - A collaborative process to involve electric utilities, OPA, PUC staff, municipalities, and other relevant stakeholders in the design and implementation of innovative approaches to beneficial electrification.
 - Utility rate design changes, principally performance-based ratemaking and time variable rates.
 - A Distributed Energy Resources Authority or Maine Energy Generation Authority authorized with financing and developing renewable generation projects to advance beneficial electrification throughout the state.
- Authorize municipalities to phase in a prohibition on natural gas:
 - Grant municipalities the legal authority to unilaterally limit natural gas hookups at the city scale.

The City is also in the process, with Portland, of developing a climate action and adaptation plan—*One Climate Future*—as well as beginning a comp plan update and aligning climate policies with all City plans.

In terms of ordinance work, the City 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. This would involve two tiers – high and medium risk – with greater or lesser zoning restrictions.

Infrastructure projects include combined sewer/stormwater separation and stormwater management investments (tree box filters, rain gardens etc.).

The City is undertaking such education projects as the High-Water Mark Project and Preparing for Coastal Flooding in South Portland:

- High Water Mark – With Army Corps of Engineers, installing three signs showing historical and projected high-water lines.
- Coastal Flooding in South Portland – With the Gulf of Maine Research Institute (GMRI) using a Coastal Community Grant.

Over the next 20-30 years, the City anticipates significantly more investment in projects that build resilience to projected climate scenarios (e.g., sea level rise, storm events, and high heat). These projects are being paid for through:

- The Capital Improvements Program and operating budget.
- TIF funding.
- Grants, such as DEP Waste Diversion funds, Coastal Community Grant, USACE (Army Corps of Engineers) funds, Volkswagen Settlement funding, and USDN (Urban Sustainability Network) grants.
- Efficiency Maine rebate programs.

There are almost 70 bold, clear, actionable strategies identified in the *One Climate Future* plan.

RPOs/EDCs

Greater Portland
Council of
Governments

One Climate Future, the Portland/South Portland climate action plan that is nearing completion, has probably been the most notable project in their region regarding resilience and climate change. It is a model for where all of the municipalities should be going, and we should be doing it as a region as a real climate mitigation and adaptation plan.

In general, there's been a lot of early work by municipalities that's been done on efficiency, mostly looking at municipal buildings and facilities. And there's been some work that's been done on landfill closures, which have an impact on methane. In addition, they've done a fairly good job in the region of getting the municipalities excited about electric vehicles. There are quite a few chargers at municipal buildings and other employers. They also have seen increasing interest in the region around solar panels. Some places like South Portland and Portland have been very aggressive about getting them installed.

Other communities are really at an exploratory level. There was a lot of enthusiastic discussion back in January and February that they were following up when the pandemic hit. All of the councils had to swiftly pivot in so many ways because of the disruption. As a result, they've seen that level of activity drastically fall during the pandemic, but there still is an underlying high level of interest in trying to get more renewable energy online in municipalities. Other than that, the efforts around resiliency are rather piecemeal. For instance, regarding municipalities using their charters and ordinances to implement climate policies, there isn't a lot of thinking going on with most of their municipalities around that. GPCOG staff are not aware of any municipality that is prioritizing infrastructure investments that are resilient in nature, other maybe than Portland.

In Portland, for example, it's a struggle to keep up with the regular infrastructure maintenance needs. If they are going to put money into infrastructure, it's going to be the basics for road maintenance and for staying compliant with their MS4 stormwater discharge license requirements. It's not going to be looking at proactive, resilient projects that are expensive. Even Portland is having a hard time trying to get their money, even though they've got a really focused culvert program for resiliency. It's hard to pull

dollars from what is perceived as the immediate maintenance need and put it into resiliency. There is a long way to go to educate the members about how important it is to put resiliency higher up in priority.

The islands are a little further ahead. For instance, they did an overall vulnerability assessment with Chebeague that included looking at their wharf to make it more resilient. And they've done some work with Cape Elizabeth on coastal resilience that includes mapping bluff erosion with the help of a drone so that they can make time lapse records.

Freeport did some vulnerability assessment work focusing on their dying clamming industry. They were looking at new ways of farming clams and not just harvesting them. It was an interesting intersection of climate and economic resiliency. But not enough action was taken, and, where there used to be hundreds of families that depended on clamming, it's now down to around twenty. This has implications for Maine fisheries. It's a sad thing because when you lose the resource, you lose the people that care about the resource and then you don't have the political constituency to do anything anymore. There are some coastal communities that have kind of a working-class waterfront component that is changing rapidly. And there's probably more consciousness among the leadership in those communities about how climate is in fact impacting the economy.

Southern Maine
Planning &
Development
Commission

SMPDC has been assisting communities with coastal hazard vulnerability assessments and related planning initiatives that center on actionable information for enhancing coastal resilience for a number of years. The most notable initial effort was the Sea Level Adaptation Working Group (SLAWG), which was led by SMDPC and undertaken in partnership with Saco Bay communities, MGS, MCP, and MPAP with funding from MCP. The major work product of that effort was a sea level rise action plan published in 2011.

SMPDC has written sea level rise chapters for several member towns' Comprehensive Plans and also recently wrote an energy chapter for one town that addressed sustainability and greenhouse gas emissions. SMPDC also works with member municipalities to assess and recommend opportunities for incorporating climate adaptation and resilience strategies in land use regulations and policies. They have pursued and received numerous grants to support their communities with climate change planning, helping to fill a vital gap in municipal capacity by writing grants for regional and municipal-specific projects. Recently, SMPDC has partnered with several of their towns and other groups, including the Wells Reserve, to apply for state, national, and non-profit grant opportunities and leverage funding from multiple sources to undertake meaningful and important climate assessment and planning projects. Several examples include socio-economic sea level rise vulnerability assessments, identification of tailored adaptation, mitigation, and resilience strategies, support of more resilient stormwater management practices and LID, development of a model coastal resilience ordinance, and creation of regional coastal resilience plans. Additional funding from the State for planning and an increase in funding

availability for state grant programs, especially for inland areas, would enable significantly improved and more widespread municipal action on climate change.

SMPDC uses the Maine Flood Resilience Checklist that Abbie Sherwin developed when she was a NOAA Coastal Management Fellow with the Maine Coastal Program. It is designed to be a self-assessment framework that a community can use to evaluate their vulnerabilities associated with sea level rise and storm surge and coastal flooding from increased precipitation in what hopefully is a logical process aligned with how municipal governance currently works. The Checklist is being used throughout Maine.

The assessment framework is then intended to be used to begin to identify specific adaptation and resilience strategies and actions that a town might want to implement in order to increase their resilience. It's designed to be a kind of facilitated discussion process among different municipal staff and volunteer board and committee members where folks come together in a series of workshops for a full day event. They look at maps that depict flood hazards in the community. They identify specific areas that are either a high priority or are especially vulnerable to flood hazards and then work through the assessment questions that are contained within the checklist.

In terms of the sustainability side of the Southern Maine Regional Sustainability and Resilience Program, SMPDC is putting together a greenhouse gas inventory framework with the hope that the individual municipalities will be provided a framework and training on how to carry it out and that they themselves will be able to do it. It aims to standardize the process that all of the communities are using so that we can also do regional greenhouse gas inventory and reporting. A few different inventory approaches and methodologies were looked at, but all of the towns have decided if they weren't already part of [ICLEI](#) to join it and use its protocol.

Some of the six communities had already fairly recently completed inventories using either volunteers or summer interns using the ICLEI methodology. SMPDC struggles with wanting to empower the municipalities to take action on their own and provide them the resources and support to do that versus providing the actual work products. It's tricky because there are such limited capacity and resources at the municipal level, even down in southern Maine where that capacity is greater than most anywhere else.

The work with the six towns is different from the Checklist because it is a more detailed assessment that utilizes more advanced GIS modeling and mapping and also incorporates socioeconomic considerations into an assessment that has two main prongs to it. One is the physical vulnerability assessment of infrastructure and looking at the value of properties that are likely going to be impacted under several different scenarios of coastal flooding. Looking at that economic impact, they then brought an environmental economist on board to the project to look at such broader

economic impacts as the number of businesses that are impacted, the number of employees, and the annual average annual salary and gross income and profit of the businesses. It's broader in scope than the checklist.

Relative to scenario planning, scenario planning works well for coastal flooding, sea level rise, and storm surge because there's so much uncertainty with how much flooding to expect by when, the amount of storm surge, and the timing for when the surge hits—whether it's low tide versus high tide; the impacts can be significantly different. Scenario planning, therefore, provides municipalities with options about what situations they want to consider, but also with the ability to build in flexibility to whatever adaptation and mitigation actions they decide to take and to design them so that they can accommodate varying levels of impacts.

It's also somewhat of a necessity brought on by the fact that there's been so little direct guidance from the State about what to plan for. It's understood that this is a challenge and that there are folks at the State who have been doing a tremendous job pulling together information about impacts regarding sea level rise and storm surge in Maine and to put that information out to the communities in a way that's helpful and informative for decision-making and planning. But without any formal guidance or recommendation, or any requirement, at the state level, it's very challenging for communities to know what they should even begin to consider. It's been a barrier to action. (Such as for deciding how much to put into the Capital Improvement Program for how many years ahead or figuring out what land use regulations to put in place now to limit future development or redevelopment in high risk areas to ensure the development is flood resistant.)

In terms of the inland communities, compared with the coastal municipalities there's a stark contrast in what's been done to date and also the level of interest in any climate change planning and action. Nevertheless, there are a few inland communities that are definitely thinking about this and are taking action. There were some inland communities that SMPDC is working with that are using the Flood Resilience Checklist which, even though it's tailored to coastal flooding, can actually be used for any flooding. There are a lot of the questions in the Checklist that apply to any flooding situation and general municipal flood preparedness and resiliency actions. Some inland municipalities have used it as an emergency management exercise where a staff member from the regional planning organization sits down with a few folks from the emergency management agency but also municipal staff to go through the Checklist in almost an interview format.

Some of the inland towns participate in the FEMA Community Rating System, which itself is a flood resilience program, although future climate change is not considered in the flood maps. Overall, at least in the SMPDC territory, inland communities have expressed less interest in climate change issues. Some of that has to do with there being such limited information about climate impacts in inland communities. A lot of climate science for Maine has focused on coastal impacts and less on inland ones.

Relative to comprehensive plans, without changes to how comprehensive planning takes place and demonstrating benefits from having a comp plan consistent at the state level, it will be hard to make progress on resilience and mitigation. Comprehensive plans are not necessarily going to be an effective mechanism for change because at present the incentives for having a state-deemed consistent comp plan aren't enough for some communities to even want to go through the process because it's so complicated and arduous. There are towns in the SMPDC region that are the most vulnerable, and some that are the most progressive, that may be undertaking a very pricey comp plan update process but have no interest in getting them approved by the State because they don't see an advantage to doing so. Nevertheless, encouraging or requiring communities to incorporate information about climate change in their comp plans is a good idea provided that the comp plan process and requirements get updated and tweaked as well.

Hazard mitigation planning has largely taken place at the county level. However, an increasing number of SMPDC communities have expressed interest in developing more locally-tailored hazard mitigation plans that address climate impacts and are integrated with other municipal planning documents, such as comprehensive plans. SMPDC is expecting to partner with the York County EMA to update the County Hazard Mitigation Plan and incorporate climate change and resiliency in the plan to enable future projects that account for climate impacts and better protect our communities. More official partnerships with the emergency management community, better integration of hazard mitigation with municipal planning, and requirements or incentives to address climate resiliency in hazard mitigation planning would help support community resilience.

South Coastal

Economic Resilience

Municipalities

Kittery

The main opportunity at present is redeveloping the malls/shopping centers near the urban impaired Spruce Creek. Changing to more of a lifestyle center with mixed uses and BMPs would improve water quality and potentially reduce flooding.

The Town also would like to include shorefront resilience components in its waterfront economic development planning—with a goal of a working waterfront rather than condos—but they are running into a problem that most economic development grant programs reward job creation first and foremost and do not give points for climate change resilience and mitigation activities.

Scarborough

Economic development and resilience in Scarborough are handled by a development corporation that has a close relationship with the Town. The activities of the Scarborough Economic Development Corporation include:

- Assisting in the attraction, establishment, retention and expansion of retail, commercial and industrial enterprises.
- Provide free, comprehensive, and confidential assistance to any business considering locating or expanding within the Town limits.
- Maintaining an inventory of available space for lease, sale or development and assisting businesses in identifying appropriate properties.
- Providing up-to-date information about federal and state financial programs, commercial lenders, and non-profit and for-profit resources which can provide funds for starting or growing a business.
- Assisting businesses with town, state, and federal agencies on permitting and regulatory issues.
- Assisting Town Departments in planning and implementing economic development policies.
- Promoting effective communication.³³

South Portland

While enjoying an enviable tax base, South Portland nevertheless has exposure related to declining retail sales. The City is working with the Greater Portland Council of Governments and the Maine Mall on a plan to create a more sustainable economic future for the western part of the City by creating more mixed-use, walkable, and greener conditions.

RPOs/EDCs

Greater Portland Council of Governments

In terms of economic resilience, 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. Related to the earlier discussion about the clamming industry in Maine, there doesn't seem to be any regional resilience plan for shellfish fisheries that are disrupted, but there should be, and there's a federal expectation that there would be. According to the literature, communities recover much faster if they've gone through the exercise of planning for disruption prior to its occurrence. Those that don't tend to have very, very slow recoveries.

An economic resilience program to mention is [The Greater Portland Resilience Exchange \(GPREx\)](#). GPREx was launched in April designed to match needs from disrupted organizations and agencies and match with available resources from businesses, organizations, and institutions. Examples include:

³³ "Mission." *Scarborough Economic Development Corporation*, 2020, <https://sedcomaine.com/about-sedco/mission/>. Accessed 24 September 2020/

- Library Staff repurposed to Public Computing Staff to provide remote services for small municipalities
- A micro loan was conveyed to small businesses to purchase new equipment to make face coverings for senior care facilities.
- Local technology companies provided technical assistance to better manage workflow.

As discussed relative to incentives, GPCOG modified their [Rapid Response MicroLoans](#) as an incentive for borrowers to participate in the Resilience Exchange by offering a forgiveness of a portion of their loan.

In terms of broadband, there is a lot of talk about underserved areas, but we also have tremendous need in the core metropolitan areas to try to make the service better. At GPCOG they do Zoom calls all the time with staff, and staff that are living right in the middle of Portland have as many internet bandwidth issues as those living in rural areas in Brunswick. There isn't enough emphasis on bringing us up to a truly first world status in Maine. And it would only support the migration of talent that we need into the state. However, as we try to encourage this migration, even as broadband tends to spread us out, we need to figure out ways to ensure that we're not losing our village centers and urban cores.

With the retail spaces and some of the commercial space that is emptying out now and is anticipated to empty out more, there needs to be a real focus on getting housing into those spaces in order to retain the kind of village character that is just as much a part of Maine's heritage as the rural character. And it needs to be supported with great broadband.

Southern Maine
Planning &
Development
Commission

SMPDC has an award-winning economic development program and manages a highly successful Brownfields program that has received over \$10 million in EPA funds and leveraged more than \$224 million to revitalize contaminated sites. The program has, and continues to, deliver significant financial and technical resources to municipalities to clean polluted and contaminated areas and facilitate economic development. The program is also working to incorporate more climate sustainability and resilience considerations into its work.

SMPDC's economic development work has long supported the economic resilience of our member communities. SMPDC is using EDA disaster grant funding to develop an economic resiliency strategy to mitigate the effects of recent and future natural disasters in York County, focusing specifically on six coastal towns. The plan will quantify the current tourism and economic contribution of the six towns, analyze the impact of climate change on tourism and recreation in the region, identify the potential economic impact of future disasters and climate change on the York County economy, identify business resiliency planning needs, and explore options for upgrading at-risk infrastructure. It is important to note that this project leverages and builds off of other grant-funded projects SMDPC is managing, which is an important

consideration for expanding the impact of individual grant projects, even those with relatively small budgets.

