

# Comprehensive Economic Resiliency Strategy

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AROOSTOOK + WASHINGTON  
COUNTIES, MAINE

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## Project Consultants

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# 1. SUMMARY OF FINDINGS & RECOMMENDATIONS

Like in all regions, the coronavirus pandemic has exposed the fragile nature of current systems and created lasting economic challenges for Aroostook and Washington Counties, Maine. Economic and community development leaders across the region are making every effort to understand the short- and long-term implications of the pandemic and meet immediate challenges and demands in an environment of rapid change and uncertainty.

In addition to rising to the current challenges, economic and community development leaders in the region are learning from this crisis and considering strategies to prepare the region to be more economically resilient and future ready. This Comprehensive Economic Resiliency Strategy establishes the framework to better prepare the region for rapid change and other kinds of economic shocks that may come, such as those related to climate, technological change, cultural change, globalization, etc.

## What is Resiliency for Aroostook and Washington Counties?

The definition of resiliency that emerged and was agreed to through the process is “The ability to prevent, withstand, and quickly recover from major disruptions.” Additionally, it was discussed and agreed that asking and understanding “for whom?” and “by whom?” in terms of resiliency was critical for ensuring inclusion and equity in processes and outcomes. It was also agreed that resiliency in Aroostook County and Washington County is deeply tied to the region’s heritage and culture. Participants agreed there is a need to embrace heritage while being future ready.

### Expanding Resiliency to be “Future Ready”

In the context of regional economic development and planning, resilience is just one part of “Future Readiness.” Being resilient is about reacting to sudden disruptions or challenges, focused more on surviving than on thriving. Future Ready includes resiliency but is more proactive than reactive. To be future ready, the region is looking ahead and identifying potential challenges and opportunities while there is time to do something about it. This combined foresight and adaptive planning approach will help the region to avoid many of the challenges that would have later required increased resilience to survive.

### Local Perceptions of Resiliency

Two surveys were conducted as part of this resiliency planning effort, one with businesses and one with economic, workforce, and community development stakeholders. Results provided insights on perceptions of resiliency importance and preparedness in the region.

#### **How resilient do stakeholders and businesses feel in the region?**

Based on the survey, both stakeholders and businesses in Aroostook County and Washington County feel moderately resilient across all categories, although stakeholders ranked each resiliency category higher on average than businesses. Businesses say they are least resilient in financial, organizational, and technology categories. Stakeholders ranked technology resilience the lowest.

## What factors are important for resiliency?

For the surveys, businesses and stakeholders were asked to provide input on the importance of various factors related to resiliency. Businesses were asked, "How important are the following issues to your business resiliency?" while stakeholders were asked, "How important are the following issues to regional resiliency?" Overall, stakeholders tended to rank resiliency factors as more important on average compared to businesses.

Both businesses and stakeholders rated cellular coverage and access to broadband as the top two concerns.

Adapting to climate change ranked among the least-important resiliency factors for both groups, as well as sewer and water infrastructure. Other lower-ranking issues for businesses include workforce retirements, housing, and supporting entrepreneurship. Lower ranking issues for stakeholders include resiliency planning, open borders, and financial assistance/relief. It should be noted that all issues ranked on average higher than 2.5 out of 5 indicating that all issues were at least moderately important.

The list of issues remained consistent for the two groups apart from "remaining operable and flexible despite disruption", which businesses were asked to also rate, and ranked as the most important issue to business resiliency.

## How well prepared is economic, workforce, and community development to support business resiliency?

Both stakeholders and businesses indicated that economic, workforce, and community development entities in Aroostook County and Washington County are only moderately prepared in many of the facets that support business resiliency.

The preparedness category that both stakeholders and businesses ranked the lowest was supporting infrastructure. Stakeholders ranked providing technical assistance the highest, and businesses ranked providing financial support the highest. These were also the issues with the greatest discrepancy between the two survey groups: providing technical assistance to businesses was ranked higher by stakeholders and providing financial support to businesses was ranked higher by businesses.

The first work session for this project provided additional insights and detail into understanding how well the region is prepared for resiliency. Key findings include:

- **Overall, the region is not as well prepared as participants would like for the future** – Examples of resilience can be found at the local level; however, when considering all the emerging trends and issues across the region, it falls short.
- **Current initiatives are reactive** - Aroostook County and Washington County are currently not in a position yet to be fully prepared for economic shocks or rapid change. Much of the recent and current efforts underway in the region are reactive rather than proactive. However, there are initiatives underway to help expand readiness.
- **Workforce is a critical factor** - The region is underprepared as it relates to its aging workforce, outmigration, and skills needed for the future. This issue is exacerbated by the COVID-19 pandemic.
- **Uncertainty stalls action** - Many unknowns are impacting the preparedness of the region. This creates "stuckness" – the inability to act without complete and perfect information.
- **Climate is a complex factor** – Views on preparedness related to climate were mixed. People, businesses, and workers in natural resource-based industries (agriculture, forestry, fishing) are well aware of climate change impacts and are taking steps to be better prepared and resilient. However,

there are members of the public and other stakeholders that are not focused enough on the potential threats to the region that climate change poses.

- **Collaboration is essential** - There is a strong collaborative spirit and practice in the region, particularly within each County.
- **Recognizing that preparedness is an ongoing process** - Preparedness requires a long-term, systemic approach for Aroostook County and Washington County.

## Progress Toward Economic Goals

An important way to consider resilience is in context of the ability to meet goals. The regional Comprehensive Economic Development Strategy (CEDS) completed in 2018 for the Aroostook Washington Economic Development District (AWEDD) provides a vision and related goals along with key economic growth performance metrics.

An assessment of updated data on the goals and metrics reveals mixed results:

For the following key growth metrics, the region has experienced a decrease since 2016. This means the region is further from attaining its goals.

- Population
- Employable Population (age 15-64)
- Labor Participation Rate
- Total Employment
- Increase in Population 20-44

For the following key growth metrics, the region has experienced progress towards attaining its 2023 goal and in the case of wages, income, and bachelor's degrees, it has attained or exceeded its goal:

- Average Wage Per Job
- Per Capita Income
- Bachelor's Degrees or Higher (26 yrs+)
- Associate Degrees (26 yrs and older)

## Looking at the regional economy in more detail...

Employment declines were persistent prior to the COVID-19 pandemic and declines, including those due to COVID-19, occurred across almost all major industry sectors. However, income and age growth show positive signs. This is important for regional equity and prosperity which in turn are important for resiliency.

Labor force has been and continues to be a major issue—most importantly the labor force participation rate, which has continually declined since 2016. This presents a constraint on business growth as well as personal wellbeing. The labor force trends are exacerbated by population trends which indicate an overall and continued decline. Most worrisome are declines in the working-age population and labor force participation. Aroostook and Washington counties' workforce generally mirrored that of Maine, although both the state and region's workforce skewed older compared to the US. Both Aroostook and Washington counties participation rates (all age groups combined) were lower compared to both Maine and the nation as a whole. Aroostook and Washington Counties' labor force participation was lower than Maine's across all age groups, but particularly among the 25-34 age groups,

In terms of key industry sectors for the region (those for which the regional CEDS Plan identified as important targets) employment declines were persistent prior to COVID-19 and declines including those due to COVID-19 occurred across most all major industry sectors, including:

### **Agriculture, Forestry, and Fishing**

The region continues to be highly specialized/concetrated in Agriculture, Forestry, Fishing, and Marine related industries. Most of the related subsectors experienced declines and were hit by COVID impacts.

### **Manufacturing**

Overall, manufacturing has higher than average earnings relative to all sectors in the region and is therefore critical to regional prosperity. The region is highly specialized and concentrated in the manufacturing sectors of Food, Wood and Paper, and Asphalt Paving and Block Manufacturing. It also has a large emplyment base in Fabricated Metals.

Between 2016 and 2021 manufacturing in the region experienced an 8% loss in jobs (333 jobs loss), which is similar to the job loss percent level overall for the region, The largest Job losses occurred in Food (155 jobs loss) and Wood Product and Paper (268 jobs loss). Machinery and Fabricated Metals manufacturing experienced a combined increase of 43 jobs added.

### **Tourism**

Like tourism related sectors across the country, these sectors in the region were hard hit by COVID. Between 2016 and 2021, the region lost an estimated 764 jobs, or 25% of its jobs. This compares to 8% across all industries combined. The region is not highly concentrated in tourism and so is better able to absorb shocks due to losses.

### **Clean Energy Generation and Distribution**

Currently, existing alternative energy employment in the region is mostly represented by Biomass. This biomass generation sector is also supported by the region's strength in natural resources and forest products. Between 2016 and 2021 the region lost 17 jobs (43%) in the biomass generation sector.

Entrepreneurship represents an asset-based path forward to support resilience. In the region, business starts took a hit in the 2008 recession and through the sluggish recovery, but somewhat leveled-off since and even experienced slight upticks in 2019.

The growth metrics in the AWEDD CEDS relate and align to the key metrics established by the State in its most recent Economic Development Strategy:

1. Grow the average annual wage by +10% to the benefit of workers at all income levels
2. Increase the value of what we sell per worker by +10%
3. Attract 75,000 people to Maine's talent pool both by increasing participation among Maine's existing population and attracting new people from out of state — thus turning a potential labor force shrinkage into a gain.

The region is progressing well towards wage growth but lagging in metrics related to population and labor. In considering value per worker, the region lags the state in Gross Regional Product (GRP) per worker but outperforms on exports. Its strong performance on exports is driven by its strong natural resource base.

## Recommendations

The Comprehensive Economic Resiliency Strategy recommendations for Aroostook and Washington Counties are designed to be actionable and attainable, to compliment the AWEDD CEDS, and to move the region forward towards resiliency and future readiness.

### **A) Stay asset-based in your approach.**

The region has a long and successful history of staying focused on what it “has” as opposed to what it needs to “attract”. Continuing an asset-based approach is also embedded in the regions CEDS including within it the following principles:

1. Process – Based on Best Practices for Regional Community Economic Development (CED) and Collaboration
2. Regional Focus – Enables regions to compete against other regional, national, and international strategies
3. Asset-Based – Indigenous assets grow more durable economies
4. Diversified – Makes for a nimbler and resilient economy
5. Measurable Strategy – Responsive to trends...relevant to region
6. Disciplined & Consistent – All ideas are not equal...priorities matter

This fits well with successful practices to build resiliency and be future ready as well as the sentiment that emerged through group processes for this plan. Through that process, participants placed high priorities on building resiliency through a focus on:

- Your people and existing assets
- Your workforce
- Your existing businesses and industries, including agriculture, forestry, fishing, and manufacturing
- Your entrepreneurs including current and future
  - To transform and support existing industries for the future
  - To support workers and small businesses to create jobs and opportunities
- Your natural resources

This will require continued engagement and cooperation with the communities in the region and ongoing engagement with partners throughout the region. This is being done within each respective county, and should continue, but also continue to include region-wide engagement and cooperation.

### **B) Work to make your industries more future ready and resilient.**

Through its regional CEDS and supported by data the region identified and set benchmarks for sustaining and growing targeted industries. These are:

- Agriculture
- Forestry and Forest Related Products
- Fishing and Marine Related
- Manufacturing
- Tourism
- Clean Energy

As indicated in the performance findings, these industries experienced employment declines prior to COVID-19, which were further exacerbated by COVID-19. To achieve economic success, the region should continue its commitment to these important industries and further focus on key factors they all have in common to enhance resiliency and be future ready. These factors include:

- **Workforce** – Nationally, demographics and other trends—including COVID—are making workforce attraction and retention a top factor for success of a business and industry. This was backed up regionally by the data, surveys, and engagement for this project. It is common across all industry sectors. Resiliency requires integration of workforce with economic development as well as health, safety, and housing.
- **Technology** – Technological change is more rapid and has permeating every sector and aspect of our economy. As a result, there is no longer a clear distinction between technology vs non-technology sectors. All sectors are integrating technology to drive efficiencies, new business models, and innovation. Resiliency requires infrastructure to support such as broadband and telecommunications, continual training and learning at all levels, and an understanding of how to address cybersecurity.
- **Supply Chain and Trade** – Covid exposed how fragile supplies chains can be as most all industries have struggled to a degree to get inputs/supplies needed and products shipped out to customers. Supply chains are complex involving multiple factors from roads to ports, airports, rail, and labor. They are also hyperconnected, meaning a problem outside of your region absolutely becomes your problem at some point. For example, backups at Long Beach CA, one of the largest ports of entry, make their way across the county through places like Chicago eventually impacting the supply here in Maine. Resiliency requires understanding the supply chains critical to the regional industries and businesses, planning for alternatives and redundancies, and diversifying markets including in-state, domestic trade in US, and foreign trade outside of the country. While this impacts all industries it is particularly critical for manufacturing.
- **Climate Change and Events** – Like workforce, climate events impact all industries. Some of these are obvious when they occur such as hurricanes, ice storms, fires, and tornadoes. Other are less obvious but are impacting our industries, such as ocean warming, soil quality change and erosion, and air quality. They obviously impact natural resource intensive such as agriculture, forestry, and fishing, but in the NMDC region most all industries are connected to these core natural assets including manufacturing, tourism, and energy.
- **Entrepreneurship and Innovation** – All of the changes occurring referenced above make it even more critical that we integrate entrepreneurship and innovation not only into business and industry but also throughout the community. The region is already heading down this path in terms of entrepreneurial networks and support. And it already has an “asset-based approach” which is at the heart of entrepreneurship and innovation by focusing on making what you have better and using it to create new opportunities. These approaches need to be continued in the region and integrated further into existing industries, communities, and institutions.

### C) Be diligent with commitments to infrastructure.

Increasing amounts of funds have become available, and continue to become available, for infrastructure. Be sure the region is using these funds to go beyond maintenance and invest in resilient infrastructure. This requires ongoing collaboration between the region and communities. Priorities should be to:

- **Make broadband happen** – Broadband was expressed as the highest priority, and state and federal initiatives are investing heavily. It will create better opportunities for inclusion and equity, new opportunities for entrepreneurs and businesses, and education and training. One of the challenges that was evident when thinking about the future was the fact that this field is rapidly changing, which creates hesitancy for investing in one technology that can become quickly outdated. This means that there will be not one perfect path and at times redundant technologies will occur and, in fact, add to resiliency.
- **Invest in and bring innovation to transportation and supply chain infrastructure** – The movement of people as well as the movement of goods falls within the transportation infrastructure heading. Movement of people is critical for both providing access to jobs and services and though solutions in rural areas can be challenging, they need to occur. No one size fits all. In terms of movement of goods, the region’s economic base is driven on exporting of goods and services through agriculture and manufacturing. Therefore, investing in new, and maintaining existing infrastructure in roads, ports, and other logistic assets are critical.
- **Invest in reliable, redundant, renewable energy** – Energy has been continually identified as an issue in terms of cost and reliability. While this is a challenge, it also has opportunities for the region in terms of continued growth and use of renewables (wind, solar, biomass, etc.) to increase alternatives and create opportunities for new businesses, expansion of businesses, and overall economic growth.
- **Protect water resources** – Continued access to clean water has become a major global and national issue and this is exacerbated by development and climate change. It is critical that the region protect this resource because, right now, it has an advantage over other regions and doing so offers not just benefits to citizens, but agriculture and natural resource-based businesses. Water is also becoming increasingly important for future industry opportunities from semi-conductors and data centers to food production.

The commitment to infrastructure also includes so called “soft infrastructure” to support workers and overall economic wellbeing. COVID-19 has revealed that this infrastructure is no longer soft, but essential. This includes understanding and committing to the importance of the following for economic resiliency:

- Housing
- Education and training
- Day care and family care
- Health care and social services

### D) Establish and utilize consistent, relevant, and reliable data for measuring performance and progress for both the regional CEDS and resiliency planning.

An important component of capacity to prepare for the future, implement, adapt, and be resilient is understanding where you have been, where you are, and what trends may be emerging. As part of this resiliency plan, data from the 2018 CEDS process was utilized along with data updates provided to the Northern Maine Development Commission from various sources, including Headwaters Economics and Maine Center for Business and Economic Research (CBER). Both were helpful for assessing economic

progress. CBER has developed an online tool for data access and display which examines data on key economic indicators as well as tracking economic and related progress during COVID-19. This tool can compare counties in the state and allows for downloading of that data. However, this tool is still in development and lags in terms of periodic updating. Also, for several key indicators, county data is not available.

Going forward the region's economic district lead agencies should continue to work with CBER and other data providers to, at a minimum, annually update data and assess progress on key metrics related to its CEDS and resiliency strategies. A list of specific metrics is included in the Appendices.

### **E) Put a greater focus/attention to climate change impacts and opportunities.**

Understanding climate change and its implications was examined and discussed throughout this planning process. This includes survey questions, work session discussions, and foresight scenario work. While there were those that felt it was an issue with significant existing and future implications and even a crisis, the overall sentiment seemed to be that it is viewed as less important to economic resiliency than some of the other issues including broadband, infrastructure, and workforce.

Given the region's reliance on agriculture, natural resources, locations with forests, lakes, rivers, and coast, and need for affordable, reliable energy, climate change will have increasing implications for the region.

There were those in the process that did feel that climate change is truly significant and are already seeing the impacts and taking actions, particularly the food, agriculture, and natural resource industry stakeholders.

In 2020, the State of Maine completed its first Climate Action Plan, "Maine Won't Wait". The plan clearly states and documents the imperative for action and demonstrates the State's commitment to understanding, mitigating, and preparing for climate change. It also provides important guidance to regions and communities for preparing and acting as well. Further, it lays the case that action on climate change can also be an economic opportunity. From the plan's goal statements:

- **Avoid the Impacts and Costs of Inaction** - Maine must take action to ensure that our people, environment, economy, and society are more resilient to the impacts of climate change that are now occurring. While mitigating the causes of climate change and better preparing Maine for its impacts will require significant public and private investment, inaction will cost Maine substantially more, and those costs will accelerate over time.
- **Foster Economic Opportunity and Prosperity** - Today, as Maine charts the course for economic recovery, many of the proposed solutions in this Climate Action Plan can leverage Maine's strengths and reverse workforce trends by supporting good-paying jobs that attract new workers and families, growing the economy, protecting key economic sectors most at risk from climate change, and fostering innovation in new business sectors that will drive climate solutions.

Additionally, within the region there have been recent efforts to understand and prepare for climate change implications. These include surveys and pilot planning and engagement projects in Caribou, Fort Fairfield, and Washburn.

The region should stay focused on this issue and build on and expand the regional and local processes for continued understanding, planning, and action. In terms of economic resiliency this should include:

- How the region and its communities can be resilient to climate change impacts
- Emerging economic opportunities created by climate change – how businesses and entrepreneurs can respond to a call for climate change action, and in doing so create new economic opportunities

## **F) Continue to build adaptive foresight approaches into resiliency and future ready planning and integrate into future CEDS, county, and community initiatives.**

The resiliency of Aroostook County and Washington County will depend on the communities and citizens continuing to be engaged in conversations and initiatives to move forward.

- **Communicate, include, engage** – Continue to report on progress with data and build on regular discussions in groups around economic performance and regional resiliency. At least once a year, review progress on key metrics, think about what might be coming, if you are prepared, and what can be done. See Appendix F of this report for tools and guidance to support ongoing adaptive foresight actions.
- **Continue the use of the CEDS as the guiding economic region document** – Provide regular updates, the next which will be due in 2023, and continue to measure progress towards benchmarks. In the 2023 further integrate resiliency and future readiness. But also go beyond the regional CEDS and continue to build out strategies at the county and community level to advance economic opportunity and resiliency and be future ready.
- **Create a regional resiliency/foresight committee** – This could be done at the county level through a sub-committee of two boards but should also include industry leaders in some capacity. Whether done in a committee or at the individual or organization level, actions listed in this report can promote adaptive planning and foresight thinking in the region.

The region is already taking steps to position itself to continue resiliency and future readiness planning and implementation through its soon to be addition of a “resiliency coordinator”. This plan will allow that person to hit the ground running.

## **G) Leverage state, federal, and other resources that specifically address resiliency and capacity building.**

In response to COVID as well as severe climate events, there has been a national and state emphasis on resiliency. In fact, such a focus supported funding for this effort by the Federal Economic Development Administration. As a result, there are multiple resources that the Region should access and leverage in its resiliency and future readiness efforts. These include:

- **Governor’s Office of Policy Innovation and the Future** - [www.maine.gov/future/](http://www.maine.gov/future/) - focused on helping solve Maine’s major long-term challenges including climate. Recently launched the Community Resilience Partnership designed to reduce carbon emissions, advance clean energy, and increase resilience. This effort will support a resilience coordinator in the NMDC region.
- **Maine Climate Action Council** - <http://climatecouncil.maine.gov/> - developed and oversees Maine Climate Action Plan.
- **Maine Domestic Trade Program, Maine Office of Business Development, Maine Department of Economic and Community Development** - [www.maine.gov/decd/domestic-trade](http://www.maine.gov/decd/domestic-trade) - expanding markets outside of Maine but in the US.
- **Maine International Trade Center** - [www.mitc.com](http://www.mitc.com) – expanding markets outside of US.
- **Maine Center for Entrepreneurs Cultivator and Market Share Programs** - [www.mced.biz/programs](http://www.mced.biz/programs) - for helping new companies grow and mature companies expand markets through trade outside of Maine.

- **Maine Manufacturing Extension Partnership** - <https://mainemep.org> - providing services to Maine's manufacturers, helping them become more efficient, productive, profitable, and globally competitive.
- **Maine Forest Products Council and FORMaine Road Map Initiative** – <https://maineforest.org> - helping grow markets for Maine's forest products and address critical issues facing the industry.
- **Sea Maine** - [www.seamaine.org](http://www.seamaine.org) - statewide initiative developing a roadmap and action plan for economic growth, market and workforce development, and greater resiliency in Maine's seafood economy.
- **New England Ocean Cluster** - [www.newenglandoceancluster.com](http://www.newenglandoceancluster.com) – Supporting and growing the "blue" (marine) economy. Connecting ocean-minded people with industry knowledge to help ensure opportunity is pursued inclusively, economically, and sustainably.
- **Downeast Institute** - <https://downeastinstitute.org> – applied research institute in Washington County with long history of success building economic resiliency and sustainability for the shellfish, fish, and marine economy and ecosystem.
- **Gulf of Maine Research Institute** - [www.gmri.org](http://www.gmri.org) - a non-profit research institute dedicated to the resilience of the Gulf of Maine ecosystem and the communities that depend on it, strategic initiatives focused around climate and their impact on the Gulf of Maine, and supporting sustainable marine business ventures.
- **CEI Maine** - [www.ceimaine.org](http://www.ceimaine.org) - nonprofit, community development financial institution (CDFI) with a mission to grow good jobs, environmentally sustainable enterprises and shared prosperity in Maine and rural regions. Programs include innovative financing and support for natural resource industries and advancing their market opportunities.

Region is already leveraging many of these efforts and for this resiliency effort to take hold will require on-going coordination and collaboration with these critical resources.

## Actions from Foresight Scenario Work Sessions

For this resiliency strategy, two work sessions were held (one in each County) in which future scenarios were presented around the themes/issues identified as important in the surveys and the first round of work sessions. As part of these scenario sessions, participants engaged and provided their ideas for recommended actions. These were then shared and discussed further.

This process resulted in many good potential actions. They are reported below "as typed" by the participants (i.e., they remain mostly unedited). These proposed actions provide a good basis for on-going refinement and consideration for implementation to create a more resilient and future ready region. The benefit of this input is that it was provided by persons involved and engaged in the process and therefore has higher opportunities for successful implementation than those developed only through examination of data or best practices.

A process should be continued to add to and refine these ideas, and then prioritize for community and region level action.

*Please note – although the following comments were responses to fictional foresight scenarios for each topic (see scenarios in Appendix E) many of the ideas and solutions proposed are applicable for real-world use to enhance resiliency and promote future readiness in the region.*

## SCENARIO ONE: Natural Resources and Climate Change

- Increasing soil organic matter will improve the soils water holding capacity and improve overall soil biota.
- Developing a shared resource where migrant employees are shared by several farms, or a “temp agency” may be created?
- Increasing acreage is fine if the market is increased as well. Growers must receive prices that are above production costs in order to stay competitive.
- Promoting Aroostook and Washington County agricultural products on a national level
- Train agencies to assist with farm owner transitions and secession planning.
- Work with National Resources Conservation Service (NRCS) to facilitate cultural practices necessary to implement soil health building practices. Government programs/agencies are very cumbersome to deal with, it can be frustrating. If you enter their office today, you are applying for assistance in the next calendar year.
- Opportunity to pursue farming that works in harmony with the forest.
- Installation of irrigation systems.
- Support of organic practices to reduce pollution of water and soil.
- Expand capacity and infrastructure to respond equitably to basic needs in emergency situations (blizzards, floods, etc.).
- Proactive scenario conversations like this at the municipal level that includes taxpayers.
- Coordination of forestry growth.
- It may be beneficial for the forests and the communities if there was regional management of growth so that forest fires are less of a threat.
- Increase UMaine extension education and outreach around conservation measures and federal/state incentive programs.
- Educate the public about changing climate, its impact, and potential countermeasures and ways to adapt.
- Encourage reuse, repurposing, and recycling. Promote Complete Streets program so people can safely walk and bicycle to school and work.
- Support programs for farmers struggling with financial and mental health issues.
- Identify areas of the unorganized territories with soils suitable for crop production and the service center communities that could serve development there
- Increasing youth and young adult voice and participation in scenario planning like this.
- Create more Future Farmer and Forestry programs in HS and College

- Rather than letting growth take place as sprawl, tax and investment incentives that encourage growth of business in designated service center communities so that infrastructure can be expanded more strategically and efficiently.
- Made in Maine branding.
- Introduce new ways of farming, hydroponics, aquaponics, etc.
- Collaborative planning across mini-regions within a county. Getting towns together to grow their capacity to work together

## SCENARIO TWO: Connectivity and Digital Transformation

- Software engineering coursework at the University level should be proactive rather than reactive.
- Set expectations. Identify what role satellite internet will play (not everything to everyone) as much of the world moves toward full and adequate internet connectivity
- Create partnerships with MSSM or other excelling mathematic school programs to develop rural software and cybersecurity engineers
- Micro-credentials for Cybersecurity workforce
- Digital literacy – Begin education in schools on how internet can be used beyond getting likes on social media. Educate all on how it can be used to gain a professional advantage, whether through education or business connectivity
- Satellite industry – work to develop a vertical launch spaceport in Washington County could create local jobs associated with the replacement of aging satellites
- Train our entire citizenry to use more of the technology available for constructive growth.
- Seriously consider large pools/collaboratives to expand broadband and reduce the risk to small towns.
- Subsidize Fiber Optics – Local and/or regional control of critical infrastructure is critical to resiliency. Reliance on satellite technology owned by one or two unregulated companies would be unwise, even if it was very easy and affordable.
- Redundancy, within reason, is an important strategy. If necessary, fiber optic should be subsidized by the state or federal government to keep that infrastructure available—even if only for emergencies.

## SCENARIO THREE: Changing Workforce

- Larger emphasis on technical training and career opportunities that support local industries.
- Create an environment to attract young families and entrepreneurs
- Regional incentives, similar to Pine Tree Zones
- Figuring out root causes of the childcare issues – is it regulatory (state level), low paying jobs and cost of childcare so potential workers choose to stay home, business model doesn't work for home childcare providers like we used to see, fewer childcare businesses, etc.
- Entrepreneurial Training – Shift to bring entrepreneurial training to younger people. Possibly starting in high schools with a path to college.
- Robust training programs – Work with CTE, two-year colleges and colleges to train future workforce.

- Develop a comprehensive entrepreneurial asset inventory, identify new opportunities that don't exist in the region, identify existing industry opportunities that entrepreneurs can fulfill.
- Work with businesses to adapt to new workers needs and wants.
- Connecting local businesses (especially those forecasting retirement) to develop sustainability plans.
- Researching best practices in regions similar to Aroostook and Washington.
- Resources needed to support expanding technology
- Increasing and retaining workforce is a regionwide and state responsibility. This will take many decisions and actions made by multiple partners.
- Inviting young adults to the strategic planning activities might prove to be a good recruitment tool and motivation to the student to invest in Aroostook, Washington and/or Maine.
- Take actions to reduce the cost of housing, childcare, energy, and healthcare in the region
- Welcome initiatives – Welcome baby, welcome new resident, welcome to adulthood, welcome to the workforce, welcome to retirement. Create initiatives that welcome people at specific transition stages, connect them to resources and opportunities that support life transitions, and help people thrive across the lifespan.
- Invest in the health of the existing workforce to preserve and potentially increase future productivity
- Foster an immigrant positive culture – Stop using the term “people from away”
- Consider indigenous voices in the “people from away” conversation
- Implement comprehensive mentoring program (e.g., cooperative education, internships, etc.) in high schools and colleges.

## SCENARIO FOUR: Energy Evolution

- The possibility of creating a whole new industry of energy production in The County. Example: wind and solar are already a part of the landscape. And solar growing rapidly. The discovery of lithium crystals in Aroostook could be a huge game changer. However, the effect on our natural resources will be the deciding factor whether that happens or not.
- State and Federal subsidies to encourage trade-ins of heavy emissions vehicles
- Adjust pace of renewable rollout, renewable technologies are getting cheaper over time but they are not yet competitive with fossil generation or nuclear power unless policy changes tilt the scale. Slow down the pace of adoption in Maine to wait for cost-effective renewables.
- Mining – Ensure worldwide human rights standards are established and maintained or don't buy minerals. Much like happened in the diamond trade. This will ensure confidence in consumers looking to make the EV leap.
- Apply for more gov. grants to bring EV charging to rural Maine. Do not waste money on “slow” chargers.
- Biomass development – Biomass energy generation in modern CHP systems meets efficiency standards and supplies heat and electricity with a renewable low-grade feedstock abundant in Maine's forestry industry. A better balance of a CEDS-identified goal (biomass) with battery baseload supply supports a primary Maine industry and employs far more Mainers than battery installation to mimic baseload.
- Raise awareness to our policy makers of the real economic impacts of fully supporting a Maine industry (biomass generation) and Maine jobs vs an outside industry drop-shipping battery solutions into Maine.
- 70-80% Carbon Neutral Energy Mix – Northern Maine is not that connected to NE ISO, and the NB grid is running 70-80% carbon neutral at this time. This makes beneficial electrification a win for the region, because using power from the grid will be so green.
- Provide tax incentives for home and business charging stations.
- Implement Complete/Safe Street guidelines and smart vehicles so pedestrians, bicyclists and smaller vehicles aren't run over on the road.
- Teach kids bike safety and safe streets etiquette
- Invest in more resilient “modular” electric grid – Battery technology could cut the need for new transmission lines. It could also make a modular grid more possible, so that the impact of power line damage could be isolated by neighborhood.

## SCENARIO FIVE: Manufacturing and Supply Chain

- Create more local and Maine-based supply opportunities for raw materials, including lumber and steel.
- Rail and ports – investment in Eastport, Searsport, the freight rail system, and multimodal hubs could provide alternatives to trucks

Note: For the Manufacturing and Supply Chain scenario, participants in both Counties provided little specific details. We have added content throughout the report from research and best practices to supplement. Specific action steps beyond what was identified in the scenario work sessions include:

- Conduct a resiliency and future-ready session or sessions throughout the region specifically focused on manufacturers, participated in by the manufacturers
- Provide technical assistance to medium and small manufacturers to become more resilience and future ready in the areas of technology adoption and integration including industry 4.0 and supply chain/logistics technology and cybersecurity. This can be done in partnership with manufacturing specific stakeholders such as Maine Manufacturing Association, Maine Manufacturing Extensions Partnership, and higher education partners.
- Expanding markets outside of the region including foreign and domestic trade in partnership with Maine International Trade Centers and Maine Domestic Trade effort at Maine Department of Economic and Community Development, and the Cultivator and Marketshare programs of the Maine center for Entrepreneurs.

## 2. INTRODUCTION

### Our Purpose

The ongoing coronavirus pandemic has created lasting global and local challenges, with businesses facing especially devastating consequences for short-term well-being and long-term growth. The global pandemic prompted economic and community development leaders across Aroostook and Washington Counties, Maine to understand the short and long-term effects of COVID-19, some of which are still unfolding in real time, and find strategies for how the region can overcome its current challenges and create a more economically resilient region in the future.

Furthermore, leaders in the two Counties are extending beyond considering COVID-19 challenges and opportunities for the development of this Comprehensive Economic Resiliency Strategy. This is necessary to help prepare the region for rapid change and other kinds of economic shocks, such as those related to climate, technological change, cultural change, globalization, and more. This strategy provides the region with:

- Alignment of strategic partnerships;
- Identification of critical investment priorities;
- Identification of critical gaps that identify needed outreach, support, and implementation of support measures related to regional economic vibrancy; and
- Development of informed resiliency strategies including a targeted action plan with outlined implementation activities, funding opportunities to support and metrics to measure success.

This strategy compliments other past and ongoing community and economic development efforts within the region and builds upon existing economic development strategies in the Aroostook Washington Comprehensive Economic Development Strategy 2018-2023 (AWEDD CEDS). Where appropriate, it also connects with the State of Maine's most recent Economic Development Strategy.

### Our Approach

To develop this strategy, the region took an approach grounded in a belief that economic disruption has the potential to create economic opportunity if the right systems and processes are in place to ensure a capacity that enables continual foresight, adaptation, and transformation. Economic crises, climate change, social unrest, and natural and manmade disasters will continue to impact Aroostook and Washington Counties, and none can be accurately predicted in terms of timing, scale, and impacts. But doing the work to understand, prepare, engage, and address these issues and potential situations will increase the region's ability to respond quickly and strategically, minimize future disruptions, and even thrive and prosper during rapid change.

Now is the ideal time to bring these stakeholders together for positive changes to occur. The coronavirus pandemic inflicted significant economic stress around the globe. It has changed the world of business but also presents new growth opportunities. It also shed light on the multiple potential threats and shocks to economic wellbeing that existed prior to COVID-19 from issues around infrastructure, housing, workforce, supply chains, health and social care, and more.

## Applied Foresight + Adaptive Planning

The environment is characterized by constant change and this change is happening at an increasingly rapid pace. A prime example of unpredictability is what we all have experienced since early 2020 with COVID-19. COVID-19 has taught us that we must prepare everything for an unpredictable world including our economies, supply chains, labor forces, businesses, and support organizations.

Traditional linear thinking, analysis, and planning will no longer suffice as it is too static and over-reliant on past trends to predict future outcomes. It therefore ignores what future scenarios might exist and how we can prepare for them. In our approach to this work, we avoid these shortcomings and integrate applied foresight and adaptive planning into the resiliency strategies. This entailed:

- **Applied Foresight** - becoming future-ready and not just reacting to past and recent trends by using “3A” Thinking:
  - Attention – paying attention to emerging trends and technologies that are still at the edges;
  - Anticipation – Anticipating what opportunities or challenges they may create; and
  - Action – converting emerging opportunities into action.
- **Adaptive Planning** – integrating applied foresight into the process for Preparing, Organizing, Engaging, Assessing, and Adapting.

Using this approach, future scenarios were developed to help understand what changes in a variety of areas might mean for the region, and how the region can best be prepared.

## Engagement

The engagement of businesses and economic and community development stakeholders was a priority throughout the strategy development process to identify and understand emerging issues, concerns, challenges, and opportunities; the region’s capacity for adaptability and resiliency; and strength of networks and support systems. The engagement process entailed a combination of surveys, data analysis, and stakeholder work sessions.

### Stakeholder Survey

An online survey of economic development stakeholders provided insights and information about how prepared the region is, and is perceived to be, for economic resiliency today and into the future. Stakeholders were asked to provide input on:

- How resilient the region is on core economic development elements such as workforce and education, quality of place, attracting and retaining key sectors, entrepreneurship, infrastructure, housing, etc.
- What actions various organizations and entities are taking, or planning to take, to support the region’s economic development resiliency.
- What excites stakeholders about the region’s future economic potential and what emerging opportunities are on the horizon.
- What concerns stakeholders about the region’s future economic resiliency.

### Business Survey

An online survey of businesses throughout the region provided insights and intelligence about how well-prepared individual businesses are for economic resiliency now and into the future. Businesses were asked to provide their perspectives on:

- Top issues businesses are concerned about as they endure and recover from the COVID-19 pandemic such as supply chain disruptions, access to capital, following health and safety guidelines, retaining workers, etc.
- Top issues for business resiliency, such as cybersecurity, hiring, supply chain security, technology adoption, climate change, etc.
- How prepared businesses are to handle these issues today and into the future and what types of support would help them become more prepared.
- What opportunities businesses see coming out of the pandemic and what they need to capitalize on with these opportunities such as new market access, new products/services, new business partners, etc.

Key findings from the surveys are presented below in section 3. *Findings*, and complete results are available in the Appendix.

### Data Analysis

Data analysis was used to provide “attention” to recent and emerging trends and engage on what that may mean for the region as they prepare for the future in terms of both challenges and opportunities. The data was used throughout the engagement session, in the development of the scenarios, and to consider the region’s progress towards achieving vision and goals as stated in the Regional Economic Plan

### Adaptive Planning Sessions

Following the surveys, the project team hosted two adaptive planning sessions with economic and community development stakeholders from across the region. Each session was hosted twice, once in each county, and participants were given the option of joining in-person or via video conference.

- Session 1 included an introduction to Applied Foresight and why it is important for resiliency planning, an overview of how to apply the 3A Thinking on existing and emerging issues, and a discussion about understanding adaptive planning and resiliency.
- Session 2 began with a review of findings from the first session, survey results, and CEDS performance. The groups were then introduced to five foresight scenarios for the region and asked to participate in an activity based on those scenarios to identify connections and strategy possibilities.

Key findings from the session discussions are presented below in section 3. *Findings*. Outputs from the group work are provided in the Appendix.

## Our Resiliency

To help understand what resilience means in the eyes of people in Aroostook and Washington counties, survey respondents were asked to define what resilience is, using their own words and phrases to describe it. They were also asked to answer questions related to how resilient they believe their businesses and organizations are in the region. We received excellent responses and their answers informed our approach to the second workshop and this resiliency strategy.

The survey responses overwhelmingly indicated that leaders in the AWEDD region had a similar collective understanding of what resilience means (see Appendix A for the survey results overview.) The most common responses from participants as to what “resiliency” means to them include “nimble,” “adaptive,” “recovery from a negative impact or situation,” “the ability to quickly shift,” “ability to forecast future shifts,” “quickly respond to crisis without collapse,” “to thrive under stress,” “protect yourself from negative impacts,” “do

whatever needs to be done to get through whatever the situation is," and "strength to experience challenges and remain focused on goals."

Key differences in what resilience means to survey respondents centered around preventive versus reactive responses to crisis and change. Some participants felt that the ability to anticipate change and/or challenges is an important aspect of resilience, while others focused on simply being able to withstand and recover from negative situations or impacts.

Using the input from the surveys, and to make sure everyone had a common understanding of the term resiliency for the purpose of the workshops, we created the following working definition:

*"Resiliency is defined as the ability to prevent, withstand, and quickly recover from major disruptions."*

Overall, the participants' concept of resilience fits well within this common definition. We also introduced questions "for whom?" and "by whom?" to help participants broaden their understanding of resilience for the region. These questions provided perspective around who is or is not included in a resiliency plan, and who or what will be implementing the change in perceptions, policies, actions needed to create a more resilient region. It also helped to understand the importance of ongoing inclusion and equity in processes and outcomes.

In addition to resilience, we introduced the concept of "Future Ready" in the context of regional economic development and planning. In this context, resilience is just one part of a "Future Readiness."

## Future Readiness in Practice

To be future ready means to have plans and actions that are resilient, adaptable, and sustainable. A future ready region can navigate change created by emerging trends and technologies and survive unexpected economic disruptions. For a region to be future ready, they must have all the components, not just resilience. The differences between resilience and the broader, more encompassing concept of future readiness can be confusing, and can take time to understand and implement for those not familiar with these concepts or general foresight work. It is especially important to understand the differences when developing community and regional plans.

The following graphic outlines the key distinctions between future readiness versus only resilience:

## Distinctions Between Future Readiness and Resilience

### Resilience Only

VS

### Future Readiness

- Reacting to sudden disruptions or challenges
- Focused more on surviving than on thriving
- Creating a culture, organization, region, etc., that can withstand ongoing uncertainty and continuous challenges - Ability to “weather the storm”
- Assumes an ongoing uncertain and challenging business environment
- Navigating specific, unforeseen disruptors
- Achieved by creating an economy and region that can survive numerous and varied potential threats

- More proactive than reactive
- Identifying potential challenges and opportunities while there is time to do something about it
- Using foresight practices and adaptive planning to avoid many of the challenges that would have required increased resilience to survive
- Additionally focused on capitalizing on emerging opportunities created by fast change
- Ability to avoid the worst outcomes of unavoidable situations and economic conditions by taking preventative actions today
- Adaptive to new trends and technologies, continuously evolving
- Looking to the “edges” - actively monitoring emerging technologies and trends that are not yet impacting your career, industry, or region
- Understanding the importance of convergence in technologies and how that impacts the future
- Recognizing the impacts of non-linear change and how that affects when technologies may become relevant and/or disruptive
- Achieved through a combination of mindset, focus, practices, tools, and willingness to act
- Requires consideration of who is part of this future and who isn’t
- Culmination and goal of Applied Foresight

## Importance of Determining Timeline for Future Readiness Planning

Whenever we consider future possibilities, it is critically important to consider the time frame in which they might occur. Often, it is clear that certain trends or technological advancements are likely going to happen *at some point* in the future, but it becomes much harder to narrow down *when* they may occur. Therefore, when applying 3A Thinking, Foresight Scenarios, and Adaptive Planning, it is helpful to define the timeline first. A good place to start for these types of tools and practices is typically two-to-five years from the time of the activity. This doesn’t mean not planning to act until two-to-five years from the activity, rather anticipating what the world may look like then and acting accordingly today to be better prepared then.

In most cases, considering the possibilities more than five years in the future involves more guessing than anything else and does not demand immediate action. Shorter timelines have fewer variables and often require attention and action. Regardless, moving past the traditional “10-year strategic plan” thinking can inspire action and engage stakeholders. As you plan for the future of your region, incorporating foresight scenarios, 3A Thinking, and adaptive planning can provide the perspective and insights needed to be regionally resilient and ready to capitalize on rapid change, not just survive it.

## 3. FINDINGS

The following section summarizes the findings of the planning process, and information gathered to inform the process. These findings were used for scenario planning and engagement, and the development of recommendations. When noted, further detail and direct outputs are provided in the Appendix.

### Business + Stakeholder Survey Findings

Two surveys were conducted to assess and understand emerging issues, concerns, challenges, and opportunities impacting Aroostook County and Washington County from their own perspective.

- The Business Survey targeted business owners in Aroostook County and Washington County to understand business capacity and resources available to recover and what is needed in the future to be resilient.
- The Stakeholder Survey connected with key economic, business, workforce, and community development stakeholders in Aroostook County and Washington County to understand how prepared the region is, and is perceived to be, for economic resiliency today and into the future.

