Social Resilience Planning Guidebook

Practical Guidance for Projects Intended to Build Social Resilience and Social Infrastructure

A Publication of the
Southern Midcoast Maine Social Resilience Project

2023

Southern Midcoast Maine Social Resilience Project

www.wellsreserve.org/project/social-resilience-project

PROJECT TEAM

Jeremy Bell, The Nature Conservancy
Victoria Boundy, Casco Bay Estuary Program
Annie Cox, Wells Reserve
Kristen Grant, Maine Sea Grant & University of Maine Cooperative Extension
Liz Hertz, Blue Sky Planning Solutions
Ruth Indrick, Kennebec Estuary Land Trust
Eileen Johnson, Ph.D., Bowdoin College

ADVISORY COMMITTEE

Allison Hepler, Woolwich Selectboard
Anne Fuchs, Maine Emergency Management Agency
Grainne Shaw, Sagadahoc County Emergency Management Agency
Jared Woolston, City of Brunswick
Mary Turner, Good Shepherd Food Bank
Mary Ann Nahf, Harpswell Conservation Commission
Nathan Robbins, Maine Department of Environmental Protection

Contents

1. INTRODUCTION

1.1 Overview

This document offers practical guidance for people venturing into projects intended to build social resilience and social infrastructure. It is based on the experiences of the team that developed and carried out the Southern Midcoast Maine Social Resilience Project (SRP) from 2017 to 2023. The SRP sought to increase resilience of people and communities to climate change.

SOUTHERN MIDCOAST MAINE SOCIAL RESILIENCE PROJECT GOALS

1. Test how social infrastructure and social resilience were or were not being incorporated into the planning for, response to, and recovery from natural hazard events.
2. Provide opportunities for strengthening social infrastructure by engaging community stakeholders to learn about each other and develop new partnerships.

The SRP grew out of observations by researchers and practitioners that efforts to increase climate resilience in Maine were focused on hard infrastructure such as roads, bridges, and buildings. Mostly missing was attention to social infrastructure—people, organizations, and community networks.

This document describes the processes designed and implemented to achieve the SRP goals, including the creation of an asset table, an evaluation process for the project, a social network analysis, and the development and implementation of a scenario planning exercise. This document does not cover background research underpinning the project. That information is available on the SRP web page. This document outlines key steps taken in developing the SRP, mainly chronologically, along with challenges encountered, solutions, and tips for bypassing problems.

This project focused on the impacts of climate events to social resilience based on a specific set of indicators. Some of these indicators may not be relevant to other projects.

DOWNLOAD SRP MATERIALS

Throughout this document, we have included links to relevant SRP reports, surveys, and other materials wherever they are discussed. All these materials are collected and made accessible on the SRP web page.

1.2 Importance of Understanding Social Vulnerability

The Centers for Disease Control (CDC) defines risk as the interplay between a physical hazard and the difference between the vulnerability to that hazard and the resources available to address the effects of the hazard. Until very recently, disaster management has focused almost solely on the vulnerability of physical infrastructure with little to no consideration of how to address social vulnerability. Studies have shown that social vulnerability is inversely related to a population's ability to recover from a disaster. The higher the level of social vulnerability, the more difficult recovery becomes.

Without understanding social vulnerability and incorporating it into disaster management including preparation for, response to, and recovery from disasters, we place the status of physical assets and infrastructure above that of the people in our communities. Providing a focus on attending to the needs of our most vulnerable members of our communities also helps us to begin to work towards addressing historic inequities in disaster management. The CDC has developed a Social Vulnerability Index (SVI) to guide communities in understanding who may be at risk before, during and after disasters.

1.3 A Place-Specific Social Vulnerability Index

The Maine Social Vulnerability Index (MSVI) was developed to help identify where vulnerable populations are located and what factors drive those vulnerabilities. Until the development of the MSVI, work being done in Maine on identifying vulnerabilities to projected impacts of climate change had focused almost entirely on the vulnerabilities of physical infrastructure like roads, bridges, and buildings. Little had been done to assess social vulnerability.

The MSVI, located on the Maine Coastal Risk Explorer, is based on seventeen socioeconomic and demographic indicators taken from US Census data. The MSVI is a version of the CDC SVI customized to include factors relevant to Maine that are not in the CDC version. The MSVI calculates the percentage of the population within each community for each indicator. We note that 'vulnerability' is often the result of the societal systems in place that create inequalities in climate risk to people. The Maine Coastal Risk Explorer provides a visualization of the information, shows the details on different vulnerabilities, and provides the relative level of vulnerability at a census block and municipal level within the State of Maine's coastal communities.

The MSVI is a planning tool developed to support communities in incorporating considerations about the needs of underserved community members in decision making to strengthen the resilience of the community as a whole. It can be used to help inform planning processes, allocation of resources, and policy and program development by bringing the elements of social vulnerability into the calculation. It also allows communities to compare relative vulnerabilities across larger regions of Maine. As a resource, the MSVI is intended to complement local knowledge of a community's vulnerabilities.

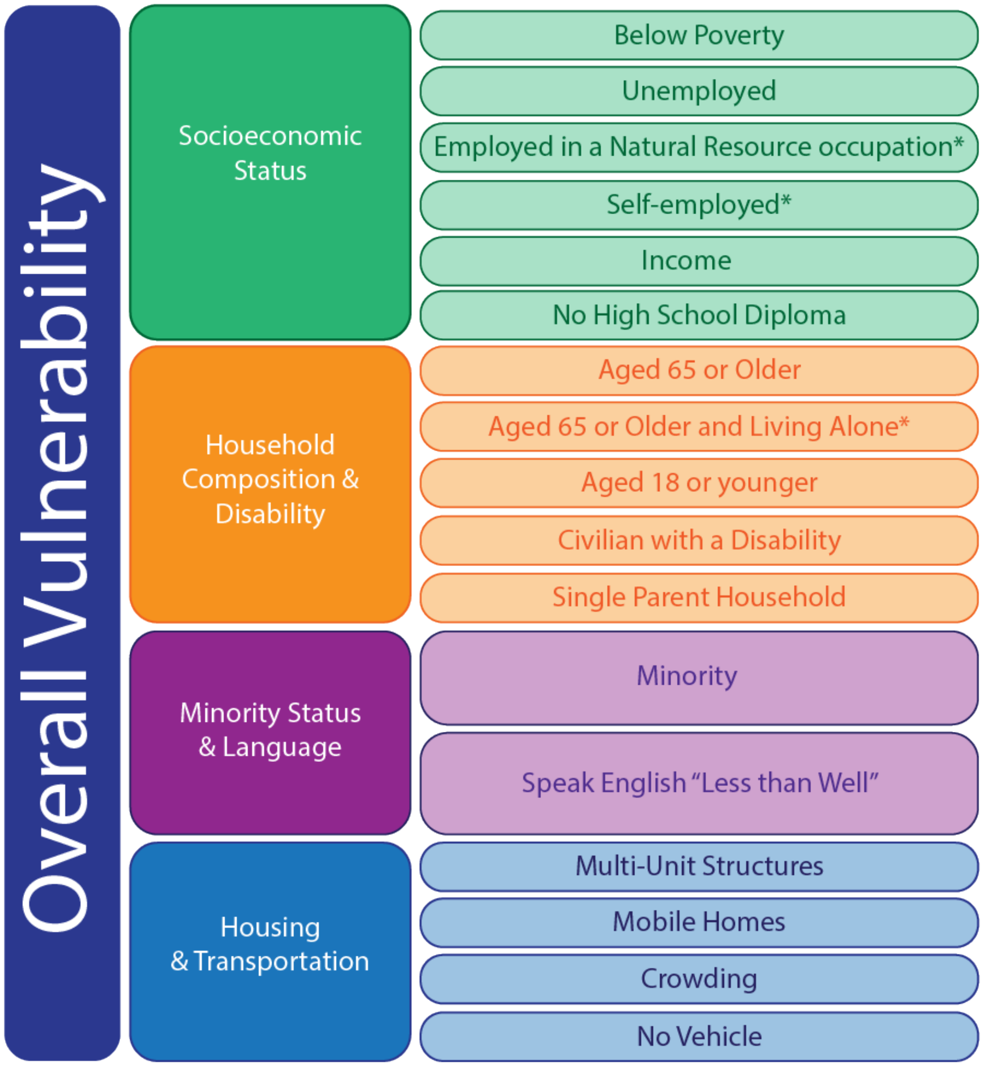
KEY CONCEPTS

Community resilience refers to a community's capacity to anticipate, confront, repair, and recover from a disaster. Community resilience also reflects a community's capacity to "bounce forward" after an event. While events such as hurricanes may challenge a community's resilience, strengthening social infrastructure (the number and types of organizations that help vulnerable populations, as well as the connections among people and among organizations) or investing in physical infrastructure improvements can increase community resilience. A key tenet of community resilience is engaging all members of the community throughout all stages of planning for, responding to, and/or recovering from events such as a coastal storm. Resilient communities intentionally develop personal and collective capacity to sustain and renew the community, and to develop new trajectories for the communities' future.