Since the start of the COVID-19 pandemic, SMPDC has been working hard to ensure the resilience of businesses in member communities. SMPDC is managing an economic recovery loan program, a CDBG Micro-Enterprise Forgivable Loan Program, and the DECD Maine Economic Recovery Grant Program. SMPDC also manages a very successful EPA Brownfields program, which has helped redevelop and revitalize underutilized properties that enhance the economic resilience of Maine's towns and cities.

South Coastal

Clean Energy, Electrification & Efficiency

Municipalities

Kittery

The Town is replacing the Code Enforcement Officer's vehicle with an EV, has installed EV chargers at the Library, and is planning on installing more chargers at Town Hall.

There are no Town solar facilities as yet, although it is expected to be a consideration when any new roofs will be needed, and it is something the Climate Adaptation Committee has been discussing.

The Town also is strongly committed to improving transit and provides annual funds to support the New Hampshire COAST (Cooperative Alliance for Seacoast Transportation) bus service. Increasing COAST frequency was a recommendation of the Joint Land Use Study with the Portsmouth Naval Shipyard.

Scarborough

Scarborough recently received a grant from the USDA that will be used to build solar panels on a farm. The project is expected to produce 100% of the farm's energy and save \$3,922 in energy costs annually. The USDA grants are intended to help rural small businesses develop renewable and efficient energy systems.

South Portland

The City has been a leader in installing municipal rooftop and landfill solar arrays as well as in streetlight conversions to LED fixtures and requiring departments with City cars to begin getting electric or hybrid vehicles when making fleet replacements.

RPOs/EDCs

Greater Portland Council of Governments

Demonstrating cost savings of renewable energy, including solar and wind, is part of GPCOG's objective of building an entrepreneurial ecosystem that facilitates creativity and innovation.

Southern Maine Planning & Development Commission

Many SMPDC communities have worked to reduce municipal fossil fuel consumption and implement municipal energy efficiency measures, such as implementing energy efficiency measures with short term paybacks (i.e. lighting upgrades, occupancy sensors, and heat pumps), conducting building

energy audits, and converting to LED streetlights. Many communities are also supporting the development of, and access to, renewable energy by adopting ordinances permitting renewable energy development and exploring opportunities for solar development on underutilized sites. Fewer communities have made significant efforts to promote energy efficiency for residents and businesses.

SMPDC's land use program is assisting town planning boards on reviewing community-scale and utility scale projects in their jurisdiction. The Regional Sustainability and Resilience program is also busy assisting municipalities that are pursuing municipal solar electricity opportunities. This work includes RFP development, contract offer review, and coordination with solar developers on potential projects. The Regional Program is also working with SMPDC's Transportation Program to develop an EV readiness toolkit to help municipalities prepare for a scale up in electric vehicle adoption.

South Coastal

Healthy & Connected People

Municipalities

Kittery

The Town will be doing a sidewalk master plan that has been expanded to include off-street trails.

The Town's Community Center does a lot of programming for seniors.

Scarborough

One of the key outdoor exercise opportunities in Scarborough, that also provides forest and salt marsh nature experiences, is the Eastern Trail. This trail is part of the East Coast Greenway that connects Maine all the way to Florida. There is a gap in the trail between South Portland and Scarborough that has been the focus of a strong fund-raising effort. There has been a close partnership between the municipalities, MaineDOT, and the [Eastern Trail Alliance](#) to complete this project.

South Portland

South Portland strives for social equity, affordable housing, meeting the needs of the elderly, and other ways of increasing community resilience. The City also has an active Bicycle-Pedestrian Committee and several trails groups who work with City staff in continually expanding opportunities in the City for walking and biking.

RPOs/EDCs

Greater Portland
Council of
Governments

Broadband is important for building social cohesion. There's a lot of power and impact in the sort of tangible engagement that can come about with things like broadband planning. The Town of Harrison, for example, has recently instituted a Town-sanctioned Broadband Planning Committee, which includes the Town Manager, a selectman, two local businesses, two community members, and a local organization. In addition to mapping out their broadband plan, their strategy for securing infrastructure funding includes embarking upon a data collection effort. They've applied for a GPCOG "Resilience Corps" member to be embedded with the town who

would help support the Committee. With this additional capacity they will continue to do other data collection such as that around the underserved parts of this community. There is a direct correlation between being underserved with digital infrastructure and being vulnerable to other conditions. It's one of those areas where investments in things like community-scale broadband planning has a direct correlation to community resilience.

Other multi-community efforts in Maine are not unrelated from the Resilience Corps because there's both the standardization and the common process. There's no reason why Harrison should be embarking upon a different broadband mapping process than Naples, which is literally next door. While every place is different, there are some common aspects of a planning process that for things like broadband mapping and speed testing can be common. For another example, look at the metro region and think about why Portland has one citizen complaint service and South Portland either doesn't have one or uses a different sort of one. It would be more convenient and useful if there were a common platform and a common utilization of a service, no different than having a common place to go to purchase a bus ticket. A person noticing a pothole in Westbrook should be able to report it in the same way that you report it in Portland. This creates an ease of consumer or citizen engagement and standardization of citizen engagement, but it also creates a common platform on the backend for municipalities to be able to access that information and analyze it in such a way such that it can increase efficiency and overall impact for multiple municipalities.

Southern Maine
Planning &
Development
Commission

SMPDC is working with Fryeburg and EPA on a grant-funded project that aims to revitalize Main Streets in rural communities through outdoor recreation. Fryeburg is one of only ten towns in the country selected to participate in the new program. SMPDC is working closely with the Town and EPA consultants to create a plan that encourages outdoor recreation, uses vacant spaces, and creates a more walkable, thriving Main Street.

Since the start of the COVID-19 pandemic, SMPDC has been convening York County municipal managers via weekly Zoom meetings, sometimes involving RPOs and municipalities from NH, to address ongoing issues and needs.

South Coastal

Natural Spaces & Resources

Municipalities
Kittery

Beginning With Habitat, a collaborative program of federal, state and local agencies and non-governmental organizations, has identified two habitat focus areas in Kittery:

- Brave Boat-Gerrish Island. This area located along much of Kittery's Atlantic coast, includes many natural communities, and provides the

habitat needed to support most of the plants and animals native to Southern Maine.

- York River Headwaters. This area covers 1,000 acres of uplands and wetlands in York, Eliot and Kittery. It includes a tidal marsh estuary ecosystem with intertidal bays, and is one of the largest unprotected *Spartina* saltmarshes in the state. The York River is currently being studied for possible "Wild and Scenic" designation from the US Park Service.

Kittery's comprehensive plan has a number of recommendations for protecting the Town's natural resources, such as: negotiating conservation easements, using transfer of development rights (TDR), and allowing for varied densities and open space requirements by zoning district to protect the more important resources and features.

Scarborough

The Scarborough Marsh is the largest saltwater marsh in Maine. The Town, Maine Audubon Society, and other groups provide a variety of opportunities for visitors to experience the marsh and to learn about its important ecological functions.

South Portland

The City has been active in preserving and acquiring public open space for recreation and natural resource protection. This will get a greater impetus as recommendations in the *One Climate Future* climate action and adaptation plan for creating coastal open space for flood protection are implemented.

RPOs/EDCs

Greater Portland
Council of
Governments

GPCOG has a strong brownfields program for cleaning up polluted areas. They have provided \$2.4 million to clean up 25 brownfield sites in the region, leveraging nearly \$27 million in federal funding.

Southern Maine
Planning &
Development
Commission

SMPDC worked with the York River Study Committee on a grant funded project, through the Coastal Communities Grant Program, to complete a watershed assessment, regulatory and policy review, and GIS-based build-out analysis of the York River Watershed. The assessment and build-out analysis examined the development potential of the watershed, protective strategies, and included climate change considerations, specifically future sea level rise and marsh migration. The project was completed in support of efforts to pursue a Partnership Wild and Scenic River designation from the National Park Service.

There are a number of local land trusts and conservation organizations operating in the SMPDC region that are conserving and protecting natural spaces. Some communities partner with land trusts to support acquisition and conservation of areas based on climate change criteria, such as marsh migration. Additionally, some towns

partner with local conservation groups to purchase tax-foreclosed properties that are flood-prone or have unstable waterbody banks to conserve those properties.

Several municipalities have watershed management plans and/or have completed watershed assessment, planning, and restoration projects through Section 319 grants. Communities like Kittery and York have also participated in DEP's Stream Crossing Grant Program to upgraded undersized and/or poorly functioning culverts.

CAPACITY AND READINESS OF MAINE MUNICIPALITIES

One of the desired outcomes of the pilot program task that this report addresses is an understanding of the capacity and readiness of Maine municipalities for undertaking climate-related resilience activities. The following points summarize some of the thoughts on this topic that came out of the resilience interviews:

- 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.
- For some other communities that in normal times are stretched in what they can offer and how they can offer it, COVID has made things harder. Some towns are reporting that they are not hurting that much now but expect to be hit very hard next year. Loss of jobs has not been even across the state, and unemployed people will have trouble paying their taxes. By next year it is expected that many rural towns will have spent their rainy-day funds and will not be able to continue to provide the same level of services.
- The pandemic, and possibly climate change as well, has actually caused an influx of new residents which is partially helping to offset the virus' economic impacts and which is helping to spur broadband expansion efforts. It also is raising sprawl concerns.
- 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).
- 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.
- 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.
- South Portland is an example of a community continues to initiate new resilience related activities, such as working on dynamic inundation modeling, as well as beginning to implement the *One Climate Future* plan. Other communities, such as Kittery, Norway, and Camden, are also pushing ahead on climate and sustainability fronts.
- Apart from a lack of resources, 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 given to the pursuit of community planning.

- On the other hand, there are many examples of municipalities successfully and fruitfully partnering with nonprofit organizations, State and university agencies, or with their RPOs/EDOs. As money is scarce, many of the various organizations working on climate matters have formed coalitions—even coalitions of coalitions—and a great deal is being accomplished through these collaborations.

ACTIVITIES BY SELECTED NONPROFITS

In addition to municipalities and regional planning/economic development organizations, interviews were conducted with a number of nonprofit organizations to see how the nonprofit sector may be leading or supporting municipalities in climate action and other types of community resilience activities. The following are a record of these interviews.

Center for Ecology-Based Economy (CEBE)

The [Center for Ecology-Based Economy](#) (CEBE) is located in Norway, Maine, and its mission at present is, “To engage the community in developing practical, ecological solutions in the areas of food, shelter, energy and transportation. Our goal is local community sustainability, health, and resilience in response to climate instability and resource depletion.”³⁴

CEBE started out with practical ecological solutions using the skills of their volunteers for things like timber frame construction and solar installation, but they now realize the problem isn’t technology—it’s policy. It’s changing how people think and engendering faith in a different way of moving forward. For example, half the vehicles on the road in Norway, Maine, are pickup trucks, and there isn’t even an electric pickup truck on the market yet.

So, there is a lot of heavy lifting to do. But in the last few years they’ve done a lot of coalition building. They are a founding member of Maine Climate Action NOW! with the Sierra Club, 350 Maine, and others. They also are part of a larger coalition working on the [Maine Food Convergence](#) project. They are trying to build a statewide movement around regenerative agriculture and looking at the food system as a part of climate resilience and mitigation.

The CEBE members have been railing against monocultures for the last 25 years, and there have been two events recently related to this. One was when a number of meat packing plants went down because their system of raising meat involves giant confined feeding operations with a thousand people jammed in some plant who then get COVID. The other, soon thereafter, was a pig farmer having to destroy many thousands of animals. It’s an unsustainable system that Maine municipalities should be thinking more about.

There was a study when Angus King was governor that Maine could have been 80% food self-sufficient by now. John Piotti of the [Maine Farmland Trust](#) talked about this, how there’s a different model possible than the typical way of growing food with tractors and big fields. The dream is for the Maine Food Convergence project to turn into Regeneration Maine which would be part of an international movement called [Regeneration International](#). There already is a Regeneration Midwest, and there are a lot of big agriculture people and firms, like John Deere, ranchers, and so on, who are involved because they’ve seen the degradation and they know their livelihoods are being destroyed by climate change. Iowa, for example, was leveled by floods a few months ago.

It is frustrating because people were making considerable headway last year on climate change. With the strike they had 200 people on the streets in Norway, Maine! Bill McKibben, an international climate action

³⁴ “Mission.” *Center for Ecology-Based Economy*, 2020, <https://www.ecologybasedeconomy.org/mission>. Accessed 15 September 2020.

leader, came to a big event in March right before the pandemic exploded. Three hundred people packed into the high school to hear McKibben speak. Now, the momentum has largely been lost.

Networks are important. CEBE is involved in networks and networks of networks. They are the fiscal sponsor and probably the most active organization in the Food Council, which is part of the Maine Food Convergence project. Through the networks the little things they do in their communities ripple out and also enable them to learn about what's going on in other parts of the state. The Food Council itself is part of their community garden, [Healthy Oxford Hills](#).

Some people look at CEBE and say it's so scattered because they don't just work in food but also in energy, shelter, and transportation. They also have ramped up their direct climate action. But you can't tease these things apart, and if you want to be building community sustainability and resilience you have to be addressing these various areas at the same time. The Climate Council understood this, how if you are looking at the built environment and are building new housing you have to have adequate electrical supply to run heat pumps and electric vehicle charging stations for which you then need the infrastructure for distributed energy production.

CEBE would like to build an ecovillage here that supplies its own energy, grows its own food, and participates in the economy of downtown Norway. It would be close enough to downtown that people could move things around with bicycles and public transportation (electric van). It would be a demonstration of a better approach.

In terms of what the State could do, funding a couple of demonstration projects would help. Obviously, the State wouldn't have to pay for everything because the model is economically viable. It would help if the State would fund a business plan for an ecovillage. The ecovillage needs to address the needs of everyone, from the homeless to those affluent enough to be able to afford a single-family home. There could be tiny houses clustered around common infrastructure, such as a laundry and kitchen. There are great models in Europe around this. And as mentioned, the village would be generating all of its own power. And it would be around the perimeter of an active downtown because almost everyone has given up on the idea of places like this trying to be self-sufficient out in the middle of nowhere.

One of CEBE's project collaborations has been with their land trust—the [Western Foothills Land Trust](#). They have 160 acres right outside of town—it actually comes all the way to town. In a year you'll be able to walk from the CEBE office, get on a trail, and go all the way to Roberts Farm and ski on 10 kilometers of trails, for example. They have a school garden program out there. One idea is building a campus there called the Roberts Institute for Regenerative Agriculture. CEBE has conceptual architectural plans for a half-million-dollar project to build this campus. There has been a lot of design work funded by foundations. In addition, they have been looking with the Trust at parcels nearby on which the ecovillage could be sited so that there would be symbiotic relationship between the Institute, which would be doing regenerative agriculture research, and the ecovillage.

A third of greenhouse gas emissions are related to food—tilling up the ground and growing corn with tractors and chemical fertilizers. The Roberts Institute is an opportunity to explore other directions in a nonprofit way that farmers from the region could come and learn about. In this regard:

With the twin challenges of climate change and resource depletion stretching the global food system to its limits, rapid localization of our food supply will play an essential role in building regional food security and overall community resilience and sustainability. Increasing the supply of local food, with access to all sectors of the community, will be critical. But, this alone will not be enough. Developing modern food production systems suited to our local topography that regenerate soils, sequester carbon, and provide a varied and nutritious diet for our communities is one of the most important challenges of our time. Perhaps even more important will be developing a culture of food

production that honors and rewards the essential work of feeding our community and inspires young people to caringly cultivate the land.

...

To rebuild an agricultural economy in western Maine that is both sustainable and regenerative, will need the interdisciplinary collaboration of researchers and practitioners in a variety of fields, from soil science and silviculture, to plant breeding and permaculture, to animal husbandry and range management. Ongoing trialing could be done to find the best possible varieties in existing major crop groups and adapt them to changing conditions. New crops, such as yacón, an Andean “superfood” that is well suited to our growing conditions, will be identified and developed both for local consumption as well as value added processing and regional export. Highly nutritious alternative grains such as amaranth and quinoa could be cultivated and further adapted to our growing conditions. Every useful plant species that is adapted to our climate should be grown and observed for its potential.