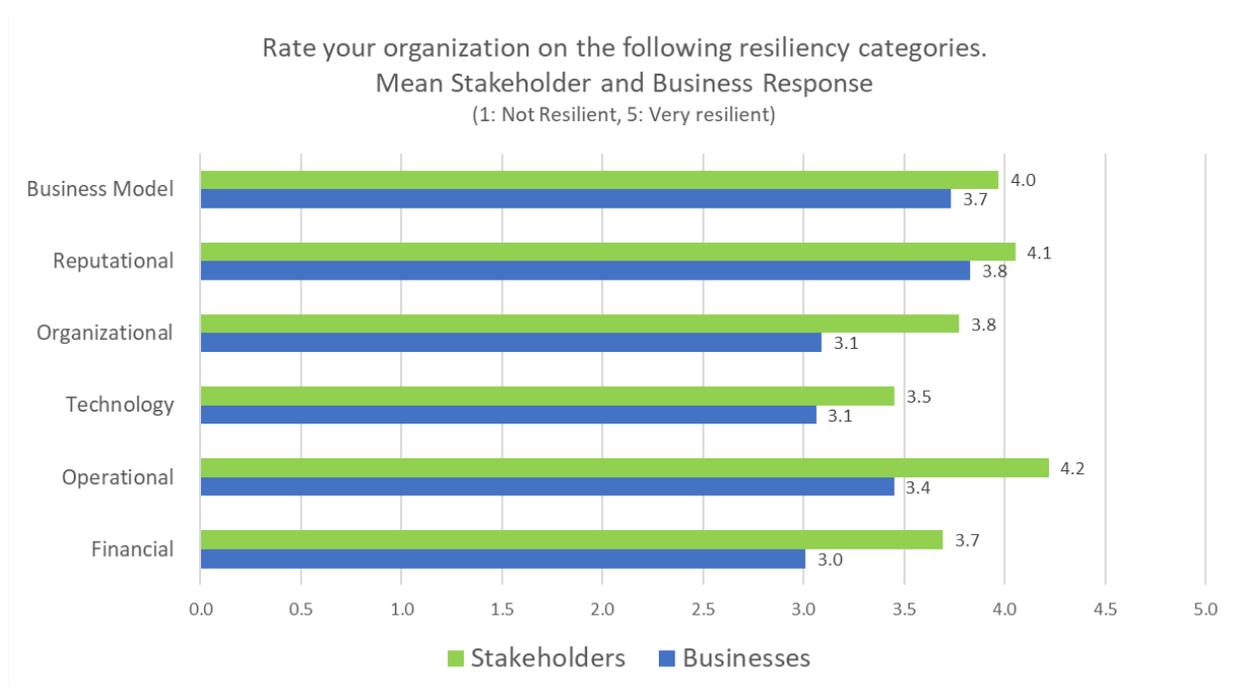
The surveys were distributed directly via email and newsletter announcement through NMDC, SCEC, and their partners' networks. The surveys were open from September 21<sup>st</sup>, 2021, to October 15<sup>th</sup>, 2021. The Stakeholder Survey received a total of 42 responses and the Business Survey received 104 responses.

### Business + Organization Resilience

Both the Business Survey and Stakeholder Survey asked respondents to rate their organization or business on the following resiliency categories with 1 being Not Resilient and 5 being Very Resilient. The following figure displays the mean response for the two groups for each resiliency category.

Overall, both stakeholders and businesses in Aroostook County and Washington County feel moderately resilient across all categories, however stakeholders ranked each category higher on average than businesses.

Businesses say they are least resilient in financial, organizational, technology categories. Stakeholders ranked technology resilience lowest.



In terms of resiliency planning, stakeholder organizations in Aroostook County and Washington County feel they are better prepared in terms of resiliency planning compared to businesses. Approximately 14% of stakeholders do not have a resiliency plan now compared to 62% of businesses. There may be a need to support businesses through the resiliency planning process.

### Aroostook County and Washington County Resiliency Factors

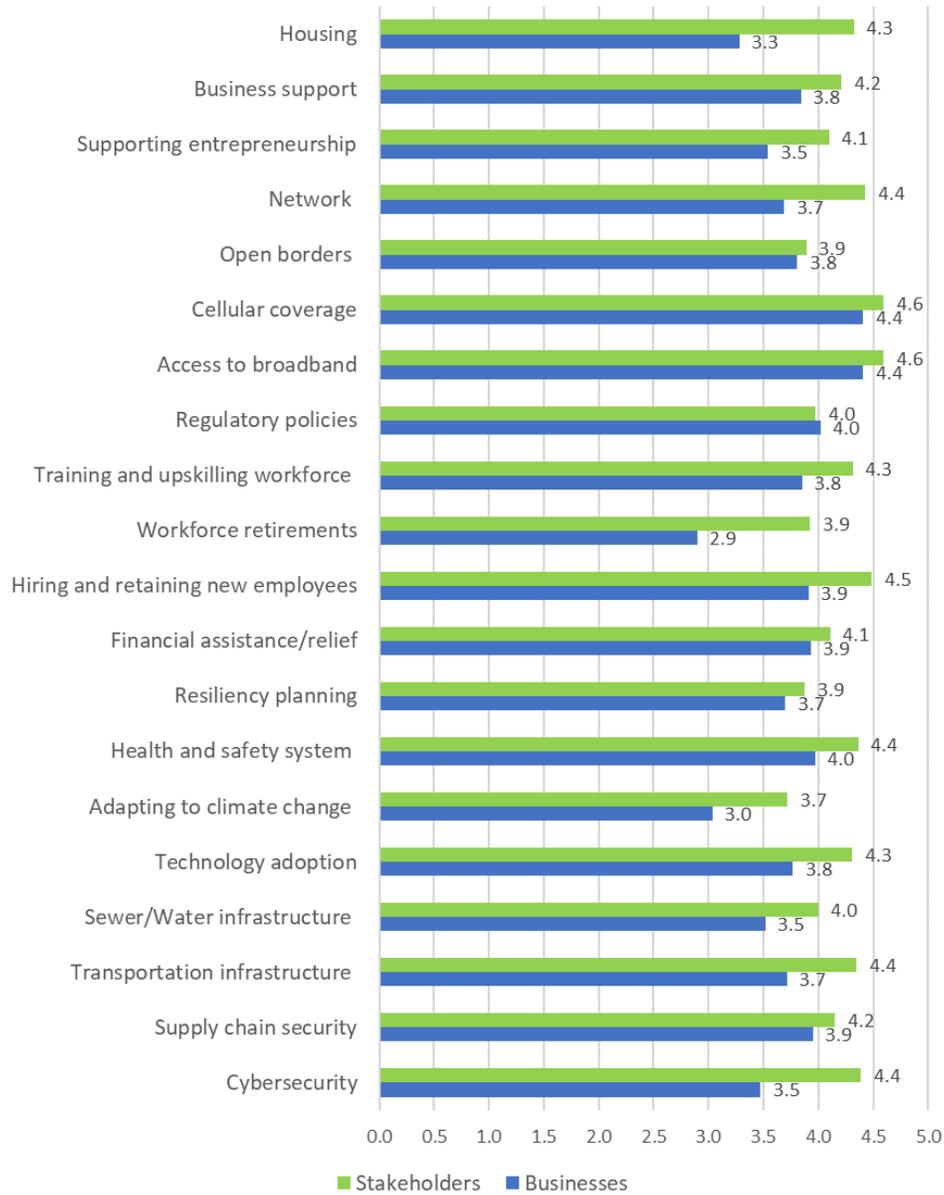
For the survey, businesses and stakeholders were asked to provide input on how important various factors related to economic and community development were to resiliency. Businesses were asked, “How important are the following issues to your business resiliency?” while stakeholders were asked, “How important are the following issues to regional resiliency?” The list of issues remained consistent for the two groups with the exception of businesses who were asked to also rate “remaining operable and flexible despite disruption”, which ranked as the most important issue to business resiliency.

Both businesses and stakeholders rated cellular coverage and access to broadband as the top two concerns. Overall, stakeholders tended to rank resiliency factors as more important on average compared to businesses. Issues with the greatest discrepancy between the two groups are workforce retirements, housing, and cybersecurity with stakeholders ranking them as more important than businesses,

Adapting to climate change ranked among the least-important resiliency factors for both groups, as well as sewer and water infrastructure. Other lower-ranking issues for businesses include workforce retirements, housing, and supporting entrepreneurship. Lower ranking issues for stakeholders include resiliency planning, open borders, and financial assistance/relief. It should be noted that all issues ranked on average higher than 2.5 out of 5 indicating that all issues were at least moderately important.

### How important are the following issues to resiliency?

1: Not important, 5: Very important



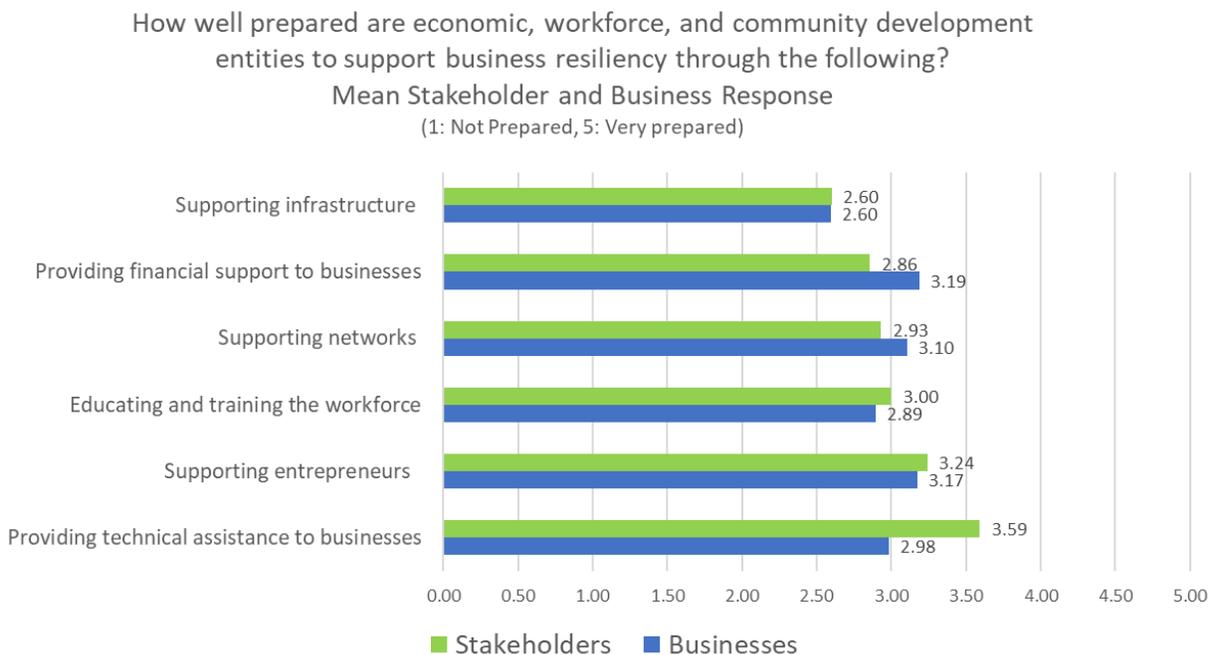
## Economic, Workforce, and Community Development Entities' Ability to Support Business Resiliency

Both stakeholders and businesses were asked, "Overall, how well prepared are economic, workforce, and community development entities in the Aroostook County and Washington County region to support business resiliency through the following?" For this question a rating of 1 is not prepared and 5 is very prepared.

Both stakeholders and businesses indicated that economic, workforce, and community development entities in Aroostook County and Washington County are only moderately prepared in many of the facets that support business resiliency – on the scale of 1-5 the overall mean ranking on the preparedness issues together is 3.0.

The preparedness category that both stakeholders and businesses ranked the lowest was supporting infrastructure. Stakeholders ranked providing technical assistance the highest, and businesses ranked providing financial support the highest.

Issues with the greatest discrepancy between the two survey groups included providing technical assistance to businesses (stakeholders ranked higher) and providing financial support to businesses (businesses ranked higher).



## Applied Foresight and Adaptive Plan Work Sessions

The first round of adaptive planning sessions was hosted in Aroostook County and Washington County on October 12<sup>th</sup> and October 13<sup>th</sup>, 2021, respectively. Participants were able to join in-person or virtually over Zoom to participate in the session, which reviewed future-readiness and group input activities. A digital workspace was used to collect input during the sessions and the output reports are provided in the Appendix. The following are the key themes that arose from the sessions held in Aroostook County and Washington County.

**Note that these findings are summarized from the direct input of the participants and were meant to support further thinking, vetting, and connecting of ideas for developing scenarios and ultimately strategies.**

### Issues and Trends to Consider when Planning for the Future

Participants were asked to provide input on emerging trends and issues within Aroostook County and Washington County that should be considered when planning for the future and how those issues may impact the regional economy. Top themes and responses include:

- **Transportation** – Transportation came up several times when talking about trends to consider. Major concerns include lack of affordable regional transportation, COVID-19 related border closures, and public transportation. Lack of public transportation is contributing to the lack of workforce opportunities in the region, though it isn't always feasible outside of population and work centers in the region. Aroostook County and Washington County face unique transportation challenges related to the shipment of products with inconsistent rail service which cannot be overcome with traditional truck shipments due to current workforce challenges securing drivers. It was noted that while the pandemic exacerbated both transportation and childcare problems, these challenges are not going away, and creating solutions to these challenges is instrumental in preparing the Aroostook County and Washington County economy for the future. Transportation opportunities include expanding public transportation options, especially in rural areas, and the development of the Port of Eastport to expand the shipping and distribution hub.
- **Housing** – Retention of residents and employment opportunities are hindered by a lack of affordable year-round housing. To help overcome this challenge there are opportunities to rehab existing housing and overcome the current stagnation in housing stock through innovative measures such as developing 3D printing options for affordable housing and investing in a manufactured housing factory. Participants noted that innovative solutions to housing challenges can help to produce a local housing supply as well as contribute to skilled jobs in the region.
- **Technology impacts on the workforce** – The pandemic has exacerbated the impact of technology on the current workforce and will continue to shape the future of the workforce. Session participants noted that the current workforce is often tethered to their smartphones, which is met with expectations to be available 24/7 for work. There is a changing concept of a workweek and prioritizing quality of experience over time working.

There are opportunities to utilize technology to increase manufacturing capabilities and improve society in Aroostook. As technology changes and adapts, there is a need to have educational offerings in the region rise to the occasion including developing programs and opportunities targeted towards software programmers, biotech sciences, electric vehicle mechanics, etc. Additionally, remote work is anticipated to persist, increasing work opportunities for Aroostook County and Washington County residents, especially those in rural areas and older workers.

At the same time, technology is impacting long-term effects on youth and contributing to workforce issues. The younger workforce looks to leverage technology to streamline work and increase efficiencies with the overall goal of a healthy life-work balance. A major theme coming out of this trend is the prioritization of personal versus work time management. The younger workforce has differing views on work ethic, workforce expectations, and employer expectations.

- **Workforce needs** – For Aroostook County and Washington County to remain resilient, the workforce needs to be trained to meet current and future needs. There are concerns over declining population and job opportunities along with rising labor shortage and inflation. Current education and workforce training can be expanded to capitalize on emerging trends for the region. Furthermore, ways to increase workplace efficiencies such as software for job sharing can be explored to help combat population declines.
- **Childcare** – Quality childcare is essential to employment opportunities for families. Employers are depending on childcare for their employees and a lack of childcare capacity negatively impacts the workforce. The future of childcare is unknown and there are opportunities to enhance efficiencies through shared services to provide childcare in group facilities in central locations of employment and residence. There is a need to combine childcare with motivating education to improve employment opportunities for Aroostook County and Washington County families. Additionally, childcare can serve as a foundation to raising children and overcome the common concerns over the upbringing of youth and its impacts on society.
- **Healthcare** – Participants in both sessions had numerous concerns related to healthcare. Top concerns include lack of quality health care options, lack of affordable healthcare, substance use disorder and its impacts on the workforce and society, inability to find specialty surgeons without driving south, and lack of mental healthcare. There is a strong need to increase access to recovery tools and mental health care to help support the workforce and create improved health for all. Opportunities to advance Aroostook County and Washington County’s healthcare ecosystem included automated healthcare services, prescription directions, efforts to attract doctors and expand hospital care (especially in Aroostook County), remote surgery, enhanced public healthcare, telehealth, etc.
- **Power, broadband, and internet** – Aroostook County and Washington County lag much of the country in terms of internet accessibility and affordability. Lack of connectivity hinders foresight solutions for residents and businesses. Municipalities are being pushed to offer broadband, which can lock them into legacy infrastructure and come at a high cost. There are other concerns to the internet and power infrastructure including grid reliability and security. Currently, electrical outages are a top vulnerability in Aroostook County and Washington County, which is a deepening concern as the world transitions to more electric vehicles and related charging.
- **Population impacts** – Aroostook County and Washington County’s population has steadily declined because of low birth rates and outmigration of residences. The further outmigration of youth is especially concerning for business growth and development. Population shifts are causing a cultural shift among residents and there is a need to enhance the acceptance of new residents moving into the region.

The Aroostook County and Washington County population is aging and opportunities to care for the aging population through aging-in-place and home health care options will help to support this demographic. Aging business owners are also an important consideration as the closing of businesses can lead to loss of economic activity, jobs, and access to goods and services. There is a need for enhanced business succession planning to preserve business ownership.

- **Tourism** – Participants noted there is a need for a regional approach to tourism to create a tourism ecosystem across Aroostook County and Washington County while building on assets and heritage. The tourism industry can be enhanced through community-based recreational facilities and/or programs focusing on culture, growing virtual travel, and focusing on recreation. To prepare the region for future tourism trends there is a need to better understand travel trends in similar geographies and markets. There is also a need to better understand how emerging technologies are impacting tourism trends and service industries.
- **Community and government** – Participants indicated that future readiness will require changes in local town government models. There is also a need to expand the community mindsets to be open to emerging trends and future opportunities/developments. It is difficult for communities to navigate risk. Lack of funding makes it difficult to assess risk and implement solutions to mitigate risk. Enhancing the government's capability to prepare for emerging trends will help to increase the economic viability of the region.

## Capacity for Adaptability and Resiliency

Aroostook County and Washington County's capacity for adaptability and resiliency was also discussed in the first round of adaptive planning sessions using the Aroostook Washington Comprehensive Economic Development Strategy 2018-2023 as a foundation. To further understand and apply resiliency in this strategic planning process, participants were asked what resiliency means, how it could be characterized, and how it can be applied. Discussions and responses resulted in the following common themes:

- Resiliency was described as the ability to thrive under stress, being adaptive, nimble, ability to protect from negative impacts, ability to pivot, bounce back, respond to crisis without collapse, etc. Resiliency requires having the knowledge, skills, and abilities to be prepared and to test that preparedness. Overall, resiliency in strategic planning has little meaning without being tied to goals and an understanding of who is and isn't included in this resiliency (from an individual, organization, and regional levels.)
- Resiliency in Aroostook County and Washington County is deeply tied to the region's heritage and culture. Participants agreed there is a need to embrace heritage while being future ready. Within Washington County, there is a strong need to be resilient for the natural resource-based businesses to support the "lifeblood" of the county.
- There are concerns about the degrading resiliency of Aroostook County and Washington County's culture with the outmigration of residents and influx of new residents. Participants noted that there are fewer people attending museums and heritage resources in the county and a concern that the region is losing its identity.
- The resiliency of Aroostook County and Washington County will depend on the citizens continuing to be engaged in conversations and initiatives to move forward. There is a concern that people's bandwidth and ability to be engaged are compromised. To increase resiliency, there is a need to have initiatives be thoughtful, planned, and action-oriented so community members can see the benefit of participating in those conversations.
- Resiliency will depend on people's ability to be in Aroostook County and Washington County and drive worker retention and business attraction. Treating existing businesses well and creating opportunities for them will help to build opportunities to attract additional businesses and residents.

Overall, there is a consensus that the Aroostook County and Washington County region is not as well prepared as participants would like for the future when considering all the emerging trends and issues

presented in Adaptive Planning Session 1. The following are key themes from the discussion and session input:

- **Current initiatives are reactive** – Aroostook County and Washington County are currently not in a position yet to be fully prepared. Much of the recent and current efforts underway in the region are reactive rather than proactive. However, there are initiatives underway helping to expand readiness.
- **Workforce is a critical factor** – The region is underprepared as it relates to its aging workforce, supply chain concerns exacerbated by the COVID-19 pandemic, small businesses shutting down, agricultural, internet access and broadband, trade skills, out-migration of young people, lack of workers to fill vacancies, etc. Overall, the region is most underprepared in terms of workforce. Many of these challenges are exacerbated by the rural environment.
- **Uncertainty stalls action** – Many unknowns are impacting the preparedness of the region. A major unknown that is impacting the region is the lack of knowledge of what other businesses/industries are going through. Some other unknowns include retirements, moving, substance use disorder impacts, etc.
- **Examples of preparedness can be found at the community-scale** – Other participants noted that there are areas where the region is prepared for the future. Concerning environmental resources, the region has had the opportunity to retain forests, abundant water resources, and soil health. Specifically, the Town of Perham was noted during the discussion as being highly resilient noting its abundance of backup generators, solar panels, etc. on residential homes.
- **Climate is a complex factor** – Views on preparedness were mixed, some noted that those in natural resource-based industries (agriculture, forestry, fishing) are well aware of climate change impacts and are taking steps to be better prepared and resilient. Others felt that there are still public organizations and stakeholders that are not focused enough on the potential threats to the region that climate change poses.
- **Collaboration is essential** – In Washington County, participants noted that one of the greatest assets in the region is its strong partnerships and collaboration. There is a strong collaborative spirit in Washington County. Others noted that “failure is not an option in Washington County”. Collaboration is critical in a regional approach to be future-ready. There is a need for communities to move together while keeping their independence instead of being automatically tuned out.
- **Recognizing that preparedness is an ongoing process** – Preparedness is a long-term, systemic approach for Aroostook County and Washington County. The region needs to get systematic about lifelong learning, planning, and acting.

## Foresight Scenarios for Resiliency Planning

The two workshops focused on five key topic areas related to the CEDS goals. The five areas introduced in the first session were: Climate Change, Agriculture, Telecom and IT, Transportation and Supply Chain, and the Future of Work. For each area we presented current and future trends and related technologies and discussed potential challenges and opportunities for the AWEDD region. In the second workshop, we created Foresight Scenarios based around these topics (with the addition of manufacturing) as applied examples of how to create and use this tool in resiliency planning. Below is an overview of the topic areas discussed, their related foresight scenarios, and key issues related to the scenarios.

### Climate and Environmental Changes

Climate change and how it affects the AWEDD region was the first topic discussed during the first workshop. Climate change will continue to drive economic and social change in both Aroostook and Washington counties in a variety of ways. Those areas are experiencing some of the most rapid warming in the country, including the Gulf of Maine, which is one of the fastest warming bodies of water on the planet. Maine's annual temperature has increased 3.2 degrees Fahrenheit since 1895, and Maine's winters have shortened, and summers lengthened by an average of two weeks over the last century. This longer summer season has implications from agriculture to transportation to tourism. By 2050, Maine will likely experience between 1.1 - 1.8 feet of relative sea rise, which is concerning for coastal areas. Additionally, ocean acidity levels continue to rise with greenhouse gas levels, and that can harm biodiversity in the Gulf of Maine.

Despite these changes, in many ways the AWEDD region is better positioned to navigate further climate change than many other regions in the country, especially other rural and agricultural regions. In the workshops we discussed some of the possibilities to anticipate and actions to take to be more resilient to increased warming, including new tools to forecast weather patterns and events and new approaches to construction and electrical utilities that could slow the rate of climate change.

Climate change was addressed in the first scenario for the second workshop. In this scenario, we imagined that the federal government increased carbon projects, including incentivizing reforestation in Maine. Rising temperatures in the Gulf of Maine impact local seafood companies, and warmer blueberry fields require new approaches and tools from farmers to protect their crops. Additionally, we discussed how other agricultural areas in the country are even more affected by climate change, and how this gives Maine a competitive advantage, even with the changes experienced there.

#### Key Climate Issues

- Ocean temperature averages are rising rapidly in the Gulf of Maine and are changing ocean-related industries
- Blueberry field areas are heating faster than many other areas in the Northeast
- Changing summer length in Maine is increasing the growing season for some crops while reducing the season for winter activities for tourism and travel
- Children that are born this year are estimated to live through twice as many wildfires, three times as many droughts, river floods, and crop failures, and seven times as many heat waves as people in their grandparents' generation
- Increasing number of weather events that cost more than \$1 billion. Hurricane Ida alone is estimated to have cost \$65 billion.

## Agriculture and Food Technology Trends

Climate change is just one factor in the transformation of how we produce food today and into the future. For example, rapidly advancing protein alternative technologies are creating new options for consumers with ever growing demands for meat. In the first workshop, we covered a wide variety of these new technologies from the emerging multi-billion-dollar industry producing plant-based alternatives to beef, chicken, and pork to seafood options derived from seaweed and eggs made from mung beans. The demand for these products is increasing as fast as these technologies advance, and they will present new opportunities and challenges to legacy producers of more traditional food products.

Farming technologies are changing as well and offer new solutions to increase productivity and reduce waste. Indoor vertical farms went from zero locations in the United States in 2010 to hundreds throughout the country today. These indoor farms use a small fraction of the land and water of traditional acreage farming, and do not require pesticides. And, since every aspect of the crop's growth is controlled, inputs such as light, water, and nutrients can be modified to speed up growing cycles and customize the crops for various flavors and textures.

Lastly, new uses for existing regional agricultural products, such as blueberries and potatoes, offer new markets for producers there. Producers worldwide are experimenting with these products, with notable recent announcements from the UK and Sweden, where meat proteins and a milk alternative were developed from potatoes, respectively.

For the second workshop, we combined the topics of agriculture and climate change for that foresight scenario.

### Key Agricultural and Food Production Issues

- General plant-based protein alternative changes in the market, including most legacy meat and vegetable conglomerates entering the market
- Introduction of potato proteins for plant-based meats and milk alternatives
- Increased automation of production and delivery of plant crops
- Vertical gardens/ indoor farming for highly controlled all-year growing in northern climates
- Over the last 40 years, Maine as a state has warmed by 1.9 degrees, but the blueberry fields Downeast have increased in temperature by an average of 2.3 degrees Fahrenheit, increasing droughts and moving harvesting times to earlier into the summer
- Agriculture's high levels of greenhouse gases. 4% of the world's methane emissions currently come from cattle, 2x higher than the entire aviation industry
- The Maine Aquaculture Association has released the nation's first aquaculture occupational standards to help educators and trainers better prepare people for the work and align workforce and training needs throughout the industry
- Algae-based seafood alternatives and methane-reducing food additives for cattle
- Global retail sales of plant-based food alternatives may reach 7.7% of the global protein market by 2030 — up from \$29.4 billion in 2020 to \$162 billion (Bloomberg Intelligence)
- Multi-billion-dollar investments and the entrance of the largest ag companies are accelerating current ag and food trends
- Emerging animal cell cultures for meat production is slowly becoming economically viable and challenging both plant-based and traditional meat manufacturing

## Telecom and Online Security

Lack of access to affordable broadband is one of the top issues cited by survey respondents and workshop attendees, and having broadband access is a requirement to many of the new opportunities being created for businesses and communities today. New technologies such as low earth orbit satellites that provide high-speed and low-latency internet access in rural areas are beginning to take shape but are not fully developed or available yet. The shift to work-from-home in many industries is also increasing the need for fast, reliable, and affordable internet. Additionally, as more people and devices get connected, new security concerns arise that must be addressed.

In our foresight scenario for this topic, we imagined that low-earth orbit satellite services (such as SpaceX's Starlink) had vastly expanded and now offer relatively affordable broadband services anywhere in the AWEDD region. This had a negative impact on some legacy providers, but dramatically improved access for residents.

### Key Connectivity Issues

- Lack of rural broadband is one of the top issues concerning resilience and economic development in the region
- Emerging broadband solutions have the potential to provide new alternatives to rural residents including new satellite, terrestrial, and wireless offerings. However, many such as satellite services offered by SpaceX's Starlink are still not yet a viable option for many due to the cost and performance of the service.
- Increasing importance of rural connectivity became even more apparent during the pandemic. With so many jobs moving to work-from-home, and everything from doctor visits to education being done online, those without affordable and reliable broadband were forced to find difficult alternatives
- New security concerns driven by broader connectivity, such as hacking, ransomware, malware, phishing, spoofing, spyware, and social engineering
- New tools and practices to help secure personal and business information
- Economic impact of increased broadband access for businesses in the region
- Connectivity's impact on regional competitiveness

## Transportation and Supply Chain

The key driver of change in transportation is the rapid shift to electrification. Every major global manufacturer is currently in the process of converting their vehicles to fully electric, with many pledging to have completed this conversion by 2030 or sooner. This has major implications for consumers and how we move goods. The rapid shift to electrification at a global scale is affecting virtually every type of vehicle available today, not just passenger cars and trucks. Essentially, if it moves, someone, somewhere is figuring out how to make it fully electric.

Additionally, electric vehicles offer many advantages to companies in supply chain transportation services, including lower maintenance costs, less down time, better driving experience for employees in an increasingly tight labor market, and less expensive "fuel" per mile driven.

In our scenario for this trend, new battery technologies lowered the cost of energy storage by 70% compared to previous battery technologies. This lowered the price and increased the adoption of electric vehicles in the region. We also described new local renewable energy projects securing approval, resulting in lowered energy costs and more EVs on the road. The addition of so many new EVs and renewable energy

sources so quickly required utilities and regulators to create a plan for balancing the grid to maintain and improve service to their customers.

### Key Transportation Issues

- Massive global shift to EVs is fully underway, with every major vehicle manufacturer committed to the transition
- Increasing numbers of EVs and renewables are impacting loads on the energy grid
- To support a growing percentage of EV vehicles, new charging infrastructure must be built and maintained
- Current EVs have inherent challenges in rural areas, from lack of charging infrastructure to the absence of qualified sales and repair locations to range anxiety due to longer average commutes
- Fleet vehicles are also transitioning to EV's
- Other types of EVs are being developed, including regional aircraft, garbage trucks, semi-trucks, and shipping vessels
- Transition to EVs will have positive effects on the supply chain from lowered ownership costs to increased labor retention
- Determining potential impacts on residents and businesses in the region, both positive and negative

### Future of Work

The future of work topic covered changes created or accelerated by the pandemic as well as emerging technologies and trends that are transforming how, where, when, and why we work. The pandemic caused a fast-forward digital transformation in many industries, and the almost overnight shift to remote in many industries caused a global reconsideration of what actually needs to be done in person. At the same time, many workers began to reconsider their own lives and careers, leading to a "Great Resignation" around the country with record numbers of people quitting their jobs.

The rapid shift to remote and employees changing expectations have forced employers to find new approaches to attracting and retaining workers. New tools and services to improve hiring and onboarding were discussed in the workshops. Additionally, retaining workers has become more challenging and important since the beginning of the pandemic. Personalized benefits and employee experiences can help employees create the work environment and benefits package that best fits their needs and lifestyle without necessarily increasing employer labor expenses. Long after this pandemic has passed, the effects from a nationwide shift toward work-from-home and work-from-anywhere will be felt by employers. Now that so many employees have taken time to truly consider what is important for them from a job, and what they are willing to put up with, the employee/employer relationship will likely forever be changed.

In the foresight scenario for the future of work, we assumed a continued drop in employment in the AWEDD region and additional challenges due to lack of migrant workers in the area. We also discussed new entrepreneurship initiatives to encourage new businesses to launch.

### Key Workforce Issues

- Changing trends due to COVID-19 are contributing to the rapid transformation of the future of work
- Generational changes in the workforce with a growing percentage of workers now "Digital Natives"
- An aging workforce in the AWEDD remains a top concern

- The transition to work-from-home and work-from-anywhere for many jobs presents new opportunities and new challenges for employers in the region
- The “Great Resignation” has made it more difficult to attract and retain employees
- Hiring and onboarding tools in the new world of work
- A shift to a “personalized employee experience” approach to benefits and scheduling can improve employee retention

## Manufacturing

*(Foresight scenario topic for Padlet exercise)*

Manufacturing was only discussed as a foresight scenario topic, and not directly addressed as a standalone topic during the trends overview discussion of the first session. The scenario we created for a potential future of manufacturing in the region included an eastern spruce budworm outbreak that limited wood production in Aroostook and a higher demand for cross-laminated timber products. We also introduced the possibility of a robotics factory in development at the Loring Commerce Center and potential roadblocks in securing it that could result from labor shortages in the area.

### Key Manufacturing Issues

- Weaknesses and bottlenecks in the global supply chain exposed by the pandemic encourage locally manufactured and/or assembled products that are less reliant on cross-country or international shipping
- Advancements in additive manufacturing are allowing manufacturers to use a wider variety of materials, including metals, and design for the final product form and functionality instead of manufacturing limitations
- New automation and operational tools such as digital twins and advanced sensors use predictive maintenance to limit machine downtime and increase productivity
- “Cobots” that can work safely around humans are reducing workforce staffing challenges, including worker retention and on-the-job injury reduction
- Integrating tracing and transparency platforms powered by blockchain technology to track components and shipments, as well as verify sustainability and materials sourcing

## Foresight Scenarios Summary

The topics discussed in the two sessions were selected to coincide with the AWEDD CEDS goals but were not intended to be a comprehensive look at all the trends and technologies that could impact the region's competitiveness and resilience over the next two-to-five years. Technologies and trends will always change, and that rate of change will continue to increase. Our focus during these sessions was to use current emerging trends and technologies to illustrate how to use the tools and practices needed to navigate the challenges and capitalize on the opportunities created by rapid change. These scenarios and related participant engagement in Session 2 created additional findings, but also input for strategy and recommendations for creating a more future ready region.

## Current Economic Performance

An important way to consider a region's resilience is in context of its ability to meet its vision and goals. The regional CEDs for AWEDD provide a vision and related goals along with key economic performance metrics:

### Regional Vision

*"Our region is a place of abundant natural resources that is reflected in the beauty of our landscape and the potential for economic and social prosperity it offers. We value the individuality and endurance of our people while recognizing the strong sense of community and place that sustains us. We will create economic growth by focusing on sectors that best leverage these assets and by working to develop policies that promote private sector investment; while at the same time, retaining the quality of life that makes the region special."*

### CEDS Goals

- **Reversing systemic population decline -**

"The most critical issue facing Aroostook and Washington counties is the systemic population decline.

Fundamentally, the retention and attraction of people is the core factor for future viability of Aroostook and Washington counties. Extreme economic, community and personal pressures are now being felt as a smaller population is carrying the full cost of critical public services and workforce demand."

- **Agriculture Goals** - Accomplish 50 new farm businesses/jobs, increase net income to farmers by 10%, expand acres under production by 5,000 and increase value added production.
- **Forest Resources Goals** - By 2023, increase total value-added wood products manufacturing in Northern and Eastern Maine by 25%. Participate in the FOR/Maine initiative to grow Maine's forest products sector by 40% by 2025.
- **Marine Resources Goals** - By 2023, increase marine-related employment by 250 jobs through expansion of research, harvest, and processing.
- **Tourism Goals** - By 2023, increase overall dining and tourism revenues by 25%, employment by 15%, and grow non-peak season events by one a year.
- **Manufacturing and Specialty Processing Goals** - By 2023, achieve 200 new jobs in metal manufacturing, natural resources manufacturing and food product manufacturing.
- **Alternative Energy** - Realize 200 jobs in the Renewable Energy Economy by 2023.
- **Entrepreneurship and Access to Capital Goals** - By 2023 the region will improve the overall business acumen and increase business starts to more than 100 per year. Increase overall lending in the region by 15% by 2023 including the coordination of capital resources from micro lending to public projects and mature industry finance.
- **Education and Workforce Development** - Human capital is a top priority for the AWEDD region, and regional leaders recognize that development, retention, and attraction of sufficient quantity and quality workforce are essential to a sustainable Northern and Downeast Maine economy.

- **Infrastructure** - Improve, expand, diversity, maintain infrastructure to support regional asset-based industry cluster activities and priorities. Specifically pertaining to infrastructure of:
  - Roads and bridges
  - Public transit
  - Rail
  - Airports
  - Ports
  - Broadband
- **Environment** - Environment is viewed in the context of Quality of Place characteristics. Northern and Downeast Maine is a region that covets its natural environment as a place for commerce, recreation, and a unique lifestyle. Protection and development of the natural environment is balanced and recognized as a priority in a knowledge-based 21st century economy.
- **Leadership** - By utilizing the NMDC Next Generation Strategic Plan, completed in late 2017, the Commission will target impact areas of population, economic value, quality of place, infrastructure, and mindset. NMDC views leadership as an immediate requirement, but also a long-term priority to guide and drive the regions comprehensive economic development strategy forward.
  - Achieved through: *Partnerships – Communications - Efficiency and Effectiveness*
- **Resilience** - Foresee, adapt to and leverage changing conditions to their advantage to be able to attract and grow new businesses, retain skilled workers and families, and promote a high quality of life.

In addition to the metrics within the goals noted above, the CEDS establishes key metrics for regional growth. They are:

- Population
- Employable Population (age 15-64)
- Labor Participation Rate
- Total Employment
- Average Wage Per Job
- Per Capita Income\*
- Bachelor's Degrees or Higher (26 years and older)
- Associate Degrees (26 years and older)
- Increase in Population 20-44

With the establishment of the CEDS, metrics were provided for a baseline year of 2016 and attainment goal for 2023. The following table provides a status of how well the region has performed at achieving progress towards those goals based on the latest available data (either 2020 or 2021) along with the 2023 goal. For purposes of consistency in measurement over time, an update to the 2016 data was also provided.

**For the following key growth metrics, the region has experienced a decrease since 2016. This means the region is further from attaining its goals related to:**

- Population
- Employable Population (age 15-64)
- Labor Participation Rate
- Total Employment
- Increase in Population 20-44\*

For the following key growth metrics, the region has experienced **progress** towards attaining its 2023 goal and in the case of wages, income, and bachelor’s degrees has attained or exceeded its goal:

- Average Wage Per Job
- Per Capita Income
- Bachelor’s Degrees or Higher (26 years and older)
- Associate Degrees (26 years and older)

**AWEDD Regional Goals and Performance - Based on 2018-2023 CEDS**

	2016		2023	2016	Most	Most	Change 2016
	Baseline	2023 Goal	Change Goal	Updated Data	Current Data	Current Data Year	to Most Current Year
Population	101,330	102,830	1,500	99,927	98,722	2021	-1,205
Employable Population (age 15-64)	62,909	63,909	1,000	61,847	57,449	2021	-4,398
Labor Participation Rate	54.1%	59.5%	5.4%	52.83%	51.17%	2020	-1.66%
Total Employment	53,290	54,290	1,000	44,937	41,252	2021	-3,685
Average Wage Per Job*	\$41,936	\$45,000	\$3,064				
Aroostook	NA	NA		\$35,620	\$43,264	2020	\$7,644
Washington	NA	NA		\$34,736	\$42,016	2020	\$7,280
Per Capita Income*	\$22,483	\$25,483	\$3,000				
Aroostook	NA	NA		\$37,709	\$47,605	2020	\$9,896
Washington	NA	NA		\$37,829	\$45,558	2020	\$7,729
Bachelors Degrees or Higher (26 yrs+)	18.7%	20.7%	2.0%	18.7%	20.7%	2020	2.0%
Associate Degrees (26 yrs and older)	9.7%	12.7%	3.0%	9.7%	10.8%	2020	1.1%
Increase in Population 20-44*	33,268	34,268	\$1,000	25,485	24,723	2021	-762

\* -Data for 2016 base and goal required change for measuring progress

## Looking in More Detail

### Total Employment and Employment by Major Industry

Employment declines were persistent prior to COVID-19 and declines including those due to COVID-19 occurred across most all major industry sectors.

From 2015 to 2020, jobs declined by 7.5% in the two Maine Counties from 45,034 to 41,635. This change fell short of the national growth rate of 0.0% by 7.5%.

## Total Employment Trends Aroostook and Washington Counties

Timeframe	Jobs	Change from
2015	45,034	
2016	44,937	-0.21%
2017	44,422	-1.15%
2018	44,030	-0.88%
2019	43,541	-1.11%
2020	41,635	-4.38%
2021	41,252	-0.92%
2022	40,913	-0.82%
2023	40,606	-0.75%
2024	40,327	-0.69%
2025	40,098	-0.57%
Change 2015-20	(3,399)	-7.55%
Change 2020-25	(1,537)	-3.69%

Source: EMSI

## Aroostook and Washington Employment by Largest Industry

Industry	2015 Jobs	2020 Jobs	Change in Jobs	% Change in Jobs	2020 LQ	2020 Earnings Per Worker
Government	9,167	8,700	(468)	(5%)	1.37	\$63,910
Health Care and Social Assistance	7,316	7,196	(119)	(2%)	1.32	\$56,076
Retail Trade	6,012	5,479	(533)	(9%)	1.34	\$37,179
Manufacturing	4,029	3,812	(217)	(5%)	1.17	\$67,236
Agriculture, Forestry, Fishing and Hunting	4,236	3,700	(536)	(13%)	7.19	\$45,016
Accommodation and Food Services	2,744	2,130	(613)	(22%)	0.71	\$21,837
Construction	1,941	2,060	119	6%	0.85	\$49,719
Other Services (except Public Administration)	1,825	1,485	(341)	(19%)	0.69	\$29,023
Transportation and Warehousing	1,499	1,450	(49)	(3%)	0.86	\$56,049
Finance and Insurance	1,102	1,218	116	11%	0.69	\$72,085
Admin.; Support; Waste Mgmt.; Remediation Services	1,119	893	(226)	(20%)	0.35	\$34,095
Wholesale Trade	994	814	(180)	(18%)	0.54	\$60,079
Professional, Scientific, and Technical Services	753	695	(58)	(8%)	0.24	\$58,988
Educational Services	548	534	(14)	(3%)	0.50	\$41,472
Real Estate and Rental and Leasing	385	368	(17)	(4%)	0.51	\$42,687
Information	577	351	(226)	(39%)	0.46	\$52,558
Management of Companies and Enterprises	323	321	(2)	(1%)	0.53	\$73,744
Arts, Entertainment, and Recreation	258	212	(46)	(18%)	0.36	\$22,564
Utilities	185	198	13	7%	1.36	\$111,984
Mining, Quarrying, and Oil and Gas Extraction	20	20	0	1%	0.14	\$68,881

Source: EMSI

## Employment by Regional Targeted Sectors

### **Agriculture, Forestry, and Fishing**

#### Related CEDS Goals

- **Agriculture Goals** - Accomplish 50 new farm businesses/jobs, increase net income to farmers by 10%, expand acres under production by 5,000 and increase value added production.
- **Forest Resources Goals** - By 2023, increase total value-added wood products manufacturing in Northern and Eastern Maine by 25%. Participate in the FOR/Maine initiative to grow Maine's forest products sector by 40% by 2025.
- **Marine Resources Goals** - By 2023, increase marine-related employment by 250 jobs through expansion of research, harvest, and processing.

