



CLIMATE READY COMMUNITIES

A Practical Guide to Building Climate Resilience



CLIMATE READY COMMUNITIES

A Practical Guide to Building Climate Resilience

ClimateWise® team

This Guide was developed by the Geos Institute's ClimateWise® Team: Marni Koopman, Tonya Graham, Christina Mills, Geoff Weaver, and Jessica Leonard. Jes Prada provided the illustrations for the *Three Little Pigs* and David Ruppe endured edit after edit as our graphic designer as we moved toward publication. The Kresge Foundation's strong support in the early years provided our team with the capacity needed to develop the Whole Community Resilience framework. This Guide and the complementary services offered through the Climate Ready Communities program are the result of over a decade of working with local leaders who are grappling with the realities of a changing climate. This guide is written for them.

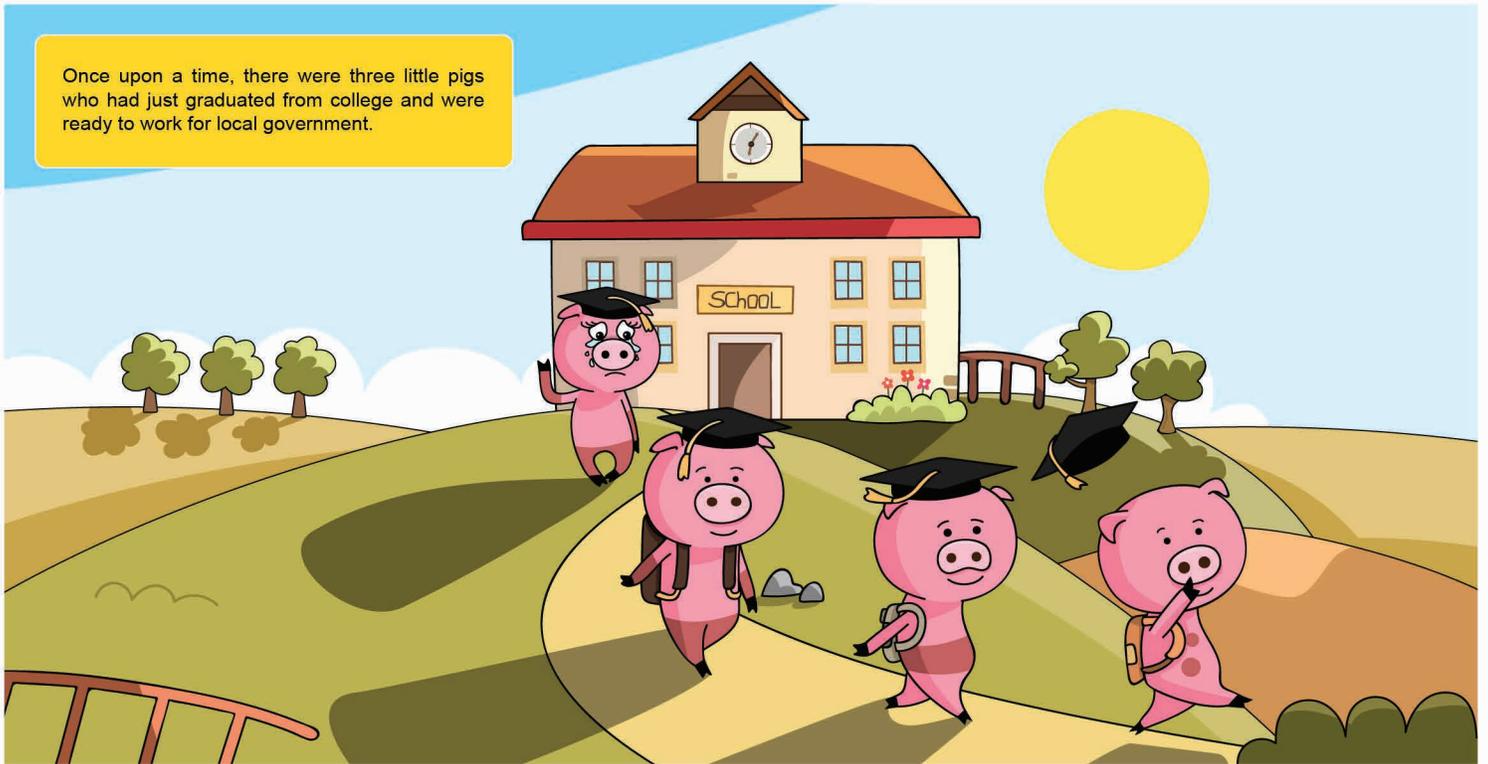
© Geos Institute 2019

Version 3, Updated July 2019

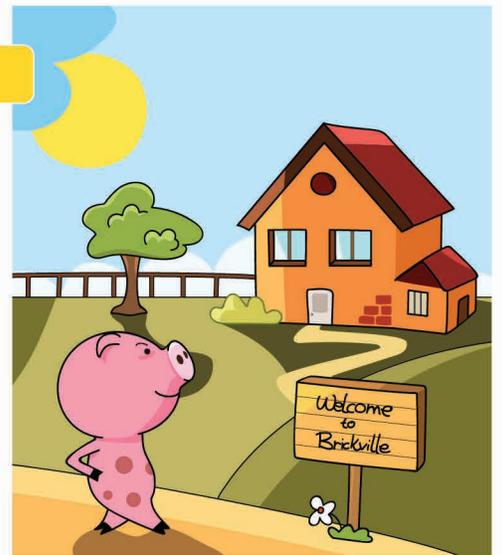
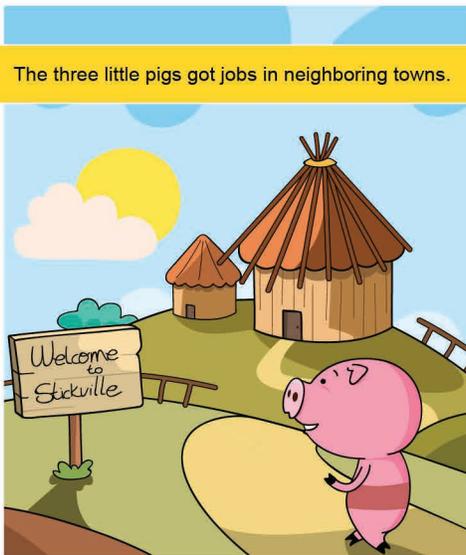
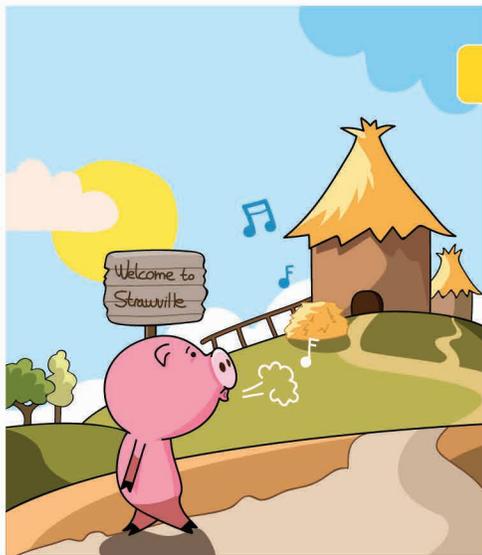
Table of Contents

Three Little Pigs	IV
Welcome	IX
Getting Started	XIII
Step 1: Launch the Project	1
Step 2: Assess Past and Future Trends	31
Step 3: Identify and Prioritize Vulnerabilities	55
Step 4: Develop and Prioritize Resilience Strategies	83
Step 5: Finalize and Share the Plan	107
Step 6: Implement the Plan	117
Step 7: Monitor and Reassess	131
Appendix A: Glossary of Terms	136
Appendix B: RFP Guidance	138
Appendix C: Resources for Reducing Greenhouse Gases	142
Appendix D: Sample Informational Flyer (for stakeholder outreach)	144
Appendix E: Workshop Facilitation Resources	147
Appendix F: Workshop Facilitation Resources	148

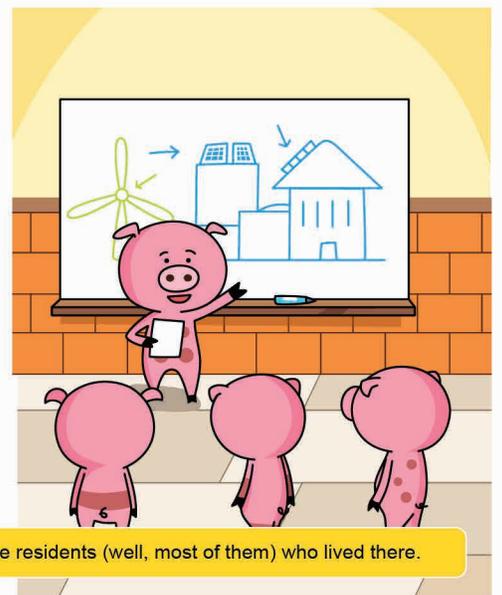
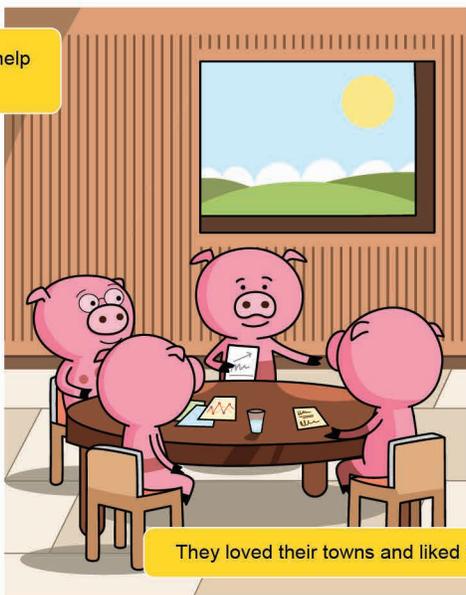
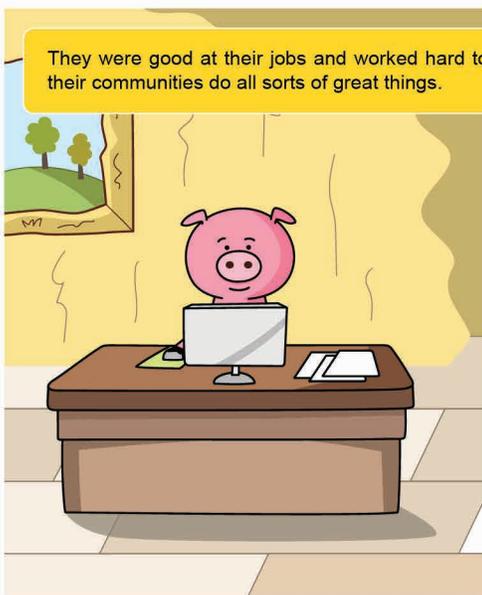
Once upon a time, there were three little pigs who had just graduated from college and were ready to work for local government.



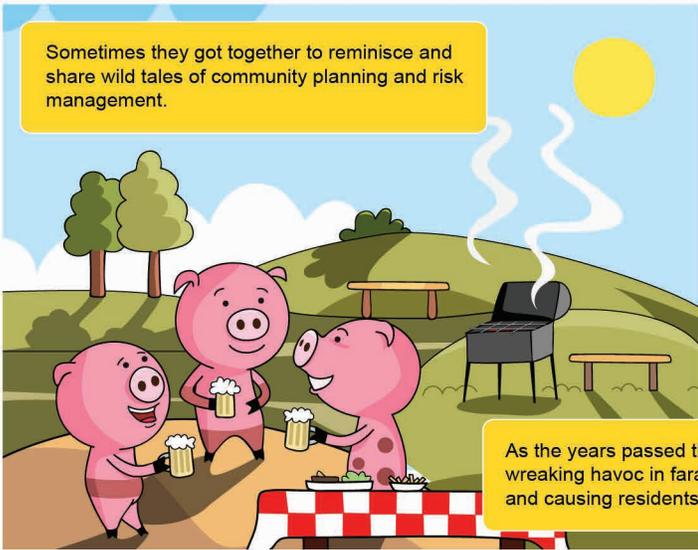
The three little pigs got jobs in neighboring towns.



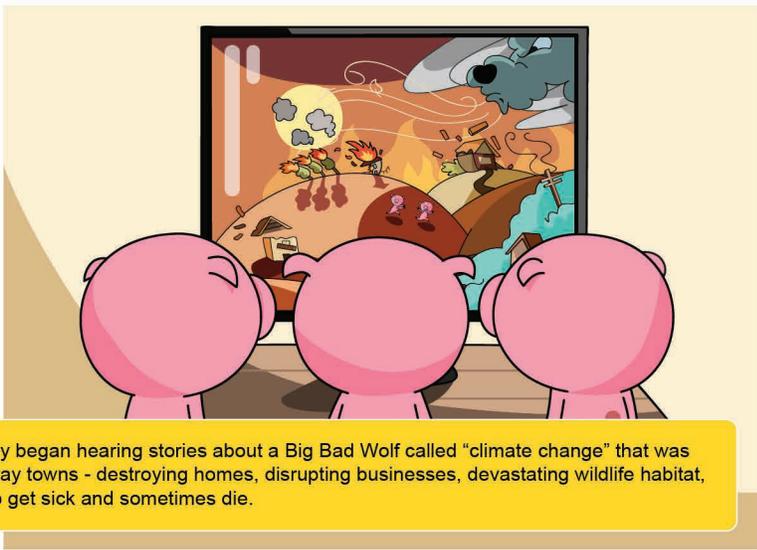
They were good at their jobs and worked hard to help their communities do all sorts of great things.



They loved their towns and liked the residents (well, most of them) who lived there.



Sometimes they got together to reminisce and share wild tales of community planning and risk management.



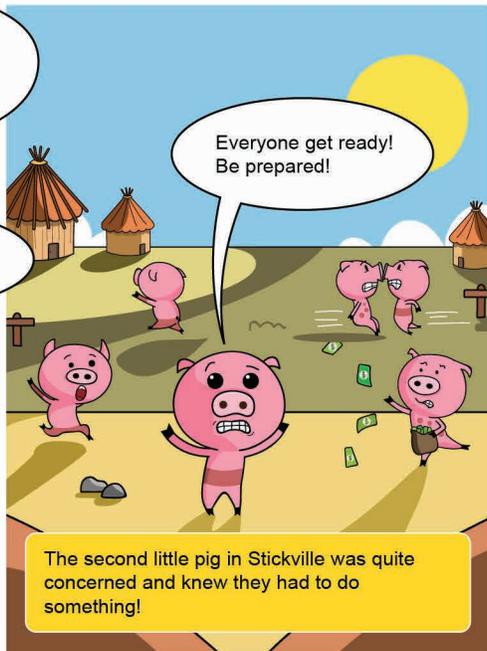
As the years passed they began hearing stories about a Big Bad Wolf called "climate change" that was wreaking havoc in faraway towns - destroying homes, disrupting businesses, devastating wildlife habitat, and causing residents to get sick and sometimes die.



There's no such thing as a Big Bad Wolf except in fairy tales!

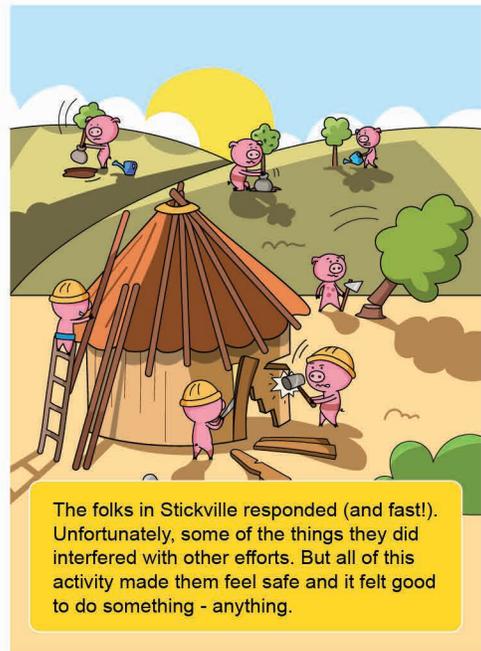
Yay! What a relief!

The first little pig in Strawville was not concerned. They had never seen a Big Bad Wolf and thought the stories were exaggerated to scare them into doing things they didn't want to do.

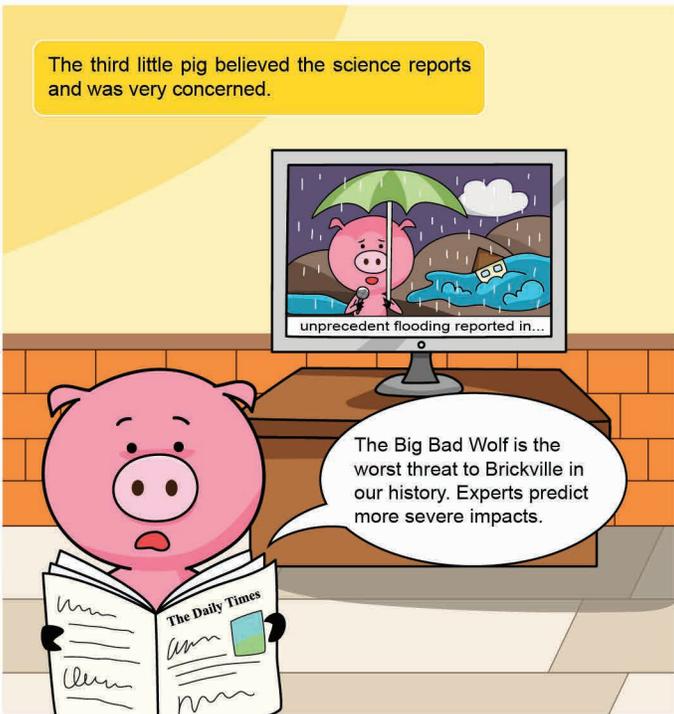


Everyone get ready! Be prepared!

The second little pig in Stickville was quite concerned and knew they had to do something!



The folks in Stickville responded (and fast!). Unfortunately, some of the things they did interfered with other efforts. But all of this activity made them feel safe and it felt good to do something - anything.



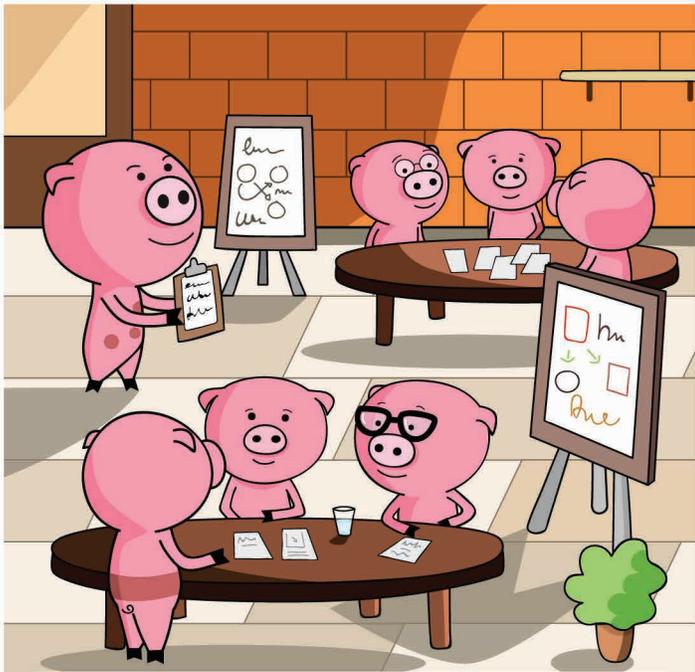
The third little pig believed the science reports and was very concerned.

unprecedented flooding reported in...

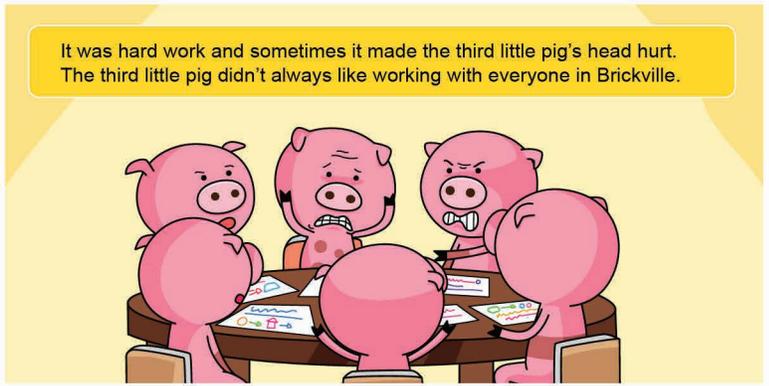
The Big Bad Wolf is the worst threat to Brickville in our history. Experts predict more severe impacts.



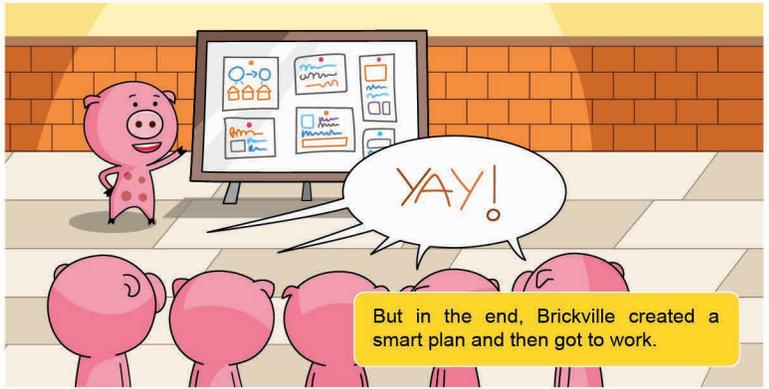
It was hard to resist the urge to start doing something - anything! But the third little pig was an experienced community leader and understood the importance of thinking and working together.



The third little pig brought everyone together to create solutions that helped the whole community become more resilient, rather than just this section or that group.



It was hard work and sometimes it made the third little pig's head hurt. The third little pig didn't always like working with everyone in Brickville.

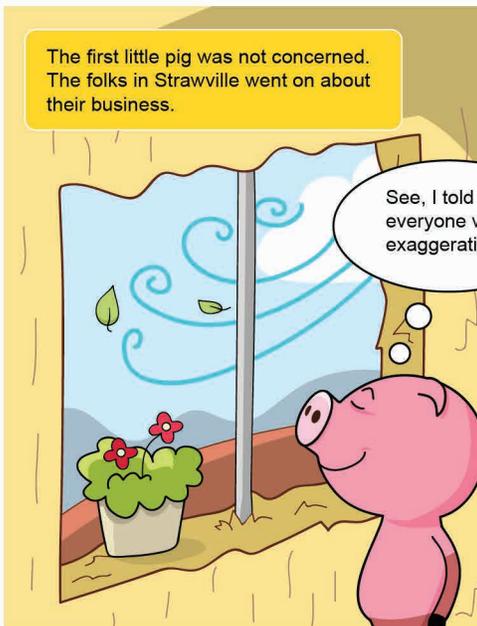


But in the end, Brickville created a smart plan and then got to work.



Just as predicted, the Big Bad Wolf arrived...

...quietly at first, which was a surprise because many expected a Big Bad Wolf to be loud and obnoxious right away.



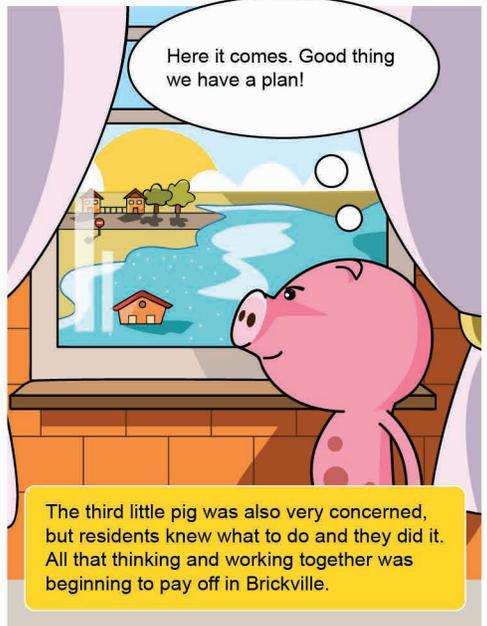
The first little pig was not concerned. The folks in Strawville went on about their business.

See, I told you everyone was exaggerating!



Yikes, it's here! We need to move faster!

The second little pig was very concerned.

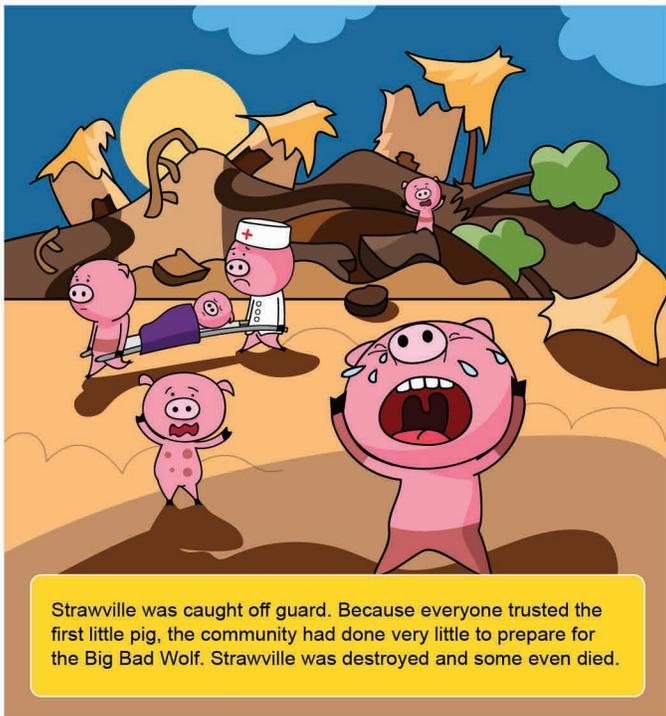


Here it comes. Good thing we have a plan!

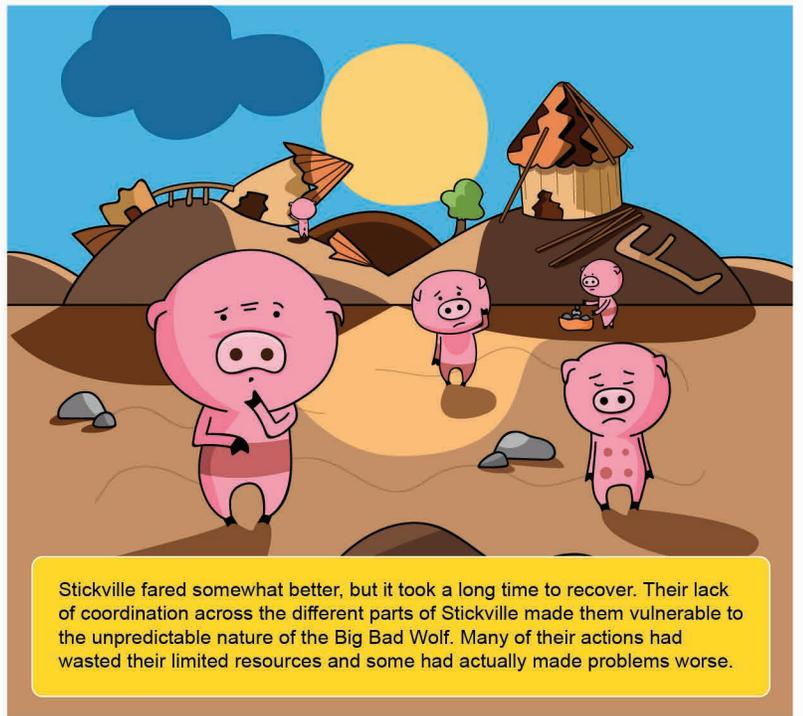
The third little pig was also very concerned, but residents knew what to do and they did it. All that thinking and working together was beginning to pay off in Brickville.



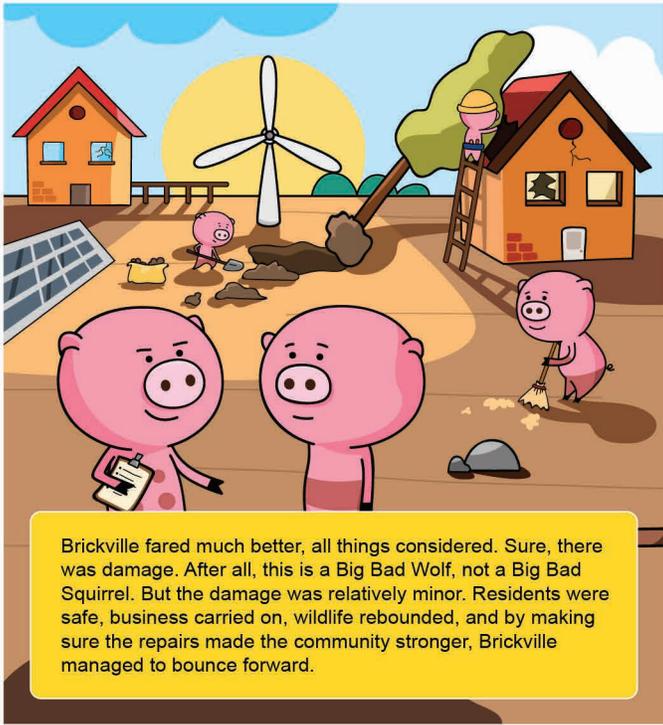
One day the Big Bad Wolf showed up in full force, for Big Bad Wolves can show up however they like. It was bigger than before. And more destructive. And scarier. Blowing in with storms the likes of which no one had ever seen, breathing fire, and flooding landscapes, the Big Bad Wolf made its way through Strawville, Stickville, and Brickville.



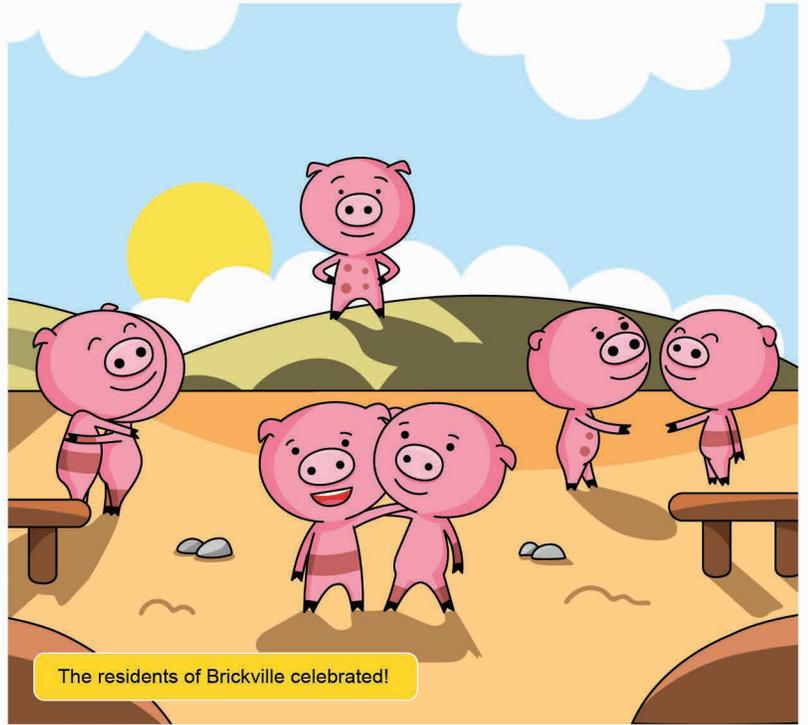
Strawville was caught off guard. Because everyone trusted the first little pig, the community had done very little to prepare for the Big Bad Wolf. Strawville was destroyed and some even died.