From these plants, perennial polycultures can be developed that will reduce non-renewable inputs while yielding a diversity of nutritious fruits, nuts, vegetable and fungi. Imagine grapes growing on carefully pruned pear trees with an understory of hazelnuts, perennial vegetables, pollinator and soil-building plants, and shitake mushrooms. Maximizing diversity in carbon-positive food systems may be our greatest hedge against a failing industrial food system based on vast, high-input, carbon-negative mono-cultures.³⁵

Relative to future State resilience activities, it is important to make sure that some of the work addresses inland, rural, low-income areas and rebuilding a sustainable agricultural economy. The farmers, for example, are increasingly having to deal with extreme weather events—big storms, prolonged droughts, etc. They’ll get five inches of rain in a storm and then no rain for a month. If you talk with the old timers they say that they’ve never seen anything like this.

Coastal Enterprises, Inc. (CEI)

Coastal Enterprises, Inc., or CEI, is headquartered in Brunswick and helps to “grow good jobs, environmentally sustainable enterprises and shared prosperity in Maine and in rural regions across the country by integrating financing, business and industry expertise, and policy solutions.” A community development financial institution and community development corporation, “CEI envisions a world in which communities are economically and environmentally healthy, enabling all people, especially those with low incomes, to reach their full potential.”³⁶

CEI is involved in community resilience in a number of ways. For example, CEI worked with the TD Charitable Foundation on a [Community Resilience Grant](#) as part of the [TD Ready Commitment](#). This commitment includes:

- Financial security.
- Vibrant planet:
 - Green spaces.
 - Low carbon economy.
- Connected communities:
 - Activities to bring diverse people together.
 - Dialogues in art and culture reflecting diversity:
 - They support *Art for All*, an initiative to make the Portland Museum of Art open, accessible, inclusive and welcoming for everyone.
 - Help groups vulnerable to social isolation build connections in their community.

³⁵ Vlaun, Scott. “The John Roberts Institute for Regenerative Agriculture (RIRAP).” Unpublished, p. 1.

³⁶ “About.” *Coastal Enterprises, Inc.*, 2020, <https://www.ceimaine.org/about/>. Accessed 15 September 2020.

- Better health.

In 2019 CEI supported An Act to Limit Greenhouse Gas Pollution and Effectively Use Maine's Natural Resources ([LD 797](#)) intended to address climate change by reducing carbon pollution and growing local economies, while protecting families and businesses from the worst effects of the changing climate.

CEI joined with two other impact funds investing \$1 million in Encore Renewable Energy for solar projects in New England—see [article](#). CEI's investment was made through its new subsidiary, Bright Community Capital (BCC). BCC provides both long-term financing for significant solar projects across the country as well as flexible capital to developers.

CEI has been making loans to municipalities for solar projects for seven or eight years. It's their most tangible resilience activity. Generally, the financing they provide is for power purchase agreements (PPAs). Now the commercial banks are getting into the act, which is what CEI tries to achieve. They pave the way with new financing models, and when these have been shown to work and that there isn't much risk, the regular lending market starts to participate.

Most communities are aware that they might be vulnerable to climate change impacts, such as flooding or sea level rise, especially if they have had an event like a flood, extended power outage, or mill closing. There is less awareness about other impacts, such as heat waves when seniors lack air conditioning.

The challenge in Maine is that home rule and other factors have set up the 450+ municipalities in Maine as separate kingdoms. There needs to be a regional approach to improving resilience. Also, most communities are wary of State mandates, so the approach needs to be based on incentives—primarily funding. To get everyone rowing in the same direction, the regional organizations should be consistent in their approaches and use templates provided by the State. They should offer both initial administrative money to help staff or volunteers do some planning, and they should offer project money for implementation.

The carbon trading by means of which some land trusts are selling carbon credits is largely voluntary at this point. The New Markets tax credit program is more established. CEI used this program on a project with the Downeast Lakes Land Trust and the community of Grand Lake Stream. It was a triple win situation involving a large-scale transfer of land for conservation, the preservation of an area as working forest to maintain a forest economy, and the provision of funds to the community for planning and infrastructure work. New Markets has survived both Republican and Democratic administrations due to its effectiveness.

Relative to community resilience, CEI has financed many affordable housing projects, such as a very successful project for the [ElderCare Network of Lincoln County](#).

Community Concepts

[Community Concepts](#), which is based in Lewiston and South Paris, works “to strengthen individuals, families and communities in Western Maine by providing diverse programs, by engaging in strategic partnerships, and through advocacy that addresses the barriers to promote economic opportunities for all. ... Since 1965, Community Concepts, Inc. has offered a variety of housing, economic development and

social services for the communities of Androscoggin, Franklin and Oxford counties of Maine. These services support both the basic needs of families and promotes self-sufficiency.”³⁷

Community Concepts is a Community Action Agency that runs the Head Start program for Oxford and Franklin Counties as well as providing many other services for low-and-moderate income people. Its Community Concepts Finance Corporation arm has been the leading micro-lender in Maine for the last four years.

Community Concepts has assisted the downtown organizations for both Norway (Norway Downtown) and Rumford (Envision Rumford). They also work with [Healthy Oxford Hills](#), which has a resilience committee.

Broadband is a focal area for Community Concepts. They recently received a Northern Border Regional Commission grant to install wi-fi hotspots in towns in Oxford County. (The [Northern Border Regional Commission](#) is a Federal-State partnership for economic and community development in northern Maine, New Hampshire, Vermont, and New York. Each year, the NBRC provides Federal funds for critical economic and community development projects throughout the northeast.) The grant pays for the equipment and installation; the towns pay for the service. The [Northern Forest Center](#) is a partner. Community Concepts also partnered with Envision Rumford and the Town of Rumford to install six wi-fi hotspots in the downtown on Congress Street as well as bringing high-speed fiber to eight or more buildings in the downtown area. Finally, they got a grant from the [ConnectMaine Authority](#) for planning for a broadband “bootcamp.” The purpose is to engage and educate communities in thinking through what they want for better broadband. They are working with over 13 communities on this in partnership with ConnectMaine, GWI, and the Island Institute. The Island Institute has developed a process, captured in a 20-page booklet, that they are using as the backbone for the bootcamp.

Community Concepts is also working with GWI on bringing fiber to homes in Sumner, Hartford, and Hebron.

Community Concepts is networked with the Mahoosuc Land Trust which is doing projects like the Valentine Farm. The farm has a pollinator garden and a songbird habitat with guided hikes as well as a handicapped accessible walking trail. The Trust is exploring the sale of carbon offsets on the voluntary carbon market, which represent reductions in greenhouse gases, which the Trust would achieve by forest management to increase or maintain carbon stocks on its forest lands relative to baseline levels. They are doing this in conjunction with the [Loon Echo Land Trust](#).

Community Concepts has assisted with the Mahoosuc Region Sustainable Tourism Plan. This plan includes the Mahoosuc Sustainability Pledge—a departure from the traditional economic development approach of business attraction at all costs, this policy puts the emphasis protecting the area’s environmental assets and allowing tourists to share in this responsibility.

Community Concepts is actively engaged in the work of many other nonprofit organizations in western Maine, such as the [Alan Day Community Garden](#), the [Western Foothills Land Trust](#), and [Maine West](#). A lot of the initiative, and the progress that’s being made in this area, is being made through nonprofits and the collaboration of nonprofits. The towns are not working against the nonprofits, but they lack the capacity in most cases to do much resilience work on their own.

³⁷ “About Us.” *Community Concepts*, <https://www.ccimaine.org/about-us>. Accessed 15 September 2020.

Gulf of Maine Research Institute (GMRI)

The Gulf of Maine Research Institute (GMRI) is located in Portland, and is one of the top marine research institutes in the country.

One of GMRI's projects has been to work with Portland and South Portland on developing a community education program. It was funded by a NOAA grant in 2015. The work started with education and wanting to build awareness of the kind of local impacts of sea level rise and the direct and indirect impacts to individuals within their coastal communities. It also includes how municipalities are faced with complex decisions and how data and science play a role in making those decisions.

GMRI is working with an advisory group of the two cities, and they've developed the education program as the end result. It is about a 90-minute program that has a mix of presentation, lots of visuals, a focus on storytelling. It has a narrative around coastal flooding and then looks to the future about sea level rise. Groups can look at maps and take time to explore the data on their own. There's a lot of space for dialogue discussing weather impacts as well, and then wrapping up, looking at different resilience strategies and examples from around the globe. The results from that program showed a general increase in understanding about sea level rise. Most people came to the table having heard of the issue but not having an understanding of what it actually meant and then had a desire to want to do more. It made good impacts.

GMRI presented that program in roughly 60 different venues in approximately 30 communities. Thirty of those programs took place at GMRI. The other 30 programs for the most part were outside of Portland and South Portland, from Mount Desert Island down to York. It was a pretty wide range over 2,000 folks, but by no means have they diluted the interest. They didn't have to do very much recruiting, and their programs usually had a full house each time as there is a lot of interest in the topic. As part of leveraging that work, GMRI worked with a couple coastal high school teachers to develop a curriculum for high school students to give them the knowledge, skills, and confidence to go out into their communities and deliver this messaging in a way of their choice.

Doing community education projects that are student driven is still in draft form; they'll be publishing material on that this fall. Also, their work has started to expand more into the data visualization and decision-making space even as there is still a bent towards community education and engagement. Some of those projects include a coastal flooding citizen science project. In addition, they are about to launch online on GMRI's [Ecosystem Investigation Network](#). GMRI worked with Belfast as a pilot community, and John Cannon from the Weather Service was also on their advisory group for that. The goal of that project is to not just to document instances where flooding is happening or evidence of it having happened, but to also look at the weather and water level conditions of the day given that Maine has a lot of coastline and not very many tide gauges.

GMRI is trying to understand the local weather and water level impacts that are creating those flood situations. From John Canon's perspective at the Weather Service, this will help him use the models that he already has to hone in on his forecast and his warnings and lookouts for floods. It gives him more boots on the ground and more local data. From the community perspective, there's also a set of questions that asks folks not just to upload their data like photos, location, and time, etc., but also to answer questions such as whether this flooding is concerning to the respondent, if it impacts their community, is it public or private property, is it of historical significance, is it a business, and, if it does impact, how one can move around the community?

GMRI is looking for data to help municipalities prioritize which areas to focus on—which ones are of most significance to the community members themselves. They're working with South Belfast, which they will be launching early this fall, just in time for high water season. GMRI also is working with Vinalhaven, Portland, and South Portland to launch a project this fall. For Portland and South Portland, it may roll out in conjunction with the *One Climate Future* plan. Their hope is to expand this work to other coastal communities in the Gulf of Maine region. It will also provide a space for dialogue and sharing so communities can learn with and from each other.

The citizen science for the most part has been supported by local foundation funding. In addition, through a Maine Coastal Community Grant, South Portland contracted with GMRI to do some mapping work. It came out of doing the flood resilience survey that Abby Sherwin at SMPDC developed. Abbie conducted the Flood Resilience Checklist, and they noted that the City was lacking a space to document past floods and also that there was a disparity in data such that the municipal departments weren't communicating with each other and each had different sources of data and baselines for thinking about how flooding may impact them, if they were even thinking about it at all.

Therefore, GMRI worked with the South Portland Sustainability Office and with Abby Sherwin to develop a flood data protocol. It is a database where municipal staff can upload any impacts of flooding within their community. In addition, there is a public portal that municipal staff will also use also, which is more of an education around the complex impacts of sea level rise. One thing they found from the original program was that when one looks at a sea level rise map, folks immediately want to see how it is going to impact them and their home. People are thinking less about the overall community impacts. These would include, for example, impacts on major transportation routes, stormwater infrastructure systems, natural habitat areas and ecosystems, the economy and the ability for getting goods and services, as well as thinking about what makes a community rich in ways that are not economically based and the social ties and networks that will be impacted by coastal flooding. Working with the Sustainability Office, GMRI put together a story map that includes those kinds of lenses in order to push forward and expand the thinking on coastal flooding impacts. They will be launching that this fall in conjunction with the *One Climate Future* plan. GMRI is then hoping to use this experience as a model that they can replicate with other coastal communities that may be interested.

GMRI recently received a grant from NOAA, again through their environmental literacy program, to develop a coastal training curriculum with the goal of building community capacity in rural municipalities to make community-informed adaptation planning. This will be with about a dozen partners, including a couple of coastal communities (Saint George and Vinalhaven).

The program recognizes that rural communities in Maine have very limited resources, very small staff with a million things to do, and many issues that are felt to be a greater priority. The goal is to see how they can incorporate adaptation planning, particularly with a climate/sea level/coastal flooding lens, into the activities that the towns already are doing or into the planning that already needs to happen. It includes wanting to help communities with having if not a sustainability committee or a climate committee at least an informed citizenry that can support resilience planning. Thus, it involves building knowledge, skills, and relationships within a community so that way they have that internal capacity. This would be accomplished through regional trainings. There would be perhaps five communities of similar size and location, and they perhaps would share some larger infrastructure or have similar issues or needs.

The communities will be learning together through these trainings. GMRI will also connect them with local professionals that may be able to assist with data needs that they may have, provide support, help with

understanding FEMA data or flood data, or connect them with funding sources. In part it will involve putting faces to names and building a professional network amongst these community members. And then continuing that on with the professional learning community. For this project, the current funding will support four of these regional trainings, which represents about 20 communities. It's a three-year project that hopefully will have ties to what the State is planning with their adaptation plan or climate plan coming out in December. It's something GMRI is very excited about.

In terms of other areas of GMRI work, their science staff has been working to understand the shift in ocean temperatures and what that means for fisheries for different fish species ranges. Fish know no boundaries, and their physical boundaries are the temperatures that they prefer to live in. As the temperatures are increasing in our ocean, their natural boundaries are going to shift. GMRI is looking into how that is going to impact the population of the species that people are expecting to see in the Gulf of Maine that they rely on perhaps through our fisheries. GMRI is trying to help fishing communities understand how our fishing opportunities may shift. We may see less of something, but we might see more of something else.

One aspect of this is whether there needs to be a shift in fisheries regulations to allow for these new fisheries coming in or if we need new training and new equipment to fish for these new species. Similarly, there is the question of whether we need to make sure that there's an actual market for some new species that may be coming in. That's one aspect on the fishery side and building resilience. Also, there is working with aquaculture and noting that that's going to be a space where a fishing community can shift their work to provide a steady income as we're seeing disruption and our changes in the fisheries. That is, how can aquaculture diversify the fishing income for the fishing industry? That more or less sums up GMRI's fisheries work.

In terms of hazard mitigation, there was a meeting of the Cumberland County emergency planners a year ago that involved looking to see how they could preplan for hazards to reduce the amount of mitigation that might be needed. It was along the lines of building resilience to meet the needs of hazard planning, which seemed useful.

Relative to overlapping efforts by various groups, it is tough to a degree to have to be competing with each other for grants and funding. But in many cases, like their new grant around coastal training and rural communities, a lot of the other groups sign on as partners, so there also is a lot of collaboration. For the coastal/rural communities project, some of GMRI's partners are the Island Institute, UMaine, Maine Sea Grant, DEP, the Wells Reserve, and the [New England Environmental Finance Center](#).

This is a conversation that has been going on regarding how to capture all the things that are going on and how to coordinate better. There's definitely a desire to have more coordination, so they're not overlapping, but also ensuring that they are having the same message and are talking about the same data sets so that even if they have different approaches or overlaps, they are not being contradictory and are not working against one another. That's been a good conversation there that perhaps the GOPIF pilot project could contribute to.

In terms of capacity, GMRI recently hired a Climate Center Director. His position will be to coordinate a lot of climate work that is happening across various GMRI departments and programs as well as identify gaps within their external stakeholder groups and the communities that they're working with to see how to better use partnerships or internal collaborations to close some of those gaps. This will help GMRI's work grow in the near and long-term future, and it provides some added capacity for the state.

Maine Community Foundation

The [Maine Community Foundation](#), with offices in Ellsworth and Portland, adopted a set of goals in 2016 that include: a healthy start for Maine children; access to education for all Maine people; racial equity; the ability of older Mainers to thrive; and opportunity for entrepreneurs and innovators.