Social resilience emphasizes the social systems, organizations, and connections in place to address the needs of community members experiencing heightened social vulnerability. One dimension of community resilience, social resilience, is a way to look at a community's ability to anticipate, confront, repair, and recover from a disaster. There are many different factors affecting that ability, including the degree of connectedness within a community and the location and composition of socially vulnerable individuals and populations within the community.

Social vulnerability relates to certain conditions that affect an individual or community's capacity to anticipate, confront, repair, and recover from the effects of a disaster. For populations with heightened social vulnerabilities, resilience is a factor of individuals and whole communities. In other words, an individual may be somewhat resilient, but the condition and level of cohesion of their community may make them less resilient or not resilient at all. Populations with heightened social vulnerability include those who face distinct challenges or barriers to having their needs met, which may increase their vulnerability in the event of an emergency. These challenges and barriers include but are not limited to people living in poverty, people from marginalized communities, people without vehicles, people with disabilities, older adults, geographically isolated communities, and people with limited English proficiency.

Figure 1. Indicators used in the Maine Social Vulnerability Index (MSVI). The indicators with asterisks were added to the Centers for Disease Control (CDC) SVI, making it more reflective of social vulnerability in Maine.



2. STARTING A SOCIAL RESILIENCE PROJECT

2.1 Create a Project Team

The project team is responsible for developing and implementing all the elements of the project.

Developing a project like the SRP requires a variety of skills including, but not limited to, project management, research, facilitation, note-taking, document management, data management, survey development and analysis, community outreach and engagement, and technology use and management. Knowledge of municipal, regional, and state programs, policies, and laws is essential. It is also very important that there are members of the project team who are trusted partners and sources of information and have existing relationships with key organizations operating in the project area.

LESSON LEARNED: A project like the SRP requires flexibility, problem-solving capacity, and a wide variety of skill sets.

TIP: Be creative in finding ways to add skill sets to the team. We were able to use college students for background research at several key places in the project, in the development of the asset table, creation of the StoryMap used in the scenario planning exercise, as beta testers of the exercise, and in transcript and recording review of the exercise.

2.2 Identify the Study Area

The study area is the geographic region covered by your project.

We chose the SRP study area based on existing partnerships and connections of project team members. Being known and trusted in the region made it far more likely that existing organizations would engage with us in the project. Early in the development of the project, it was clear that creating and maintaining a new entity to focus on social vulnerability or improve social resilience in the region was beyond the capacity of the project team and already stretched thin the communities and organizations with which we hoped to work. Instead, our project focused on increasing connections and partnerships between existing organizations to do that.

2.3 Listen First

Getting input in the early planning stages of your project helps to ensure that your project will deliver meaningful and useful results. The SRP began by conducting a focus group with representatives from the local, regional, and state emergency management sector. The results of that meeting led us to hold a focus group with a wide range of social service providers and from there to a focus group with conservation organizations and finally interviews with municipal representatives. The goal of these focus groups and interviews was to determine if each sector was aware of existing planning documents and tools related to climate change and natural hazard events, what data and tools they used, if they understood and incorporated social

SECTORS AND GROUPS WITHIN EACH SECTOR ATTENDING FOCUS GROUPS

Emergency Management
Municipal Conservation Commission members
Municipal Emergency Manager/Fire Administrator
Sagadahoc County Emergency Management Agency
Municipal Emergency Management Director and Assistant Director
Maine Emergency Management Agency
Red Cross Disaster Program Manager (Hancock, Knox, Lincoln, Sagadahoc, Waldo and Washington counties)

Social Services
Disaster Program Manager, York, Knox and Cumberland Counties, American Red Cross
Senior Director, Richmond Senior Center
Executive Director, People Plus (also representing Spectrum Generations)
Director Community Health, Midcoast Hospital
Chair, Health and Wellness Committee, Harpswell Aging at Home
State President, AARP
Community Resource Representative, Good Shepherd Food Bank
Program Coordinator, Catholic Charities SEARCH Program

Conservation
Associate Director, Brunswick-Topsham Land Trust
Representative, Arrowsic Conservation Commission
Representative, Georgetown Conservation Commission
Representative, Harpswell Conservation Commission
Representative, Bath Forestry Committee & Bath City Council
Midocoast Regional Project Manager, Maine Coast Heritage Trust
Representative, Phippsburg Conservation Commission
Planner, City of Brunswick

Municipal
Individual outreach to town managers and town administrators in the Municipal Sector instead of a focus group.
Town Administrator, Phippsburg
Town Administrator, West Bath
Town Administrator, Harpswell

vulnerability into their approach, and how/if the different sectors worked together to provide services and support during extreme natural hazard events. Through these focus groups, several key observations surfaced that confirmed the need for further work on the topic and created the basis of the scenario planning exercise.

LESSON LEARNED: Different data sets and tools were used by each sector; the sectors worked in silos with minimal cross-sector partnering; the same terms had different meanings to different sectors; different sectors worked on different timelines.

LESSON LEARNED: Social vulnerability, social resilience, and social infrastructure turned out to be new concepts to most of the focus group participants, even though their professional roles related closely to the concepts.

TIP: Continually reinforce the definitions and concepts of social vulnerability, social resilience, and social infrastructure throughout communications with focus groups and, later, with the exercise participants. Especially when working across sectors, make sure that participants share an understanding of what terms and phrases mean in the context of the project. Clearly define and develop agreement around important terms and phrases during the discussion.

TIP: For successful focus groups: invite key representatives in each sector; keep groups small to promote discussion and allow time for input by everyone; carefully plan the agenda to delve into the issue you are investigating; leave enough time for discussion to develop; keep the meeting short (e.g., morning or afternoon); and provide food.

2.4 Create an Advisory Group

Having an Advisory Group made up of representatives from each sector in your project increases the likelihood that your project will be meaningful for those sectors.

Because the intention of the SRP was to generate on-the-ground action through existing avenues, it was essential that we received guidance and input in its development from the sectors involved in the exercise. This was insurance that the outcomes of the project would be meaningful to those taking part. To accomplish this, we invited two or three members from each sector to serve on an Advisory Committee. We used the committee similarly to an executive board; the project team did the background work, put together options, and presented them to the Advisory Group for their input on key elements of the project, including:

- Project goals and objectives.
- Scenario planning exercise goals and objectives.
- Potential scenarios including timeline, stressors and potential injects for use in the exercise.
- Key exercise elements including length, number of participants, virtual or in-person, and materials.
- Identifying and reaching out to exercise participants.

The Advisory Group members also filled support roles during the exercise itself.

LESSON LEARNED: Change in employer and employment status of Advisory Committee members during the project can lead to inability to serve on the committee. This left us with holes in sector representation. In a complex project, it is hard to bring someone in midstream.

TIP: Include well-respected and highly regarded individuals on the Advisory Committee. The connections each has within their sector will be important for outreach efforts especially when inviting exercise participants, connecting the project to ongoing work within each sector, and in keeping the project on track to deliver actionable outcomes.

TIP: Create clear expectations for the roles and responsibilities of Advisory Committee members to share with prospective members. We created an Advisory Committee job description; it included the number of meetings, calls, and expected level of effort.

TIP: In a scenario planning exercise, it is not recommended that those involved with exercise planning participate in the exercise. As you consider Advisory Committee members, also consider where they may be more valuable—on the Advisory Committee or as an exercise participant.

TIP: In identifying and recruiting participants, draw upon the expertise and connections of your Advisory Committee and Project Team.

2.5 Refine the Geographic Study Area

The size and make-up of the geographic area covered by your project affects the complexity of the project, resources needed, and number of people involved.

This may seem obvious, but it is important to choose your geographic study area carefully. For the SRP, we wanted the study area to include variability in community size and capacity, variability in access to services, and variability in levels of social vulnerability. We wanted an area that included rural and urban communities, communities with a complex transportation network and communities with a limited transportation network, communities with and without planning staff, communities that relied on other communities for essential services and communities that provided those services. We also wanted to focus on an area where holding a scenario planning exercise would build upon strong connections within each sector while facilitating cross-sector connections.

Another consideration in the study area selection for our project was community interdependence. In our case, the selected region shares the same regional planning capacity, and the study area included smaller communities and the larger service center communities where people go for groceries, the hospital, gas stations, and restaurants.