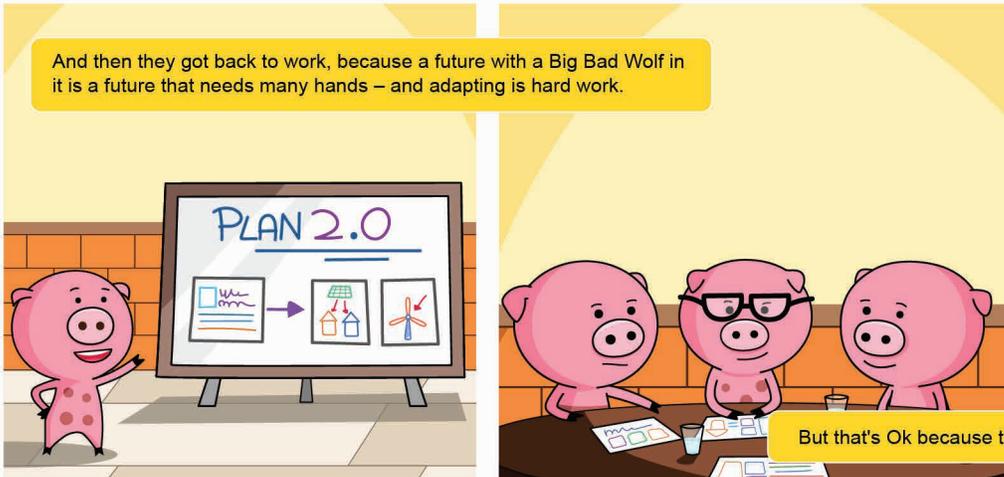
Stickville fared somewhat better, but it took a long time to recover. Their lack of coordination across the different parts of Stickville made them vulnerable to the unpredictable nature of the Big Bad Wolf. Many of their actions had wasted their limited resources and some had actually made problems worse.



Brickville fared much better, all things considered. Sure, there was damage. After all, this is a Big Bad Wolf, not a Big Bad Squirrel. But the damage was relatively minor. Residents were safe, business carried on, wildlife rebounded, and by making sure the repairs made the community stronger, Brickville managed to bounce forward.

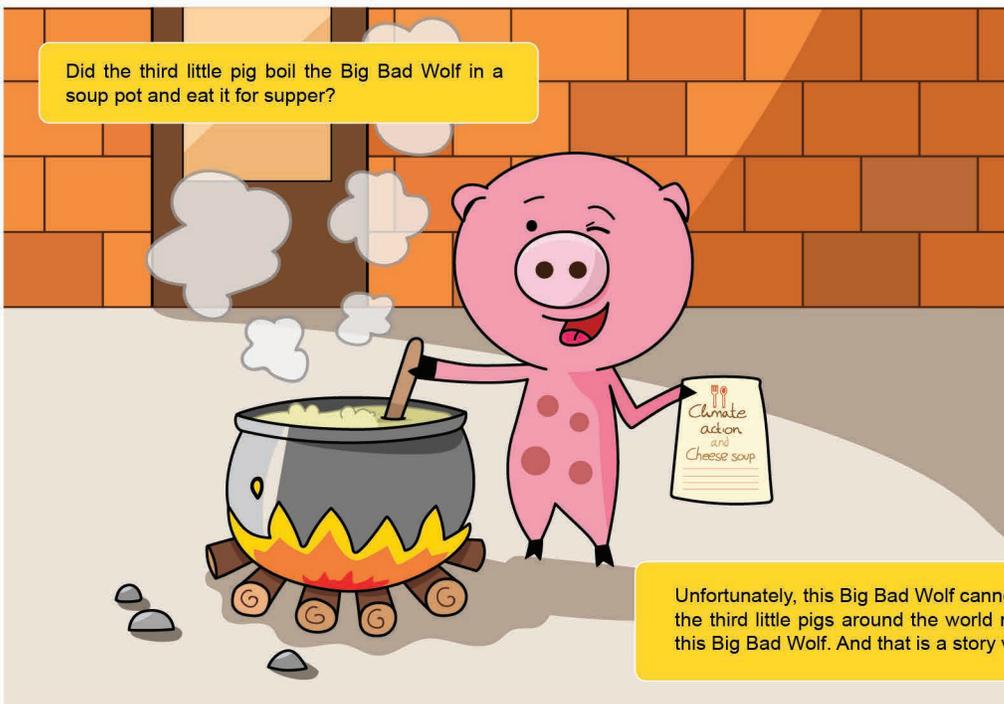
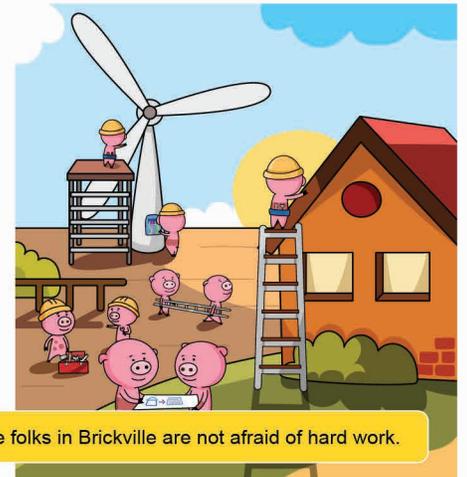


The residents of Brickville celebrated!



And then they got back to work, because a future with a Big Bad Wolf in it is a future that needs many hands – and adapting is hard work.

But that's Ok because the folks in Brickville are not afraid of hard work.



Did the third little pig boil the Big Bad Wolf in a soup pot and eat it for supper?

Unfortunately, this Big Bad Wolf cannot be eaten by a single little pig. All the third little pigs around the world need to work together to deal with this Big Bad Wolf. And that is a story we hope will have a happy ending!



Welcome

We hope you enjoyed our rendition of the Three Little Pigs. Climate change is challenging, especially if you understand the magnitude of the risk, but are not sure what you should do about it. It is especially challenging if you are responsible for the health and safety of the people in your community.

We all want to be the Third Little Pig—the one who makes good choices to protect our family and community. But how?

It is easy to say “work together” and “cooperate,” but most planning structures routinely push us to develop single-sector or single-resource plans.

This guide will help you take interdisciplinary and cross-sector resilience concepts to the ground in your community by creating an actionable plan that is well supported by residents. You will learn how to approach specific tasks, address common obstacles, recognize when a “solution” might create more problems than it solves, and where to find assistance and information, because even the Third Little Pig needs help sometimes.

We created this guide and support program because we want any community, anywhere in the country, to be able to get started immediately building climate resilience. Over more than a decade helping local communities, we have learned how confusing all of the different frameworks and resources can be for those who are not familiar with them (and even for those who are!).

If you decide that you need assistance in addition to the Guide, our team has a range of support options which are outlined later in this section of this Guide and can also be found at:

www.climatereadycommunities.org/learn-more

The Climate Ready Communities Team



iStock

Who Should Use This Guide

If you are responsible for developing a climate adaptation or resilience plan for your city, town, county, or tribe and anticipate that you need to do some or all of the work yourself, this guide is for you.

We know how hard it can be to develop a climate resilience plan and get it implemented, especially if you are doing it in a community that is uncomfortable acknowledging the reality of climate change and the need to take immediate action. Even in communities with strong support for climate action, many people are unsure how to get started, what tools to use, and how to get the work done within a tight budget. This guide will walk you through the steps to climate resilience. It can also serve as a good reference document if you intend to hire outside consultants to do the work. In that case, the RFP guidance in Appendix B may be particularly helpful to you.

The Climate Ready Communities Program

Resilient communities are those that are able to predict, prepare, and respond to change in a positive manner. As local and global conditions change more rapidly, communities will need to keep up. Many local governments are currently undertaking the task of building resilience at the local level, and best practices and lessons learned are coming out of these efforts.

While based on our Whole Community Resilience framework, this guide also distills what has been learned from many different approaches that have

been tested throughout the U.S. and Canada. It is intended to support all local communities in their efforts to build resilience, but particularly small to medium-sized communities with more limited resources, capacity, and/or expertise.

This guide provides detailed instructions on how to conduct vulnerability assessments and develop resilience strategies with limited assistance. Throughout the guide, we share resources (most of them free) offered by other organizations that can be helpful at different steps in the process.

If You Need More Support

The guide is intended to be a stand-alone, do-it-yourself resource. However, getting assistance for certain steps of the process can help you move more quickly and allow you to focus on the activities that you are already good at. Local city or county staff often find they need help engaging the public effectively, sorting through data and model projections, or planning effective workshops. In order to serve these needs, we have developed the Climate Ready Communities Annual Support program that includes:

- ▶ Templates for critical tasks throughout the Guide
- ▶ Tutorials for templates and key resilience concepts
- ▶ Regular webinars and group calls
- ▶ An online community forum
- ▶ Email support for basic inquiries
- ▶ 3 hours of phone consulting per year

Whether your community takes advantage of the Annual Support program or not, the following “Other Services” are available at an affordable price:

- ▶ Blocks of consulting time with the experts in our consulting network
- ▶ Local climate change projections and online presentations for community outreach
- ▶ In person facilitation of Vulnerability Assessment and Adaptation Strategy Workshops
- ▶ Assistance writing Vulnerability Assessments and Climate Resilience Plans
- ▶ Webinars on climate and resilience related topics for use with the project team, taskforce, and/or general public

If you need expertise that is not offered through our program, we can help you find it. For more information about our services, visit:

www.climatereadycommunities.org/learn-more

The logo for Geos Institute, featuring the word "GEOS" in a large, white, serif font above the word "INSTITUTE" in a smaller, white, sans-serif font, both set against a dark red rectangular background.

GEOS
INSTITUTE

Who We Are

The Geos Institute has spent over ten years helping communities and natural resource managers develop climate resilience plans. We are a team of experienced climate adaptation planners, scientists, GIS analysts, and process facilitators. We have the scientific expertise and communications experience to bring sound science into local planning, and to help communities develop climate resilience strategies for both people and nature. To learn more about our team, visit: www.climatereadycommunities.org/support-team/



Getting Started

Why Do Resilience Planning?

Build Resilience – While climate change is a global challenge, the impacts are felt and addressed at the local level. Extreme floods, droughts, storms, wildfires, and the chronic impacts of sea level rise and permafrost melt are local—and they fall to local governments to handle. Because climate change exacerbates existing risks and brings new ones, it is critically important that all communities build climate resilience. A resilient community will understand what changes to expect, make smart investments, and ensure that residents are prepared for climate impacts. The sooner a community begins to prepare for change, the greater the potential to avoid loss of lives and property. When communities wait until major impacts are upon them, the costs are greater and the options for effective response are fewer.

Create Multiple Benefits – Many, if not most, effective resilience strategies create multiple benefits across the community, which makes them very low risk to implement, even with an uncertain future. Co-benefits might include increased public safety, greater equitability in housing or health, or economic opportunities that come from efforts to build climate resilience. Climate resilience strategies that also address the need to reduce greenhouse gas emissions should be a top priority.

Address Other Community Goals – Many existing sustainability frameworks and compacts provide additional points or status for measurable efforts to increase climate resilience. The STAR Communities Program, Global Covenant of Mayors, and FEMA's Community Rating System (CRS) are just a few such programs where communities can use the results of this planning process to make progress on other community goals, such as reducing insurance rates.



Pixnio

Plan for Future Conditions – Some local leaders have concerns about the uncertainty of climate projections and are hesitant to make plans based on them. Yet, if we are not planning based on likely future conditions, we are by default planning for historical conditions, which sets us up for failure. Instead of assuming continued historical conditions, it is prudent to consult the best available science to determine likely future conditions, and revisit the science on a regular basis. Climate models are associated with uncertainty, but it is important to remember that so are other types of models that we use in planning on a regular basis, such as population growth, traffic, and economic models. We are used to planning under uncertainty, so this should not be a barrier to preparedness.

Climate Change Mitigation Versus Adaptation

Efforts to address changing climate conditions generally fall into two categories:

Mitigation refers to actions that reduce the overall magnitude or rate of long-term climate change by reducing the concentration of greenhouse gases in the atmosphere. Primary sources of greenhouse gas emissions include the combustion of fossil fuels and deforestation.

Adaptation refers to actions that lessen the impacts of climate change or protect people and nature from those impacts. For the purposes of this guide, climate resilience, or the ability of communities to predict, prepare, and respond to climate change in a positive manner, is used interchangeably with adaptation.

Imagine a car racing toward a brick wall, too fast to stop in time. The driver has two primary tools—the brakes, which will slow the car down, and the airbags, which will cushion the passengers when they crash. **Mitigation is the brakes**—it will slow climate change and reduce the overall magnitude of change. **Adaptation is the airbags**—it will protect and cushion people and nature as climate change progresses. **We need both.** We cannot simply adapt our way out of runaway climate change because the impacts will be too great, but many of the impacts are already upon us and will continue to worsen. While this guide and our

support services focus on adaptation efforts, we also include resources in Appendix C to assist with mitigation, and we strongly advise communities to take action on both.



CC BY 2.0 Uberto

Whole Community Resilience

Our experience with communities of different sizes and political views is what led us to develop the Whole Community Resilience approach. Whole Community Resilience comes from cross-sector coordination and collaboration throughout the planning and implementation process. Climate change presents major challenges to all parts of our communities, including water resources, human health, economics, emergency preparedness, natural systems, vulnerable populations, cultural resources, and

many others. The complexity and all-encompassing nature of climate change mean that we need a systems approach to developing long lasting and collaborative solutions. Without a systems approach, climate change solutions in one sector are likely to exacerbate stressors to other sectors. Even if your plan has a municipal-only scope (see Task 1), there are compelling reasons to utilize the broader Whole Community Resilience planning process to identify vulnerabilities and strategies across diverse sectors.

Whole Community Resilience can be achieved using a variety of methods as long as the following three primary components are included:

Cross-sector Vulnerability Assessment and Strategy Development

A wide range of community sectors needs to be brought together to collaboratively assess vulnerabilities and develop strategies. This ensures coordination and co-benefits while avoiding strategies that simply shift the risk from one sector to another or to future generations. Mitigation strategies (those that reduce greenhouse gas emissions) will also need to be coordinated to ensure they are compatible with building community resilience.

Multi-stakeholder Engagement

The more a resilience planning process is designed to be inclusive of a diverse set of stakeholders, the more likely it is that the resulting strategies will be implemented and effective. Each stakeholder brings his or her own perspective, expertise, and ideas. Knowledgeable stakeholders, both specific to certain sectors (like health care, water distribution, etc.) and from the general public (informal community leaders, local residents, etc.) bring important perspectives and experience to the planning process.

Learning and Improvement Over Time

Communities will need to monitor, reassess, and be ready to change course, as needed. As we gain more information about how climate change is expected to progress, as well as what types of responses are



Tonya Graham

Benefits of Whole Community Resilience Planning

- ▶ Creates benefits across the community
- ▶ Helps communities make smart investments
- ▶ Creates support for implementing resilience strategies
- ▶ Minimizes redundancy and conflict
- ▶ Promotes nature-based solutions
- ▶ Ensures that the needs of under-represented people are met
- ▶ Strengthens community relationships
- ▶ Helps address chronic community stressors

most effective, this new information will need to be incorporated into the planning process. By incorporating monitoring and assessment into the implementation process, the plan will lead to increased knowledge and improvement with each iteration.

Working across sectors and with diverse stakeholders is critically important to develop a climate resilience plan that makes sense and can be implemented in your community.



Overview of the Whole Community Planning Process

1 Launch the Project – This step includes scoping in terms of geography and breadth, developing a local Task Force, and formally kicking off your project.

2 Assess Past and Future Trends – This step explores historical trends in climate and community conditions, as well as projected future trends.

3 Identify and Prioritize Vulnerabilities – In this step, community experts across diverse sectors work together to determine how climate change is expected to play out in your community.

4 Develop and Prioritize Resilience Strategies – Cross-sector groups will develop and prioritize strategies for reducing vulnerabilities, prioritizing those that create co-benefits, cost savings, and new collaborations. Each strategy will have clear goals and a specific monitoring protocol.

5 Finalize and Share the Plan – You will build on the community engagement work of Steps 1-4 to bring the community together to build support and momentum for implementing the plan.

6 Implement the Plan – The Task Force will develop an Implementation Team to implement prioritized strategies. Implementation can be primarily the responsibility of city, county, tribal, or federal government agencies and staff, but businesses, non-governmental organizations, schools, tribes, and other groups and individuals will also have a role to play.

7 Monitor and Reassess – Each strategy will be closely monitored to track progress. Many strategies are new and innovative, making it especially important to learn from both successes and failures. Because of ongoing advancements in climate science and changing conditions, your plan will need to be updated on a regular basis to incorporate new information.

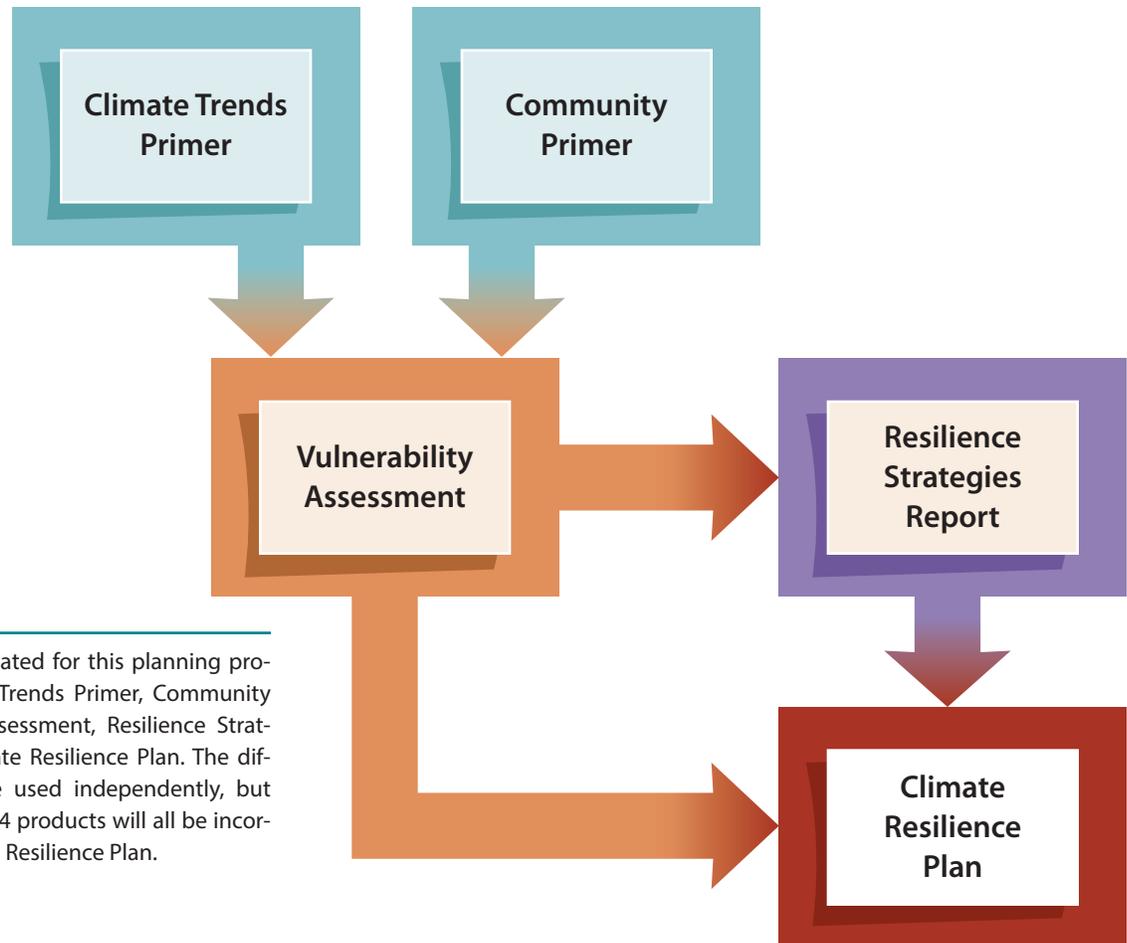


FIGURE 1 Products created for this planning process include a Climate Trends Primer, Community Primer, Vulnerability Assessment, Resilience Strategies Report, and Climate Resilience Plan. The different products can be used independently, but components of the first 4 products will all be incorporated into the Climate Resilience Plan.

Key Considerations for Resilience Planning

Engaging the Community

The Whole Community approach relies heavily on community engagement and buy-in. By inviting people into the planning process early and consulting them throughout, the plan will be much stronger and generate more support for implementation. Because addressing climate change can be controversial, it can be tempting to avoid public engagement in order to protect your process from opposition. This is a mistake. Leaving out the public engagement element will generally lead to a plan that fails to address the diverse needs and concerns of the community and is not well-supported. It is exactly because of the often controversial nature of the issue that the public should be engaged early and

continuously throughout the process. The best way for that engagement to take place will depend on the characteristics of your community and the level of commitment to addressing climate change. Many different engagement options are offered throughout the guide.

Engagement activities should be designed to use language and culture that connect with local people of diverse backgrounds. Take steps to ensure people of different ages, incomes, geographies, and sectors are included in outreach efforts. It is also very important to engage the local business community as community planning processes often overlook this critical sector.

Engagement activities should be designed to both educate and learn from the community. In communicating with the local community, you can share information on climate impacts while empowering residents to take action and make a difference. By listening to diverse groups, you will learn what barriers or opportunities may exist for developing resilience. Both types of engagement will benefit from an in-depth understanding of local values and community drivers.

Creating a Fair and Equitable Resilience Plan

Those hit hardest by climate change (i.e. frontline communities) have often contributed the least to the problem, and have the fewest resources to adapt. These include lower income individuals and families, people of color, people with disabilities, outdoor workers, non-English speakers, people without

homes, and others. Climate resilience planning creates an opportunity to develop strategies that help address underlying community stressors and historical inequities. A plan that does not explicitly address issues of equity and diversity is likely to, inadvertently, result in the further compounding of historical inequities. The good news is that the Whole Community approach promotes co-benefits, such as reducing energy use and expense or improving health, which can empower historically under-represented groups.

Fostering resilience for all members of the community requires bringing diverse community members into the planning process at the outset. Many under-represented groups have not had direct community planning involvement in the past. It is important that under-represented communities be given influence and control over the process, not just be asked for their input. Begin by engaging

Core Equity Values

The National Association of Climate Resilience Planners' *Community-Driven Climate Resilience Planning Framework* calls for resilience planning processes to:

- ▶ actively address the inequities that contribute to vulnerability
- ▶ identify and address barriers to participation so that vulnerable and impacted residents have equal voice in the planning process
- ▶ include equity indicators
- ▶ include necessary policy and systems change efforts to achieve equity

In its *Equity in Building Resilience in Adaptation Planning* publication, the NAACP identified the equitable preservation of the following as key to equitable climate resilience efforts:

- ▶ Life and health
- ▶ Safety and wellbeing
- ▶ Community and culture
- ▶ Land, home, and property
- ▶ Livelihoods and economic security
- ▶ Core systems, services, and basic needs
- ▶ Environmental quality
- ▶ Democratic systems of governance

leaders of equity and diversity groups with whom you have existing relationships. Listening, learning, and building trust is a vital first step. There are a growing number of justice and equity organizations across the U.S. that have developed useful guidance. You can find more information on equitable climate resilience planning at the end of this section.

Preferred Terminology – Terminology related to the racial and ethnic make-up of local populations is a sensitive and ever-changing topic, yet highly relevant to climate resilience. Preferred terms (those preferred by the racial or ethnic group(s) being referred to) have changed over time. The term “minority” has recently fallen from favor because it assumes that white people are the majority, even when they may make up less than half the population. “People of color” has been more recently accepted as the preferable term meaning non-white. It includes a vast array of different racial or ethnic groups, but it is important to acknowledge that it still stems from an assumption that “whiteness” (of western European descent) is the norm or default, and also lumps all non-white racial and ethnic groups together when they are, in fact, diverse and potentially overlapping groups. Because it is currently the preferred term within social justice circles, we use the term “people of color” throughout this guide, but also want to acknowledge its shortcomings and the complexity of the issue.

Stewarding Nature

Our air, water, homes, and food all depend on functioning natural systems to provide us with resources. Natural systems also protect us from the impacts of climate change. For example, wetlands store flood waters, mangroves protect shorelines, and mature forests have lower fire risk. Yet natural systems are being stressed by human use and by changing climate conditions, and the more stressed

they become, the more our communities feel the impacts.

Nature also provides local residents with quality of life benefits. When we ask local residents what they value most about their community, it is often related to the natural environment. For some communities, it is their river. For others it is the city parks and green spaces, or a local lake. Often it is hiking, hunting, fishing, wildlife viewing, horseback riding, or ATV or snowmobile trails they enjoy on the weekends.

In order to protect those values, which often contribute to local economies as well, natural systems need to be included in the planning process, even if they are outside city boundaries. Resource stewardship in a changing climate is particularly important, and involving resource managers and scientists early on is critical. Resilience strategies are necessarily those that meet the needs of both people and the ecological systems that support their quality of life.



Photo by Joe deSousa on Unsplash



CC BY-2.0 Living Cities

The Importance of Mainstreaming

Mainstreaming refers to the integration of climate change considerations into every planning process and all decisions. Currently, decisions are made with an assumption (often implied rather than explicit) of a future climate similar to the past. In mainstreaming, that assumption gets replaced with the explicit consideration of likely future climate trends and related impacts, based on the best available science. Sometimes people think that mainstreaming can replace higher level climate resilience planning processes, such as the one you are involved in through this program, but both are needed.

FEMA ASSISTANCE

For local government Hazard Mitigation Plans, FEMA provides grants for:

- ▶ Climate analysis/impact on hazard risks
- ▶ Implementation projects that mitigate risk

The Whole Community process takes a cross-sector, higher level look at what the most vulnerable sectors and resources are in the community, with strategies thoughtfully designed to create co-benefits and prevent conflict. From there, the information on climate impacts, climate change vulnerabilities, and community-wide priorities can be mainstreamed into municipal department and sector-level planning processes.

This planning process will not eliminate the need to do other planning, but it can and should inform and support all other planning efforts going forward. Your community likely has a schedule of upcoming planning processes, such as hazard mitigation, emergency management, transportation, water management, comprehensive plans, and others. These processes will be ongoing as the Implementation Team is putting your resilience strategies in place.

One of the best ways to support mainstreaming climate change considerations into these other planning processes is to make sure the planners leading these other efforts have a solid grounding in climate



Climate change is not bound by jurisdictional lines, so including people outside your boundaries can lay the foundation for working together in the future.

resilience and are well-versed in the strategies identified in your community's resilience plan. Your Climate Trends Primer and Community Primer should inform all community planning efforts going forward to ensure that the planning is based on the best existing information about current community function and future conditions.

One particularly effective way to ensure that climate is considered appropriately in these planning processes is to involve the staff leads for those planning processes in your climate resilience process and make sure that ongoing training is made available to them. You may consider having lead staff in key departments of your municipality become credentialed through the Association of Climate Change Officers as you move through this program. Exposure to the topic and the relationship building that happens in this process will go a long way toward helping you mainstream consideration of climate impacts and support for the resilience strategies in the final plan.

If your community already has taken some action to address climate change, you will want to integrate this resilience work with those efforts. Climate Action Plans generally identify strategies for reducing greenhouse gas emissions, but they may or may not have the resilience component. If you have a Climate Action Plan in place before you begin this resilience work, or if this process leads to an effort to develop strategies to reduce greenhouse gas emissions, make sure you integrate the two efforts. This will ensure that strategies between the two plans support each other or at very least, do not conflict.

Mainstreaming also involves integrating climate resilience strategies with other frameworks currently in use by your community. Climate resilience strategies can support your community's efforts with programs, such as STAR Communities, the Community Resilience System, and other certification programs related to sustainability and other goals, so it is important to connect with those efforts throughout the process.

Finally, consider cross-jurisdictional mainstreaming efforts that integrate action across neighboring communities or between a county or parish and a city or town. It can be very helpful to invite leaders from these other jurisdictions to public forums or to observe one or both workshops in order to educate and engage them on the topic of climate resilience. It is often the case that particular impacts of climate change are not bound by jurisdictional lines, so including these colleagues in your region can lay the foundation for working together in the future.

Local Capacity

Local staffing capacity is a concern for many communities. This framework allows you to work at your own pace based on existing capacity, but it is important to also maintain momentum for the effort, which can take anywhere from 12 to 24 months. If you are low on staff capacity, consider using dedicated volunteers and leveraging time, resources, and talents of local residents, especially those who are advocating that your community take action to build climate resilience. Our suite of support services is available to provide additional capacity, as needed.

General Guidance and Principles

While this program is built on the foundation of our Whole Community Resilience framework, many groups have been leading climate change resilience planning processes in this nascent field, and have learned important lessons along the way. There are many other climate resilience and adaptation

resources that can help inform your efforts. We will point you toward them as you move through this process. ICLEI Canada and the Union of Concerned Scientists have published principles we find particularly helpful to consider at the beginning of a community-based climate resilience process.

ICLEI Canada's four adaptation principles

1. Balance immediate and long-term needs.
2. Drive your initiative by identifying and following through on the actions your community can undertake itself or directly influence without getting side-tracked or held back by the inaction of other stakeholders.
3. Commit to an approach that enables staff to make decisions in the face of uncertainty.
4. Recognize, value, and integrate existing work—both the work that is explicitly climate-driven and the work that builds resilience but is not labeled as such.

http://www.icleicanada.org/images/icleicanada/pdfs/GuideWorkbookInfoAnnexes_WebsiteCombo.pdf

The Union of Concerned Scientists' 15 principles to prioritize investments in climate change adaptation:

- | | |
|---|--|
| <ol style="list-style-type: none"> 1. Consider projected climate conditions. 2. Use systems thinking. 3. Match the scope of planning to the magnitude of projected change 4. Aim for robust decisions and policies 5. Create opportunities to revise and change course 6. Ensure that the costs of responding to climate change and the benefits of resilience-building are equitably shared 7. Decide with, not for | <ol style="list-style-type: none"> 8. Minimize harm and maximize options. 9. Equip and empower local experts 10. Maximize transparency, accountability, and follow through. 11. Weed out maladaptation, both existing and proposed 12. Consider the costs of inaction 13. Work to protect what people cherish 14. Reflect a long-term vision 15. Appreciate limits to adaptation and push mitigation |
|---|--|

<http://www.ucsusa.org/global-warming/prepare-impacts/climate-resilience-framework-and-principles>

FINDING OTHERS LIKE YOU

Whole Community Resilience is an ongoing process more than a plan. The plan provides a clear timeline and prioritized actions to help your community get started, but over time the plan will need to be updated and could change dramatically. As the process unfolds, it will be extremely important to learn from the experience of other communities, as well as your own.

You will benefit by connecting with other people who are doing similar work. While our Annual Support program can help you share information and get advice from others, there are several other options available free of charge:

***American Society of Adaptation Professionals:* www.adaptationprofessionals.org**

ASAP is the professional association of the climate change adaptation field. Its mission is to support and connect climate adaptation professionals while advancing innovation in the field of practice.

***Association of Climate Change Officers:* www.accoonline.org**

ACCO is a community of practice that provides training and learning opportunities, links regional efforts and members, and provides access to tools and resources.

***Climate Adaptation Knowledge Exchange:* www.cakex.org**

CAKE aims to build a shared knowledge base for managing natural and built systems in the face of rapid climate change. Just as importantly, it is intended to help build an innovative community of practice.