As is apparent, climate is not one of MaineCF's focus areas. But over the last few years they have started to realize that it's important, and it is something of a shadow initiative for them currently. They are looking at the end of this five-year plan and are already starting the evaluation and the conversations about what comes next. There is a sense that there will be some greater focus for the Foundation on climate going into their next strategic initiatives.

One of the big things they have been doing is some work on energy efficiency and weatherization in the nonprofit and municipal sector. They had a program called [Grants to Green Maine](#) for three years in which we were funding energy efficiency in buildings that nonprofits and municipalities owned. The next stage of that was to make energy efficiency a piece of their work on historic preservation. They have been working with Anne Ball (Senior Program Director) at the [Maine Downtown Center](#) to give those applicants and grantees technical assistance and support because most of them, understandably, do not know what they're doing when it comes to energy efficiency in their buildings and how you prioritize and evaluate the impact and understand what you're doing in the context of a historic building versus any other building.

There is a lot of room, particularly for municipal buildings, to do more of this efficiency work. There needs to be a lot of handholding relative to things like getting through the process and understanding the cost savings and energy reduction, etc.

Another piece of what the Foundation is doing on climate is that they are launching two new conservation grant programs³⁸. The deadline for the first round is October 15th. They made climate resilience and mitigation a priority in both of those programs.

The Foundation also is helping to facilitate and support donors and foundations with putting their money into the Maine Climate Council's work through the creation of climate action fund as a vehicle for folks who didn't want to write checks or who were restricted from writing checks directly to the Climate Council and the State Treasurer. Sandy Buck ([Horizon Foundation](#)³⁹) is the advisor, and he helps folks facilitate those funds going to the right place.

In terms of overlapping or complementing Efficiency Maine, the emphasis within the Foundation's program is reaching nonprofits who wouldn't otherwise be thinking about it and providing them with a relatively simple path. Also, they have skilled staff members who can solve conflicts with the historic preservation people and who can walk grantees through the steps in their projects about how to manage

³⁸ [Conservation for All](#), which offers general support, and [Maine Land Protection](#), which offers support for land acquisitions and easements.

³⁹ In Maine, Horizon's conservation funding focuses on ways in which the state's unique assets can be used to mitigate and adapt to climate change, including: programs that seek ways for communities to become more resilient by increasing energy efficiency and weatherization and the use of renewable sources of energy; efforts in support of policies that aim to reduce the use of fossil fuels and increase non-carbon energy source alternatives; and, forest and farmland management practices that promote working forest conservation, efforts to preserve high-value open space, and management practices that maintain and improve water quality and enhance wildlife habitat.

historic character with energy efficiency. The Foundation's value is like being a trusted friend and funder for many years for a nonprofit and letting them know that efficiency work is a good thing to do and is feasible.

The [Maine Downtown Center](#) has ten or so official Main Street communities, but they also have a larger set that are Downtown Network communities⁴⁰. MaineCF does a lot of work with MDC.

One of the requirements of the Grants to Green Maine program was that the applicant would designate a "green champion" and the green champion was responsible for amplifying and communicating what efficiency work was being done and why and what the value was both to the community and then to other communities who might also do it. In addition, the green champions worked together as a cohort and supported each other and learned from one another's efforts as well. There hasn't been the capacity to keep that support and public education effort going, but it was a valuable piece of the work and allowed communities to kind of gain a lot of knowledge from each other and to communicate broadly about why they were doing the efficiency work and how valuable it was to the community and other communities. This is something to consider doing more of.

The work that the Foundation is doing on innovation and entrepreneurship is also in partnership with Anne Ball and the Maine Downtown Center. It is relevant in that as they've gotten further into the pandemic, the idea has grown that a more diverse, entrepreneurial, and innovative economy that has lots of moving parts and networks is more resilient. If communities can deliberately make themselves a hub and a welcoming place for entrepreneurs and innovators, they ultimately will benefit from that down the road. MaineCF started this program last fall. There's a national network of organizations and municipal officials, towns, cities, impact investors, and all kinds of folks who are focused on supporting innovation and entrepreneurship.

The national thinking and organizing is being led by the Kauffman Foundation. They have a program for rural States called [RuralRISE](#). MaineCF learned about how the National Main Street folks are layering a focus on supporting entrepreneurship and innovation onto the existing main street model, funded by Kauffman, as pilot projects in a few places around the country. MaineCF and the Maine Downtown Center were able to set up one of these programs for Maine. The three communities selected to get planning grants were Skowhegan, Monson, and Lisbon.

It was a small, \$10,000 planning grant to organize a local team, identify who was going to be part of the effort, begin to meet with each other, get prepared to do some technical assistance, to do community site visits, and to do focus groups with the support and direction of the National Main Street Center (NMSC). NMSC is providing the technical assistance and MaineCF is paying for it. MaineCF gave the planning grants. Everything has moved virtual at this point. There were supposed to be in-person site visits in April. Instead, due to the pandemic, they are doing a whole series of virtual site visits and the communities are doing videos. They're walking around with Facebook Live with a representative from NMSC, looking at town areas. They also have been doing surveys throughout the summer to identify

⁴⁰ "The Maine Development Foundation's Maine Downtown Center, (MDC) program serves as a statewide resource for preservation-based downtown revitalization and serves as the state coordinator for the National Main Street Center's Main Street Program. Established in 1999, MDC's mission is to advance economic development in Maine downtowns using the 40-year-old Main Street Four-Point Approach®. The approach is considered one of the most powerful economic development tools in the nation for vibrant, healthy downtowns. Maine Downtown Center currently has 10 nationally designated Main Street Maine programs and 16 state designated Maine Downtown Affiliate programs and works with scores of other communities on revitalization and improvement efforts. We believe Main Streets are for everyone. At the core of our approach to revitalization is a commitment to creating places of shared prosperity, equal access to opportunity, and inclusive engagement." "Maine Downtown Center." *Maine Development Foundation*, 2020, <https://www.mdf.org/program-partnerships/maine-downtown-center/>. Accessed 3 September 2020.

consumer trends, understanding that consumers and people in the communities may be feeling very differently than they ever were before about where they're shopping, where they're eating, what the kinds of services they need are and where they're getting them.

They are also doing focus groups with entrepreneurs and with the organizations who are providing support to entrepreneurs and businesses. In addition, NMSC developed an audit tool that is part of the process. Each community goes through the audit, and they have data from the surveys and from NMSC. Once they get through virtual meetings with the local teams, the NMSC representative will develop a report for each of the communities that gives them some ideas of the real opportunities they may have. At that point MaineCF is going to give them implementation grants to begin to implement some of their ideas. The Maine Downtown Center and MaineCF are going to work hard to get them to focus on no more than two to three priorities. The Maine Downtown Center's role has been in a support capacity for the communities, both to keep them connected to each other and to help them with day-to-day questions. They will also get a second implementation grant in 2021 to keep the work moving forward.

MaineCF is doing a similar project Downeast as more of a regional effort—the Downeast Innovation Network⁴¹ across Washington and Hancock counties where they have about 40 partners. This started in 2018. There are independent facilitators in the region who are keeping it going. They have quarterly meetings and monthly virtual meetings that they call smash-ups where they get on a video call, do problem solving, and talk about what they're seeing with the idea that it's a little less prescriptive than what they've done with the community level pilots. This is a very entrepreneurial region of the state that has many assets and support organizations; people, of necessity, are almost entrepreneurs from birth in Washington and Hancock County.

The thought was that if MaineCF can create space for all of the organizations, networkers, and folks who are doing this work to work together and provide them some resources to do it, then we might see more successful entrepreneurial activity and more growth that emerges from that. MaineCF focused on the actual building and strengthening of the network in the hope that the long-term impact will be greater growth and success in entrepreneurial ventures across the region.

Community to community education and the sharing of stories is very important. A good example is the work they are doing in broadband. There is a lot of learning occurring through the Broadband Coalition. It's gone beyond conversations to actual infrastructure projects.

In terms of what works in promoting climate resilience and mitigation, it depends on the community, but in general talking about **community** resilience is a winning message. Talking about community resilience and working on it will bring in many of the climate related impacts that need to be addressed.

The Watershed School's climate program came through MaineCF's Community Grant Building Program. (See the Watershed School interview toward the end of this section of the report.)

⁴¹ See the [Downeast Innovation Fund](#).

Maine Municipal Association (MMA)

The [Maine Municipal Association](#) (MMA) is a voluntary membership organization located in Augusta that offers a variety of professional services to municipalities and other local government entities in Maine.

MMA has been doing engagement in terms of coastal hazard planning for the past couple of years. The looming hazards have now been identified, and a lot of the problems are around being able to raise money locally for the local match portion of any sort of federal funding, being able to have a statewide plan that they can point to that would allow them to leverage that federal funding, and the availability of having someone on staff to write those grants or to manage that information afterwards.

In terms of capacity in general, the Maine Climate Council's Resilience Subgroup did a comprehensive review of the structural inadequacies within the regional planning organizations around the state and where they need to be supported more in order to get some of the towns that have zero capacity to engage with resilience planning. Judy East did a map showing the disparities as to whether there was professional planning staff available on a regional level let alone on the municipal level.

The information from the Working Group debunked the myth that municipalities are kind of slow, behind the curve, resistant to change, and not thinking about climate. It was overwhelming that people knew that they had these hazards, were trying to do things about it, but lacked money and structural support. The Resiliency Subgroup recognized that there is a real local capacity issue on a statewide basis. They looked, for example, at existing infrastructure grant programs like culvert replacement, which has been focused more on wildlife passage than, perhaps, storm water and tidal surge. It's not just wildlife passage that should allow a municipality to get into the grant program for culvert replacement; it should also be infrastructure protection and flood handling as well.

The inland communities don't have nonprofit groups like the Island Institute to help them identify resilience issues. For example, most of Maine's historic downtowns are in river flood zones. And these are statewide issues that need statewide revenue and not the property tax to be doing these big lifts.

Relative to the State Planning Office, it's probably not something that is going to come back, but whatever is going to be set up will need to be crosscutting in the way that SPO was. If it's just an executive function it can easily go away so the resilience framework needs to be built into all of the state programs with a centralized hub. There needs to be one stop shopping at the state and regional levels for municipalities to get information and support. Also, unlike the old SPO, it needs to be a program that provides assistance but does not develop policy and does not base assistance on whether a community agrees with the policy.

Along these lines, there was some desire among some of the Subgroup members to add incentives for communities to have certain things built into their ordinances and charters to deal with climate change and resiliency. This is a huge lift. It requires getting your entire community to be politically on board. This may not be necessary. It's a lot of work for those individuals, who are all volunteer. It's punishing communities because they can't do that politically, even though they might want and be able to move forward with a particular project. It's talking about an ideal that's holding back something that everyone actually does agree on. Just because you don't have climate change in an ordinance doesn't mean that your community is not willing and desires to have resilience projects done. MMA's comments were that you can't do that because you're automatically handicapping a lot of communities from accessing those funds. So, the discussion became more focused on climate funds such that prioritization for all the state grant programs they wanted was narrowed down to just the climate factors.

Relative to MMA's potential role in the implementation of the Climate Council's recommendations, taxation policy will need close attention as the drive to put more land into conservation means that communities are going to have even less money locally to address their important needs. MMA will also keep their members informed and try to create communication avenues. Generally, the rural voice is missing from this policy realm. Right now, the inland voice is mostly focused on timber. There probably are a lot of ways that policy could have been improved or looked at regionally, like the drive to electrification. It has to be more realistic. Perhaps there should be different strategies for different regions.

We also need to be concerned about the added costs of more stringent building code regulations when it is already very difficult for many people to be able to afford a home.

Local capacity is an issue given the barriers for small communities that are run by volunteers to leverage funds to address climate and resilience issues. In addition, there can be structural problems within grants that make them very challenging even though they sound great. For example, grants that require engineers to be hired in order to have something occur for the grant, but then the grant can't be applied to that salary. These are all statewide concerns. It is something that should be incentivized in a completely different way, such as achieving building efficiency through energy credits or providing a grant for a certified contractor to build your house as opposed to having an onerous building code. Local planning and regional organizations could provide the technical support function that SPO did previously, but they aren't adequately funded, and their success depends on the person that's in that role versus there being a dedicated commitment to recognizing that these agencies are very important.

Further, there have to be options for achieving the climate and resilience goals because not every community is starting from the same place. What's important is that they are all moving forward and making progress. For example, people always talk about the comprehensive plan. You can write a perfect comp plan that has everything that everybody wants but then fail to get it passed at town meeting. So, it sits on a shelf. This is what MMA would like to avoid.

Maine Organic Farmers and Gardeners Association (MOFGA)

Located in Unity, MOFGA's mission is to train and encourage people to pursue a lifetime of organic farming. It was developed partially in response to Maine's demographics in which a large percentage of the farming population was 60 years of age or older and a huge amount of the farmland was, and still is, poised to transition ownership. MOFGA wanted to make sure that farmland is protected and is farmed into the future, hopefully organically.

MOFGA has a program called the Maine Farm Resilience Program which enables farmers with a few years of experience to move up to the next level. First, though, they have a beginning farmers program. They have had hundreds of people who've come through the program. It's a two-year intentional program to help new farmers understand everything from soil sciences, to developing a business plan, to tractor maintenance, or livestock husbandry, or whatever their particular interest is. It is learning what it takes to run a successful farming operation. Farming has a very steep learning curve and a lot of hoops to jump through. And a lot of the people who come to their program do not come from multigenerational farming families where they could have learned about what it takes to run a farm, or have an extended family that can pitch in and help, or have other kinds of resources to help make a farm businesses success.

MOFGA has found that there's a huge enthusiasm for participating in this program. There's an incredible peer network and mentorship from people who have been doing this for many years. But, after a few years of farming people often find that other parts of life settle in. Which is where the resilience part comes in. The MOFGA staff realized that there was a lot of services, training, and expertise that farmers needed several years out that maybe they weren't really thinking about so much when they first dove in. Perhaps they need to change their business to a different scale, or they have children now, or maybe they have taken on more debt than they thought.

Therefore, the resilience program had a lot to do with helping ensure that that kind of advanced beginner or mid-level experience farmer was going to have the resources to sustain and get through a rough patch and establish themselves to the point where they actually could go for the long distance.

This cohort of newer farmers is very well aware of what's going on with our climate chaos, as far as agriculture farming and gardening is concerned. And they understand how critical resiliency is when faced with the threat of our changing climate.

The Maine Farmland Trust is the primary organization in Maine dedicated to protecting farmland and farm soils. They obtain easements to ensure that the land stays as farmland into the future.

Food processing operations are a very important for an agricultural economy, and one example is the need for a processing plant for Maine organic dairy. Dairy farms are especially at the hub of all Maine agriculture. They are the big operations that buy in large enough quantity, for example, to make it reasonable or logical for a local farm store to set up shop in a certain area as they can be assured that they're going to have enough business to support one or more local dairies. Once all of that infrastructure and the related businesses are set up in a certain location, it makes it much easier and more viable for other farm operations to come in to that geographic area and operate. Yet so many dairy farms have failed in the past two decades because they can't make ends meet.

This is a challenge for conventional milk and as well as organic milk.

MOFGA struggles to defend the integrity of the organic standards. There is no way that huge dairy operations that have maybe 25,000 or 30,000 cows in their facility could comply with the USDA national organic program standards. They really push the limit. MOFGA finds it very objectionable, and the staff are constantly working on it with their congressional delegation. It makes it very difficult for local certified organic processors or farmers to compete with operations in Colorado or Texas or California, where they have massive operations. There's just no way logistically that you could possibly move dairy cows out to the pasture as is required on a daily basis.

In Maine, there is some understanding of the importance of dairy to Maine's agricultural economy and that the financial sustainability of dairy farms is absolutely critical. We need an organic dairy processing facility, and there is a feasibility study that is in the works now that is happening with some funding from USDA. At present organic dairy farmers in Maine have to ship their milk out of state to be processed and bottled, and then shipped back into Maine to be sold, which is crazy and not very good for the carbon footprint.