The region continues to be highly specialized/concetrated in Agriculture, Forestry, Fishing, and Marine related. Specific high sectors of concentration include:

- Crop production
- Forestry and Logging
- Wood product and Paper Manufacturing
- Fishing and Aquaculture
- Marine Services
- Seafood Product Preparation, Processing, and Wholesaling

With the exception of animal production and aquaculture, most all of the related subsectors experienced declines and were hit by COVID impacts. The largest job losses between 2016 and 2021 were experienced in the sectors of:

- Crop Production
- Fishing
- Seafood Product Preparation and Processing
- Forestry and Logging
- Wood Product and Paper Manufacturing

Aroostook and Washington Agriculture, Forestry, Fishing and Hunting Employment							
NAICS	Description	2016 Jobs	2021 Jobs	2016 - 2021 Change	2016 - 2021 % Change	Avg. Earnings Per Job	2020 Location Quotient
111	Crop Production	1,608	1,420	(189)	(12%)	\$36,371	6.50
112	Animal Production and Aquaculture	135	230	95	71%	\$32,351	1.85
113	Forestry and Logging	851	810	(41)	(5%)	\$58,919	40.17
114	Fishing, Hunting and Trapping	951	887	(64)	(7%)	\$54,167	105.53
114111	Finfish Fishing	129	104	(24)	(19%)	\$55,194	34.12
114112	Shellfish Fishing	762	718	(44)	(6%)	\$54,072	217.45
114119	Other Marine Fishing	21	21	0	2%	\$52,285	43.56
1142	Hunting and Trapping	40	44	4	11%	\$53,971	30.75
115	Support Activities for Agri and Forest	335	339	4	1%	\$30,758	2.29
<b>11</b>	<b>Total Agri, Forest, Fish &amp; Hunting</b>	<b>3,880</b>	<b>3,686</b>	<b>(194)</b>	<b>(5%)</b>	<b>\$45,016</b>	<b>7.19</b>
	<b>Total All Sectors/Industries</b>	<b>44,937</b>	<b>41,252</b>	<b>(3,686)</b>	<b>(8%)</b>	<b>\$52,259</b>	

Source: EMSI

Aroostook and Washington Marine Related Employment							
NAICS	Description	2016 Jobs	2021 Jobs	2016 - 2021 Change	2016 - 2021 % Change	Avg. Earnings Per Job	2020 Location Quotient
112	Animal Production and Aquaculture	135	230	95	71%	\$32,351	1.85
11411	Fishing	911	843	(68)	(7%)	\$54,177	120.69
114111	Finfish Fishing	129	104	(24)	(19%)	\$55,194	34.12
114112	Shellfish Fishing	762	718	(44)	(6%)	\$54,072	217.45
114119	Other Marine Fishing	21	21	0	2%	\$52,285	43.56
311710	Seafood Product Preparation and Packaging	185	89	(96)	(52%)	\$40,118	12.08
424460	Fish and Seafood Merchant Wholesalers	191	170	(21)	(11%)	\$41,742	24.20
336611	Ship Building and Repairing	27	<10	Insf. Data	Insf. Data	Insf. Data	0.38
336612	Boat Building	39	30	(10)	(25%)	\$48,755	2.64
441222	Boat Dealers	26	26	1	2%	\$59,714	2.86
4883	Support Activities for Water Transportation	43	48	5	12%	\$35,482	2.05
	<b>Total Marine Related</b>	<b>1,556</b>	<b>1,437</b>	<b>(120)</b>	<b>(8%)</b>		
	<b>Total All Sectors/Industries</b>	<b>44,937</b>	<b>41,252</b>	<b>(3,686)</b>	<b>(8%)</b>	<b>\$52,259</b>	

Source: EMSI

## Manufacturing

### Related CEDS Goals

- **Manufacturing and Specialty Processing Goals** - By 2023, achieve 200 new jobs in metal manufacturing, natural resources manufacturing, and food product manufacturing.

Overall Manufacturing has higher than average earnings relative to all sectors in the region (\$67K per job compared to \$52K per job for all industries in the region).

In terms of manufacturing specialization/concentration, the region is high in the sectors of:

- Food
- Wood and paper products
- Asphalt paving and block manufacturing

The regions largest manufacturing sectors in terms of employment include:

- Food
- Wood product and paper

- Fabricated metals
- Asphalt paving and block manufacturing

Overall between 2016 and 2021 manufacturing in the region experienced an 8% loss in jobs (333 jobs loss), which is similar to the job loss percent level overall for the region. The largest job losses occurred in:

- Food (155 jobs loss)
- Wood Product and paper (268 jobs loss)

Machinery and fabricated metals manufacturing experienced a combined increase of 43 jobs added.

Aroostook and Washington Manufacturing Employment							
NAICS	Description	2016 Jobs	2021 Jobs	2016 - 2021 Change	2016 - 2021 % Change	Avg. Earnings Per Job	2020 Location Quotient
311	Food	1,212	1,057	(155)	(13%)	\$54,084	2.38
312	Beverage and Tobacco Product	27	<10	Insf. Data	Insf. Data	Insf. Data	0.13
313	Textile Mills	0	0	0	0%	\$0	0.00
314	Textile Product Mills	28	27	(0)	(1%)	\$31,635	0.86
315	Apparel	<10	<10	Insf. Data	Insf. Data	Insf. Data	0.06
316	Leather and Allied Product	<10	19	Insf. Data	Insf. Data	\$66,876	2.27
321	Wood Product	1,038	969	(69)	(7%)	\$62,275	9.00
322	Paper	965	766	(199)	(21%)	\$90,461	8.42
323	Printing and Related Support Activities	24	26	2	8%	\$34,602	0.24
324	Petroleum and Coal Products	62	221	159	258%	\$118,075	6.91
325	Chemical	96	79	(17)	(18%)	\$111,273	0.36
326	Plastics and Rubber Products	0	0	0	0%	\$0	0.00
327	Nonmetallic Mineral Product	53	61	8	15%	\$66,171	0.56
331	Primary Metal Manufacturing	<10	0	Insf. Data	Insf. Data	\$0	0.00
332	Fabricated Metal Product	282	299	17	6%	\$48,431	0.80
333	Machinery Manufacturing	23	49	26	113%	\$60,408	0.16
334	Computer and Electronic Product	<10	0	Insf. Data	Insf. Data	\$0	0.00
335	Electrical Equip,Appliance,andComponent	17	0	(17)	(100%)	\$0	0.00
336	Transportation Equipment	71	39	(31)	(44%)	\$52,267	0.09
337	Furniture and Related Product	13	11	(2)	(13%)	\$24,635	0.11
339	Miscellaneous	235	195	(40)	(17%)	\$44,695	1.24
31	<b>Total All Manufacturing</b>	4,161	3,828	(333)	(8%)	\$67,236	1.17
	<b>Total All Sectors/Industries</b>	44,937	41,252	(3,686)	(8%)	\$52,259	

Source: EMSI

## Tourism

### Related CEDS Goals

- **Tourism Goals** - By 2023, increase overall dining and tourism revenues by 25%, employment by 15%, and grow non-peak season events by one a year.

Like tourism related sectors across the country, these sectors in the region were hard hit by COVID. Between 2016 and 2021, the rregion loss an estimated 764 jobs, or 25% of its jobs. This compares to 8% across all industries combined. The region is not highly concentrated in tourism so is better able to absorb shocks due to losses.

Aroostook and Washington Tourism Related Employment							
NAICS	Description	2016 Jobs	2021 Jobs	2016 - 2021 Change	2016 - 2021 % Change	Avg. Earnings Per Job	2020 Location Quotient
<b>71</b>	<b>Arts, Entertainment, and Recreation</b>	<b>243</b>	<b>211</b>	<b>(33)</b>	<b>(13%)</b>	<b>\$22,564</b>	<b>0.36</b>
711	Performing Arts, Spectator Sports, & Related	70	70	(0)	(0%)	\$23,650	0.38
712	Museums, Historical Sites, & Similar Institutions	<10	<10	Insf. Data	Insf. Data	Insf. Data	0.07
713	Amusement, Gambling, & Recreation Industries	166	138	(28)	(17%)	\$21,439	0.38
<b>72</b>	<b>Accommodation and Food Services</b>	<b>2,765</b>	<b>2,034</b>	<b>(731)</b>	<b>(26%)</b>	<b>\$21,837</b>	<b>0.71</b>
721	Accommodation	422	324	(97)	(23%)	\$23,784	0.89
722	Food Services & Drinking Places	2,344	1,710	(633)	(27%)	\$21,473	0.69
	<b>Total Tourism Related</b>	<b>3,009</b>	<b>2,245</b>	<b>(764)</b>	<b>(25%)</b>		
	<b>Total All Sectors/Industries</b>	<b>44,937</b>	<b>41,252</b>	<b>(3,686)</b>	<b>(8%)</b>	<b>\$52,259</b>	

Source: EMSI

### Energy Generation and Distribution

#### Related CEDS Goals

- **Alternative Energy** - Realize 200 jobs in the Renewable Energy Economy by 2023.

Currently, alternative energy in the region is mostly represented by Biomass in terms of existing employment. This biomass generation sector is also supported by the region’s strength in natural resources and forest products. Between 2016 and 2021 the region lost 17 jobs (43%) in the biomass generation sector.

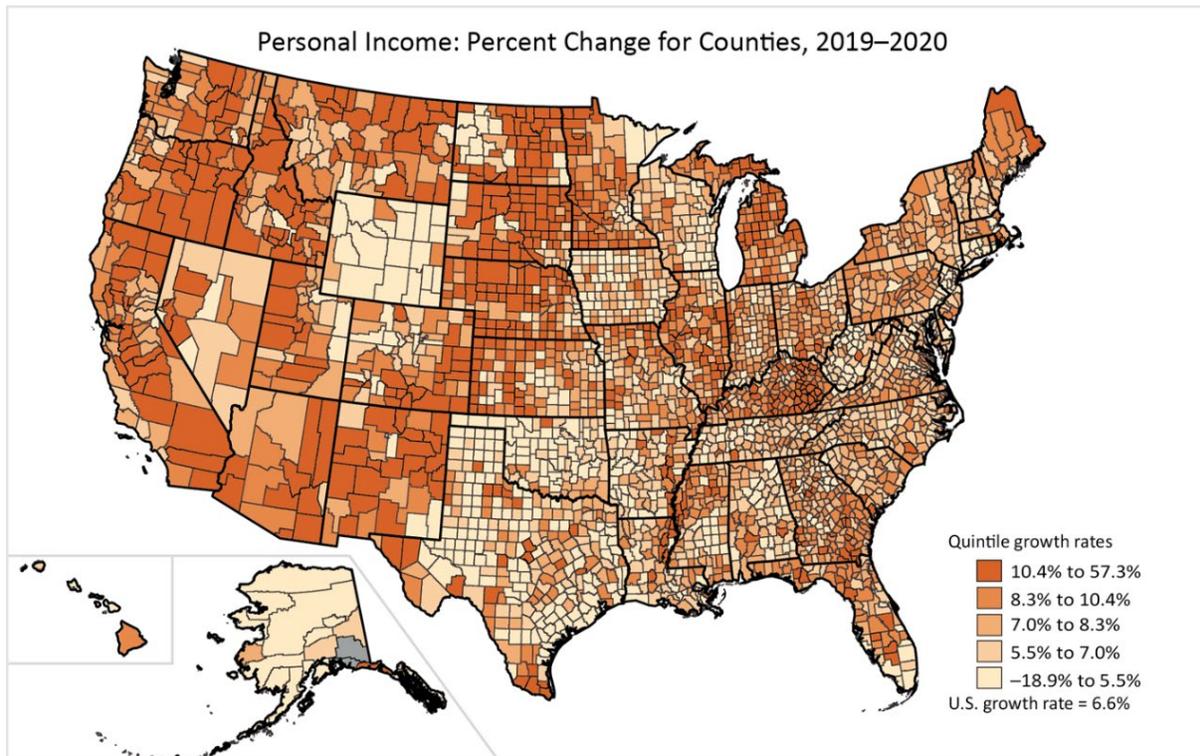
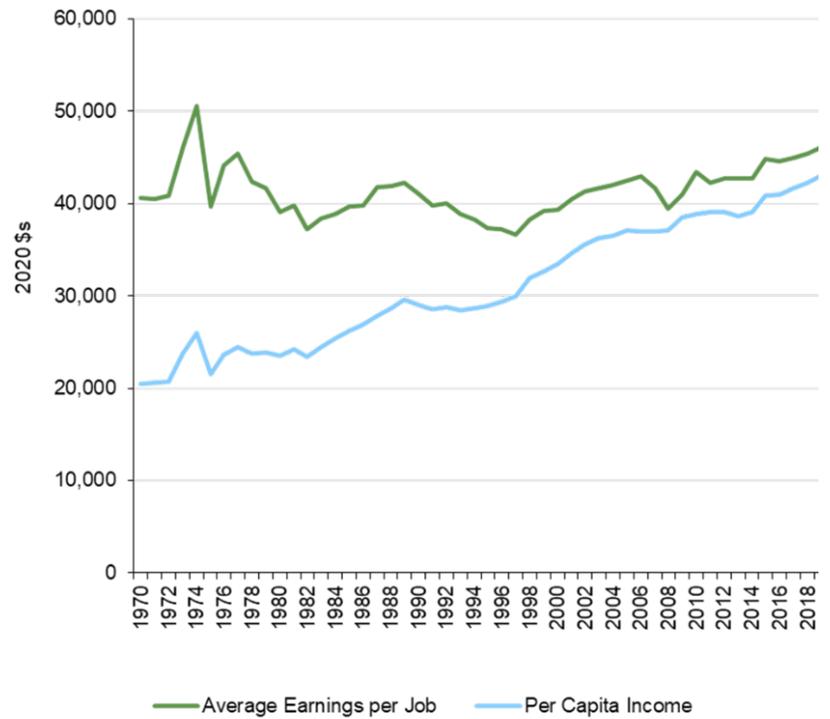
Aroostook and Washington Energy Generation and Distribution Related Employment							
NAICS	Description	2016 Jobs	2021 Jobs	2016 - 2021 Change	2016 - 2021 % Change	Avg. Earnings Per Job	2020 Location Quotient
221111	Hydroelectric Power Generation	60	<10	Insf. Data	Insf. Data	Insf. Data	1.88
221112	Fossil Fuel Electric Power Generation	0	0	0	0%	\$0	0.00
221113	Nuclear Electric Power Generation	0	0	0	0%	\$0	0.00
221114	Solar Electric Power Generation	0	0	0	0%	\$0	0.00
221115	Wind Electric Power Generation	<10	<10	Insf. Data	Insf. Data	Insf. Data	4.89
221116	Geothermal Electric Power Generation	0	0	0	0%	\$0	0.00
221117	Biomass Electric Power Generation	39	22	(17)	(43%)	\$103,723	43.00
221118	Other Electric Power Generation	0	0	0	0%	\$0	0.00
221122	Electric Power Distribution	54	133	79	147%	\$121,063	2.19
221210	Natural Gas Distribution	<10	0	Insf. Data	Insf. Data	\$0	0.00
	<b>Total Energy Gen. and Distrib.</b>	<b>153</b>	<b>155</b>	<b>2</b>	<b>1%</b>		
	<b>Total All Sectors/Industries</b>	<b>44,937</b>	<b>41,252</b>	<b>(3,686)</b>	<b>(8%)</b>	<b>\$52,259</b>	

Source: EMSI

Earnings and Income

Income and wage growth in the region show positive signs. This is important for regional equity and prosperity which in turn are important for resiliency.

Average Earnings per Job & Per Capita Income, Aroostook Washington Economic Development District



Note. Chugach Census Area, AK, and Copper River Census Area, AK, estimates begin in 2020; personal income growth rates for 2019–2020 are not available for these areas.  
U.S. Bureau of Economic Analysis

Labor Force

Labor force has been and continues to be a major issue. Most importantly being the labor force participation rate, which has continually declined since 2016. This presents a constraint on business growth as well as personal well being.

**2020 Labor Force Breakdown  
Aroostook and Washington Counties**

	Population
Population	98,277
Employable Population	57,997
Not in Labor Force (15+)	16,176
Labor Force	41,821
Employed	39,317
Unemployed	2,504
Unemployable Population	40,280

Source: EMSI

**Unemployment Rate  
Aroostook and Washington Counties**

Timeframe	Unemployment Rate
2016	5.45%
2017	4.94%
2018	4.48%
2019	4.14%
2020	5.73%
Jan - Feb 2021	6.96%
March 2021	6.57%
April 2021	7.05%
May 2021	6.34%

Source: EMSI

**Labor Force Participation Rate Trends  
Aroostook and Washington Counties**

Timeframe	Labor Force Participation Rate
2016	53.83%
2017	54.37%
2018	53.68%
2019	52.75%
2020	51.17%
Jan - Feb 2021	51.51%
March 2021	51.61%
April 2021	51.17%
May 2021	51.80%

Source: EMSI

Looking deeper into labor force participation by age, 2019 is the most current detailed data. The table below shows both the demographics of the overall labor force and the labor force participation rates by age group.

- Aroostook and Washington counties’ workforce generally mirrored that of Maine, although both the state and region skewed older compared to the US.
- Both Aroostook and Washington counties’ participation rates (all age groups combined) at 54.7% and 51.8% respectively were lower compared to Maine and US.
- Maine’s participation rate among younger workers was significantly higher than the US, with 11.9% more 16–19-year-olds and 5.2% more 20–24-year-olds participating in the workforce.

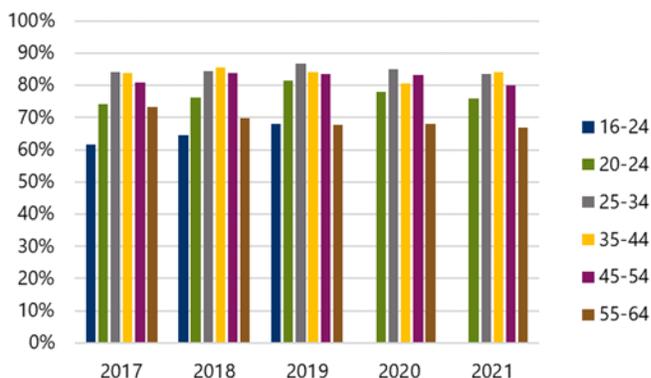
- Aroostook County’s labor force participation was lower than the State’s across all age groups, but particularly among the following age groups: 25-29 (7.7% lower participation), 30-34 (8.0% lower), and 60–64-year-olds (8.8% lower). However, participation by workers aged 16–19-year-olds in the county was 7.5% higher than it was in the nation.
- Washington County’s labor force participation rates were significantly lower than Maine’s across all age groups except for workers older than 75. The following age groups were particularly noteworthy: 16-19 (11.5% lower), 30-34 (12.9% lower), 35-44 (11.4% lower), 55-59 (10.4% lower), and 60-64 (12.4% lower).

	Labor Force Demographics				Participation Rate			
	Aroostook County	Washington County	Maine	US	Aroostook County	Washington County	Maine	US
<b>Total</b>	<b>56,974</b>	<b>26,266</b>	<b>1,114,049</b>	<b>259,662,880</b>	<b>54.7%</b>	<b>51.8%</b>	<b>62.9%</b>	<b>63.4%</b>
16 to 19 years	5.5%	5.8%	5.7%	6.6%	46.0%	38.9%	50.4%	38.5%
20 to 24 years	6.3%	6.2%	6.8%	8.5%	78.1%	76.5%	80.2%	75.0%
25 to 29 years	6.0%	5.3%	7.1%	8.9%	76.3%	76.7%	84.0%	83.0%
30 to 34 years	5.8%	5.9%	7.1%	8.5%	75.8%	70.9%	83.8%	82.9%
35 to 44 years	12.4%	12.3%	13.7%	15.8%	80.9%	73.0%	84.4%	82.8%
45 to 54 years	16.4%	15.5%	16.6%	16.2%	76.1%	72.9%	82.2%	80.8%
55 to 59 years	9.9%	9.8%	9.6%	8.3%	69.8%	63.9%	74.3%	72.5%
60 to 64 years	9.9%	10.6%	9.3%	7.7%	51.1%	47.5%	59.9%	57.0%
65 to 74 years	15.8%	17.1%	14.2%	11.4%	21.7%	22.7%	28.5%	26.0%
over	12.1%	11.4%	9.8%	8.2%	3.7%	8.4%	7.0%	6.8%

Source: 2019 American Community Survey

It is likely that the COVID-19 pandemic has further exacerbated the lower participation rates across all age groups in both counties. Participation rates by age are available for 2020 and 2021 at the state-level, and they show a pattern of declining participation among all age groups except those 65 and older. Noteworthy declines were seen between 2019 and 2021 in the participation rates of the following age groups: 20-24 (5.6% lower), 25-34 (3.3% lower), and 45-54 (3.4% lower). Although data was not available for 16–24-year-olds, it is likely that declines were seen among that demographic as well.

Participation Rates by Age, Maine



Source: Maine Center for Workforce Research and Information  
 Insufficient data for 16-24 year olds in 2020 and 2021

Population

The labor force trends are exacerbated by population trends which indicate an overall and continued decline but most worrisome are declines in the working-age population.

**Population Change  
Aroostook and Washington Counties**

Area	2016 Population	2021 Population	Change	% Change
Aroostook and Washington Counties	99,927	97,823	(2,104)	(2%)
State	1,332,348	1,355,477	23,129	2%
Nation	323,071,755	331,820,028	8,748,273	3%

Source: EMSI

As of 2020 the region's population declined by 2.4% since 2015, falling by 2,375, and the working age population declined by 7%, losing 4,400.

Population is expected to decrease by 2.7% between 2020 and 2025, losing 2,700.

**Population Trends  
Aroostook and Washington Counties**

Year	Population	% Change from Previous Year
2015	100,652	
2016	99,927	-0.72%
2017	99,008	-0.92%
2018	98,454	-0.56%
2019	98,378	-0.08%
2020	98,277	-0.10%
2021	97,823	-0.46%
2022	97,320	-0.51%
2023	96,779	-0.56%
2024	96,196	-0.60%
2025	95,577	-0.64%

Source: EMSI

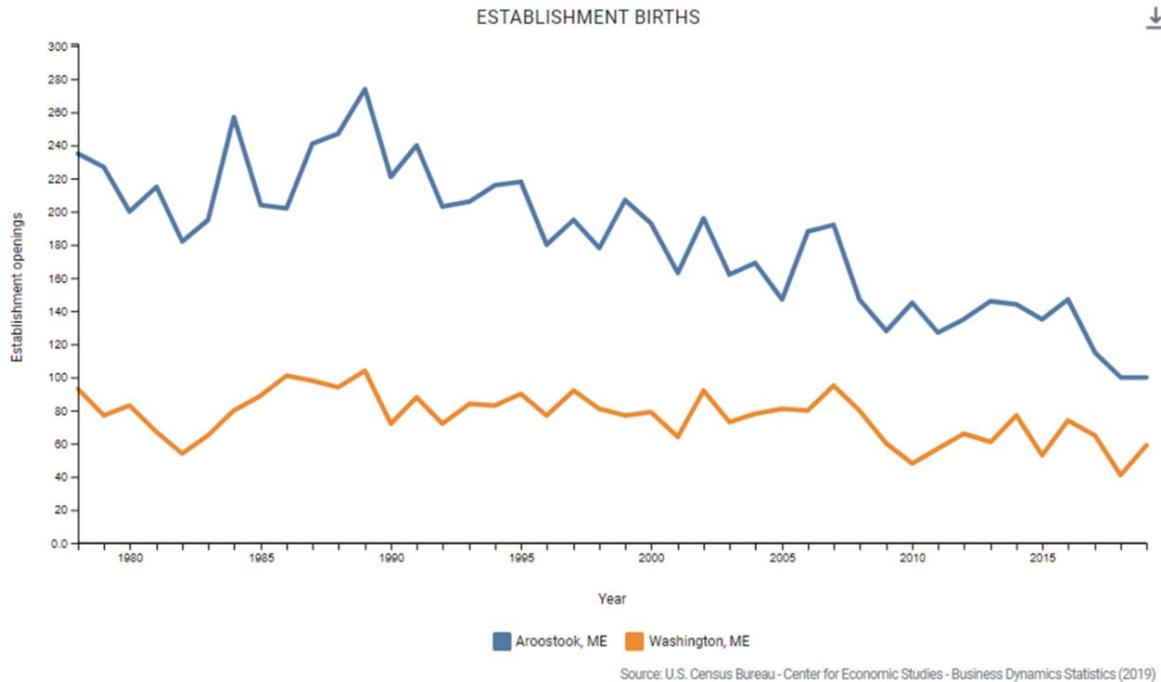
**Population by Age Cohort  
Aroostook and Washington Counties**

Age Cohort	2016 Population	2021 Population	Change	% Change	2016 % of Cohort
Under 5 years	4,888	4,679	(209)	(4%)	4.89%
5 to 9 years	5,034	5,004	(30)	(1%)	5.04%
10 to 14 years	5,320	5,190	(130)	(2%)	5.32%
<b>15 to 19 years</b>	5,763	5,359	(404)	(7%)	5.77%
<b>20 to 24 years</b>	5,418	4,769	(649)	(12%)	5.42%
<b>25 to 29 years</b>	4,769	4,890	121	3%	4.77%
<b>30 to 34 years</b>	4,898	4,815	(83)	(2%)	4.90%
<b>35 to 39 years</b>	5,065	4,954	(111)	(2%)	5.07%
<b>40 to 44 years</b>	5,335	5,295	(40)	(1%)	5.34%
<b>45 to 49 years</b>	6,377	5,261	(1,116)	(18%)	6.38%
<b>50 to 54 years</b>	7,530	6,442	(1,088)	(14%)	7.54%
<b>55 to 59 years</b>	8,357	7,352	(1,005)	(12%)	8.36%
<b>60 to 64 years</b>	8,335	8,312	(23)	(0%)	8.34%
65 to 69 years	7,579	7,970	391	5%	7.58%
70 to 74 years	5,504	6,917	1,413	26%	5.51%
75 to 79 years	3,973	4,567	594	15%	3.98%
80 to 84 years	2,873	3,030	157	5%	2.88%
85 years and over	2,909	3,018	109	4%	2.91%
<b>Working Age</b>	61,847	57,449	(4,398)	(7%)	62%
<b>Total</b>	<b>99,927</b>	<b>97,823</b>	<b>(2,104)</b>	<b>(2%)</b>	<b>100.00%</b>

Source: EMSI

## Entrepreneurship

Entrepreneurship represents an asset-based path forward to support resilience. In the region business starts took a hit in the 2008 recession and through the sluggish recovery but somewhat leveled-off since and even experienced slight upticks in 2019.



## Alignment and Progress Towards State Economic Development Goals

The growth metrics in the AWEDD CEDS relate and align to the key metrics established by the State in its most recent Economic Development Strategy:

**Ten Year Vision:** *By 2030, Maine will be an international leader with a vibrant, sustainable, environmentally responsible economy. All across the state, the people of Maine will have access to an unmatched quality of life and good-paying jobs.*

*To Achieve Our Vision, We Have Established Three Goals.*

1. *Grow the average annual wage by +10% to the benefit of workers at all income levels*
2. *Increase the value of what we sell per worker by +10%*
3. *Attract 75,000 people to Maine's talent pool both by increasing participation among Maine's existing population and attracting new people from out of state — thus turning a potential labor force shrinkage into a gain.*

As indicated by the data above, the region is progressing well towards wage growth; however, lagging in its metrics related to population and labor.

In considering value per worker, we examine two measures in the table below: Gross Regional Product (GRP) per worker and exports per worker. While the regional lags the state in GRP per worker it outperforms exports. Its strong performance on exports is driven by its strong natural resource base.

### Output and Exports Per Worker

	Jobs (2020)	GRP	GRP Per Worker	Exports	Exports Per Worker
AWEDD Region	41,635	\$3,677,424,600	\$88,325	\$6,356,365,446	\$152,668
Maine	680,449	\$68,308,631,990	\$100,388	\$84,922,810,985	\$124,804

Source: EMSI

# APPENDICES

- Appendix A: Survey Findings Memo
- Appendix B: CEDS Performance Metrics
- Appendix C: Adaptive Planning Session 1
- Appendix D: Scenarios One through Five
- Appendix E: Foresight Scenarios
- Appendix F: Adaptive Foresight Tools
- Appendix G: CEDS Vision and Goals

# Survey Findings Memo

## Aroostook County and Washington County Maine Resiliency Strategy

### OVERVIEW

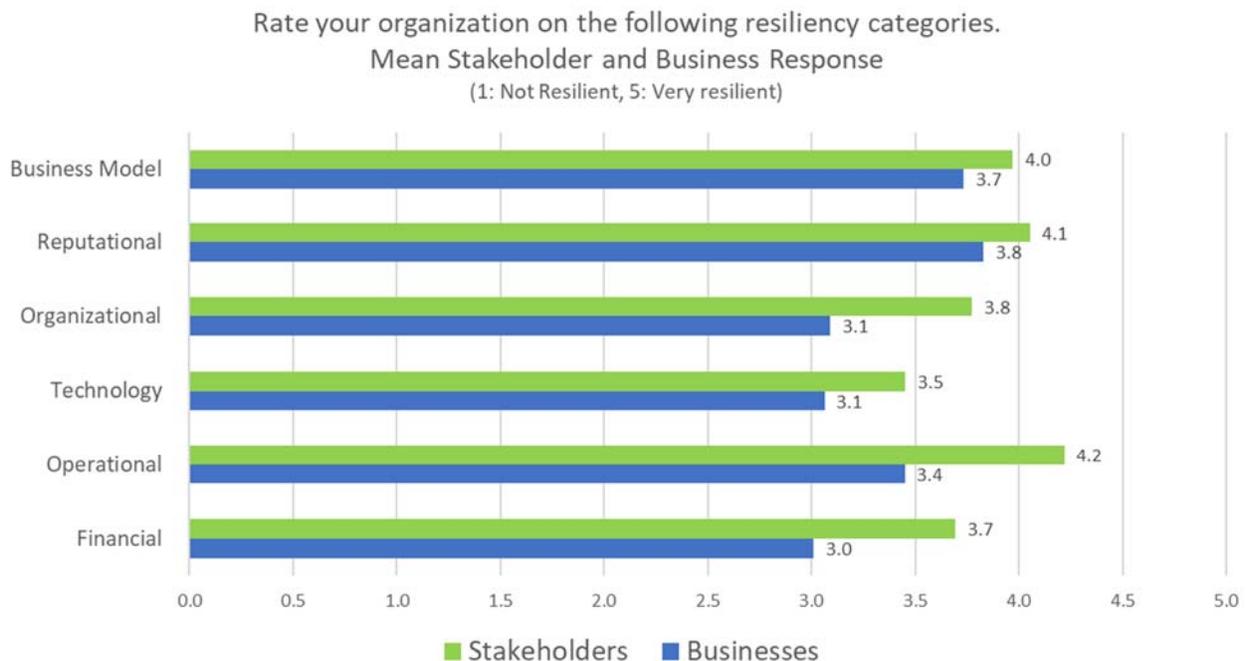
Camoin Associates, Venture Foresight, Northern Maine Development Commission (NMDC), and Sunrise County Economic Council (SCEC) conducted a Stakeholder Survey and Business Survey to assess and understand emerging issues, concerns, challenges, and opportunities impacting Aroostook County and Washington County. The Business Survey targeted business owners in Aroostook County and Washington County to understand business capacity and resources available to recover and what is needed in the future to be resilient. The Stakeholder Survey connected with key economic, business, workforce, and community development stakeholders in Aroostook County and Washington County to understand how prepared the region is, and is perceived to be, for economic resiliency today and into the future.

For the surveys, resiliency is defined as the ability to prevent, withstand, and quickly recover from major disruptions. The surveys were distributed directly via email and newsletter announcement through NMDC, SCEC, and their partners' networks. The surveys were open from September 21<sup>st</sup>, 2021 to October 15<sup>th</sup>, 2021. The Stakeholder Survey received a total of 42 responses and the Business Survey received 104 responses.

### BUSINESS + ORGANIZATION RESILIENCE

Both the Business Survey and Stakeholder Survey asked respondents to rate their organization or business on the following resiliency categories with 1 being not Resilient and 5 being very resilient. The following figure displays the mean response for the two groups for each resiliency category.

Overall, both stakeholders and businesses in Aroostook County and Washington County feel moderately resiliency in terms of all resiliency categories. Stakeholders ranked each category higher on average than businesses. Business owners and stakeholders gave similarly higher ratings for reputational and brand resilience. Businesses ranked their financial resilience the lowest of the six categories whereas stakeholders ranked technology resilience lowest.



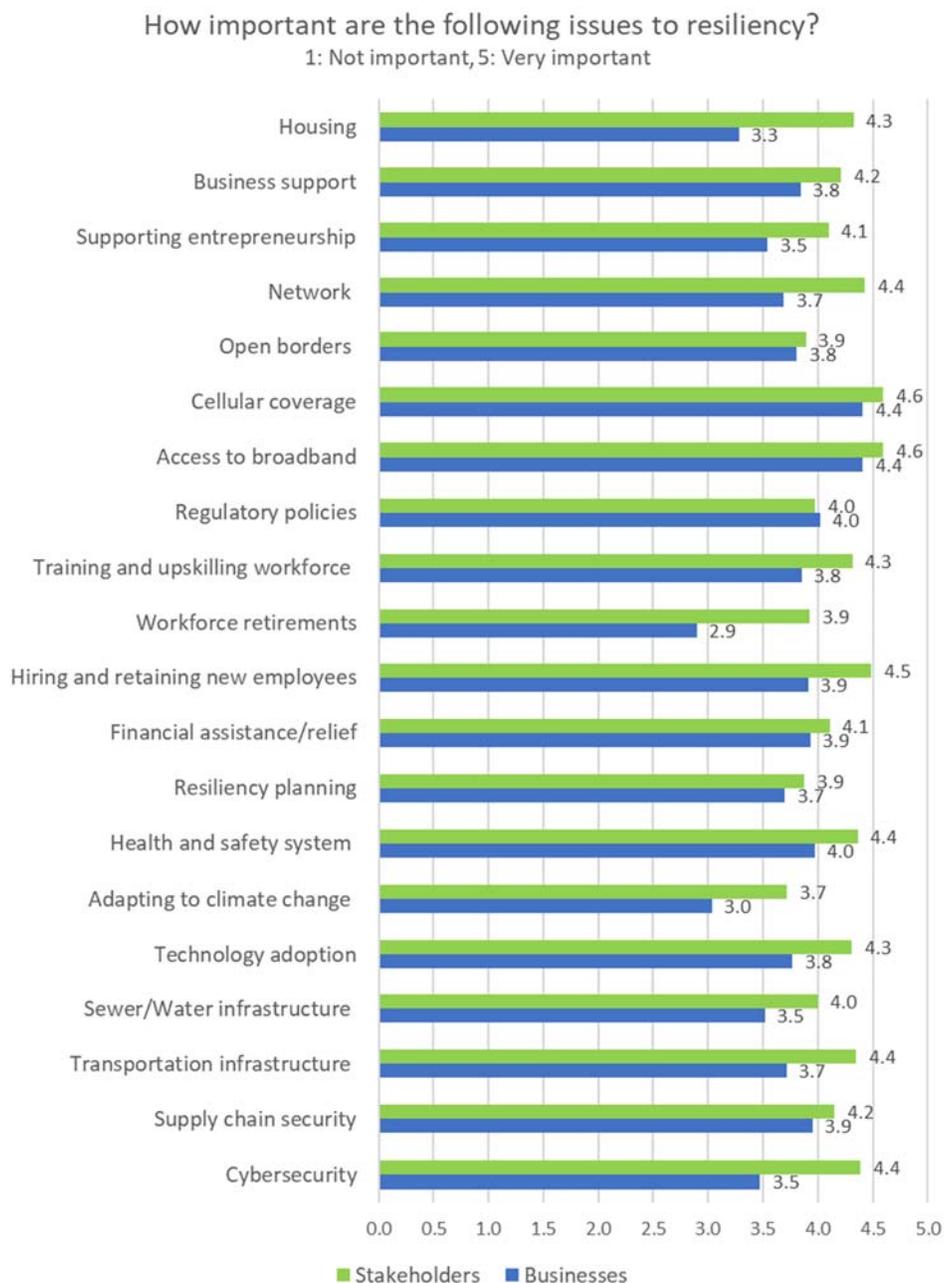
Stakeholder organizations in Aroostook County and Washington County are better prepared in terms of resiliency planning compared to business. Approximately 14% of stakeholders do not have a resiliency plan now compared to 62% of businesses. There may be a need to help support businesses through the resiliency planning process.

## AROOSTOOK COUNTY AND WASHINGTON COUNTY RESILIENCY

Businesses were asked, “How important are the following issues to your business resiliency?” while stakeholders were asked, “How important are the following issues to regional resiliency?” The list of issues remained consistent for the two groups with the exception of businesses who were asked to also rate remaining operable and flexible despite disruption, which ranked as the most important issue to business resiliency.

Of the shared issues, both businesses and stakeholders rated cellular coverage and access to broadband as the top two concerns. Overall, stakeholders tended to rank resiliency factors as more important on average compared to businesses. Issues with the greatest discrepancy between the two groups are workforce retirements, Housing, and Cybersecurity.

Adapting to climate change ranked among the least-important resiliency factors for both groups, as well as sewer and water infrastructure. Other low-ranking issues for businesses include workforce retirements, housing, and supporting entrepreneurship. Low ranking issues for stakeholders include resiliency planning, open borders, and financial assistance/relief.



## ECONOMIC, WORKFORCE, AND COMMUNITY DEVELOPMENT ENTITIES ABILITY TO SUPPORT BUSINESS RESILIENCY

Both stakeholders and businesses were asked, "Overall, how well prepared are economic, workforce, and community development entities in the Aroostook County and Washington County region to support business resiliency through the following?" For this question a rating of 1 is not prepared and 5 is very prepared.

Both stakeholders and businesses indicated that economic, workforce, and community development entities in Aroostook County and Washington County are not well prepared in many of the facets that support business resiliency – on the scale of 1-5 the overall mean ranking on the preparedness issues together is 3.0.

The preparedness category that both stakeholders and businesses ranked the lowest was supporting infrastructure. Stakeholders ranked providing technical assistance the highest, and businesses ranked providing financial support the highest.

Issues with the greatest discrepancy between the two survey groups include providing technical assistance to businesses (stakeholders ranked higher) and providing financial support to businesses (businesses ranked higher).

How well prepared are economic, workforce, and community development entities to support business resiliency through the following?  
Mean Stakeholder and Business Response  
(1: Not Prepared, 5: Very prepared)



# STAKEHOLDER SURVEY

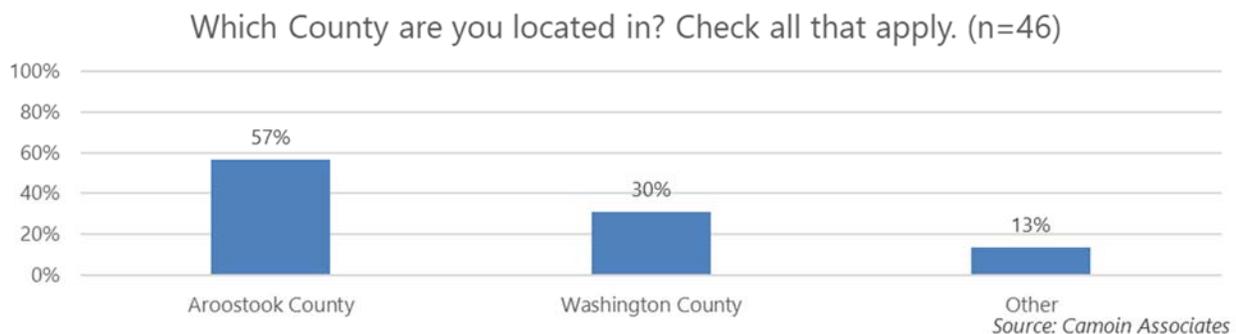
## OVERVIEW

Camoin Associates, Venture Foresight, Northern Maine Development Commission (NMDC), and Sunrise County Economic Council (SCEC) conducted a survey to assess and understand emerging issues, concerns, challenges, and opportunities impacting Aroostook County and Washington County. The Stakeholder Survey connected with key economic, business, workforce, and community development stakeholders in Aroostook County and Washington County to understand how prepared the region is, and is perceived to be, for economic resiliency today and into the future.

For this survey, resiliency is defined as the ability to prevent, withstand, and quickly recover from major disruptions. The Stakeholder Survey was distributed directly via email and newsletter announcement through NMDC, SCEC, and their partners' networks. The Stakeholder Survey was opened from September 21<sup>st</sup>, 2021 to October 15<sup>th</sup>, 2021, and received a total of 42 responses. Of those respondents, 42 completed the survey in its entirety with some of those respondents skipping specific questions along the way.

## STAKEHOLDER RESPONDENT BREAKDOWN

The Aroostook County and Washington County Resiliency Strategy Stakeholder Survey was intended to capture input from organizations that impact Aroostook County and Washington County. Due to the nature of survey distribution through membership organizations and regional stakeholders, some stakeholders were captured from other counties in Maine. Approximately 57% of the respondents are located in Aroostook County while 30% are located in Washington County. Other locations for stakeholder respondents include Penobscot and Hancock Counties.



Respondents were captured from the following organizations:

- AccompanyCo
- Aroostook County Action Program (ACAP)
- Central Aroostook Chamber of Commerce
- City of Caribou
- City of Eastport
- City of Presque Isle
- Cooperative Development Institute
- Cooperative Fund of New England
- County Restorative Practices
- DownEast Acadia Regional Tourism
- Downeast Community Partners
- Eastern Maine Electric Co-op
- Eastport Health Care
- Garfield Plantation
- Greater East Grand Economic Council (GEGEC)
- Machias Bay Chamber of Commerce
- Maine Department of Labor
- Maine Seacoast Mission
- Northern Maine Community College
- Presque Isle Industrial Council
- St. John Valley Chamber of Commerce & Tourism
- State of Maine DHHS, Maine CDC
- Sunrise Opportunities
- Town of Eagle Lake
- Town of Easton
- Town of Fort Fairfield
- Town of Stockholm
- Town of Wallagrass
- Town of Washburn
- Upper Valley Economic Corporation
- Wabanaki Public Health & Wellness

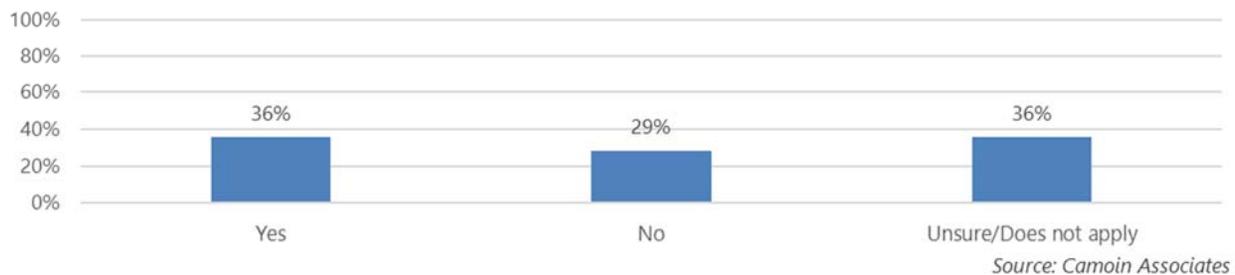
- Women for Healthy Rural Living

Many of the stakeholders that responded to the survey serve municipalities and local communities. Community services are centered around health and wellness, social services, public health, business and workforce support, and education. Those that directly serve municipalities work to promote economic development, government, business development, etc.

### RESILIENCY PLANNING

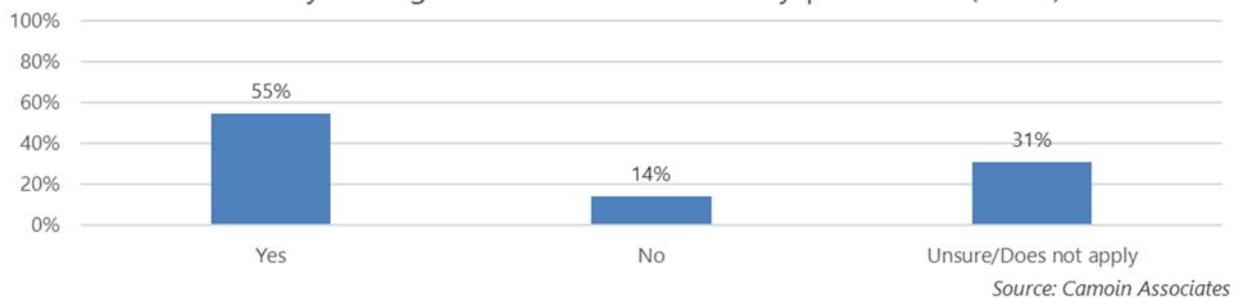
Stakeholders were asked if their organization had a resiliency or continuity plan in the event of a disaster prior to the COVID-19 pandemic. Approximately 36% of the stakeholders indicated they had a plan in place prior to the COVID-19 pandemic while 29% indicated they did not.