***Georgetown Climate Center:* www.georgetownclimate.org**

The nonpartisan Georgetown Climate Center seeks to advance effective climate and energy policies in the United States and serves as a resource to state and local communities that are working to cut carbon pollution and prepare for climate change.

All of these organizations can provide you with additional resources on specific topics as well as the opportunity to join networks of others like you who are leading a community-based process.



RESOURCES

A current list of resources is available on the Climate Ready Communities website:

<https://climatereadycommunities.org/resilience-resources/>

General Resources

Georgetown Climate Center's Adaptation Equity Portal –

<http://www.adaptationclearinghouse.org/networks/adaptation-equity-portal/>

Movement Strategy Center tools and publications – <http://movementstrategy.org/publications-tools/>

NAACP's Equity in Building Resilience in Adaptation Planning publication –

<http://www.naacp.org/latest/equity-in-resilience-building-for-climate-adaptation-planning/>

National Association of Climate Resilience Planners' Community-Driven Climate Resilience Planning: A Framework – <https://www.nacrp.org>

Urban Sustainability Directors Network's Guide to Equitable, Community-driven Climate Preparedness Planning –

https://www.usdn.org/uploads/cms/documents/usdn_guide_to_equitable_community-driven_climate_preparedness-_high_res.pdf

Advancing Climate Justice in California: Guiding Principles and Recommendations for Policy and

Funding Decisions – <http://www.healthyworldforall.org/en/AdvancingClimateJusticeInCalifornia.html>

Life After Carbon's Innovation Network for Communities – <http://lifeaftercarbon.net/innovation>

-network-for-communities/climate-change/

Climate Change Literacy

National Aeronautics and Space Administration (NASA) white board videos about climate change – https://climate.nasa.gov/climate_resource_center/earthminute?fbclid=IwAR2SZ_bkrfPhW6234pKSV6F9bJL4_AvBzExOPA5Aa2Oe1zk4gll_BI_ksMQ

National Oceanic and Atmospheric Administration (NOAA) information on climate news, science, maps, and projections – <https://www.climate.gov>



STEP

1

Launch the Project

YOUR GOAL

Define the scope, establish a Task Force,
and build stakeholder support.

This structure will provide the foundation
for successful resilience planning
in your community.

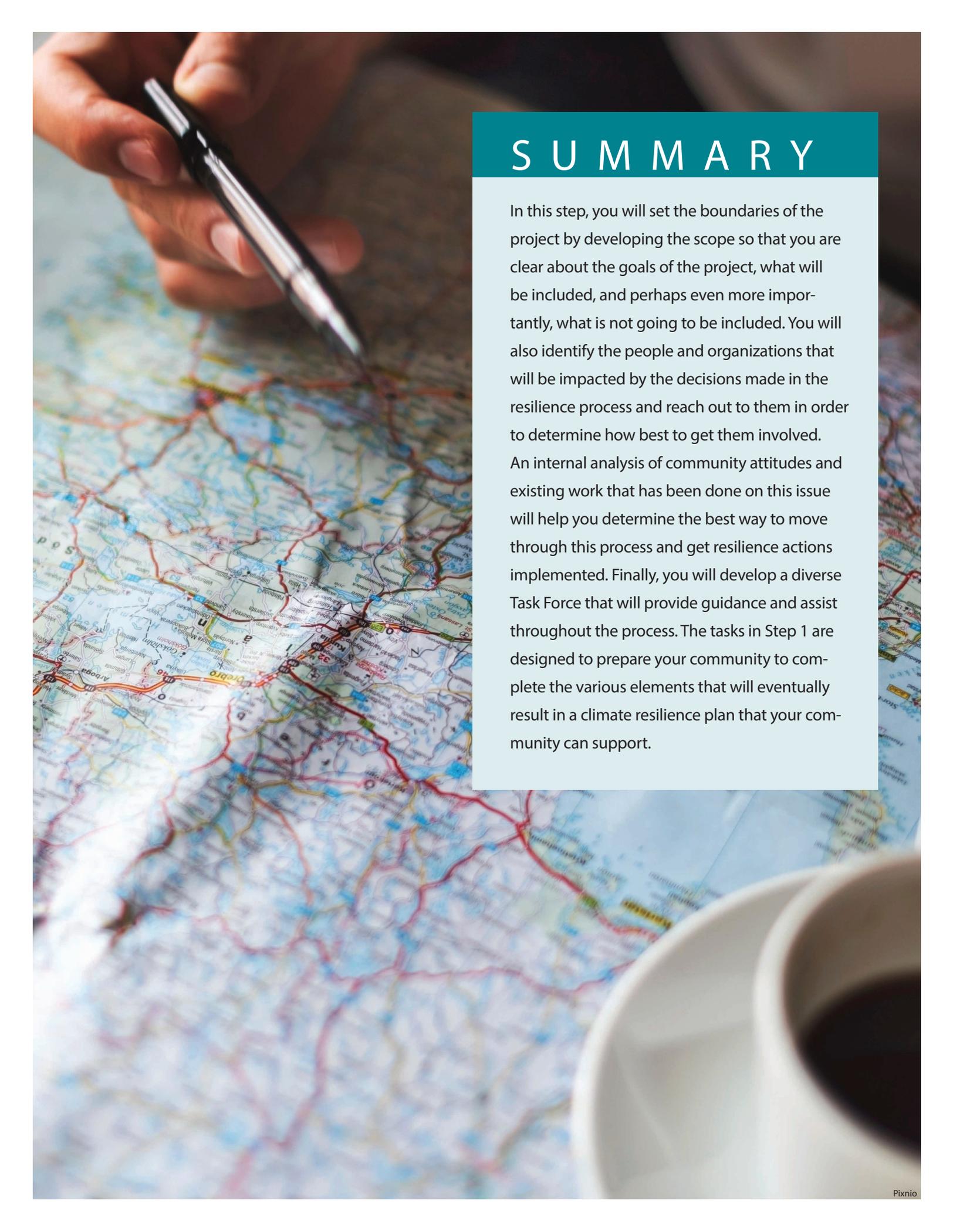
Task 1: Scoping

Task 2: Identify Resources

Task 3: Develop a Task Force

**Task 4: Lay the Foundation for
Engaging Your Community**

Task 5: The Kickoff

A hand holding a black pen points to a specific location on a detailed road map. The map shows various roads, cities, and geographical features. In the bottom right corner, a white coffee cup filled with dark coffee is visible. The background is slightly blurred, focusing attention on the hand and the map.

S U M M A R Y

In this step, you will set the boundaries of the project by developing the scope so that you are clear about the goals of the project, what will be included, and perhaps even more importantly, what is not going to be included. You will also identify the people and organizations that will be impacted by the decisions made in the resilience process and reach out to them in order to determine how best to get them involved. An internal analysis of community attitudes and existing work that has been done on this issue will help you determine the best way to move through this process and get resilience actions implemented. Finally, you will develop a diverse Task Force that will provide guidance and assist throughout the process. The tasks in Step 1 are designed to prepare your community to complete the various elements that will eventually result in a climate resilience plan that your community can support.

Task 1: Scoping

The first task is to define the scope, which will help you determine where to focus resources. There are several scoping issues to think through in this step: geographic, administrative, and climate action. It is often useful to gather an informal group of 3-5 people who are knowledgeable about the issue and the community's needs to think through these questions. It may be helpful to review the draft outline of a climate resilience plan in Step 5, Task 1 as you consider your scoping questions.

Geographic Scope

The geographic scope provides boundaries for your planning process. It could be based on the physical landscape, such as mountain ranges or rivers that create a natural boundary. Because water is an important resource in all communities, watershed boundaries often make sense for planning. Or the scope could be based on political boundaries, such as city or county lines. One important consideration is whether the geographic scope of the plan aligns with the entities that will be tasked with imple-

menting strategies. For instance, if your community depends on water that is managed by a neighboring community, you will want to include that water source within your geographic boundaries.

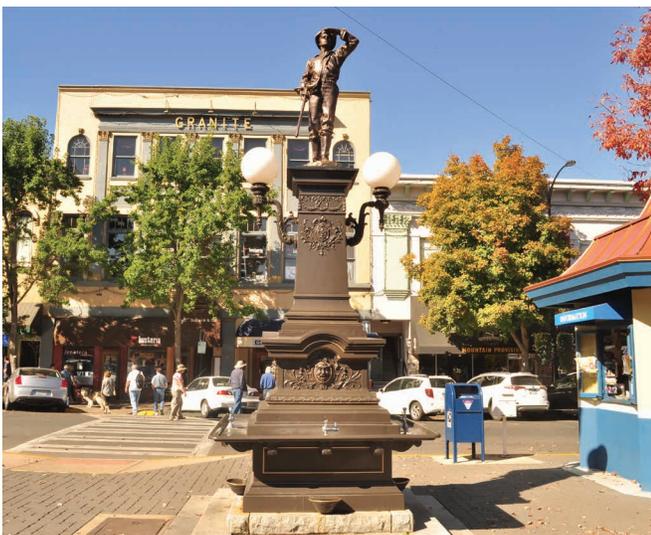
Your scope can include a single city, multiple cities and the surrounding area, a county, multiple counties, a watershed, or a larger region. For the purposes of this guide, we refer to your self-defined scope as the “community” throughout.

Administrative Scope

The resilience planning effort will be determined by your mandate, authority, partners, and funding. Here you will clearly identify:

- ▶ Why you are doing this project
- ▶ Who you are accountable to
- ▶ What authority you have to compel action or make recommendations
- ▶ Your partners
- ▶ The timeline
- ▶ Your expenses and what resources, both financial and in-kind, you have at the beginning of your process.
- ▶ Whether your planning effort is community-wide or municipal only

Many communities have specific rules, often called “sunshine laws” that require certain processes be



A “community” could be a single city, multiple cities, county, group of counties, watershed, or larger region

Municipal Only

Includes all city-owned property, land, functions, services, and processes.

Municipal Influence

Includes sectors and entities the city has influence with, such as school districts and chambers of commerce.

Community Wide

Includes all other sectors in the community that will be responsible for implementation of the climate strategies that the city does not have authority to implement.

open to the public and follow other public meeting laws. Be sure you understand any of these regulations that affect your process and build those requirements into your structure.

At this point you will determine the internal community boundaries of your project. We recommend that you do a community-wide process that engages all community systems and takes up issues that include, but are larger than, the scope of municipal government.

This structure will result in some strategies that fall entirely within a municipal government's authority, others that fall entirely outside of that authority, and some that require both municipal and civic resources and commitment. We recommend a community wide process because climate change affects all community systems, so municipal, private, and civic strategies will need to be addressed at some point. By addressing all of them as part of one comprehensive process, you will ensure that the vulnerabilities across the community are fully understood and prioritized, municipal and

EXAMPLE Anytown, USA develops a municipal only plan that addresses basic government services, but does not include community systems beyond the scope of municipal government. The process does not engage under-represented people, the local business community, or natural resource managers. Five years after they complete their plan, the community experiences a massive drought. This drought creates severe impacts for the municipality, wildlife, and the local economy, which happens to rely primarily on agriculture and outdoor recreation based tourism. Migrant farm workers are hit particularly hard economically. While the municipal only process identified water supplies as a very high vulnerability, by not consulting the other sectors that rely on those same water supplies, their strategies were insufficient. If they had included natural resource managers, local business people, and under-represented people in their climate planning process, these sectors could have been working together to reduce their collective vulnerability to drought.



private resources are invested well, and your community is able to identify and support the strategies that protect what is most important to the community.

A community wide planning process can and should be done even if your mandate is to create a municipal only climate resilience plan. In this case, the municipal plan can be developed using the Vulnerability Assessment and strategies identified in the community wide process. Simply pull out the vulnerabilities and strategies that directly link to the municipality's responsibilities to create the municipal plan.

It is important that the Vulnerability Assessment still be community-wide and that it engages under-represented people and natural resource managers.

Private and civic spheres can then develop strategies, perhaps in collaboration with the municipality, to address the remaining high priority vulnerabilities.

Counties have a number of options for moving forward with resilience planning. We recommend counties undertake a comprehensive planning process that involves leaders of cities and towns within the county. Communities within the county can then build on the work done at the county level in developing community resilience plans that integrate with the county's plan. Moving forward in this way allows for greater cooperation between counties and municipalities and can make it much more efficient and cost-effective than if each entity embarks on their own process in isolation.

Climate Action Scope

Over time you will want a roadmap that helps your community adapt to changing conditions and reduce greenhouse gas pollution. However, your situation may make it impossible to do both of these at once. Questions to ask yourself: Has your community done any work on climate change yet or is this

effort the first step it has taken? How much public support and funding do you have for this work?

It is likely that you are starting from one of these three situations:

Limited support

Your community has a large contingent of people, including some elected leaders, who actively oppose taking climate action. Such communities can begin by planning for resilience, with a focus on protecting people, property, and resources from ongoing change. Over time, awareness and understanding about changing climate conditions can lead to support for energy efficiency strategies and other ways to reduce greenhouse gas pollution.

More support

Your community has not yet done any climate action planning, but there is local support for it. Consider combining this resilience planning process with a concurrent mitigation planning effort so that you have one integrated plan. Moving both forward at once can streamline efforts and prevent burnout of engaged community members and stakeholders. See Appendix C for resources regarding mitigation planning.

Broad support

Your community has already completed a Climate Action Plan focused on reducing greenhouse gas emissions and you are ready to start the resilience planning process. You are in good shape because there are already folks engaged on the issue and you probably have quite a lot of community support. It is important to make sure the two plans are compatible, so be sure to coordinate your resilience plan with the existing Climate Action Plan.



Bigstock / doro

TIPS FOR SUCCESS

This would be a good time to familiarize yourself with some other resilience plans, and choose one or more you especially like to use as a model. Many can be found at the CAKE and Georgetown portals (See Resources below), and we have provided a few specific examples as well.

Make sure you think through the scoping questions carefully, keeping a systems view in mind, as climate impacts are rarely limited to one or two sectors. This will help you spot critical components and opportunities in your process.

If your resources are limited, rather than severely limit the scope of the project, we recommend you create a phasing plan that lets you get started with the resources you have and continue to build as you get more resources over time. You might start with a full vulnerability assessment and then begin to develop strategies to address those vulnerabilities one at a time as resources are available.

Remember that this is a draft document that you will put before your Task Force later in the process to revise and approve. It does not need to be perfect, it just needs to be good enough to get started.

OUTPUT

- A draft document that identifies the geographic, administrative, and climate action scope.

RESOURCES

A current list of resources is available on the Climate Ready Communities website: <https://climatereadycommunities.org/resilience-resources/>

Climate Adaptation Knowledge Exchange (CAKE) provides case studies and resources on climate change adaptation – www.cakex.org

Georgetown Climate Center's Adaptation Clearinghouse helps communities find resources they need to prepare for climate change – www.georgetownclimate.org

Annual Support subscribers

Template: Project Scope

Subscriber resources for this task are [here](#).

Other Services (available with or without a subscription)

Blocks of consulting time for guidance and document review

Other Services are [here](#)

Task 2: Identify Resources

Financial resources are clearly important, but other resources can be brought to bear in your planning process as well. Once you have a draft scope, it is time to develop the budget. Keep in mind that additional resources may become available throughout the planning process. Meet with a group of 3-5 people who can provide input on the availability of funds from different sources, and how to best leverage resources. If you find potential funding sources for your project, a sample grant proposal is available in Appendix F to help you request funding.

Then identify the hard costs associated with planning and community engagement processes (personnel, stipends, supplies, postage, etc.) as well as the “optional” items you want to add if new resources come available (paid facilitators and consultants, funding for outside support with community engagement, etc.). It is also a good time to think about what other resources might be available within your community. You may have trained facilitators who will help for reduced fees, restaurants that will offer food for your convenings, local organizations that will offer staff support or meeting space, etc.





Bigstock / Songquan Deng

TIPS FOR SUCCESS

If there are too few resources within your organization to carry out the project, you may be able to partner with a trusted non-profit, business, university, or other organization. Partnering may create opportunities to secure outside grant funding from foundations or government agencies to do this work. When developing partnerships, look for others with energy and enthusiasm for building resilience and figure out how to work together. Get creative.

OUTPUT

- A draft budget that includes funding and in-kind contributions to handle hard costs plus as many optional items as possible.

RESOURCES

A current list of resources is available on the Climate Ready Communities website:

<https://climatereadycommunities.org/resilience-resources/>

General Resources

Appendix F – Sample grant proposal

Annual Support subscribers

Template: Project Budget

Subscriber resources for this task are [here](#).

Other Services (available with or without a subscription)

Blocks of consulting time for guidance and document review

Other Services are [here](#)

Task 3: Develop a Task Force

In this step, you will recruit a Task Force made up of dedicated people who will assist you by helping guide the planning process, and strengthen municipal leadership and public support. They will need to commit to serving for the full planning process (usually about 12–18 months if you are doing this as a do-it-yourself or assisted do-it-yourself process), which includes handing off the completed plan to an Implementation Team. Your Task Force should reflect the diverse demographics, sectors and interests at play in your community, while each member should bring strong influence in at least one community network.

A successful Task Force will usually have 8-12 people on it, but the number is somewhat flexible. If your Task Force has too few people (under 8, except in the smallest communities), it is likely to be missing some key perspectives. If it has too many people, the logistical arrangements become more difficult. Taskforce members should expect to invest 50-60 hours over 12-16 months assuming your resilience plan is complete within that timeframe. This includes 15 hours for workshops, monthly meetings (1.5 hours/month), and time to review documents and participate in public engagement efforts.

External stakeholders are critically important on your Task Force, especially informal leaders in the larger community.



Finding Stakeholders

In this task, you will identify the sectors to be included, as well as key stakeholders in each sector. It is important to include the heads of municipal or county government departments, even if you do not see the connection between their mandate and climate resilience. But government officials are not enough. External stakeholders are critically important, especially informal leaders in the larger community. Include those people who can bring vital information regarding trends, issues, and networks within your community and can help generate support for the plan. You should also include stakeholders who represent important constituencies and may not participate directly, but will want to be kept in the loop.

This is the initial list of people you will want to consider for participation on the Task Force. It will grow over the course of your project as you talk with the first stakeholders you identify and they suggest others who might be well-suited to the Task Force. The Center for Social Ecology and Public Policy has

good information regarding how best to assess the informal networks, structures, and leadership in your community.

You will use this list of stakeholders for engagement efforts, to recruit workshop participants and to develop both the Task Force and eventually the Implementation Team, so make sure that you capture their title, sector, contact information, how they would like to participate in the process, and any other notes you believe are relevant. Make sure to note if they might be a good candidate for the Task Force. We find a spreadsheet to be the best way to track this information as it changes over time.

Because of the complexity of climate change, diverse leadership and input is needed to develop a truly effective plan for resilience. It is important to engage leaders from all parts of the community, including groups that have traditionally been under-represented in city or county planning processes. As these people are often overlooked in com-

Informal Leaders

Informal leaders are people who others trust and turn to for information and help, especially in an emergency. They know their community well and are highly regarded. Informal leaders may also hold elected office, but they get their authority from their expertise and trust, not their title. You want as many informal leaders involved in the resilience process as possible.

Formal Leaders

Formal leaders are those who hold an elected or high level staff position in government or major industry (the head of the hospital, for instance). Having elected officials or department heads involved in climate resilience planning can be positive or negative, depending on their approach. For the Task Force, select formal leaders who are supportive of resilience planning, put others at ease, are unlikely to exert control over the planning process, and are willing to serve as champions or allies with other leaders and the public. Make sure to talk with them about their role and the importance of all Task Force members having the same authority within the group. You will need to make sure that this point is clear to all Task Force members.

Consider engaging people from these community systems and sectors in your process

Built Systems

Water

Wastewater
Stormwater
Residential water
Industrial/Agricultural water

Transportation

Roads
Railways
Airports
Barges and ship travel

Energy

Production
Distribution

Buildings

Residences
Industrial
Other

Natural Systems

Aquatic

Terrestrial
Marine/Nearshore

Economic Systems

Business and Industry

Forestry
Agriculture
Recreation/Tourism

Cultural Systems

Native American/Indigenous

Faith groups
Civic organizations
Local cultural groups

Social Systems

Health

Mental
Physical

Emergency Services

Preparedness
Response
Law enforcement

Leadership

Elected leaders
Government staff
Informal civic leaders

Under-represented Populations

Communities of color
Young people
Elders
People with disabilities
Homeless residents
Seasonal and/or low income workers

munity planning processes, it may not be obvious who should be contacted in this phase. If you have established relationships within these groups, start there. If not, some basic research and outreach to your networks should identify how best to connect with different community representatives. At least one person on the Task Force should be a leader from an under-represented population within your community. Several others should be engaged as stakeholders in the workshops later in the process. It may take time to develop the trust necessary for some of these people to engage in your resilience building process, but it is time well spent.

Once you have your initial list of potential stakeholders, ask a few other people who are well-connected in the community and supportive of the process to review your list and add to it. Note that if your community is very small, you will need to adjust the community systems and sectors listed below to meet your specific circumstances, but you will still want to make sure you find representation from social, economic, natural, cultural, and built systems. In many small communities, people often wear multiple hats, so you can get the five systems represented with fewer people on the Task Force.

Building Your Case

Local budgets are already severely constrained, so the stakeholders you approach will need to understand why it is important to take action. You and your small team will develop this document initially and use it as you approach potential stakeholders; you'll continue to refine it as you get feedback on its effectiveness. The document will have continued use for later engagement within your community.

The following four realities of local government are adapted from the All One Sky Foundation's Climate Resilience Toolkit (Unit 2). While focused on Alberta, Canada, this toolkit has a very good section on building the case for taking action.

1 The climate is already changing. Information about the changes already happening in your region can be found in the 4th National Climate Assessment. If possible, communicate to your community that climate change caused by greenhouse gas emissions is the cause of these impacts. If your community is not yet ready to hear that information, the case can still go forward by simply discussing the fact that climate conditions are changing without indicating the cause. Climate projections showing the local effect of these climate impacts, particularly over the short term, is essential to generating a sense of urgency among stakeholders.

2 Communities just like yours are already experiencing significant negative impacts from changing climate conditions. You may look to the 4th National Climate Assessment for more information about these impacts as well.

3 Impacts from climate change will become even more severe in the near- and long-term future. Greenhouse gas pollution already in the atmosphere has locked us into some amount of future warming and increased impacts. If your community is not yet ready to hear that, you can speak in terms of the trends. If the current trends hold, we can expect greater impacts in the future and we need to plan for them.

4 Your community is already adept at adapting to changing conditions. Community planning processes often take into account trends for changes in populations, demographics, economic drivers, etc. This process to build climate resilience is really no different and can provide many other benefits to the community if done in a whole community fashion.

In addition, financial markets are increasingly taking an interest in how well communities are addressing climate related risks. Ratings companies,

Common themes to consider in making your case:

1 Investing in climate resilience now will help us save money and lives in the future

2 Climate resilience planning allows us to prepare for both the risks and opportunities associated with changing conditions

3 Climate resilience strategies create long-term community benefits (economic, environmental, and social) regardless of climate change

such as Moody's and Standard & Poors, are now considering how well communities are addressing climate related risks in their credit rating processes. Green bonds (used to fund environment-friendly projects) are expanding their scope to include adaptation related projects and are finding an increasing investor base. Information about those risks is in the

Engaging Stakeholders

Stakeholder engagement is a common theme throughout the whole process, but there are many ways to do that engagement depending on the roles different stakeholders can and should play in the planning process. You will initially engage the people on your list either one on one or in small groups. In person is better for relationship development, but phone calls will also work. Email is a good way to coordinate after these initial conversations.

Your goals in these conversations are to make sure they know about the planning process and that they will be welcome to participate at various points, and to find out their level of support and desire for engagement. Ask them who else you should talk with and how they and their constituents get information about important topics. Their answers to these two questions will help you build out your stakeholder list and develop an effective public engagement plan.

While the process for identifying stakeholders and recruiting Task Force members seems linear, in reality they are interwoven throughout the project. As you have conversations with stakeholders, remem-

ber that you will soon be recruiting for your Task Force so watch for people who would be good Task Force members.

ber that you will soon be recruiting for your Task Force so watch for people who would be good Task Force members.

ber that you will soon be recruiting for your Task Force so watch for people who would be good Task Force members.

ber that you will soon be recruiting for your Task Force so watch for people who would be good Task Force members.

ber that you will soon be recruiting for your Task Force so watch for people who would be good Task Force members.

Extra time invested in stakeholder engagement will return big dividends later in the process





Bigstock / monkeybusinessimages

CONSIDER BIAS TRAINING BEFORE REACHING OUT TO UNDER-REPRESENTED POPULATIONS

Make sure under-represented populations can see the results of their interactions with the process and keep the door open for groups to engage in the process if they decline initially.

If you already know you face stiff opposition in some municipal departments, you may want to reach out to external stakeholders whose opinion is valued by those departments and see if they might accompany you. In some cases it will be enough to simply neutralize opposition rather than develop support. Extra time invested in this task will return big dividends later in the process.

You may find that people from low-income communities, communities of color, and Tribal nations do not initially respond enthusiastically to your invitation to be involved in the process. If that is the case, find out why. Is it lack of interest, has trust been broken before or not sufficiently developed, or are there capacity issues that you might be able to accommodate? It may be helpful at this point to review the Spectrum of Engagement developed by the Movement Strategy Center to determine where your process is on the spectrum based on how engagement is structured. This is a good time to make changes in the engagement structure, especially if you are encountering obstacles. Inadequate

time spent engaging under-represented people will weaken the overall plan so take the time to do this work well, even though it may be uncomfortable.

If they are unable to find stakeholders from under-represented populations to participate in the Task Force, it is acceptable to engage with people who advocate on their behalf. Stakeholders can become Task Force members or they can be invited to participate in the community workshops later, but it is important that they be engaged in some fashion so that they do not feel excluded and so that your plan can benefit from their experience and relationships in the community. This is especially true of stakeholders who are not initially supportive of this work. If they do not want to participate, at least see if you can get their permission to share information and keep them up to date as you move through the process.

While you do not need 100% support, you do need a critical mass of people in your community who believe that this is an issue that must be addressed

before you start the planning process in earnest. After talking with several stakeholders, you may find that your community simply is not ready to move into a resilience planning process. If that is the case, step back and start with the community conversation. Help is available for the climate conversation from Resilience Dialogues, a program led by the U.S. Global Change Research Program, the American Geophysical Union’s Thriving Earth Exchange, and the American Society of Adaptation Professionals.

If fractures within your community are so serious that you are not yet able begin the climate conversation, consider taking advantage of the National Civic League’s All-America Conversations Toolkit and Civic Index resources. This toolkit is designed to help communities overcome intense political divides generally and can serve as an effective step-

ping stone to the larger climate conversation. The Civic Index is an additional tool for community assessment of shared values.

In addition, rural communities may find the resources of the Heartland Center for Leadership Development particularly helpful. Their 20 Clues to Rural Survival publication and training workshop can help communities assess their strengths and address weaknesses that may hinder efforts to strengthen general or climate-specific resilience.

An interim step once there is some willingness by the community to consider climate resilience planning is the Resilience Dialogues, a program led by the U.S. Global Change Research Program, the American Geophysical Union’s Thriving Earth Exchange, and the American Society of Adaptation Professionals to help communities start the climate conversation.

Spectrum of Community Engagement to Ownership

Stance towards community	0 IGNORE	1 INFORM	2 CONSULT	3 INVOLVE	4 COLLABORATE	5 DEFER TO
Impact	<i>Marginalization</i>	<i>Placation</i>	<i>Tokenization</i>	<i>Voice</i>	<i>Delegated Power</i>	<i>Community Ownership</i>
Community Engagement Goals	Deny access to decision-making processes	Provide the community with relevant information	Gather input from the community	Ensure community needs and assets are integrated into process & inform planning	Ensure community capacity to play a leadership role in implementation of decisions	Foster democratic participation and equity by placing full decision-making in the hands of the community; Bridge divide between community & governance
Message to community	<i>“Your voice, needs & interests do not matter”</i>	<i>“We will keep you informed”</i>	<i>“We care what you think”</i>	<i>“You are making us think, (and therefore act) differently about the issue”</i>	<i>“Your leadership and expertise are critical to how we address the issue”</i>	<i>“It’s time to unlock collective power and capacity for transformative solutions”</i>
Activities	Closed door meetings Misinformation Systematic disenfranchisement Voter suppression	Fact sheets Open Houses Presentations Billboards Videos	Public comment Focus Groups Community Forums Surveys	Community organizing & advocacy House Meetings Interactive Workshops Polling Community forums	MOU’s with Community-Based Organizations Community Organizing Citizen Advisory Committees Open Planning Forums with Citizen Polling	Community-Driven Planning Consensus building Participatory Action Research Participatory Budgeting Cooperatives
Resource allocation ratios	100% systems admin	70-90% to systems admin 10-30% to promotions and publicity	60-80% to systems admin 20-40% to consultation activities	50-60% to systems admin 40-50% to community involvement	20-50% to systems admin 50-70% to community partners	80-100% to community partners and community-driven processes that ideally generate new value and resources that can be invested in solutions

* This tool was developed by Rosa González of Facilitating Power, in collaboration with Movement Strategy Center and the Building Healthy Communities Initiative, in part drawing on content from a number of public participation tools, including Arnstein’s Ladder of Citizen Participation, and the Public Participation Spectrum created by the International Association for Public Participation



How to Select Task Force Members

Once you have identified and talked with your list of stakeholders, it is time to recruit people to serve on the Task Force. You will have identified potential Task Force members during your stakeholder conversations, so start with that group of people when considering who should serve on the Task Force.

Task Force Member Commitments

- ▶ Regularly attend meetings (generally 1-2 per month)
- ▶ Offer guidance to the process
- ▶ Attend both workshops
- ▶ Connect the process with their local networks
- ▶ Help recruit workshop volunteers
- ▶ Review documents
- ▶ Participate in community engagement events
- ▶ Serve as an informal spokesperson for the process

You are looking for people who share these characteristics:

- ▶ Extensive expertise in a sector core to the planning area or community
- ▶ Well-known and respected
- ▶ Either a formal or informal leader
- ▶ Open to new ideas and information
- ▶ Creative and adept problem solver
- ▶ Good communicator
- ▶ Works well and disagrees respectfully in a group process
- ▶ Authority to implement strategies (decision maker)

A natural tendency is to only appoint people who are already engaged with, and passionate about, climate change. This is a mistake. Successful guidance of the process requires people who have deep



Often people who start out skeptical about climate change become some of the best champions because they can talk with people in the community that climate change advocates might not be able to reach.

We recommend that you find 1-2 representatives for each of these community systems for your Task Force:



GraphicStock

Economic System

Local business and industry leaders, Chamber of Commerce leaders, farmers, government agencies or professors focused on local economic development



CC BY 2.0 BLM

Natural System

Scientists or managers from natural resource agencies, local universities and colleges, and conservation organizations



CC0 Pexels

Built System

Public works officials, transportation directors, city planners, engineers, and water managers



GraphicStock

Social System

Emergency managers, first responders, doctors, nurses, police, hospital managers, county health staff, vector control, and education



Sagar Dani on Unsplash

Cultural System

Members of communities of color, immigrant communities, tribes, youth, and other formal and informal leaders

knowledge and connections across the community and in the different sectors that are included in the plan. While it is smart to include one climate scientist (from a university, state or federal agency, or NGO), the other members do not need to be already engaged on the issue.