It can be argued that organic family farming has sustainability multiplier effects. MOFGA feels that transforming the agricultural landscape to be more local and more organic is going to help the health of Maine people, the health of our environment, and the health of our economy. It has been a few years since they did an economic feasibility or economic impact assessment, but they did do a study on the

changing demographics of Maine agriculture and the impact that new certified organic operations are having in Maine. It is impressive. The organic farmers actually are creating new jobs and are bringing dynamic new people to the state, creating value-added products, and dramatically shifting the trend of the declining farmer population; in Maine, it's actually growing. In addition, there are a significant number of women-owned businesses.

Something MOFGA has advocated for at the municipal level is for communities' ability to protect themselves from unnecessary agrochemicals, especially for aesthetic purposes. There are more than 30 different ordinances now across the state from communities to restrict the sale and use of pesticides for primarily aesthetic purposes. The ordinances are all very thoughtful, and they're very tailored to their own local geography and economy. In addition, they all have exceptions for public health emergencies and exclude any kind of restriction on agriculture. They are mainly geared toward trying to encourage communities to maintain their public lands and public spaces with organic land care practices. This is something that MOFGA very strongly supports, and they have worked well with communities on it.

In terms of the role of government, MOFGA works very closely with the Maine Department of Agriculture regarding organic management practices. To get the label of certified organic, you have to follow very strict rules, maintain detailed records, and comply with a lot of different guidelines. MOFGA feels there is a very important role for government to help enforce these programs and to provide technical assistance. On the other hand, they also want to do everything they can to minimize the interference between farmers and their customers. Food sovereignty laws are a case in point. On the one hand, they feel that many rules and regulations do make a lot of sense. However, there are others that may not be necessary. It's not black and white, and it's a little tricky for MOFGA. But they definitely want to do everything they can to enhance opportunities for farmers to connect with their customers. They were supportive when Representative Hickman introduced a proposal for a constitutional amendment that would allow people the right to feed themselves, whatever they choose to feed themselves. In a way it was flipping the discussion from farmers having a right to sell to whomever they want to an individual being able to procure food that they want to ingest from whomever they wish.

Farm labor is one of the biggest challenges, especially this year with COVID-19. Farm labor has been a real challenge for farmers from early this season, just figuring out safety protocols, but then also just the shortage of extra hands to help in general has been a real problem.

Farmers are not getting a fair price for their food. The farmers can't afford to pay their workers. MOFGA is trying to call attention to the fact that the whole system is undervaluing food and that it's not a sustainable system. They also recognize that farmers don't necessarily even have the resources they need to pay their workers what the workers deserve. It's a big challenge that they have. They just want farmers to be able to have a comfortable life and support their communities.

Thinking about how municipal officials can support farmers, providing training to the officials to increase their awareness probably is the most important thing. Business support services also are a key need.

MOFGA is very excited that the broadband initiative that passed as this has been big challenge for a lot of their farmers. It has been difficult for farmers being able to compete and to get access to information related to the weather, organic pricing, pesticides, communication with their with their customers, etc. In addition, tax relief is needed for farmers that are actively farming their land.

MOFGA staff also often hear of the need for access to professional guidance like legal services or insurance services, management expertise, and other kinds of professional development services. These

are all things that MOFGA tries to navigate and to let their farm community know where the resources are. But more is needed to regarding the human resources that are necessary to be available for farm families to come in and be successful.

The cost of energy is another large challenge for farmers and especially for big operations like dairy farms. The need is to bring down the cost of energy and also improve energy efficiency. One somewhat tricky issue is that MOFGA wants to encourage renewable energy systems, like solar power arrays, but they also don't want that all to come at the expense of prime farmland. They strongly want to make sure that they're protecting prime farmland and ensuring that if any is sacrificed that it would be done in a dual use way with a plan to show that farming actually is going to continue and that they're going to minimize the impact of installing the solar array.

Sierra Club—Portland Climate Action Team (PCAT)

The [Portland Climate Action Team](#) of the Maine Chapter of the Sierra Club is part of the [Maine Climate Action Team \(CAT\) program](#). The Sierra Club has formed the action teams in response to Mainers demanding action to protect the climate and to move as soon as possible to completely clean energy. There are Maine Climate Action Teams in Bangor, Bath, Belfast, Brunswick, Buxton, Cumberland, Freeport, Kennebunk, Montville, Phippsburg, Piscataquis Valley/Dover-Foxcroft, Norway, Portland, Sacopee Energy Alliance, Scarborough, Topsham, and Wiscasset.

Whether activists are involved in a one-time project or are doing continued work to change the way a city is operated, the Sierra Club exists to support them. The Sierra Club doesn't try to push its own agenda but seeks to be a support system, to help with communication, etc. The first project of the [Portland Climate Action Team](#) was a Portland landfill solar farm. Since then they have developed good relationships with the City Council, the Mayor's Office, and the Sustainability Office. This includes holding their feet to the fire and trying, in the course of week to week City business, to get them to actually stick to their plans and resolutions. They sometimes have some pretty heated discussions and can be a bit of a thorn in their side. Generally, however, the Portland Climate Action Team wants to provide guidance and be a helpful resource.

As an example, the Portland Climate Action Team (PCAT) is trying to stop a Portland proposal to cut the Sustainability Manager's half-time assistant position and, in addition, are advocating that the Planning Department provide more support for the Sustainability Office.

In terms of student climate activism in Maine⁴², there is the [Maine Youth for Climate Justice](#), [Maine Environmental Changemakers Network](#), and Maine Youth Climate Strikes.

⁴² "What began in 2018 with a school walk-out by 16-year Greta Thunberg in Sweden has grown to a [worldwide movement](#) of weekly strikes by youth calling on adults and governments to take action on the climate crisis. For the international Sept. 20 [Climate Strike](#), youth strike leaders called on adults to join them at one of the more than 6,000 events in 150 countries scheduled for that day, including more than 500 in the U.S. and 21 in Maine. An estimated [4 million people](#) took part worldwide, likely the largest [climate protest](#) in world history. Organizers of the Climate Strike, led by the Future Coalition, called for immediate and [significant action](#) to address the climate crisis, including a Green New Deal, respect of Indigenous Land and Sovereignty, environmental justice, protection and restoration of biodiversity, and implementation of sustainable agriculture. The strikes kicked off a week of [global climate action](#) and came just before the [United Nations Climate Action Summit](#) in New York City and a separate [Earth Strike](#) on Sept. 27. In Maine, climate strikes were organized by a number of groups, including [350 Maine](#), [Maine Youth Climate Strikes](#), [Maine Youth for Climate Justice](#), and others." "#StrikeWithUs: Support Global Climate Strikes." *Suit Up Maine*, <https://www.suitupmaine.org/strikewithus-climate-strike/#:~:text=In%20Maine%2C%20climate%20strikes%20were%20organized%20by%20a,the%20list%20below%21%20Contact%20your%20members%20of%20Congress.> Accessed 16 September 2020.

In terms of the effect of the pandemic, the PCAT continues to be very active. They haven't been able to meet in person but have been very consistent in making sure that they are all on the same page and making sure that certain groups of decision-makers aren't taking advantage of this opportunity and using it as an excuse to break free from the need to engage with the public and engage with those who are impacted by projects.

One impact has been that the youth activists aren't able to get together in person. Also, a lot of their volunteers are older and are more vulnerable to the effects of COVID. In addition, Troy Moon (Portland Sustainability Director) had been furloughed to a half-time position, and the Mayor doesn't know when he will be brought back to full time.

There is some overlap between climate action groups, such as between 350 Maine and the Sierra Club. Representatives from one group are likely to be involved in another. It was interesting, for example, to see how the dynamics developed in the planning for the Earth Day celebration and strikes. The PCAT had a lot of meetings with the youth representatives and was very straight up about not wanting to direct anything. There have been regular conversations about forming some kind of collaboration in the form of a climate action advisory team.

The important part of ordinances and climate literacy is considering the carbon and environmental impact of all projects, and not in a rosy or tokenizing way. This requires doing the fundamental background work. You have to have climate literacy across the board—including for code enforcement officers, planners, inspectors, and other municipal officials. When it comes to final inspection of a newly constructed building, the energy efficiency piece needs to be rigorously enforced. In order to do that, the enforcement officers need to be as well-versed on climate issues as they are on safety ones.

Sustainability departments need to be empowered and their work needs to be considered as important as attracting development. Communities are willing to provide tax breaks to developers just for the sake of development and potentially bringing in money. Municipalities need to be clear with developers about the community's expectations and having climate related benchmarks be met. The goal is to attract developers who will build buildings that will be here in a hundred years.

Watershed School

The [Watershed School](#) is private secondary day school in Camden. The interview was conducted with Will Galloway, Head of School.

The Watershed School has “an interdisciplinary, project-based, and community-oriented semester experience for high school sophomores and juniors from Maine and beyond”⁴³ called C.A.L.L. ([Climate Action and Leadership Lab](#)). Over the last three years the students and their faculty adviser, Janet McMahon, have generated three reports and have been influential in moving Camden forward in climate resilience and mitigation.

⁴³ “CALL: Climate Action and Leadership Lab.” *Watershed School*, 2020, <https://watershed-school.org/call>. Accessed 16 September 2020

The first report, from 2015, was [*A Carbon Neutral Camden: A Time to Act*](#). It gave an overview of the climate crisis and its potential impacts on Camden, and it reported the results of a survey the students had done that showed strong support for renewable energy and becoming carbon neutral in Camden.

The second report, published in June 2017, is called [*Getting on Board – Preparing for Sea Level Rise in Camden, Maine*](#). This was a well-researched vulnerability assessment that included another survey in which 73% of the respondents expressed concern about climate change related sea level rise. This report and the one before it, together with outreach by the students to Town officials, led to the creation in 2017 by the Select Board of an Energy Committee. The Energy Committee includes a Watershed School student from the C.A.L.L. program.

The most recent, as yet unposted, report is *Turning the Tide - Preliminary Climate Actions for Camden, Maine*. Put out in July 2020, the report has chapters for ten preliminary actions:

1. Adopt Maine's renewable energy and greenhouse gas emissions reduction targets.
2. Hire a Climate/Energy Action Coordinator.
3. Weatherize existing homes for maximum energy efficiency.
4. Transition to cleaner heating and cooling systems.
5. Convert individual and town vehicle fleets to all electric.
6. Develop EV charging infrastructure.
7. Reduce vehicle miles driven by increasing public transit and pedestrian travel opportunities.
8. Solarize Camden.
9. Monitor progress and report to Global Covenant of Mayors.
10. Develop a community outreach and education program.

This three-year structure of climate study combined with municipal climate action is one that the Watershed School hopes will become a model for other communities. Already the reports published by the Climate Action program are being used in places like Bath and Kennebunkport.⁴⁴

Since the Watershed School opened in 2003, it's been part of their mission to make the teaching and learning linked and relevant to what's going on in the town and region around them. For example, in 2004 they were working with the City of Rockland to change their municipal lighting ordinance to make sure that any new construction would have fully-cut-off lights. The reason is that this is one region in the state that still has dark skies, and it's something that brings people up here. As such, linking learning with community engagement been part of the school's makeup and it's part of their culture. It is something that they think is very important to share with others so that other schools see the value of this and see how to actually take steps to get involved in this way.

When students speak knowledgeably about issues like climate change and resilience at a town select board meeting or an energy committee meeting, it is very powerful. It has made a difference in their area. It's not the same people who usually participate in municipal affairs but a whole new generation of articulate and committed young people who are involved.

⁴⁴ This points to the remarkable high quality of the reports considering that they are coming from a high school program. One might easily mistake them for graduate school work. Ultimately what matters from a local action point of view is persuaviness in town meetings, and in this they have been successful.

Also, seeing some response by a town makes the students feel like they have some traction, and it gives them hope. It gives young people, who have to face a kind of gloom and doom scenario, an outlet that is constructive and that they can do something about. For a lot of young people, that's probably what they need right now. So, the Climate Program has been very helpful and healthy for the Watershed students.

The Watershed School has a Climate Resource Center where they can provide workshops and training in how to develop a program like this and a cohort of people to begin the process.

This program, the Climate Action and Leadership program, is an interdisciplinary focus on climate. After completing the program, the students go back to their communities and have some support from Watershed for how to go about this in their own school and in working with the municipal body. Logistically, the students are housed in Camden with families similar to the school's international students. The goal is to bring in five to seven students this year and to have them live and be part of the community in Camden. When they go back at the end of the semester, the school continues that working relationship with them, working with the school and with the town. They are able to plant a seed in their own community. It's like a short-term semester for juniors similar to a Chewonki semester program or one at the High Mountain Institute.

However, related to the work of the Climate Council, there still needs to be added municipal or regional capacity to carry climate action forward. There still needs to be a staff person, like a climate or energy coordinator, for whom this work is a priority. Otherwise it will be difficult for communities to move to the implementation phase of climate action.

The Watershed School doesn't want to be functioning in a silo. They want to be coordinated and collaborating with other towns, and they have reached out to Rockland and Belfast. They have created a small hub and feel there are other ways to reach out to other regional hubs, perhaps through the C.A.L.L. program. Hopefully, the State climate work, as it proceeds, can help them share their experience with others.

Wells National Estuarine Research Reserve

The [Wells National Estuarine Research Reserve](#) (Wells Reserve at Laudholm) is a center for the protection of coastal environments. It combines the Wells Reserve, with programs in coastal research and monitoring, environmental learning and decision-maker training, and land and water resource management with the Laudholm Trust, a partner advocate for cultural preservation and coastal protection. The Wells Reserve is one of 29 national estuarine research reserves in the US.

The Reserve is in its 6th year of bringing the 10 coastal communities from Kittery to Scarborough together. This includes inventorying the communities about their resilience activities.⁴⁵

The different reserves are all very place-based, but they are all thinking about how to track indicators of success for climate adaptation. What they came up with was bringing together representatives from each town, generally a town planner, code enforcement officer, or town manager, and doing a round robin of sharing what is going on in each community for climate planning. They kicked it off with making an assessment of all the work done to date.

⁴⁵ Some of this information is available in a Wells Reserve paper entitled [Coastal Training Program Market Analysis and Needs Assessment Executive Summary](#).

The pace of municipal climate work reflected in the assessment is somewhat slow and has mostly involved studies and not much actual action. A number of communities have talked for four years in a row about putting a sea level rise chapter in their comprehensive plans. Chances are they haven't gotten enough support to get it voted on. The items generally range from having a chapter in the comp plan on sea level rise, to climate change being integrated throughout the plan, to adopting ordinance changes. The most that has been done was in Saco with their [Sea Level Adaptation Working Group](#) where they succeeded in getting the ordinances changed to require first floor elevations to be three feet—not just the State required one foot—above the base flood elevation.

Nevertheless, the information exchange from bringing the town officials together is useful. For example, York was the first town to come up with an ordinance regulating tree cutting for solar farms, and the other communities got a chance to learn about it. They bring in speakers from other parts of the state that are doing resilience work, such as Abbie Sherwin when she was with the Coastal Program and Peter Slovinsky. Most recently it was folks from the [Hampton Seabrook Estuary](#)⁴⁶ who talked about the choices needing to be made about the sunny day flooding that is occurring there (including retreat, although only by euphemism as no one wants to talk about it directly).

In terms of living shorelines, there's been some work through NOAA funding, but mostly around the Casco Bay area with the [Casco Bay Estuary Partnership](#).

The Wells Reserve has had a partnership with the Nature Conservancy to increase capacity at the Reserve for conducting assessment and prioritization of stream crossings⁴⁷ in the southern(most) part of the state. The focus is primarily on the coastal towns.

The Reserve has supported a couple of successful grant applications to the DEP's Culvert Grant program (also a couple of unsuccessful ones). The Reserve currently is providing technical assistance to Kittery and York for the current round of grants. It also is supporting an SMPDC proposal to the [National Fish & Wildlife Foundation](#) (NFWF) to create a resilience plan for Southern Maine. They've had a couple of previous rounds of the grant for preliminary study and design. This round would fund final design and permitting, and then there would be construction and monitoring. NFWF decided to add a new category for planning and prioritization to allow communities or their regional partners develop a plan that identifies priority sites that would then be queued up for subsequent funding rounds. It is mostly focused on coastal flooding. To the extent that coastal flooding affects municipal infrastructure and overlaps with coastal habitat and natural resources, road crossings and road embankments will probably be some of the higher priority projects. But NFWF will want to see ecological benefits—not just a bigger seawall—so natural infrastructure will be considered.