Did your organization have a resiliency or continuity plan in the event of a disaster prior to the COVID-19 pandemic? (n=42)



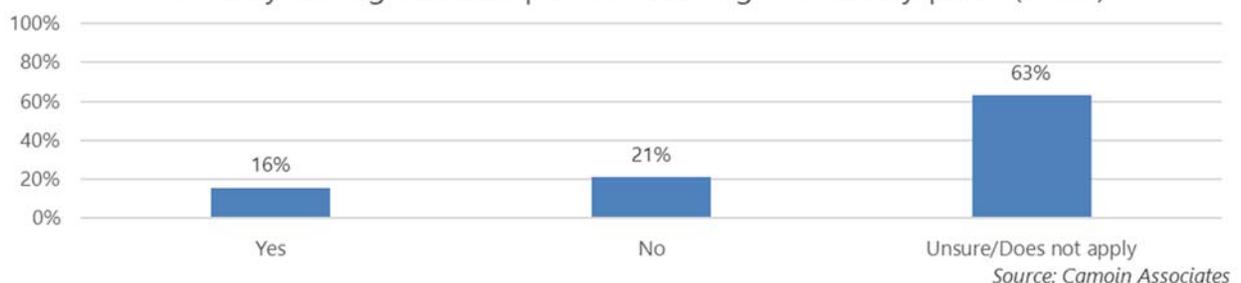
The COVID-19 pandemic led to many stakeholders adopting a resiliency plan with 55% of Aroostook County and Washington County stakeholders having a resiliency or continuity plan in place now.

Does your organization have a resiliency plan now? (n=42)



The stakeholders who indicated they either do not have a resiliency plan in place or they are unsure/does not apply were asked if they are planning on creating a resiliency plan. Of those respondents, 16% have plans to create a resiliency plan in the future. Twelve of the respondents (63%) indicated they are unsure/does not apply to indicate that education around resiliency planning may be beneficial for these stakeholders.

Does your organization plan on creating a resiliency plan? (n=19)



### ORGANIZATIONAL RESILIENCY

Stakeholders were asked to rate their organization on several resiliency categories with 1 being not resilient, 5 being very resilient, and 0 being not applicable/unsure. The resiliency issues are listed below in order of most important

as rated by the business respondents indicating their rating out of a possible 210 points (42 respondents ability to rate 5 as very resilient):

- **Operational Resilience** – Ability to flex to changes in demand or supply chain issues. Mean score of 4.1 (173/210)
- **Reputational & Brand Resilience** – Actions and values are aligned. Ability to flex, be open to criticism of firm behavior, respond, and adapt. Mean score of 3.7 (154/210)
- **Organizational Resilience** – High performing, diverse workforce that can be re-skilled and upskilled. Leadership succession plans in place. Mean score of 3.6 (151/210)
- **Technology Resilience** – Ability to manage technology breakdowns and cybersecurity threats. Mean score of 3.5 (145/210)
- **Financial Resilience** – Balance of short and long-term financial goals. Ability to withstand rapid drops in revenue, increased cost, or credit issues. Mean score of 3.4 (144/210)
- **Business Model Resilience** – Entrepreneurship is highly valued. Can adapt to significant swings in customer demand, competition, technology, and regulations. Mean score of 3.2 (135/210)

The following figures display the respondent results for the resiliency categories. Operational resilience refers to the ability to flex to changes in demand or supply chain issues. Aroostook County and Washington County Stakeholders feel the most resilient in this category with 36% of stakeholders indicating they are very resilient and an additional 52% indicating they are resilient with a ranking of 4.



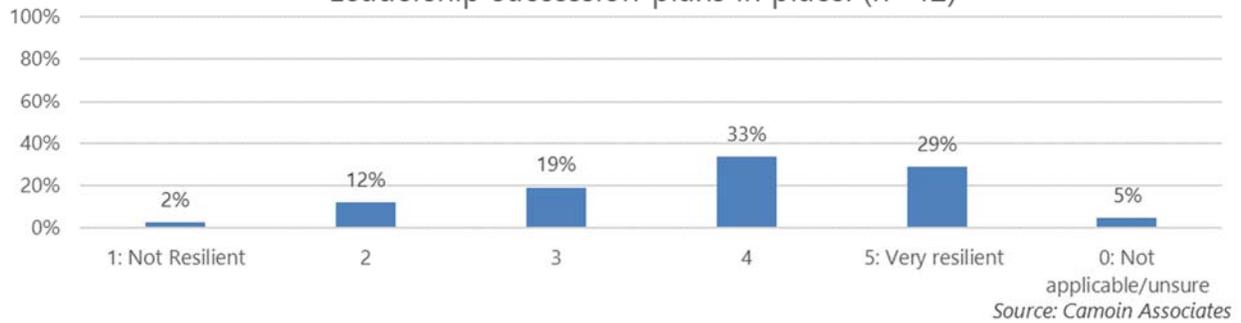
Reputational and brand resilience refers to an organization with aligned actions and values, the ability to flex, be open to criticism of firm behavior, respond and adapt. Over a third of stakeholders (36%) believe their organization is very resilient in regard to reputation and brand.



Organizational resilience includes high performing, diverse workforce that can be re-skilled and upskilled. Leadership succession plans are in place. Many stakeholders believe their organization is moderately to very resilient

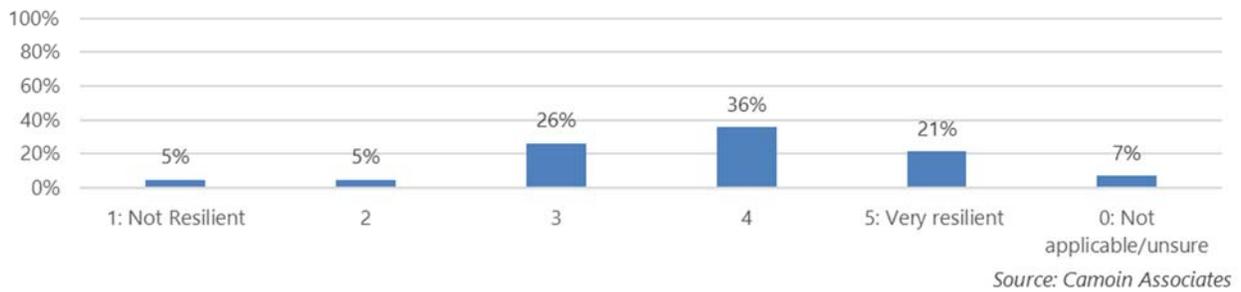
(3 to 5 ranking) in terms of organizational resilience. Approximately 29% of stakeholders indicated their organization is very resilient while 33% indicated their organization ranks as a 4 out of 5 in resiliency in this category.

Rate your organization on Organizational Resilience – High performing, diverse workforce that can be re-skilled and upskilled. Leadership succession plans in place. (n=42)



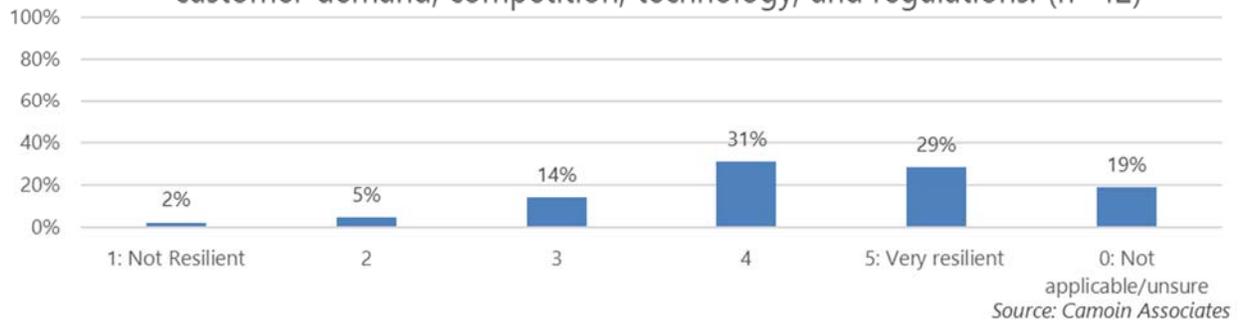
Overall, the mean score for stakeholders' financial resilience rating was 3.4%. Approximately 21% of stakeholders indicated that their organizations are very resilient while 5% indicate they are not resilient.

Rate your organization on Financial Resilience – Balance of short and long-term financial goals. Ability to withstand rapid drops in revenue, increased cost, or credit issues. (n=42)



Business model resilience received the lowest resiliency rating with a mean score of 3.1. Approximately 19% of respondents indicated that they were either unsure about this resiliency category or it did not apply to them.

Rate your organization on Business Model Resilience – Entrepreneurship is highly valued. Can adapt to significant swings in customer demand, competition, technology, and regulations. (n=42)

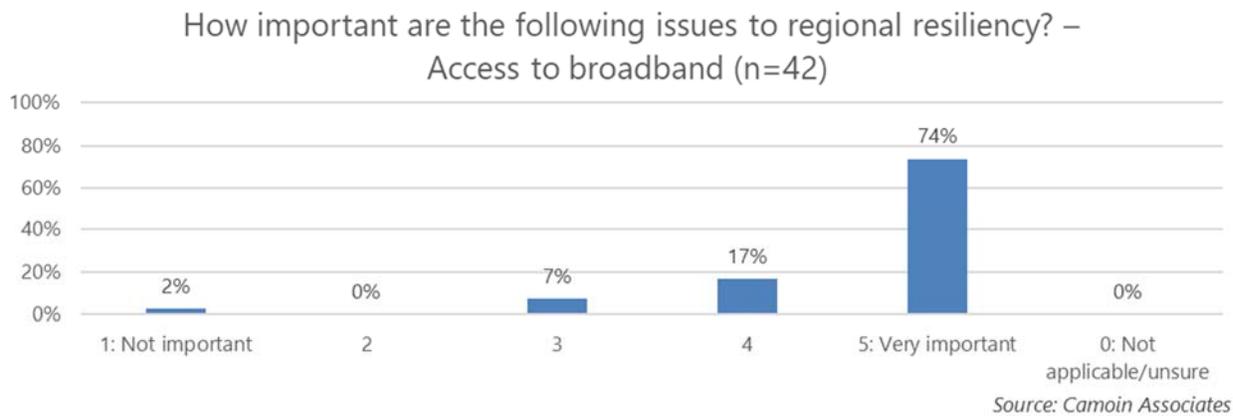


**AROOSTOOK COUNTY AND WASHINGTON COUNTY RESILIENCY**

Respondents were asked to rate the importance of the following resiliency issues with 1 being not important, 5 being very important, and 0 being not applicable/unsure. The resiliency issues are listed below in order of most important as rated by the stakeholders indicating their rating out of a possible 210 points (42 respondents ability to rate 5 as very important):

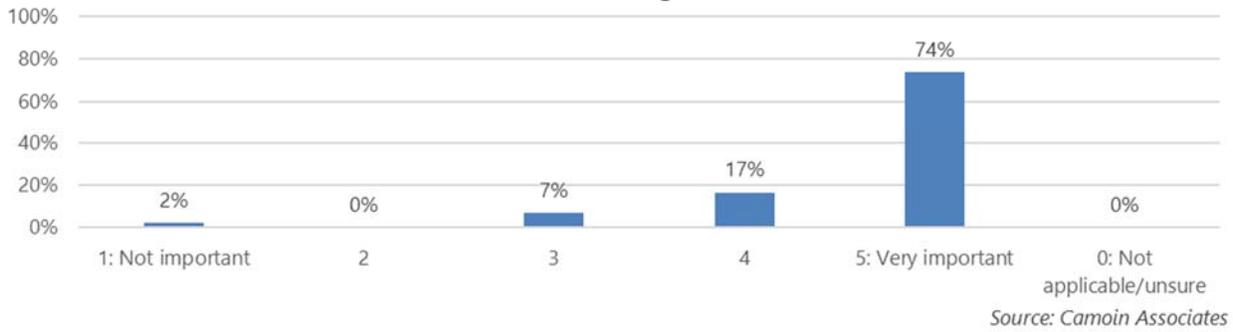
- Access to broadband – Mean score of 4.6 (193/210)
- Cellular coverage – Mean score of 4.6 (193/210)
- Network (Connections and relationships between educators/providers, employers, and students/employees) – Mean score of 4.4 (186/210)
- Hiring and retaining new employees – Mean score of 4.4 (184/210)
- Technology adoption – Mean score of 4.3 (181/210)
- Cybersecurity – Mean score of 4.3 (180/210)
- Health and safety system – Mean score of 4.3 (179/210)
- Training and upskilling workforce – Mean score of 4.2 (177/210)
- Transportation infrastructure – Mean score of 4.1 (174/210)
- Housing – Mean score of 4.1 (173/210)
- Supply chain security – Mean score of 4.0 (166/210)
- Supporting entrepreneurship (helping people start new businesses) – Mean score of 3.9 (164/210)
- Access to business support from economic workforce and community entities – Mean score of 3.8 (160/210)
- Regulatory policies – Mean score of 3.8 (159/210)
- Workforce retirements – Mean score of 3.7 (157/210)
- Sewer/Water infrastructure – Mean score of 3.7 (156/210)
- Financial assistance/relief – Mean score of 3.7 (156/210)
- Resiliency planning – Mean score of 3.7 (155/210)
- Adapting to climate change – Mean score of 3.5 (145/210)
- Open borders – Mean score of 3.3 (140/210)

The following figures display the respondent results for the aspects above in order of descending mean scores. Nearly three-quarters (74%) of stakeholders rank access to broadband as very important.



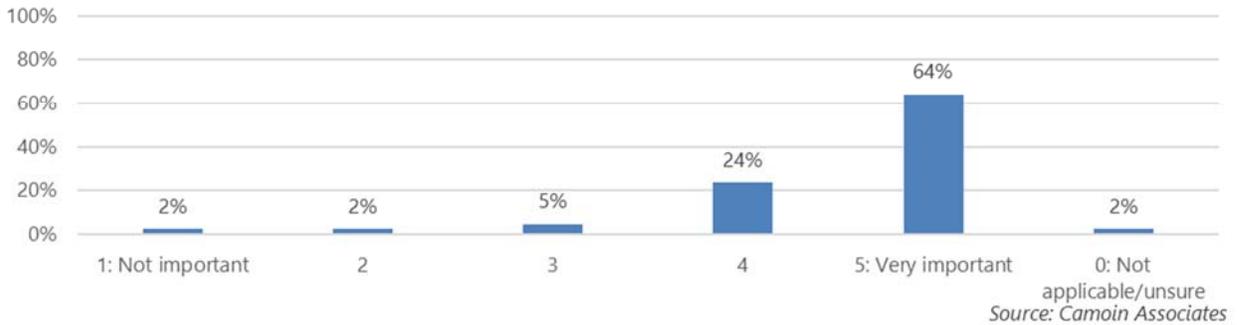
Similarly to broadband, 74% of respondents believe cellular coverage is very important to regional resiliency.

How important are the following issues to regional resiliency? –  
Cellular coverage (n=42)



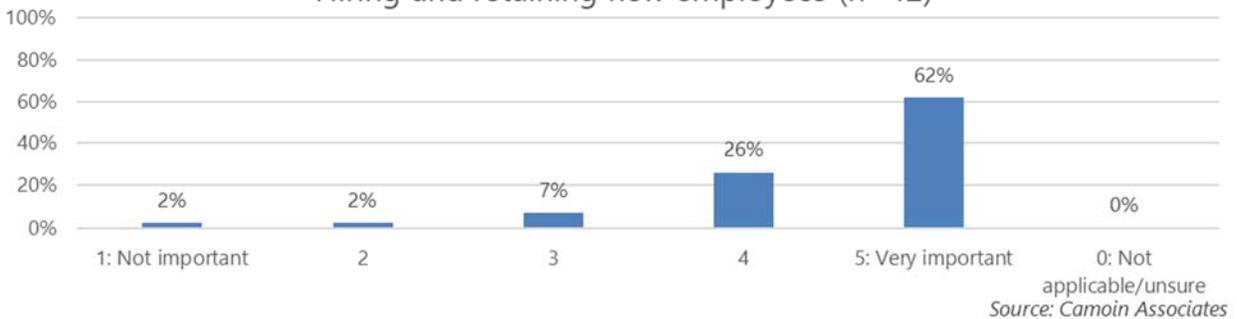
Network meaning the connections and relationships between educators/providers, employers, and students/employees ranks as the third most important issue to regional resiliency among stakeholders. Approximately 64% rank it as very important.

How important are the following issues to regional resiliency? –  
Network (Connections and relationships between  
educators/providers, employers, and students/employees) (n=42)



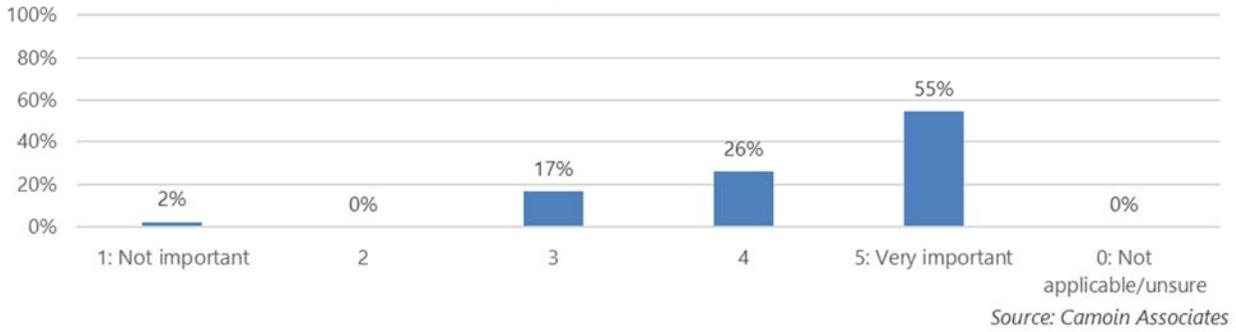
Approximately 62% of stakeholders view hiring and retaining new employees as very important to regional resiliency.

How important are the following issues to regional resiliency? –  
Hiring and retaining new employees (n=42)



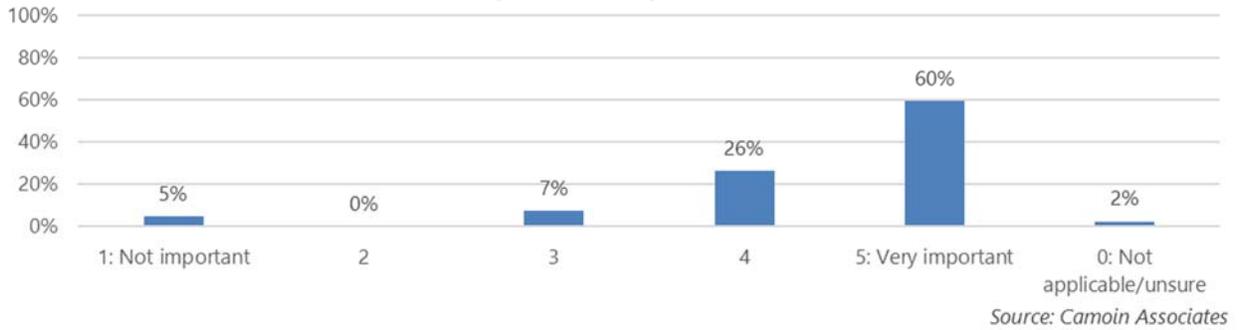
Technology adoption ranks as the fifth most important aspect for regional resiliency with 55% of stakeholders indicating it is very important.

How important are the following issues to regional resiliency? –  
Technology adoption (n=42)



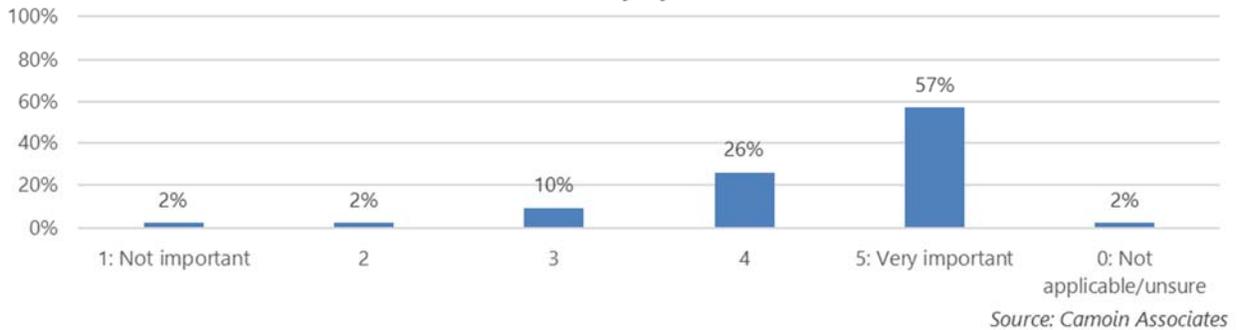
Cybersecurity ranks as the sixth most important issue with a mean score of 4.3. Approximately 60% of stakeholders indicated that cybersecurity is very important to regional resiliency.

How important are the following issues to regional resiliency? –  
Cybersecurity (n=42)



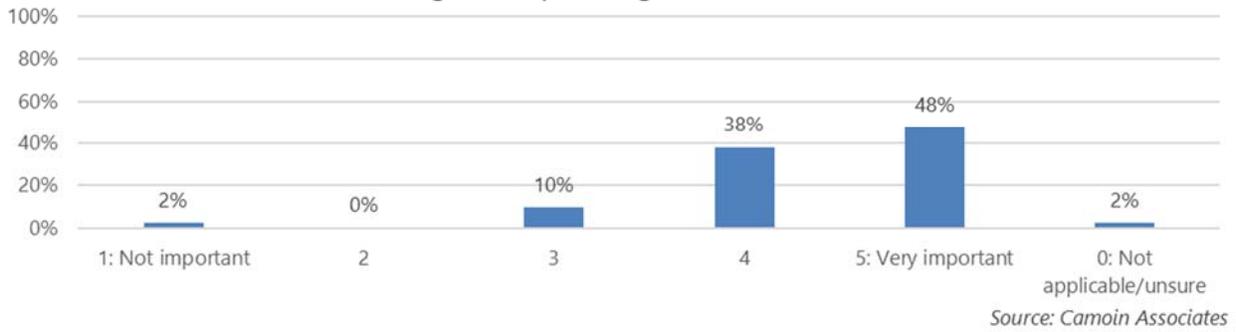
Health and safety systems has a mean score of 4.3. Approximately 57% of stakeholders indicated that a health and safety system is very important to regional resiliency.

How important are the following issues to regional resiliency? –  
Health and safety system (n=42)



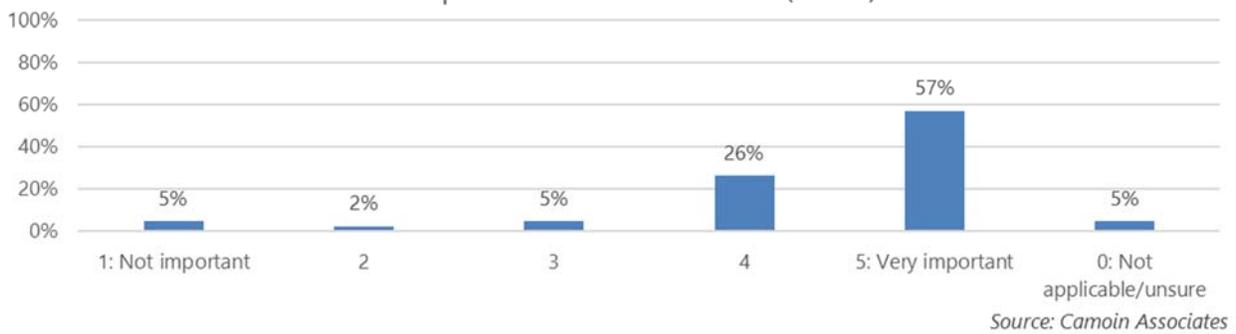
86% of stakeholders view training and upskilling the workforce as important to very important to resiliency.

How important are the following issues to regional resiliency? –  
Training and upskilling workforce (n=42)



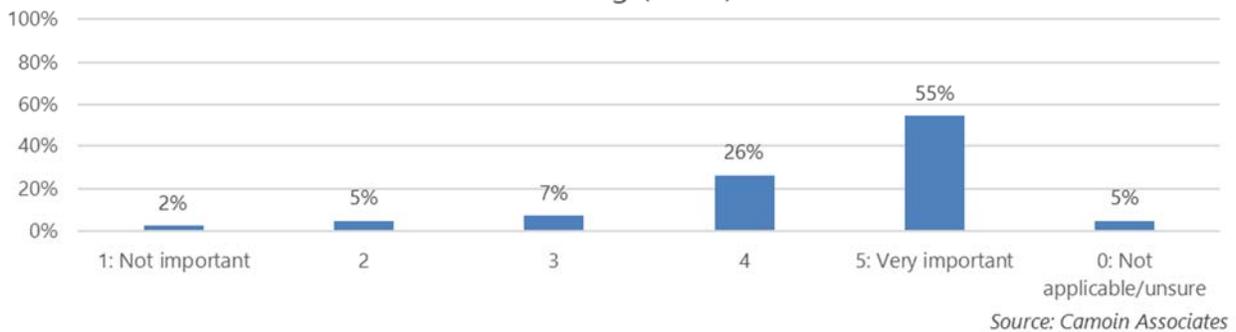
Approximately 57% of stakeholders indicated that transportation infrastructure is very important to resiliency.

How important are the following issues to regional resiliency? –  
Transportation infrastructure (n=42)



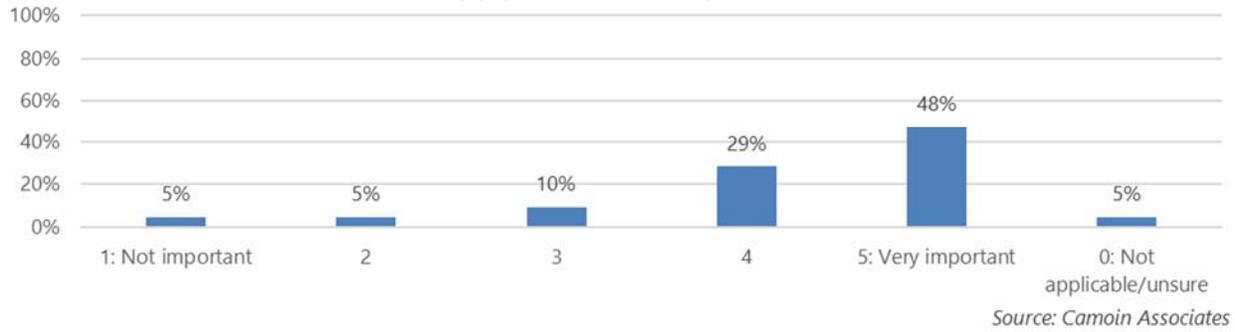
Housing ranked as the 9<sup>th</sup> most important aspect for regional resiliency with 55% of stakeholders indicating it is very important to regional resiliency.

How important are the following issues to regional resiliency? –  
Housing (n=42)



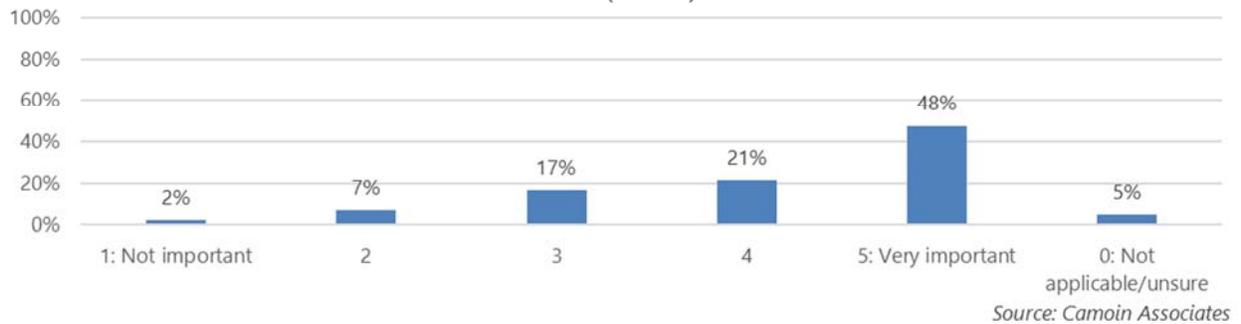
The average score stakeholders ranked supply chain security was 4.0.

How important are the following issues to regional resiliency? –  
Supply chain security (n=42)



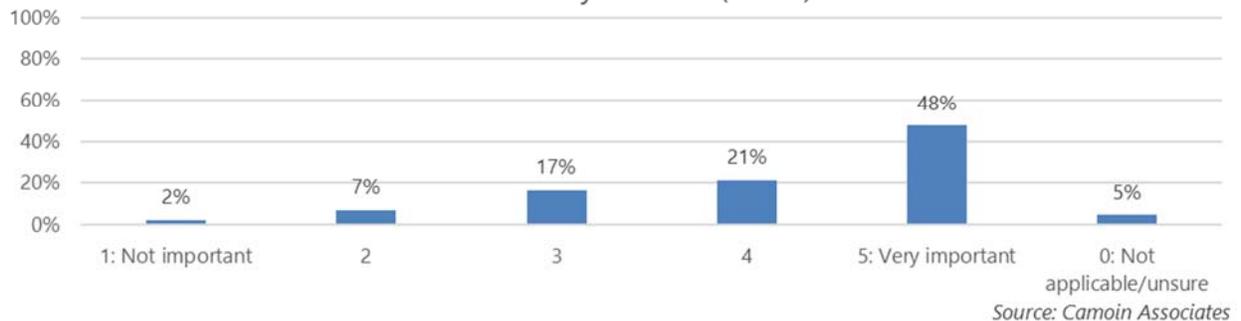
Supporting entrepreneurship is helping people start new businesses in the region. Less than half the stakeholders surveyed viewed supporting entrepreneurship as very important to regional resiliency.

How important are the following issues to regional resiliency? –  
Supporting entrepreneurship (helping people start new businesses)  
(n=42)



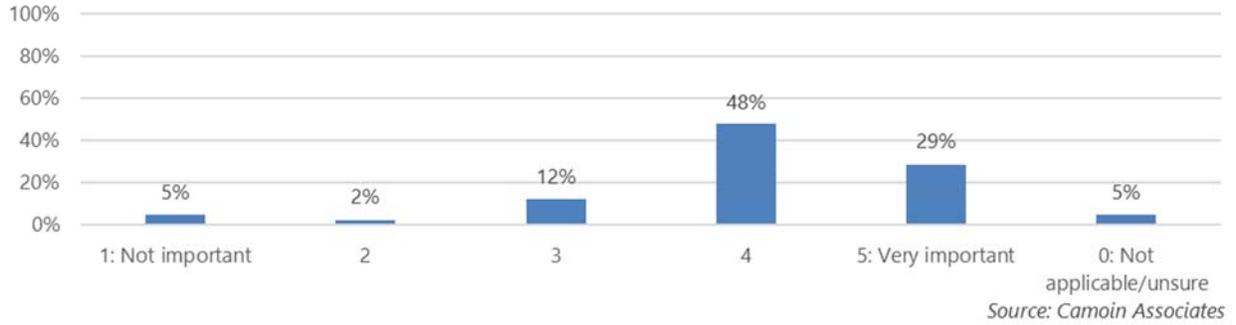
Access to business support from the economic workforce and community entities ranks as the 13<sup>th</sup> most important with a mean score of 3.8.

How important are the following issues to regional resiliency? –  
Access to business support from economic workforce and  
community entities (n=42)



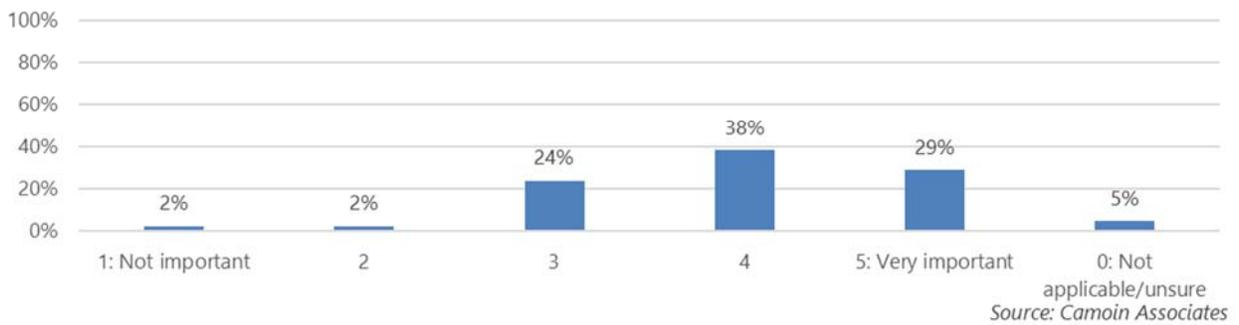
Nearly half the stakeholders (48%) view regulatory policies as important (4) to regional resiliency. Approximately 5% view it as not important to regional resiliency.

How important are the following issues to regional resiliency? –  
Regulatory policies (n=42)



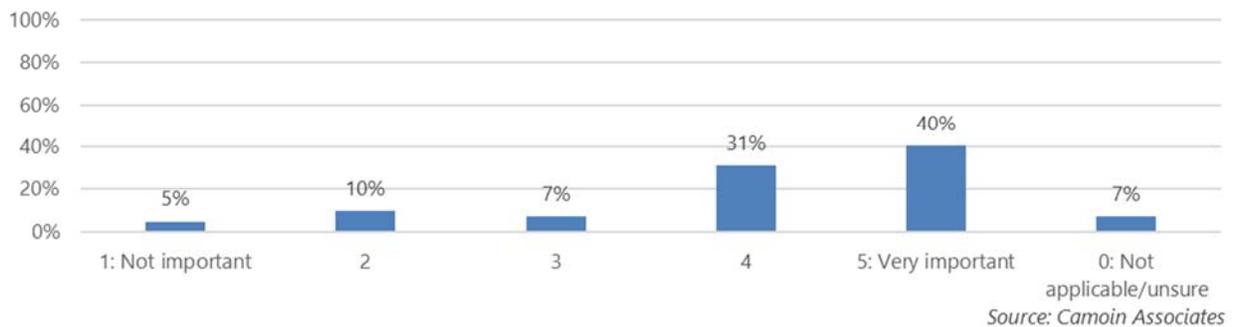
The bulk of stakeholders viewed workforce retirements as moderately important to very important (3 to 5).

How important are the following issues to regional resiliency? –  
Workforce retirements (n=42)



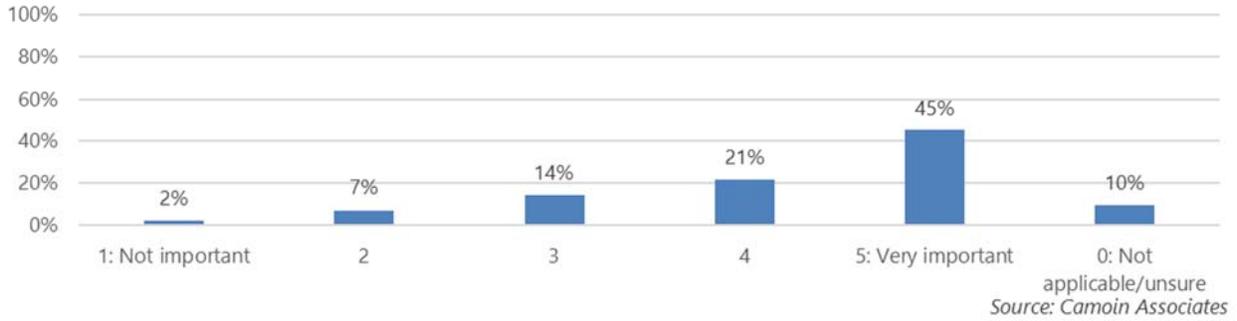
Sewer and water infrastructure ranks as the 16<sup>th</sup> most important aspect with a mean score of 3.7.

How important are the following issues to regional resiliency? –  
Sewer/Water infrastructure (n=42)



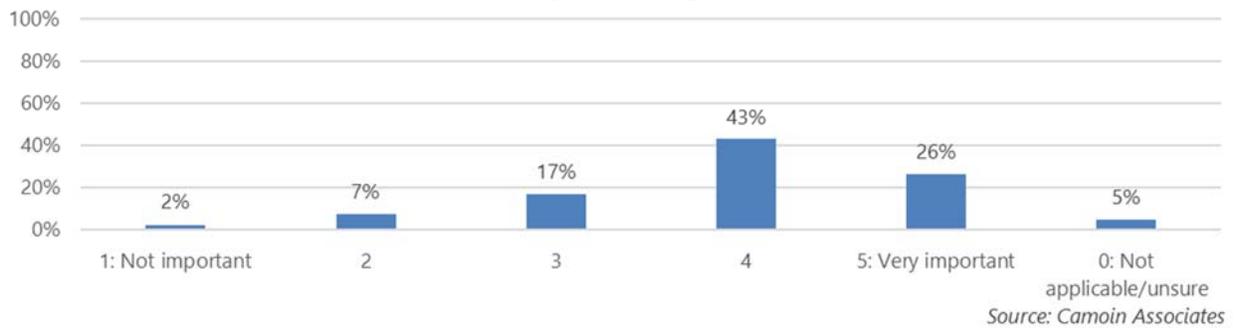
Similarly, financial assistance/relief has a mean score of 3.7.

How important are the following issues to regional resiliency? –  
Financial assistance/relief (n=42)



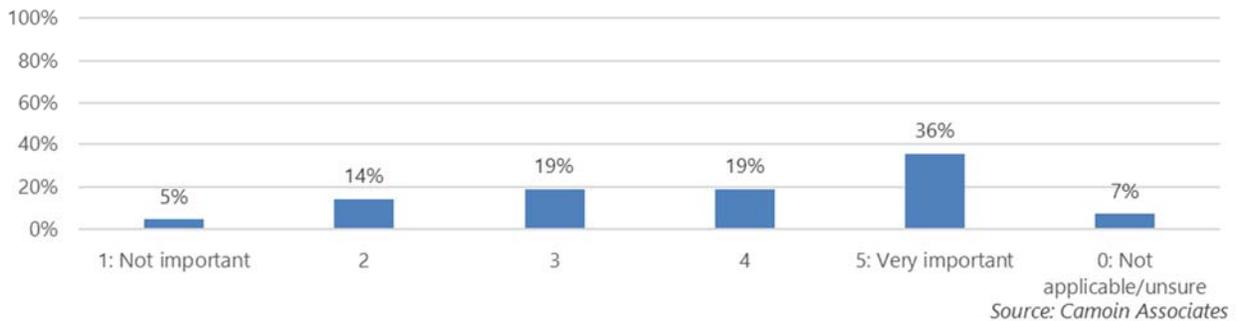
Resiliency planning ranked low among the aspects of regional resiliency. This may be reflective of some stakeholders not having resiliency plans in place currently.

How important are the following issues to regional resiliency? –  
Resiliency planning (n=42)



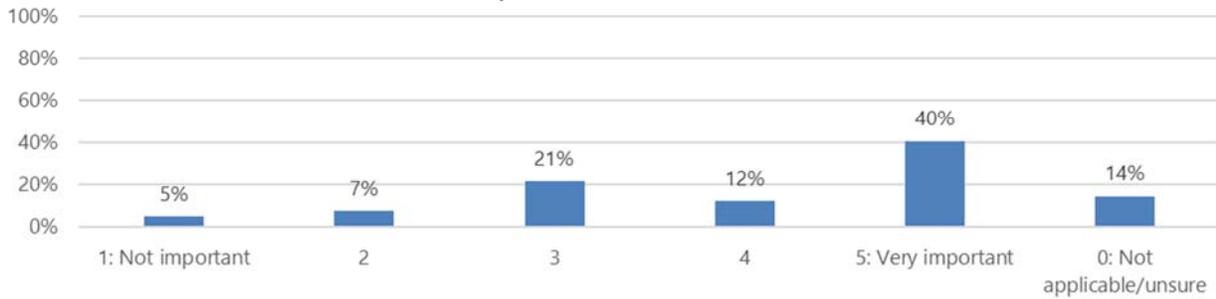
Approximately 36% of stakeholders view adapting to climate change as very important to regional resiliency.

How important are the following issues to regional resiliency? –  
Adapting to climate change (n=42)



Open borders rank as the least important to regional resiliency. Since conducting this survey, the Canadian-US border which was closed due to the COVID-19 pandemic was announced to reopen.

How important are the following issues to regional resiliency? –  
Open borders (n=42)



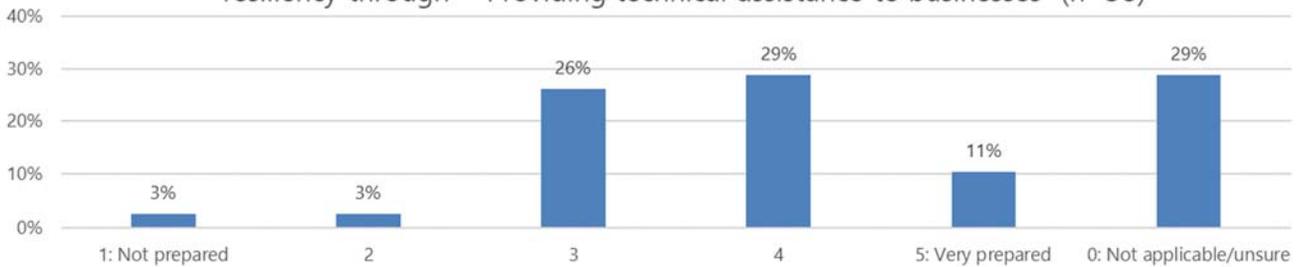
Source: Camoin Associates

Respondents were asked, “Overall, how well prepared are economic, workforce, and community development entities in the Aroostook County and Washington County region to support business resiliency through the following? (i.e. local and regional government, non-profits, and other support organizations)” For this question a rating of 1 is not prepared, 5 is very prepared, and 0 is not applicable/unsure. The aspects are listed below in order of most prepared as rated by the stakeholders indicating their rating out of the maximum score (number of respondents ability to rate 5 as very prepared).

**Providing technical assistance to businesses ranked as the most prepared with a mean of 2.6 (97/190).**

Approximately 11% of stakeholders indicated that the economic, workforce, and community development entities in the region are very prepared in providing technical assistance to businesses. Respondents that provided a high rating indicated prepared and very prepared described their rating based on organizations that have these resources and substantial access within the region. Respondents that indicated the region is not prepared in this category indicated that there is a disconnect between agencies and municipalities and a lack of awareness of opportunities.