The role of the Task Force is to bring expertise on specific sectors, not to bring expertise on climate change. People skeptical about climate change are often some of the most effective members because they can model for others that skepticism does not preclude effective participation and engagement. Healthy skepticism in and of itself is good for most processes, and even though it might be difficult, it is important to include some people who are somewhat skeptical on the Task Force. The other benefit is that all Task Force members, including initially skeptical ones, will learn quite a lot about climate change in the process.

Also, often people who start out skeptical about climate change end up being some of the best champions because they can talk with people in the

community that climate change advocates might not be able to reach. This is particularly true when you get to the public engagement point in your process. When local leaders who were initially skeptical come out publicly in favor of the plan, it can quickly shift momentum in favor of taking action.

It is important to note the difference between someone who is honestly skeptical about climate change and someone who has made up their mind that climate change is not real. Someone who is skeptical is interested in learning more and is willing to put in the time to have conversations about the topic. You want to avoid recruiting people who have decided that climate change is not real and are not willing to consider new information.

To the extent possible, select people with the above characteristics who are also passionate about addressing climate change. Not all of your Task Force members initially need to be champions, but 2-4 should already understand the issue and be very supportive of taking action.

Accommodating the Needs of Task Force Members

Consider that if your Task Force is truly representative of the community, each member will have different abilities to participate. Find ways to support members by offering stipends, in-kind support or other resources that facilitate their involvement. Many leaders from under-represented populations or young people, for instance, have important perspectives that your Task Force needs, but cannot afford to volunteer their time to participate. Busy or single parents are also difficult to engage, yet many local experts or informal leaders are also parents. Because a wide array of perspectives is vital to developing Whole Community Resilience, consider paying a stipend to Task Force members whose time is not covered by their employers. If

you are not sure what amount is appropriate given the expectations of the position, ask them. Also consider whether offering childcare and holding Task Force meetings at different times would increase participation by certain groups important to the project. These accommodations will cost money that is often difficult to secure from municipal budgets, so think about local foundations or business/civic sponsorships that can help cover these costs.

Including people with different perspectives in the Task Force makes it more likely that the process will identify all important vulnerabilities, synergies, and opportunities to move forward.

Leadership Roles on Your Task Force

Task Force Chair – The Task Force will need an experienced Chair to lead it through the resilience planning process. This person should have experience serving on committees, commissions, or task forces and should know how to run an efficient meeting. Someone who is driven, but diplomatic, and is well-respected across the community is well worth the time it takes to recruit them. It may be that you are the one best suited to take the Chair role.

Whether you serve as the Chair or you recruit someone else, consider recruiting a co-chair for the Task Force. Someone with strong relationships within local government and the community can help increase your capacity. Alternatively, someone from a trusted non-profit organization, such as a social equity or conservation group, could offer a unique leadership perspective and bring buy-in to the process.

Champions – The Champion is the individual who is committed to seeing this effort succeed and has the connections and standing to move it forward. Sometimes it is not obvious who the Champion is

at the beginning, as they can come from any sector and within or outside of local government, but it becomes more obvious over time. These people will serve as powerful public spokespeople. When you are first putting your Task Force together, make sure you see at least two people on your list who you think could be resilience champions.

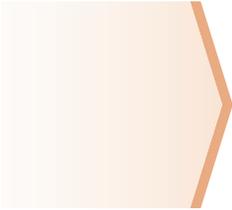
Youth – Young people have the moral authority as those who will inherit this world, and they typically bring an energy to the team that helps move things forward. They have a right to be at the table when decisions are being made that will profoundly affect their future. Youth Task Force members keep older adults focused and remind them what is really at stake. When you are choosing youth members, be sure to select youth who are active on climate change or other community issues and are willing to speak up around adults. Then make sure they have the same authority on your Task Force as any other member. Often they are more comfortable and contribute more if they are not the only youth on the Task Force, so consider making two slots available for them.



Other Characteristics to Look For

You want people who are comfortable with process, play well (and disagree well) with others, and are not afraid to speak up when they see something going off course. Be careful not to just pick people you know. One of the purposes of the Task Force is to activate a variety of networks across your community.

Finally, be sure to include a balance of men and women, people with different racial or ethnic characteristics, and people who are distributed geographically across your planning area. It is particularly important to get a variety of urban and rural voices in the process if your planning area includes both types of communities.



Be careful not to just pick people you know. One of the purposes of the Task Force is to activate a variety of networks across your community.

First Tasks

Your first few meetings with the Task Force will need to cover many topics. Below are some suggestions.

- ▶ Start your first meeting with some exercises to help them share what matters to them, what they love about the community, and why they care about this work.
- ▶ Make sure members understand their role, which involves attending meetings, reviewing draft documents, participating in workshops, and doing outreach. While not every Task Force member needs to be ready to headline a public forum, they do need to be ready to publicly support the process.
- ▶ Share your draft scope and budget. Have the Task Force make any necessary adjustments so they are committed to seeing it through to completion. Fill in additional details, such as:
 - ▶ specific deliverables
 - ▶ timeline
 - ▶ who the Task Force answers to
- ▶ group decision making processes
- ▶ the plan for implementation (we recommend a hand-off to an implementation team once the plan is complete)
- ▶ whether the task force has authority or is simply an advisory body
- ▶ additional resources to be included in the budget
- ▶ Provide climate change education materials to the Task Force that explain the basics of how climate change works, the difference between climate and weather, why it is such a problem, and the interconnectedness of climate impacts. We recommend credible educational resources at the end of this task.
- ▶ Discuss potential impacts climate change may have on your community. This will help Task Force members start thinking about local impacts, especially those who may be a bit skeptical.

- ▶ Walk the Task Force members through your file sharing system (Google Docs is used frequently for this purpose) and spend some time ensuring everyone understands how to use it.

If you are not experienced at facilitating meetings, we encourage you to explore the facilitation

training resources in Appendix E. Because of the diversity of participants on the Task Force and in the overall process, it is important to be mindful of implicit bias, gender equity, and common facilitation practices that can ensure everyone has an equal voice.

TIPS FOR SUCCESS

Look ahead to Step 2, Task 1. It is often helpful to start early to get onto the schedules of busy scientists, so read ahead and begin to reach out to experts you will want involved in your process. Talk to the climate expert on your Task Force and ask them to read through Step 2 and help you figure out where you will get the information you need.

Some opposition comes just from being left out of a process, so make sure you talk to a wide range of political leaders even if you do not think they agree with you. Talk with them about the importance of protecting your community from natural disasters that are getting worse. For more specific information about how to engage with people who oppose planning for climate change, see the resources at www.climateaccess.org.

Do not assume that just because people from under-represented populations have not been actively engaged in previous planning efforts that this means they are uninterested in this process. There is often quite a lot of history between formal government and under-represented populations and often that history involves broken trust. If you take your time and are genuine in your efforts, you will probably eventually be able to engage these populations.

Properly resource the Task Force. It needs enough staff support so that notes are taken and sent out, meetings are clearly scheduled, and communication is effective. Always send out an agenda before each meeting. Inadequate support and poor preparation for the meetings can cause frustration and stall progress.



OUTPUTS

- A finalized scope and initial budget
- A list of stakeholders with information regarding how they want to be involved in the process and how best to communicate with their networks
- An operational Task Force with diverse perspectives and networks within the community
- A Task Force co-lead
- One or more champions within the Task Force who will act as spokesperson for the planning process
- An information sharing electronic portal
- Completed basic climate change educational engagement with Task Force members
- A completed case statement document or presentation that lays out the need for this process and community investment toward building climate resilience.

RESOURCES

A current list of resources is available on the Climate Ready Communities website:

<https://climatereadycommunities.org/resilience-resources/>

General Resources

All One Sky's Climate Resilience Toolkit (Unit 2) – <http://allonesky.ca/climate-resilience-express-project/>. Request the download near the bottom of the web page, then select Unit 2 from within the kit

Center for Social Ecology and Public Policy – <http://csepp.us/theory/social-ecology-vs-public-relations/> and <http://csepp.us/theory/the-discovery-process/>

Heartland Center for Leadership Development – <http://heartlandcenter.info/clues-to-rural-community-survival/>

National Civic League

Conversations Toolkit – This toolkit helps non-profits and/or municipal staff hold conversations within the community to better understand how to bridge local divides and find ways to move forward. The toolkit includes resources and tips for how to reach beyond the usual suspects, where to hold conversations, how to facilitate a productive conversation (even when things get tense), and how to ensure that your conversation leads to action. <https://www.nationalcivicleague.org/resources/america-conversations-toolkit/>

Civic Index – This tool can help your community assess its shared values, if necessary, prior to having any climate conversation. <https://www.nationalcivicleague.org/resources/civicindex/>

University of Washington's Climate Impacts Group Tribal Resources – <https://cig.uw.edu/resources/tribal-vulnerability-assessment-resources/>

Northern Arizona University's Institute for Tribal Environmental Professionals – <http://www7.nau.edu/itep/main/tcc/Home>

University of Oregon's Tribal Climate Change Project – <https://tribalclimate.uoregon.edu/>

Oregon Climate Change Research Institute's Climate Adaptation Guidebook and resources – <http://www.occri.net/projects/tribal-climate-adaptation-guidebook/>

Resilience Dialogues – www.resiliencedialogues.org/

Appendix D – Sample informational flyer for outreach to potential stakeholders

Education Resources for Your Task Force

NASA – https://www.nasa.gov/mission_pages/noaa-n/climate/climate_weather.html

NASA – <https://www.nasa.gov/audience/forstudents/k-4/stories/nasa-knows/what-is-climate-change-k4.html>

Bill Nye – <http://video.nationalgeographic.com/video/news/101-videos/151201-climate-change-bill-nye-news>

National Academy of Sciences – <https://www.youtube.com/watch?v=n4e5UPu1co0>

National Geographic – <https://www.youtube.com/watch?v=Ok8rMT2KCy0>

Annual Support subscribers

Tutorial: Developing Your Task Force

Template: Stakeholder Identification and Taskforce Development Spreadsheet

Template: Task Force Invitation Letter

Subscriber resources for this task are [here](#).

Other Services (available with or without a subscription)

Blocks of consulting time for guidance and document review

Training webinars on climate change, engaging your community, and the Whole Community Resilience approach

Other Services are [here](#)



Photo by M. Koopman

Task 4: Lay the Foundation for Engaging Your Community

This is the time for the Task Force to refine the case you developed in Task 3 for resilience planning — why it is important, what the community will get out of it, and how citizens will be invited to participate.

Assessing Community Attitudes

Despite the fact that there is near unanimous agreement within the climate science community, climate change is still controversial in many places. If you live in such a community, you may find the prospect of engaging the public very intimidating. But you can be successful with advanced planning, Task Force assistance, and collaboration among many different community networks.

It is important to acknowledge where people are on this issue in order to design an effective engagement strategy. In some communities, basic word choices can mean the difference between participation and push-back. An effective approach can be to start the conversation talking primarily about the multiple benefits of building resilience—economic, health, public safety, environmental, etc. Your goal is to meet

your community where it is on the issue and help them make the connection between climate action and their existing vision, goals and needs. Your stakeholder conversations will have provided you with a good sense of where your community is on the issue and how you should communicate about the process.

We have found that fear is often a primary driver of the staunchest opponents of climate action, so stay positive and optimistic to neutralize opposition. Many opponents just want to be heard, so it is important to continue to welcome people and hear their opinions without defending. This is also a critical opportunity for you to better understand your community's concerns and barriers around responding to climate impacts, which is key information for developing effective resilience strategies.

Some questions to consider include:

- ▶ Has any polling on climate change been done in your area, and what does it tell you?
- ▶ Are the public and/or political figures in general agreement on the need to address changing climate conditions or is it a controversial issue? If it is controversial, where is your support base?
- ▶ How does the local media generally treat climate change as an issue?
- ▶ Has there been work on reducing greenhouse gas emissions? If so, is there a high level of support for those efforts? What can be learned from those efforts?
- ▶ Are you concerned that talking about climate change in your community will be met with hostility?

Your answers to these questions will determine how you launch your project in the next phase and how you phrase and rollout various engagement efforts throughout your process.

Your goal is to meet your community where it is and help residents make the connection between climate action and the community's existing vision, goals, and needs.



Rawpixel.com

TIPS FOR SUCCESS

Remember that your community can be engaged in this conversation, but you may need to focus engagement on local impacts that people already feel and the need to protect them from future impacts (increasing wildfire or heat waves, for example). Polling data shows that there is an increasing number of people in all regions of the country who are concerned about climate change and ready to act. If you start this local conversation in a way they can engage in it, they will have a path to openly support the process.

Be careful about assuming you have more support than is actually present in your community. Even the most progressive communities are often cautious on this topic, and need a high level of outreach effort to stay on board. Because people get information from a variety of different sources, you will need to consistently share the basics of climate change, as well as why the community needs to build resilience.

Conducting a community poll can be a valuable tool to determine the level of support in your community. A scientifically sound poll could be done in collaboration with a local university, non-profit, or other group. Understanding the level of support for climate action in the community can inform messaging and outreach, as well as help with buy-in.

OUTPUT

- An assessment of community attitudes and initial thinking regarding how to approach engagement.

RESOURCES

A current list of resources is available on the Climate Ready Communities website:

<https://climatereadycommunities.org/resilience-resources/>

General Resources

Climate Access provides an extensive network and communication and engagement resources for climate leaders, including resilience planners. The Preparation Frame and Connecting with Conservatives on Climate look specifically at how to frame climate impacts for different audiences. www.climateaccess.org

Yale Climate Opinion Maps provide opinion poll data at the county, congressional district, state, and national levels – <http://climatecommunication.yale.edu/visualizations-date/ycom-us-2016>

Heartland Center for Leadership Development –

<http://heartlandcenter.info/clues-to-rural-community-survival/>

National Civic League

Conversations Toolkit – A tool to help communities have difficult conversations <https://www.nationalcivicleague.org/resources/america-conversations-toolkit/>

Civic Index – A tool to assess shared community values. <https://www.Nationalcivicleague.org/resources/civicindex/>

Resilience Dialogues – www.resiliencedialogues.org/

Annual Support subscribers

Tutorial: Knowing Your Audience

Template: Community Attitudes Assessment

Subscriber resources for this task are [here](#).

Other Services (available with or without a subscription)

Blocks of consulting time for guidance or document review

Other Services are [here](#)



Jack Heesch, FEMA

Task 5: The Kickoff

Hold an event that is open to the public to celebrate the kickoff of your process. The objective for a kickoff is to build community and political support for resilience planning. There are many different ways to hold a successful kickoff event, depending on the culture of your community and current state of engagement and communication on climate change.

Climate change is a more serious topic, with the potential for catastrophic local consequences, making it even more important to bring people together in a positive way, to create hope and optimism, and to connect in a meaningful way that builds relationships. It can be even more complex if you are work-

ing in a community where you cannot openly talk about climate change.

Below are two options for a kickoff in two different types of communities. These are just examples. If your community has its own traditions or culture, be sure to honor those.

The first choice is for communities that are generally supportive of the idea of addressing climate change. The second is more appropriate if your community is more polarized. Large, public kickoff events should only be done where there is significant public support for the process.



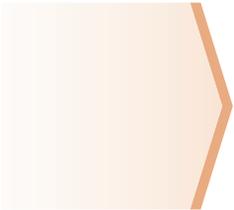
Photo by Keith Henty

Kickoff Option 1: Celebrate!

Hold a large, open to the public event to celebrate the kickoff by eating together, sharing thoughts on climate change, and providing ways for your citizens to get inspired and share their thoughts about the process. Climate change can be scary, so you want your event to convey both the importance of tackling the issue head on and the conviction that success is possible if your community is willing to do the work.

Suggestions:

- ▶ Ground the event in local art, music, and stories
 - ▶ Serve good food featuring local restaurants or have a potluck
 - ▶ Invite an inspirational and/or entertaining speaker or performer who can help people feel empowered and energized to take action. Someone who has lived there for a long time and can tell a moving story is a good option.
 - ▶ Limit the amount of time for presentations or individuals speaking
 - ▶ Frame climate change as an issue that affects everyone, especially our health, businesses, infrastructure, water, wildlife, children, etc. Avoid framing it narrowly as just an environmental issue.
- ▶ Create opportunities for people to interact in small groups and with people they do not already know. Be sure to capture their thoughts and share them during the event or in follow-up communications. Find out what they value in the community, what their vision of the future holds, and how they recommend getting there. Many people are scared of climate change at a deep level. This can help them push past their fears and take action.
 - ▶ Gather names and contact information to keep folks up to date. Make a listserve so that you can send updates and announcements of opportunities for public engagement in the process.
 - ▶ Summarize the immediate planning process, with focus on the breadth of community involvement, and explain the timeline, transition from planning to implementation, and the ongoing nature of the process. Let them know how they can be involved in the process.
 - ▶ Make sure that the word gets out widely. Consider outreach at schools, to communities of color, churches, civic organizations, conservation groups, and others. Everyone has a reason to be concerned about climate change and you want all of your citizens to know about the event. Avoid preaching to the choir. Offer



Because of the potential for catastrophic local consequences from climate change, it is important to bring people together in a positive way, to create hope and optimism, and to build relationships.

kids activities and information in other languages to help everyone in your community feel welcome.

- ▶ Use your Task Force members. This is a good time for them to reach out to their networks in the community and invite them to participate.
- ▶ Model responsible climate action by using reusable dishes, limiting printed materials,

and encouraging donations to a local project that will help address climate change

Even if you live in a polarized community, you may be able to hold a large kickoff celebration. It is important to be careful about framing and ask questions related to specific impacts (flooding, larger storms, droughts, etc.) rather than about climate change itself. This is one option.

Kickoff Option 2: Quiet Launch

If you think a big public launch is too risky, however, consider holding a smaller event. Invite the Task Force and the other supportive stakeholders that you identified in Task 2. Use the time to get to know one another and share personal stories about climate change. Find out why people are there and what they have to bring to the process. Finally, be sure to celebrate with food, music, and/or positive stories and

examples. This work can be discouraging, so focus on building connections, enthusiasm, and optimism.

However you do it, you will want to review the scope, timeline, and tasks of the process, and leave some time for social interaction. Relationship development among your Task Force members and stakeholders is an important part of your process.





Rawpixel.com

TIPS FOR SUCCESS

For the celebration kickoff: Be creative! Find collaborators who know how to put on a really great event. Get students involved. Feature beloved local musicians, artists, storytellers, and others who can bring people together. Eat together. Listen to people. Have a great time!

For the Quiet Launch, mark the occasion by honoring the Task Force members' and/or stakeholders' care for their community and willingness to do the hard work to make the residents safe and the community strong.

Time the kickoff to be after the foundational support work is done with stakeholder and Task Force development, and you have some initial community champions to feature. Look for the caretakers in your community to involve in the kickoff. Faith leaders can be particularly effective.

Think of the kickoff as a way to build awareness, understanding, and commitment to climate resilience. Think through the event from the participant's perspective to ensure that the event meets those goals.

OUTPUT

- A completed kickoff event that formally launches the climate resilience planning process. You and the Task Force are underway!

RESOURCES

A current list of resources is available on the Climate Ready Communities website: <https://climatereadycommunities.org/resilience-resources/>

Annual Support subscribers

Template: Event Signup Sheet
 Template: Sample Agenda – Quiet Launch
 Template: Sample Agenda – Public Launch
 Template: Planning Checklist – Public Launch
 Subscriber resources for this task are [here](#).

Other Services (available with or without a subscription)

Blocks of consulting time for guidance or document review
 Other Services are [here](#)

If you have feedback or ideas about how we might improve this Guide, please contact us at: info@geosinstitute.org.

STEP

2

Assess Past and Future Trends

YOUR GOAL

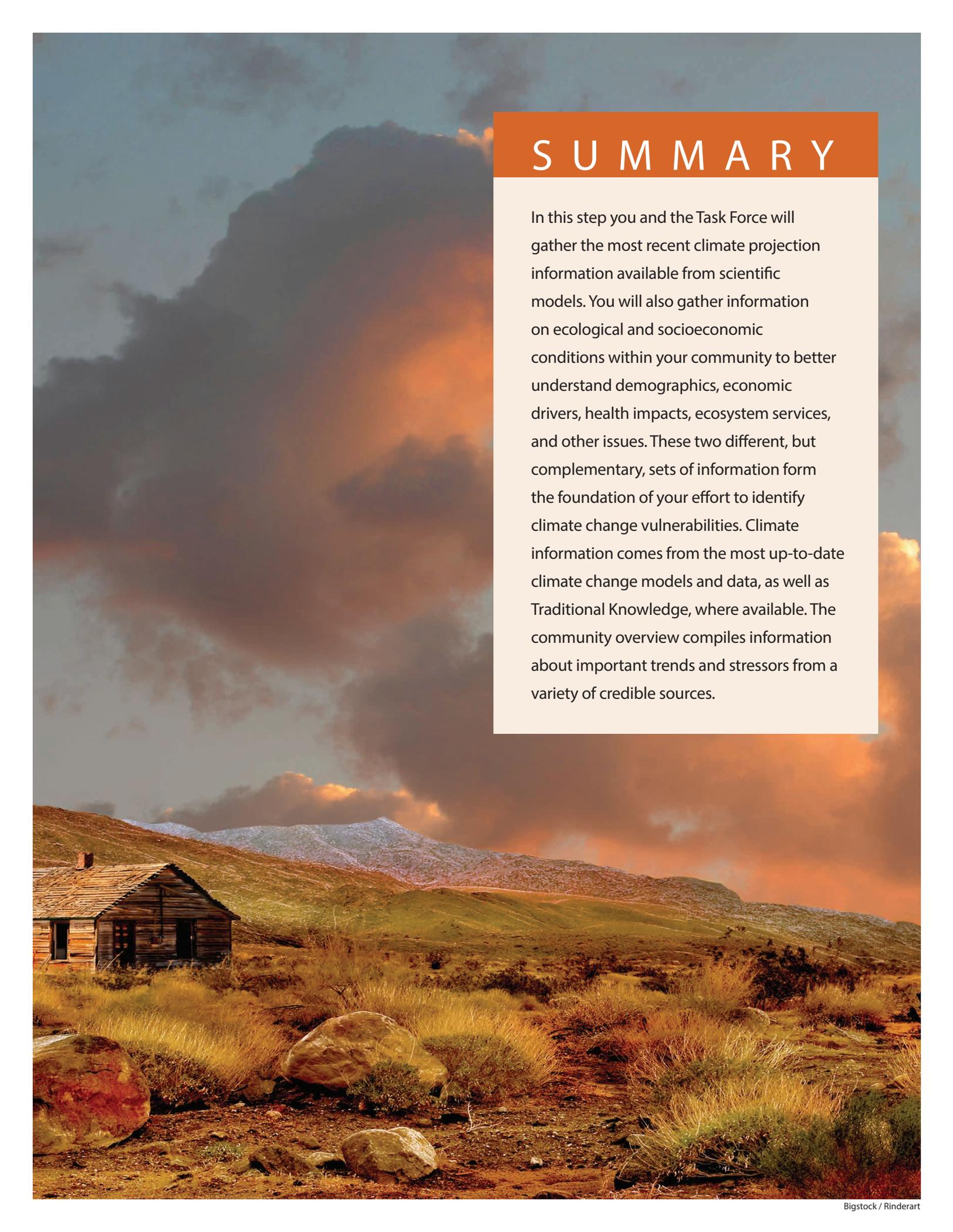
Develop a common understanding of climate change and other local trends that is data-driven and specific to your region and community. This information will serve as the foundation of your community's efforts to create its Climate Resilience Plan.

Task 1: Gather Information About Historical Climate Trends and Future Projections

Task 2: Create a Climate Trends Primer

Task 3: Create a Community Primer

Task 4: Develop an Electronic Presentation of the Primers



S U M M A R Y

In this step you and the Task Force will gather the most recent climate projection information available from scientific models. You will also gather information on ecological and socioeconomic conditions within your community to better understand demographics, economic drivers, health impacts, ecosystem services, and other issues. These two different, but complementary, sets of information form the foundation of your effort to identify climate change vulnerabilities. Climate information comes from the most up-to-date climate change models and data, as well as Traditional Knowledge, where available. The community overview compiles information about important trends and stressors from a variety of credible sources.

The Climate Trends Primer developed in this step serves two purposes: (1) it acts as a communication tool to help people understand why the community needs to work on building resilience, and (2) it feeds directly into the Vulnerability Assessment (Step 3). The Community Primer ensures that there is a basic and common understanding of the economic and social trends already affecting local residents.

This data collection step can be one of the most intimidating tasks in the resilience planning process. You are not expected to know any of the technical details we will explain in this step. If you feel comfortable with data and model outputs, you can tackle this step with the information we present here. If you are not comfortable with technical data, you might consider convening small groups of experts—one for each of the subjects (climate, socioeconomic, and natural system trends). These groups can help you find and decipher the information that you need, and possibly even draft the primer.

If you convene expert subgroups, do the climate trends subgroup first so that the remaining two (socioeconomic and natural systems) subgroups will have the information from the Climate Trends Primer when they do their work. If you go forward on your own, it is important to have one or more experts review each primer before you finalize it to ensure that you have drawn appropriate conclusions from the data and information you have gathered.

Many communities find that it is simply easiest to hire this piece out. Data availability and the speed of analysis has improved greatly over the last few years, so it is no longer prohibitively expensive to get cus-

tomized climate projection data for your planning area. If you decide to hire it out and need to issue an RFP for it, Appendix B has information about what is helpful to include in a RFP for climate projections. Since this information is useful for a variety of applications, including emergency management and natural hazard mitigation planning, it may be possible to establish funding partnerships with mu-

Options for Creating a Climate Trends Primer

- ▶ Download information from a state data portal if it exists for your state
- ▶ Do it yourself using the resources in this guide
- ▶ Recruit a small group of local experts from universities, government, or nonprofit organizations to create it for you
- ▶ Hire out for expert assistance

nicipal departments to cover the costs of your projections. Local industry is another potential funding source, especially if they are interested in integrating the climate information that will result from such an investment into their business planning.

It is also reasonable to get started using more general regional information available through the 4th National Climate Assessment and the Climate Resilience Toolkit, especially if you have limited technological capacity and do not have the resources to pay for any assistance. You can always add to what your community knows about its likely future climate conditions later if funding comes available.



Historical trends are a powerful tool for communicating because they reinforce people's lived experience in the context of climate change.

Task 1: Gather Information About Historical Climate Trends and Future Projections

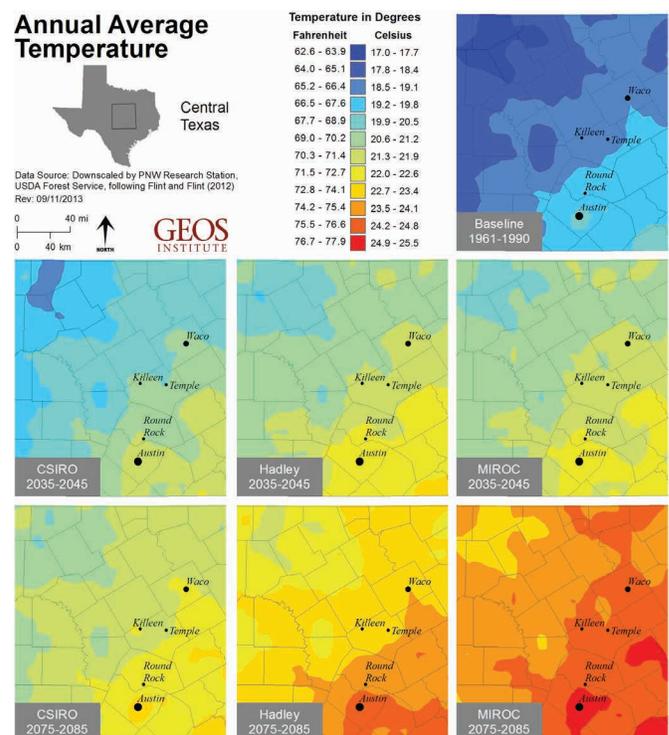
People get information on climate change from a variety of sources: online, through the media, from schools and organizations, from published reports and papers, and elsewhere. Even among people who see themselves as well-educated on this important topic, there can be widely different ideas about what climate change means for the future, especially in a specific locality. It is important to ground the resilience planning process in established science and facts about climate change trends and projections so that the Task Force and all participants have a common understanding of the trajectory, magnitude, and certainty of climate change at the local level. In the following pages, we identify the information you will need to gather to develop the Climate Trends Primer.

Historical Climate Change Information and Data

Climate change has already progressed significantly, and many changes are being felt around the globe. Therefore, it is helpful for the Task Force and workshop participants to learn what types of changes have already been documented for their area. Often, these data simply corroborate the changes that people already recognize based on their personal experience. This is especially true in tribal communities where the experience of elders is based on Traditional Ecological Knowledge (evolving knowledge acquired by indigenous peoples over hundreds or thousands of years) and in other communities where several generations have lived in close relationship with the land.

Historical trends are powerful for communicating about climate change because they are based on actual data measurements, rather than modeling. Many non-scientists distrust climate models, but do trust data drawn from observations and the trajectory that they indicate for the future.

Data availability varies significantly in different regions. Most states have a state climatologist, so we recommend that you talk with them to find out what information is available for your community. Many states put out a climate change report on a



regular basis (about every 2–4 years). Some offer online data summaries that you can download.

This data collection step can be especially intimidating if you are not technically trained. If that is the case, consider reaching out to the local university or scientific community for technical assistance. If you are not sure who to talk with, ask your state

WHAT IS THE DIFFERENCE BETWEEN CLIMATE AND WEATHER?

Weather is what you feel every day. The weather can change from moment to moment. Climate is the average weather over a long period of time. For climatologists, this is usually 30 years.

As the saying goes, “If you don’t like the weather, wait 10 minutes. If you don’t like the climate, move.”

Bigstock / Richard Peterson (umbrella); Buppha Wut

climatologist to suggest some people who might be interested in helping you with this step. Below, we offer some basic information to get you started.

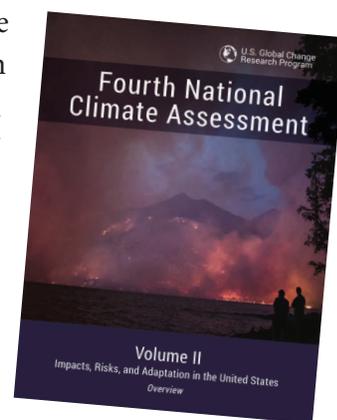
First, start by collecting information on global and regional trends, such as observed changes in temperature, indicators of warming, precipitation trends, and carbon dioxide (CO₂) concentration over hundreds to thousands of years. The U.S. 4th National Climate Assessment is a good source of information and messaging. The Climate Science Special Report to the 4th National Climate Assessment includes information on the science of climate change as well as global trends.

Some of the variables that may be of interest to your community include changes in:

- ▶ Temperature
- ▶ Precipitation
- ▶ Snowpack
- ▶ Frequency of extreme events, such as heat waves, flooding, hurricanes, tornadoes, etc.
- ▶ Frequency, extent, or intensity of wildfire
- ▶ Length of wildfire season
- ▶ Number of nights below freezing
- ▶ Length of frost-free period
- ▶ Permafrost stability (in northern regions)

All of these variables will need to be compared to what was measured in a historical period. However, different scientists use different historical periods to assess long-term change. While there is no right or wrong historical period to use for the comparison, it is important to always report the historical period that was used, so that accurate comparisons can be made.

The 4th National Climate Assessment has information and graphics on historical change for large swaths of the U.S. While it is always better to have more localized information, these reports can provide regional trends if localized data is not available.