In terms of Stream Smart, the Maine Culvert Grant Program has increased the awards to \$125,000 with \$5 million available. It's not going to pay a big chunk of a large project. But the idea is that there are thousands of stream crossings in Maine, and around three-quarters of them are barriers to aquatic organism passage, and particularly diadromous fish species. If we want to be able to maintain our diadromous fish populations and our cold-water species, like Atlantic salmon and Eastern Brook trout, then we need to start taking bites out of this problem. The culvert grant program does prioritize those sites that have the biggest impact for the natural resource; something like 50% of the scoring is tied to the

⁴⁶ See also [Climate adaptation in the Hampton-Seabrook Estuary](#).

⁴⁷ See Jacob Aman's [Stream Barrier Inventory – 2013](#).

environmental outcomes of the project. Bigger crossings are more expensive, but they are cheaper in the long run when properly designed, and they'll have better environmental outcomes.

Relative to capacity and the example of multiple towns contributing toward Abbie Sherwin's position at SMPDC, the towns that the Reserve has been working with are very grateful to have any help with the various grant applications. The degree to which resilience activities occur in a municipality depends on the community (Kittery, for example, has a Climate Adaptation Committee) and on staffing levels and interest.

It would be a big help if there could be increased capacity either within municipal staff or with regional planning groups or groups like the Wells Reserve that could provide technical assistance. It is a relatively small investment when you consider that without those positions, not much of this work would actually get done on a proactive basis. And we need to be proactive about climate change because by the time that disaster strikes, it's too late to have a good solution in hand either to recover from it or to replace whatever was lost. FEMA is a good, but Jacob has heard over the years in the stream crossing world that one of the issues with FEMA funding was that you couldn't replace a culvert that was washed out with a larger structure—you had to replace it with the same size pipe.⁴⁸ This is not a proactive approach to dealing with climate resiliency. In addition, we need more champions within our communities and we also need more funding to support the work that these communities are doing. They need incentives to be proactive and do things that aren't going to break their budgets—because they've got lots of other things that they've got to pay for. For example, if it's a choice between improving schools and fixing some culvert, it certainly is understandable why the schools would get priority.

There are large grant funds available through national programs for projects, \$50 million for example, but Maine has to compete against places like Chesapeake Bay, the Hudson River, San Francisco, etc., where they have larger resource assets (e.g., millions of American Shad trying to get past dams) and larger populations, so their projects have larger impacts and are more competitive. In a sense that leaves us with Maine towns having to compete with each other in a culvert grant program, for example, that can only fund 40 to 50 projects a year for 10,000 road crossings in the state. It's a drop in the bucket. And even for small grants, technical assistance to towns of the kind that the Reserve provides is needed to be able to massage projects as much as possible to be able to get grant funding.

The State of Massachusetts has a division of ecological restoration within their Department of Fish and Game. They have around 12 staff positions that are dedicated to carrying out restoration projects around the state. They have done lots of work on tidal restoration and stream crossings. There probably are lots of other examples of things that they do. It would be great to see a state level restoration program in Maine or, a climate adaptation program, that could fund that type of work and integrate all of the information across all the different agencies that they collect and that they have at their fingertips.

Relative to better integration with emergency management and hazard mitigation, the Reserve is working on a project now, 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. They have already interviewed the different sectors individually and found that everyone mostly stays in their own lane and do not make connections. The local emergency managers, for example, said that projects for the County level were written into their plans and they expected towns to

⁴⁸ See the State of New Hampshire interview and their success in getting FEMA to accept more resilient culvert designs.

implement them, but there was no one talking about it. Therefore, these links between sectors and organizations need to be made, which to an extent is the link between science and decision-making.

Note that there is a new FEMA grant program this year, BRIC (Building Resilient Infrastructure in Communities), which has money for such items as public infrastructure projects, mitigating risk to lifelines, incorporating nature-based solutions, and incentivizing adoption and enforcement of modern building codes.

ACTIVITIES BY SELECTED STATE AND UNIVERSITY ORGANIZATIONS

Another set of interviews conducted for the GOPIF resilience inventory project was with a number of State and University of Maine organizations to see how they may be leading or supporting municipalities in climate action and other types of community resilience activities. The following is the record of these interviews.

Land Use Planning Commission

The [Land Use Planning Commission](#) (LUPC) has a comprehensive plan from 2010 called the Comprehensive Land Use Plan (CLUP). It has been updated a few times, and there have been some discussions about preparing a new one. However, it takes two or three years to prepare one and two legislative sessions to get it approved. Given the Commission's heavy workload at present, doing a new CLUP is not a front-burner item.

A significant planning achievement by the LUPC that took four years of effort has been changing the location of development criteria. This replaced the former adjacency concept in which the basis for where to allow new development essentially was adjacency to existing development. The new location of development criteria policy was based on a multi-layered approach to identifying appropriate areas for growth and involved a large array of stakeholders. It is more of a smart growth type of land use planning that increases community and environmental resilience.

The LUPC does not have its own hazard mitigation plan—the county hazard mitigation plans include the unorganized territories. Nevertheless, a high priority for the Commission in terms of addressing resilience is to do a risk assessment for its service area. For example, the Commission does not have good data on which of the many islands in its jurisdiction are inhabited; the LUPC needs to find out where the people are and what risks they may be facing.

One regulatory change the Commission has made to increase resilience has been to update its stream crossing standards so that new crossings are large enough from a habitat as well as a flow perspective. Up to now there haven't been any flood disasters from which it would have been learned whether FEMA will fully pay, in its post-disaster grants, for the larger and more expensive stream crossing designs. The LUPC will be taking a look at how Vermont has been working with FEMA in connection with their 2018 [Hazard Area Bylaws](#). (See the [Vermont Watershed Management Division](#) interview in this section of the report.)

One of the higher priority projects coming out of the Commission's work with the Maine Climate Council will be an update of their floodplain regulations to take future climate-related changes into account.

The LUPC is primarily a regulatory body and doesn't engage in infrastructure activities on its own, but it does do permitting for a variety of resilience related infrastructure projects, such as dam repairs and wind turbine installations.

Relative to capacity, the LUPC is the planning and zoning authority for an area consisting of 10.4 million acres—the largest contiguous undeveloped land mass in the northeast. The staff have been very busy, and it does not appear that the situation will change anytime soon. The most important actions that the Commission could take for climate related resilience would be a comprehensive assessment of the region's vulnerabilities and the updating of the flood rules. However, the LUPC does not have the

capacity to do this at present and would need outside technical assistance, whether through a new hire or grant funding.

The LUPC monitored a recent Tax Increment Financing (TIF) and Community Benefits Agreement between a wind turbines project and a pair of recipients, Washington County and the Town of Columbia. Downeast Wind will provide close to \$20 million in new local revenue to Washington County (\$12.4M) and Columbia (\$7.3M) over the life of the project. Had Washington County declined the TIF district, its share of the TIF revenues would have been distributed to the unorganized territories across the state.⁴⁹

Municipal Planning Assistance Program (MPAP)

MPAP's planning work serves to encourage and promote growth management and sound land-use planning at the local level pursuant to the goals of the Growth Management Act Maine's Growth Management Goals (M.R.S.A.30A, Chapter 187) and Coastal Management Policies (M.R.S.A. 38, Chapter 19) at the local and regional levels. This includes sustaining and supporting the work of [Maine's Regional Planning Organizations](#) (Councils of Government, Regional Planning Commissions) with funding from the State Legislature and Maine Coastal Program.

To help address the need for practical steps to help make communities more resilient in the face of rising sea levels and more frequent intense storm events, MPAP and Maine's Regional Planning Organizations collaborated on a series of guidance documents to help identify threats to community resources and how to respond to those threats by integrating adaptation measures into existing local policies, practices, and ordinances. The [Municipal Climate Adaptation Guidance Series](#) addresses different areas of municipal responsibility. It was rolled out by the RPO's in an intensive outreach effort in ME FY18. While MPAP devotes much of its focus to the unique planning challenges facing coastal towns and regions, the [Adaptation Guidance Series](#) and [Maine Flood Resilience Checklist](#) are tools developed to date for use in inland and coastal communities.

A complimentary resource assembled by the Climate Adaptation Program at DEP serves as the clearinghouse for adaptation resources for the Maine Interagency Climate Adaptation Working Group (MICA). The [Maine Adaptation Toolkit](#) is a much broader catalogue of tools for resiliency planning.

The [Coastal Community Grant Program](#) (CCG) administered by MPAP was an outgrowth of the Regional Challenge Grant Program. The latter served as the entry point for the State to team with regional councils on coastal resilience. A regional scale assessment of vulnerability in Saco Bay prepared by Coastal Geologist Pete Slovinsky supported the formation of the [Southern Maine's Sea Level Working Group \(SLAWG\)](#) by SMPDC with a Regional Challenge Grant in ME FY 2009. The first round of CCG included [LCRPC FY12 CCG - Coastal Hazards Resilience Phase I - Outreach to Lincoln County coastal communities with Maine Geological Survey](#).

MPAP⁵⁰ launched the Coastal Community Grant Program with financial support from the Maine Coastal

⁴⁹ One wonders, given the LUPC's need for additional revenue sources, whether the Commission should be allowed to share in TIF revenues generated within the unorganized territories.

⁵⁰ The Municipal Planning Assistance Program, Maine Coastal Program, Maine Floodplain Management Program, and Land For Maine's Future part of the former Maine State Planning Office were moved to the Department of Conservation in 2012 and later joined the Maine Geological Survey, the Maine Natural Areas Program and Land Use Planning Commission to form the Bureau of Resource Information and Land Use Planning within the Department of Agriculture, Conservation and Forestry. The Maine Coastal Program was subsequently moved to the Department of Marine Resources as part of the State Budget in 2018.

Program's (MCP) annual grant from the National Oceanographic and Atmospheric Administration (NOAA). CCGs continue to provide funding for vulnerability assessments and development of transferable tools by planning practitioners such as a [web-based Vulnerability Assessment Map](#), development of a [Model Coastal Resilience Ordinances](#), a [GIS based economic vulnerability assessment](#) of flood hazard impacts to municipal tax base and a [Collaborative effort to Improve Social Resilience](#) among Midcoast communities.

At this time, no additional State sourced funding has been available for Maine's Regional Planning Organizations to work with inland communities on resiliency planning. MPAP highlights this need for GOPIF's consideration in the selection of pilot regions and communities.

As for communities ready for taking next steps, the [Coastal Community Grant Program case studies](#) prepared by Grantees include a discussion of *Next Steps* and *Lessons Learned*. The case studies tell the story of the project in a quick, interesting way. This in some ways is a more effective tool than a report with an executive summary in finding funding support in addition to sharing applicability to other Maine communities, and the case studies have been utilized in training events.

Training on vulnerability assessments and other resilience components is sorely needed. It is needed for RPO staff, town planners, citizen planners and climate adaptation practitioners. MPAP relies predominately on training organized by other partners including Island Institute, Maine Audubon, Wells National Estuarine Research Reserve, Casco Bay Estuary Partnership (CBEP), New England Environmental Finance Center (NEEFC), and Maine Climate Adaptation Providers (CCAP) network.

Some of the organizations, including the RPOs, that had trained personnel have lost them through turnover. The need for training has been a topic of discussion at CCAP.

Adding Maine-based examples and scaled-down examples to workshops will continue to be key. There are opportunities to build on past events such as NOAA Office of Coastal Management [Adaptation Planning for Coastal Communities](#) (2018), Island Institute's [ShoreUp Maine SLR Who Pays and How](#), and CBEP-NEEFC [Navigating Grant Programs](#), which included presentations by Harpswell FY18 CCG [Preparing for Coastal Flooding](#) and [Machias FY18 CCG Downtown Waterfront Resilience and Renewal](#). A training series on the [Maine Flood Resilience Checklist](#), which is being updated and applicable to inland and coastal communities would be a prime candidate for workshops funded under the pilot.

It has been MPAP's experience that capacity to manage planning grants is somewhat limited at the local level for both small and large communities and requires some hand holding. One factor to consider in moving forward with actions to implement the Climate Action Plan is the administrative load that goes along with any grant program.

As GOPIF moves forward, retaining the services of a planning practitioner to decrease administrative burdens for the Grantee as part of the grant awards might be something to consider. [WCCOG FY19 CCG Washington County Resilience](#) bundled up outstanding needs by several small communities to hire one consultant to service them all. SMPDC's FY12 CCG Implementation of the Piscataquis Regional Comprehensive Conservation and Management Plan bundled up a suite of projects into a single grant including [Town of York Comprehensive Plan SLR Chapter](#). LCRPC served a similar role on a number of CCGs assuming the role of project manager as well including [LCRPC FY17 CCG Downtown Boothbay Harbor Adaptation Options for Increased Storm Surge Resiliency](#).

Also, in implementing the Climate Action Plan, an important consideration is finding a means to streamline the ability to provide grants from the State to municipalities, regional planning organizations and perhaps even Economic Development Districts.

The Growth Management Act (GMA) legislation provides for a Technical and Financial Assistance Program [Title 30-A, §4346](#) which speaks to intergovernmental coordination in support of the GMA and exempts MPAP from Title 5, section 1825-C when making awards to municipalities, multi-municipal regions and regional councils. This not only provides for the unique ability to provide grants to municipalities and regional planning organizations but also for more flexibility to make adjustments to improve grant outcomes with input from technical advisors.

The grant selection committee for the CCG grant program continues to rely on inter-agency technical support from DEP and MCP/DMR in the review of proposals, and much of the success of the program can be attributed to the representation of each agency on the selection committee in addition to MGS.

Maine Emergency Management Agency

The [Maine Emergency Management Agency](#) (MEMA) is under the Maine Department of Defense, Veterans and Emergency Management. Interestingly, given Maine's current drought and wildfire threat, there is anecdotal evidence that the agency was formed in 1947 in response to the great forest fires that ravaged the state in that year. The Agency supports municipalities by "creating the framework within which communities reduce vulnerability to hazards and cope with disasters." Its mission is to protect communities "by coordinating and integrating all activities necessary to build, sustain, and improve the capability to mitigate against, prepare for, respond to, and recover from threatened or actual natural disasters, acts of terrorism, or other man-made disasters."⁵¹

MEMA coordinates several types of grants:

- Pre-Disaster Mitigation Assistance, now being supplanted by the FEMA BRIC Program (Building Resilient Infrastructure and Communities).
- Flood Mitigation Assistance (FMA).
- Hazard Mitigation Grant Program (HMGP), which are post-disaster grants after a Presidential disaster declaration.

Each of the county hazard mitigation plans has to be updated every five years. Towns generally deal with the county offices and not with MEMA directly.

The various FEMA mitigation grants can be difficult for many Maine municipalities to obtain because:

- They are complicated and the towns don't have the capacity to apply—nor are the RPOs much involved, likely also due to lack of capacity.
- The required cost-benefit analysis often doesn't come out well for rural communities with low traffic volumes, small populations, etc.

⁵¹ "What is Emergency Management?" Maine Emergency Management Agency, 2020, <https://www.maine.gov/mema/about/emergency-management>. Accessed 25 September 2020.

The Maine Climate Council's Community Resilience Planning, Public Health, and Emergency Management Working Group had discussions about how to better integrate climate resilience with hazard mitigation, as did the Emergency Management Subgroup. In the MEMA organization, the Director of Mitigation, Planning and Recovery Division, is the only staff member explicitly charged with incorporating climate change into emergency preparedness. Progress is being made, however, and the Climate Council discussions were a big step forward.

Led by the MEMA Acting Director, the Emergency Management Subgroup of the Maine Climate Council developed the following recommendation and explanation:

Develop and implement a non-disaster related "State Infrastructure Climate Adaptation Fund" that would allow municipalities and state agencies to access the funds needed to supplement the often-excessive local cost shares associated with adaptation projects.

...