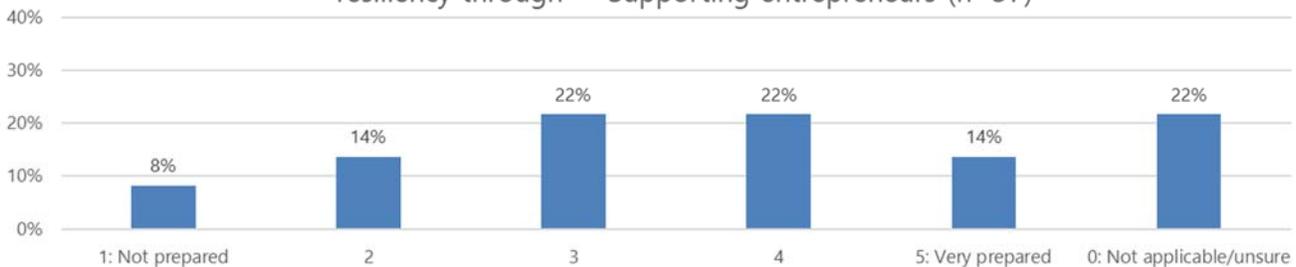
How well prepared are economic, workforce, and community development entities in the Aroostook County and Washington County region to support business resiliency through - Providing technical assistance to businesses (n=38)



Source: Camoin Associates

**Supporting entrepreneurs was the second most prepared with a mean of 2.5 (94/185).** Approximately 14% of stakeholders indicated that the entities in the region are very prepared in supporting entrepreneurs.

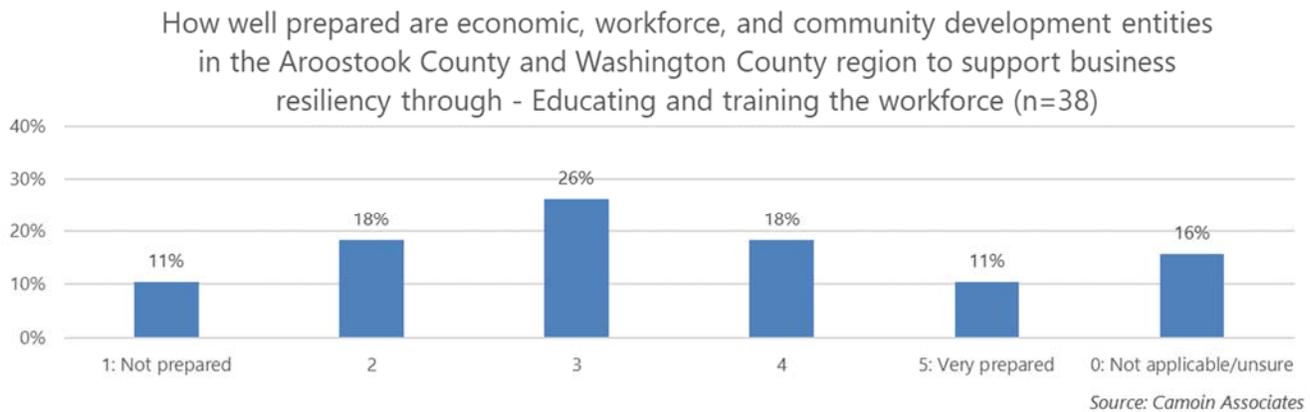
How well prepared are economic, workforce, and community development entities in the Aroostook County and Washington County region to support business resiliency through - Supporting entrepreneurs (n=37)



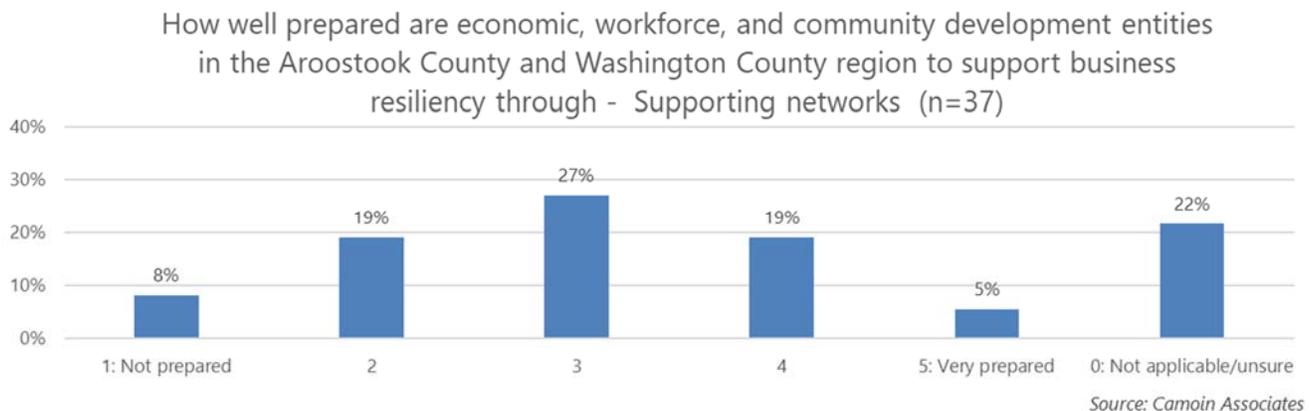
Source: Camoin Associates

Respondents that provided a high rating indicated that entrepreneurs are highly encouraged in the Aroostook County and Washington County community and referenced a number of entities that provide support including Entrepreneurial Technical Business Center, SBDC, New Ventures Maine, Maine Community Foundation, Chambers of Commerce, and StartUP Maine. Respondents that indicated the region is not prepared in supporting entrepreneurs indicated that there is a disconnect between agencies, a need for coordinating education and workforce continuum, and there is a lack of awareness of resources.

**Overall, stakeholders ranked economic, workforce, and community development entities in Aroostook County and Washington County with a 2.5 in educating and training the workforce (96/190).** Nearly 11% of stakeholders believe the entities are not prepared. Respondents that provided a high rating indicated that there are several organizations doing this work including New Ventures Maine, NWDB, WIOA, CareerCenters CSSP program, Maine's Apprenticeship program, NMCC, UMPI, and UMFK. Low ratings in this category reference the need for improvement in hospitality training, need for more resources in primary and secondary schools, need to improve trades, and lack of new technologies to support this effort.

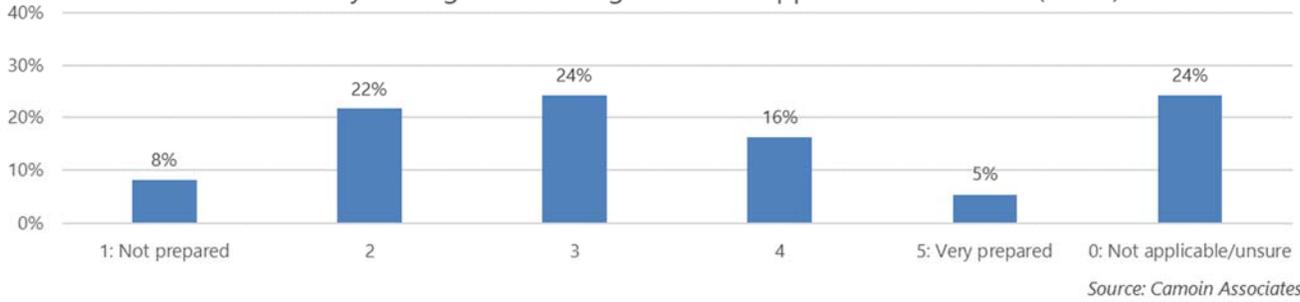


**Supporting networks received an average score of 2.3 (85/185).** Respondents that provided a high rating indicated there are resources to support networks through NMDC, Aroostook Partnership, Ignite PI, Chambers of Commerce, New Ventures Maine, and NWDB. Respondents that indicated that supporting networks are not well prepared in the region reference poor cell coverage, lack of broadband, and lack of awareness around support.



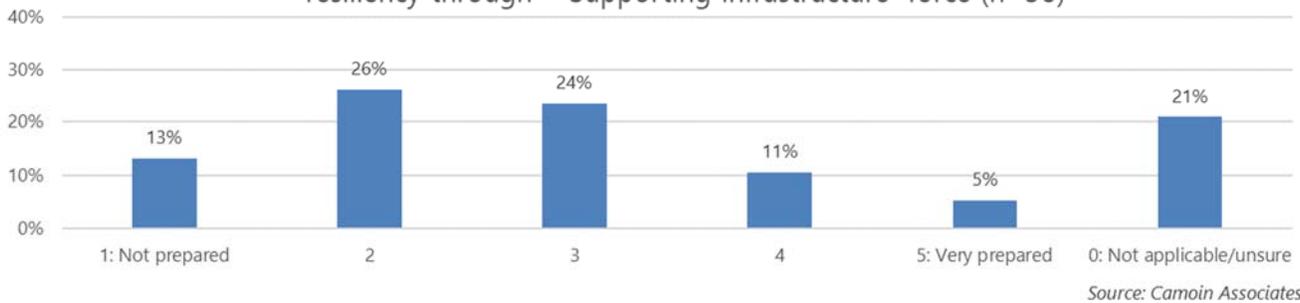
**Providing financial support to businesses received an average score of 2.2 (80/185).** Respondents that provided a high rating indicated that support is available and that there are a high number of banks in the region. Respondents that indicated the region is not prepared to provide financial support to businesses indicated the region has tight budgets, monies are not spread equitably, and there is limited financial support to support a variety of businesses.

How well prepared are economic, workforce, and community development entities in the Aroostook County and Washington County region to support business resiliency through - Providing financial support to businesses (n=37)



**Supporting infrastructure ranks as the least prepared category with a mean of 2.1 (78/190).** Respondents that provided a high rating indicated that back roads and bridges need work and are being addressed through taxes. Those that rated that the region is not prepared to support infrastructure referenced that broadband and cell coverage needs vast importance, roads and transportation networks need improvements, and older buildings require updates. Physical distance is a deterrent to supporting infrastructure in Aroostook County and Washington County.

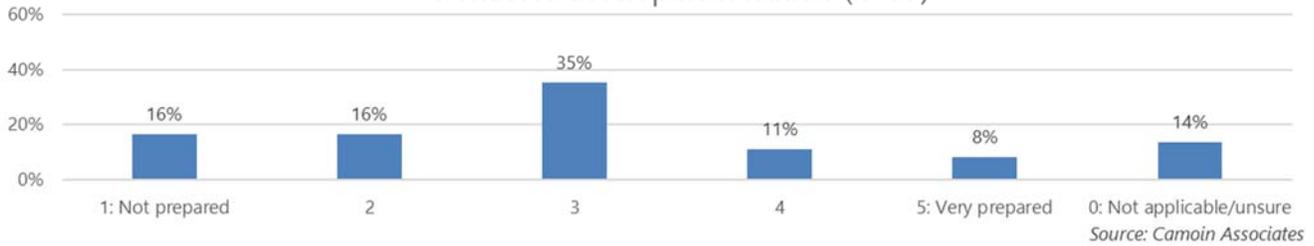
How well prepared are economic, workforce, and community development entities in the Aroostook County and Washington County region to support business resiliency through - Supporting infrastructure force (n=38)



Respondents were asked, "How prepared are the individuals in leadership and decision-making roles to support future economic resiliency in Northern/Downeast Maine?" For this question a rating of 1 is not prepared, 5 is very prepared, and 0 is not applicable/unsure. The aspects are listed below in order of most prepared as rated by the stakeholders indicating their rating out of the maximum score (37 respondents ability to rate 5 as very prepared).

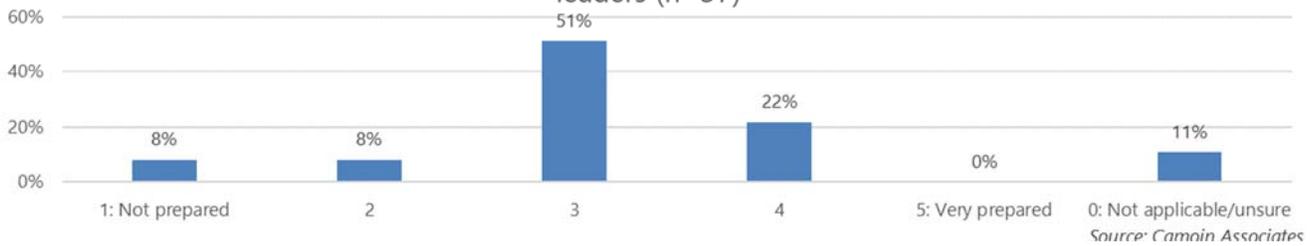
**Economic and workforce development leaders rank as the most prepared with a mean score of 2.8 (105/185).** Respondents that indicated they were very prepared indicated that economic and workforce development leaders have a good understanding of how partners need to work together, there are go-to organizations in times of crisis, there are plans in place to cater to vulnerable areas and communities, leaders are in place. Respondents that rated this category low did not provide written description to inform their rating. There were few respondents that indicated that this category was moderately prepared (rating of 3) and indicated that work is inhibited by lack of funding and there is a need for more strategic thinkers and planners.

How prepared are the individuals in leadership and decision-making roles to support future economic resiliency in Northern/Downeast Maine - Economic and workforce development leaders (n=37)



**Business leaders rank as the second most prepared with a mean score of 2.6 (98/185).** Respondents that provided a high preparedness rating for business leaders indicated that economic growth is in their best interest, businesses are working to support their workers, and businesses have and will continue to pivot to survive. Others indicated that businesses are working in siloes and there is not much joint leadership.

How prepared are the individuals in leadership and decision-making roles to support future economic resiliency in Northern/Downeast Maine - Business leaders (n=37)



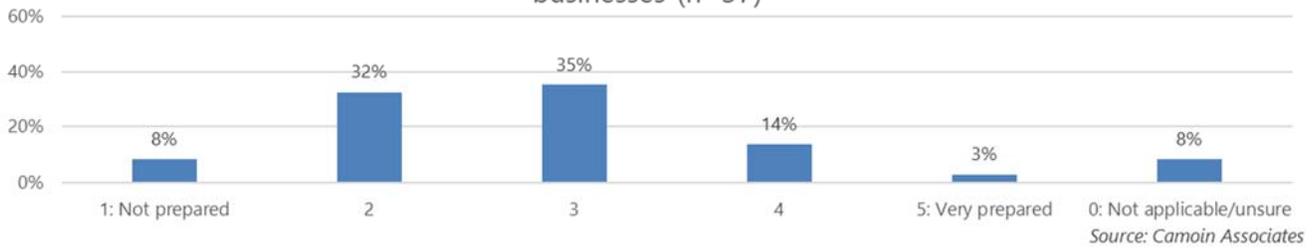
**Stakeholders scored community leaders with an average score of 2.5 (93/185) in preparedness.** Respondents that provided a high preparedness rating for community leaders indicated that they are visionaries has at work and community-focused organizations are working actively to prepare resiliency. Respondents also noted the presence of several nonprofit and engaged residents that truly care about helping each other. Respondents that rated community leaders as unprepared in resiliency indicated that there is an unwillingness for communities to work together, and organizations are working towards different visions.

How prepared are the individuals in leadership and decision-making roles to support future economic resiliency in Northern/Downeast Maine - Community leaders (n=37)



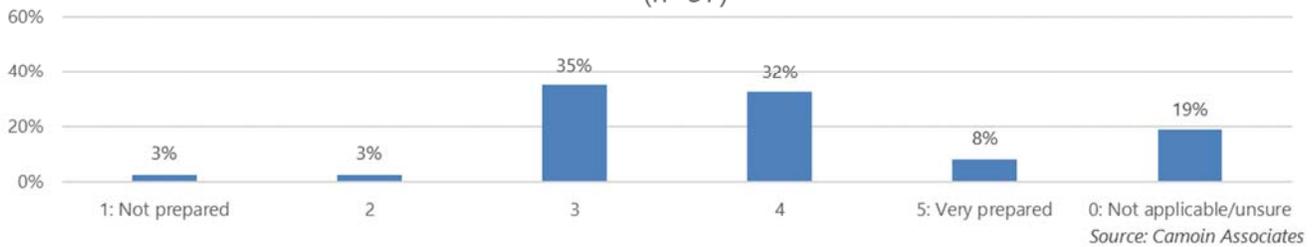
**Small businesses have a mean preparedness score of 2.5 (91/185).** Small businesses rank low in terms of preparedness for resiliency in Aroostook County and Washington County based on several factors including lack of succession planning, lack of access to cash and consistent revenue stream, COVID related hardships, and difficulties maintaining employees. Other respondents indicated that small businesses are resilient based on their ability to pivot and owners being fully involved in their businesses.

How prepared are the individuals in leadership and decision-making roles to support future economic resiliency in Northern/Downeast Maine - Small businesses (n=37)



**Elected officials ranked as the least prepared to support future economic resiliency in Aroostook County and Washington County with an average score of 2.4 (88/185).** Respondents shared concerns of lack of training for these positions, lack of future thinking, competing priorities, unwillingness to accept cultural change and an abundance of decision-making at hand. Those that provided high preparedness ratings indicated that many people including elected officials will need to be informed of what support future economic resiliency means.

How prepared are the individuals in leadership and decision-making roles to support future economic resiliency in Northern/Downeast Maine - Elected officials (n=37)



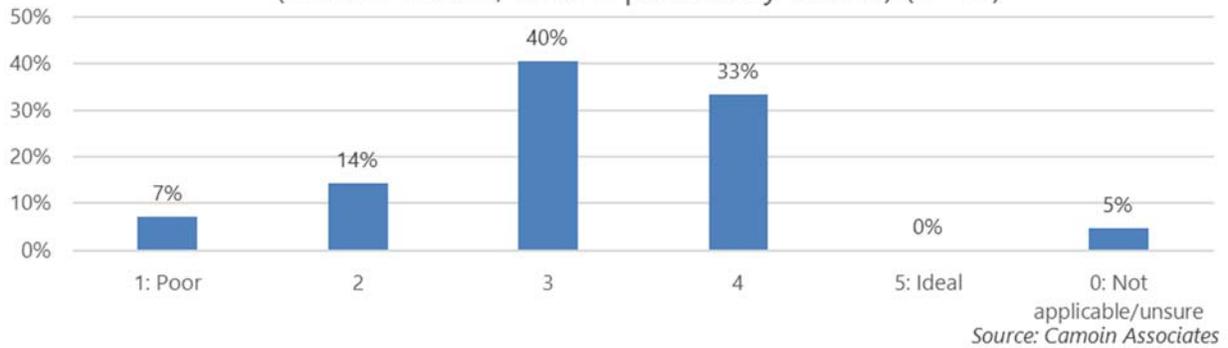
Respondents were asked to rank how well the region is doing in terms of the following aspects related to resiliency with regard to economic, workforce and community development entities in Aroostook County and Washington County. The ranking provided was 1 being poor, 5 being ideal, and 0 being not applicable/unsure. The aspects are listed below in order of most ideal as rated by the stakeholders indicating their rating out of a possible 210 points (42 respondents ability to rate 5 as ideal):

- Understanding of resiliency (What it means, what it potentially entails) – Mean score of 2.9 (122/210)
- Identifying and capitalizing on emerging opportunities – Mean score of 2.9 (121/210)
- Identifying issues that can create future economic disruptions – Mean score of 2.8 (116/210)
- Communication to businesses – Mean score of 2.7 (115/210)
- Communication among stakeholders – Mean score of 2.6 (110/210)
- Planning for future economic disruptions – Mean score of 2.5 (105/210)
- Communication to workers and residents – Mean score of 2.5 (104/210)
- Taking collective action related to preparing for possible future disruptions – Mean score of 2.5 (103/210)

The following figures display the respondent results for the aspects above.

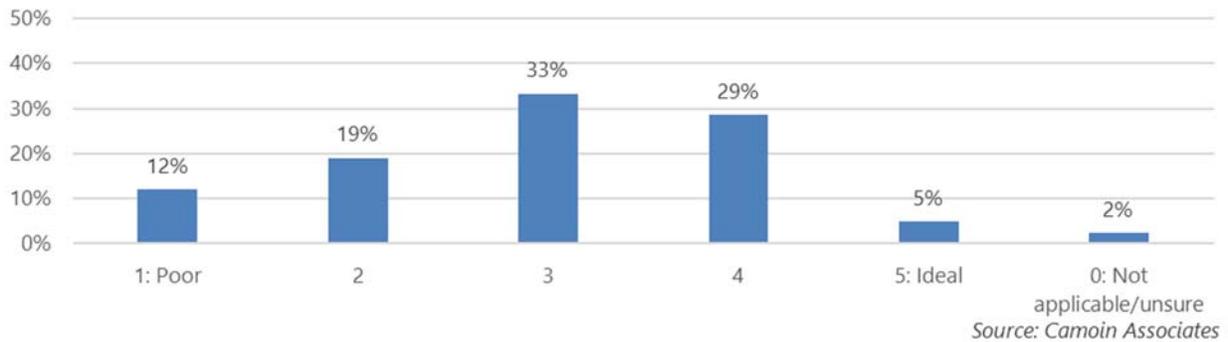
Overall, respondents indicated that the region is doing best in terms of understanding resiliency and what it means, and what its potential entails. However, no respondents indicated an ideal rating of 5. Nearly three-quarters (73%) of respondents indicated a rating of 4 or 3.

Rank how well the region is doing in – Understanding of resiliency  
(What it means, what it potentially entails) (n=42)



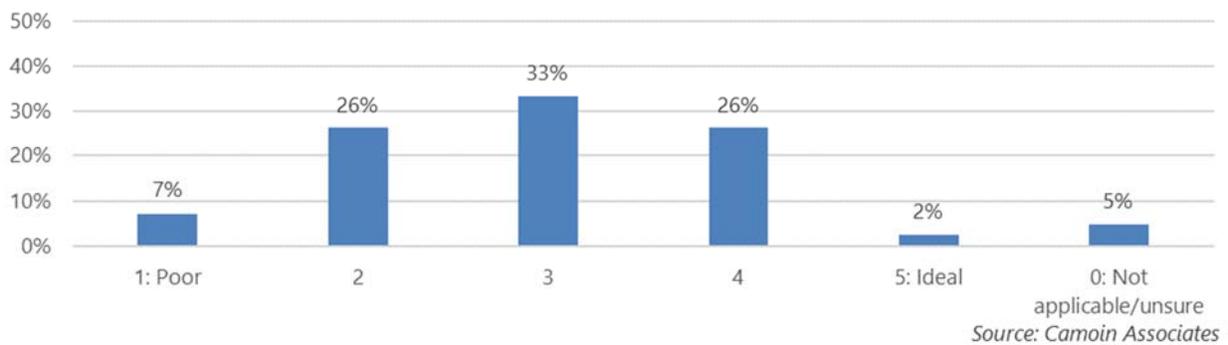
Approximately 5% of respondents indicated that Aroostook County and Washington County is doing ideal in identifying and capitalizing on emerging opportunities. Conversely, 12% of respondents think the region is doing poorly.

Rank how well the region is doing in – Identifying and capitalizing  
on emerging opportunities (n=42)



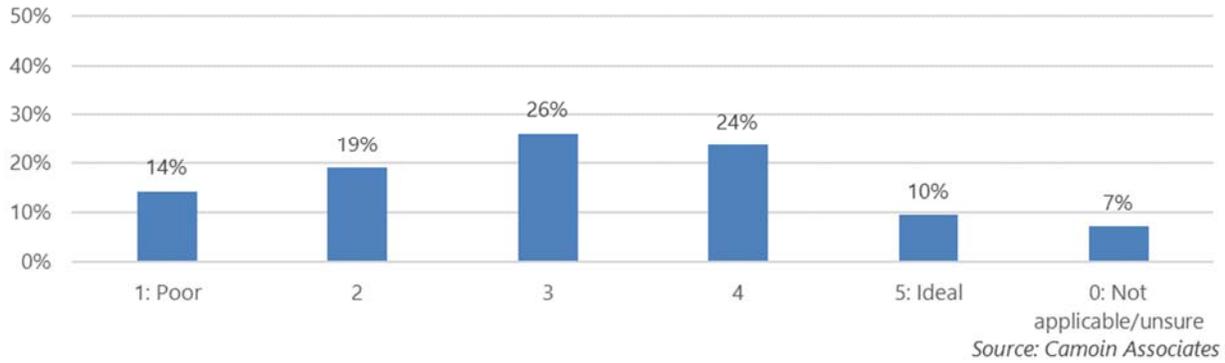
Responses to how Aroostook County and Washington County is doing in terms of identifying issues that can create future economic disruptions varied greatly. The majority of respondents rated the region as mid-range of 2,3, or 4 in this category.

Rank how well the region is doing in – Identifying issues that can  
create future economic disruptions (n=42)



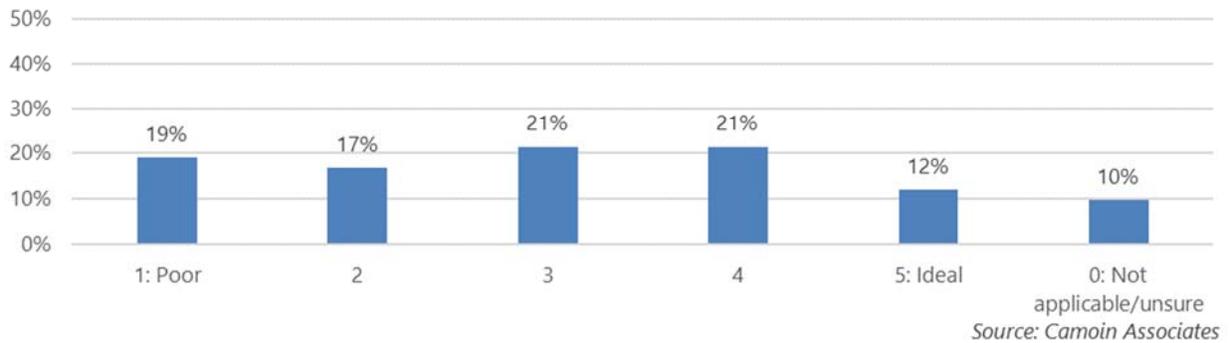
Stakeholders rating to how the region is doing in communication to businesses varies greatly.

### Rank how well the region is doing in – Communication to businesses (n=42)



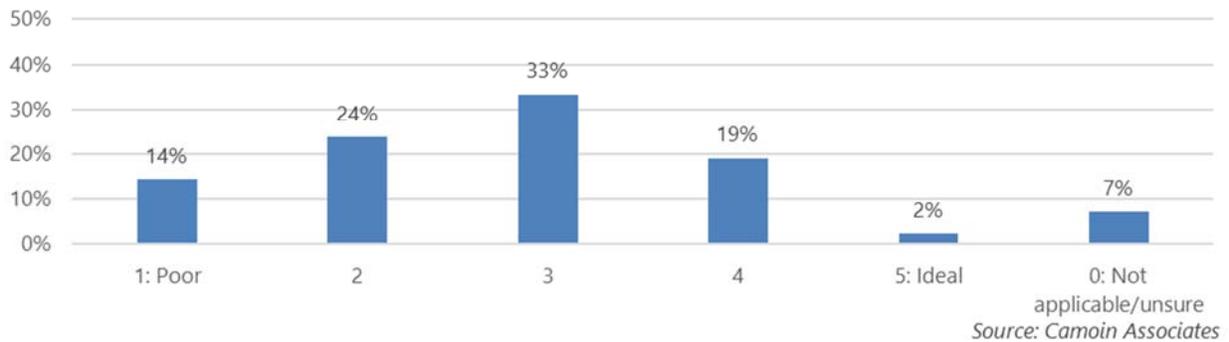
Similarly, communication among stakeholders received varied responses from stakeholders.

### Rank how well the region is doing in – Communication among stakeholders (n=42)



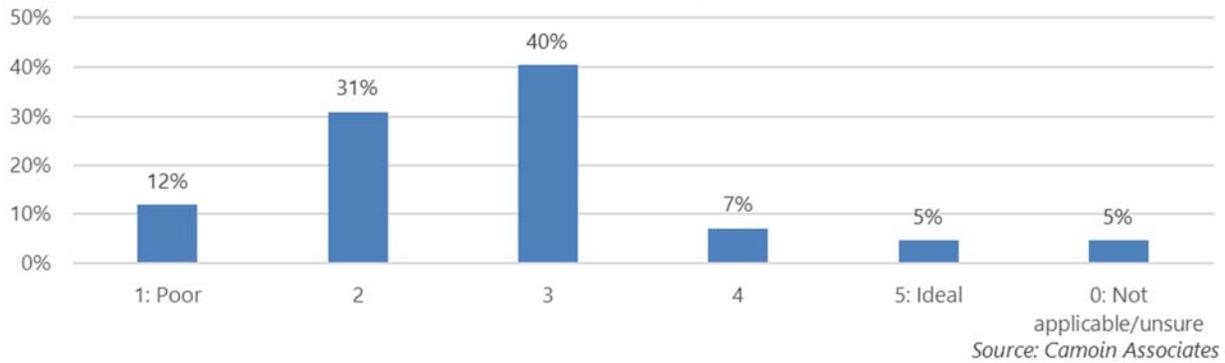
Only 2% of stakeholders believe the region is ideal in planning for future economic disruptions.

### Rank how well the region is doing in – Planning for future economic disruptions (n=42)



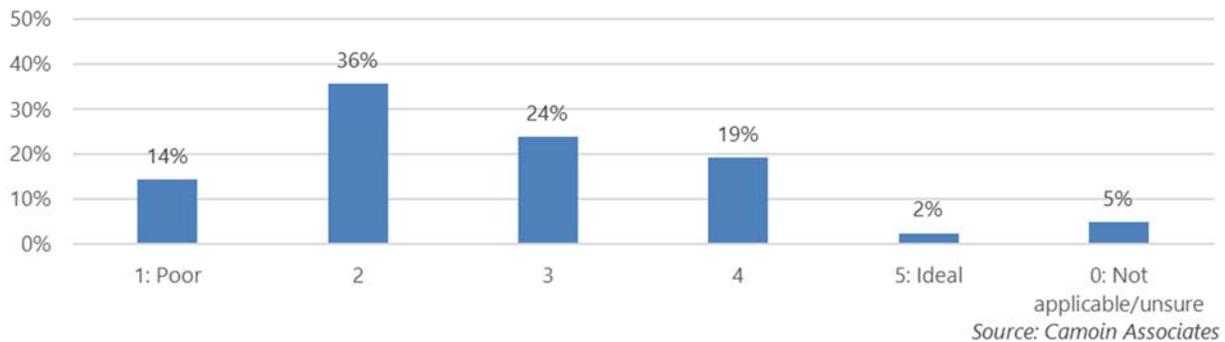
Stakeholders indicate that the region is doing poorly in communication to workers and residents. Only 5% of stakeholders indicated that the region is ideal in this aspect.

### Rank how well the region is doing in – Communication to workers and residents (n=42)



The Aroostook County and Washington County region ranks the lowest in taking collective action related to preparing for possible future disruptions. Half of the respondents ranked it as 1, poor or 2.

### Rank how well the region is doing in – Taking collective action related to preparing for possible future disruptions (n=42)



Respondents were asked, “Describe any opportunities for expanded regional economic development partnerships that would benefit the region.” Responses focused on regional approaches and opportunities. Top responses include:

- Tourism
- Broadband
- Coordination and communication between towns and counties
- Better disbursement of funding to all communities
- More opportunities for small businesses including funding opportunities, increased exposure, benefit opportunities
- Opportunities to encourage more strategies partnerships and mergers across organizations, especially in rural communities. A network approach to build on efforts that are already underway.
- Reliable cell service
- Childcare development utilizing businesses and policy changes
- Collaboration between healthcare and education
- Regional projects including seeking grant funding, creating jobs, and assisting in business startups and expansions
- Strategic planning

Respondents were asked, "What are the top three things you would most like to see changed to improve economic resiliency in Northern/Downeast Maine?" Top responses include:

- Enhanced internet speeds and providers
- Increased funding including better disbursement across communities and low rate business loans
- Diversification of the economy
- Support for outdoor recreational activities and natural resources
- End the stigma of change
- Access to affordable healthcare
- Increased childcare capacity including affordable options
- Climate change resiliency
- Increased diversity of businesses and markets
- Better workforce training and workforce development
- More resources for education
- Increased transportation including public transportation system
- Enhanced cell coverage
- Increased open communication and changing of close-mindedness
- Expanded infrastructure investments
- Emergency preparedness
- Small business support

Respondents were asked, "What is the most important potential emerging opportunity to build resiliency?" Top responses include:

- Increased broadband access and internet speeds
- Climate change
- Funding
- Workforce retention and support
- Attraction people to the area
- Communication
- Infrastructure
- New business avenues and markets
- Diversifying the economy
- Renewable energy from Aroostook to the rest of Maine
- Connecting businesses, workforce, and school offerings
- Ensuring housing goes to year-round residents and workforce

Respondents were asked, "What do you see as the biggest current or emerging challenge within the next two years that will negatively impact the resiliency of Northern/Downeast Maine?" Top responses include:

- Outmigration and related population decline
- Workforce/staffing needs
- Climate change
- Aging population

- Internet speed/availability, broadband, etc
- Access to markets
- Moving beyond the pandemic
- Poor coordination between government including communities acting in silos
- Education
- Affordable housing

# BUSINESS SURVEY

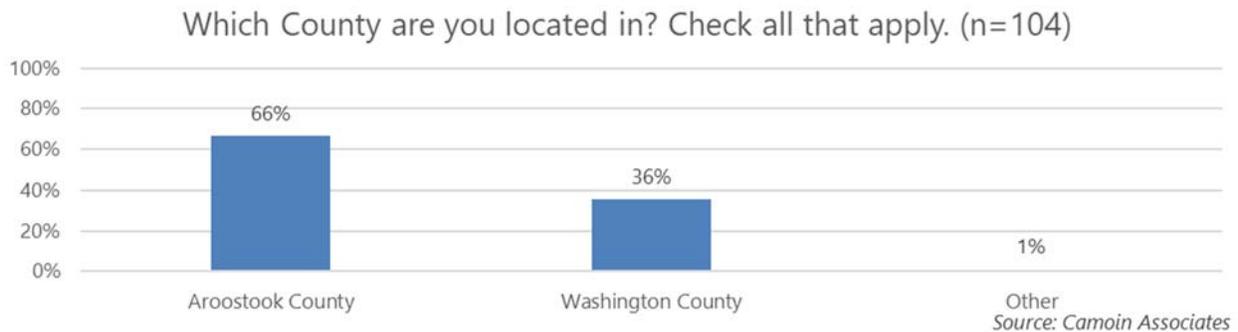
## OVERVIEW

Camoin Associates, Venture Foresight, Northern Maine Development Commission (NMDC), and Sunrise County Economic Council (SCEC) conducted a survey to assess and understand emerging issues, concerns, challenges, and opportunities impacting Aroostook County and Washington County. The Business Survey targeted business owners in Aroostook County and Washington County to understand business capacity and resources available to recover and what is needed in the future to be resilient.

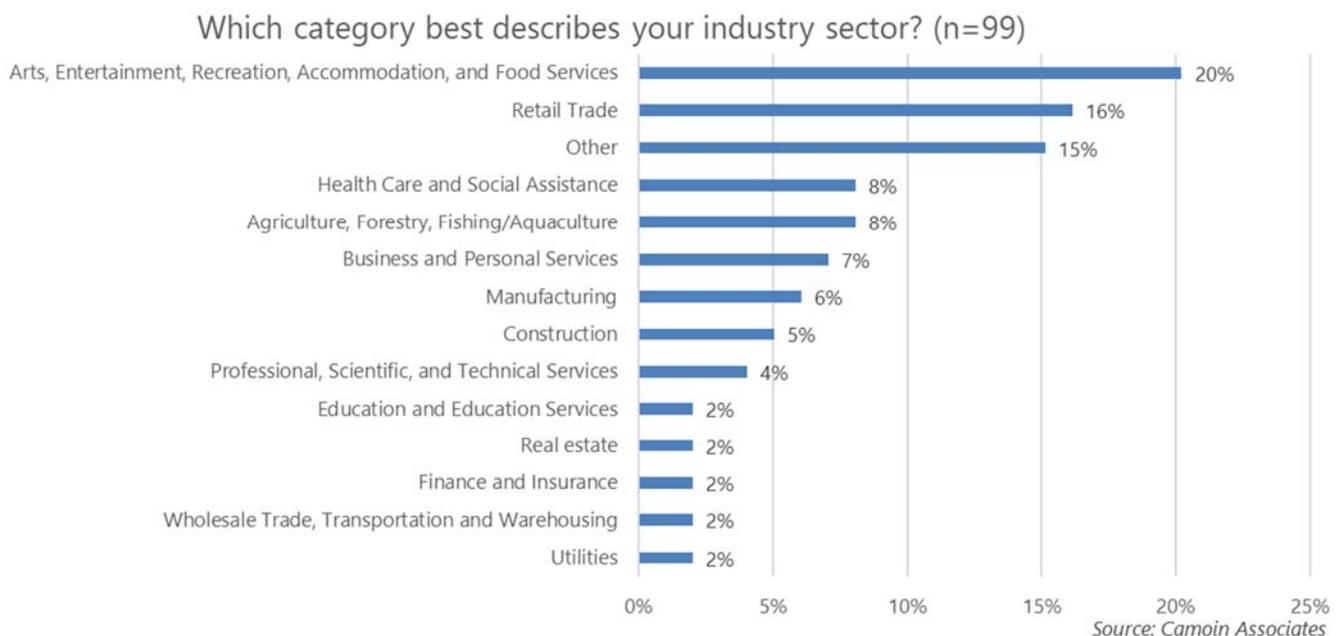
For this survey, resiliency is defined as the ability to prevent, withstand, and quickly recover from major disruptions. The Business Survey was distributed directly via email and newsletter announcement through NMDC, SCEC, and their partners' networks. The Business Survey was opened from September 21<sup>st</sup>, 2021 to October 15<sup>th</sup>, 2021, and received a total of 104 responses. Of those respondents, 104 completed the survey in its entirety with some of those respondents skipping specific questions along the way.

## BUSINESS RESPONDENT BREAKDOWN

Of the businesses surveyed, approximately 66% are located in Aroostook County and 36% are located in Washington County. One business has locations in Aroostook, Washington, Penobscot, and Cumberland Counties.



20% of the businesses surveyed were in Arts, Entertainment, Recreation, accommodation and Food Services. 16% fell under Retail Trades and 15% identified as Other. Other included child care services, fitness, campground, computer repairs, and housing.

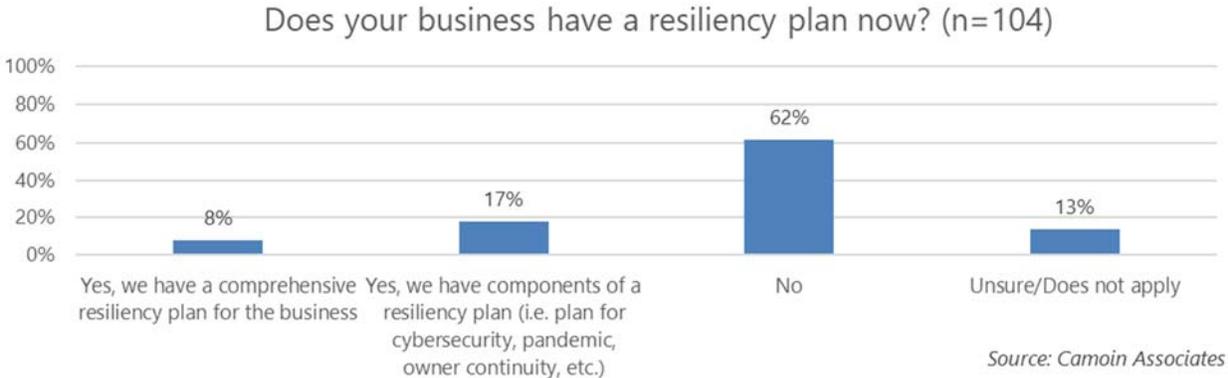


Businesses were asked to provide how many employees work for their company on average year-round in their Aroostook and Washington locations. They were provided a space for full-time, part-time, and seasonal workers. A total of 82 businesses provided the number of full-time workers, of which 33% have 1 employee, 35% are businesses with 2 to 5 employees, and 20% with 6 to 10 employees. Half the businesses with part-time workers employ 1 to 2 employees. Similarly, half the businesses with seasonal workers employ 1 to 2 seasonal workers. Some businesses capture as part of this survey employee 25 seasonal employees.

Business Breakdown by Number of Workers			
	Full-Time Workers	Part-Time Workers	Seasonal Workers
1	33%	31%	42%
2-5	35%	46%	33%
6-10	20%	11%	17%
11-25	6%	10%	8%
26-50	4%	2%	0%
51-100	1%	0%	0%
101+	1%	0%	0%
Number of Businesses	82	61	24

**RESILIENCY PLANNING**

The majority (62%) of businesses in Aroostook County and Washington County do not have a resiliency plan in place currently. Approximately 8% of the businesses in Aroostook County and Washington County have a comprehensive resiliency plan for the business while an additional 17% have a component of a resiliency plan (i.e. plan for cybersecurity, pandemic, owner continuity, etc.) Businesses with components of a resiliency plan in place were able to elaborate on the components in place, responses including resiliency training for all employees, coach for families, working on these contingencies, cybersecurity, COVID business continuity planning, succession planning, mandatory masks, vaccine mandates, emergency preparedness, etc.



**BUSINESS RESILIENCY**

Businesses were asked to rate their business on several resiliency categories with 1 being not resilient, 5 being very resilient, and 0 being not applicable/unsure. The resiliency issues are listed below in order of most important as rated by the business respondents indicating their rating out of a possible 520 points (104 respondents ability to rate 5 as very resilient):

- **Reputational & Brand Resilience** – Actions and values are aligned. Ability to flex, be open to criticism of firm behavior, respond, and adapt. Mean score of 3.6 (379/520)
- **Business Model Resilience** – Entrepreneurship is highly valued. Can adapt to significant swings in customer demand, competition, technology, and regulations. Mean score of 3.5 (366/520)
- **Operational Resilience** – Ability to flex to changes in demand or supply chain issues. Mean score of 3.3 (338/520)

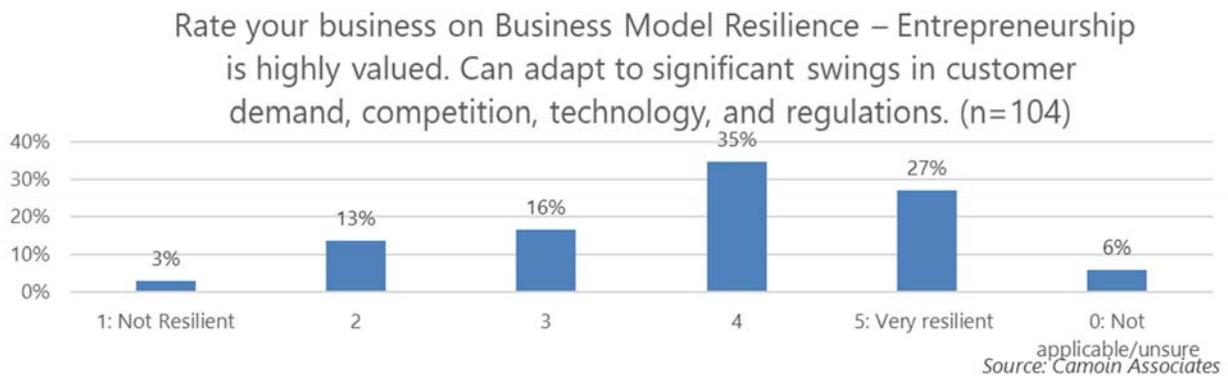
- **Financial Resilience** – Balance of short and long-term financial goals. Ability to withstand rapid drops in revenue, increased cost, or credit issues. Mean score of 3.0 (307/520)
- **Technology Resilience** – Ability to manage technology breakdowns and cybersecurity threats. Mean score of 2.8 (291/520)
- **Organizational Resilience** – High performing, diverse workforce that can be re-skilled and upskilled. Leadership succession plans in place. Mean score of 2.7 (278/520)

The following figures display the respondent results for the resiliency categories.