LESSON LEARNED: For a social vulnerability project, existing relationships and partnerships are important for developing support for the project in the study area. Because the project relies on bringing people together, existing relationships will be invaluable when extending invitations to participate in the scenario planning exercise.

TIP: When refining the study area, consider that increasing the size, number of communities, and number of organizations working in your study area will increase the number of participants in the scenario planning exercise and the resources needed to support the exercise.

2.6 Develop Goals and Objectives for the Project

Goals and objectives guide your project and keep it focused.

Developing goals and objectives early is important to guide project development. When working across sectors in a collaborative process, new ideas will continually surface. We revisited the goals and objectives frequently to insure that the project was staying focused. As our project unfolded, we used the goals and objectives to vet new ideas. In considering new ideas, one of three things happened:

- The new idea did not fit within the goals and objectives as developed. We put the idea into a "parking lot".
  Example: The initial draft of the StoryMap included multiple data layers related to climate change such as predicted sea level rise scenarios and wave run-up models. While this is important information it was not essential for the scenario we had developed. We decided to leave it out of the StoryMap and Briefing Book.
- The new idea was not feasible to include because of budget or project team capacity limits. We put the idea in the "parking lot".
  Example: The pre and post surveys were opportunities to gather information on many topics from the exercise participants. We knew the larger the surveys got, the more time and resources it would take to analyze the data we gathered. Because of the limited budget we had for this task, we limited the survey questions to those that would directly inform how well we reached the project's goals and objectives.
- We decided that the idea had merit, made the project better, and capacity existed to incorporate it. We then changed the goals and objectives accordingly.
  Example: As the project developed, we became aware of other organizations in the region evaluating their operations in relation to diversity, equity, and inclusion (DEI). Based on conversations with those organizations we made two changes. We added an objective specific to DEI and added additional groups that tend to be socially vulnerable to the list included in the Maine SVI.

LESSON LEARNED: It is important for the project team to set up clear guidelines on how they will work together (norms for meetings, decision-making process, roles and responsibilities, and a procedure to work through 'sticky' situations) and review these frequently.

TIP: Decide on clearly stated goals and objectives to stay focused and on track.

TIP: Use the goals and objectives to vet new ideas.

TIP: Establish an official "parking lot" at the beginning of the project to capture good ideas that fall outside of the scope of the current project.

2.7 Choose the Method of Community Engagement

Community engagement is an essential element of a project focused on increasing social resilience. There are many different approaches to community engagement—workshops, educational outreach, and community organizing, for example.

The idea of holding a tabletop exercise for SRP grew out of discussions during the focus groups. After investigating the structure and goals of a typical tabletop exercise, the project team decided to move forward with a different approach: a cross-sector scenario planning exercise. The goal of the exercise was to spotlight the ways the four sectors did or could work together in addressing natural hazard events and how an increased awareness of social vulnerability could be integrated into delivery of their services.

The SRP scenario planning exercise developed in this project was intentionally created to be different from a typical emergency management tabletop exercise. We wanted it to:

- Be accessible to groups not typically involved in emergency management tabletop exercises.
- Purposefully use language that is accessible to all sectors instead of specifically tailored to technical emergency management tabletop exercises.
- Focus on existing connections between participating groups taking part in planning, response, and recovery efforts.
- Provide opportunities for the groups to learn about each other.
- Increase connections among and between the sectors so they could become more effective at providing support to the region's most vulnerable individuals and communities.
- Focus on immediate and long-term recovery from a storm event and preparation for a similar event that could happen in the future, rather than preparation needed immediately before an event.
- Improve shared understandings of who may experience heightened vulnerabilities and identify resources to address these vulnerabilities.

LESSON LEARNED: Using a familiar (to some participants) format for community engagement as the starting point, we were able to innovate a new type of exercise that suited our project's purposes.

TIP: Explore different community engagement options with your goals, objectives, and available resources in mind.

2.8 Select and Invite People to Participate

Participants in the exercise should reflect the sectors and geographic region covered by the exercise.

The best combination of people to involve in the planning exercise will depend on the barriers to social resilience that you are investigating. We chose to invite representatives from organizations in specific sectors instead of general residents from the region, and we made a conscious decision about the sectors to include. Make sure that you have the right people at the table and look beyond the usual sectors. We knew that there were many other sectors beyond those involved in our focus groups that could be invited to take part. We made the decision to limit the number of sectors involved to focus the conversations and keep the exercise a manageable size. For this project, the sectors included were:

- Emergency management representatives from the state, regional, and local emergency management organizations.
- Municipal representatives from each community in the study area.
- Social service providers across a variety of topic areas and scales.
- Conservation groups, both local and regional.

While the first three sectors might seem obvious to include when looking at supporting individuals and communities through natural hazard events, we found that the work of emergency managers was not well connected to the work of social service providers. Additionally, the conservation sector in Maine has become more involved in long-term planning for mitigating the effects of climate change, are well grounded in the communities within which they work, and have robust volunteer and communication networks. All of these characteristics made them valuable participants in this project.

LESSON LEARNED: The more we looked, the more social service groups we identified. We went into the project thinking we knew the groups involved in work in the region and learned there were many we were missing. We used input from our Advisory Group to identify groups and representatives in this and the other sectors.

TIP: Include sector representatives who work across a variety of scales and timelines. Issues, capacity, and client populations are likely to be different. This will give you a more detailed picture of who is doing what and when. This is also important for identifying gaps in the network.

TIP: Think outside the box when identifying which sectors to include.

2.9 Identify Elements Affecting Local and Regional Social Vulnerability and Social Resilience

Many variables affect local and regional social resilience; limiting which ones you consider in your project is one way to manage the size of the project.

Social resilience is one way to look at a community's ability to anticipate, confront, repair, and recover from a disaster. Many different factors affect that ability, including the distribution of socially vulnerable individuals and populations within the community. Some examples of factors that might affect a person's social vulnerability include socioeconomic status, household composition, minority status, and vehicle access.

We used the Maine Social Vulnerability Index (MSVI), which uses seventeen key characteristics from the US Census Data as indicators of a community's overall social vulnerability, to identify populations of people who had increased social vulnerability in the face of extreme weather events in the region. The MSVI also gave us an initial snapshot of how those seventeen populations are distributed in the region. The MSVI calculates the percentage of the population within each census block group and municipality for each indicator and provides the relative level of vulnerability for each census block group and municipality within Maine.

We also conferred with Advisory Committee members and others working on the topic of social vulnerability. Based on those conversations we identified two additional groups that may experience heightened social vulnerability: individuals identifying as LGBTQ and New Mainers (refugees, asylum seekers, asylees, and secondary migrants). We added those characteristics to the list of vulnerabilities being considered in the project.

LESSON LEARNED: National level tools are not as effective at mapping social vulnerability in rural states like Maine.

LESSON LEARNED: Maine is a rural state with low population density. An entire town may be covered by one or two census block groups. This gives some information on the distribution of vulnerable populations but not much detail on their specific location within the town. Local knowledge and input is essential to refine this information.

LESSON LEARNED: In many cases, the data are just not available to include some populations in an index. The CDC SVI can serve as a place to start, with local knowledge adding more details about social vulnerabilities in the community.

TIP: Keep your planning process iterative and fluid. Capture local knowledge and use it to inform the list of social vulnerabilities you are including in the scenario planning exercise.

3. PREPARING FOR A SCENARIO PLANNING EXERCISE

3.1 Research Examples

A wealth of information is available about previously held tabletop and scenario planning exercises. Researching what has already been done can help you in the design and implementation of your project.

Reviewing other exercises will help you become familiar with what is involved in developing and holding an exercise. We reviewed examples from other states and regions. We also reviewed Federal Emergency Management Agency (FEMA) materials available through its Homeland Security Exercise Evaluation Program.

TIP: Our Project Team included college students from an environmental studies program; they were perfect for this research work.

TIP: FEMA has a huge inventory of materials, templates, and courses on tabletop exercises. We found useful information there and adjusted templates for our style of exercise.

3.2 Manage the Workload

Holding a scenario planning exercise is a complicated undertaking that can be made more manageable by dividing up the workload and keeping track of progress on project tasks.

There are lots of moving pieces in developing and holding a scenario planning exercise. We decided to divide the Project Team into two groups to work more efficiently on multiple tasks simultaneously. One group focused on gathering information about the vulnerabilities and organizations in the region, and the other group focused on the technical components of the exercise.

LESSON LEARNED: One very important task is to keep track of what needs to get done, when it needs to be completed and the status of each task. Creating a spreadsheet with tasks, dates, responsible team members, and completion status helps keep everything moving along.