Maine currently has a backlog of 1,798 mitigation projects at a proposed \$325,000,000 listed across all sixteen counties. Every five years, counties are required to update their County Hazard Mitigation Plans to stay eligible for FEMA mitigation funding, with 313 projects listed as deferred due to lack of funding. Maine municipalities, larger cities, and state agencies all struggle to fund small to large infrastructure projects with such a limited tax base. Development of a non-disaster related "State Infrastructure Climate Adaptation Fund" is intended to help move projects from the backlog list and implement them over time at a more expedited rate than they would otherwise be able to, ultimately reducing the risk and liability to Maine people from this infrastructure, maintaining a continuity of operations during disaster events, and working towards the ultimate goal of breaking the disaster recovery cycle.⁵²

University of Maine Climate Change Institute

The [Climate Change Institute](#) (CCI) is the hub of climate change research at the University of Maine. It combines field, laboratory, and modeling activities to understand the earth's climate and to better predict climate changes and their impacts in Maine and around the world. Its work has led to such discoveries as the phenomena of abrupt climate change, the retreat and advance of glaciers, and the large rise in human source pollutants over the last century.

The Climate Change Institute collaborates with a variety of groups in Maine working on climate resilience related issues. One example is a partnership with the University of Maine Cooperative Extension and [Maine Sea Grant](#) on climate change adaptation through education, outreach, and research to promote climate change awareness and adaptation planning. They have a small grant from the Mitchell Center to assess the readiness and vulnerability of a number of towns Downeast as well as impediments and opportunities for implementing the Maine Climate Council's recommendations focused on community resilience.

On a related note, Maine Sea Grant announced in June that it has created a Marine Extension Associate position to focus on coastal community resilience in the face of climate change. The concern is that

⁵² "Emergency Management Sub-Group—Recommended Climate Strategies, Actions and Measurable Outcomes." *Community Resilience Planning, Public Health and Emergency Management*, Maine Climate Council, https://www.maine.gov/future/sites/maine.gov/future/files/inline-files/EmergencyManagementSubgroup_FinalStrategyRecommendations_June2020.pdf. Accessed 1 September 2020.

“rising sea levels, more frequent storm events and severe flooding, increased erosion, changes in ocean and coastal water chemistry, and warming waters will not only reshape coastal landscapes but also affect the marine industries on which our coastal communities depend.” ... (The new member of the Sea Grant team) “will be working with communities to develop research-based tools, outreach materials, and workshops in order to build capacity and prepare for, adapt to, and thrive in a changing future. He will also be working with Maine Climate Change Adaptation Providers Network to strengthen statewide communication and collaboration.”⁵³ The position is funded by the Broad Reach Fund of the Maine Community Foundation.

One of the tools developed by the State Climatologist in association with the Institute is a [Climate Reanalyzer](#), an interactive visualization application and associated website that enables a suite of weather and climate datasets to be easily manipulated and displayed.

University of Maine Cooperative Extension

As mentioned in the previous interview record, the [University of Maine Cooperative Extension](#) is participating in a project called *Collaborating Towards Climate Solutions*. It involves working across organizational boundaries (“boundary spanning”) to create and share knowledge among researchers and community leaders. The primary organizations involved are the Maine Climate Change Adaptation Providers Network (CCAP), Maine Climate Council, and municipal and local leaders.

This project is funded by a Mitchell Center sustainability grant and also has national Sea Grant money.

The project involves a case study analysis of two regions—Penobscot Bay and Passamaquoddy Bay—to evaluate the role of communities of practice as compared with the role of boundary chains. Communities of practice are groups of people who share a common concern or passion and who interact regularly to learn how to do it better. Sometimes, however, people aren’t coming together in this fashion, sometimes because they are primarily interested in advancing the cause of their own organization, in which case there may be a need to create a new organization—a boundary organization—to connect the groups or communities with assistance and resources. Boundary chains go a step further in linking complimentary boundary organizations to provide community assistance.

In terms of this project, the boundary chain starts with state level organizations and programs (e.g., Maine Climate Council, Maine Interagency Climate Adaptation Working Group (MICA), New England Governors and Eastern Canadian Premiers (NEGECP) Adaptation Work Group) and continues through networked organizations that include regional planning agencies, emergency management agencies, CCAP, University initiatives, and Maine Sea Grant. The goal is to increase the capacity of municipalities to access scientific and policy information on climate impacts.

This project is itself part of a continuity of work that involves relationship-building over time. Members of CCAP have been working in Belfast and Camden, and one University professor has been working for decades in Calais. The project includes three students who started the work with a discovery of what is known about these communities and whether they have resiliency or adaptation policies incorporated into their comprehensive plans, whether any coastal resilience or coastal hazard type mapping has been done, the

⁵³ “New Maine Sea Grant Extension Associate to Focus on Coastal Community Resilience.” *News, Maine Sea Grant*, June 2020, <https://seagrant.umaine.edu/2020/06/05/new-maine-sea-grant-extension-associate-to-focus-on-coastal-community-resilience/>. Accessed 14 August 2020.

level of their GIS capacity, their capacity for governance, etc. The researchers have compiled this information from the three students, and this has provided a good basis for proceeding to interviews. The team is working on four islands as well, for a total of 18 communities.

The University of Maine Cooperative Extension and other members of the Maine Climate Change Adaptation Providers Network have been doing this sort of climate related social science work in the coastal communities for decades, trying to find out the capacity of the towns, what they are doing, and what their needs are and also attempting to help them develop networks—looking at ways they can support each other, in terms of funding, etc., as there is the opportunity for synergy and for learning from each other.

This project is not a one-off but is part of ongoing work. It is important to the researchers that their relationships get built early on (which they have already done a lot of). They also hope to provide training, such as for code enforcement officers and other municipal officials.

As an example of the many years that University of Maine Cooperative Extension has been engaged in this work, it has a longitudinal study underway for which surveys were first conducted in 2007.

ACTIVITIES BY PROGRAMS IN OTHER STATES

Another way to evaluate how best to provide assistance to support community resilience is to look at what is happening in other states. Given their general similarity in governance and other factors to Maine, the states chosen for interviews were Massachusetts, New Hampshire, and Vermont.

Massachusetts—Massachusetts Vulnerability Program (MVP)

In Massachusetts, “the [Municipal Vulnerability Preparedness](#) grant program (MVP) provides support for cities and towns in Massachusetts to begin the process of planning for climate change resiliency and implementing priority projects. The state awards communities with funding to complete vulnerability assessments and develop action-oriented resiliency plans. Communities who complete the MVP program become certified as an MVP community and are eligible for MVP Action grant funding and other opportunities.”⁵⁴

In terms of what is working well, there are a lot of towns are enrolled in the MVP Program. They are close to having the whole state, which means almost every town is starting the conversation about climate resiliency and preparedness, some coming from different points than others. But this has gotten the ball rolling and gotten the issue on people’s radars.

Enrolling does mean the same thing as applying for a planning grant. It is mostly noncompetitive as they want everyone to participate in the program. If you apply for a planning grant, you basically are going to get it. That is what starts their planning process.

There is not much of a financial match requirement. It is an hourly, in-kind match, but even that can be challenging for some towns, especially in the western part of the state where they tend to have lower capacity. Once they go through a planning grant and apply for an action grant, they do have to supply a 25% match at that point.

There is an effort to allow the towns to do their MVP plans together with their hazard mitigation planning. This helps the towns kill two birds with one stone.

The MVP program recently hired six regional coordinators across the state who are based out of their regions. They split the state into six more or less equal parts. It’s a model that is working very well. It helps to have a point person who knows the region and is involved in the day-to-day functions of what’s going on in both the planning processes and the action grant projects. The regional coordinators work with the RPOs as well as with the municipalities.

Planning grants started in 2017 and action grants in 2018, so the program staff are still somewhat getting used to things. They are starting to get some great project examples and are wanting to figure out how to share those more. It is something they want to focus more on this year—how to share more of those projects and get people working together so they aren’t reinventing the wheel.

⁵⁴ “Municipal Vulnerability Preparedness (MVP) Program.” *Mass.gov*, 2020, <https://www.mass.gov/municipal-vulnerability-preparedness-mvp-program>. Accessed 31 August 2020.

They also are trying to focus more on environmental justice with the current round of action grants. They are giving out more points in scoring applications where there is a public engagement plan with equitable strategies. Note that Massachusetts has recently hired a new Environmental Justice Director.

Relative to fitting with the Coastal Program, the Massachusetts Coastal Zone Management (CZM) office is under the same umbrella agency as MVP, and MVP does coordinate with them. The Coastal team has another grant program—the Coastal Resilience Grant program. Many of the state's coastal communities apply for to both of the programs and see which one works for their projects. Massachusetts CZM staff are on the MVP review committee for reviewing grants. The two groups stay in regular touch, and the CZM grant program offers some extra points to communities that have gone through the MVP process. There's some reciprocal effort of that kind.

The main way that the RPOs are involved is that they often are the vendor or consultant for the planning processes. They are highly involved and have been very helpful in getting some of the low capacity communities on board since they already are a trusted partner for a lot of those communities.

In terms of institutionalizing resilience, there is some concern that the MVP training and certification process is leaving a lot of expertise in the minds of the consultants rather than transferring it to the towns themselves. MVP, however, does get action grant applications that involve activities like amending town bylaws or implementing a stormwater fee.

As mentioned, MVP has a training program that the consultants have to go through to become certified vendors; over 400 people are certified. It probably could use improvement, although now that almost all of the towns are done with the planning process there isn't as much of a need anymore.

Food security generally is not one of the top priorities, but it does come up, probably more with the western communities. There have been some action grant applications related to food resilience, so it must have come up in the planning process. It depends on the local community's priorities.

One problem in Maine is the high cost of engineering and construction for projects like sustainably designed stream crossings. In the MVP program, the planning grant involves a community resilience workshop process that generates a report. It is like a very basic climate action planning process. They can apply for extra funds to enhance that process, but any engineering work would most likely be done as part of implementing action grants. Action grants can range all the way from feasibility through construction. The staff encourage communities to divide their projects into different stages, and they can apply in the future for next phases. But communities need to find other sources of funds as well. Their program currently gets \$1 million/year for planning grants and \$10 million/year for action grants.

In terms of monitoring the program, with every round the team probably will tweak the scoring criteria to some extent; it probably will never be perfect. They are in fact interested in doing more evaluation of the program, especially for the action grants. They are starting to consider whether they can start trying to collect data on the number of people protected or cost saved through these projects. They had a summer fellow starting to think about what that would possibly look like for them, and they likely will dive into that a bit more this year.

A lot of states appear to be interested in the MVP program, and MVP staff have talked to a number of different ones. Rhode Island just started a very similar program to MVP. They are working in tandem with the Nature Conservancy to get that started. As mentioned, trying to not reinvent the wheel is a good goal for things that are working, but obviously there are lots of components that can be improved. The

program is fairly well funded comparatively. However, they also are seeing every year more and more money requested through this program, and they can only fund a small fraction of what's being requested. So, there's a big need and they're seeing it grow.

New Hampshire—New Hampshire Coastal Program and the Coastal Adaptation Workgroup

The [New Hampshire Coastal Program](#) (NHCP), similar to the one in Maine, is authorized by the Coastal Zone Management Act and is administered by the New Hampshire Department of Environmental Services. Coastal Program staff are members of the state's [Coastal Adaptation Workinggroup](#) (CAW), which "is a collaboration of 24 organizations working to assist communities in New Hampshire's coastal watershed to prepare for the impacts of extreme weather and long-term climate change."⁵⁵

There are 17 communities in New Hampshire's coastal zone. They have 42 communities that are in the coastal watershed, which the [Piscataqua Regional Estuary Partnership](#) and others do more work with. But CAW and the Coastal Program limit their activities to the 17 communities that actually have tidal shoreline.

There are two regional planning commissions: the Rockingham Planning Commission and the Alford Regional Planning Commission. They span the two counties with coastal communities.

CAW has an interesting organizational structure. The collaboration of the 24 organizations has not been formalized. The partners appreciate the informal structure. Its staff capacity comes from the in-kind staff time of the mix of entity organizations that have an interest in the mission. In addition, the Coastal Program funds small subcontracts to some of the partners that are felt to be needed consistently at the table. Thus, CAW doesn't have formal staff, but there are contractual obligations to make sure that meetings happen.

The Coastal Program has eight to ten staff, depending on if you count the Shellfish Program, which actually is funded by the State. They also typically have a Coastal Management Fellow as a full-time position. (Coastal Fellowships are a Coastal Zone Management program whereby the Coastal team can access for two years a subsidy for staff who have finished graduate school.)

The Coastal Program gets about a million dollars from NOAA every year; it's their federal budget and is based on an equation of population and amount of coastline. This is their primary funding, and it has to be equally matched by the State. They use about half of this money for staff and overhead the rest they try to pass through to the coastal communities and partners. They also compete regularly for competitive grants from NOAA and other pots of money. They bring in about \$500,000 per year of competitive funding.

Some of the project funding comes from the subcontracts that the Coastal Program passes through to different entities on an annual basis. They have regular standing subcontracts that they use with the regional planning commissions. Small contracts of \$12,500 per year are provided to four different entities which have to be matched one-to-one. The organizations use about a third to half of that money to participate in and run CAW.

⁵⁵ "Who We Are." *New Hampshire Coastal Adaptation Workgroup*, 2020, <https://www.nhcaw.org/>. Accessed 24 August 2020.

The way the CAW operates and talks about itself is as a collaborative. The partners that are at the table are working together and leveraging the relationships that they're building through CAW to do projects and compete for projects. The projects themselves are often formalized through direct contracts between the organizations. As such, the members are willing to call it a CAW-related project as a result of the collaborative. It's very informal, and it does allow NHCP to track all of the great work that the organizations are doing in a way that helps everyone understand impacts a little better, but CAW doesn't have a pot of money itself that it's using to fund those efforts.

Many of the projects depicted on the CAW website are funded by the Coastal Program or by grants that they have successfully obtained from their partners. In addition to the small pots of money described above, NHCP has a Coastal Resilience Grant Program with about \$200K annually. In addition, they compete for Projects of Special Merit, which are offered by NOAA annually. Those are \$250K grants that do not require a match.

A lot of the work that goes on in inland communities in New Hampshire is through the FEMA Hazard Mitigation framework. CAW has a companion organization, the New Hampshire Upper Valley Adaptation Workgroup. They're trying to model their work after CAW, and they've been around for a little while. But they have struggled because they don't have the same type of funding resources that the coast has. It all goes back to NOAA being able to prioritize and focus its money in the coastal communities. That same framework doesn't really exist. It's a challenge discussed quite often at CAW as many of the partners have statewide purview, and they want to do more work with the inland communities, but they just are having a lot of trouble finding the dollars.

The Piscataqua Region Estuaries Partnership is a resource, funded by EPA, that works throughout the whole watershed. So, they are able to do more work with inland communities, but they still don't have the same kind of money as the coastal programs.

Many of the on-the-ground resilience construction projects are funded in the same way that you would fund another sort of large restoration effort. For example, they just removed the Sawyer Mill Dam on a tidal river. It was a huge flood risk. It was not able to handle a 100-year event. The funding for that was cobbled together by applying for multiple restoration grants, including the National Fish and Wildlife Foundation National Resilience Fund and others. And, as the dam was owned privately, the owner had to match with his own money. It ends up being a hodgepodge of a lot of different sources that will fund a project like that.

And it takes 10 years. One huge challenge that they are facing can be seen, for example, in work they are doing with the town of Hampton, where they have some pretty serious flood risk—to the point where there are a couple of low lying neighborhoods that are flooding a few times a month and that will obviously get worse with sea level rise. They were working toward getting them to the point where they have engineering designs that would enable the selection of a preferred alternative. You have to have engineering designs or some sort of plan in place to actually be able to apply for the larger pots of money, but it takes a lot of time and consistent support.

Relative to the challenge of getting money for engineering so there is a real project to apply for, the Coastal Program staff have recognized that it's an important piece to the funding. The small pots of funding that NHCP offers through the coastal resilience grants are able to fund at least 75% designs. For example, they funded engineering design for the [Wagon Hill Farm Living Shoreline](#) in Durham through that competitive pot of money. Durham had to match it, and it wasn't enough to cover the whole bill, but it was enough to get them to design, which then allowed them to apply for the Aquatic Resource Mitigation

Fund, which is New Hampshire's Army Corps mitigation money that's used for restoration and administered by the Department of Environmental Services. In addition, they used a restoration grant to pay for construction for that last year.