In terms of financial resilience, 36% of businesses believe they are very resilient, 28% indicated they rank 4 out of 5 for resiliency. Approximately 6% of businesses surveyed believe their business is not financially resilient.



Business model resilience ranks as the second most resilient category for businesses in Aroostook County and Washington County with 27% of businesses indicating they are very resilient and an additional 35% indicating they are resilient with a ranking of 4.

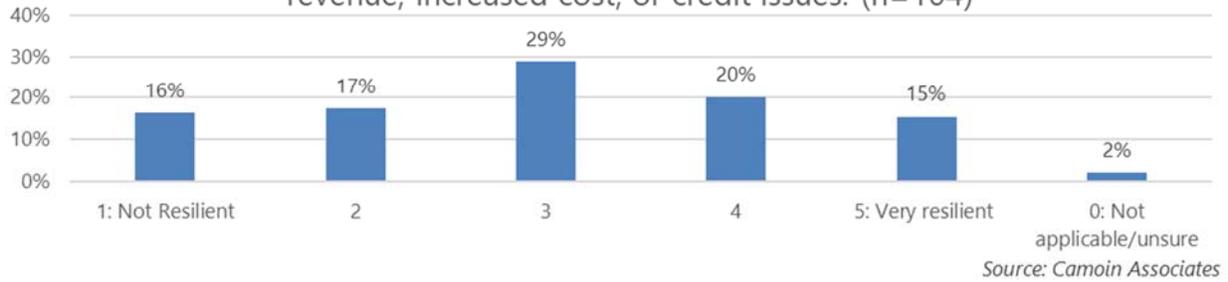


Approximately 19% of respondents indicated their business is very operational resilient with an additional 31% indicating they are resilient with a ranking of 4.



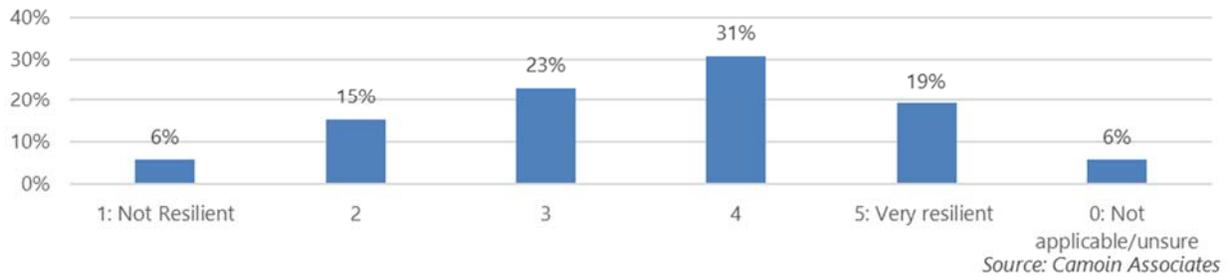
Approximately 29% of businesses view their business as being moderately resilient (3) in terms of financial resilience.

Rate your business on Financial Resilience – Balance of short and long-term financial goals. Ability to withstand rapid drops in revenue, increased cost, or credit issues. (n=104)



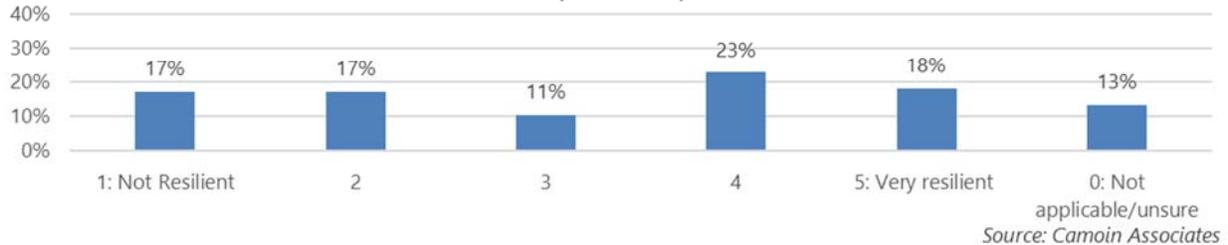
Approximately 19% of businesses see their business as very technologically resilient while 6% consider themselves not resilient.

Rate your business on Technology Resilience – Ability to manage technology breakdowns and cybersecurity threats. (n=104)



Organizational resilience ranks the lowest with an average rating of 2.7.

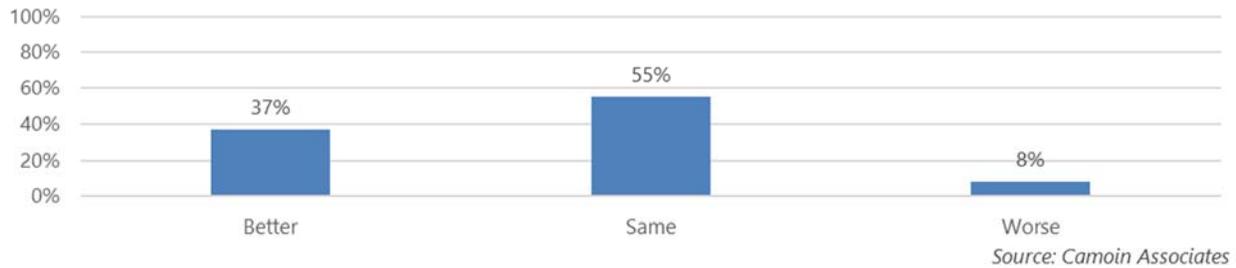
Rate your business on Organizational Resilience – High performing, diverse workforce that can be re-skilled and upskilled. Leadership succession plans in place. (n=104)



Businesses were asked how they feel their business compares to others in the same industry in Aroostook County and Washington County. The majority of businesses (55%) believe they are doing the same as others in their same industry while 8% believe they are doing worse and 37% believe they are doing better. Businesses that felt they are doing better than other businesses in their industry indicated it was because there are limited businesses in that industry, they are a new business still in development, they look for ways to improve, finding creative solutions, having strong supporting management, having a low overhead in terms of employees, etc.

Those who indicated that they were doing worse than businesses in their sector noted that Canadian border closures, need for building repairs, and being located in an economical distress area were causes.

## How do you feel your business compares to others in the same industry in Northern/Downeast Maine? (n=98)



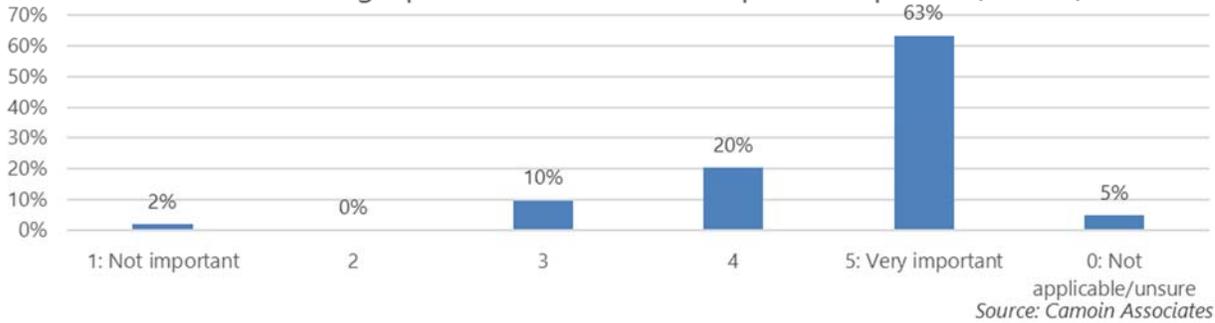
Respondents were asked to rate the importance of the following issues to their business resiliency with 1 being not important, 5 being very important, and 0 being not applicable/unsure. The resiliency issues are listed below in order of most important as rated by the all-business respondents indicating their rating out of a possible 520 points (104 respondents):

- Remaining operable and flexible despite disruptions – Mean score of 4.3 (446/520)
- Access to broadband – Mean score of 4.3 (445/520)
- Cellular coverage – Mean score of 4.3 (445/520)
- Health and safety system – Mean score of 3.9 (405/520)
- Financial assistance/relief – Mean score of 3.9 (405/520)
- Regulatory policies – Mean score of 3.9 (402/520)
- Access to business support from economic workforce and community entities – Mean score of 3.8 (392/520)
- Supply chain security – Mean score of 3.7 (383/520)
- Open borders – Mean score of 3.6 (377/520)
- Technology adoption – Mean score of 3.6 (373/520)
- Transportation infrastructure – Mean score of 3.5 (360/520)
- Hiring and retaining new employees – Mean score of 3.5 (360/520)
- Training and upskilling workforce – Mean score of 3.4 (358/520)
- Resiliency planning – Mean score of 3.4 (355/520)
- Cybersecurity – Mean score of 3.3 (344/520)
- Network (Connections and relationships between educators/providers, employers, and students/employees) – Mean score of 3.3 (343/520)
- Sewer/Water infrastructure – Mean score of 3.2 (334/520)
- Supporting entrepreneurship (helping people start new businesses) – Mean score of 3.1 (326/520)
- Housing – Mean score of 3.0 (315/520)
- Adapting to climate change – Mean score of 2.7 (279/520)
- Workforce retirements – Mean score of 2.5 (255/520)

The following figures display the respondent results for the aspects above. Approximately 63% of businesses rank remaining operable and flexible despite disruption as very important.

### How important are the following issues to your business resiliency?

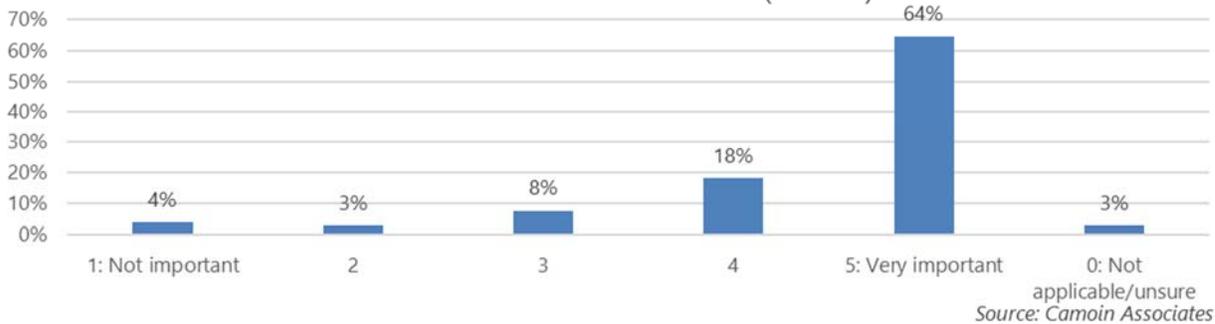
#### – Remaining operable and flexible despite disruptions (n=104)



Access to broadband ranks as the second most important aspect of business resiliency. Approximately 64% of businesses rank it as very important. Conversely, 4% of businesses indicate it is not important. The businesses that ranked it as not important fall under food establishments, retail, and real estate firms.

### How important are the following issues to your business resiliency?

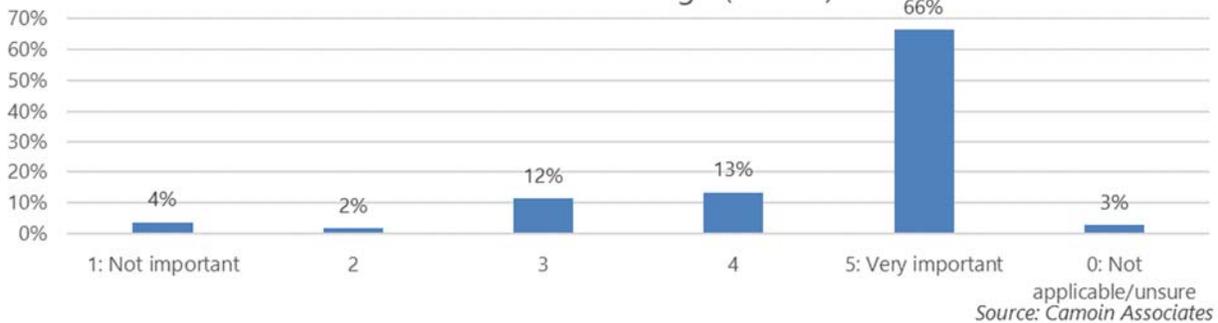
#### – Access to broadband (n=104)



Similarly to broadband, 66% of respondents believe cellular coverage is very important to regional resiliency. The same businesses that rated broadband as not important, rated cellular coverage as not important.

### How important are the following issues to your business resiliency?

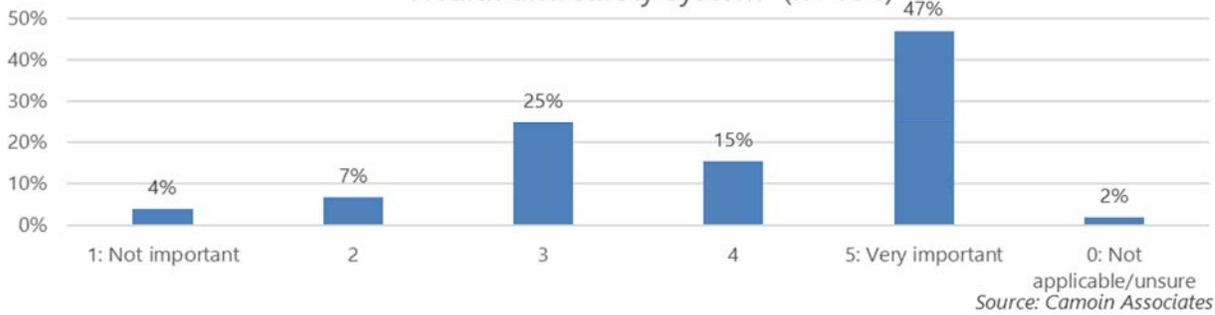
#### – Cellular coverage (n=104)



Health and safety system ranks as the fourth most important issue to business resiliency. Approximately 47% of businesses rank it as very important.

### How important are the following issues to your business resiliency?

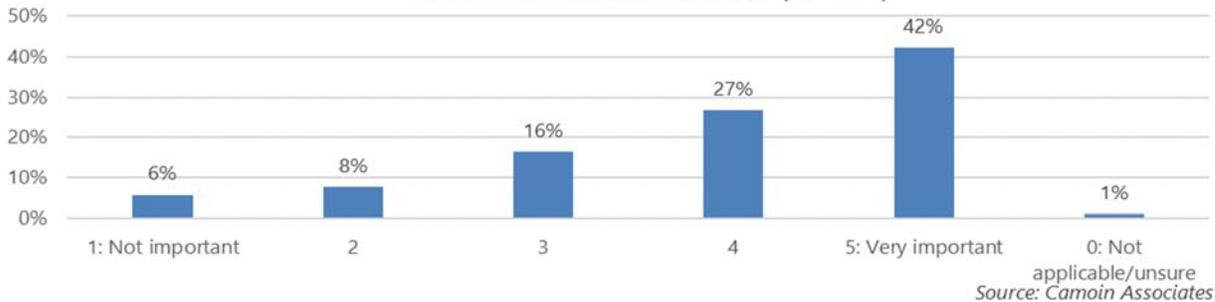
– Health and safety system (n=104)



Financial assistance/relief ranks as the fifth most important aspect for business resiliency with 42% of stakeholders indicating it is very important.

### How important are the following issues to your business resiliency?

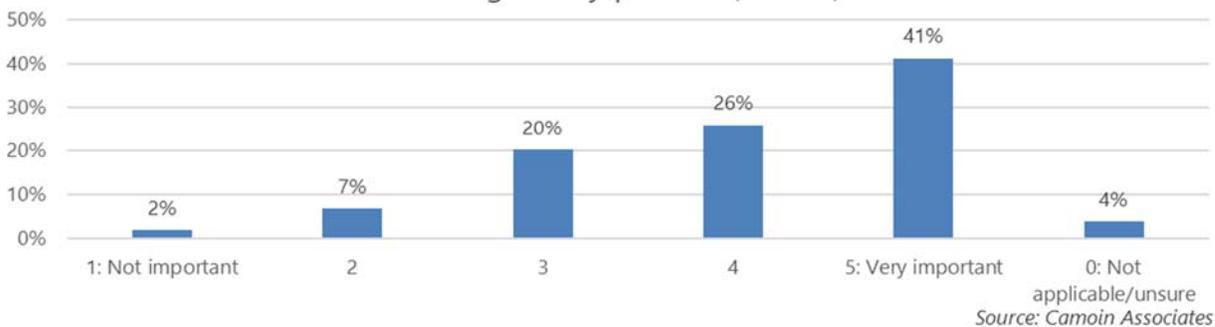
– Financial assistance/relief (n=104)



Approximately 41% of businesses view regulatory policies as very important to their business resiliency.

### How important are the following issues to your business resiliency?

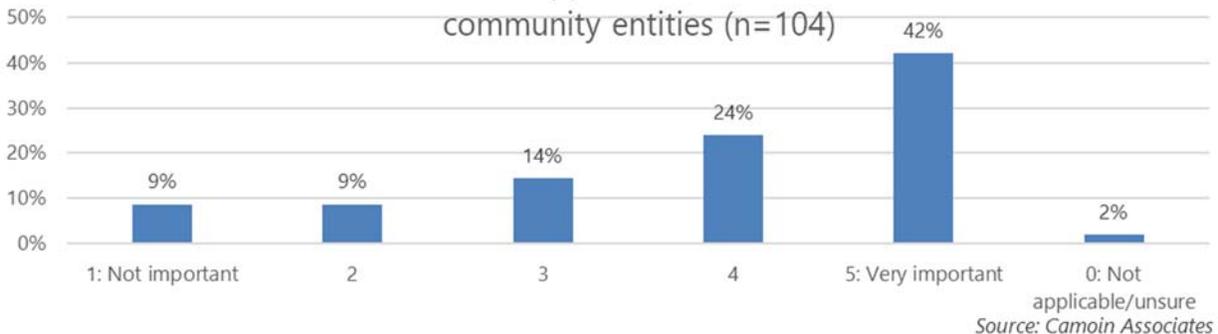
– Regulatory policies (n=104)



Access to business support from economic workforce and community entities is very important to 42% of the business respondents while 9% view it as not important to their business resiliency.

### How important are the following issues to your business resiliency?

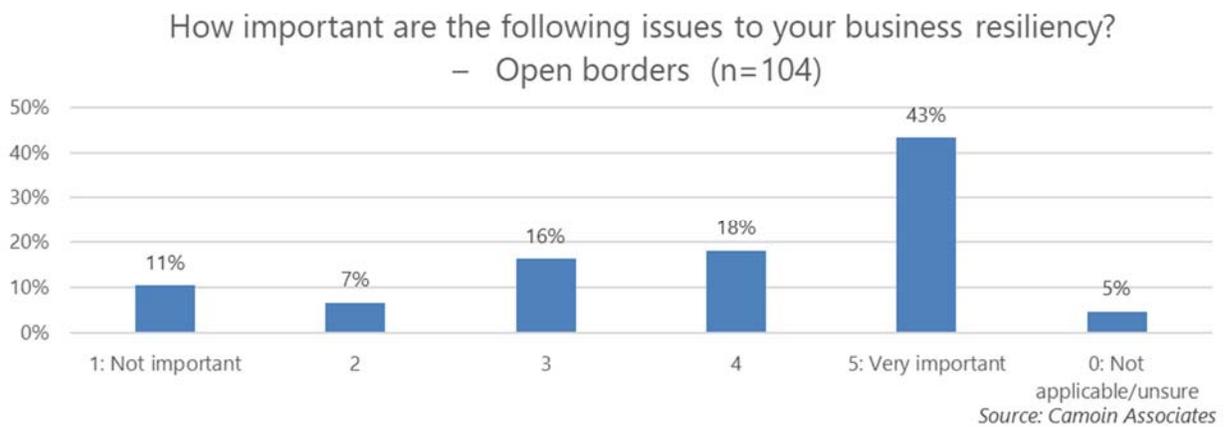
– Access to business support from economic workforce and community entities (n=104)



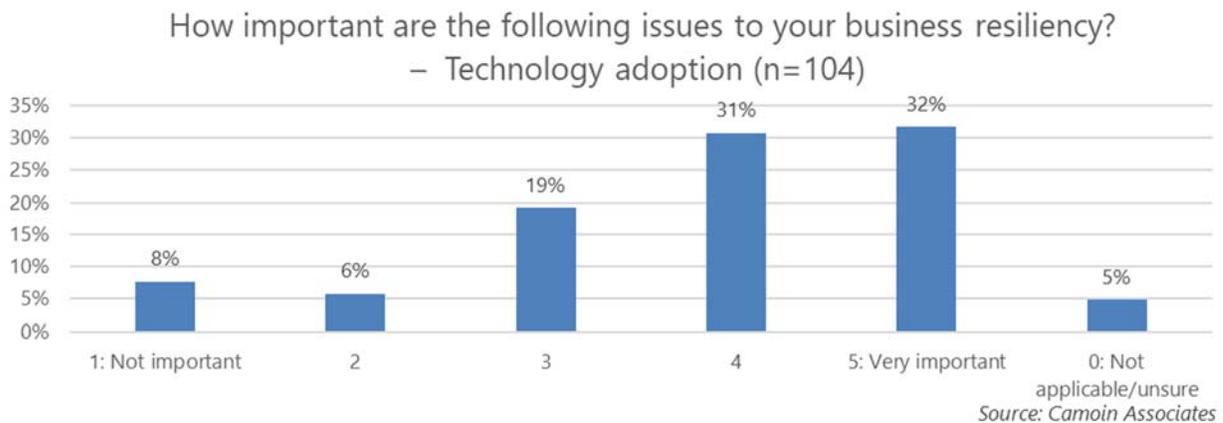
Nearly half (46%) of surveyed businesses indicated that supply chain security is very important to their business resiliency.



Many businesses view open borders as important to their business resiliency with 43% indicating it is very important and 18% indicating it is important (4).



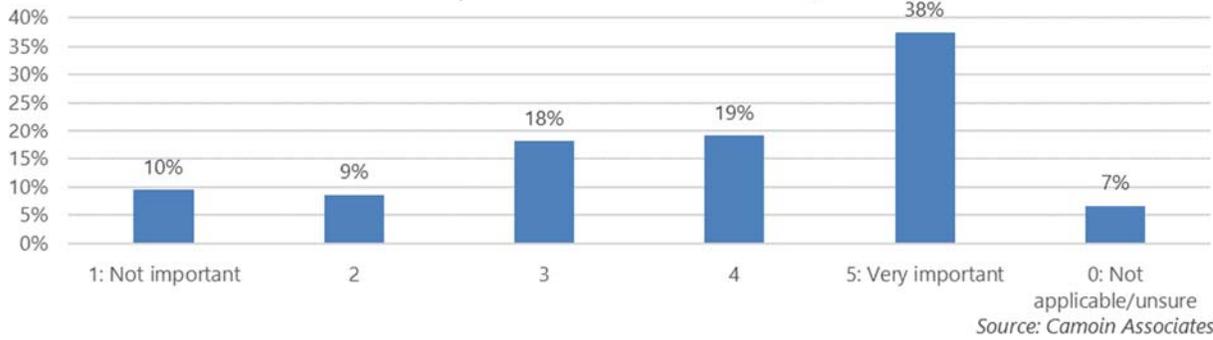
Technology adoption ranks as the tenth most important aspect of business resiliency with a mean score of 3.6.



Transportation infrastructure is viewed as very important to business resiliency for 38% of business respondents.

### How important are the following issues to your business resiliency?

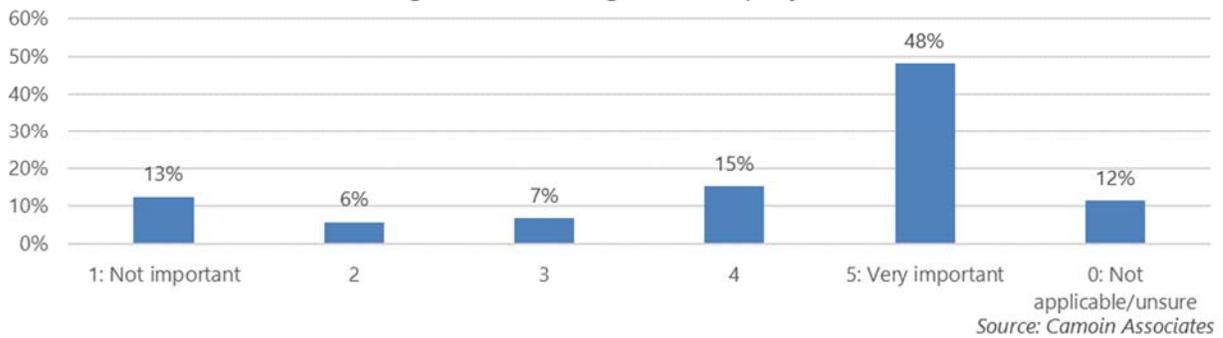
#### – Transportation infrastructure (n=104)



Approximately 48% of business respondents indicated that hiring and retaining new employees is very important to their resiliency.

### How important are the following issues to your business resiliency?

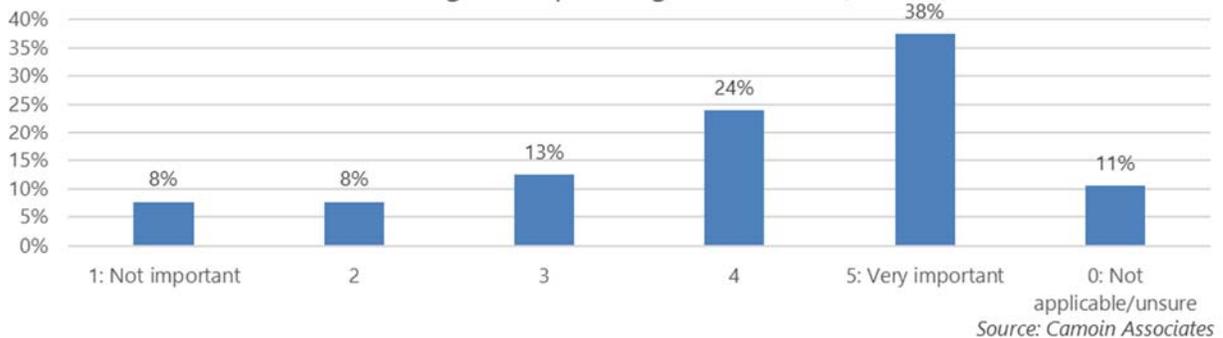
#### – Hiring and retaining new employees (n=104)



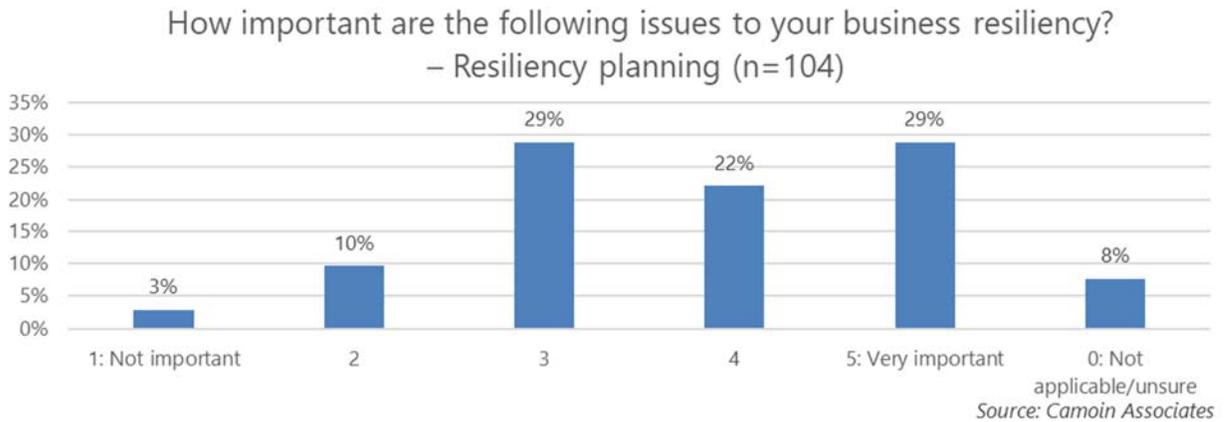
Training and upskilling workforce is very important to 38% of business respondents.

### How important are the following issues to your business resiliency?

#### – Training and upskilling workforce (n=104)



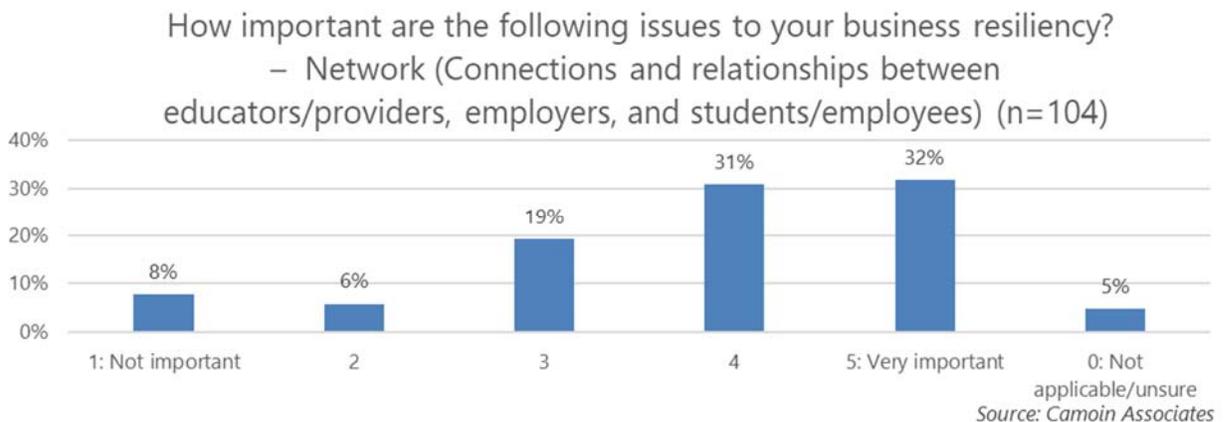
Resiliency planning is very important to 29% of business respondents and not important to 3%. An additional 8% of respondents indicated that resiliency planning is either not applicable to their business or they are unsure if it is important to their operations.



Approximately 34% of business respondents indicated that cybersecurity as very important to their resiliency.



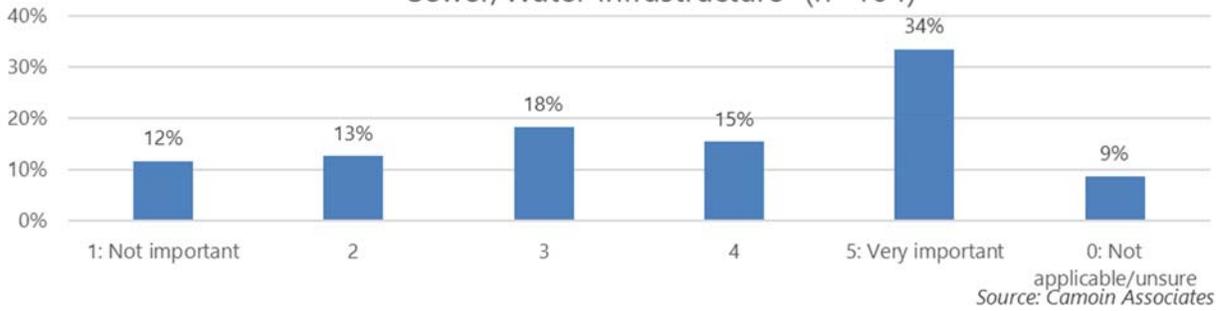
The majority of business respondents view network as moderately to very important (3 to 5) to their business resiliency.



Approximately 34% of business respondents indicated that sewer and water infrastructure is very important to their business resiliency.

### How important are the following issues to your business resiliency?

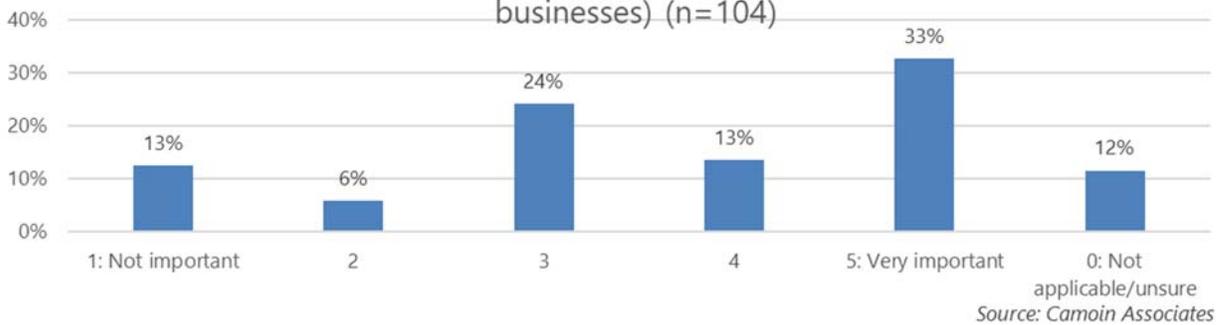
#### – Sewer/Water infrastructure (n=104)



Supporting entrepreneurship (helping people start new businesses) is important to some business owners and not important to others.

### How important are the following issues to your business resiliency?

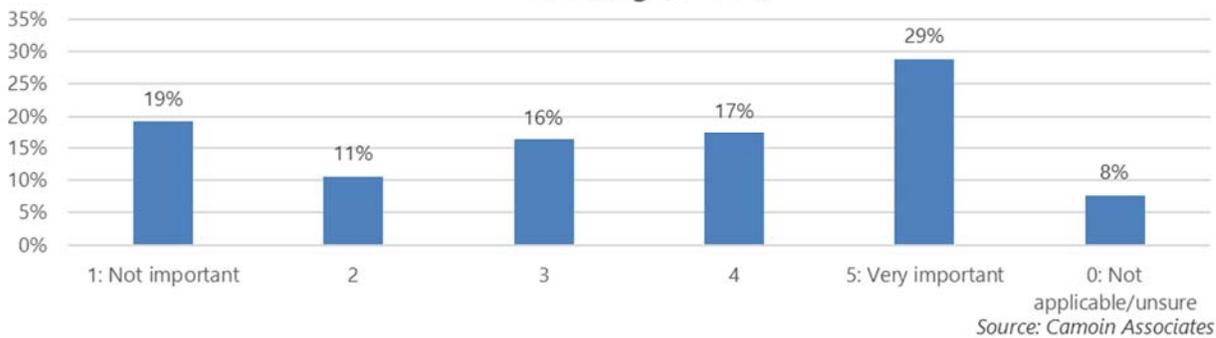
#### – Supporting entrepreneurship (helping people start new businesses) (n=104)



Housing is viewed as moderately important to business resiliency with an average score of 3.0.

### How important are the following issues to your business resiliency?

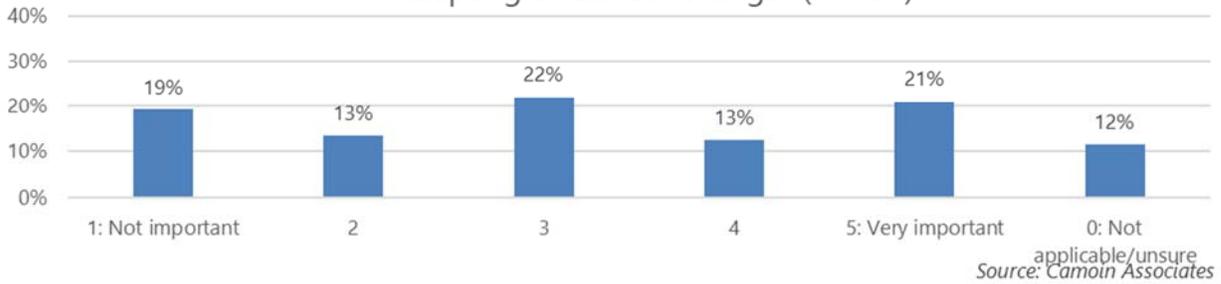
#### – Housing (n=104)



Adapting to climate change has an overall score of 2.7.

### How important are the following issues to your business resiliency?

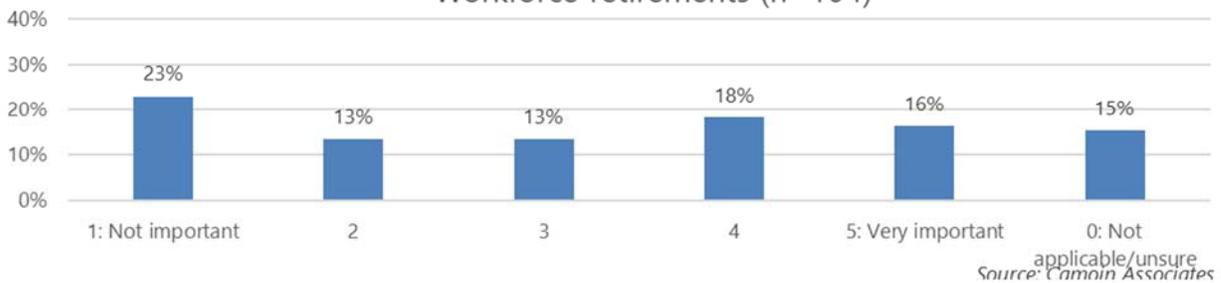
– Adapting to climate change (n=104)



Workforce retirement ranks as the least important aspect to business resiliency in Aroostook County and Washington County according to businesses. Nearly a quarter (23%) of businesses view workforce retirements as not important to their business resiliency.

### How important are the following issues to your business resiliency?

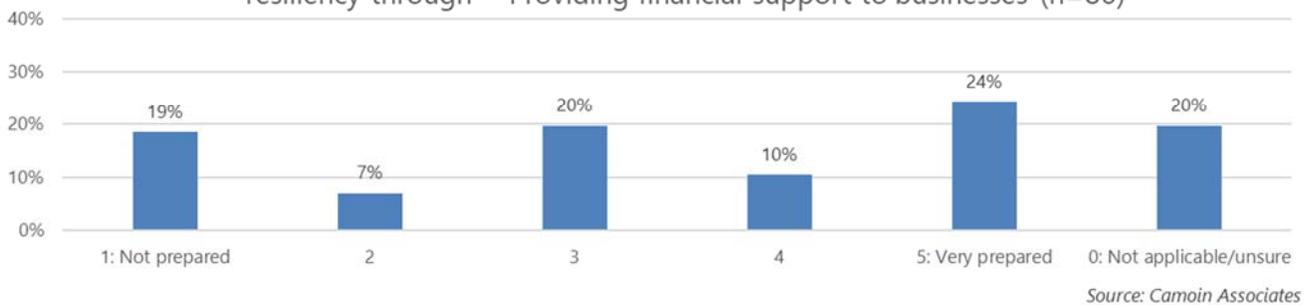
– Workforce retirements (n=104)



Respondents were asked, “Overall, how well prepared are economic, workforce, and community development entities in the Aroostook County and Washington County region to support business resiliency through the following? (i.e. local and regional government, non-profits, and other support organizations)” For this question a rating of 1 is not prepared, 5 is very prepared, and 0 is not applicable/unsure. The aspects are listed below in order of most prepared as rated by the stakeholders indicating their rating out of the maximum score (number of respondents ability to rate 5 as very prepared):

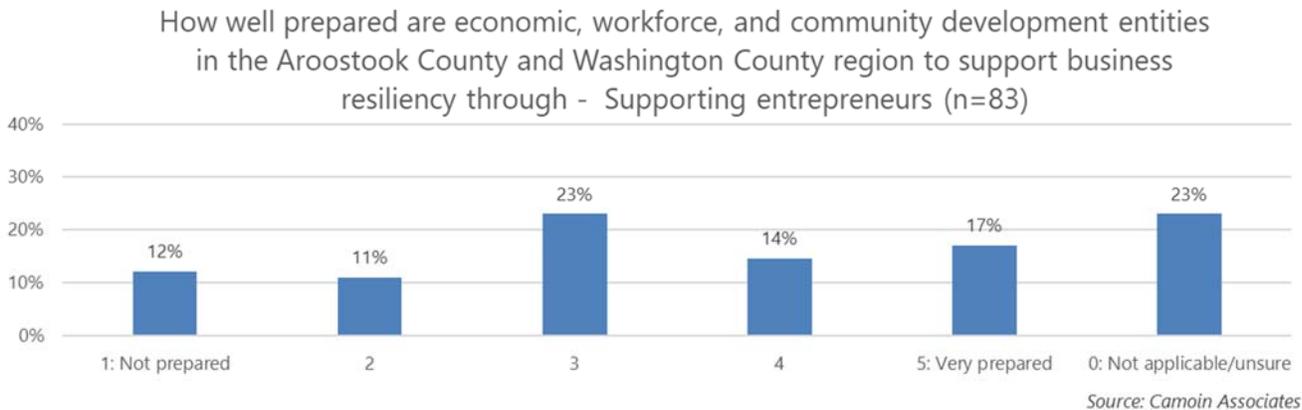
**Providing financial support to businesses ranks as the most prepared facet of the economic, workforce, and community development entities to support business resiliency in Aroostook County and Washington County with a mean score of 2.6 (220/430).** Respondents that indicated these entities are very prepared referenced prompt and helpful PPP loans, resources available, federal funding programs, assistance in understanding applications for applying for financial support, and quick response following COVID. NMDC was specifically regarded as very understanding and flexible. Ratings indicating these entities are not prepared referenced that their business did not receive financing help, banks are not lending the way they used to, or that they have reviewed help from those outside the community.

### How well prepared are economic, workforce, and community development entities in the Aroostook County and Washington County region to support business resiliency through - Providing financial support to businesses (n=86)



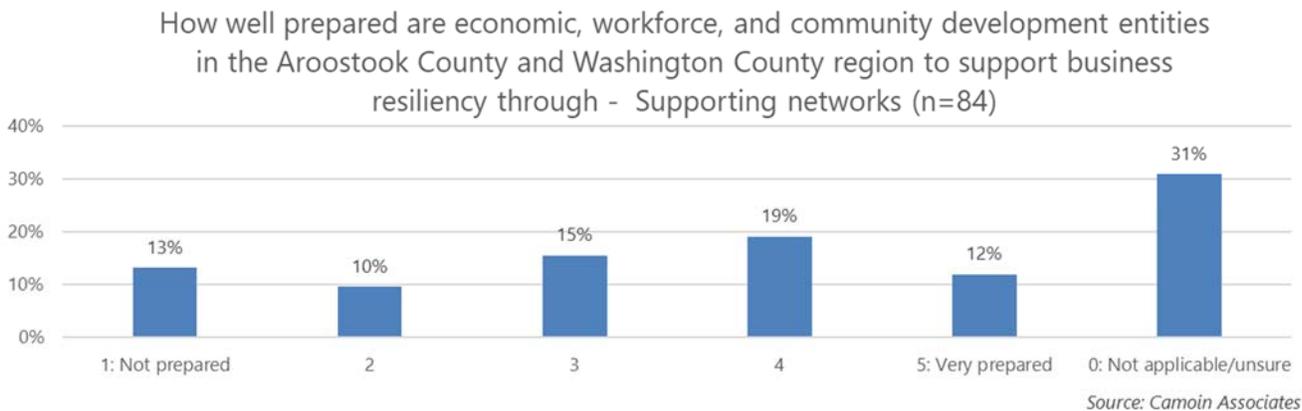
**Supporting entrepreneurs ranks as the second most prepared facet with a mean score of 2.4 (203/415).**

Several respondents noted that they are an entrepreneur and feel valued and supported. Others noted entrepreneurial success is well noted in news articles and marketed through local banks and NMDC. Respondents noted that there can be more support available for new businesses than there is for existing ones. In addition to economic, workforce, and community development entities private businesses in Aroostook County and Washington County are supportive of entrepreneurs.