TIP: Individuals involved in planning an exercise are not typically exercise participants. Consider who you want to be part of the exercise and don't invite them to be part of the planning team or advisory group. When possible, include the key decision makers as exercise participants. Ideally, exercise participants will have the ability to speak on the part of the organization they are representing. It is not ideal, but if there are not many people to choose from, an individual can be both on the planning team and an exercise participant.

TIP: If you have multiple groups working on different sections of the exercise planning, hold regularly scheduled meetings between those groups to stay connected with each other's progress and to get feedback from other members of the project team.

3.3 Create Exercise Goals and Objectives

Like the overall project goals and objectives, exercise goals and objectives help keep the project focused and increase the likelihood of success.

The exercise goals and objectives support the overall project goals and objectives. For our exercise the project team developed draft goals and objectives, the Advisory Committee (AC) commented on them, and the project team revised based on the Advisory Committee comments.

LESSON LEARNED: The exercise goal and objectives informed the exercise development, and as the development of the exercise progressed, we made needed adjustments to the goal and objectives.

TIP: Goals are typically shorter, overarching statements about the exercise and its purpose. Objectives are more specific statements that identify actions taken to make progress toward the goal.

3.4 Develop the Scenario

This is the foundation of a scenario planning exercise. The scenario must be realistic and believable to the exercise participants. The scope must be manageable within your event timetable.

3.4.1 Choose Storm/Event

In the SRP, the Advisory Committee provided input on what they were most worried about. They identified stressors related to storm events such as loss of heat, loss of electricity, loss of access to water, roads blocked by fallen trees and washouts, food defrosting, and flooding homes, and they discussed which were of greatest concern. This helped to determine characteristics of the event, like time of year, whether the temperatures were warm or cold, and whether there was rain, ice, or snow. The Project Team drafted options on possible scenarios that included these stressors. The AC commented on the options and voted on the details to include.

3.4.2 Develop Storm Details, Storm Impacts, and Event Timeline

To ensure that the details were reasonable and recognizable, we used real world data related to past storm events. We worked with staff from the local National Weather Service office and the Maine Geological Survey on storm and flooding details based on previous storm events and the way weather systems function in our location. Their input ensured that we were using a believable and accurate storm scenario.

LESSON LEARNED: Our scenario exercise began with conversations about response and recovery shortly after a storm event, and then it moved ahead to a time six months after the storm, focusing on recovery and beginning preparation for future storms. Fine-tuning the scenario timeline took us a while. We continually looked to the scenario goals and objectives and the length of the scenario planning exercise as we worked through choosing the most effective timeline for the scenario.

LESSON LEARNED: The SRP was developed during the COVID19 era. Whether or not the scenario planning exercise would be virtual or in-person was continually in flux. Once the decision was made that it would be a virtual exercise, we had to shorten the scenario timeline to fit into a half-day rather than full-day exercise.

TIP: Reach out to the National Weather Service for help in developing your storm details and associated graphics.

TIP: Reach out to your local or state experts on flooding and coastal inundation to understand the hazards associated with the storm scenario. For us, it was the Maine Geological Survey.

TIP: County Emergency Management hazard mitigation plans can be a good source of potential storm impacts.

TIP: Use local knowledge to do a reality check of proposed impacts. For example, members on our project team had on-the-ground knowledge of what roads would flood during different types of storm events and whether those roads served year-round or seasonal populations. This kind of knowledge helped us fine-tune the scenario to make it more believable.

3.4.3 Create Injects

Injects are updates provided on the scenario that are shared in the midst of the exercise. They are designed to give the group new information to respond to. Creating injects allows the scenario to evolve. We ended up with two injects because our exercise was only a half day. Because of the virtual format, we felt that it would be difficult to maintain participation and concentration for longer than a half day.

LESSON LEARNED: Injects can be used to target specific stages covered by the scenario. We used injects to help focus discussion on the goals and objectives of the exercise related to response, recovery, and preparation at different periods of time.

3.4.4 Develop Discussion Questions

When developing questions for each section of the scenario, it is important to keep the number of questions manageable. Allow enough time in the schedule for each participant to take part in the discussion and for the discussion to evolve. The questions should ensure that participants discuss key points and start and maintain conversations. The questions can be targeted to stress predetermined areas of social vulnerability; this could be knowledge gained from a pre-event survey.

LESSON LEARNED: We started with a lengthy list of questions for each section of the scenario. When we looked at the time needed for each section of the exercise, however, we realized there were far too many questions. We ended up with five questions that kept us focused on the exercise goal and objectives.

TIP: Make sure discussion questions are tied back to the goals and objectives of the exercise to ensure you stay focused on them.

TIP: Do the math. Once you have determined how much time each discussion section will get, have an idea of how many participants will be in each group, and how much time you want to allot for each participant to comment, you can figure out how many questions you can get through.

TIP: Have back pocket questions if discussion moves more quickly than anticipated. The facilitator's guide includes instructions on how and when to use the back pocket questions.

3.5 Create an Asset Inventory

An Asset Inventory, in this context, is a database of organizations with some role in preparing for, responding to, and recovering from storm events and/or in supporting vulnerable populations.

To assess the capacity within the project's geographic region to address social vulnerabilities, we created an asset inventory of local, regional, state, and federal agencies and organizations by referencing the lists of organizations participating in the initial focus group meetings, suggestions made by Advisory Committee members, the Maine Association of Nonprofits, the IRS list of nonprofit (Form 990) organizations, and general web searches.

The asset inventory systematically compiled and organized information about organizations in the region: where they work, what services they provide, who they support, and when their work happens in relation to a storm event. This information helped us increase our awareness of the range of organizations serving the communities in the study area. Using this information, a needs assessment was conducted to understand the capacity of organizations at different scales to meet the needs of each vulnerability being considered in the scenario planning exercise. By understanding gaps in capacity, it was possible to identify specific elements of the scenario planning exercise to highlight, and it also helped identify important vulnerability characteristics not included in the Maine Social Vulnerability Index.

LESSON LEARNED: It can be difficult and time-consuming to pull consistent information from each organization's website. Information from the web is not always up to date.

TIP: Do not underestimate how much time this will take if your goal is to create a comprehensive database. If capacity to accomplish this task is limited, focus on pulling together the asset inventory for the organizations invited to take part in the scenario planning exercise.

TIP: The Asset Inventory can help identify possible exercise participants.

TIP: Maintaining an up-to-date inventory is an ongoing task. Make sure there is a commitment upfront for an organization or team to continu=e to keep the Asset Inventory maintained and updated.

TIP: Use feedback from organizations that participate in the exercise to make sure that the information in the inventory accurately reflects their organization.

More details on developing the asset inventory can be found in the Asset Inventory appendix of the Guidebook.

3.6 Develop the Exercise Schedule

Having a detailed Exercise Schedule will help you to get through all the elements of your exercise within the allotted time.

The schedule will be based on the length and style of the exercise. Include everything in the exercise schedule: introductions, schedule review, breaks, moving in and out of breakout groups. Choose a style of exercise: virtual or in-person. This will impact the timing and flow of the exercise. We tried to plan for both a virtual and in-person event as recommendations about group gatherings were continually in flux due to COVID19, and we ultimately chose virtual to reduce uncertainty. We would not recommend hybrid (participants join the same event both in-person and virtually) because this is an extremely challenging event format to plan and implement successfully with the level of discussion needed for an exercise.

We shaped our schedule with the following key considerations in mind:

- Ensure that the meeting space is welcoming, whether in-person or virtual. For our virtual event, that involved:
    - » Opening the meeting fifteen minutes early to provide an overview of how to use the meeting platform for participants who are less familiar with virtual technology.
    - » Inviting participants to introduce themselves in the chat when they first enter the meeting.
- Provide clarity on the process for the exercise at the start of the exercise.

    - Provide guidelines for how to work together and ask for commitment to use these practices.
    - Review the exercise objectives, schedule, and breakout room process.
- Ensure that breakout rooms function consistently and effectively.
    - Provide time for participant introductions.
    - Carefully plan time for each of the elements of the breakout rooms and provide facilitators with support from notetakers and timekeepers to stay on time.
- Facilitate sharing of ideas between breakout groups.
    - Bring participants back into the large group to hear report outs on themes from the other groups. In our case, these themes were shared via Google Jamboard.
- Provide time and multiple opportunities for reflection on learning from the exercise.
    - Provide five minutes in the meeting following the last breakout group for participants to complete an online survey of open-ended questions to capture their immediate thoughts on the exercise.
    - Introduce the post-exercise email survey and when to expect it. We emailed ours to exercise participants one week after the event.
    - Hold a wrap-up discussion by asking prompting questions related to high-level topics. Give participants the option to reply verbally or in the chat.
- Clarify next steps so everyone knows what to expect as follow-up from the exercise.
- Provide an overview of what will happen next and the future communications that participants will receive.