The other thing about paying for expensive projects is it is increasingly being realized that there's no way you can bring in enough new money to pay for all of the resilience construction projects that need to happen. Therefore, probably the more sustainable approach is to adopt statewide or municipal ordinances and regulations that require incorporation of resilience design standards into transportation projects and any other development permitting and any other kind of regulatory structure that exists now.

In terms of New Hampshire's Coastal Resilience Incentive Zone, a law passed in 2017, CAW did not weigh in very much on the writing of that piece of legislation. The concept is interesting, but after they did some work, after it was passed, to investigate whether it was actually going to be useful, they came to the conclusion that communities probably aren't going to use it. The legislation did a couple of things. One is to be able to designate a zone for which you then can create a fund to pay for whatever resilience work you might want to prioritize in that area. For example, you could see a neighborhood in Hampton deciding to advocate for creating its own coastal resilience incentives zone and then be eligible to have money. Maybe the town would add a little bit to the tax bills and use the funds for resilience projects in their neighborhood. The other aspect, which is less promising at this point, is that if a homeowner does a resilience project, which is undefined in the legislation, they can have a tax credit for the value of that project for five years. The property assessment aspect of this is complicated and potentially problematic.

CAW's primary strength is that it brings together the entities in a region that is small enough that the members all have a handle on it to collaborate regularly. It puts the organizations in contact with each other regularly enough that it enables them to create strong project proposals. It also ensures that even if there is staff turnover in the organizations that there is a consistent group of people—basically of technical assistance providers and planner education outreach specialists—who are teaching and learning from each other regularly. It provides a measure of consistency when it comes to how they approach resilience in the 17 coastal communities. An important tenet that the group has is that the capacity of the communities is very limited, and they have needs that should be advocated for. In some ways CAW serves as a group that protects their interests and helps to ensure that they're learning the science and that it's being shared in a trusted way. But it also serves as a group that considers ideas critically for them in order to make sure that the way that they're being resourced is appropriate and that their limitations are being acknowledged.

Relative to CAW's informal arrangement, it probably could work in a formal way as well. To a certain extent it transpired in this way due to a lack of high-level support in New Hampshire state government eleven or so years ago. The formal approach can create limitations and barriers that CAW is able to avoid.

In order to take the coastal work to the next level, they would need money—like they have in Massachusetts with their strong [Municipal Vulnerability Program](#) (MVP) and coastal grants programs. They're making progress faster. The Massachusetts programs aren't perfect, but they're essentially training professional consultants to know how to do this work on a scale that is needed due to having sufficient money that's available to help resource those groups. And, when you think about the climate clock that humans are racing against, the New Hampshire CAW members can't do anything fast enough as a result of the limited resources they have. It doesn't have to be huge pots of money, but it needs to be enough for every community to be able to jumpstart innovation and to incentivize innovation in the

business community and in the consulting community which is not happening with the funding amounts that they have available to pass around.

In terms of a comparison with Maine's Coastal Program, like in Maine, NHCP is not regulatory. The Maine and New Hampshire coastal programs are in many ways similar. They are small and deal with relatively small grants. New Hampshire has the advantage of having a much tighter geographic area which enables lesson transfers and ensures contact on a more regular basis. Maine may want to consider dividing up the regional entities and having smaller collaborative partnerships in different segments of the coast.

There may be a bit more emphasis in Maine on working waterfronts and supporting the fishing communities as well as on flood risk.

Maine and New Hampshire are more similar to each other than they are to Massachusetts and Rhode Island where they have regulatory power. Coastal Zone programs are divided between those that are networked and those that aren't. The networked ones, like New Hampshire and Maine, are integrated with existing state regulatory structures. The NHCP may pay for some wetlands permitting staff at the state level, or may help them with developing their coastal regulations, but NHCP doesn't oversee wetlands permitting in any way. Unnetworked programs are in states that have state laws that give the coastal program itself permitting authority as well as funding. They have their own layer of coastal permitting laws and process applications for approval. Which approach is better? Rhode Island seems to have had a lot more success and fewer barriers in ensuring that new coastal development considers sea level rise and future flood risk.

The biggest, the most impactful work that NHCP has done of late is the recent publication of their updated [New Hampshire Coastal Flood Risk Summary](#). It goes back to the Coastal Risk and Hazards Commission, which released its report in 2016. The Maine Climate Council may have been modeled after that effort, except that Maine added climate change mitigation/emission reduction to the effort. It published its report in 2016, and based on that a couple of laws were passed. One of which was that they were required to update the future coastal flood risk science that they use every five years, which has created buy-in from state agencies across the board to be paying attention to that topic. All the state agencies were involved in the effort to develop it. They released the first five-year update this year, the Coastal Flood Risk Summary which has both a science part and a guidance part.

The guidance piece is innovative and has been incredibly useful. It lays out the steps that you would take to pick your numbers. There are many ways to do that, but they went through a collaborative process to decide what made sense and would be most helpful for the broadest group. Having that guidance has enabled them to then require sea level rise to be considered in their state wetlands permits in the tidal area. The rules were recently updated at the state level, and they actually do require a coastal vulnerability assessment and addresses sea level rise in one's project. Other state agencies are now using it as a standard operating procedure. The New Hampshire Department of Transportation is planning for sea level rise based on that guidance as is the Department of Administrative Services. There aren't a ton of projects to point to yet that have been built, but they're definitely starting to incorporate the guidance into preliminary designs. The same is true for any consultant they pay to do a vulnerability assessment. There is a lot of flexibility in the procedure, but at least it's a first step in standardization.

Vermont—Community Planning and Revitalization Division

Community Planning and Revitalization is a division of the Department of Housing and Community Development in the [Vermont Agency of Commerce and Community Development](#). The Department is tasked with stewarding the Vermont Planning and Development Act and working with their Act 250 partners, which is a natural resources board that sets up the statewide development review process for higher impact, larger developments. They administer the [State Designation Programs](#). There is a staff member charged to the villages and another staff member charged to the downtowns. They support municipal planners with technical assistance training and administer several grant programs. They also sit on various grant review committees, like the Northern Border Regional Commission. In addition, they administer tax credits as a division in partnership with Historic Preservation.

Although this work may sound like that of a state planning office, it isn't because it is internal to their Agency. Vermont lacks a central state planning function that would provide better coordination between the State Agencies (the equivalent of State Departments in Maine).

State climate activities are not centralized in Vermont, and there is a little less urgency now that some years have passed since Hurricane Irene. There has been a Vermont Climate Action Commission established by the current Governor, Phil Scott. The Commission completed a [Final Report](#). It is mostly a greenhouse gas focused plan.

The Community Planning division was able to participate in the GHG emissions reduction conversation through their collaboration with VTrans (Vermont Agency of Transportation) on looking at vehicle miles travelled (VMT). They did a study that showed that people drove much less if they lived in or near a designated downtown, village, or neighborhood center. This gave them traction to argue that these are location efficient places and that they should be doing more to encourage development to occur in and around these centers.

The planning framework in Vermont is based on Act 200 which is Vermont's growth management act that went into effect in 1989 to make sure that regional and local plans are consistent with Vermont's planning goals. Still in operation today, it established the funding source for both the regional planning commissions and a municipal planning grant program, as well as the Vermont Housing and Conservation Board, using a property transfer tax. None of those are fully funded according to statute, but there has been a steady source of funding—\$2.3 million for the 11 regional planning commissions and \$450,000 for municipal planning grants each year—to do plan updates, bylaws, or area master plans. They have also incrementally built up the State Designation Program which includes designated downtowns, new town centers, growth centers, and, recently added, neighborhood development areas.

All of the programs are about how Vermont rewards communities that are taking the right actions and are working in concert with state planning goals and their region. This can take the form of permit fee relief for wastewater permits in a neighborhood development area to make housing more affordable, or tax credits when better design is used where there is strip highway sprawl potential. Other organizations have recognized the designations, like some of the housing funders, where they give bonus points for projects in designated centers.

Relative to comprehensive plans, 87% of Vermont's 257 municipalities do comp plans, and around 80% regulate land use. Some are just doing the minimum, but others are continually investing in their planning and regulatory framework.

As yet, climate change related policies have not been required to be included in comprehensive plans. Community Planning staff would push back on that because there already are 12 required elements. But there are some communities who are looking at doing this.

Montpelier did a net zero plan called [Net Zero Montpelier](#). Some of the comprehensive plans have taken a health angle that gets at climate change issues. In addition, there has been a wave of local energy committees. There was an effort to do enhanced energy plans such that if you prepared a municipal plan that met higher energy planning standards than would otherwise be required it would be recognized before the PUC for substantial difference. It was an incentive for communities to map their resources and identify the best locations for wind and solar projects (and where not to locate wind and solar). It would help communities get more favorable treatment at the PUC for faster approvals for projects they wanted and more deference for getting projects denied that they didn't. It also is useful information for the renewable energy developers. Around 20% of the Vermont municipalities have done enhanced energy plans.

Vermont—Watershed Management Division

The Rivers Program is in a nested doll of Vermont environmental divisions and offices, principally the [Vermont Watershed Management Division](#). Watershed management is mostly geared toward water quality related work and natural resources protection and restoration. They have a public safety mandate. There are four sections in the Rivers Program with about 18 staff, one section being the State Flood Plain Management Program. It includes the Stream Alteration Permitting Program, which regulates in-channel activities such as dredging and filling work associated with transportation, infrastructure, bridges, and culverts. The Stream Flow Protection Program looks at managing in-stream flows. There also is a science and mapping team that looks at assessing rivers for riverine erosion hazards as well as doing the statewide mapping of river corridors that serves as a regulatory layer over and above the FEMA inundation based maps. The science and mapping team is also involved in the group's restoration work. All told, they have multiple regulatory programs for floodplains and river channels, and they are also involved in assessment and mapping work and floodplain restoration.

It is true that some of the urgency caused by Hurricane Irene has worn off. Irene was their worst flood in 85 years, and some of the state workers from the new administration didn't personally experience being displaced from their buildings. As a result, a bit of catastrophic flood amnesia has set in.

In terms of whether Vermont has centralized climate change within state government, it seems as if there is less organization now under the new governor than before. Under the Shumlin administration, there was a climate cabinet and there was a lot of impetus and effort there to organize around climate change mitigation and climate adaptation. It's not to say that there still isn't work underway in the state, but the climate cabinet was disbanded with the current administration. There still are upper leadership government appointees and agency heads that meet periodically.⁵⁶

However, through their hazard mitigation work, flood resilience is seen as a primary climate adaptation mechanism that they can continue to move forward on, and programs that were instituted post-Irene are

⁵⁶ Since the interview was conducted, the Vermont Legislature adopted, over the Governor's veto, [House Bill 688](#) – The Vermont Global Warming Solutions Act of 2020. This will create a "Climate Council" to advance climate action in Vermont.

still moving forward because they had the benefit of statutory change and authorizations that put things in motion and are a part of law now.

Relative to any planning or ordinance mandates, towns have authority to adopt hazard-based bylaws within zoning or as standalone regulations. There still are some towns in Vermont that don't have zoning, but they have flood hazard regulations so they can participate in the National Flood Insurance Program. Through their zoning statutes, towns are empowered to adopt hazard-based regulations with higher standards than the minimum. They're not required to do so, however. Town plans are required to feed that process; you can't just jump to regulations without developing a municipal plan. One of the things that came out of Irene, around 2013, was legislation that required flood resilience to be an element of town plans. This meant articulating the extent to which flooding is an issue and the degree to which a town would want to address it. Elements like the Flood Resilience Checklist feed into that requirement.

Vermont put forth its latest version of model [Hazard Area Bylaws](#) for towns in 2018. They are recommended as best practices for towns to adopt, and they encourage the selection of inundation standards that are higher than the national minimums. The Rivers Program staff know the federal minimums aren't going to keep a town safe—they just allow developers to build and fill repeatedly. They accomplish obtaining reduced insurance premiums, but investments are still being put in harm's way. The Bylaws also layered in a recommendation that towns manage for riverine erosion.

Vermont has created incentives for towns to adopt the higher standards. Depending on the degree to which higher standards are adopted, the state will cost share with the town the 25% local match for FEMA post-disaster funding. This goes up to 17.5% if the town adopts the full suite of recommended standards. This is laid out in the [Flood Ready Vermont](#) and [Emergency Relief Assistance Fund](#) websites. The participation rate has been a handful of towns per year taking action to get the incentive, with the higher-capacity municipalities, both small and large, in front. Some towns relate that the political will isn't sufficient for them to act.

While Vermont does try to do pre-disaster hazard mitigation, in terms of volume they move the needle post-disaster. For culverts and stream crossings, they adopted a law after Irene, for crossings that are more than 50% destroyed in an event, that requires the new structure to meet the State's standards for things like sizing and passing sediment loads. Only recently have they gotten FEMA to recognize this law⁵⁷ and to pay for replacements based on its standards. This is a significant and positive development.

An additional incentive for local adoption of higher standards comes from the fact that the Rivers Program reviews projects for FEMA's various mitigation grant programs, and in their scoring they assign more points to towns that have adopted the higher regulations consistent with the model bylaws. Also, the State tries to lead by example with its own projects.

One concept they've tried to advance in Vermont is that what's good for flood resilience is good for water quality. For example, projects that involve floodplain restoration, like reconnecting the channel to its floodplain and doing buffer plantings, reduce the phosphorous load going into Lake Champlain that degrades water quality. Lake Champlain water quality is a big deal in Vermont from a number of perspectives, so there is some success in leveraging water quality money with hazard mitigation and vice versa. Having beach closures in the summer because of cyanobacteria blooms is not a good thing. The

⁵⁷ This determination was communicated in a letter of July 7, 2017 from the FEMA Acting Regional Administrator, Paul Ford, to the Vermont Agency of Natural Resources Secretary, Julia Moore.

problem was a long time in developing, and it will take a long time to fix, but people in Vermont need to start making those changes in land use and landscape practices as soon as possible.

There now is a whole new division called the [Water Investment Division](#). It is solely focused on water quality funding and funding of projects. The Rivers Program is plugged into that because of the robust modeling that was done looking at phosphorus and the various sectors that contribute pollution, whether it be urbanization and storm water, runoff from farms, or the almost 30% of the load that comes from unstable streams. The State is trying to unwind some of that by doing active restoration, reconnecting the channels to those floodplains, planting buffers, and taking land out of production. They also have a passive restoration program.

In terms of living shorelines and natural infrastructure, their shoreland regulations dropped off in the seventies, but they now have a shoreland encroachment permit program through the Lakes Program. They have a lot of technical assistance incentives and State water quality dollars focused on green techniques for planting, maintaining, and stabilizing shorelines. In addition, they have a program for planting trees in river bottoms every year.

Relative to the question of whether there are interest groups unique to Vermont who oppose the kinds of programs and regulations discussed above, it seems that the answer generally is “no” and that Vermont is like other places where there are progressive people in the Burlington area but then elsewhere there are plenty of land-rights oriented folks who are generally opposed to government regulations.

CONCLUSION

This report reflects a period when the State of Maine, through the Maine Climate Council and the Governor's Office of Policy Innovation and the Future (GOPIF), has begun a strong effort to move forward in climate change mitigation and adaptation while at the same time the possibility of having a federal climate and energy policy hangs in a balance that will soon be decided by the national election. To say that action on the man-made causes of climate change is the overriding challenge of our time does not need repetition from me, but I would like to thank GOPIF for the opportunity to play a small part in its important climate action work. In addition to learning about the wide range of climate resilience activities that municipalities and the organizations that support them are starting to bring forward, I gained a greater appreciation, from talking with representatives all across the state, of how rich Maine is in terms of its people, cultures, geography, public and private enterprise, etc. As has become evident to the climate and pandemic refugees from other states who are coming here to work remotely, Maine is a fantastic place to be. I hope there is information contained in the interviews reflected in this report that will be helpful to GOPIF in carrying out the rest of its community resilience pilot program and in proceeding to protect the environment and people of Maine.