You can get to this information on the 4th National Climate Assessment website. Within the report, go to the “Regions” section, and select your region. You will see that historical trends are discussed, and that there are maps or graphs embedded throughout, which you can also download. Note there are also chapters in the National Topics section on Agriculture and Rural Communities, and Built Environment, Urban Systems, and Cities that may be of interest. Be sure to identify all sources of information you gather as it will be important to cite those sources in the Climate Trends Primer.

Future Climate Change Projections

Most projections of future climate trends are based on the use of global climate models (GCMs), which are developed by many leading scientific institutions and organizations around the world. The main scientific body that vets these models is the Intergovernmental Panel on Climate Change (IPCC). The many models have different assumptions and input variables, resulting in quite variable output among models. The variation, however, is normal in modeling and not unique to climate models.

We use models frequently in local decision-making processes. Economic models, population growth models, ecological models, and wildfire models, for instance, are incredibly valuable in informing our planning processes, and yet there is always a large component of variation and uncertainty.

It is good to always look at a wide range of models to see how much agreement there is among them, as well as how much disagreement. Generally there is more certainty associated with model results when several or most of the models agree. For instance, all models agree on warming, but there are more discrepancies in certain locations about whether precipitation will increase or decrease. A grouping of many models is called an “ensemble.”

These global models result in spatial data at very large scales, which is then “downscaled” to account for local and regional topography and dynamics. Downscaled data have become readily available, yet processing the data still takes quite a bit of expertise.

There are many online tools that allow users to map or graph the data without data processing expertise.

Climate change projections depend heavily on an unknown variable—the amount of greenhouse gas emissions that people will continue to release to the atmosphere. For community planning, we recommend that you include one set of projections that

reflects the current trajectory that the world is on (RCP 8.5 is a good option), and, if possible, also include a lower emissions trajectory that assumes countries shift to clean energy and store more carbon in forests and agricultural lands (RCP 4.5 is a good option).

By planning for the current emissions trajectory (RCP 8.5), resilience strategies will be based on realistic projections. However, many of the vulnerabilities are likely to be so severe that people will begin to ask how to reduce

the overall magnitude of change. Thus, it is worthwhile to also provide insights into how the future will look if we take collective action to substantially reduce greenhouse gas emissions (RCP 4.5).

Output from older models is based on emissions trajectories (A2 and B2, for example) rather than RCPs. It is ok to use these data if newer data are unavailable. In most areas and for most variables, however, newer data are available and should be prioritized. It is useful to keep a spreadsheet of data variables and sources as you identify different sources and studies. Consulting with a climate change scientist and/or the Climate Adaptation Science Center for your region can speed up this process.

Why “projections” and not “predictions” or “forecasts”?

Climate change “projections” depend heavily on an unknown variable – the behavior of people. If people reduce emissions of greenhouse gas pollution, for instance, the “projections” are different than if people continue with high emissions. Rather than a single best “prediction” based on known data values, there are many possible “projections” that depend on human behavior.

Representative Concentration Pathways (RCPs)

The IPCC adopted four greenhouse gas emissions pathways that drive the global climate models. These pathways assume different levels of emissions and result in different magnitudes of warming and climate change over the long term. Each of the RCPs is shown below, as well as the average global temperature change that would result from that pathway. It is important to note that warming at the local level, in the U.S., is expected to be much higher than the global average because of the high latitude.

RCP	Average global temperature change (°F) Mean (and likely range)	
	Mid-century (2046–2065)	Late-century (2081–2100)
2.6	1.8 (0.7–2.9)	1.8 (0.5–3.1)
4.5	2.5 (1.4–3.6)	3.2 (2.0–3.7)
6.0	2.3 (1.4–3.2)	4.0 (2.5–5.6)
8.5	3.6 (2.5–4.7)	6.7 (4.7–8.6)

Determining what types of data to include in your climate change projections depends on many factors. Generally, the resources, geography, economic drivers, and populations in your community will determine your choices. For instance, in an agricultural community, the number of days below freezing, as well as the length of the frost-free period, could be important to consider. In mountainous or northern regions, local residents and ski resorts may want to know about the projections for change in snowpack. Snowpack is also important for water storage in many parts of the U.S.

Different communities can have very different tolerances for extreme conditions. Communities that are already used to high heat may be more concerned about temperatures over 110° F, while communities

that have not experienced heat issues in the past can be negatively affected by temperatures as low as 80° F. Studies show that more people die during heat waves when temperatures remain hot overnight. Therefore, nighttime temperatures over 85° F are often considered. When considering changes in precipitation, communities that are normally quite arid may experience severe flooding with relatively small amounts of precipitation as compared to areas that experience regular downpours. For those communities signed onto the Covenant of Mayors for Climate and Energy, it is important to collect data in support of their reporting structure for climate change adaptation. The Covenant of Mayors has a list of 29 climate hazards that partner Cities must address, including heat waves, fog, ocean acidification, inundation, vector-borne disease, and many others.

A NOTE ABOUT DATA SOURCES:

BE CAREFUL where your information comes from! As we all know, the issue of climate change has become politicized, and many internet sources provide misleading information and graphics meant to influence people’s views on the issue. It is important to stick to reliable scientific sources, such as federal or state government agencies (NOAA, EPA, state climatology offices, others) or major universities (the University of Alberta, for example, provides downscaled climate model data). Some NGOs offer climate data portals and tools as well, but be sure they come from a science-based and reputable NGO.

Some potential climate variables of interest include:

- ▶ Temperature change
 - Annual, seasonal, and monthly can all be important
 - Daytime versus nighttime temperatures
- ▶ Percent change in precipitation
 - Annual, seasonal, and monthly can all be important
- ▶ Percent change in snowpack
- ▶ Change in frequency of extreme events, such as heat waves, flooding, hurricanes, tornadoes, etc.
- ▶ Change in the number of nights below freezing

- ▶ Change in length of frost-free period
- ▶ Hydrological variables
 - Stream flow, runoff, and drought stress, for instance

Some potential *physical* and *ecological* variables of interest include:

- ▶ Change in frequency, extent, or acreage of wildfire and dispersion of wildfire smoke
- ▶ Change in length of wildfire season
- ▶ Change in the dominant type of vegetation (coniferous forest, mixed deciduous, grasslands, etc.)



Bigstock / Alik Mulikov

A NOTE OF ENCOURAGEMENT:

You don't need to be a climate scientist to complete this step of the process. At the very minimum, read through the section of the 4th National Climate Assessment specific to your region. Ask someone at a local University or state or federal agency to discuss it with you and answer any questions you may have. Natural resource scientists and managers are well-versed on climate change and can help you. Once you write up the Climate Trends Primer, ask them to review it for you, but emphasize the need to keep the language simple and appropriate for non-scientific audiences. The staff and scientists at Climate Ready Communities are also able to help with this step. It may sound daunting at the outset, but the most important thing is to do the best you can with what is available so you can get to the rest of the planning process.

- ▶ Changes in distribution of individual crops or species, modeled using climate envelope models or other approaches
- ▶ Changes in plant hardiness zones
- ▶ Changes in coastal habitats, such as marsh, beaches, bays, etc.
- ▶ Coastal erosion and inundation from sea level rise
- ▶ Permafrost stability

A common format for reporting climate change projections is to compare the historical period of 1961-1990 with two different future time periods (eg. 2031-2060 and 2071-2100), each averaged over

30 years. This approach, however, is not standardized, and many datasets come in other formats. They are all valid approaches, but it is important to report the specific time frames used for both the historical period and the future time periods. While averaging over a 30-yr. time period is the accepted approach to measuring climate (rather than weather!), it is also useful to look at year-to-year variability and trajectory. If annual data is available, graphing temperature and/or precipitation over time can show you whether there is an expected increase in extremes, as well as the annual rate and trajectory of change. It important to note, however, that data for a single year is NOT a prediction of that specific year's climate conditions.

OUTPUT

- A thorough understanding of historical and likely future changes in climate variables in your area based on information compiled from reliable and up-to-date sources.

RESOURCES

A current list of resources is available on the Climate Ready Communities website:

<https://climatereadycommunities.org/resilience-resources/>

General Resources

CalAdapt provides a view of how climate change might affect California. It includes tools, data, and resources to conduct research, develop adaptation plans and build applications. <http://cal-adapt.org>

Climate Central surveys and conducts scientific research on climate change and informs the public of key findings. Their scientists publish and their journalists report on climate science, energy, sea level rise. www.climatecentral.org

Climate Watch is a program of the World Resources Institute. Climate Watch offers open data, visualizations and analysis to help policymakers, researchers and other stakeholders gather insights on countries' climate progress. <http://www.wri.org/our-work/project/climatewatch>

Global Covenant of Mayors for Climate and Energy is the world's largest movement for local climate and energy actions, covering over 7,000 local and regional authorities over 57 countries. Participating communities are required to track and report progress on both reducing greenhouse gases (mitigation) and preparing for climate change impacts (adaptation). <https://www.covenantofmayors.eu>

Scenarios Network for Alaska and Arctic Planning (SNAP) (University of Alaska at Fairbanks) provides data, tools, expertise, and collaboration opportunities to develop and communicate scenarios of potential conditions in an evolving climate. <https://www.snap.uaf.edu>

Sea Level Rise Viewer (NOAA) provides information and visual data on coastal flooding, erosion, infrastructure vulnerability, and other variables, for the entire contiguous U.S. coastline. <https://coast.noaa.gov/slr/>

Union of Concerned Scientists is a network of over 20,000 scientists and technical experts advancing science-based solutions for a healthy planet and safer world. www.ucsusa.org/our-work/global-warming/science-and-impacts/global-warming-impacts#

U.S. Climate Resilience Toolkit (USGS and other agencies) allows users to explore maps and graphs of historical and projected climate trends for any county in the contiguous United States. View data by topics to see how climate change will impact things you care about. <https://toolkit.climate.gov>

U.S. Climate Adaptation Science Centers (US Geological Survey) are located in eight regions throughout the United States: Alaska, Pacific Islands, Northwest, Southwest, North Central, South Central, Northeast, and Southeast. <https://casc.usgs.gov>

U.S. 4th National Climate Assessment offers national and regional climate trends as well as common vulnerabilities experienced in different regions due to changing climate conditions. <https://nca2018.globalchange.gov/>

Traditional Ecological Knowledge

Traditional Ecological Knowledge Handbook: A training manual and reference guide for designing, conducting, and participating in research projects using traditional ecological knowledge. Alaska Department of Fish and Game, Division of Subsistence. <http://www.subsistence.adfg.state.ak.us/techpap/rp97052b.pdf>

Guidelines for Considering Traditional Knowledges in Climate Change Initiatives. Climate and Traditional Knowledges Workgroup. <http://climatetkw.wordpress.com/>

Resources for those with technical training

Climate NA (University of Alberta) provides baseline and future climate projections data for all of North America. These are raw data files for those with GIS and data processing capabilities. They are also available on DataBasin, hosted by the Conservation Biology Institute. <https://sites.ualberta.ca/~ahamann/data.html>

MC 1&2 Dynamic Vegetation Model on DataBasin has output describing the future distribution of dominant types of vegetation across the U.S. The model simulates the dynamics of lifeforms rather than species, (including evergreen and deciduous needleleaf and broadleaf trees and shrubs, C3 and C4 herbaceous grasses, forbs and sedges) as they respond to both climate change and increasing atmospheric CO₂ concentration.

<https://climate.databasin.org/galleries/18202c2bb41f4b0ab9b6ddd3a4531ef8>

Template for Assessing Climate Change Impacts and Management Options (TACCIMO)(USDA Forest Service) is a web-based information delivery tool that connects climate change science with forest management and planning needs. It is currently expanding to include information on agriculture, rangeland, and livestock planning as well. Science content in TACCIMO consists of findings (text quotations and figures) from peer-reviewed climate change literature.

<https://www.fs.usda.gov/ccrc/tools/taccimo>

Annual Support subscribers

Template: Data collection checklist

Subscriber resources for this task are [here](#).

Other Services (available with or without a subscription)

Development of Climate Trends Primer including compilation and assessment of available climate information

Blocks of consulting time to:

- answer questions and explain concepts

- help you find resources on specific variables (such as stream flow or wildfire)

- help you find local experts on specific topics

Other Services are [here](#)

Task 2: Create a Climate Trends Primer

By compiling the information collected in Task 1 into a short (less than 10 pages) and relatively simple report, you will set up your Task Force and workshop participants for quick learning and a common understanding of climate change. This report should be written in language accessible to scientists and non-scientists alike. Use graphics, such as maps or graphs, to illustrate the likely changes that are projected.

The climate change primer should also have a 1-page Executive Summary that can be referred to quickly during the Vulnerability Assessment process and used in outreach efforts. A suggested outline is shown below.

EXAMPLE: Climate Trends Primer Outline

- A. Executive Summary
- B. Introduction
- C. Purpose
- D. Climate change data and models
- E. Global Trends
 - ▶ Historical
 - ▶ Future Projections
- F. Regional and Local Trends
 - ▶ Historical
 - ▶ Future Projections
- G. What it Means
- H. References



A. Executive Summary/Handout

Create an Executive Summary that provides a quick overview of the entire report, and can also be used as a stand-alone handout for outreach. A simple bulleted list of historical and likely future trends can be useful, and can show up or down arrows to quickly demonstrate the expected direction of change. Just show the most relevant and/or meaningful trends in the Executive Summary. Provide a short written overview of the issue, the reason for the project, and historical and future changes. Be sure to reinforce that communities can take action to reduce the impacts. It is often easiest to write this last by pulling information from each of the following sections.

B. Introduction

Your introduction to the Climate Trends Primer should describe the seriousness of the problem, as well as the need and ability to address climate change at the local level. The introduction should create a positive vision for how your community can become resilient and prepared for climate change, but also emphasize (to the extent possible in your community) that reductions in greenhouse gas emissions are needed to reduce the overall magnitude of change (i.e. both adaptation and mitigation are needed). It is important to maintain a balance between communicating the magnitude of the problem accurately, while also remaining hopeful that you can create a positive future.



The Climate Trends Primer is a short overview of the latest science and projections, specific to the planning area, that you will use to identify community vulnerabilities and develop resilience strategies.



C. Purpose

Describe the purpose of both the Climate Trends Primer and the overall climate resilience planning project. The Climate Trends Primer is a short overview of the latest science and projections, specific to the planning area, that you will use to identify community vulnerabilities and develop resilience

strategies. Climate resilience planning is most often carried out with the purpose of creating sustainable communities that are able to withstand and respond to disruptions and change in positive ways that protect people, property, and nature.

D. Climate Change Data and Models

The section on data and models should describe the basic phenomenon of climate change, as well as the abundance of data that help us track changes in the atmosphere. It is useful to communicate uncertainty in model projections so that people feel more comfortable about using information from climate models in planning for the future.

An example introduction on uncertainty might say something like this:

All models have uncertainty because complex processes are simplified and assumptions are made about how the Earth's processes work. Therefore, different models show different trends in future climate. How much they agree or disagree with each other gives us information about uncertainty. The uncertainty is similar to that associated with other types of models that we use every day to make decisions about the future, including economic models, population growth models, and ecological system models.

Much of the data on future trends in this report are compiled from an “ensemble” or average across many Global Climate Models, which have been adjusted or “downscaled” from the the global scale (coarse) to local scales (fine) using climatological data that reflects variation across the local landscape. When ensembles are used, it is important to understand the range of variation among the different models, as it can be quite great. In general, precipitation projections are associated with higher uncertainty (i.e. more variation among models) while temperature projections are associated with lower uncertainty. Also, short to medium-term projections have lower uncertainty than long-term projections.

Decisions that are made without considering climate change inherently assume continued historical climate conditions (a basic assumption in most planning processes). Because we know that the climate is already changing and is expected to continue to change, we know this assumption is false. Operating under this incorrect assumption can lead to failed policies and missed goals. Responsible planning for the future requires the use of the best climate projections available.

E. Global Trends

Sometimes it is useful to start at the global scale and work your way down to the local scale. Global trends in climate change can be communicated in a few short paragraphs, with additional graphs or maps.

Historical – Some of the important global trends to include in your Climate Trends Primer include observed changes in global average temperature, indicators of warming, global precipitation trends, and comparisons with temperature and carbon dioxide (CO₂) fluctuations over the last 1,700 years.

This section should be short and straight to the point. While it is important for people to understand how fast and unusual recent human-caused warming is compared to Earth's prior cycles, it is a tangent to the work at hand. It is important to touch on the global issues, but keep the information and discussions focused on local trends and building resilience.

Future Projections – Provide just a few sentences on global projections, and perhaps a simple graph showing the different emissions pathways and their projected warming trajectories. Providing additional information on global sea level rise and the potential for displacement of coastal communities may also be important depending on your location.

F. Regional and Local Trends

Resilience planning depends on a sound understanding of ongoing and future climate change at the regional and local level. Because of the diver-

sity of backgrounds of the workshop participants in Step 3, it is important that this information is presented in a concise and informative manner without using technical jargon or complicated graphs. Climate change projections are the basis for the Exposure component of your Vulnerability Assessment (see Step 3), so it is important that you compile as much information as possible and communicate it effectively.

Historical – Provide an overview of historical trends, including long-term changes in average temperature, precipitation, frequency or magnitude of extreme events, sea level, streamflow, ocean chemistry, and/or wildfire. Additional variables may be locally relevant as well. Simple graphs or maps help to communicate trends. This is the place to include any Traditional Ecological Knowledge if it is available for the planning area. This type of knowledge should be presented side-by-side with available science.

Future Projections – Provide an overview of projected future trends, including as many of the same variables as you used for the historical period as possible. For consistency, try to use the same set (ensemble) of climate models, emissions pathway (RCP) and time frames for as many of the variables as possible. When different climate variables come from different sources, however, you may have little choice, and providing as much data to inform the decision making process is more important than consistency among models. It is important to always document information and data sources.



Touch on the global issues related to climate change, but keep the information and discussions focused on local trends and building resilience.

G. What it Means

Include a short summary of what the climate model projections and Traditional Ecological Knowledge mean for your local region, ecosystems, populations, and resources. The 4th National Climate Assessment and state level climate assessments provide discussions on the likely impacts of climate change on fish and wildlife, specific ecosystems and waterways, coastal infrastructure, industries such as ski

resorts, agriculture, or forestry, and other important resources or populations. More regional or local reports are available in some areas, but are not common. Provide a short overview (one page at most) within the Climate Trends Primer about why climate projections matter at the local level. Workshop participants (in Step 3) will help to further identify specific local impacts based on their expertise across different sectors.



GraphicStock

TIPS FOR SUCCESS

Don't get bogged down in local studies on very specific topics, unless they are directly relevant to your effort. In the upcoming workshops, experts will help to expand on the information in the Primer, so not everything is needed at this time. You may even want to update it as the process unfolds.

Get help if you need it! Don't be shy – there are many people well-versed on climate change who can help you.

OUTPUT

- A concise and easy to read Climate Trends Primer that includes information specific to the local area and a 1-page Executive Summary that can be used as a handout.

RESOURCES

A current list of resources is available on the Climate Ready Communities website: <https://climatereadycommunities.org/resilience-resources/>

General Resources

U.S. 4th National Climate Assessment offers national and regional climate trends as well as common vulnerabilities experienced in different regions due to changing climate conditions. <https://nca2018.globalchange.gov/>

State level climate trends reports are available for many states.

Below are a few examples, but see our online resources for a current list.

California – <http://www.climateassessment.ca.gov>

Colorado – <https://wwa.colorado.edu/climate/co2014report/>

Oregon – http://www.occri.net/media/1042/ocar3_final_125_web.pdf

New York – <https://nyclimatescience.org/resources/resource::1338>

Vermont – <http://vtclimate.org>

Sample Climate Trends Primers can be found at

<https://climatereadycommunities.org/other-services/climate-projections/>.

Projection reports can offer ideas for your Climate Trends Primer and can be found at: www.climatewise.org/projects.

Tribal Resources and Traditional Ecological Knowledge

Northern Arizona University's Institute for Tribal Environmental Professionals –

<http://www7.nau.edu/itep/main/tcc/>

University of Oregon's Tribal Climate Change Project –

<https://tribalclimate.uoregon.edu/>

Annual Support subscribers

Template: Climate Trends Primer – Detailed Outline

Subscriber resources for this task are [here](#).

Other Services (available with or without a subscription)

Development of Climate Trends Primer including compilation and assessment of available climate information

Blocks of consulting time to:

- answer questions and explain concepts

- review your draft Climate Trends Primer

Other Services are [here](#)

Task 3: Create a Community Primer

The current status and trends associated with both socioeconomic and natural systems are a key component in determining how climate change will progress and what the vulnerabilities are for your area. The Task Force and workshop participants need to have a common understanding of natural systems, economic drivers, public health issues, the key issues for frontline communities, condition of major infrastructure, water supplies, and other community resources..

Intact natural systems act as a buffer between human communities and climate impacts, in addition to providing important services, such as flood abatement, timber supply, clean air and water, recreational activities, and tourism opportunities. Therefore, it is important that your process understand impacts to ecological systems and work to develop strategies that keep those systems intact.

In Step 3, you will invite local experts from different sectors to participate in a workshop and contribute their expertise. The short overview you create here will allow people from different sectors to have a common understanding of how the community generally functions. You will also consider how the climate change trends compiled in the Climate Trends Primer are likely to affect some of the key resources and populations of the community. A suggested outline is shown above.

EXAMPLE: Community Primer Outline

- A. Executive Summary
- B. Introduction
- C. Overview of climate trends and relevant impacts
- D. Natural Systems of the Region
- E. Socioeconomic Systems of the Region
- F. Conclusion

A. Executive Summary/Handout

Create an Executive Summary that provides a quick overview of the entire report, and can also be used as a stand-alone handout for outreach. A simple bulleted list of relevant community trends and demographics can be useful. Provide a short overview of climate change specific to your community, as well as the importance of community resilience. Highlight some key stressors or trends that can be addressed. It is often easiest to write this last by pulling information from each of the following sections. Use the Executive Summary from your Climate Trends Primer as a guide.

B. Introduction

Your introduction to the Community Primer should describe the seriousness of climate impacts, as well as the need and ability to build resilience at the local level. Describe the purpose of the Community Primer and how it relates to the Climate Trends Primer, as well as the overall climate resilience planning project. The Community Primer is created as a short overview of the current realities and trends specific to the local area. This includes demographics, natural resources, infrastructure, health, economic drivers, local jobs, and other important components of the community. A shared understanding of how the community is operating at present will help workshop participants accurately identify vulnerabilities and develop resilience strategies.

C. Overview of climate trends and relevant impacts

This section can easily be developed by adapting the executive summary from the Climate Trends report

and making any necessary edits to link that information to the Community Primer.



D. Natural Systems

Your primer should start with natural systems because the condition of, and changes to, natural systems have both direct and indirect effects on your community, especially as climate change progresses. Many of the impacts of climate change are expected to exacerbate current stressors, such as poor water quality, wildfire risk, water shortages, erosion, and species and habitat loss. These, in turn, affect socio-economic conditions within the community.

The geographic extent of the natural systems overview should generally coincide with the geographic extent of your project area, but sometimes there are important natural systems that affect the project area, but were not included in the initial scope. If this is the case, they can be covered in this primer.

The natural systems overview should be relatively short (5 pages or less), so choose which components are most relevant for your community. For some or all of the following, provide a short overview of current conditions, ongoing stressors, and potential future trends:

- ▶ Land ownership of the area (current map)
- ▶ Dominant vegetation types of the area (map or written description), as well as an interpretation of how they are expected to be impacted by the modeled changes from the Climate Trends Primer
- ▶ Important ecosystems of state, county, or national parks, other natural areas, and rare ecosystems, as well as ecosystems important for tribal culture and subsistence, recreation and tourism, or natural resource extraction
- ▶ Ecosystem function, such as habitat connectivity for wildlife movement; wetlands and riparian zones as biodiversity hotspots; climate refuges associated with cool microclimates, mature forests, and north-facing slopes; carbon storage in

forests and grasslands; connectivity and fish passage in rivers and streams, etc.

- ▶ How climate change is expected to affect the fish, wildlife, and plants of the area. Look for modeling efforts, such as “climate envelope models” or species vulnerability assessments that show how individual species are expected to respond to climate change.
- ▶ Important species of the area, including iconic species, game species or species protected under the Endangered Species Act
- ▶ Ongoing and future potential coastal impacts, including loss of coastal marsh, mangroves, beaches, key wildlife habitats, and nearshore marine areas
- ▶ Non-native and invasive species that are already an issue, or that are expected to invade the area as the climate changes
- ▶ Effects of ocean acidification on shellfish and other marine organisms
- ▶ Other relevant natural resources and the associated climate impacts

Your overview does not have to be exhaustive, but it can be helpful to ask a local ecologist to do a quick review of the literature and share with you what types of changes and impacts are expected to natural systems in your area. A local university or state agency office may already have this information compiled. The State Wildlife Action Plans (SWAPs) have all been updated to include climate impacts, and a variety of other regional, state, and federal reports and publications are available on the topic (see the resources list at the end of this section).

E. Socioeconomic Systems

Similar to the natural systems overview, the socioeconomic overview provides information on many important features, stressors, and trends in the community. It is not meant to be exhaustive, and will act as a supplement to the expert knowledge at the workshop in Step 3.

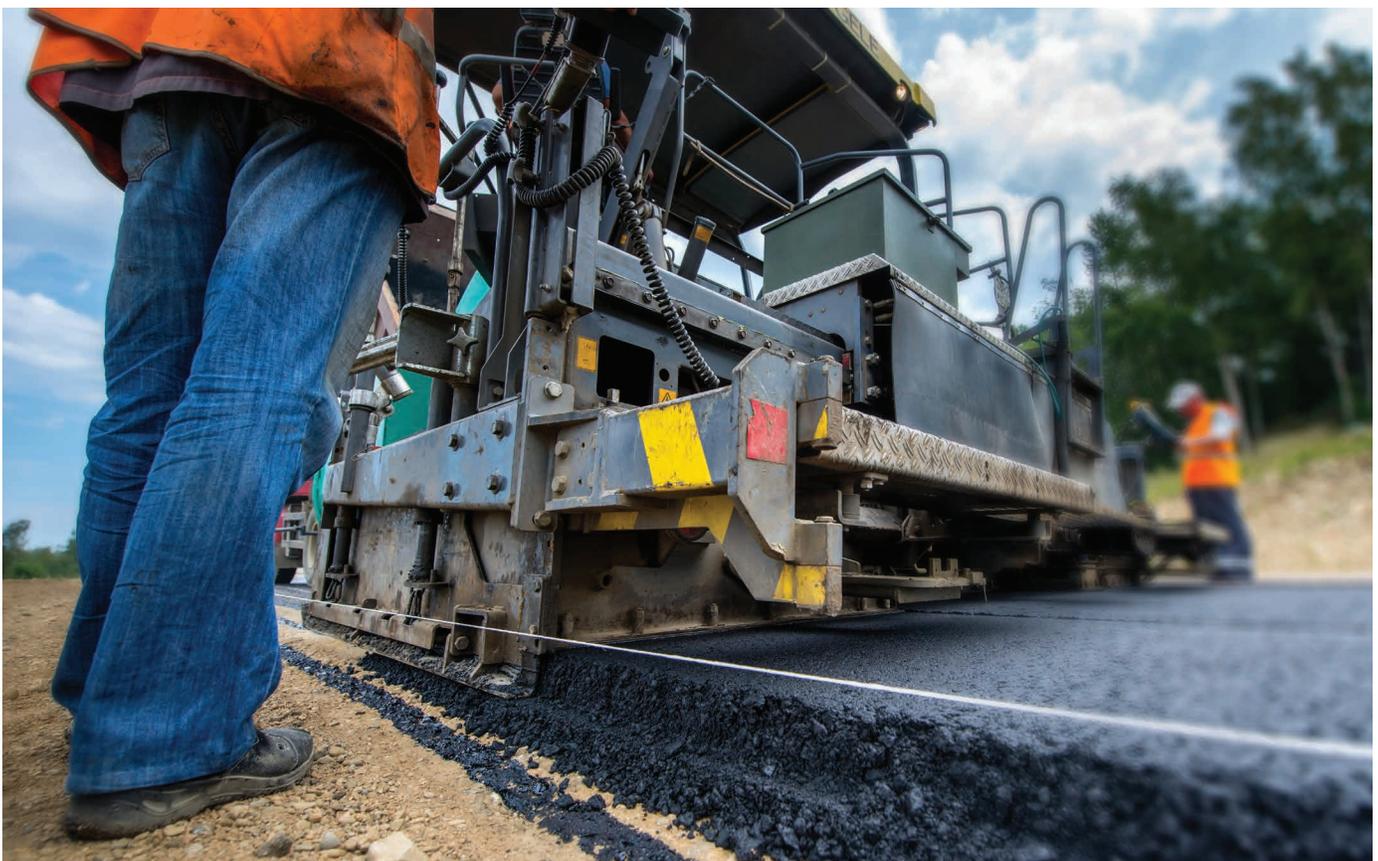
The socioeconomic overview should be relatively short (no more than 5 pages), so choose which components are most relevant for your community. Provide a short overview of current conditions, ongoing stressors, and potential future trends related to your community.

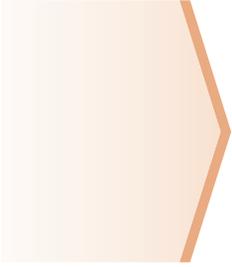
Consider some of the following:

Infrastructure – Summarize the primary sources for water for the community, as well as the cur-

rent and projected future status for those resources (usually available through the city, county, or water utility). Also, investigate the results from safety inspections for local dams and other flood control infrastructure (regulated by federal and state agencies). Assess the major sources of electricity as well as their sustainability over time (the utility should have a report on source mix and sustainability). Describe the development trends for the community, as well as the surrounding region, if relevant.

Emergency preparedness – Include any maps of high risk areas for flooding (available through FEMA), wildfire (sources vary) or other natural disasters. Check for redundancy of escape routes during extreme events (check the the state department of transportation and/or county or other local emergency response agency). Determine what the





Populations particularly vulnerable to climate change include outdoor workers, elders, infants, non-English speakers, mobile home residents, people with compromised health, institutionalized and incarcerated people, people with low-income, and communities of color.

current planning process is to address increasing risk of floods, wildfires, heat waves, storm surge, severe storms, and other extreme events.

Vulnerable Populations – Identify any socioeconomic inequities among groups, including the historic legacy of racial inequities that have played out in the community. It is also important to determine which populations are currently vulnerable and why. Reports from city or county staff, NGOs, and/or social services agencies should be able to provide this information. Often, populations particularly vulnerable to climate impacts include outdoor workers, elders, infants, non-English speaking households, trailer park residents (often in flood zones or without air conditioning), people with compromised mental or physical health, incarcerated populations and other high density populations (universities, assisted care facilities, hospitals, etc).

Health – Provide a short overview of some of the major health stressors for the region and identify any specific populations at higher risk. Also, identify any new or emerging diseases and/or disease vectors, such as ticks or water-borne infections. Be sure to outline any identified inequities in health, such as people without access to health care, food deserts, or air and water quality issues in specific neighborhoods.

Economics – It is important to have a common understanding of what the major economic drivers

are for the region. Headwaters Economics has an online tool you can use for this, but most counties can also provide this information. Identify growing industries, what types of jobs are available, and what some of the needs for those industries are (such as seasonal workers, clean water, major transportation routes, or energy).

Population – Summarize population growth, immigration, and emigration trends. This information can often be found through state or county governments.