**Overall, supporting networks received an average score of 2.1 (180/420).**

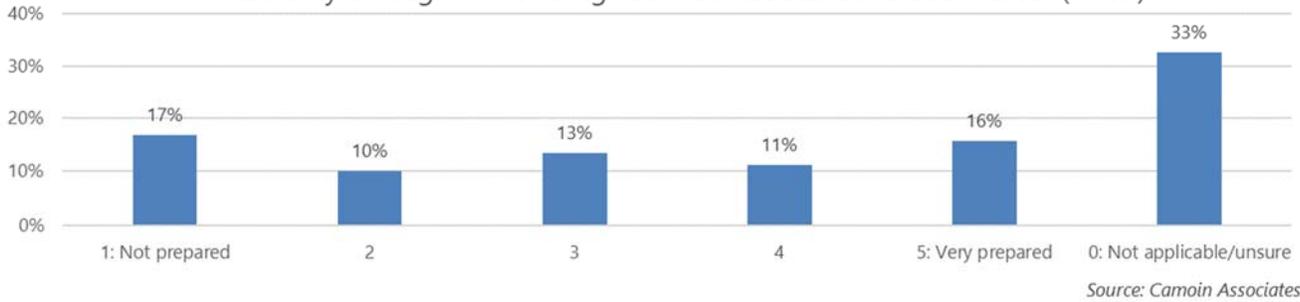
Respondents that provided a high preparedness rating referenced utilizing coworkers, friends, and local committees to overcome business challenges. Others noted outstanding support and assistance from the county, state, and federal level business development entities. Businesses in Aroostook County and Washington County have made their own networks to overcome challenges. Greater outreach is needed to attract and support new businesses with young people.



**Providing technical assistance to businesses received an average score of 2.0 (179/450).**

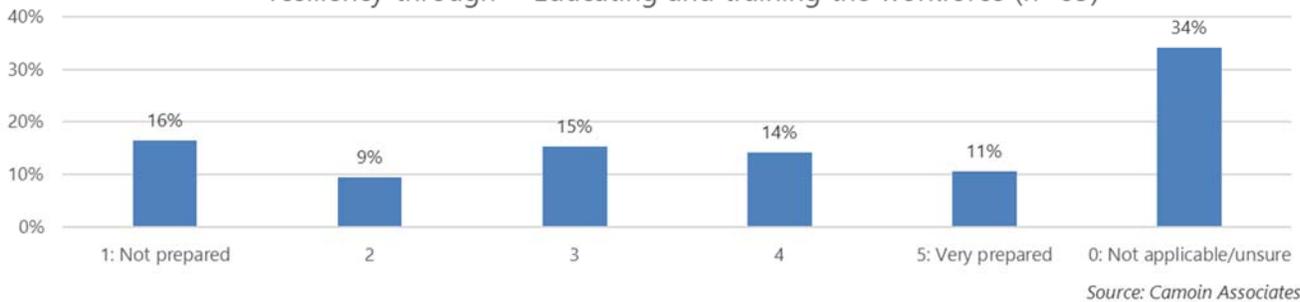
Respondents that provided high ratings indicated that their businesses have been supported and promoted by these entities, received clarification on policies and procedures, etc. Those that indicated the entities are not prepared referenced difficulty getting a hold of entities, lack of programs, lack of adequate technical assistance, lack of preparedness towards business needs, etc. Businesses across all rankings noted that it is difficult to know which entities to turn to for specific situations and that increased marketing and promotion are needed.

How well prepared are economic, workforce, and community development entities in the Aroostook County and Washington County region to support business resiliency through - Providing technical assistance to businesses (n=89)



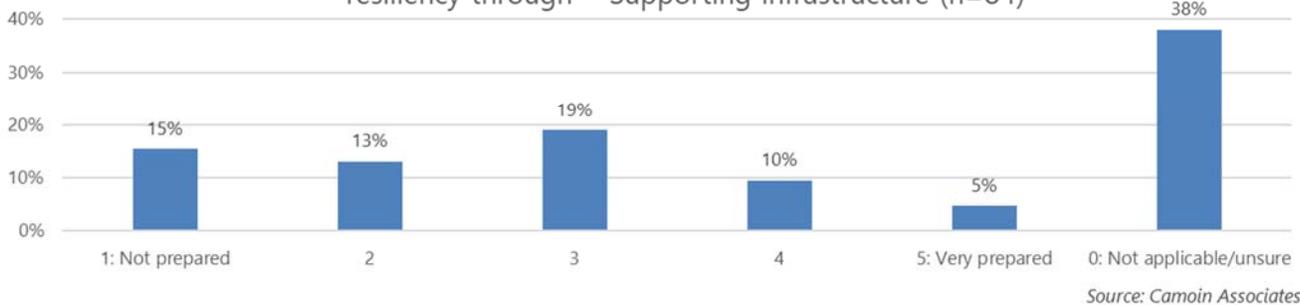
**Educating and training the workforce received an average score of 1.9 (162/425).** Respondents that ranked entities as being prepared and very prepared referenced the abundance of resources available including classes and training, and partnerships with Washington County Community College. Low ratings included descriptions of too many diverse businesses, lack of workforce to train, lack of vocational schools, etc. Several businesses noted that sustain and attracting a workforce is the main concern rather than education and training.

How well prepared are economic, workforce, and community development entities in the Aroostook County and Washington County region to support business resiliency through - Educating and training the workforce (n=85)



**Supporting infrastructure ranks as the least prepared category with a mean of 1.6 (135/420).** Economic, workforce, and community development entities rank the lowest in terms of supporting infrastructure to support business resiliency. Several respondents noted lack of incentives, lack of buildings/sites to lease or buy, lack of affordable broadband, poor road conditions, etc. Businesses noted that competing agencies can make it difficult to build on infrastructure efforts and there is a need to be more cohesive.

How well prepared are economic, workforce, and community development entities in the Aroostook County and Washington County region to support business resiliency through - Supporting infrastructure (n=84)



Respondents were asked, "What more can be done by regional entities to support business resiliency?" Respondents were directed to indicate and explain their top three ideas. Indicate and explain your top three (3) ideas. Top responses include:

- Marketing to support businesses and bring in additional customers

- Increase eaters and outdoor recreational opportunities
- Enhanced collaboration with regional entities and local businesses
- Increased funding opportunities including more grant and loan programs combined with reducing financial barriers through low-interest loans and reducing workers comp rates for small businesses, etc.
- Education on the importance of resiliency planning
- Leveraging existing organizations to conduct seminars and training on business partnerships
- Direct contact with business owners to understand their challenges
- Need affordable housing
- Offer get-togethers for entrepreneurs and strategy sessions
- Need for broadband and increased cellular coverage
- Need programming and training in cybersecurity
- Processes to simplifying job search and job placement platforms
- Increased support for businesses in their first five years of business

Respondents were asked, "What is your biggest current or emerging challenge within the next two years that will negatively impact the resiliency of your business?" Top responses include:

- Supply chain and market expansion
- Workforce/staffing availability and needs
- Controlling costs and funding
- COVID restrictions and board closures
- High transportation costs
- Lack of housing
- Rising cost of living
- Vacation tourism decline associated with COVID
- Seasonality
- Access to materials
- Making up for COVID losses
- Negative mindset towards people not from the area

Businesses were asked, "What is your most important potential emerging opportunity to build resiliency?" Top responses include:

- Loans, grants, and debt reduction
- Going collaboration
- Housing and incentives to grow the local workforce
- Increases resources for all to access
- Growth in tourism
- Technological advancements and growth in technical skills
- Alternative fuels for the transportation sector
- Increased childcare capacity
- Broadband
- Businesses are more resilient after the COVID-19 pandemic

Respondents were also provided an opportunity to share anything else about their business and resiliency. Additional input included:

- Small microgrants and working capital
- Changes in business models based on the needs of the community and rapidly changing technologies
- Opportunity to provide virtual financial training
- Business owners are looking for resources to sell their businesses
- Small local businesses are suffering from the heightened competition of national brands/organizations
- Working regionally to secure funding for small businesses
- Working to reduce shipping and transportation costs for the Aroostook County and Washington County region

## Appendix B: CEDS Performance Metrics

The following is a list of metrics that are either used in the CEDS or important to track CEDS goals – including overall economic performance and performance within industry clusters.

- Population
- Employable Population (16 yrs and older)
- Labor Participation Rate
- Total Employment
- Average Wage Per Job
- Per Capita Income
- Median household income
- Bachelor's Degrees (26 yrs and older)
- Associate Degrees (26 yrs and older)
- Median age
- Increase in Population 20-44
- Out-migration of young working-age people (20-44-year-olds)
- Costs for electricity
- Costs for heating
- Business starts
- Business lending
- Priority industry clusters
  - Agriculture:
    - Employment
    - Businesses
    - Output
    - Farm businesses
    - Farm jobs
    - Net income to farmers
    - Acres under production
    - Value added production
  - Forest Resources:
    - Employment
    - Businesses
    - Output
    - Value-added wood products manufacturing:
      - Employment
      - Businesses
      - Output
  - Marine Resources:
    - Employment
    - Businesses
    - Output
  - Tourism:
    - Employment
    - Businesses
    - Output
  - Manufacturing:

- Employment
- Businesses
- Output
- Metal manufacturing
  - Employment
  - Businesses
  - Output
- Natural resources manufacturing:
  - Employment
  - Businesses
  - Output
- Food product manufacturing:
  - Employment
  - Businesses
  - Output
- Alternative Energy:
  - Employment
  - Businesses
  - Output
- From State Economic Development Strategy
  - Average annual wage growth total and by income level
  - Growth in value of goods and services sold per worker
  - Labor force participation rate
  - Net in-migration of working aged population

# Adaptive Planning Session 1

Aroostook County

CHRISTA FRANZI OCT 01, 2021 02:23PM

## 1. What's a technology or advancement you wish was real today?

---

Identification of unused land to quickly develop for housing stock. Attract workforce from out of state.

Technology that quickly diagnosis cancer, diabetes and other chronic diseases. Upon diagnosis per individual prescribes the cure.

Better access to mobile information

Flying car

Immediate food

Real time GPS and GIS assessments

AI Android-Based Nursing Care

Cure cancer

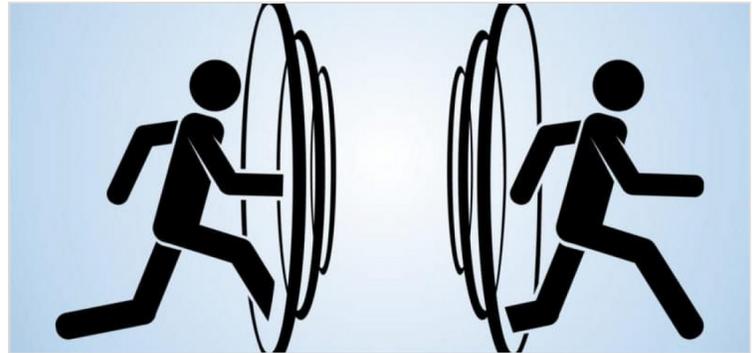
Gigabit internet anywhere

Cellulosic Biofuel

A way to teach people common sense

Thoughts to text

teleporting



## 2.A. What else should be considered?

---

Agriculture's place in the future from a County perspective.

Lack of affordable regional transportation

Border closures are hurting retail in the region

Huge drop in retail sales

Tethered to work with smart phone, 24/7 availability expectations

Lack of affordable high speed broadband hinders rural Maine from being able to key in to any of these applied foresight solutions.

## Limits to the technologies and limits in rural areas

Ex. electric vehicles

## Outmigration/Population Growth

How tourism is affected in the region by emerging technologies

## Childcare

Impact on workforce

What will the future of childcare look like?

Automated healthcare services and prescriptive directions for individuals beyond homecare. e.g. Needs doctor, needs hospital care.

Changing mindsets to meet current developments.

Service industries - who is working in these roles?

Better acceptance of people "from away" moving to the region and being accepted as "from here" now--cultural shift

The long-term effects of technology on our youth and is it contributing to our workforce issues.

Trained workforce meeting current and future needs

Aging, staying at home. Caring for the aging population. Home health care

## Improved work ethic

## Lack of quality health care options

Could this be fixed with augmented/remote surgery?

## 2.B. Looking ahead, how might these issues impact the regional economy?

---

increased manufacturing will improve all facets of society in Aroostook County

Further outmigration of youth and possible loss of new citizens that have moved to the rural areas.

Investment in legacy infrastructure

Example new fiber in rural areas

Fewer jobs, raising labor shortage and hyper inflation

Provides affordable healthcare for all. Improved health and economy.

Drug abuse, addiction

Impacts to workforce, society

Remote work options correlation to population in smaller towns

New education demands in the region

Software programmers, biotech sciences, electric vehicle mechanics

## 2.C. What are the connections/themes from 2.B?

---

**Lack of childcare/ lack of housing/ lack of affordable transportation.**

**We have issues at home. The upbringing of our youth today troubling.**

### **Healthcare concerns**

Lack of affordability, rampant drug abuse, inability to find quality surgery without driving south

## **3.A. What does resiliency mean to you and why?**

---

**Higher ed needs accommodate for real world changes that impact the industry. Real changes and how they impact actual people, including non-traditional students**

**Adaptability to changing markets**

**Ingenuity, when there's a downturn in one area, find another source of revenue**

**Sustainability of our way of life while preserving our freedoms.**

**Do whatever needs to be done to get through whatever the situation is**

**Strength to experience challenges and remain focused on goals.**

**Ability to stay afloat through disaster**

Pre-planning, Attainable thresholds to maintain quality of life, and revisiting the comprehensive plan

**Recover quickly to negative impacts**

**Ability to shift workforce and adapt quickly to change without collapse.**

**Nimble -- to react to negative changes..."shock absorber" for moving forward**

**The ability to adapt with the focus of thriving in current conditions.**

**Stability**

**The ability to forecast the future shifts, and be open as a community to outliers in those shifts**

**Aroostook County is poised to be the bread basket for the northeast. Growers have to be more soil health minded and use other vegetable crops as rotation crops to feed the northeast.**

**A community's use of available resources and people to respond to adverse situations to maintain their essential functions.**

## **3.B. How prepared is the region and why or why not?**

---

**Not prepared.**

The pandemic exacerbated challenges like the spread of State and Federal relief dollars. As we waited to spend, more kids fell behind in school, more businesses shut their doors, and more families were put through undue stress. We need a strong resiliency plan.

**Rising wages has created huge challenges for business retention. Changes in use of technology, shifting the mindset of employers to acclimate to remote working, training existing workforce to help assess productivity all need attention.**

**We still have a strong out migration of our young people. We need to focus on training our workforce to thrive in Aroostook County. Employers need to balance the needs of their companies to the needs of the employees. It can be wages, training, childcare etc.**

**Resistance to change in actions e.g. use of technology (video conferencing) has been a challenge.**

**Seemingly unprepared. Job skills are not being taught or are not put into action.**

**We just participated in a Community Resiliency project for hazard mitigation. It was very insightful and helped us to see solutions to issues that we had not thought of previously.**

**\*\*\*\*\***

# Adaptive Planning Session 1

Washington County

CHRISTA FRANZI OCT 12, 2021 03:48PM

## 1. What's a technology or advancement you wish was real today?

---

**Health records that can be securely shared across all healthcare providers including specialist outside of Washington County. Patients needing services get lost in a system and their various providers are all too often disconnected, which can lead to poor health outcomes and a lack of quality continuum of care.**

**Cancer treatment center in Washington county**

**reliable cell service everywhere**

**Affordable Broadband everywhere**

**Regional capacity for remote access to all public meetings.**

**Technology that quickly diagnosis chronic disease and provides direction to prescription, doctor or hospital.**

**The advancement of the Covid vaccine to eradicate the virus completely.**

**cyber security solution to threats & vulnerabilities**

**a cure for cancer**

**Teleport capability**

**teleporting**



**flying cars**



## 2.A. What else should be considered?

---

Development of the Port of Eastport - important shipping/distribution hub

**Employers with childcare for their employees. This could be done individually by a large employer (> 100 employees) or grouped by small businesses in a geographic area.**

**Community based recreational facilities and/or programs with a county based culture of engaging people to be physically active, utilizing the trails, state parks, wildlife refuge, and other sites for walking, hiking, and biking. Get off the three and four wheelers.**

**business ownership, preservation and exit planning assistance**

**Childcare combined with motivational education**

**Changes in local town government models**

**Concept of a "work Week", Production vs time measurement**

**Travel trends, virtual travel while there and while you're at home**

**Software for job sharing**

**Public transportation options**

**2nd on Housing with 3D printing**

**Substance use disorder, and mental health education and workforce training**

**telehealth**

Education options for K-12 and higher ed

**Healthcare- Cure for addiction**

**Recreation**

**Housing**

Affordable housing.

## **2.B. Looking ahead, how might these issues impact the regional economy?**

---

**Invest in developing a manufactured housing factory, which would create skilled jobs, increase locally produced supply of affordable housing, and create an export industry.**

**Increased public transportation and/or virtual participation can increase workforce and educational opportunities**

**loss of businesses, jobs, access to goods and services from aging business owners liquidating and closing.**

**Remote work and job sharing would increase opportunities for the older worker**

**access to recovery tools and mental health care can increase workforce**

**Healthcare technology would save on repeated visits and cost**

**Hollowing out the professional class in rural areas**

**Recreation**

**Increase employability and economic viability of the region.**

**Transportation**

**Mental health access**

**Addiction cure**

## **2.C. What are the connections/themes from 2.B?**

**Individual vs personal and employer time management**

## **3.A. What does resiliency mean to you and why?**

**Resiliency is first about having the knowledge, skills, and abilities to be prepared and to test that preparedness. Similar to coaching a sport, the coach provides the team with skills and abilities to face adversity in a game and then have the mindset to find a solution.**

**to thrive under stress by being adaptable and nimble**

**Ability to protect yourself from negative impacts.**

Being able to maintain and move forward

**Citizens staying engaged in the conversations and initiatives to move forward**

**The capacity to adapt to change for our natural resource based businesses that are the lifeblood of Washington County.**

**Bounce back**

**The ability to respond to a crisis without collapse**

**Communities can embrace their heritage and being future-ready**

**The ability to quickly shift without falling off track or losing ground to obtain the goal.**

The capacity to "pivot"

**The outflow of young adults decreases because opportunity exists locally**

## **3.B. How prepared is the region and why or why not?**

**We are not well prepared at the very local level to welcome in-migration, especially non-white folks.**

**Preparedness is going to be a long term approach, especially with an aging population and the need to transition to younger people in key areas of the workforce. Public Safety, EMS, healthcare workers, special health care (mental and behavioral health) will need an infusion of new workforce for us to be ready.**

**Communities need to move to a collaborative approach even when keeping their independence. Regional approaches need to be at least listened to by communities instead of automatically tuned out.**

**How did we get to the toilet paper crisis in Maine. ? I don't think we are in a position to decide this yet.**

**The innovative collaborations already underway with strong relationships between leaders and organizations is a huge asset.**

*One of our biggest assets is our ability to collaborate! – ANONYMOUS*

\*\*\*\*\*

# SCENARIO ONE: Natural Resources - Agriculture/ Aquaculture/Forestry, Climate Change

Aroostook County - Session 2

CHRISTA FRANZI NOV 16, 2021 12:28PM

## Scenario Padlet Links

### Video with Directions

**christa-camoinassociates**

Trusted by over 1 million users, MangoApps is the leading social collaboration, instant messaging, project management, document management and task management tools.



TINYTAKE

### SCENARIO ONE:

[Natural Resources and Climate Change](#)

### SCENARIO TWO:

[Connectivity and Digital Transformation](#)

### SCENARIO THREE:

[Changing Workforce](#)

### SCENARIO FOUR:

[Energy Evolution](#)

### SCENARIO FIVE:

[Manufacturing and Supply Chain](#)

## References

### SCENARIO ONE: Natural Resources and Climate Change

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#### SCENARIO:

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The wild blueberry fields of Down East Maine continue to warm faster than other areas in the state. So far, this small but important temperature difference has not resulted in the record droughts experienced in other parts of the state, but farmers in the area are beginning to increase mitigation efforts, including adding wood mulch to more of their fields and improving and expanding irrigation systems. Although the fields of Downeast Maine were warming, many other agricultural areas around the United States were experiencing even worse changes. California droughts and wildfires continued to bankrupt or otherwise displace major farming operations, and farms in the Midwest struggled through increasingly destructive summer storms and intermittent droughts. Some large agricultural conglomerates began looking at

possible locations in Downeast Maine to move some corn production and in Aroostook County for soybean production.

## Session 1 Summary Memo

transportation and childcare problems, these challenges are not going away, and creating solutions to these challenges is instrumental in preparing the Aroostook County and Washington County economy for the future. Transportation opportunities include expanding public transportation options, especially in rural areas, and the development of the Port of Eastport to expand the shipping and distribution hub.

- Housing** – Retention of residents and employment opportunities are hindered by a lack of affordable year-round housing. To help overcome this challenge there are opportunities to rehab existing housing and overcome the current stagnation in housing stock through innovative measures such as developing 3D printing options for affordable housing and investing in a manufactured housing factory. Participants noted that innovative solutions to housing challenges can help to produce a local housing supply as well as contribute to skilled jobs in the region.
- Technology impacts on the workforce** – The pandemic has exacerbated the impact of technology on the current workforce and will continue to shape the future of the workforce. Session participants noted that the current workforce is often tethered to their smartphones, which is met with expectations to be available 24/7 for work. There is a changing concept of a workweek and prioritizing quality of experience overtime working.

There are opportunities to utilize technology to increase manufacturing capabilities and improve society in Aroostook. As technology changes and adapts, there is a need to have educational offerings in the region rise to the occasion including developing programs and opportunities targeted towards software programmers, biotech sciences, electric vehicle mechanics, etc. Additionally, remote work is anticipated to persist, increasing work opportunities for Aroostook County and Washington County residents, especially those in rural areas and older workers.

At the same time, technology is impacting long-term effects on youth and contributing to workforce issues. The younger workforce looks to leverage technology to streamline work and increase efficiencies with the overall goal of a healthy life-work balance. A major theme coming out of this trend is the prioritization of personal versus work time management. The younger workforce has differing views on work ethic, workforce expectations, and employer expectations.



### Memo - Adaptive Planning Session 1 Key Findings - NMDC

PDF document

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## Business + Stakeholder Survey Results

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### BUSINESS + ORGANIZATION RESILIENCY

Both the Business Survey and Stakeholder Survey asked respondents to rate their organization or business on the following resiliency categories with 1 being not Resilient and 5 being very resilient. The following figure displays the mean response for the two groups for each resiliency category.

Overall, both stakeholders and businesses in Aroostook County and Washington County feel moderately resiliency in terms of all resiliency categories. Stakeholders ranked each category higher on average than businesses. Business owners and stakeholders gave similarly higher ratings for reputational and brand resiliency. Businesses ranked their financial resiliency the lowest of the six categories whereas stakeholders ranked technology resiliency lowest.

Rate your organization on the following resiliency categories.  
Mean Stakeholder and Business Response  
(1: Not Resilient; 5: Very resilient)



### Memo - Stakeholder and Business Survey - NMDC Resiliency Strategy

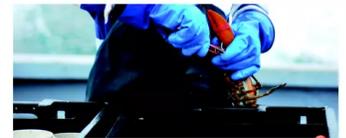
PDF document

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## CEDS



AROOSTOOK WASHINGTON  
COMPREHENSIVE  
ECONOMIC  
DEVELOPMENT STRATEGY  
2018-2023



### 5-year-AWEDD-CEDS-1

PDF document

PADLET DRIVE

# 1. What impacts could the changes described have on industries or communities both directly and not directly involved in the scenario?

## Increased production costs

Decreased farmer revenue due to increased production costs and reduced yield.

## International economy

As our producers improve production practices that increase yields, and even value added products, foreign competitors will achieve the same increases. We have to have a level playing field. Congress must act to protect our growers first. This would alleviate some of the supply chain issues that we are currently facing.

## Agricultural workforce

Who will do the work? Some of this will be manual labor. Migratory labor is not feasible for small producers. When I was a kid, many local people hoed sugar beets by hand. This would never happen today.

## Tourism Season expanded

beginning to see this now

## **Cannabis Industry**

Window of opportunity to get market share while others lag in setting policy/reg.

## **2. What other trends or technologies could impact this scenario? How might they change the scenario?**

---

### **Automation of workforce**

**Continued education about utilizing migrant workforces when local workforce is unavailable**

**Developed techniques from UMaine implemented into practice.**

### **Soil Health**

Increasing soil organic matter would drastically reduce the effects of climate change on agricultural production. Carbon sequestration is a more viable option than irrigation; plus, it is less expensive and less intrusive to our water resources.

**Expansion of state and usda investment in value added agricultural products could go away.**

*But how do growers access the capital to invest in business start-ups or upgrades? – ANONYMOUS*

**Government rules changing on food sovereignty**

*Lighten up on food quality standards as well. – ANONYMOUS*

## **3. What actions can be taken today to mitigate or avoid potential challenges created by this scenario?**

---

## **Soil water holding capacity**

increase soil organic matter will improve the soil's water holding capacity and improve overall soil biota.

**Prepare for secession planning for an again agricultural work force. How will we transition existing farms/operations to the next generation? Prepare agencies to begin training to get this done smoother.**

*Developing a shared resource where migrant employees are shared by several farms or a "temp agency" may be created? – ANONYMOUS*

## **4. What actions can be taken today to capitalize on new opportunities it may create?**

---

### **Market expansion**

Increasing acreage is fine if the market is increased as well. Growers have to receive prices that are above production costs in order to stay competitive. Canadian agricultural products are heavily subsidized and enter the US market at a very unfair advantage. Subsidies are not the answer, however.

### **Promotion**

Promoting Aroostook and Washington County agricultural products on a national level.

## **5. What can be done to achieve your Preferred Future? What might prevent you from taking action?**

---

**Train agencies to assist with farm owner transitions and secession planning.**

### **Government programs**

Work with National Resources Conservation Service, NRCS, to facilitate cultural practices necessary to implement soil health building practices. Government programs/agencies are very cumbersome to deal with, it can be frustrating. If you enter their

office today, you are applying for assistance in the next calendar year.

## **Policy has a hard time keeping up**

Related to food sovereignty, but is this a future trend in Maine that it is becoming easier to change State constitution?

## **Discussion Notes**

---

### **Biggest Problem: Severe Weather**

\*\*\*\*\*

# SCENARIO ONE: Natural Resources - Agriculture/ Aquaculture/ Forestry, Climate Change

Washington County - Session 2

CHRISTA FRANZI NOV 17, 2021 01:14PM

## Links

### Links to Other Scenarios

[Scenario 1: Natural Resources](#)

[Scenario 2: Connectivity & Digital Transformation](#)

[Scenario 3: Changing Workforce](#)

[Scenario 4: Energy Evolution](#)

[Scenario 5: Manufacturing & Supply Chain](#)

### climate change

An impact of climate change is the warming of the ocean waters. many fish are moving north including lobsters. Washington County will be impacted from the loss of revenue and income for fishermen.

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PDF document

PADLET DRIVE

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## In-migration

Pressure on housing and other infrastructure in towns.

## Pollution

Higher risk to lakes, streams and estuaries from agricultural use of fertilizers run-off

## Opportunity to pursue farming that works in harmony with the forest

## extreme weather

droughts, extreme heat, or extreme cold could impact food security and individual and family safety. Family and community gardens and farms of all sizes are impacted by extreme weather. Individual and family capacity to be warm enough in winter and cool enough in summer are also of concern.

## CEDS

**climate change: More people will visit Maine for on vacation and looking for homes. Our forests are going to be changing and insects/pathogens/immigrating species affecting our woods, waters, and daily lives; but we'll still be a lot cooler than southern New England, southern and more western states**

## **climate change and fishermen**

An effect of climate change is the warming of the ocean waters. This will impact the fishing industry as a number of creatures are moving north. Washington County as a whole will be greatly impacted by this loss of income and revenue.

## **Drought-related forest fires**

My understanding was that climate change would make Maine wetter on average, but if there were droughts in Southern Arrostook or Washington County, forest fires could be a major issue.

*I was going to say that the forest will need more protection as it warms up* – ANONYMOUS

*Need to increase forest management positions* – ANONYMOUS

## **small farmers**

potential loss of small farms (and small farm way-of-life) if large agricultural operations come to the region and take over land/markets.

*Midwest is a good example of this, there used to be vast forests there* – ANONYMOUS

*and small farms* – ANONYMOUS

## **Municipal capacity to adapt**

The culture and practices of each town will be challenged with an influx of folks from larger communities with more comprehensive zoning and regulations

## **Migrant/seasonal workers**

The blueberry and wreath industries hire migrant workers to fill the workforce needs. Turning blueberry fields and woodlands into corn fields will have a major impact on these seasonal

opportunities.

## **Loss of a way of life**

As the Maine continues to warm. On the ocean and in the wild blueberry fields, part of our cultural and history will disappear with it. These two industries play a major part of in our family stories. Plus Lobster fishing and Maine Wild Blueberries have a big financial impart on the region, if these two industries disappear it will great affect the financial wellbeing of Washington County

## **Logging Industry**

delaying forestry projects would directly impact jobs in a concentrated industry

## **2. What other trends or technologies could impact this scenario? How might they change the scenario?**

---

### **land ownership**

recent purchases of commercial woodland by investment groups could make it easier to change large areas in the central and northern parts of Wash Co to corn production

### **Increase in farming resulting in increased pollution from farm pesticide and chemical usage.**

### **Installation of irrigation systems.**

Forest or farmland being sold to developers for house lots for those moving to Maine.

*Because land is not profitable for growing trees or blueberries right now, I see a lot of land being sold as house lots.* – ANONYMOUS

### **Competing interests and incentives**

for forestry especially for private landowners

**Large land owners may develop recreational communities. Smaller land owners may promote campgrounds .Fuel prices will go up significantly prompting change to Electric vehicles. E Bikes will proliferate as affordable transportation, at least for 8 months of the year.**

## **debt**

high debt levels in commercial fishing and farming businesses could make them more vulnerable to these changes and reduce their ability to adapt through new investment

## **Fishing regulations**

Increased regulation due to whales migrating as well as lobsters mean fewer fishing opportunities - and fewer opportunities for marine-based aquaculture as well. Clam "gardening" and other shellfish aquaculture could help to fill gaps.

## **Agritourism**

Many farmers and lobster fisherman are using Agritourism to help with increasing business or to help support the family

## **3. What actions can be taken today to mitigate or avoid potential challenges created by this scenario?**

---

### **Sustainable organic farming**

Support of organic practices to reduce pollution of water and soil

### **emergency preparedness**

Expand capacity and infrastructure to respond equitably to basic needs in emergency situations (blizzards, floods, etc.).

### **Proactive scenario conversations like this at the municipal level that includes tax-payers.**

### **Coordination of forestry growth**

It may be beneficial for the forests and the communities if there was regional management of growth so that forest fires are less of a threat.

### **Increase UMaine extension education and outreach around conservation measures and federal/state incentive programs.**

**Educate the public about changing climate, its impact, and potential countermeasure and ways to adapt. Encourage reuse, repurposing, and recycling. Promote Complete Streets program so people can safely walk and bicycle to school and work.**

### **Support programs for farmers struggling with financial and mental health issues.**

## **4. What actions can be taken today to capitalize on new opportunities it may create?**

---

### **planning**

identify areas of the unorganized territories with soils suitable for crop production and the service center communities that could serve development there

### **Youth Voice**

Increasing youth and young adult voice and participation in scenario planning like this.

*<https://www.nbeconsortium.com/> – ANONYMOUS*

*A lot of work happening with Youth at the entrepreneurial level - opportunity to tap into that network – CHRISTA FRANZI*

*Need to change discussion about what opportunities exist locally for youth. – CHRISTA FRANZI*

### **Create more Future Farmer and Forestry programs in HS and College**

### **Service Center Communities**

Rather than letting growth take place as sprawl, tax and investment incentives that encourage growth of business in designated service center communities so that infrastructure can be expanded more strategically and efficiently.

*Power, water, roads will require significant investment if the region sees relatively modest population or economic growth, and if those investments have to be in several unrelated areas, upgrades will lag and the systems will be overly stressed* – MCALPIN, CHARLIE

## **Made in Maine branding.**

Introduce new ways of farming, hydroponics, aquaponics, etc.

## **Collaborative planning across mini-regions within a county.**

Getting towns together to grow their capacity to work together

## **5. What can be done to achieve your Preferred Future? What might prevent you from taking action?**

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### **Elections in 2022**

The results of 2022 elections may impact how proactive we can be.

### **Start planning now.**

## **Discussion Notes**

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Exciting energy in the Nature Based Education Consortium in Maine related to this topic, <https://www.nbeconsortium.com/>

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# SCENARIO TWO: Connectivity and Digital Transformation

Aroostook County - Session 2

CHRISTA FRANZI NOV 16, 2021 06:34PM

## Scenario Padlet Links

### SCENARIO ONE:

[Natural Resources and Climate Change](#)

### SCENARIO TWO:

[Connectivity and Digital Transformation](#)

### SCENARIO THREE:

[Changing Workforce](#)

### SCENARIO FOUR:

[Energy Evolution](#)

### SCENARIO FIVE:

[Manufacturing and Supply Chain](#)

## References

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*CEDS goal: Fast, affordable internet available to anyone in the AWEDD region, regardless of where they live or work.*

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make it cheaper than other fiber and cell service options, while offering faster average speeds.

This new access benefits farmers, local businesses, people working or learning from home, and telehealth services. Affordable and comprehensive internet access accelerates the digital transformation across all business sectors and opens many businesses in northern and Downeast Maine to new customers (and potential competitors.) Local telecom providers, as well as national wireless carriers, all see a drop in business. Some rural municipalities must fulfill the remainder of existing five- or ten-year contracts with fiber providers and see large losses as people switch to satellite internet providers. After years of trying to get broadband, several communities were able to secure federal and state funding for new fiber projects and have obligations to build that infrastructure.

## Session 1 Summary Memo

transportation and childcare problems, these challenges are not going away, and creating solutions to these challenges is instrumental in preparing the Aroostook County and Washington County economy for the future. Transportation opportunities include expanding public transportation options, especially in rural areas, and the development of the Port of Eastport to expand the shipping and distribution hub.

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There are opportunities to utilize technology to increase manufacturing capabilities and improve society in Aroostook. As technology changes and adapts, there is a need to have educational offerings in the region rise to the occasion including developing programs and opportunities targeted towards software programmers, biotech sciences, electric vehicle mechanics, etc. Additionally, remote work is anticipated to persist, increasing work opportunities for Aroostook County and Washington County residents, especially those in rural areas and older workers.

At the same time, technology is impacting long-term effects on youth and contributing to workforce issues. The younger workforce looks to leverage technology to streamline work and increase efficiencies with the overall goal of a healthy life-work balance. A major theme coming out of this trend is the prioritization of personal versus work time management. The younger workforce has differing views on work ethic, workforce expectations, and employer expectations.



### Memo - Adaptive Planning Session 1 Key Findings - NMDC

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**Memo - Stakeholder and Business Survey - NMDC Resiliency Strategy**

PDF document

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**CEDS**



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COMPREHENSIVE  
ECONOMIC  
DEVELOPMENT STRATEGY  
2018-2023



**5-year-AWEDD-CEDS-1**

PDF document

PADLET DRIVE

**1. What impacts could the changes described have on industries or communities both directly and not directly involved in the scenario?**

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**Software engineering coursework at the University level should be proactive rather than reactive.**

*this potential coursework is currently in discussion with UMPI's new Computer Science faculty member...stay tuned FMI – ANONYMOUS*

**Affordability**

Satellite is still considered unaffordable to many in rural Maine. Some will remain on the wrong side of the digital divide.

*What if communication satellites were disabled by rockets from another country? – ANONYMOUS*

**2. What other trends or technologies could impact this scenario? How might they change the scenario?**

---

**RDOF**

Federal and State funding programs like RDOF and the \$300M projected to come to MCA for broadband buildout in underserved areas will deliver more futureproof connectivity (bidirectional gigabit) via FTTH. Satellite will be best for very low density roads and this may delay full satellite deployment necessary to address bandwidth and latency. Satellite technology may not be funded enough to meet promises.

**3. What actions can be taken today to mitigate or avoid potential challenges created by this scenario?**

---

**Satellite sweet spots**

Set expectations. Identify what role satellite internet will play (not everything to everyone) as much of the world moves toward full and adequate internet connectivity. Messaging comes from the top in US and Maine.

**4. What actions can be taken today to capitalize on new opportunities it may create?**

---

## Create partnerships with MSSM or other excelling mathematic school programs to develop rural software and cybersecurity engineers

New UMPI Programs in Computer Science (1 year old) and CyberSecurity (2 years old) – ANONYMOUS

Please let me (Deb Roark) know if you are interested in offering potential internships and I'll help connect you to the right faculty members. – ANONYMOUS

## Microcredentials for Cybersecurity workforce

Trend of HR professionals are seeing that micro credentials are stronger than full degree – CHRISTA FRANZI

Very narrowly focused cred to give the student highly targeted training on exactly what company needs - short-period of training – CHRISTA FRANZI

Small programs are easier to adapt to market demand as well – CHRISTA FRANZI

## Digital literacy

Begin education in schools on how internet can be used beyond getting likes on social media. Educate all on how it can be used to gain a professional advantage, whether through education or business connectivity.

and deciphering what is real vs fake info on the web – ANONYMOUS

## 5. What can be done to achieve your Preferred Future? What might prevent you from taking action?

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## Collaboration with Education

Present concept to school administration in hopes of building into curriculum at appropriate grades.

## Discussion Notes

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[Micro-Credentials - Student Success \(maine.edu\)](#)

### Micro-Credentials - Student Success

The 2021 University of Maine System Micro-Credential Initiative Summit will be on Monday, November 29th - Friday, December 3rd. For more information and to register, visit the Summit Information page! A "micro-credential" showcases your competency in skills that are needed in today's workforce.

STUDENT SUCCESS



## Tourism Industry & Key Sectors

Some businesses not yet thinking about this. Not taking advantage of things they can do now/today online or digitally. Missing opportunities. Why?

Need more capacity to reach more people with digital business training/literacy – CHRISTA FRANZI

## Access to broadband was a top issue as to why people don't travel to the County

(study a few years ago)

# SCENARIO TWO: Connectivity and Digital Transformation

Washington County - Session 2

CHRISTA FRANZI NOV 17, 2021 01:14PM

## Scenario Padlet Links

### Links

[Scenario 1: Natural Resources](#)

[Scenario 2: Connectivity & Digital Transformation](#)

[Scenario 3: Changing Workforce](#)

[Scenario 4: Energy Evolution](#)

[Scenario 5: Manufacturing & Supply Chain](#)

## References

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## Session 1 Summary Memo

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- Housing** – Retention of residents and employment opportunities are hindered by a lack of affordable year-round housing. To help overcome this challenge there are opportunities to rehab existing housing and overcome the current stagnation in housing stock through innovative measures such as developing 3D printing options for affordable housing and investing in a manufactured housing factory. Participants noted that innovative solutions to housing challenges can help to produce a local housing supply as well as contribute to skilled jobs in the region.
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At the same time, technology is impacting long-term effects on youth and contributing to workforce issues. The younger workforce looks to leverage technology to streamline work and increase efficiencies with the overall goal of a healthy life-work balance. A major theme coming out of this trend is the prioritization of personal versus work time management. The younger workforce has differing views on work ethic, workforce expectations, and employer expectations.



**Memo - Adaptive Planning Session 1 Key Findings - NMDC**  
PDF document

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**Memo - Stakeholder and Business Survey - NMDC Resiliency Strategy**

PDF document

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This would be a significant game changer in how the build-out is currently happening and how dollars are becoming available. Affordability is required but hard to see in 2021.

**location of development**

properties on lakes and the shore would increase in value with new houses being built and conversion of seasonal homes to year round use. relative attractiveness of intown locations would decline

*The independence of wireless internet and potentially off-grid power will be attractive, but roads and human infrastructure would still be impacted by the sprawl that would develop if people could build anywhere. – MCALPIN, CHARLIE*

*Winter plowing would still be a huge factor – ANONYMOUS*

**CEDS**



AROOSTOOK WASHINGTON  
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ECONOMIC  
DEVELOPMENT STRATEGY  
2018-2023



**5-year-AWEDD-CEDS-1**

PDF document

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**1. What impacts could the changes described have on industries or communities both directly and not directly involved in the scenario?**

Ouch!

**2. What other trends or technologies could impact this scenario? How might they change the scenario?**

**In advertising we say Print ain't dead. The same thing goes for fiber. Electro magnetic pulse, weather, and (maybe) line of sight challenges will continue to affect satellite commo, fiber my not be dead.**

**satellite industry**

work to develop a vertical launch spaceport in Washington County could create local jobs associated with the replacement of aging satellites

**3. What actions can be taken today to mitigate or avoid potential challenges created by this scenario?**

**Get your fiber up and running**

No technology is going to be perfect, and duplicate infrastructure  
\*could\* give the region more options, assuming investment in fiber  
didn't stop as soon as realistic satellite tech became available.  
Satellites may not be any more immune to cyberthreats than  
ground-based tech. — MCALPIN, CHARLIE

or federal government to keep that infrastructure available-- even  
if only for emergencies.

## **4. What actions can be taken today to capitalize on new opportunities it may create?**

---

**Train our entire citizenry to use more of the technology available for constructive growth. Police websites to reduce crappola and porn.**

**Seriously consider large pools/collaboratives to expand broadband and reduce the risk to small towns.**

### **Subsidize Fiber Optics**

Local and/or regional control of critical infrastructure is critical to resiliency. Reliance on satellite technology owned by one or two unregulated companies would be unwise, even if it was very easy and affordable. Redundancy, within reason, is an important strategy. If necessary, fiber optic should be subsidized by the state

## **5. What can be done to achieve your Preferred Future? What might prevent you from taking action?**

---

**More training and education at all levels**

### **Discussion Notes**

---

#### **Is everyone on board?**

There are little pockets of communities that are not connected, and okay with it. Just not used to being online, lacking digital knowledge, etc. Wrap around 'digital inclusion' services/programs needed.

*This came up with Aroostook as well, in the context of Tourism businesses not all taking advantage of digital opportunities.*

— CHRISTA FRANZI

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# SCENARIO THREE: Changing Workforce

Aroostook County - Session 2

CHRISTA FRANZI NOV 16, 2021 06:42PM

## Scenario Padlet Links

### SCENARIO ONE:

Natural Resources and Climate Change

### SCENARIO TWO:

Connectivity and Digital Transformation

### SCENARIO THREE:

Changing Workforce

### SCENARIO FOUR:

Energy Evolution

### SCENARIO FIVE:

Manufacturing and Supply Chain

*paying jobs that do exist, while at the same time creating new jobs and opportunity in our regional economy.”*

#### SCENARIO

Between 2016 and 2021, employment dropped by 3,000, and is projected to drop another 1,200 by the end of 2023. This is primarily the result of workers aged 55-59 retiring early and newly graduated students moving to other areas to pursue college or a career. This reduction in the labor force is especially difficult for local businesses that have lost employees, often with decades of experience, in industries where it has proven difficult to attract younger workers. Also, access to hiring migrant workers continues to be constrained. Jobs in agriculture remain unfilled for longer and longer periods, resulting in loss of crops due to not being harvested or to fields that were not planted. The labor shortage continues to impact tourism and seafood industries, and even generous hiring bonuses and higher wages fail to attract enough workers to fill vacancies.