TIP: Be careful of being overly optimistic when creating the schedule. The exercise is likely to take longer than you think it will.

TIP: For a virtual event, be sure to have a team of support people at least as large as the team you might have for an in-person event. Virtual events also require unique additional roles, including a meeting host to admit attendees, IT support, breakout room and poll launcher, and chat monitors. For a virtual event, it is also important to begin the event with an overview of expectations for how to use the technology (e.g., when/how to use mute, chat, raise hand).

TIP: While maintaining flexibility about the exercise format keeps options open, set a date to make a final decision.

TIP: Effective communication in the breakout groups is essential to the success of the scenario planning exercise. To ensure that the group members are communicating effectively, we recommend that there is a facilitator in each breakout group and that there are clear guidelines for the discussion and the facilitation. We also recommend proposing Reminders (group norms). Sample reminders are included in the facilitator's guide.

3.7 Invite Exercise Participants

Invite participants representing the sectors and geographic area covered by your exercise. You will want a wide diversity of perspectives and input during the exercise. More details can be found in this document.

We found that the following steps were helpful for the process of inviting participants:

- Ask the Advisory Committee to review and comment on the invitee list and the response list.
- Invite more people than the ideal number of participants. Not everyone invited will attend.
- Include an "RSVP by" date on the invitation. As that date approaches, make calls if necessary. For best results, calls to the invitee should be made by an individual with a personal connection to them.
- Determine optimal number of participants based on event style (in-person, virtual); how many the venue can handle; and your ability to staff with facilitators, notetakers, timekeepers.
- If there are specific sector representation and diversity goals, make sure they are known before developing the invitation list.
- Determine how many representatives you want from each sector; invite accordingly.
- Expect to send out reminders; plan the schedule accordingly.
- Include a contact on the invitation for invitees to reach out to if they need support to attend.

- If using a virtual format, ask participants if they will need a quiet space from which to join, a reliable internet connection, or a computer.
- Leave enough time to invite additional participants if you do not get enough positive responses from the first invitation.
- Ask invitees to pass the invitation along to someone else in their organization if they cannot attend or are not the right person to represent that organization.

LESSON LEARNED: When trying to ensure representation from socially vulnerable groups, consider ways to make their participation possible, such as stipends, transportation, childcare, and access to needed technology.

TIP: Have a space on the registration form where registrants can recommend others for invitation. Some of the most engaged participants in our exercise were people we didn't have on our initial invitee list who were recommended to us by other invitees. After we sent the initial invitation, some who received it reached out to make sure we had other key people on our list.

TIP: Reduce hurdles for participants to take part; this could mean sending a hard copy of the materials to those without computer or printer access.

3.8 Identify and Invite Observers

As non-participating exercise attendees, Observers can provide important feedback on the exercise.

We chose Observers who brought expertise about the region, the sectors, or the storm and flooding conditions. Make sure Observers understand what their role is during the exercise – to observe and not to take part unless specifically asked for their input by an event facilitator.

TIP: Members of the Advisory Committee are valuable Observers. They have knowledge of what went into the development of the scenario, and their observations can help determine if the exercise is successful.

3.9 Create a Briefing Book

The Briefing Book includes everything a participant needs to know to take part in the exercise.

We started with a FEMA template for a Sitman (Situation Manual) and modified it to meet our needs, including changing the name of the document to Briefing Book. At the beginning of the document, include a clear description of expectations and the roles of all of those participating. We chose to create a single Briefing Book for all participants and to provide it in its entirety (including injects) to all before the exercise.

TIP: Make sure that the Briefing Book and the multimedia exercise presentation (see next section) are completely in sync in terms of language, graphics, and other elements.

TIP: Our exercise was a discussion-based exercise; we wanted participants to be able to respond to the discussion questions as completely as possible. Sending out the injects with the Briefing Book before the exercise allowed participants to understand the storm and timing conditions that would be occuring during the exercise so that they could get input from others in their organization and come to the exercise prepared with information about the vulnerable populations their organization would be supporting and how their organization would respond, recover and prepare for the emergency event. This was important to help participants feel comfortable taking part in the discussion sections of the exercise. It also enabled the discussion to move more quickly and effectively to identify where there were gaps in support and opportunities for organizations to collaborate - a key focus of our goals and objectives.

3.10 Create a Multimedia Exercise Presentation

A multimedia presentation provides another way to present the details of the exercise and can help those who find the Briefing Book challenging to follow.

TOOLS USED: We used an ArcGIS StoryMap; it allowed seamless integration of mapped data with narrative text and other multimedia content. We mapped specific impacts associated with our scenario (i.e., where certain roads were impassable) to help participants discuss implications for community members with heightened social vulnerabilities.

TIP: Save the StoryMap creation to the end of the process to save time making changes to it as details change during development of the scenario, injects, and discussion questions.

TIP: Make sure to use local knowledge to ground truth the impacts detailed in the scenario. The Advisory Committee, local and regional hazard mitigation plans, and team knowledge can provide important insights.

3.11 Create Evaluation/Assessment Tools

Evaluation of the exercise is essential to determine the degree to which the goals and objectives are met. Evaluation can also provide insights into gaps, immediate next steps, and future work.

Our assessment process included a pre-event survey, a survey at the end of the exercise before the final wrap-up, a post-event survey, and a follow-up survey to prioritize recommendations from the final report. More details on the surveys can be found in the Evaluation section of the Guidebook.

TOOLS USED: We used Survey 123 (which is connected to ArcGIS Storymaps) for the pre-event, post-event, and recommendation prioritization surveys. We used Google forms to launch a survey immediately before the final wrap-up portion of the scenario planning exercise. Google Forms allowed us to capture and share the feelings of the participants in the moment.

TIP: Include your pre-event survey in the invitation RSVP.

TIP: Make sure you include time in the budget and workflow for analysis of the data collected.

TIP: Using social network analysis to display connections created through the exercise is a great assessment technique to visualize the level of connectedness among the exercise participants before and after the exercise. See the Social Network Analysis section for more information.

3.12 Create a Detailed Script and Process Agenda for Facilitators

Consistent quality facilitation is essential for a discussion-based scenario planning exercise; a detailed script and process agenda is an indispensable tool to reach that goal.

A detailed script including prompts to keep the discussion going will help the facilitators keep the discussion on topic, on time, and focused on the project's goals and objectives. An annotated process agenda that includes timing breakdowns for each discussion section, the back pocket questions, and other details to guide the facilitators is a worthwhile investment to help ensure the exercise runs as smoothly as possible.

LESSON LEARNED: For development of the facilitator scripts, we found it valuable to include members of the project team who had local knowledge. Our scripts included information about specific vulnerabilities and assets in the region; it was very helpful to have input about where people typically drive to go to a hospital or to get gas or groceries, as well as which sections of road already have issues with flooding. We created scripts for three specific locations so that participants from organizations in the local communities would be able to discuss a focused region that they were very familiar with and organizations with a statewide scope would have a strong enough understanding of the geography and assets of the community to actively participate in the discussion.

TIP: Annotate the schedule from the Briefing Book for the facilitators to maintain consistency. Include timing details for each section.

TIP: Use a facilitator script to help create a more consistent experience between the participant breakout groups.

3.13 Identify Support for Each Breakout Group and the Overall Exercise

This is the "infrastructure" for the exercise. The more complete it is, the better and more smoothly the exercise will run.

We took the following steps to ensure the most complete support for each breakout group and for the exercise overall.

- Identify a lead facilitator who will be responsible for running the exercise.
- Each breakout group should have a facilitator, notetaker, and time keeper.
- Observers can be added to any or all of the breakout groups.
- A good facilitator can keep things moving, has strong time management skills, and helps to keep people from fighting the scenario.

- The number of groups you are dividing the participants into will determine the number of facilitators, notetakers, and timekeepers needed. For our exercise we limited the breakout groups to six participants. This number worked best to allow time for each participant to respond to each question.
- We also recommend recruiting backup facilitators in case someone is unable to join on the day of the event.
- Advisory Committee members can be a good fit for these roles.
- Make sure you have IT and logistical support. There will likely be participants with issues that need attention during the exercise. Be sure to have identified team members who can be available to work with participants who have IT issues, questions, or comments that don't pertain to the schedule.
- Assign a team member to monitor the chat both in the breakout groups and when the entire group is meeting together.

LESSON LEARNED: Including facilitators in the development of the exercise increases their familiarity with it and increases facilitation consistency.

TIP: The notetaker can act as the timekeeper if you do not have enough people to separate the roles.

TIP: Identify backup personnel for each role.