Culture – Work with local Tribes to identify indigenous peoples, their traditional lands, and important cultural resources and practices. Tribal customs and livelihoods are often highly dependent on continued access to lands and natural resources that could become threatened by climate change. Because of their close relationship with nature, indigenous people are often able to track and report on climate impacts already occurring.

Be sure to indicate where some populations or resources might be more vulnerable or experience higher stressors than others. For instance, some ethnic groups experience more health impacts from pollution. Also, Native Americans and rural communities are often more vulnerable to the loss of subsistence foods and cultural resources, which can cause significant economic hardship.

F. Conclusion

Provide a review of some of the most important trends, stressors, populations, and resources of the community, and how current conditions could be affected by climate change. Discuss opportunities for developing resilience, potential co-benefits of resilience strategies, and how other communities

are also taking action. The conclusion should leave the reader feeling hopeful yet aware of the urgency of action. Finally, make the link between climate change resilience and the need to aggressively reduce greenhouse gas emissions.

OUTPUT

- A concise and easy to read Community Primer with a 1-page Executive Summary that can be used as a handout.

RESOURCES

A current list of resources is available on the Climate Ready Communities website: <https://climatereadycommunities.org/resilience-resources/>

General Resources

Socioeconomic Resources

CalEnviroScreen identifies California communities by census tract that are disproportionately burdened by, and vulnerable to, multiple sources of pollution. <https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-30>

CDC's Climate Ready States and Cities Initiative offers climate adaptation planning efforts from a public health perspective. https://www.cdc.gov/climateandhealth/climate_ready.htm

CDC's Building Resilience Against Climate Effects (BRACE) Framework is a five-step process that allows health officials to develop strategies and programs to help communities prepare for the health effects of climate change. <https://www.cdc.gov/climateandhealth/brace.htm>

Headwaters Economics' Economic Profile System (EPS) allows you to download socioeconomic reports of communities, counties, and states, including aggregations and comparisons. EPS uses federal data sources, including the Bureaus of Economic Analysis, Census, and others. It is also known as the Human Dimensions Toolkit by the Forest Service. <https://headwaterseconomics.org/tools/economic-profile-system/about/>

Union of Concerned Scientists is a network of over 20,000 scientists and technical experts advancing science-based solutions for a healthy planet and safer world. www.ucsusa.org/our-work/global-warming/science-and-impacts/global-warming-impacts#

Natural Systems Resources

U.S. Climate Resilience Toolkit (USGS and other agencies) allows users to explore maps and graphs of historical and projected climate trends for any county in the contiguous United States. View data by topics to see how climate change will impact things you care about.

<https://toolkit.climate.gov>

National Fish, Wildlife, and Plants Climate Adaptation Strategy is a unified nationwide effort—reflecting shared principles and science-based practices—for addressing the threats of a changing climate on fish, wildlife, plants, and the natural systems upon which they depend.

<https://www.wildlifeadaptationstrategy.gov>

Template for Assessing Climate Change Impacts and Management Options

(TACCIMO) (USDA Forest Service) is a web-based information delivery tool that connects climate change science with forest management and planning needs. It is currently expanding to include information on agriculture, rangeland, and livestock planning as well. Science content in TACCIMO consists of findings (text quotations and figures) from peer-reviewed climate change literature.

<https://www.fs.usda.gov/ccrc/tools/taccimo>

Sea Level Rise Viewer (NOAA) provides information and visual data on coastal flooding, erosion, infrastructure vulnerability, and other variables, for the entire contiguous U.S. coastline.

<https://coast.noaa.gov/slr/>

State Wildlife Action Plans (SWAPs) are the result of Congress requiring each state wildlife agency to develop a “comprehensive wildlife conservation strategy”—a wildlife action plan—that evaluates wildlife conservation needs and outlines the necessary action steps. These are continually being updated to include climate change risks to wildlife.

Annual Support subscribers

Tutorial: The Value of a Community Primer

Template: Community Primer – Detailed Outline

Subscriber resources for this task are [here](#).

Other Services (available with or without a subscription)

Blocks of consulting time to:

answer questions, explain concepts, and guide the process to develop the primer

review your draft Community Primer

Other Services are [here](#)

Task 4: Develop an Electronic Presentation of the Primers

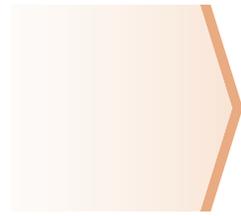
We have found that many of the people who agree to participate in the workshops involved in this process simply do not review the material ahead of time if it is packaged only in a report format. Because of this tendency, and the importance of workshop participants being exposed to the information contained in the primers at least a day before the workshop, we recommend you develop some sort of electronic presentation of the data that you can send to participants as a link ahead of the workshop. This can be as simple as a Powerpoint presentation or much more complex using some of the new video/animation production software programs that exist.

The information you want to convey in this electronic presentation is the top line information from the one page summaries of the primers. Whatever way you do this, it can be helpful to ask your participants to fill out a short survey through Survey Monkey or another online survey service that asks what they think will be most vulnerable in the community under the projected climate conditions and what surprised them the most in terms of the information found in the primers.

The process of answering these questions can help participants process and consider the information in the primers ahead of the workshop while at the same time giving you a sense of the issues that workshop participants see as critically important. You will not need to compile the data from this survey for use in the vulnerability assessment workshop because those answering the questions will be at the workshop to discuss the issues they identified in the survey.

While this electronic presentation is not absolutely necessary at this point, the engagement process laid out in this program relies on several instances where your Task Force will need to be able to send information out to the community and gather feedback. This initial electronic presentation can serve as the foundation for that engagement process allowing you to continue to build onto the presentation over the course of the project.

A sample electronic presentation for climate trends can be found here:
<https://prezi.com/tavfbaikives/hot-enough-yet/>



An electronic presentation can serve as the foundation for your engagement process, allowing you to continue to build onto the presentation over the course of the project.

If you have feedback or ideas about how we might improve this Guide, please contact us at: info@geosinstitute.org.

STEP

3

Identify and Prioritize Vulnerabilities

YOUR GOAL

Determine which resources or populations are most vulnerable to the impacts of climate change.

This assessment will serve as the foundation for developing strategies to address climate vulnerabilities in Step 4.

Task 1: Prepare for the Vulnerability Assessment Workshop

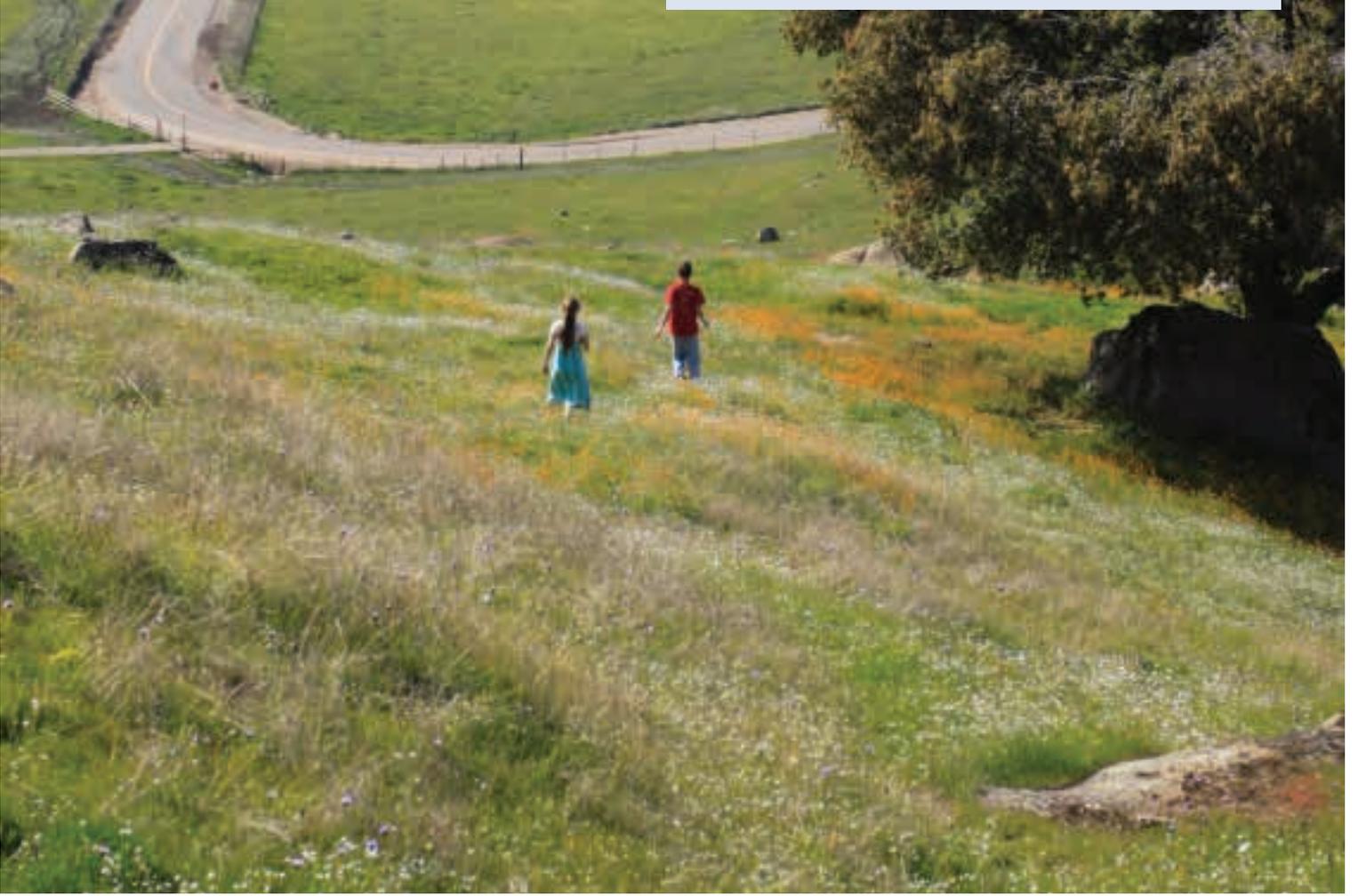
Task 2: Facilitate the Workshop

Task 3: Develop Vulnerability Assessment Report



S U M M A R Y

Building on the completed Climate Trends and Community Primers from Step 2, you will facilitate a workshop and complete a Vulnerability Assessment in this step. Vulnerabilities are locally specific because they depend on geographic location, size of the community, economic drivers, historic patterns of development, social equity, condition of natural resources, and other important factors. In fact, similar climate model projections in two different areas can result in vastly different vulnerabilities. In this step, local expertise is combined with the model projections to determine what the impacts are likely to be specific to your community.



The Vulnerability Assessment will be conducted by bringing together climate science with local expertise in a workshop setting where participants will jointly explore which local resources and populations are most at risk from climate change. During the workshop, participants will be led through a series of exercises to determine how specific resources and populations are expected to be impacted by climate

change. Vulnerabilities will be identified and prioritized in this process. The workshop often results in new relationships and strengthened collaborations, which are vital to implementation. It is also a good opportunity to identify new champions, some of whom may be asked to serve on the Implementation Team once the plan is complete.

Two Nearby Communities with Different Vulnerabilities

San Luis Obispo County, California encompasses lands from the coast inland to the Diablo range. Fresno County, on the other hand, extends from the eastern side of the Diablo range, into the Central Valley, and up into the Sierra foothills. Two assessments of climate change vulnerabilities throughout these two neighboring counties revealed substantial differences in how people and natural resources are expected to be impacted.

The Central Valley has some of the most polluted air in the nation. Local contributors include agricultural production and transportation. With projected warming of almost 10° F, on average, air quality is expected to decline. The region is already a hot spot for childhood asthma and other respiratory and cardiovascular disease, which are expected to increase significantly due to heat-related formation of ground level ozone. These impacts disproportionately affect disadvantaged and ethnically diverse populations.

Warming across San Luis Obispo County is expected to be only slightly lower, at just over 7° F, than Fresno County. In contrast to Fresno County, San Luis Obispo County's most serious vulnerabilities were identified as coastal hazards (disruption of transportation and other coastal infrastructure), wildfire risk, and ground water shortages. These impacts are expected to affect rural residents, many of whom are retirees.



Understanding Vulnerability

Climate Change Vulnerability is a function of three variables: exposure, sensitivity, and adaptive capacity.

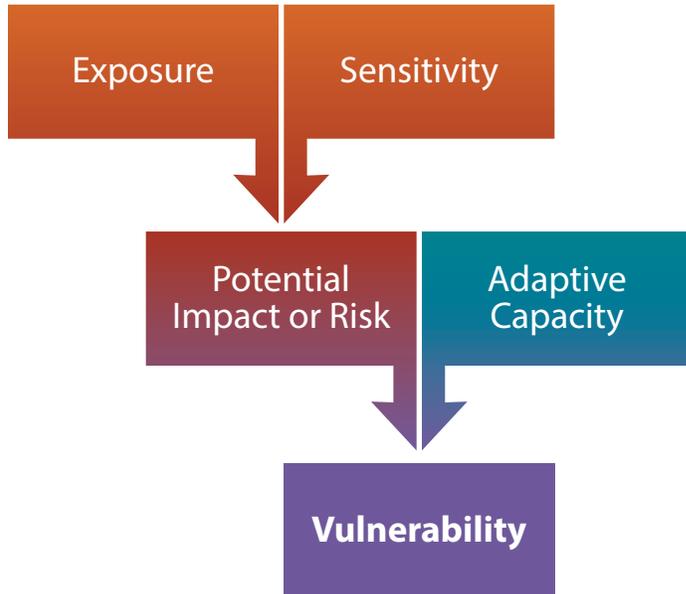


FIGURE 2 Exposure and Sensitivity together define the impact or risk. Adaptive Capacity can act to lessen the impact or risk.

1 EXPOSURE – Exposure is a measure of the character, magnitude, and rate of climatic changes a resource or population is exposed to. The assessment of exposure includes the certainty of different model data. You will get information about exposure directly from the Climate Trends Primer developed in Step 2. Different resources and populations will be exposed to different components of climate change depending on the characteristics of the impact.

For example, a ski area may have high exposure to warming because snowpack is expected to decline 70-80% by the 2080s, even if we reduce emissions. Exposure of the ski area to sea level rise impacts, however, is very low due to elevation and distance from the coast.

2 SENSITIVITY – Sensitivity is the extent to which specific resources or populations are expected to be impacted by the projected changes. Some resources and populations are more sensitive to changes than others. For example, infants and elders are more sensitive to severe heat because they are less able to regulate their body temperature.



D. Carbajal, U.S. Air Force



CC0 Pixabay

3 ADAPTIVE CAPACITY – Adaptive capacity includes existing behaviors or resources that can help reduce or avoid negative impacts. There are often many things people can do to respond to climate change impacts and reduce their vulnerability. Changing behavior, technology, or distribution of resources can reduce vulnerability to certain impacts. For example, people who can afford air conditioning have higher adaptive capacity during heat waves or periods of hazardous air quality from wildfires.



CC0 Pixabay

Note: There is a fine line between adaptive capacity (existing options) and resilience strategies (new options). In general, adaptive capacity is expected to occur without additional outside encouragement or incentives. For example, existing air conditioning is

adaptive capacity for heat and smoke because people who have it can use it as they please. A program to provide air conditioning to people without air conditioners would be a resilience strategy.

It is helpful to consider a person's vulnerability to a sunburn as an analogy to climate change vulnerability.

Is the person EXPOSED to the sun? How much? Do they work indoors or outdoors? Is it cloudy or rainy often? What is the weather forecast?

Is the person SENSITIVE to the sun? Are they fair skinned or do they have more pigment (melanin) to protect them from sunburn?

How much ADAPTIVE CAPACITY does the person have? Did she bring a hat? Sunscreen? Can he choose to go indoors?

In a Vulnerability Assessment, each of these factors is ranked High, Medium, or Low to determine overall vulnerability.



CCA-SA 2.0 E. S. O'Connor

Secondary Impacts – In addition to assessing exposure, sensitivity, and adaptive capacity, workshop participants will explore vulnerabilities related to socioeconomic factors and natural systems using information from the primer. They will also consider secondary impacts. People are expected to respond to climate change in a variety of ways. In many cases, their responses can also have negative impacts, potentially even worse than the initial climate impact.

For example, one of the impacts of climate change is expected to be an increase in mosquito-borne diseases in response to warmer temperatures and wetter conditions. An increase in pesticide application in response, however, could also have severe health impacts. Secondary impacts of climate change need to be considered along with the primary impacts in order to create proactive and sound strategies.

Two Workshops or One Combined Workshop?

Most communities hold two workshops—one to assess vulnerabilities and one to develop solutions—separated by a few weeks or even months. We recommend this structure for the following reasons:

- ▶ Having two separate workshops allows more time to process the information from the Vulnerability Assessment to make it available at the Strategy Development workshop. This step is an important one because the vulnerabilities are re-organized into new categories in preparation for strategy development, which can take quite a few hours.
- ▶ Many people learn about the severity of the impacts of climate change for the first time at the Vulnerability Assessment workshop. The information can be startling or life-changing for some. By holding two separate workshops, people are given time to process their emotions around likely changes to their community before moving straight into the strategy development workshop.
- ▶ It is often the case that not all sectors are evenly represented (in spite of your good efforts) so having time between the workshops gives you time to reach out to certain sectors one-on-one to fill any holes in the Vulnerability Assessment.
- ▶ Holding two separate workshops with weeks or months in between allows for engagement of the larger community to ensure that the vulnerabilities identified are correct prior to strategy development.
- ▶ Specific issues are likely to come up in the Vulnerability Assessment workshop. When the workshops are separated by weeks or months, there is time to engage and include local experts on the most important topics that emerge during the first workshop.

Sometimes there are good reasons to combine the workshops and do both Vulnerability Assessment and Strategy Development as a single workshop spread over two days.



Geos Institute

A single, combined workshop might be the best plan for your community if:

- ▶ Your community is rural and participants have to travel long distances to attend (particularly any experts offering regional expertise).
- ▶ You are on a tight timeline. Combined workshops take less calendar time than hosting two separate ones.
- ▶ Your community or project is quite small. The less complex a community's existing stressors and municipal management are, the more it may be suited to a single, combined workshop.
- ▶ Funding is unavailable for two workshops. A single workshop is generally less expensive, especially if you have to reimburse travel costs, offer stipends for participants, and/or rent facilities.
- ▶ You have limited capacity for coordination and logistics. One larger workshop is easier from a logistics standpoint than two smaller ones.

If you decide to do one combined workshop, read through Steps 3 and 4 first as your process will incorporate information from both steps. Then review the information at the end of Step 4 regarding specific changes you will want to make if hosting one combined workshop.

Task 1: Prepare for the Vulnerability Assessment Workshop

Task Force members will play a key role in preparing for the Vulnerability Assessment workshop by committing to attend and identifying who to invite from a variety of community systems and sectors. Invitations to prospective workshop participants are most effective if they clearly indicate that the person has been recommended to participate in this workshop by a specific Task Force member.

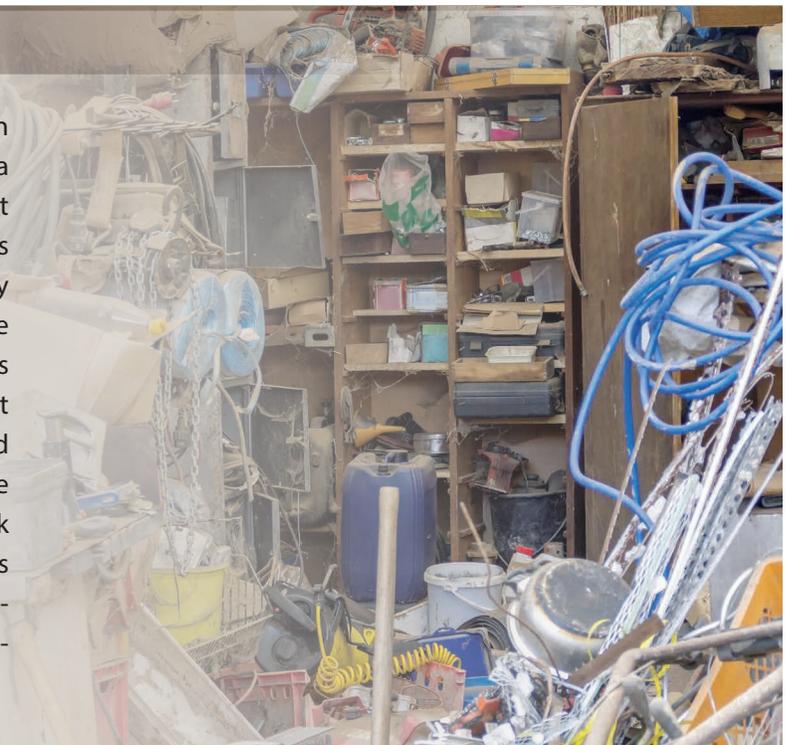
Now is also a good time to revisit the stakeholder list from Step 1 to ensure that your workshop includes interested leaders from stakeholder groups, local business leaders, under-represented populations, and natural resource managers if they have not already been identified by Task Force members. Geographic distribution across the planning area is also very important, especially if your planning area includes a larger urban center and outlying rural communities.

For the workshop, you are looking for people who have extensive expertise in an important community system or sector and one or more of the following characteristics:

- ▶ influential
- ▶ open to new ideas
- ▶ creative problem solvers
- ▶ good communicators
- ▶ collaborative
- ▶ unafraid to speak up
- ▶ able to disagree honorably and move on

Steps 3 and 4 are messy!

And it's OK. It can be helpful to think about an experience we have all had—deep cleaning a garden shed, attic, or storage unit. Once we get going, we have to keep moving until the job is done because these projects get very messy before everything comes back together at the end. So it is with Steps 3 and 4. The workshops will generate all sorts of information that will not always fit into tidy boxes. It can feel disjointed and uncomfortable, but this is normal and to be expected. Do your best and lean on your Task Force when you need help so that the decisions you make along the way are based on solid reasoning. It all comes back together in the final climate resilience action plan.



As with the stakeholder identification process, we recommend that you ensure that the following systems are well-represented:

- ▶ **Social Systems:** physical and mental health services, emergency response (police, fire), homeless populations, elders, people with disabilities, other vulnerable or under-represented populations
- ▶ **Built Systems:** utilities (water, energy), transportation, municipal planning, engineering and construction
- ▶ **Natural Systems:** parks and natural areas; public lands; fish, wildlife, and plants; aquatic, terrestrial, and nearshore marine ecosystems
- ▶ **Economic Systems:** local businesses and industries, agriculture, tourism, and recreation

- ▶ **Cultural Systems:** Tribes, local immigrant cultures, other important cultural groups

Note that not all of the workshop participants will be from the local community. Some may be experts in specific issues who are invited to participate so they can share what they know about one of these systems. Universities and state and federal agencies are good sources for experts who are willing and able to participate. Many become actively engaged and can offer their services free-of-charge.

Consider inviting participants from adjoining communities so they might begin to address climate resilience in a coordinated manner. Much of the information and materials you develop will apply at larger scales and can help to motivate neighboring communities to take action.

Elected officials and people from under-represented populations within your planning area can be included in any of the five community systems by their general interest and expertise.



You may encounter the situation where a local expert on an important topic is skeptical about climate change. We encourage you to invite him or her anyway. Many folks are open to taking action from a risk management perspective, even if they are unsure about the science. We do not recommend, however, that you invite active climate change deniers as they will generally not participate in good faith.

Elected officials and people from under-represented populations within your planning area can be

included in any of the above sectors by their general interest and greatest expertise.

Depending on the size of your community, it is best to have between 40 and 75 workshop participants, with the different systems as evenly represented as possible. All of the major resources, populations, or issues relevant to the community should be represented. For very small communities, this number can be smaller, but be sure that all of the important topics and issues are covered by the expertise in the room.

Workshops Logistics

- ▶ Set the date – Work with your Task Force and 8-10 key people (elected officials, lead city staff, informal community leaders, Tribal leaders, others) to choose a date for the workshop, ensuring that many key participants will be able to attend.
- ▶ Develop a workshop team – Identify 2-3 people responsible for logistics and ensuring that the workshop runs smoothly. Each team member should have an in-depth understanding of the goals of the workshop and how the team intends to meet them.
- ▶ Reserve a venue – Make sure the room is large enough to accommodate breakout groups and that chairs can be moved. Wall space to hang completed flip chart notes is helpful.
- ▶ Plan for food – Stopping for lunch and eating it together is an important part of the workshop. Not only does a shared meal allow people to take a break and recharge, it also provides an opportunity for people to get to know each other better. Relationship development is an important component of the workshop. It is helpful to assign lunch seats so that people eat with others they don't already know.
- ▶ Identify facilitators – Identify who will be the primary facilitator and who will facilitate each of the break out groups. The person facilitating the whole workshop should be experienced with this type of process. The people facilitating the break out groups need to thoroughly understand the process, their role, and what the workshop is intended to accomplish. This is important so that they are able to troubleshoot and organize effectively. Task Force members or other workshop participants can often be trained to facilitate the break

Assets and Services to include in Reporting for the Covenant of Mayors

If your community is signed on with the Global Covenant of Mayors (GCoM) for Climate and Energy, in addition to GCoM requirements for Greenhouse Gas inventory and planning, there are requirements related to climate resilience or adaptation assessment and planning; these requirements include specific hazards as well as assets and services that should be included in your vulnerability assessment and climate resilience plan. We suggest you review your GCoM documents for guidance (<https://www.globalcovenantofmayors.org/>)

out groups, but it is important that they are able to provide input as well. Facilitation training resources can be found in Appendix E.

- ▶ Identify notetakers – Each breakout group, as well as the larger group, will need a notetaker. Look to participating organizations or local universities for notetakers. Ideally, notetakers should not be breakout group participants, but sometimes it is necessary.
- ▶ Line up speakers – Line up a mix of inspirational and informational speakers. Inspirational speakers may include local storytellers, elected leaders, pastors, or business leaders who are passionate and able to build enthusiasm for the effort. Informational speakers may include yourself, city or county staff, NGO leaders, professors, local scientists, or others with expertise in community planning and/or climate trends. Make sure they have an engaging speaking style so that they can effectively communicate what the workshop participants need to understand.

Consider How to Make the Workshop Accessible to All Potential Participants

In order to maximize participation from diverse groups, it is important to:

- ▶ Reserve a venue that is accessible to those with disabilities
- ▶ Offer childcare, if needed
- ▶ Offer a “Children’s Program” (in lieu of childcare) if this increases your funding opportunities.
- ▶ Provide a translator, if needed
- ▶ Provide stipends for those who need them
- ▶ Allow people who are not able to attend to provide input online, ahead of the workshop



It is important to track workshop RSVPs to ensure that the five community systems are well-represented and that you have people attending from under-represented populations. If you are low in any system, recruit!

The speakers will need to present the following information:

- ▶ Overall context and why you all are there
- ▶ Historical climate trends, future climate projections, socioeconomic trends, and Traditional Ecological Knowledge (TEK) if it is available. If TEK is available, it should be presented side-by-side with the science. It is important to follow the guidance for use and sharing of TEK found in Step 2.
- ▶ Topical issues of particular importance to the community

Develop the Agenda

Talking about the problems that climate change will cause your community can be downright depressing, even for the most cheerful person. This is why the agenda is so important. The workshop should be organized to keep people engaged and active, and leave them hopeful. The presentations should be brief so that there is more time for people to work together. There should be plenty of opportunities for participants to get out of their seats and move around. We encourage creativity in designing the agenda to make it engaging for participants, and to communicate the message that we can solve these difficult problems by working together.



Ed Edahl, FEMA

Suggested Agenda (more details about each item can be found in the next task):

- ▶ Welcome and overview of the resilience planning process and how the workshop fits into that process
- ▶ Introductions – If the group is large this can be done within the breakout groups
- ▶ Local values exercise so that participants are working toward a shared vision
- ▶ Presentations of historical climate change, climate change projections, socioeconomic trends, Traditional Ecological Knowledge (if available), and any relevant local issues or trends
- ▶ Assess vulnerabilities – Breakout groups identify sector specific vulnerabilities and rank exposure, sensitivity, and adaptive capacity for each
- ▶ Share assessments and prioritize – Report outs from each of the breakout groups to the larger group and exercise to prioritize across sectors
- ▶ Introduction to adaptation – initiate the discussion about resilience and share stories about what others have done
- ▶ Close out and next steps

Other recommendations:

- ▶ include a 15 minute break every 1.5 to 2 hours
- ▶ avoid having more than 1/3 of the day be presentations
- ▶ make sure participants move to a different location at least once over the course of the day (going to breakout sessions and back to the full group usually handles this)

Invite and Prepare Workshop Participants

Workshop Invitations (8 weeks ahead of the workshop)

Draft an invitation letter with an RSVP deadline and two attachments: a short overview of the overall project and a 1-page draft agenda. The overview should include why the project is important for the community, details about the workshop, the need for local expertise, and what participants will get out of it. It is good to reference one or two of the projected changes in climate that are especially relevant to the community. They will also get more detailed projections prior to the workshop.

As RSVPs start coming in, track them to ensure that the five community systems (economic, built, natural, cultural, and human) are well-represented and that you have people attending from under-represented populations. If a particular system or population is missing representation, reach out directly to the people who have been invited from those systems or populations to ensure their participation. Task Force members can often be very helpful in the effort to ensure representation of all community systems at the workshop. Do not let local experts send others in their place unless the replacement also has the needed expertise.

Workshop Preparation Packet (2 weeks prior to workshop)

It is helpful if participants are able to review some basic information on climate change trends and projections, specific to the region, ahead of the workshop. All workshop participants should receive the Climate Trends Primer and the Community Primer in this packet. If you created an electronic presentation of the Climate Trends and Community Primers in Task 4 of Step 2, you will share that with your participants at this point. Send the links to the primers and electronic presentations out to the participants along with a short survey. The survey can be used to collect preliminary information on community values and likely impacts and it will help you track who has reviewed the materials.

Questions to ask include:

- ▶ After reviewing this material, what resources, systems, or populations do you think are most vulnerable?
- ▶ Is there anything else you would like the workshop organizers to know?



Information from the survey can also help you develop preliminary lists of vulnerabilities for the workshop. Remember that not all workshop participants may have access to electronic documents, so you may need to create hardcopy versions to mail. If an invited person cannot attend the workshop, but would like to, send them the online summary and survey so their input is able to be included in the workshop.

Final Workshop Confirmation (2 days prior to workshop)

The final workshop confirmation should go out 2 days prior to the workshop thanking people for attending and letting them know any logistical information necessary for the workshop (parking, IDs needed, etc.), including a revised agenda. The one page context document that you included in the original invitation and the link to the projections and survey are good to include here as well.

Develop Breakout Groups

Breakout groups are tasked with identifying the likely risks associated with climate change specific to the region and each individual system or sector. Breakout groups of 6-8 people will be assigned for each of the five community systems as well as any specific sectors within those systems that have significant representation (water, for example, is often a large enough topic to have its own breakout group).

Be sure that there are participants with significant expertise for all relevant topics, and note where any gaps exist so that they can be filled later. Under-represented populations can be addressed as a separate breakout group if there are enough participants do so. If not, they can also be dispersed throughout other relevant sector groups.