New entrepreneur programs have had some success. According to an August 2023 survey conducted by a statewide entrepreneurial organization, more than three quarters of the recipients of grants for additional training are planning to stay in the area.

## References

### Scenario Three: Changing Workforce

*CEDS goal: By focusing on six asset-based industry clusters the region will realize 1,000 new jobs by 2023; and total employment of 54,290. By 2023 the region will improve the overall business acumen and increase business starts to more than 100 per year.*

*Reversing systemic population decline: “The most critical issue facing Aroostook and Washington counties is the systemic population decline. Fundamentally, the retention and attraction of people is the core factor for future viability of Aroostook and Washington counties. Extreme economic, community and personal pressures are now being felt as a smaller population is carrying the full cost of critical public services and workforce demand. Therefore, the challenge is clear. We must reverse this long-term trend of our children leaving us for work elsewhere by promoting the good-*

### Session 1 Summary Memo

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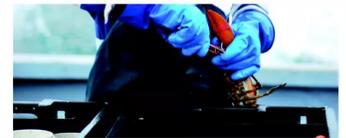
### Memo - Adaptive Planning Session 1 Key Findings - NMDC

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PDF document

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# 1. What impacts could the changes described have on industries or communities both directly and not directly involved in the scenario?

More mechanization/Automation

More job hopping

New entrepreneurial starts, new opportunities, new innovation

More mechanization/automation

I had a conversation with a farmer about their decision to install an optical sorter in their potato packaging line and the justification of the \$250,000 cost to do so. "it doesn't call in at 7:20 in the morning to let you know that last night was rough and they weren't up to coming in to work today"

Fewer manufacturing jobs, but perhaps increased tech jobs?

## CEDS

**Increased support to "navigate existing resources" for employees. Recognizing that challenges with childcare, transportation and financial assistance are leading factors in job instability which can easily derail good employees. Employers would benefit by addressing the above issues within their organization. The actions will strengthen retention and demonstrate that employees are considered a priority within the company.**

## **New Housing Starts/ Construction/Sales/Renovation of older homes**

The influx of new people to the area could have a major impact on the political landscape of Aroostook. It will be interesting to see if The County becomes more conservative or liberal.

## **2. What other trends or technologies could impact this scenario? How might they change the scenario?**

---

Introduction of mechanized processes

**Younger families moving to rural areas, increased broadband deployment**

**More remote jobs**

and online entrepreneurs

**A statewide virtual site/portal for job seekers and businesses to access a simple map directing them quickly to the needed job training, internship/externship, service and/or resource.**

## **3. What actions can be taken today to mitigate or avoid potential challenges created by this scenario?**

---

Larger emphasis on technical training and career opportunities that support local industries.

**Create an environment to attract young families and entrepreneurs**

Regional incentives, similar to Pine Tree

**Figuring out root causes of the childcare issues--is it regulatory (state level), low paying jobs and cost of childcare so potential workers choose to stay home, business model doesn't work for home childcare providers like we used to see, fewer childcare businesses, etc.**

## **4. What actions can be taken today to capitalize on new opportunities it may create?**

---

**Entrepreneurial Training**

Shift to bring entrepreneurial training to younger people. Possibly starting in high schools with a path to college.

**Robust training programs**

Work with CTE, two year colleges and colleges to train future workforce.

**Develop a comprehensive entrepreneurial asset inventory, identify new opportunities that don't exist in the region, identify existing industry opportunities that entrepreneurs can fulfill.**

## Business Education

Work with businesses to adapt to new workers needs and wants.

Connecting local businesses (especially those forecasting retirement) to develop sustainability plans.

### Researching best practices in regions similar to Aroostook and Washington. Example:

<http://www.graniteuw.org/our-work/granite-united-way-initiatives/work-united>

#### Work United

If a steady job is the most reliable step on the pathway to financial stability, then why do employers see high turnover in the ranks of their low-to-moderate wage workforce? Too often, barriers such as childcare, reliable transportation and acute need for emergency financial assistance get in the way of continuous employment and derail good employees.

GRANITEUW



**I wonder what this activity would've been like if we had invited UMaine business/engineering students--- undergraduates or graduates to join in the meeting today... I think this could be one strategy. Inviting young adults to the strategic planning activities might prove to be a good recruitment tool and motivation to the student to invest in Aroostook, Washington and/or Maine.**

## Discussion Notes

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### Pivot's driven by COVID

Community college and higher education system was able to shift quickly and create training/certificates to help region adapt.

## 5. What can be done to achieve your Preferred Future? What might prevent you from taking action?

---

### Adaptability

Whether business can adapt to changing workforce.

Resources needed to support expanding technology

**Increasing and retaining workforce is a regionwide and state responsibility. This will take many decisions and actions made by multiple partners.**

### Communication Challenges Digital vs. Interpersonal

Students/younger employees have different preferred methods of engaging than those from other generations (chat vs. through video - 'camera on' , text vs. talking)

### New Master's of Organizational Leadership

UMPI - Now Community & Global college - changes scope and role of university

### Are students more or less likely to leave because of remote options?

TBD at the moment, time will tell as pandemic subsides --

40/60 split at UMIP in online vs on-campus

*Speaks to the need of stronger broadband and connectivity*

— CHRISTA FRANZI

# SCENARIO THREE: Changing Workforce

Washington County - Session 2

CHRISTA FRANZI NOV 17, 2021 01:15PM

## Scenario Padlet Links

### Links

[Scenario 1: Natural Resources](#)

[Scenario 2: Connectivity & Digital Transformation](#)

[Scenario 3: Changing Workforce](#)

[Scenario 4: Energy Evolution](#)

[Scenario 5: Manufacturing & Supply Chain](#)

## References

### Scenario Three: Changing Workforce

*CEDS goal: By focusing on six asset-based industry clusters the region will realize 1,000 new jobs by 2023; and total employment of 54,290. By 2023 the region will improve the overall business acumen and increase business starts to more than 100 per year.*

*Reversing systemic population decline: "The most critical issue facing Aroostook and Washington counties is the systemic population decline. Fundamentally, the retention and attraction of people is the core factor for future viability of Aroostook and Washington counties. Extreme economic, community and personal pressures are now being felt as a smaller population is carrying the full cost of critical public services and workforce demand. Therefore, the challenge is clear. We must reverse this long-term trend of our children leaving us for work elsewhere by promoting the good-paying jobs that do exist, while at the same time creating new jobs and opportunity in our regional economy."*

#### SCENARIO

Between 2016 and 2021, employment dropped by 3,000, and is projected to drop another 1,200 by the end of 2023. This is primarily the result of workers aged 55-59 retiring early and newly graduated students moving to other areas to pursue college or a career. This reduction in the labor force is especially difficult for local businesses that have lost employees, often with decades of

experience, in industries where it has proven difficult to attract younger workers. Also, access to hiring migrant workers continues to be constrained. Jobs in agriculture remain unfilled for longer and longer periods, resulting in loss of crops due to not being harvested or to fields that were not planted. The labor shortage continues to impact tourism and seafood industries, and even generous hiring bonuses and higher wages fail to attract enough workers to fill vacancies.

New entrepreneur programs have had some success. According to an August 2023 survey conducted by a statewide entrepreneurial organization, more than three quarters of the recipients of grants for additional training are planning to stay in the area.

### Session 1 Summary Memo

transportation and childcare problems, these challenges are not going away, and creating solutions to these challenges is instrumental in preparing the Aroostook County and Washington County economy for the future. Transportation opportunities include expanding public transportation options, especially in rural areas, and the development of the Port of Eastport to expand the shipping and distribution hub.

- **Housing** – Retention of residents and employment opportunities are hindered by a lack of affordable year-round housing. To help overcome this challenge there are opportunities to rehab existing housing and overcome the current stagnation in housing stock through innovative measures such as developing 3D printing options for affordable housing and investing in a manufactured housing factory. Participants noted that innovative solutions to housing challenges can help to produce a local housing supply as well as contribute to skilled jobs in the region.
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At the same time, technology is impacting long-term effects on youth and contributing to workforce issues. The younger workforce looks to leverage technology to streamline work and increase efficiencies with the overall goal of a healthy life-work balance. A major theme coming out of this trend is the prioritization of personal versus work time management. The younger workforce has differing views on work ethic, workforce expectations, and employer expectations.



#### Memo - Adaptive Planning Session 1 Key Findings - NMDC

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**Memo - Stakeholder and Business Survey - NMDC Resiliency Strategy**

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**CEDS**



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2018-2023



**5-year-AWEDD-CEDS-1**

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**1. What impacts could the changes described have on industries or communities both directly and not directly involved in the scenario?**

**business investment**

companies currently doing business in the region would direct new investment to facilities in other parts of the country do to workforce concerns

**Health and Safety**

Workforce shortages in the health industry impact overall safety for living here or moving/retiring here. Lost local health services and extensive travel for healthcare add to existing health disparities in the region.

*Lack of access to healthcare will reduce retirees who stay .. while they are not workforce, they still spend their dollars and get healthcare here – ANONYMOUS*

*Note: Health & Safety Systems was a top resiliency factor in the survey. – CHRISTA FRANZI*

**More unorganized territory**

Towns become too small to manage services and unincorporate, larger UT, managed by the state, less services and loss of population

**School closures and consolidations**

Smaller schools are forced to close, and the negative economic impact on the towns continues a downward cycle.

**Business closures.**

**Safety net**

Lost business revenue and business closures put pressure on the financial safety net and social assistance programs.

**Businesses would streamline hours and service.**

**2. What other trends or technologies could impact this scenario? How might they change the scenario?**

**automation**

continued workforce constraints will encourage profitable businesses to invest in automation, reducing the future demand

for workers but preserving tax base and services

*Feeling that the region is not prepared to accept immigrants. No service center. No housing. No transit, etc. – CHRISTA FRANZI*

*Blueberry Harvest is an example, 1/10 of workers come into the region now compared to years ago – CHRISTA FRANZI*

## **Relocation**

People relocating because of climate change or because of the pandemic will continue to influence population and workforce trends.

## **broadband**

Workforce will not come without access to good broadband.

## **Utilize similar strategies for increasing emphasis on natural resource based industries as used for STEM.**

## **3. What actions can be taken today to mitigate or avoid potential challenges created by this scenario?**

---

### **cost of living**

take actions to reduce the cost of housing, childcare, energy, and healthcare in the region

### **Welcome initiatives**

Welcome baby, welcome new resident, welcome to adulthood, welcome to the workforce, welcome to retirement. Create initiatives that welcome people at specific transition stages, connect them to resources and opportunities that support life transitions, and help people thrive across the lifespan.

### **public health**

invest in the health of the existing workforce to preserve and potentially increase future productivity

### **Foster an immigrant positive culture**

Stop using the term "people from away"

*consider indigenous voices in the "people from away" conversation. – ANONYMOUS*

## **4. What actions can be taken today to capitalize on new opportunities it may create?**

---

### **Youth involvement**

Help them to see themselves as a part of the future right here.

### **Educate people on the opportunities**

Also make it less challenging to stay and thrive.

### **Succession planning.**

## **5. What can be done to achieve your Preferred Future? What might prevent you from taking action?**

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### **Implement comprehensive mentoring program (e.g. cooperative education, internships, etc.) in high schools and colleges.**

*was just about to add this! – ANONYMOUS*

## **Discussion Notes**

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### **Need Civility in the workplace**

Creating a culture where people are simply kind is important. Needs cultivation.

### **Any success in any of these scenarios is going to require greater resiliency among local people.**

# SCENARIO FOUR: Energy Evolution

Aroostook County - Session 2

CHRISTA FRANZI NOV 16, 2021 06:47PM

## Scenario Padlet Links

### SCENARIO ONE:

[Natural Resources and Climate Change](#)

### SCENARIO TWO:

[Connectivity and Digital Transformation](#)

### SCENARIO THREE:

[Changing Workforce](#)

### SCENARIO FOUR:

[Energy Evolution](#)

### SCENARIO FIVE:

[Manufacturing and Supply Chain](#)

## References

### Scenario Four: Energy Evolution

CEDS goal: Realize 200 jobs in the Renewable Energy Economy by 2023.

#### SCENARIO

By late 2023, new battery technologies have lowered the cost of energy storage by as much as 70% (depending on the technology used) and the slowly growing number of batteries from recycled electric vehicles further reduces storage costs, both at utility and residential scale. This reduces the need for expensive gas peaker plants to cover uneven demand and creates more consistent energy price predictions. New ISO New England wind projects begin to break ground, and with the addition of cheap storage options, energy prices in 2025 are predicted to be 30% less per kWh. Additionally, it now becomes cheaper to heat homes using

electricity than by using any other source, including natural gas. Most new construction plans no longer include natural gas heating.

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## Session 1 Summary Memo

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### Memo - Adaptive Planning Session 1 Key Findings - NMDC

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**Memo - Stakeholder and Business Survey - NMDC Resiliency Strategy**

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**CEDS**



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2018-2023



**5-year-AWEDD-CEDS-1**

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**1. What impacts could the changes described have on industries or communities both directly and not directly involved in the scenario?**

Diversification of products/services for energy service providers & contractors in the area

**Revenue loss for traditional gas stations, a need for them to pivot**

**Energy cost spikes (temporary?)**

Natural gas prices are being forced upward through policy which has nearly doubled electric supply costs because cheap renewable energy supply is still unavailable.

**The possibility of creating a whole new industry of energy production in The County. Example: wind and solar are already a part of the landscape. And solar solar growing rapidly. The discovery of lithuim crystals in Aroostook could be a huge game changer. However the effect n our natural resources will be the deciding factor weather that happens or not.**

**2. What other trends or technologies could impact this scenario? How might they change the scenario?**

**Increasing cost of rare earth materials making EV batteries unfeasible to the consumer**

**Huge leaps in battery recycling technology could come about. This could make the technology cleaner and make the raw materials last longer then becoming toxic waste.**

**Awareness of mineral mining practices**

Battery mineral mining is being done in some cases by means not accepted by US standards. this could delay adoption of batteries being widely accepted as a replacement for baseload energy generation.

### **3. What actions can be taken today to mitigate or avoid potential challenges created by this scenario?**

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**State and Federal subsidies to encourage trade-ins of heavy emissions vehicles**

**Most battery technology is imported. There can be supply chain disruptions from the raw materials, lack of natural resources, or because mining laws are slow to change.**

#### **Adjust pace of renewable rollout**

Renewable technologies are getting cheaper over time but they are not yet competitive with fossil generation or nuclear power unless policy changes tilt the scale. Slow down the pace of adoption in Maine to wait for cost-effective renewables.

#### **Mining**

Ensure worldwide human rights standards are established and maintained or don't buy minerals. Much like happened in the diamond trade. This will ensure confidence in consumers looking to make the EV leap.

### **4. What actions can be taken today to capitalize on new opportunities it may create?**

---

**Apply for more gov. grants to bring EV charging to rural Maine. Do not waste money on "slow" chargers.**

#### **Biomass development**

Biomass energy generation in modern CHP systems meets efficiency standards and supplies heat and electricity with a renewable low-grade feedstock abundant in Maine's forestry industry. A better balance of a CEDS-identified goal (biomass) with battery baseload supply supports a primary Maine industry and employs far more Mainers than battery installation to mimic baseload.

### **5. What can be done to achieve your Preferred Future? What might prevent you from taking action?**

---

Environmental regulations

#### **Policy awareness and change**

Raise awareness to our policy makers of the real economic impacts of fully supporting a Maine industry (biomass generation) and Maine jobs vs an outside industry dropshipping battery solutions into Maine.

### **Discussion Notes**

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# SCENARIO FOUR: Energy Evolution

Washington County - Session 2

CHRISTA FRANZI NOV 17, 2021 01:15PM

## Scenario Padlet Links

### Links

[Scenario 1: Natural Resources](#)

[Scenario 2: Connectivity & Digital Transformation](#)

[Scenario 3: Changing Workforce](#)

[Scenario 4: Energy Evolution](#)

[Scenario 5: Manufacturing & Supply Chain](#)

## References

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## Session 1 Summary Memo

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### Memo - Adaptive Planning Session 1 Key Findings - NMDC

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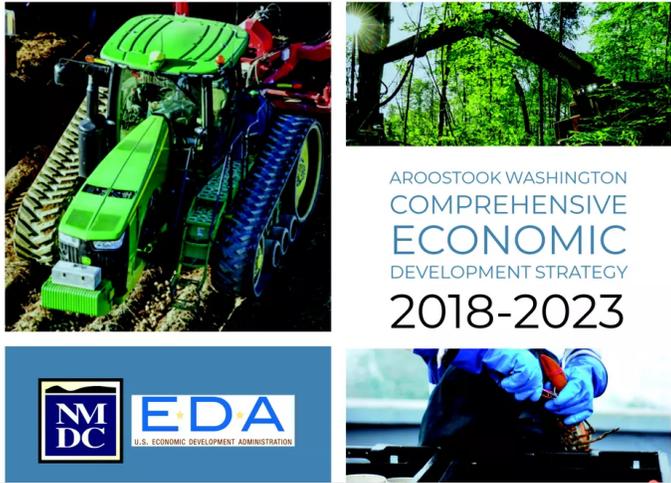
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## 1. What impacts could the changes described have on industries or communities both directly and not directly involved in the scenario?

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Their profits would increase, therefore, they could charge less for the services/products.

### manufacturing

cheaper power could allow this region to compete for manufacturing that currently avoids New England and other high cost areas

### E bikes and E ATVs proliferate and become a bigger part of daily transportation for business, school, and recreation

### Aroostook and Northern Washington are not on NE-ISO

This could change, but right now, the region from Perry and Wesley north is more connected to the Canadian grid than New England. Developments in Canadian energy industry could have a greater impact than NE ISO on that region.

## Distribution costs increase per customer

Cost-efficient, non-polluting battery technology would revolutionize our culture nationally. Coupled with solar power, the number of customers using (and covering the costs of) the distribution grid could cause delivery costs to soar over time. Increased use from beneficial electrification like EVs might be enough to support the grid, but there are too many variables to know at this point.

## 2. What other trends or technologies could impact this scenario? How might they change the scenario?

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The cost of solar panels and wind turbines would likely decrease. This could make it more feasible for homeowners to install their own solar/turbines.

Gas prices would likely increase making it more difficult for people who cannot afford to buy electric vehicles.

People would move away from burning wood to heat their homes. This would allow these resources to be used for manufacturing, etc.

### Site based electrical service (solar, Wind, Hydrogen)proliferates diminishing importance of big power generators and distributors. Smaller businesses that sell, install, maintain, and repair these units proliferate

### 70-80% (approx) Carbon Neutral Energy Mix

Northern Maine is not that connected to NE ISO, and the NB grid is running 70-80% carbon neutral at this time.

*This makes beneficial electrification a win for the region, because using power from the grid will be so green. — MCALPIN, CHARLIE*

### **3. What actions can be taken today to mitigate or avoid potential challenges created by this scenario?**

---

Install more bikes lanes for traffic safety.

**Provide tax incentives for home and business charging stations. Implement Complete/Safe Street guidelines and smart vehicles so pedestrians, bicyclists and smaller vehicles aren't run over on the road. Teach kids bike safety and safe streets etiquette**

#### **Invest in more resilient "modular" electric grid**

Battery technology could cut the need for new transmission lines. It could also make a modular grid (my term) more possible, so that the impact of power line damage could be isolated by neighborhood.

### **4. What actions can be taken today to capitalize on new opportunities it may create?**

---

### **5. What can be done to achieve your Preferred Future? What might prevent you from taking action?**

---

#### **Unpredictability**

If we knew what the electric industry would look like ten years from now, we could invest in technical training for local people. The only thing that seems clear is that current business model for utilities in Maine won't endure. At present, for instance, delivery costs (substations, wires, poletop transformers) are covered largely in per-kWh charges, but as fewer kWhs are needed from the grid, larger flat charges and other forms of revenue will be needed if the grid is going to continue to work.

#### **Discussion Notes**

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#### **Curious**

Your model predicts that lowering costs and improved battery technology would result in more transmission. That seems counter-intuitive, but I'd be interested in knowing if there are models that predict that.

\*\*\*\*\*

# SCENARIO FIVE: Manufacturing and Supply Chain

Aroostook County - Session 2

CHRISTA FRANZI NOV 16, 2021 06:54PM

## Scenario Padlet Links

### SCENARIO ONE:

[Natural Resources and Climate Change](#)

### SCENARIO TWO:

[Connectivity and Digital Transformation](#)

### SCENARIO THREE:

[Changing Workforce](#)

### SCENARIO FOUR:

[Energy Evolution](#)

### SCENARIO FIVE:

[Manufacturing and Supply Chain](#)

## References

### Scenario Five: Manufacturing and Supply Chain

*CEDS goal: By 2023, achieve 200 new jobs in metal manufacturing, natural resources manufacturing and food product manufacturing. By 2023, increase total value-added wood products manufacturing in Northern and Eastern Maine by 25%.*

#### SCENARIO

By the fall of 2022, the eastern spruce budworm outbreaks spread from southern Quebec to the forests of northern Maine. Severe defoliation devastates the balsam fir and spruce trees, and forest production drops production by 75%. Wood pulp processors are overloaded with otherwise unusable wood products.

At the same time, rapidly growing demand for wood for cross-laminated timber for the construction industry drives prices higher for wood products, and new companies form to increase tree harvest for CLT production. A new CLT facility opens in Presque Isle to supply the growing demand, but supply chain issues continue to plague the industry as getting materials to and from the facility proves difficult.

As automation of work continues to accelerate due to the convergence of improving technology and worker shortages, robotics companies expand nationwide. In early 2023, Boston Dynamics announced that they are planning a new manufacturing facility at the Loring Commerce Centre, adding 125 positions during the first phase. Due to construction worker and equipment shortages in the area, as well as the growing lack of truck drivers to deliver materials and equipment, the groundbreaking gets pushed to mid-2024 and the company begins sourcing alternative site options. Local business and community leaders work to resolve the delays and offer additional incentives to save the agreement.

In response, the Presque Isle Regional Career and Technical Center applies for and wins a federal grant to create a new robotics manufacturing program. Faculty there hope to train or retrain enough workers to convince the company to move ahead with the new facility.

## Session 1 Summary Memo

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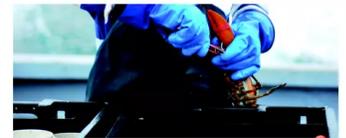
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Overall, both stakeholders and businesses in Aroostook County and Washington County feel moderately resiliency in terms of all resiliency categories. Stakeholders ranked each category higher on average than businesses. Business owners and stakeholders gave similarly higher ratings for reputational and brand resilience. Businesses ranked their financial resilience the lowest of the six categories whereas stakeholders ranked technology resilience lowest.



### Memo - Stakeholder and Business Survey - NMDC Resiliency Strategy

PDF document

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## CEDS

**1. What impacts could the changes described have on industries or communities both directly and not directly involved in the scenario?**

**2. What other trends or technologies could impact this scenario? How might they change the scenario?**

**COVID-related supply chain cost increases continuing into 2023.**

**3. What actions can be taken today to mitigate or avoid potential challenges created by this scenario?**

**Create more local and Maine-based supply opportunities for raw materials, including lumber and steel.**

**4. What actions can be taken today to capitalize on new opportunities it may create?**

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**Encourage more Maine-based supply chain products**

**5. What can be done to achieve your Preferred Future? What might prevent you from taking action?**

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**Discussion Notes**

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# SCENARIO FIVE: Manufacturing and Supply Chain

Washington County - Session 2

CHRISTA FRANZI NOV 17, 2021 01:16PM

## Scenario Padlet Links

### Links

[Scenario 1: Natural Resources](#)

[Scenario 2: Connectivity & Digital Transformation](#)

[Scenario 3: Changing Workforce](#)

[Scenario 4: Energy Evolution](#)

[Scenario 5: Manufacturing & Supply Chain](#)

## References

### Scenario Five: Manufacturing and Supply Chain

*CEDS goal: By 2023, achieve 200 new jobs in metal manufacturing, natural resources manufacturing and food product manufacturing. By 2023, increase total value-added wood products manufacturing in Northern and Eastern Maine by 25%.*

#### SCENARIO

By the fall of 2022, the eastern spruce budworm outbreaks spread from southern Quebec to the forests of northern Maine. Severe defoliation devastates the balsam fir and spruce trees, and forest production drops production by 75%. Wood pulp processors are overloaded with otherwise unusable wood products.

At the same time, rapidly growing demand for wood for cross-laminated timber for the construction industry drives prices higher for wood products, and new companies form to increase tree harvest for CLT production. A new CLT facility opens in Presque Isle to supply the growing demand, but supply chain issues continue to plague the industry as getting materials to and from the facility proves difficult.

As automation of work continues to accelerate due to the convergence of improving technology and worker shortages,

robotics companies expand nationwide. In early 2023, Boston Dynamics announced that they are planning a new manufacturing facility at the Loring Commerce Centre, adding 125 positions during the first phase. Due to construction worker and equipment shortages in the area, as well as the growing lack of truck drivers to deliver materials and equipment, the groundbreaking gets pushed to mid-2024 and the company begins sourcing alternative site options. Local business and community leaders work to resolve the delays and offer additional incentives to save the agreement.

In response, the Presque Isle Regional Career and Technical Center applies for and wins a federal grant to create a new robotics manufacturing program. Faculty there hope to train or retrain enough workers to convince the company to move ahead with the new facility.

## Session 1 Summary Memo

transportation and childcare problems, these challenges are not going away, and creating solutions to these challenges is instrumental in preparing the Aroostook County and Washington County economy for the future. Transportation opportunities include expanding public transportation options, especially in rural areas, and the development of the Port of Eastport to expand the shipping and distribution hub.

- **Housing** – Retention of residents and employment opportunities are hindered by a lack of affordable year-round housing. To help overcome this challenge there are opportunities to rehab existing housing and overcome the current stagnation in housing stock through innovative measures such as developing 3D printing options for affordable housing and investing in a manufactured housing factory. Participants noted that innovative solutions to housing challenges can help to produce a local housing supply as well as contribute to skilled jobs in the region.
- **Technology impacts on the workforce** – The pandemic has exacerbated the impact of technology on the current workforce and will continue to shape the future of the workforce. Session participants noted that the current workforce is often tethered to their smartphones, which is met with expectations to be available 24/7 for work. There is a changing concept of a workweek and prioritizing quality of experience overtime working.

There are opportunities to utilize technology to increase manufacturing capabilities and improve society in Aroostook. As technology changes and adapts, there is a need to have educational offerings in the region rise to the occasion including developing programs and opportunities targeted towards software programmers, biotech sciences, electric vehicle mechanics, etc. Additionally, remote work is anticipated to persist, increasing work opportunities for Aroostook County and Washington County residents, especially those in rural areas and older workers.

At the same time, technology is impacting long-term effects on youth and contributing to workforce issues. The younger workforce looks to leverage technology to streamline work and increase efficiencies with the overall goal of a healthy life-work balance. A major theme coming out of this trend is the prioritization of personal versus work time management. The younger workforce has differing views on work ethic, workforce expectations, and employer expectations.



### Memo - Adaptive Planning Session 1 Key Findings - NMDC

PDF document

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## Business + Stakeholder Survey Results

Camoin Associates, Venture Foresight, Northern Maine Development Commission (NMDC), and Sunrise County Economic Council (SCEC) conducted a Stakeholder Survey and Business Survey to assess and understand emerging issues, concerns, challenges, and opportunities impacting Aroostook County and Washington County. The Business Survey targeted business owners in Aroostook County and Washington County to understand business capacity and resources available to recover and what is needed in the future to be resilient. The Stakeholder Survey connected with key economic, business, workforce, and community development stakeholders in Aroostook County and Washington County to understand how prepared the region is, and is perceived to be, for economic resiliency today and into the future.

For the surveys, resiliency is defined as the ability to prevent, withstand, and quickly recover from major disruptions. The surveys were distributed directly via email and newsletter announcement through NMDC, SCEC, and their partners' networks. The surveys were open from September 21<sup>st</sup>, 2021 to October 15<sup>th</sup>, 2021. The Stakeholder Survey received a total of 42 responses and the Business Survey received 104 responses.

**BUSINESS + ORGANIZATION RESILIENCE**

Both the Business Survey and Stakeholder Survey asked respondents to rate their organization or business on the following resiliency categories with 1 being not Resilient and 5 being very resilient. The following figure displays the mean response for the two groups for each resiliency category.

Overall, both stakeholders and businesses in Aroostook County and Washington County feel moderately resiliency in terms of all resiliency categories. Stakeholders ranked each category higher on average than businesses. Business owners and stakeholders gave similarly higher ratings for reputational and brand resilience. Businesses ranked their financial resilience the lowest of the six categories whereas stakeholders ranked technology resilience lowest.



**Memo - Stakeholder and Business Survey - NMDC Resiliency Strategy**

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**CEDS**



AROOSTOOK WASHINGTON  
COMPREHENSIVE  
ECONOMIC  
DEVELOPMENT STRATEGY  
2018-2023



**5-year-AWEDD-CEDS-1**

PDF document

PADLET DRIVE

**1. What impacts could the changes described have on industries or communities both directly and not directly involved in the scenario?**

**2. What other trends or technologies could impact this scenario? How might they change the scenario?**

**climate change**

the loss of spruce and fir forests presents an opportunity to plant those areas with commercially valuable species that can handle the expected increase in temperatures

**3. What actions can be taken today to mitigate or avoid potential challenges created by this scenario?**

**rail and ports**

investment in Eastport, Searsport, the freight rail system, and multimodal hubs could provide alternatives to trucks

**4. What actions can be taken today to capitalize on new opportunities it may create?**

**5. What can be done to achieve your Preferred Future? What might prevent you from taking action?**

**Discussion Notes**

## Appendix E: Foresight Scenarios

### Scenario One: Natural Resources and Climate Change

**CEDS goal: Accomplish 50 new farm businesses/jobs, increase net income to farmers by 10%, expand acres under production by 5,000 and increase value added production. By 2023, increase marine-related employment by 250 jobs through expansion of research, harvest, and processing.**

By the end of 2023, effects from climate change, which have been increasingly more disruptive over the last five years, began to significantly impact the lives and careers of those in northern and Downeast Maine. Aroostook County had just experienced the driest summer on record, easily surpassing the previous record.

In the beginning of that year, the federal government worked to increase carbon pricing nationwide to encourage forest carbon projects. The state government in Maine created a program to increase the state's percentage of forested land from 89% to 92.3% by 2030 and included generous incentives for landholders to reforest or delay some forestry projects.

The Gulf of Maine continued to be one of the fastest warming bodies of water on the planet, and average temperatures increased by almost 0.5 degrees from 2021 to 2023. Ironically, the drastic cold snap of early November 2023 caused a record 1,545 sea turtles to wash up on the beach, unable to escape the rapid water cooling. This brought national attention to the record warming in the Gulf of Maine, and additional government funding to identify ways to adapt to these changes. Local aquaculture companies welcome the additional interest and investment but are concerned that it may lead to even tighter restrictions on lobster and shellfish catch.

The wild blueberry fields of Down East Maine continue to warm faster than other areas in the state. So far, this small but important temperature difference has not resulted in the record droughts experienced in other parts of the state, but farmers in the area are beginning to increase mitigation efforts, including adding wood mulch to more of their fields and improving and expanding irrigation systems. Although the fields of Downeast Maine were warming, many other agricultural areas around the United States were experiencing even worse changes. California droughts and wildfires continued to bankrupt or otherwise displace major farming operations, and farms in the Midwest struggled through increasingly destructive summer storms and intermittent droughts. Some large agricultural conglomerates began looking at possible locations in Downeast Maine to move some corn production and in Aroostook County for soybean production.

### Scenario Two: Connectivity and Digital Transformation

**CEDS goal: Fast, affordable internet available to anyone in the AWEDD region, regardless of where they live or work.**

By late 2023, the competition to dominate space between billionaires Jeff Bezos (Project Kuiper) and Elon Musk (Starlink), as well as Boeing and others, results in affordable satellite-based internet anywhere in the AWEDD region. Sign-up deals and other incentives make it easy for nearly anyone to get fast internet with low latency wherever they live and work. Monthly bills below \$50 make it cheaper than other fiber and cell service options, while offering faster average speeds.

This new access benefits farmers, local businesses, people working or learning from home, and telehealth services. Affordable and comprehensive internet access accelerates the digital transformation across all business sectors and opens many businesses in northern and Downeast Maine to new customers (and potential competitors). Local telecom providers, as well as national wireless carriers, all see a drop in business. Some rural municipalities must fulfill the remainder of existing five- or ten-year contracts with

fiber providers and see large losses as people switch to satellite internet providers. After years of trying to get broadband, several communities were able to secure federal and state funding for new fiber projects and have obligations to build that infrastructure.

### **Scenario Three: Changing Workforce**

**CEDS goal:** By focusing on six asset-based industry clusters the region will realize 1,000 new jobs by 2023; and total employment of 54,290. By 2023 the region will improve the overall business acumen and increase business starts to more than 100 per year.

**Reversing systemic population decline:** “The most critical issue facing Aroostook and Washington counties is the systemic population decline. Fundamentally, the retention and attraction of people is the core factor for future viability of Aroostook and Washington counties. Extreme economic, community and personal pressures are now being felt as a smaller population is carrying the full cost of critical public services and workforce demand. Therefore, the challenge is clear. We must reverse this long-term trend of our children leaving us for work elsewhere by promoting the good-paying jobs that do exist, while at the same time creating new jobs and opportunity in our regional economy.”

Between 2016 and 2021, employment dropped by 3,000, and is projected to drop another 1,200 by the end of 2023. This is primarily the result of workers aged 55-59 retiring early and newly graduated students moving to other areas to pursue college or a career. This reduction in the labor force is especially difficult for local businesses that have lost employees, often with decades of experience, in industries where it has proven difficult to attract younger workers. Also, access to hiring migrant workers continues to be constrained. Jobs in agriculture remain unfilled for longer and longer periods, resulting in loss of crops due to not being harvested or to fields that were not planted. The labor shortage continues to impact tourism and seafood industries, and even generous hiring bonuses and higher wages fail to attract enough workers to fill vacancies.

New entrepreneur programs have had some success. According to an August 2023 survey conducted by a statewide entrepreneurial organization, more than three quarters of the recipients of grants for additional training are planning to stay in the area.

### **Scenario Four: Energy Evolution**

**CEDS goal:** Realize 200 jobs in the Renewable Energy Economy by 2023.

By late 2023, new battery technologies have lowered the cost of energy storage by as much as 70% (depending on the technology used) and the slowly growing number of batteries from recycled electric vehicles further reduces storage costs, both at utility and residential scale. This reduces the need for expensive gas peaker plants to cover uneven demand and creates more consistent energy price predictions. New ISO New England wind projects begin to break ground, and with the addition of cheap storage options, energy prices in 2025 are predicted to be 30% less per kWh. Additionally, it now becomes cheaper to heat homes using electricity than by using any other source, including natural gas. Most new construction plans no longer include natural gas heating.

Electric vehicles are now at 12% of new car sales in the AWEDD, but because most of them are charged off-peak, they balance grid loads more than overload them. Eastern Maine Electric Cooperative Inc. created a special task force to study the increase in fully electric vehicles and the impact on the grid and energy prices.

## Scenario Five: Manufacturing and Supply Chain

**CEDS goal: By 2023, achieve 200 new jobs in metal manufacturing, natural resources manufacturing and food product manufacturing. By 2023, increase total value-added wood products manufacturing in Northern and Eastern Maine by 25%.**

By the fall of 2022, the eastern spruce budworm outbreaks spread from southern Quebec to the forests of northern Maine. Severe defoliation devastates the balsam fir and spruce trees, and forest production drops by 75%. Wood pulp processors are overloaded with otherwise unusable wood products.

At the same time, rapidly growing demand for wood for cross-laminated timber for the construction industry drives prices higher for wood products, and new companies form to increase tree harvest for CLT production. A new CLT facility opens in Presque Isle to supply the growing demand, but supply chain issues continue to plague the industry as getting materials to and from the facility proves difficult.

As automation of work continues to accelerate due to the convergence of improving technology and worker shortages, robotics companies expand nationwide. In early 2023, Boston Dynamics announced that they are planning a new manufacturing facility at the Loring Commerce Centre, adding 125 positions during the first phase. Due to construction worker and equipment shortages in the area, as well as the growing lack of truck drivers to deliver materials and equipment, the groundbreaking gets pushed to mid-2024 and the company begins sourcing alternative site options. Local business and community leaders work to resolve the delays and offer additional incentives to save the agreement.

In response, the Presque Isle Regional Career and Technical Center applies for and wins a federal grant to create a new robotics manufacturing program. Faculty there hope to train or retrain enough workers to convince the company to move ahead with the new facility.

## Appendix F: Adaptive Foresight Tools

### Five Actions for the Future: Practices to Start Now to Increase Regional Resilience

- 1. Take a Future Fifteen** - Once a week, schedule fifteen minutes to pay attention to the trends and technologies transforming the future. This could include visiting technology websites that you wouldn't normally spend time on. [Tech Review](#), [engadget](#), [The Verge](#), [Ars Technica](#), and [Cointelegraph](#) are some great options to get you started. It could also be in the form of watching a video, taking a class, or starting a book on a specific future-focused topic.
- 2. Ask: What If, What Then?** - Pick one of the new technologies or trends that you've learned about (or learned more about) in a Future Fifteens and ask, "What if, what then?" What if it became mainstream in the next few years? How might that affect your career, organizations, or region?
- 3. Conduct a Pre-Mortem** - Imagine it is five years from now and your business or organization is bankrupt (or even severely diminished.) What killed it? Project yourself "into the future" and reflect on what may have caused its demise. Often, many challenges or disruptive advancements that may prove fatal long term are still just at edges today. Take the time to consider how each threat or advancement may impact your business while you still have time to mitigate its effects or even capitalize on it.
- 4. Meet with an Informed Outsider** - An Informed Outsider does not need to be a professional futurist. It can be someone in an industry adjacent to yours, or even a vendor or client. It is just someone who is familiar with your industry, goals, and responsibilities, but not inside that industry echo chamber. An informed outsider can be a great person to discuss a new initiative with or a new technology that you are considering using. They can help you recognize what you might need to unlearn to have a clearer understanding when making decisions.
- 5. Find a Reverse Mentor** - Seek out a person with a different perspective to help you see what you may not be seeing because of your generational or technological perspective. What we view as "normal" due to when, where, or how we grew up, and even our early career experiences, can prevent us from seeing new opportunities. A reverse mentor relationship often takes the form of an experienced industry professional or executive partnering with a new graduate or early-stage professional. In addition to a one-on-one reverse mentorship, consider adding someone (or many people) with a different generational or technological perspective to your boards. Many boards today do not reflect the companies or organizations they serve demographically and adding a reverse mentor to the board or as an advisor can help eliminate those blind spots and allow the board to better serve its purpose.

## Foresight Scenario Worksheet

Use this worksheet to create a foresight scenario to improve strategic planning for local and regional economic development.

### Create the scenario

1. What topic is the focus of this scenario?	
2. What's the timeframe? Where does it take place?	
3. What are the major changes from today?	
4. Who could be impacted by the changes described in the scenario? Who benefits? Is anyone hurt by it?	
5. Does the scenario require any major technological advancements or societal changes?	
6. Would the changes described in this scenario affect you personally or professionally?	
7. Is this scenario plausible in the timeframe given? Why or why not?	
8. Who else could be included in creating the scenario (informed outsider perspectives)?	

## Test the scenario

<p>1. What impacts could this scenario have in industries or communities both directly not directly involved in the scenario?</p>	
<p>2. What other trends or technologies could impact this scenario? How might they change the scenario?</p>	
<p>3. What actions can be taken today to mitigate or avoid challenges created by this scenario?</p>	
<p>4. What actions can be taken today to capitalize on any opportunities it may create?</p>	
<p>5. What might prevent you from taking action?</p>	

## Appendix G: CEDS Vision and Goals

An important way to consider a region's resilience is in context of its ability to meet its vision and goals. The regional CEDs for AWEDD provide a vision and related goals along with key economic performance metrics:

### Regional Vision

*"Our region is a place of abundant natural resources that is reflected in the beauty of our landscape and the potential for economic and social prosperity it offers. We value the individuality and endurance of our people while recognizing the strong sense of community and place that sustains us. We will create economic growth by focusing on sectors that best leverage these assets and by working to develop policies that promote private sector investment; while at the same time, retaining the quality of life that makes the region special."*

### CEDS Goals

#### **Reversing systemic population decline:**

"The most critical issue facing Aroostook and Washington counties is the systemic population decline.

Fundamentally, the retention and attraction of people is the core factor for future viability of Aroostook and Washington counties. Extreme economic, community and personal pressures are now being felt as a smaller population is carrying the full cost of critical public services and workforce demand."

**Agriculture Goals** - Accomplish 50 new farm businesses/jobs, increase net income to farmers by 10%, expand acres under production by 5,000 and increase value added production.

**Forest Resources Goals** - By 2023, increase total value-added wood products manufacturing in Northern and Eastern Maine by 25%. Participate in the FOR/Maine initiative to grow Maine's forest products sector by 40% by 2025.

**Marine Resources Goals** - By 2023, increase marine-related employment by 250 jobs through expansion of research, harvest, and processing.

**Tourism Goals** - By 2023, increase overall dining and tourism revenues by 25%, employment by 15%, and grow non-peak season events by one a year.

**Manufacturing and Specialty Processing Goals** - By 2023, achieve 200 new jobs in metal manufacturing, natural resources manufacturing and food product manufacturing.

**Alternative Energy** - Realize 200 jobs in the Renewable Energy Economy by 2023.

**Entrepreneurship and Access to Capital Goals** - By 2023 the region will improve the overall business acumen and increase business starts to more than 100 per year. Increase overall lending in the region by 15% by 2023 including the coordination of capital resources from micro lending to public projects and mature industry finance.

**Education and Workforce Development** - Human capital is a top priority for the AWEDD region, and regional leaders recognize that development, retention, and attraction of sufficient quantity and quality workforce are essential to a sustainable Northern and Downeast Maine economy.

**Infrastructure** - Improve, expand, diversity, maintain infrastructure to support regional asset-based industry cluster activities and priorities. Specifically pertaining to infrastructure of:

- Roads and bridges
- Public transit
- Rail
- Airports
- Ports
- Broadband

**Environment** - Environment is viewed in the context of Quality of Place characteristics. Northern and Downeast Maine is a region that covets its natural environment as a place for commerce, recreation and a unique lifestyle. Protection and development of the natural environment is balanced and recognized as a priority in a knowledge-based 21st century economy.

**Leadership** - By utilizing the NMDC Next Generation Strategic Plan, completed in late 2017, the Commission will target impact areas of population, economic value, quality of place, infrastructure, and mindset. NMDC views leadership as an immediate requirement, but also a long-term priority to guide and drive the regions comprehensive economic development strategy forward. Achieved through:

*Partnerships – Communications - Efficiency and Effectiveness*

**Resilience** - Foresee, adapt to and leverage changing conditions to their advantage to be in a position to attract and grow new businesses, retain skilled workers and families, and promote a high quality of life.

In addition to the metrics within the goals noted above, the CEDS establishes key metrics for regional growth. They are:

- Population
- Employable Population (age 15-64)
- Labor Participation Rate
- Total Employment
- Average Wage Per Job
- Per Capita Income\*
- Bachelor's Degrees or Higher (26 years and older)
- Associate Degrees (26 years and older)
- Increase in Population 20-44