3.14 Pre-exercise Training and Practice

Running through the exercise beforehand helps familiarize the support team with the flow and details of the exercise. It can also identify sticky spots in the agenda that can be addressed before the exercise.

We found that the following steps contributed to a successful outcome:

- Training breakout room facilitators, notetakers, timekeepers, and observers in the processes helps to familiarize everyone with the exercise and to ensure the exercise will run as smoothly as possible.
- Pre-exercise training for the facilitators helps standardize the experience the participants will have during the exercise. Use facilitation training to guide your facilitators in best practices for leading a discussion. Pre-exercise practice will provide the

facilitators experience with the Briefing Book, the facilitator script, integration of a multimedia presentation, flow of the exercise, and techniques to keep the discussion moving and focused.

- A scenario planning exercise has a lot of moving parts. Practicing before the actual event provides an opportunity to check the flow of the event, the timing, any IT being used. Changes and backup plans can be developed as needed.
- Include your backup facilitators and note keepers in the pre-event training. This will give them experience with what to expect on the day of the exercise.
- Include the person who will be responsible for the IT on the day of the exercise. This will be a dress rehearsal for the IT as well. It is likely that some IT issues will arise.
- Pre-exercise practice will increase coordination between facilitators and notetakers.

TIP: Everyone should practice and time themselves before the event.

3.15 Beta Test the Exercise

Beta testing the exercise can help determine if your schedule timing is realistic, if your questions work well, and if the Briefing Book and multimedia presentations work smoothly.

While not essential, beta testing can be very helpful. We engaged college students in the beta testing.

TIP: Schedule the beta test far enough in advance to make any necessary adjustments to the exercise or materials.

3.16 Pre-exercise Meeting

This meeting is intended to help familiarize exercise participants with the exercise and expectations of them before the actual event. The pre-meeting is designed to be brief, focusing on providing a high-level overview of what participants should expect at the exercise. The pre-exercise meeting introduces participants to:

- The event, the Briefing Book, the scenario, expectations of their participation, timing on the day of the event, introductions to other participants.

- The Project Team, Advisory Committee, and exercise facilitators.
- The topic of social vulnerability, which we found was new to most participants.

The pre-event meeting was a chance to give participants background, more detail and allow for questions and answers before the event itself. A pre-meeting also helps break up virtual meeting fatigue by reducing the length of the exercise virtual session.

We chose to send out the entire Briefing Book with the injects included; this is not typical in a standard EMA tabletop exercise. We did so because we wanted participants to be able to discuss their organizations' likely response at the event; not all participants will be decision makers within their organization and may feel unable to comment on some new development in the scenario (an inject) on their own. This provides them the opportunity to get feedback from their organization before the actual exercise.

TIP: Encourage participants to go with the scenario and not fight against it. Acknowledge that the scenario may not feel entirely realistic to all participants; encourage them to accept it as presented to avoid investing valuable time at the exercise on evaluating the scenario and not making progress toward addressing it.

TIP: Include the date of the pre-event meeting on the original invitation to participants. This will help ensure their availability for this meeting.

TIP: Send out materials for the pre-event meeting ten days to two weeks ahead of time so they don't get buried in participants' inboxes but still allows enough time to be reviewed.

TIP: Make it clear that a hard copy of the materials is available for those who need it.

TIP: Have your IT support person involved with this meeting.

TIP: Record the pre-event meeting and set the expectation that participants who can't make it will review the recording.

3.17 Create the Breakout Groups Prior to the Exercise

Dividing participants up during the exercise can be done in various ways: by geography, by sector, by organization type, or by role in disaster response, to name a few. Refer back to your goals and objectives to determine which option(s) works best for your project.

- We aimed for approximately six participants per breakout group to provide time for each participant to respond to each question.
- Make sure each group includes adequate representation from each sector or group participating in the exercise. Attempt to evenly divide sector representation among the groups.
- Determine whether the groups will stay the same throughout the exercise.
- Assign specific individuals as facilitators, notetakers, observers, and timekeepers for each group prior to the exercise.
- Share breakout group makeup with facilitators prior to the exercise to help them prepare for the possible dynamics of the group.

LESSON LEARNED: Makeup of the breakout groups should support the goals and objectives of the exercise. For example, we used geographic subregions to inform breakout group make up because we were looking to improve connections and partnerships between towns.

TIP: The size of breakout groups is related to how many support staff you have, how much time you have in the breakout session, the number of questions you want to get through, and the style (virtual or in-person) of your exercise.

4. THE DAY OF THE EXERCISE

On January 26, 2022, 56 invited participants representing the sectors of emergency management, conservation, municipal, and social services attended the SRP scenario planning exercise, a four-hour virtual event built around responding to and recovering from a hypothetical storm.

4.1 Exercise Staff Sign in Early

Early sign in of the project team and all the exercise support staff will give you time to make any needed adjustments and to be ready to start the exercise on time.

As discussed previously, it is important to have a person filling each of the pre-identified roles (notetaker, timekeeper, facilitator, IT support) for the exercise overall and for each breakout group.

TIP: Have exercise staff share cell phone numbers to provide an additional means of communication outside of the meeting platform. For example, a staff member may lose internet connection and be dropped from the meeting. Having cell numbers makes it possible to communicate these issues.

4.2 Participant Sign-in

If you are holding a virtual event, decide ahead of time if you will use a "waiting room" or allow participants to immediately enter the meeting. Be prepared for some participants to have trouble signing in. Budget enough time for the sign-in period to address any issue that pop up. Identify someone to work with the IT support person to keep track of who is signing in.

LESSON LEARNED: Not everyone who RSVP'ed affirmatively will show up the day of the exercise, and others who did not RSVP may join unexpectedly.

TIP: As participants are signing in, someone familiar with the invitation list should work with the IT support to reassign participants and reorganize breakout groups depending on who shows up the day of the exercise. Final changes to breakout rooms can happen as the lead facilitator is working through the early agenda topics.

4.3 Start the Exercise on Time

To complete your exercise within the time you have scheduled, you need to start on time. It is also a sign of respect to all those taking part.

There will be some participants who sign in late. Starting on time is respectful to those who did make it on time and will help ensure that you end on time. The IT person can watch for late arrivals and place them where they need to go based on when they sign in.

4.4 Follow the Schedule and Scripts

This will help you stay on time and ensure as much as possible that participants in different breakout groups have a consistent experience. This also helps keep the entire exercise on time.

TIP: To avoid putting the lead facilitator in the position of needing to navigate individual participant issues and delaying exercise progress, instruct participants to use the chat to ask for assistance when needed, and assign a team member to monitor the chat.

4.5 Introductions

Introductions enable the group to get a sense of who else is involved and whom they will be working with throughout the exercise. Individual introductions can take a lot of time. If your schedule is tight, look for a creative way to introduce participants to each other. For example, we asked everyone to turn off their video. Then we announced each sector (Emergency Management, Social Services, Conservation, and Municipal), and participants representing that sector turned their video back on to enable the rest of the participants to see who joined from that sector.

TIP: Include a list of participants and which sector they are representing in the Briefing Book.

TIP: There will also be time for individual introductions in each of the breakout groups. But keep these brief (name, organization) if you are running on a tight timeline, which we were.

4.6 Run the Scenario

This is where all the planning and practice pays off. Even so, there may be unexpected events during the exercise. Do your best to navigate the bumps. If you have multiple break out rooms, the most important thing will be to stay on time, so each breakout room is ready to move on to the next section of the schedule at the same time.

LESSON LEARNED: There will always be some participants eager to join in the discussion and some who are less eager to do so. We structured the breakout discussion time by allotting a certain amount of time per person per question. The facilitator called on each participant for their input; they always had the opportunity to 'pass' or to drop their comments into the 'Chat'. After everyone had a chance to provide input, there was time for discussion of what was heard. If the discussion slowed or ended early, the facilitator could use the 'back pocket' questions or follow up questions based on the earlier discussion.

TIP: Even though it was covered in the Briefing Book and Pre-event meeting, and in the welcome comments the day of the exercise, some participants may still want to challenge the scenario. Acknowledge their comments and redirect the discussion back to the scenario at hand.

TIP: If there is extra time or the conversation warrants it, the facilitator can ask for input from the Observers.

TIP: Make sure the breakout room facilitators and notetakers have clear communication about who is responsible to hit the 'record' button if you intend to record the breakout sessions. It's easy to forget this.

4.7 Wrap-up Discussion

In a typical emergency management tabletop exercise, this is called the hot-wash. It is a time to capture participants' immediate thoughts and reactions to the exercise.

We opened this discussion to participants, notetakers, and observers. To gather more information in our limited timeframe we also launched a short survey immediately before the wrap up discussion that allowed us to get a general sense of how effective the participants and observers found the exercise. We shared the results with everyone and then moved into general discussion.