Feel free to organize the breakout groups however they work best for your community, but some suggested breakout groups include:

Natural systems (separate terrestrial and aquatic in larger workshops)

Water (supply, wastewater, and stormwater)

Infrastructure (housing, energy, transportation, etc)

Health and emergency services (separate in larger workshops)

Agriculture, forestry, and tourism

Other businesses and industry

Indigenous people, livelihoods, and resources

Vulnerable or under-represented populations (especially people with disabilities, low income populations, outdoor workers, and non-English speakers)

Other sectors, as appropriate

Final Preparations

The week before the workshop:

- ▶ Make sure your facilitator’s agenda is complete—A facilitator’s agenda should include far more detail than the short agenda that you hand out to participants. It will include names associated with specific tasks, a detailed description of what each task entails and what the desired outcome is, desired messaging at different stages of the workshop, what supplies and equipment are needed and when, and any other details that the organizers might need to remember along the way. Make sure all the organizers have a copy and that they have highlighted their responsibilities.
- ▶ Walk through the facilitator’s agenda with your workshop coordination team.
- ▶ Confirm the speakers, facilities, and food.
- ▶ Confirm and train facilitators and notetakers for the breakout sessions.
- ▶ Create name tags if you want to have them available at the beginning of the workshop. Alternatively, you can have people write their own name tags.
- ▶ Assemble workshop packets that include an agenda, short overview of the project, Executive Summaries (or whole documents) from the Climate Trends and Community Primers, and a list of participants.
- ▶ See Step 3, Task 2, Part B of the workshop agenda for the list of column headers you will need to prepare your flip charts.

Risk/Impact	Exposure	Time Frame	Certainty	Sensitivity	Adaptive Capacity	Facial Populations	Other Stressors
CHANGING WORKFORCE - SERVICE - OUTDOOR - ASIA RESULTS	- DECLINE IN SAWLOGS - SINKS FROM WILDFIRE	NEAR	HIGH	HIGH - INCREASED COSTS TO PLACE	LOW	- LOW INCOME - IMMIGRANT COMMUNITIES - ELDERLY - DISABLED - YOUTH ELDS (in rural, rural, low income)	- poverty - mental health - education - housing crisis - lack of resources - resources
ACTIVITY-BASED CULTURE & EVENTS	SEE ABOVE + SERVICE HEAT	NEAR	HIGH	HIGH - changing industry directly impacts for housing & cultural heritage	LOW	- LOCALS - MIDDLE CLASS - ATHLETES - 2nd HOME OWNERS	- housing crisis - lack of outdoor - lack of healthcare - crime & reputation - air quality
INCREASE IN POPULATION	- RISING TEMPS ELBOWHERE - LACK OF H2O - FIRE DAMAGE TO OTHER COMMUNITIES	NEAR (open residential) MED (open & open area)	HIGH	HIGH - infrastructure is not equipped to manage - elevated small town values on larger scale in rural areas for	LOW	- LOCALS - LOW INCOME (- impacted population from other communities moving into Tulelake)	- gentrification - health care - accessibility



TIPS FOR SUCCESS

Make sure you have balanced breakout groups and that all community systems are represented.

Get creative with activities, food (chocolate is always a mood enhancer!), and storytelling to keep spirits up.

Make sure that the activities get people up out of their seats as much as possible.

OUTPUTS

- Workshop agenda
- Facilitators agenda
- Workshop logistics arranged
- Projections survey completed by workshop participants and stakeholders and responses reviewed

RESOURCES

A current list of resources is available on the Climate Ready Communities website: <https://climatereadycommunities.org/resilience-resources/>

General Resources

California Adaptation Planning Guide: Defining Local and Regional Impacts

provides valuable discussions of what factors increase or decrease vulnerability for many community discussions. It may be a helpful resource as you begin to think about your community’s vulnerabilities.

http://resources.ca.gov/docs/climate/APG_Defining_Local_and_Regional_Impacts.pdf

Annual Support subscribers

- Tutorial: Communicating About Climate Change
- Template: Vulnerability Assessment Workshop Invitation Letter
- Template: Sample Participant Workshop Agenda
- Template: Sample Facilitator’s Workshop Agenda
- Subscriber resources for this task are [here](#).

Other Services (available with or without a subscription)

- Blocks of consulting time to:
 - answer questions and explain concepts
 - identify speakers and topics for the workshop
 - develop the agenda
 - manage RSVPs and logistics
 - train facilitators and notetakers

Workshop facilitation
Other Services are [here](#)

Task 2: Facilitate the Workshop

The Vulnerability Assessment workshop is a major milestone in the climate resilience planning process. Your two primary goals are to gather the information you need from community leaders and experts AND to ensure that participants leave feeling engaged and that their day was well-spent.

The preparations you have just completed for the workshop will create a strong foundation for suc-

cess. In this task, you will implement the workshop using specific guidance for each component. While you want to capture the conversations that happen during the workshop, there will always be holes in the information that need to be filled in later. This is normal. Your job is do your best to limit the number of holes that need to be filled by the Task Force after the workshop.

Workshop Agenda

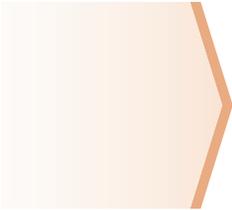
Part A. Introduction to climate change, local climate change impacts, identify local values (Maximum of 1 hour and 45 minutes)

► Welcome and overview (5-10 minutes) – this is generally done by an elected official or representative from the organization that is convening the process. This person should identify the context and the importance of the work that will be done in the workshop as well as make it clear to partici-

pants how this workshop fits into the larger planning process. Any housekeeping announcements will happen at this point. Ask people to stay off of their phones and computers except during break times.



- ▶ Introductions and local values exercise (20-30 minutes).
 - ▶ Have participants form a single line based on how long they have lived in the community. Then have them go one by one saying their name, organization, and how long they have lived in the community. Put the group back together and ask participants what they value across the community - and what they believe are common values that others hold. How does the community think of itself? Keep track of the values on a flip chart in front of the room, and note where what is said overlaps.
 - ▶ Alternative – Technology is available that allows you to ask the group as a whole to name the three to five values they believe are represented by their community. Workshop participants answer using smart phones (see www.menti.com as an example) and the program creates a word cloud in real time that can be projected onto a screen.
- ▶ Trends and projections presentations (45-60 minutes) – Have experts share a high level overview of historical changes in climate, climate science and projections, socioeconomic and natural system trends, and Traditional Ecological Knowledge (if available), with time for question and answer. This section should cover the difference between weather and climate and define adaptation/resilience and mitigation. People come into the workshop with different information on climate change, from a variety of different sources, so it is important that the participants are all working with a common understanding of what can be expected for the local area.



Using flip charts helps participants see the work being done and facilitates the prioritization process later in the workshop.

Part B. Assess Vulnerabilities (2-3 hrs with breaks)

- ▶ Give instructions for the breakout groups – let people know what they will be doing and what you hope to get out of it (10 minutes)
- ▶ Breakout groups – Move participants into sector-based breakout groups. You can put a color-coded sticker on the back of their name tags that corresponds to a breakout group if you have pre-assigned the participants to breakout groups or you can let them self-select the group that they have the most expertise in.
- ▶ Introductions exercise (10-20 minutes) – The participants in these breakout groups will spend the next several hours working together, so it is helpful to do another round of introductions.
 - ▶ What is your name?
 - ▶ What is your specialty or expertise?
 - ▶ A group question, such as “how do you know you are home here in ‘*name of community*’” For participants who do not live in your community, they can say what they really like about the community.
- ▶ Assess vulnerabilities (2-2.5 hours) – You will ask each breakout group to identify what individual climate projections mean for their system or



sector. These individual projections have already been developed in Step 2. Be sure the group has a copy of the two primers and especially the one-page Executive Summaries. Examples of individual projections the breakout group will assess include, but are not limited to:

- ▶ Changes in temperature (specify how much and by when)
 - ▶ Changes in precipitation (specify how much and by when)
 - ▶ Sea level rise (specify the range of likely values)
 - ▶ Increased storm intensity or frequency (specify how many days or likely size of storms)
 - ▶ Shifts in dominant vegetation (such as shifts from conifers to deciduous, or forested to grasslands)
 - ▶ Increase in wildfire frequency and severity (include percent increase)
- ▶ The breakout group can collect information on flip chart sheets, arranged so that data is entered in a series of rows and columns, or in Excel, which would need to be projected on the wall or a screen. The paper version is more effective, especially for

larger groups. This guide assumes that flip charts are hung on the wall in a long row, with column headers.

- ▶ The flip charts should include the following column headers:
 - ▶ **Risk** – The specific impact or effect you are concerned about. An example would be an increase in asthma from ground level ozone related to heat.
 - ▶ **Exposure** – The climate change related projection or trends leading to this risk. These come from the Climate Trends and Community Primers. The Climate Trends Primer should have a one-page Executive Summary with the most relevant and/or meaningful trends listed, which can be easily referenced during the workshop.

Examples include:

- 80% decline in snowpack
- Doubling of the number of days above 100°F
- Shift from coniferous forest to deciduous woodlands



Each breakout group must fill in the first six fields of the matrix for each risk in order for you to have the information you need for the next step.

- ▶ **Time Frame** – The Climate Trends Primer can be referenced to obtain projected time frames for climate trends. You can set your own time frames, or use the ones below. If specific dates are associated with a projected trend, those can also be listed (such as Mid-term or 2030-60).

Short-term (within 15 years or already occurring)

Mid-term (occurring by 2050)

Long-term (occurring between 2050-2100)

- ▶ **Certainty** – Ranked as Low, Medium, or High. Certainty is based on the level of agreement among the models as well as the time frame. Short-term projections have higher certainty than long-term projections, for example.

Both temperature increase and loss of snow-pack are considered High Certainty climate projections (or trends) because the climate models largely agree on their trajectory and they are already occurring in most areas. Loss of coniferous forest, however, may have lower certainty because the models do not accurately project when or how forests will experience landscape-level change.

- ▶ **Sensitivity** – How much the focal population or resources will be affected by the risk, and/or the severity of the effect. These are ranked as Low, Medium, or High. Encourage workshop participants to provide a short description of the justification.

- ▶ **Adaptive Capacity** – Ranked as Low, Medium, or High based on whether behaviors or resources are already in place to protect the focal resources or populations from the risk. Encourage workshop participants to provide a short justification for their ranking.

- ▶ **Other Stressors** – Past and ongoing stressors that exacerbate this risk. Some examples include:

- Air pollution from vehicles (exacerbates asthma or other respiratory disease)
- Development in the Wildland Urban Interface (exacerbates increase risk of wildfire to homes and other development)
- Fish passage barriers such as dams, levees, or other structures (exacerbates low flow and warm water impacts to fish and to Native Americans who rely on subsistence fisheries)

- ▶ **Secondary Vulnerabilities** – Likely responses to climate change that could exacerbate the risk. Some examples include:

- Increased demand for water for agriculture leading to pressure to build new dams and water storage, which affect fish and fisheries
- Loss of important wildlife habitat due to the development of renewable energy
- Increased pesticides and herbicides applied to control pests, disease, and invasive species

- ▶ **Focal Populations** – The populations or resources at risk. In addition to the overall population or resource, note whether there are regions, neighborhoods, natural areas, etc. that are (1) especially resilient or protected from this risk or (2) especially vulnerable to the impacts of this risk.
- ▶ **Solutions** – Ideas for solutions invariably come up during Vulnerability Assessment discussions, so the matrix has a column for solutions. These ideas will be captured and saved for the next workshop, but do not spend time making sure that column gets filled in.
- ▶ **Timing** – The first step is for each breakout group to spend some time brainstorming the list of risks for their sector. When the brainstorming is completed, spend a few minutes lumping like risks together and then have the breakout group members prioritize the risks using sticky dots. We often give each participant 5-7 sticky dots with instructions that they cannot vote more than one sticky dot on a given risk. This will allow you to put the risks in priority order. When done, count the number of risks you need to discuss and divide the minutes you have left in the

agenda for this part of the workshop by the number of risks. This calculation gives you the number of minutes you should spend on each risk, which will help you manage time. Try to move through each one in the time allotted. If you are not able to complete all of the columns for a particular risk before it is time to move on to the next one, make sure you have completed the columns for exposure, timeframe, certainty, sensitivity, and adaptive capacity. Information can be added to the remaining columns after the workshop if necessary.

- ▶ **Parking Lot** – Make sure to have a flip chart up for additional information that needs to be captured, but is not part of the immediate discussion. Use this chart as much as possible, to keep the conversation moving quickly and to avoid getting bogged down in topics that are not central to the task.
- ▶ **Prioritize** – When the breakout group is done identifying the climate change risks to their sector or topic area, give each participant five stickers (number can be higher or lower depending on the number of risks overall) and have them vote on the risks they think are the most important.

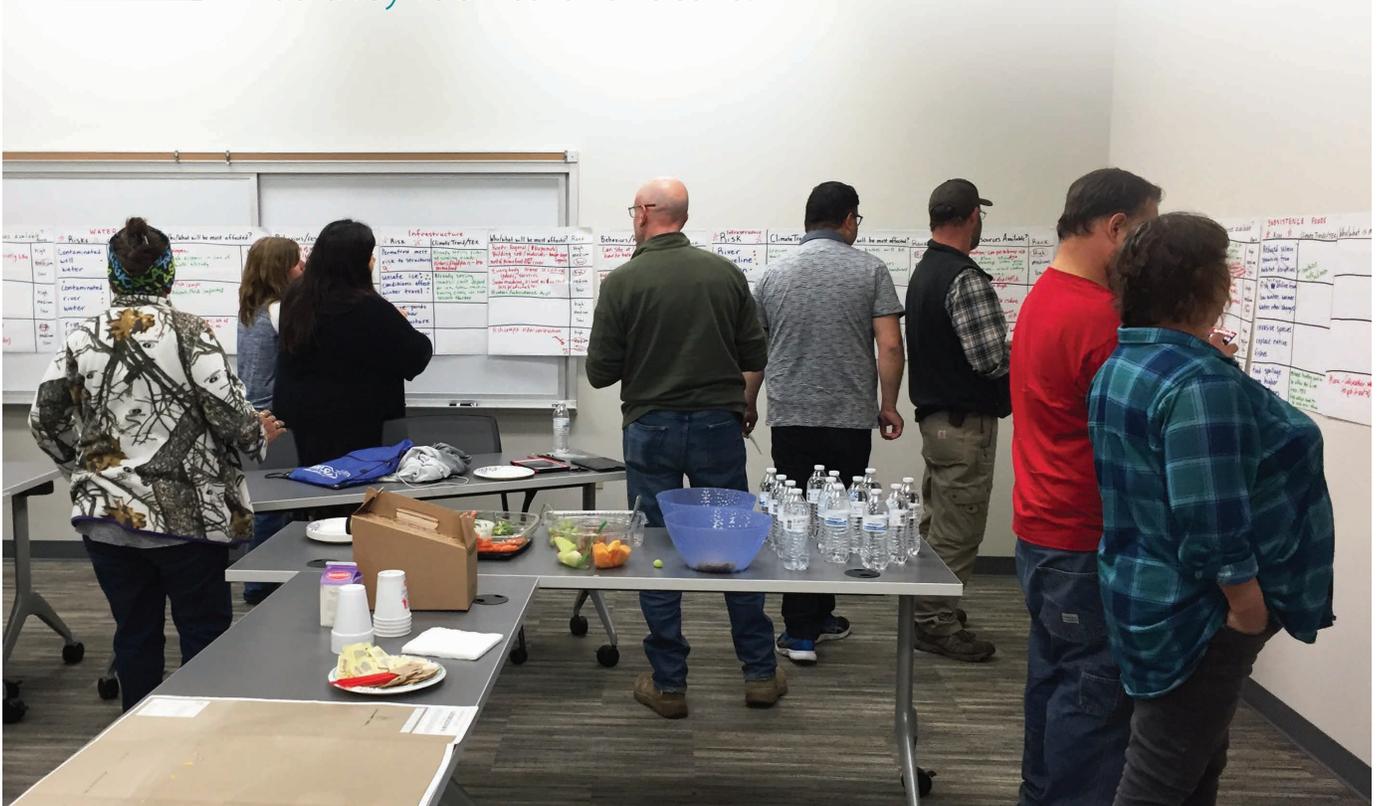
Risk	Exposure	Time Frame	Certainty	Sensitivity	Adaptive Capacity	Focal Populations	Other Stressors	Secondary Vulnerabilities	Solutions
Increased rates of asthma and allergies	More severe heat; doubling of # days above 100° F	Near-term	High (models agree on warming)	High	Low	Children most at risk; people with respiratory illnesses	Poor air quality	None noted	
Higher demand and lower availability for water for agriculture	Higher temperatures cause more evaporation and evapotranspiration	Mid-term	High	High	Medium (different crops can be planted)	Farmers (specific crops, like rice, that need a lot of water)	Competing water demands and declining ground water stores	None noted	Research new crops that use less water; upgrade water infrastructure
Loss of tourist revenue due to smoke and heat waves	More severe heat and more frequent heat waves	Near-term (already happening)	High	Medium	High (activities can shift from summer to shoulder seasons)	Local businesses, especially rafting outfitters	Low flows due to overdraft of the river already limiting rafting and fishing	Proposals for new water storage infrastructure and water diversions for agriculture	

FIGURE 3 Example of information recorded on the flip charts, specific to each identified risk.

Part C. Share Sector Assessments and Prioritize (20-30 minutes)

- ▶ Once risk identification and ranking is complete, each breakout group will report out to the larger group on the highlights of their assessment for their community system or sector. This is an important step as it allows people to hear about how climate change is likely to impact other sectors. This interdisciplinary understanding of climate impacts across the community is critically important in the effort to develop effective, cross-sector solutions. Once participants become aware of the impacts to other sectors, they are more likely to develop collaborative and well-coordinated adaptation strategies, rather than strategies that benefit one sector but increase the risk to other sectors.
- ▶ After all groups have reported out, workshop participants can move from one breakout group’s notes to another adding their thoughts to those of the group. Have them do this with a different color pen than the original group.
- ▶ Provide each participant with approximately 10 sticky dots that are a different color than the ones used within the sector-based breakout groups. Each participant will now rank risks across all sectors. Again, they should only cast one vote per risk. You can allow individuals to use their own personal criteria to rank the risks by importance, but be sure to remind everyone of the common values that your group is working toward.

Sharing positive stories of other communities taking action helps your workshop participants remain hopeful as they look to the future.



Part D. Introduction to Adaptation (15-20 minutes)

▶ Participants can become overwhelmed by the bad news presented during the Vulnerability Assessment workshop and the reality that climate change represents for their community. It is important to start to discuss how you will overcome the risks that have been identified. Begin by introducing the concept of adaptation and present some case studies of other communities and the positive actions they are taking. Be sure to show how both adaptation and mitigation are

needed, and how they can be done together to transform the community in positive ways. Also emphasize all of the co-benefits (multiple benefits across the community) associated with adaptation actions. Most adaptation strategies have extensive benefits to health, well-being, nature, and economies. Make sure this session is positive, hopeful, and locally-specific. Choosing the right speaker to present this information is critically important.

Part E. Close Out/Next Steps (10 minutes)

It is often a good idea to have the person who opened the day with an inspirational message close the day by:

- ▶ thanking the participants for their energy, expertise, and time
- ▶ acknowledging that what they have grappled with is difficult, but that they have done very important work
- ▶ letting them know what they can expect next. Your team will take all of the information from the workshop and create a draft Vulnerability Assessment that identifies the highest priority vulnerabilities. Participants will then be asked to review this draft and invited to attend the strategy development workshop. Next steps include public feedback on the Vulnerability Assessment (either through electronic means and/or a public event) in preparation for the strategy development workshop.

We often like to end the day with the following exercise to ensure that people leave the workshop on a positive note. Ask participants to take their agenda and write one asset that the community has that it can bring to the task of addressing the climate challenge. It can be a physical asset, a financial asset, a characteristic of the community, relationships within the community or between your community and its neighbors, etc. Anything they think is going to be important going forward is fair game for this exercise. Then ask them to make a paper airplane and when it is ready, sail it across the room. Younger participants may need help from older participants in the airplane building process. Then everyone picks up someone else's plane, lines up in a circle, and reads off the assets one by one moving around the circle.

Include time to have people fill out an evaluation of the workshop. Include a question that asks how they can help the process going forward.

Part F. Logistics wrap up

Take pictures of the notes on the walls prior to removing them. Make sure to gather the notes from all of the breakout groups and number them as you take them down from the wall so that you can re-create that order when pulling information from

those sheets to develop the draft assessment. If note takers have electronic notes, ask them to send them to you immediately so that you can integrate them with the paper notes.

Identifying New Champions

Many workshop participants will have been invited by the Task Force member associated with their sector, so there will be many new faces at the workshop. New champions for climate resilience can come from anywhere, and many of the most powerful champions are from sectors that do not ordinarily communicate about climate change. Champions are those participants who take an active role in the workshop and become highly engaged in climate resilience in their sector. Watch for these new champions and follow up with them after the workshop to keep them engaged. Many of the people asked to



participate in the Implementation Team once the planning is complete will come from the workshops, so make sure you update your stakeholder list after the workshop.

TIPS FOR SUCCESS

Make sure you have balanced breakout groups and that all community systems are represented.

Pay attention to the emotions in the room. Vulnerabilities can be upsetting due to the sheer magnitude and extent of bad news for the community. This can elicit fear, despair, anger, and/or denial. If you need to deviate from the agenda to address people's feelings or answer additional questions, do it. Be sure to share examples of what other communities have done and communicate enthusiasm and hope for the future. But also let people grieve for the inevitable losses of important community resources (snow, for example).

Keep the focus on vulnerabilities at the workshop. People instinctively want to get started on strategy development before they have discussed, ranked, and prioritized the vulnerabilities. Keep track of those strategy ideas as they come up, but keep the conversation focused on vulnerabilities.

Have someone responsible for roaming the room and circulating among groups. If any groups are lagging behind the others, or getting stuck on certain points, the roamer should not be shy about jumping in and helping them move forward.

Make the workshop engaging, creative, and dynamic. We have all been to workshops that are effective at sharing information, but do not really engage the participants in a meaningful way. The more you can encourage creativity and active participation, the better.

Have colored sheets of paper in the middle of the table and encourage people to jot down their thoughts at any time. Be sure to collect the colored sheets before people leave. Many folks are uncomfortable sharing their insights in a large group, especially on controversial topics, or may not feel they are able to get their voice heard. Make sure there are a variety of different types of opportunities to contribute.

OUTPUTS

- Notes assembled from the workshop for report development
- Completed Vulnerability Assessment workshop

RESOURCES

A current list of resources is available on the Climate Ready Communities website: <https://climatereadycommunities.org/resilience-resources/>

General Resources

Workshop facilitation resources and workshop openers and activities can be found in Appendix E

Annual Support subscribers

Tutorial: Creating Your Vulnerability Assessment Spreadsheet

Template: Vulnerability Assessment Examples

Template: Vulnerability Assessment Workshop Evaluation

Template: List of Supplies

Subscriber resources for this task are [here](#).

Other Services (available with or without a subscription)

Blocks of consulting time to:

answer questions, explain concepts, and provide guidance

Workshop facilitation

Other Services are [here](#)



Task 3: Develop Vulnerability Assessment Report

Using the information gathered from your Vulnerability Assessment workshop, you will develop a draft Vulnerability Assessment, engage with workshop participants, your Task Force, and the public for feedback, and finalize the Vulnerability Assessment in preparation for strategy development in Step 4.

First, gather and review the flip charts from the workshop, in the correct order for each breakout group. If you have questions about any of the material, reach out to the table facilitator and/or the notetaker for that breakout group and clarify the information on the notes.

Next you will organize the data from the workshop by creating a spreadsheet that includes all of the column headings from your row of flip charts. Add a column to record which breakout group the data are from, and another to record the prioritization score for each risk from the dot voting process near the end of the workshop where participants prioritized across sectors. Once you have that spreadsheet prepared, start with one breakout group and enter all risks from that breakout group. If these risks are not numbered, number them as you add them to the spreadsheet and keep the numbering system moving up as you move through the breakout groups.

This spreadsheet will serve as the raw data for you to use to develop your risk matrix (see Figure 4). Identify all of the risks that have high exposure and then drop them into the grid boxes following the axis lines based on whether the community has high, medium, or low sensitivity and high, medium or low adaptive capacity. Make sure you pay attention to how the grid is laid out in terms of which direction the high, medium, low boxes flow.

Once this grid is complete, you will have a visual representation of the climate-related vulnerabilities in

your community and will be able to guide your community toward solutions in Step 4 of this process.

Next develop a report outline (see box) that includes the information in the matrix and begin to populate it with the information from the notes into the community values and vulnerabilities sections. It is best to do this while memories are fresh for the participants, facilitators, and note takers in case any additional questions arise.

Once you have drafted the existing community values and vulnerabilities sections, draft the introduction, import key portions of the climate change projections report into the projections section, and draft the results from the workshop. It is helpful to organize the risks into a risk matrix similar to the example provided in Figure 4. The purpose of the

EXAMPLE: Climate Change Vulnerability Assessment Outline

- ▶ Executive Summary
- ▶ Introduction
- ▶ Purpose
- ▶ Community Values
- ▶ Key Climate Trends (short overview)
- ▶ Sector-specific Vulnerabilities
 - ▶ Sector overview (based on break out group topics)
 - ▶ Vulnerabilities (in priority order)
- ▶ Risk Matrix
- ▶ Developing Resilience Strategies
- ▶ Conclusions and Next Steps
- ▶ References
- ▶ Appendices with participant list and full list of all vulnerabilities identified at the workshop

prioritization process was to ensure that unsupported or misguided vulnerabilities are not moved forward in the process. All of the information from the breakout groups should be captured and included as an appendix, but only the vulnerabilities that received support from the larger group will be covered in the main body of the report.

Remember to stress that the purpose of this Vulnerability Assessment process is to build the foundation for developing strategies to address

these vulnerabilities. We do not recommend that you list any potential solutions because you have not vetted those ideas and people can get very excited, in either direction, if they see specific potential strategies listed. This Vulnerability Assessment will be reviewed by the Task Force, the workshop participants, and the general public and it will be very depressing for some, so be sure to speak to the fact that this document is the base upon which strategies will be developed either in the introduction or next steps section of the Vulnerability Assessment.

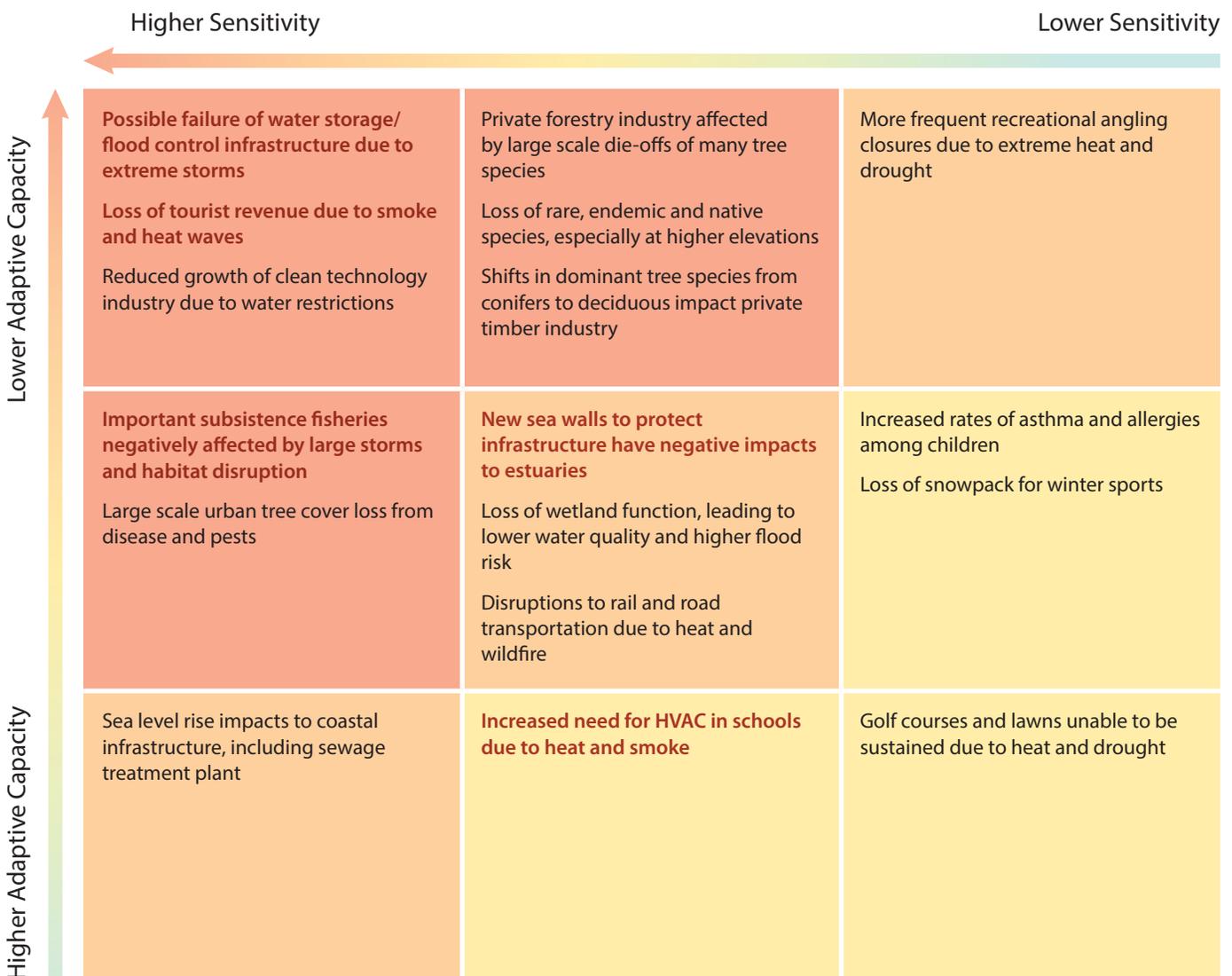


FIGURE 4 Example risk matrix showing relative levels of sensitivity and adaptive capacity. Only the risks with high exposure are included. Highest priority risks (based on voting by workshop participants) are shown in red type.

Offer this draft to the Task Force for edit suggestions. We recommend a shared document (Google docs or another system) with a request that reviewers suggest edits rather than make permanent edits. It is always good to keep a clean copy outside of the shared folder as a backup. Allow the Task Force two weeks to review the draft Vulnerability Assessment, reminding them within the last few days to get in their comments by the deadline.