LESSON LEARNED: During schedule planning, timing of this survey brought up concerns that participants might leave the meeting if we embedded the survey in the wrap up, or they may not fill it out if we put it at the very end of the meeting. We embedded the survey before the wrap up section and lost no one.

LESSON LEARNED: In our wrap up discussion, EMA representatives were a dominant voice. We would reconsider the method for holding that type of a wrap up to try and create an atmosphere where everyone felt equally empowered to add to the discussion. An option for the future that might provide more space for participants from other sectors could be to ask for comments to a particular question from representatives of each sector in turn. Future exercise planning should include more awareness of the potential power dynamics between participants.

LESSON LEARNED: It was valuable to have an opportunity for notetakers and observers to provide comments/feedback and insights at the tail end of the conversation.

LESSON LEARNED: Sixty people sharing in a virtual format was challenging. An in-person format or holding smaller virtual sessions would have been preferable.

TIP: Include discussion of next steps before the end of the exercise. Inform the participants of any needed participation on their part following the exercise. For the SRP that included a follow-up survey, review of the final report and prioritization of the recommendations. Be as specific as possible with the dates and expectations.

5. AFTER THE EXERCISE

5.1 Post-Exercise Survey

The wrap-up discussion captured participants' thoughts about the exercise the day of the exercise; surveying participants shortly after the exercise can provide additional insights about the exercise and thoughts about integration of the results into ongoing work.

A post-survey was sent to SRP participants a week after the exercise. It included questions about whether the event had increased their awareness of the impact of storm events on socially vulnerable residents; who they thought would be vulnerable to storm impacts; which vulnerable community members they felt their organization could serve based upon their participation in discussions; and any new partnerships they would pursue as a result of the exercise. Participants were asked to select from the list of socially vulnerable categories addressed during the exercise with the addition of categories identified by participants during the exercise. In the pre-survey, participants were asked to identify who they thought would be vulnerable to the impacts of storm events. In the post-survey, participants were asked this same question, but the list included the additional categories identified during the scenario planning exercise. Participants were also asked which vulnerable community members their organization currently served in the pre-survey and which vulnerable community members their organization could potentially serve in the post-survey. We sent a reminder email and then the team sent individualized emails to participants to encourage completion of the survey.

LESSON LEARNED: The surveys were used to determine if we had met our goals and objectives. Some of our questions could have been more direct to better align with the goals and objectives. For example, we did not directly ask if participants had a better understanding of social vulnerability and social resilience after the exercise—a key objective and goal of the exercise and overall project.

LESSON LEARNED: Our surveys generated a lot of data. We had not budgeted enough time for the analysis to take place in a timely fashion. Consider how much time and capacity you have for data analysis as you craft the surveys.

TIP: If you plan to assess how successfully the project addressed the goals and objectives, make sure you include questions that clearly measure that.

TIP: Qualitative questions can provide some valuable insights; they also require more time to analyze.

TIP: It can be helpful to craft drafts of the pre- and post-surveys at the same time. Changes may be needed to the post event survey based on the event.

TIP: Be prepared to follow up with an email to increase post-survey response. The information from the post-survey can be important for identifying next steps in your process.

5.2 Final Report and Final Meeting

It is important to capture what happened during the scenario planning exercise in some type of final report to the exercise participants. A final report provides a historical record of the work.

We discussed the need to provide an appropriate amount of information in the report that would not overwhelm participants but would be actionable. Our final report was based on the results of the surveys, analysis of the recordings, and notes from the actual exercise. We focused on gaps/needs identified, available resources, and recurring themes identified in the breakout groups. It included a list of recommendations identified in the final survey and through analysis of recordings of the exercise breakout rooms. We delivered the final report to the exercise participants in draft form and held a virtual meeting to review the findings together and go through a prioritization of the gaps/needs. Roughly half of the participants in the exercise attended that meeting, which was lower than we had anticipated.

LESSON LEARNED: We underestimated how much time it would take to analyze the survey data and complete the final report. We feel we lost participation in the final steps due to the delay.

TIP: Documentation of the exercise and its outcomes can be useful to groups applying for grant funding to address the identified needs and next steps.

TIP: Notetakers' reports can be key to being able to summarize key themes quickly. Make sure you provide a form for the notetakers to use to help ensure they capture key points.

5.3 Follow-up Survey

This survey gathered input on the recommendations made in the final report. It can be used to prioritize findings and recommendations.

In an attempt to get more input on the report findings and more participation in the prioritization of the recommendations, we sent a follow-up survey to the exercise participants who had not taken part in the final meeting asking them to rank the recommendations in order of importance. However, distribution of this survey was delayed as we were also working on updating the asset inventory, which we wanted to include with the follow-up survey. In addition, it was summer in Maine, which is a difficult time to make progress on large projects and pull meetings together. As a result, the follow-up survey and updated asset inventory did not go out until six months after the exercise. Even with email reminders and personal outreach, we did not get a strong response.

Our process reflected the challenges in maintaining interest in longer-term planning. By holding the follow-up meeting six months from the date of the exercise, our experience reflected the challenges articulated by Advisory Committee members, that keeping individuals engaged beyond the actual event is difficult. Our results supported this concern. For future exercises, holding the follow-up meeting soon after the exercise is recommended.

LESSON LEARNED: Participation dropped off as we moved farther away from the exercise date.

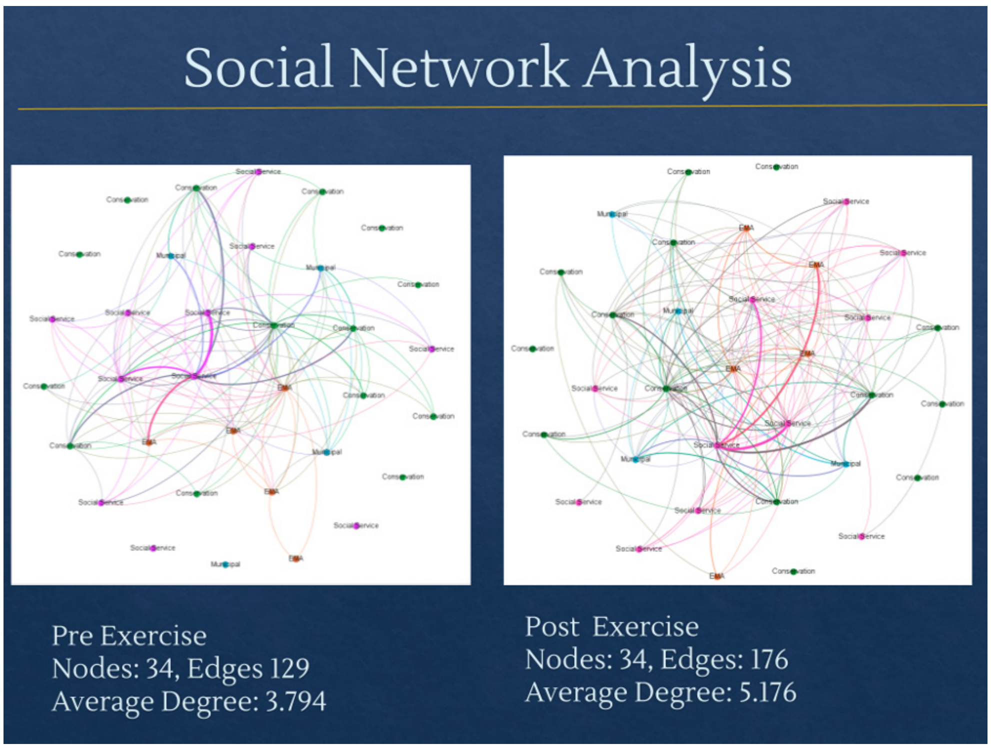
TIP: If survey responses are important to your evaluation process, do not hold up the schedule of sending out the survey.

TIP: Budget time to do follow up phone calls to encourage survey participation.

APPENDICES

APPENDIX A:
SOCIAL NETWORK ANALYSIS

A social network analysis is a way to visualize and assess connections between individuals/organizations and provide insight on the status of a region's social infrastructure. Used in combination with other assessment metrics, social network analysis can help identify changes in connections between organizations as a result of participating in the scenario exercise.



Social infrastructure refers to the degree to which organizations partner and collaborate with one another across sectors to make the best use of both individual skills and organizational strengths. One approach for building resilience, particularly to meet the needs of community members who face the "first and worst" impacts from climate change, is to strengthen social infrastructure, much as we would strengthen physical infrastructure to mitigate the impacts of storm events.

Using the results of the pre- and post-surveys, we were able to conduct a social network analysis with Gephi, a free software product. In the pre- and post-survey, organizations used a dropdown list of organizations to identify those organizations that they either currently collaborate with or would consider collaborating with in the future as a result of the scenario exercise. We formatted the data in Excel and also included information on the sector associated with each organization. Once formatted in Excel, data was imported into Gephi.

Social network analysis can be effective for visualizing changes in connections (i.e., showing more connections between individual organizations, or across sectors, resulting from the exercise) and can also be used to generate more quantitative results (how many more connections, which organizations have the most connections and therefore may be key for establishing strong social infrastructure). A social network analysis can explore changes in social infrastructure, as well as identify potential gaps (i.e., organizations that are not connected to other key organizations, or gaps in connections across sectors).

TOOLS USED: Gephi, Excel

APPENDIX B:
EXERCISE EVALUATION

To determine exercise effectiveness and capture lessons learned, it is important to have an evaluation component.

Having someone on the project planning team with expertise in exercise evaluation will make it much more likely that you end up with useful feedback on the exercise. Our evaluation process included the following components:

- Pre-exercise survey.
- Exercise survey.
- Post-exercise survey.
- Final survey.

B.1 Pre and Post Surveys

We used Survey123 for both the pre- and post-surveys.

The pre-survey was included in the exercise registration form. Questions focused on three key areas: their organization's current provision of services for socially vulnerable residents, their awareness of the impacts of storm events on socially vulnerable residents, and current partnerships with other organizations associated with preparing for, responding to, and recovering from storm events.

A post-survey was sent to participants one week after the exercise. Many of the questions were the same as those in the pre-survey. Their responses after the exercise allowed us to measure how/if the exercise had increased their awareness of the impact of storm events on socially vulnerable residents; who they thought would be vulnerable to storm impacts; which vulnerable community members their organization could serve; and any new partnerships they would pursue because of the exercise. In the post-survey, participants were asked to select from the list of socially vulnerable categories addressed during the exercise with the addition of categories identified by participants during the scenario planning exercise. To maximize the response rate, we sent a reminder email and then the project team sent individualized emails with a link to the survey to participants asking them to complete it.

B.2 Exercise Survey

Before we ended the exercise with the wrap-up section, we launched a very brief survey using Google Forms. The goal was to capture the participants' immediate thoughts and feelings regarding the exercise.

B.3 Follow-up Survey

We held a follow-up meeting six months after the scenario planning exercise. A copy of the draft final report with the invitation was sent several weeks in advance of the meeting. A meeting reminder along with the draft final report was sent a week ahead of the meeting. At the follow-up meeting, participants ranked the list of recommendations from the report in order of priority. Because we had very limited participation at this meeting, we sent out a follow-up survey several months later via email. This email with the survey included the asset table and the draft report with recommendations. Participants were asked to rank the recommendations and identify any new practices they had employed since the scenario planning exercise.

TOOLS USED: Survey 123 and Google Forms

TIP: If possible, use dropdown lists for participants to choose from in the survey. It will standardize responses.

TIP: A shorter timeframe between the exercise and the release of the draft final report and associated meeting would likely elicit greater participation.

TIP: The longer the timeframe, the more likely that there will be staff turnover in the participating organizations; this makes it difficult to capture participant feedback.

APPENDIX C: DEVELOPMENT OF ASSET INVENTORY AND GAP ANALYSIS

An asset inventory is a comprehensive database of groups and organizations with contact information and basic explanations of what role(s) those groups and organizations play in preparing for, responding to, and recovering from storm and other disaster events. It provides a way to identify gaps in available resources.

C.1 Asset Inventory Overview

The asset inventory developed for SRP is a comprehensive database of organizations who may be engaged with planning and preparing for, responding to, and recovering from storm events. To assess the capacity of the region to address social vulnerabilities, we developed this inventory of local, regional, state, and relevant federal agencies and organizations. The asset inventory is designed to provide easier access to information about local, regional, and statewide resources and to improve understanding about the capacities of existing resources. The inventory also helped us improve understanding of the links and gaps within and between the sectors taking part in the scenario planning exercise (social services, conservation, emergency management and municipal governance). Organizations included in the asset inventory were identified through the initial focus group meetings, recommendations from the advisory committee, the IRS List of non-profits (also referred to as 990 organizations), the Maine Association of Nonprofits, and web searches. The asset inventory developed for our project took two forms: long and short. The long form is more comprehensive and therefore less user-friendly. To generate a tool that would be more practical for new users, the short asset inventory was developed and included fewer fields: name of the organization and region served, where the organization focuses its services in the emergency response timeline (pre, during, or post-event), who provides support (individuals, non-profits, businesses), and which socially vulnerable community members are the focus of the organization's services.

C.2 Where to Find the Information

The asset inventory summarizes key information gathered from each organization's website. Some of the information needed to populate the Asset Inventory was easily located, but some required a deeper dive into the organization's website.

TIP: Look for secondary mission statements that might be more directly tied to social resilience and support for vulnerable populations during an extreme event. For instance, in this region many conservation organizations have adopted a secondary mission to improve food availability. They are doing this through partnerships with food councils, food banks, and organizations that harvest food that would otherwise be left in the field, and by hosting community gardens. During a storm event, they can address food insecurity as a secondary task with food banks and gleaners who do this work full time.

TIP: Annual reports, budgets, news items, listings of partners, affiliates and programs are all sources of information that helped fill out the Asset Inventory.

C.3 Long and Short Asset Inventories

The long Asset Inventory is designed to be a comprehensive source of information for the benefit of emergency managers, conservation organizations, municipal officials, and social service agencies who may not be familiar with the range of local, regional, and statewide stakeholders who could be involved in social resilience planning and disaster recovery. The SRP asset inventory compiles information about each organization's assets related to preparing for, responding to, and planning for storm events. Compiled information includes:

- Organizational name and contact information.
- The sector(s) the organization represents.
- The organization's knowledge and skills expertise.
- The financial or economic assets of the organization such as grant or loan programs, and alternative financing.
- The organization's physical assets such as infrastructure, facilities, and equipment.
- The services, help, or aid provided by the organization.
- The primary relationships built by the organization including social or professional ties to other organizations.
- The primary demographic and geographic populations served by the organization.
- The data or information collected and used by the organization during storm events.

- The vulnerable populations primarily served or vulnerability factors addressed by the organization.

In our case, the long asset inventory is approximately 75 pages long.

Because of the extensive information in the long assets table, we decided to create a briefer version, referred to as the short asset inventory, that would provide key information on each of the organizations included in the long asset table. The short asset inventory includes the name of each organization organized by scale (serving at the local, regional, or state level), the point at which the organization engaged in disaster response (pre, during and/or post), and those populations with heightened social vulnerabilities served by the organization.

C.4 Gap Analysis

Sorting the listings in the long asset inventory provides a mechanism to compare available resources and note gaps in resources available for different vulnerable populations during extreme events. The inventory can also identify those organizations that are resource-endowed through their grants and infrastructural assets and those organizations that are under-resourced. This information can be useful in identifying needs and potential partnerships to build capacity and more effectively support vulnerable populations.

C.5 Additional Ways to Use the Asset Inventory

- To help generate a participant list for a scenario planning exercise.
- To provide input into a social network analysis.
- To foster partnerships between organizations.
- As an information source for organizations not traditionally involved in resilience planning.
- As a data source that can be useful in areas beyond emergency mitigation, planning and response. Organizations can refer to the assets Inventory during policy making, training, research or strategic planning.

C.6 Verifying and Updating the Asset Inventory

Websites can be incomplete and out of date. While they are a great place to start gathering data for an asset inventory it is important to verify that data. A sub-group of our Advisory Committee reviewed the asset inventory. To ensure the entries for exercise participants were as up to date as possible, we asked the exercise participants to review and edit their organization’s entry in the asset inventory. In the summer following the scenario planning exercise, we updated the short asset inventory based upon feedback in our post-survey and from reviewing updated websites for the organizations. The short asset inventory was shared with participants along with the final scenario planning exercise report. However, keeping the inventory up to date is an ongoing task.

LESSON LEARNED: We did not budget time for someone to revise the asset inventory based on the input from exercise participants. Updating it languished and was partially responsible for our delay in sending out the final report.

TIP: When planning to develop an asset inventory, identify someone who will be responsible for its care and feeding after the project ends.

APPENDIX D: RESOURCES

Advisory Committee Job Description

Project Goals and Objectives

SRP Team Organization Tasks

Exercise Goals and Objectives

Facilitators’ Guide

Asset Inventory Example

Exercise Agenda

Process for Identifying Exercise Invitees

Observers’ Guide

Southern Midcoast Maine Social Resilience Project Briefing Book

Social Resilience Scenario Planning Exercise Final Report