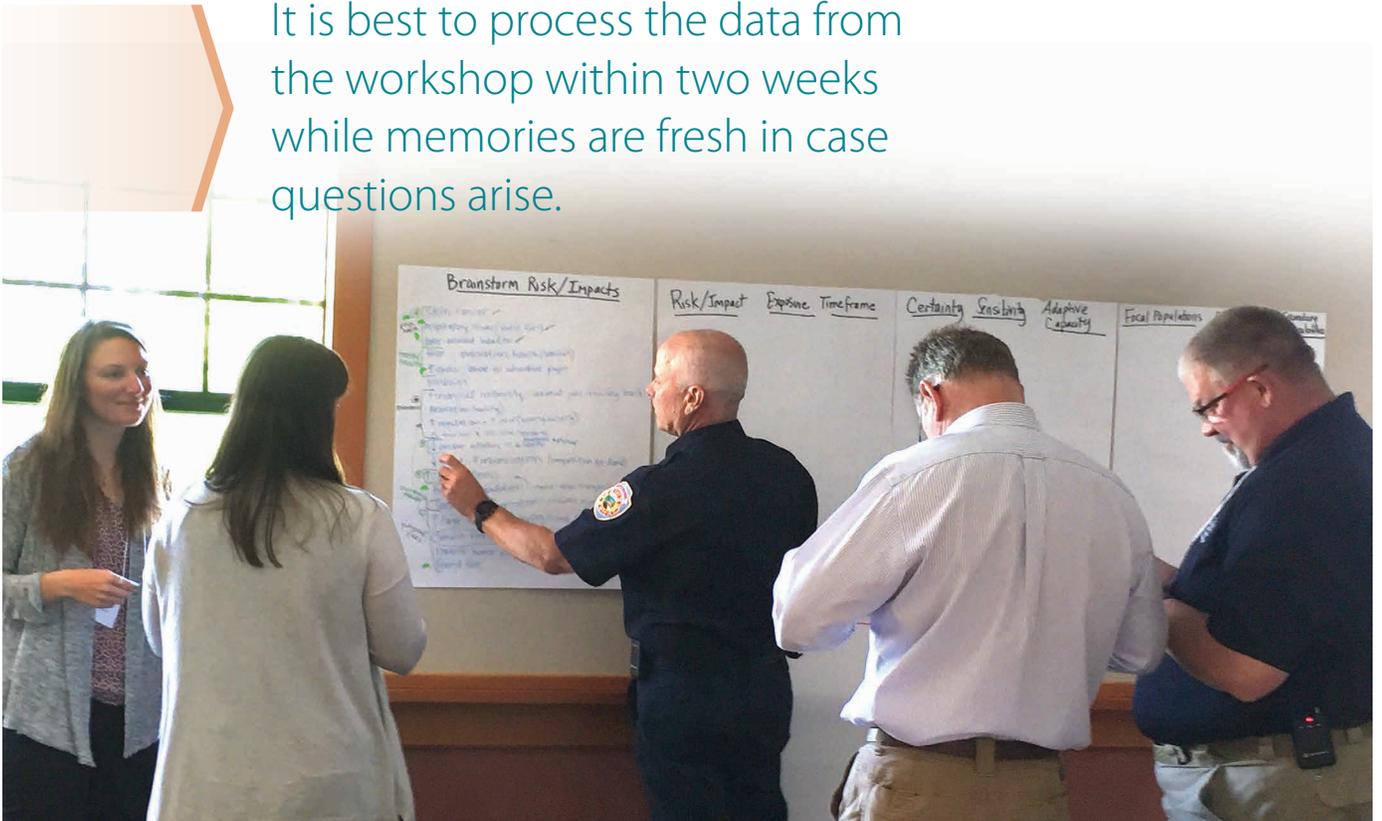
Incorporate the edits into the document and then release the revised draft Vulnerability Assessment to the workshop participants using the same shared document format above. Task Force members will be part of this group as well assuming all of them were able to attend the workshop. Again, two weeks is generally sufficient for review.

Incorporate the edits from workshop participants and Task Force members into the draft so it is ready for public feedback. At this point, consider building

on the electronic presentation that you previously created for the workshop participants by adding the results of the Vulnerability Assessment. Have the Task Force review comments from the public and decide how to address each one. Incorporate any accepted edits into the draft Vulnerability Assessment. Also, create a survey that asks:

- ▶ What vulnerabilities have not been identified in each of the five community systems (economic, built, natural, human, and cultural)?
- ▶ What vulnerabilities should be given higher or lower priority than what is in the report?
- ▶ What are ideas the Task Force should consider for addressing specific vulnerabilities?
- ▶ Would they like to be kept updated on the process and opportunities to participate as it moves forward? If so, ask for their name and email address.

It is best to process the data from the workshop within two weeks while memories are fresh in case questions arise.





The draft Vulnerability Assessment, electronic presentation, and survey can all be shared with the general public with a request for feedback via the survey. This is a particularly important place in the process for addressing issues of equity, especially since low income populations and people of color may not be easy to engage on the Task Force and in the workshop. Go back to your initial list of stakeholders and reach out to each of them to encourage them to share the electronic summary and survey with their networks. If there is a particular segment of your population that is not well-represented in the feedback you have received, now is the time to take additional steps to get that feedback. Additional steps can include working with local organizers in that community to bring

together a group for a feedback discussion or increasing efforts to get information about the survey into that particular segment of the community.

Essentially, you are checking with the larger community to ensure that the workshop participants identified and prioritized the vulnerabilities correctly. However, an equally important part of this step is to provide transparency, and to help the community move along with the Task Force in developing its understanding of climate vulnerabilities. The more participation you are able to generate in this step, the easier the next step and eventual implementation might be. It is vital that your process identify all high and medium priority vulnerabilities in the community, so it is a particularly important time to put energy into community engagement efforts, particularly with under-represented populations.

If your community is supportive of the process, you may consider hosting a public forum at this point in the process to engage the community and gather feedback on the vulnerabilities identified at the workshop. If your community has pockets of aggressive resistance that are likely to be drawn to a public event, it may be better to just do the electronic summary and survey.

Leave the survey open as long as possible as you work to organize the strategy development workshop. Once you have closed the survey, incorporate the public feedback, pass it back through the Task Force highlighting any changes that you have made due to public feedback, and finalize the Vulnerability Assessment.

“MEETING-IN-A-BOX”

It can be helpful to create a kit that stakeholders can take to meetings with their networks or constituents to provide feedback to your process. A “Meeting-in-a-Box” kit includes basic information about the climate projections and vulnerabilities identified in the workshop as well as hard-copy surveys for those who are not able to access the electronic survey. Another kit can be created after the Strategy Development workshop to solicit feedback on strategies developed at the workshop.



Bigstock / icemanphotos

TIPS FOR SUCCESS

Keep the process moving. Keep the time between the two workshops to less than 3 months if at all possible. Having a longer gap can cause the project to lose momentum.

Sifting through the workshop notes and pulling them into a report can be intimidating, but that process becomes more difficult as more time passes from the workshop. Try to have the workshop notes compiled within two weeks of the workshop.

Remember that this is an iterative process and refinement will happen with each step.

OUTPUT

- Completed Vulnerability Assessment

RESOURCES

A current list of resources is available on the Climate Ready Communities website: <https://climatereadycommunities.org/resilience-resources/>

General Resources

An example of an electronic presentation can be found here – <https://prezi.com/tavfbaikives/hot-enough-yet/>

Examples of vulnerability assessments can be found here – www.climatewise.org/projects

Annual Support subscribers

Template: Vulnerability Assessment Spreadsheet (including auto-generated risk matrix)

Template: Tips for integrating workshop data into Vulnerability Assessment Spreadsheet

Subscriber resources for this task are [here](#).

Other Services (available with or without a subscription)

Workshop facilitation and/or processing of workshop output

Writing and layout of the Vulnerability Assessment report

Blocks of consulting time to:

- answer questions, explain concepts, and provide guidance

- review the draft vulnerability assessment

Other Services are [here](#)

If you have feedback or ideas about how we might improve this Guide, please contact us at: info@geosinstitute.org.

STEP

4

Develop and Prioritize Resilience Strategies

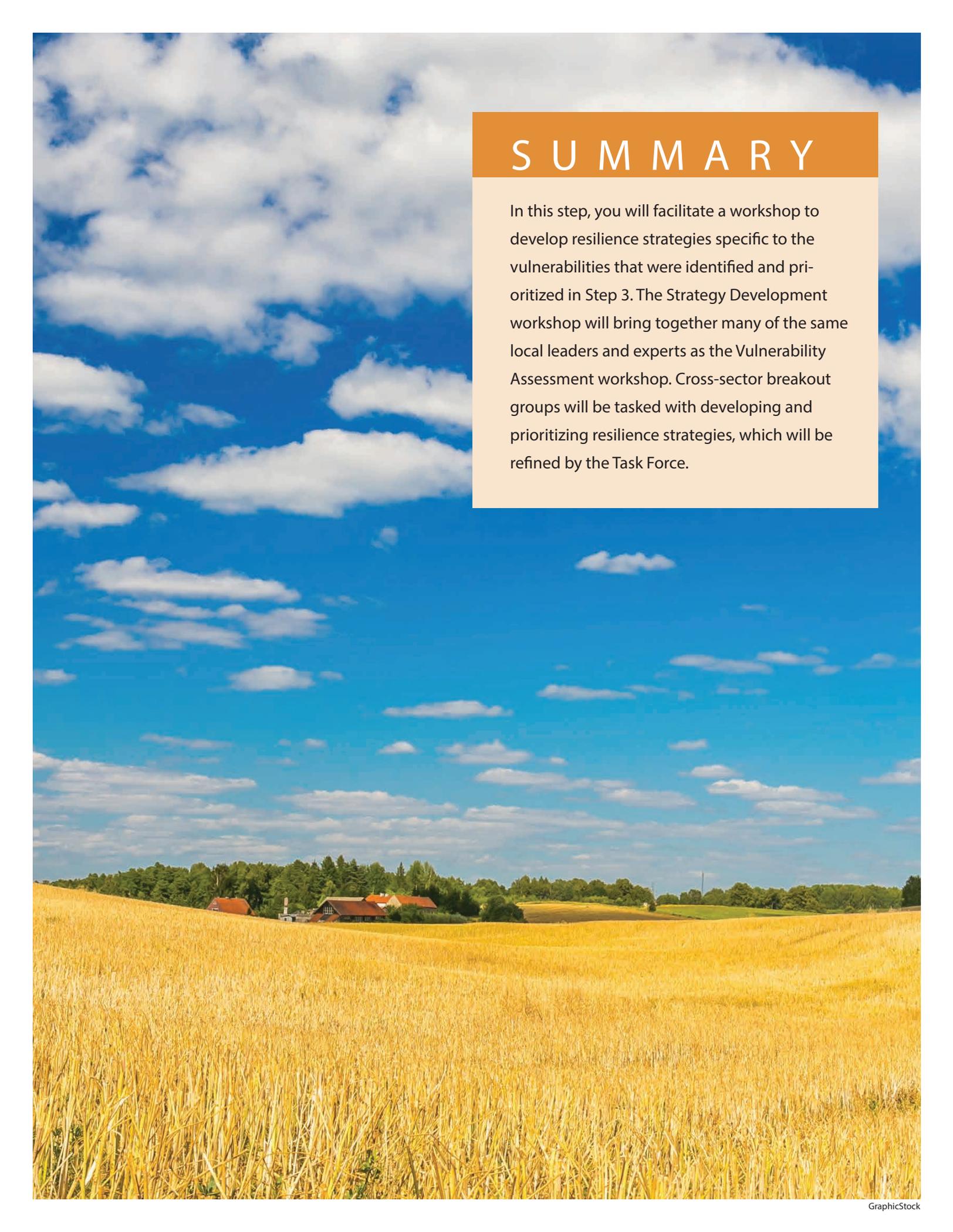
YOUR GOAL

Develop sound strategies for climate resilience that are integrated and collaborative across the different sectors of the community. These strategies will be developed in a workshop setting, which should leave community stakeholders feeling energized and supportive.

Task 1: Prepare for the Resilience Strategy Development Workshop

Task 2: Facilitate the Workshop

Task 3: Develop Draft Resilience Strategies Report



S U M M A R Y

In this step, you will facilitate a workshop to develop resilience strategies specific to the vulnerabilities that were identified and prioritized in Step 3. The Strategy Development workshop will bring together many of the same local leaders and experts as the Vulnerability Assessment workshop. Cross-sector breakout groups will be tasked with developing and prioritizing resilience strategies, which will be refined by the Task Force.

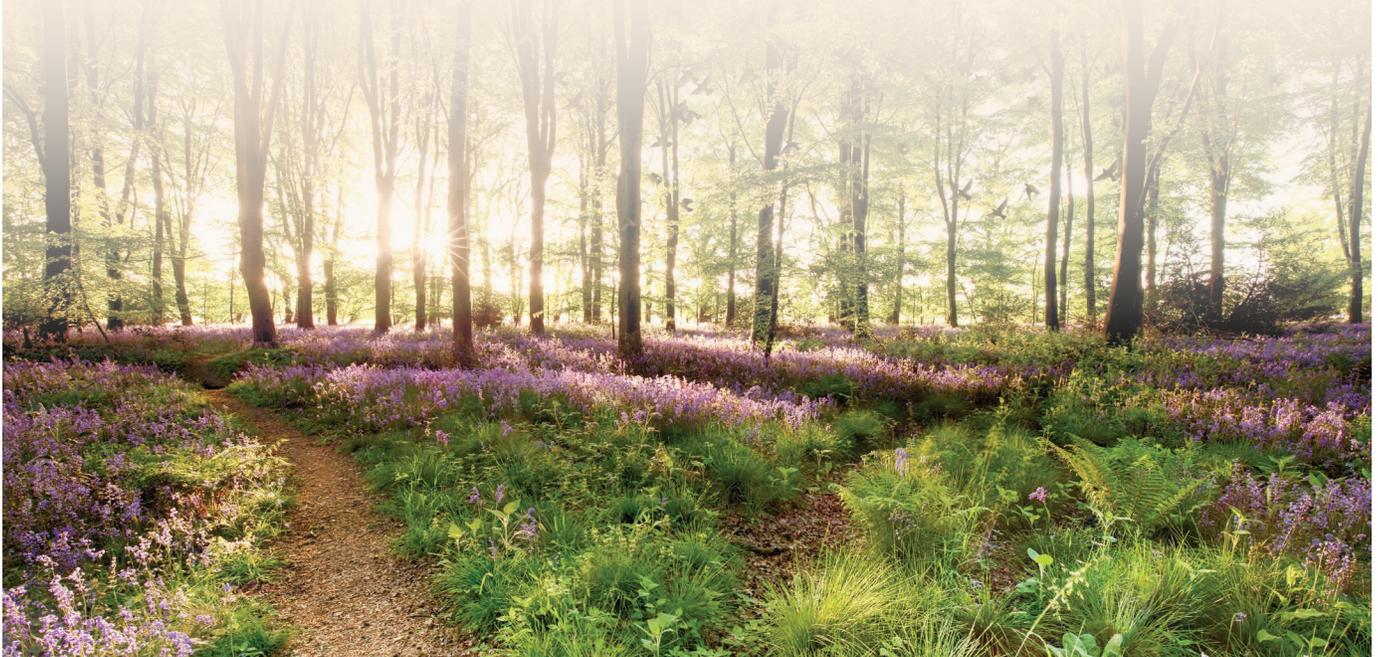
This is the most important step for working collaboratively across different sectors, groups, or issues. Many strategies that address climate change risks in one sector or group can actually increase climate change risk for other sectors or groups. The workshop will allow stakeholders to continue to work together, build new relationships, and address not only climate change vulnerabilities, but some of the ongoing stressors to the community as well. The workshop should be creative and innovative, with an openness to try new approaches. Similar to the vulnerability workshop, you want to do a good job

of capturing the conversations and strategy ideas that come up during the workshop. However, there will still be holes in the information that need to be filled in later by the Task Force as it works to refine the strategy ideas in preparation for drafting the resilience plan. You will notice many similarities between Step 3 and 4 as both involve a workshop followed by a synthesis process before moving onto the next step. The work you completed in Step 3 and the lessons learned from the first workshop will be very helpful as you make your way through the process of developing resilience strategies.

Single sector vs. Cross-sector Strategies

In most planning processes, a specific resource or sector is the focus of the plan, and other resources or sectors are largely assumed to remain constant. This basic assumption of constancy is no longer viable in a world with a changing climate. This is because climate change affects all populations, resources, and sectors across the board, and both people and nature will be responding in complex ways. When people plan for just one sector or resource in a changing climate, they run the risk of creating strategies that are redundant, waste resources, or create conflict with other sectors.

The need for cross-sector communication and coordination is not new. But the urgency for such work, as well as the potential repercussions of ignoring this need, are new and are growing over time as the changes become more pronounced and impacts more severe. It may take longer and be more complex to work across sectors, but your community will benefit by taking a cross-sector approach to developing climate resilience.



Task 1: Prepare for the Resilience Strategy Development Workshop

Task Force members will play a key role in preparing for the Strategy Development workshop by committing to attend, encouraging previous participants to attend, and identifying any additional invitees based on the outcomes of the Vulnerability Assessment workshop.

You can also invite people who were not able to attend the Vulnerability Assessment workshop. The important thing is to make sure you have representation from all of the different sectors, with special attention paid to ensuring representation from local business leaders, under-represented populations, and natural resource managers.

As with the last workshop, you are looking for people who have extensive expertise in an important community system or sector and one or more of the following characteristics:

- ▶ influential
- ▶ open to new ideas
- ▶ creative problem solvers
- ▶ good communicators
- ▶ collaborative
- ▶ unafraid to speak up
- ▶ able to disagree honorably and move on



As with the stakeholder identification process, we recommend that you ensure that the following systems are well-represented.

- ▶ **Social Systems:** physical and mental health services, emergency response (police, fire), homeless populations, elders, people with disabilities, other vulnerable or under-represented populations
- ▶ **Built Systems:** utilities (water, energy), transportation, municipal planning, engineering and construction
- ▶ **Natural Systems:** parks and natural areas, public lands, fish, wildlife, and plants, aquatic, terrestrial, and nearshore marine ecosystems
- ▶ **Economic Systems:** local businesses and industries, agriculture, tourism, and recreation
- ▶ **Cultural Systems:** Tribes, local immigrant cultures, other important cultural groups

Meal breaks can help spur creative solutions, so keep your participants together during meals.



Bigstock / trongnguyen

Workshops Logistics

- ▶ Identify a workshop coordination team of 2-3 people responsible for logistics. Each team member should have an in-depth understanding of the desired outcomes from the workshop. Using the same team as before will help to streamline the process, but is not necessary.
- ▶ Reserve a venue – Make sure the room is large enough to accommodate breakout groups and that chairs can be moved. Wall space to hang completed flip chart notes is helpful.
- ▶ Plan for food.
- ▶ Identify facilitators and notetakers – You will need them for the group at large, as well as the breakout groups.
- ▶ Identify speakers – Line up a mix of inspirational and informational speakers. Inspirational speakers can include local storytellers, pastors, business leaders, elected leaders and others who are passionate and able to build enthusiasm for the effort. Informational speakers can include yourself, city or county staff, NGO leaders, professors, local scientists, or others with expertise in community planning and/or climate trends as well as an engaging speaking style. The speakers will need to present the following information:
 - ▶ Overall context and why you all are there
 - ▶ Historical climate trends, future climate projections, socioeconomic trends, and Traditional Ecological Knowledge (TEK) if it is available. This presentation should just hit the highlights, and not go into the details presented during the Vulnerability Assessment.
 - ▶ Results of the Vulnerability Assessment, including the rankings and rationale for the vulnerabilities that have been prioritized for strategy development.

Develop the Agenda

Developing resilience strategies for the community is a far more positive and collaborative activity than assessing vulnerabilities, although the sheer magnitude of the projected impacts can still be daunting. We encourage you to be creative in designing the agenda to make it engaging for participants, and to communicate the message that while the future will be different than the past, the people of your community can create a positive future by working together.

The presentations should be brief, so that there is more time for people to work together to develop strategies. There should be plenty of opportunities for participants to get out of their seats and move around. This will allow participants to work together over a long day without losing enthusiasm and energy for the process. It is important that the workshop be held in one long day, rather than broken up into smaller time periods, for many reasons. One is that people travel long distances to attend. Another is the importance of having the same people involved throughout the entire planning process.



The Strategy Development workshop brings the work done to date together with your community's vision for its future, so extra time spent preparing for the workshop is time well spent.

Invite and Prepare Workshop Participants

Workshop Invitations (8 weeks ahead of the workshop)

Draft an invitation letter with an RSVP deadline and three attachments: a short overview of the overall project (same as first workshop), the Executive Summary of the Vulnerability Assessment, and a 1-page draft agenda.

Suggested agenda (a more detailed agenda is found in the next task):

- ▶ Welcome and overview
- ▶ Introductions exercise
- ▶ Presentation of climate projections and the Vulnerability Assessment
- ▶ Overview of climate resilience planning and “no-regrets” strategies
- ▶ Breakout groups to develop resilience strategies
- ▶ Breakout groups share results
- ▶ Strategy prioritization
- ▶ Introduction to mitigation
- ▶ Close out and next steps

Other recommendations:

- ▶ Include a 15 minute break every 1.5 to 2 hours
- ▶ Avoid having more than 1/3 of the day be presentations
- ▶ Make sure participants move to a different location at least once over the course of the day (going to breakout sessions and back to the full group usually handles this)

As RSVPs start coming in, track them to ensure that the five community systems (economic, built, natural, cultural, and human) are well-represented and that you have people attending from under-represented populations. If a particular system or population is missing representation, reach out directly to the people who have been invited from those systems or populations to ensure their participation.

Workshop Preparation Packet (2 weeks prior to workshop)

It is helpful if participants are able to review the results of the Vulnerability Assessment ahead of the workshop, so send the electronic summary used in the community engagement process and a link to the full Vulnerability Assessment to them at this time. Make sure the Climate Trends and Community primers are available to workshop participants as well as there may be a few new attendees who were not part of the Vulnerability Assessment workshop.

Final Workshop Confirmation (2 days prior to workshop)

The final workshop confirmation should go out two days prior to the workshop thanking people for their RSVP and letting them know any logistical information necessary for the workshop (parking, IDs needed, etc.), including a revised agenda.

Make the agenda engaging for participants and ensure that it communicates the message that while the future will be different than the past, the people of your community can create a positive future by working together.



Develop Breakout Groups

Resilience strategies will be developed in cross-sector breakout groups. Each group will be tasked with developing collaborative solutions that build community resilience specific to a subset of the risks identified in the Vulnerability Assessment. All of the high and medium priority risks should be covered. Related risks can be combined if they can be addressed with the same overall strategies.

It is helpful to step back and look at the overall themes of the Vulnerability Assessment and begin to organize related risks into categories. Some categories will be obvious while others might take some creativity to create. For example, “Water Supply” is an obvious category that affects natural systems, endangered species, municipal supplies, local parks and landscaping, water intensive industry, and a variety of other water users. A less obvious category might be called “Outside Influences,” and could encompass risks that stem from global and national stressors affecting local conditions (e.g. climate change related immigration or exodus, rising energy prices, or demand for renewable energy). It is important to remember that there is no right and wrong way to organize the categories.

Breakout groups will consist of 6-8 people who are highly knowledgeable of the topics at hand and/or the potential strategies and their effectiveness for different populations and resources. Be sure that the groups have representation from at least 2-3 sectors.

Feel free to organize the breakout group topics (risks) in whatever way they work best for your community, but some suggestions include:

Water quality (natural systems, municipal utility, watershed conservation, agriculture, industry, development, indigenous peoples)

Water quantity and flooding (emergency response, natural systems, municipal planning and engineering, low income housing, at-risk populations, recreation and tourism)

Forests, natural areas, biodiversity (wildfire, emergency response, forest conservation, forest management, parks department, recreation and tourism, renewable energy development, indigenous peoples)

Population, economy and development (affordable housing, low income populations, emergency response, municipal planning, business, immigrant communities, parks department, recreation and tourism, transportation, energy)

Health, pests, and disease (medical community, vector control, immigrant communities, elders, agriculture, forestry, natural resources, indigenous peoples)

Each breakout group will receive a list of the risks assigned to it, in order by the overall level of vulnerability, and with the highest priority risks highlighted. You will need to divvy up the prioritized vulnerabilities so that each is addressed by at least one breakout group. If you have a large number of participants, it is OK to assign a vulnerability to more than one breakout group. You can combine and reconcile their results after the workshop.

The list of risks for each breakout group should include all of the relevant information that was collected during the Vulnerability Assessment associated with each prioritized vulnerability, including the populations or resources most likely to be affected, existing adaptive capacity, etc. Be sure to include any resilience strategies that were suggested during the Vulnerability Assessment workshop or the online surveys.

Final Preparations

The week before the workshop:

- ▶ Make sure your facilitator's agenda is complete – A facilitator's agenda should include far more detail than the short agenda that you hand out to participants. It will include names associated with specific tasks, a detailed description of what each task entails and what the desired outcome is, desired messaging at different stages of the workshop, what supplies and equipment are needed and when, and any other details that the organizers might need to remember along the way. Make sure all of the organizers have a copy and that they have highlighted their responsibilities.
- ▶ Walk through the facilitator's agenda with your workshop coordination team.
- ▶ Confirm the speakers, facilities, and food.
- ▶ Confirm and train facilitators and notetakers for the breakout sessions.
- ▶ Create name tags or allow people to write their own.
- ▶ Assemble workshop packets that include an agenda, short overview of the project, Executive Summary of the Vulnerability Assessment (including the color coded risk matrix), and a list of participants.
 - ▶ The color coded risk matrix will show the prioritized vulnerabilities based on their level of sensitivity and adaptive capacity. You will have created this matrix in Step 3.
- ▶ Identify breakout group topics based on the results of the risk matrix. Assign each breakout group 5-8 vulnerabilities to develop strategies for, in priority order.
- ▶ Prepare flip charts for the breakout groups. See Step 4, Task 2, Part B. of the workshop agenda for the list of column headers.



TIPS FOR SUCCESS

Make sure you have balanced breakout groups and that all prioritized vulnerabilities are represented.

Get creative with group exercises, food, music, and storytelling to keep spirits up.

OUTPUTS

- Workshop agenda
- Facilitators agenda
- Workshop logistics arranged
- Flip charts prepared for the workshop

RESOURCES

A current list of resources is available on the Climate Ready Communities website: <https://climatereadycommunities.org/resilience-resources/>

General Resources

California Adaptation Planning Guide: Identifying Adaptation Strategies

http://resources.ca.gov/docs/climate/APG_Identifying_Adaptation_Strategies.pdf

Earth Economics provides tailored support to cities, utilities, and environmental justice organizations on building the case for, financing, and ensuring equitable prioritization of green infrastructure. They have many interesting articles about the economics of green infrastructure – www.eartheconomics.org

EPA's Community-Based Adaptation to a Changing Climate

<https://www.epa.gov/communityhealth/community-based-adaptation-changing-climate>; https://www.epa.gov/sites/production/files/2016-09/documents/community-based-adaptation_handout.pdf

Georgetown Climate Center Green Infrastructure Toolkit –

<https://www.georgetownclimate.org/adaptation/toolkits/green-infrastructure-toolkit/>

National Wildlife Federation's Green Works for Climate Resilience guide

<https://www.nwf.org/Our-Work/Environmental-Threats/Climate-Change/Climate-Smart-Conservation/Climate-Smart-Communities/Green-Works-Guide>

Annual Support subscribers

Tutorial: How to Group Vulnerabilities

Template: Strategy Development Workshop Invitation Letter

Template: Sample Participant Workshop Agenda

Template: Sample Facilitator's Workshop Agenda

Subscriber resources for this task are [here](#).

Other Services (available with or without a subscription)

Workshop facilitation

Tutorial: Creating win-win and no regrets strategies

Blocks of consulting time to:

- answer questions and explain concepts

- identify speakers and topics for the workshop

- develop the agenda

- manage RSVPs and logistics

- train facilitators and notetakers

Other Services are [here](#)

Task 2: Facilitate the Workshop

The Strategy Development workshop provides the centerpiece of your climate resilience plan. This is the point where your process transitions from identifying and prioritizing vulnerabilities to developing solutions to address those vulnerabilities. It is critically important that workshop participants walk away feeling that your community can take real action to create a positive future. Ensuring that the workshop runs well and gathers the information needed about potential solutions will prepare you well for finalizing the strategy development step and moving on to implementation. The workshop preparations you have just completed will create a strong foundation for success.



Photo by Keith Henty

Workshop participants need to walk away feeling that your community can create a positive future, so develop your agenda with that larger goal in mind.

Workshop Agenda

Part A. Introduction to climate change, local climate change impacts and vulnerabilities, recap local values (75-105 minutes)

- ▶ Welcome and overview (5-10 minutes) – This is generally done by an elected official or representative from the organization that is convening the process. This person should identify the context and the importance of the work that will be done in the workshop as well as make it clear to participants how this workshop fits into the larger planning process. Any housekeeping announcements will happen at this point. Ask people to stay off of their phones and computers except during break times.
- ▶ Introductions exercise (20-30 minutes) – Move around the room asking participants to share their name, title, and organization.
 - ▶ As they introduce themselves, have people also suggest the issues that they think are most pressing in the community (including those not related to climate change, such as food access, air quality, or school performance). Keep a list on a flip chart, and note which ones come up most often. This will set the stage for developing cross-sector strategies that have benefits across the community.



No Regrets or Win-Win Strategies

No regrets (or win-win) strategies provide benefits, often immediate, to a community in addition to reducing its risks from climate change. They are particularly useful in situations where significant uncertainty exists with trend or projection data. Employing *no regrets* strategies allows a community to take action in spite of the uncertainty. Essentially, the community experiences benefits from implementing *no regrets* strategies whether or not the worst anticipated consequences of climate change unfold as expected.

Examples of *no regrets* strategies for specific communities may include:

- ▶ efforts to conserve water by addressing pipe leakage or consumer use habits that help protect a community from increasing threat of drought while making the water delivery system more efficient and reducing the cost of delivering clean water
- ▶ urban tree planting that helps address heat island issues while also providing shade, reducing air conditioning bills, and improving quality of life and property values

There are many common *no regrets* strategies that communities can consider, including restoration of wetlands and other important natural systems, investment in home or school insulation and natural cooling, upgrades to culverts and other infrastructure, enhancement of emergency preparedness, broadening of services for low income and un-housed residents, reductions in ground level ozone, and improved screening for vector-borne disease outbreaks. Many other *no regrets* strategies will be specific to your community and locality. Your community should not limit itself to only *no regrets* strategies, however, as many strategies to address specific climate risks are needed regardless of the other benefits they may provide.



- ▶ Alternative – There are other ways of introducing workshop participants to each other and identifying the most pressing issues in the community. Feel free to use whatever approach will work best for your community and the particular workshop participants involved.
- ▶ Presentations (40-55 minutes)
 - ▶ (10 minutes) Have experts share a short version of the climate change projections presentation from the Vulnerability Assessment. This presentation should remind the participants of the magnitude, trajectory, and rate of change that can be expected, but it does not need to go into the same level of detail as the Vulnerability Assessment workshop. Also share some of the ecological or socioeconomic impacts and trends from the Community Primer.
 - ▶ (20 minutes) Present the results of the Vulnerability Assessment. Be sure to describe the process for identifying, ranking, and prioritizing vulnerabilities, and give more details about the ones that have been prioritized for strategy development.
 - ▶ (10-15 minutes) Have someone give a short overview of resilience planning and “no-regrets” strategies. Also provide examples of how other communities are addressing climate vulnerabilities and building resilience. Case studies can be found at the Climate Adaptation Knowledge Exchange and Georgetown Climate Center websites. Be sure to show how these strategies address a wide range of issues within the community, and provide benefits beyond those directly linked to climate change.



As with the Vulnerability Assessment workshop, it is important that the breakout groups get through all of the vulnerabilities assigned to them. Time management is critical at this step.

Part B. Develop Cross-sector Resilience Strategies (3 hrs with breaks)

- ▶ Give instructions for the breakout groups (10 minutes) – let people know what they will be doing and what you hope to get out of it.
- ▶ Breakout groups – move participants into cross-sector breakout groups. You can put a color-coded sticker on their name tags, corresponding with the pre-assigned breakout group to make the transition to breakout groups go smoothly.
- ▶ Introductions exercise (10-20 minutes) – The participants in these breakout groups will spend the next several hours working together, so it is helpful to do another round of introductions.
 - ▶ What is your name?
 - ▶ What is your specialty or expertise?
 - ▶ A group question – be creative!
- ▶ Develop resilience strategies (2-2.5 hours) – Each group will start by determining how much time to spend on each risk to make sure they all get covered. Some will take longer than others, but the group needs to be careful not to spend too much time on any one



Discussing how to reduce the overall magnitude of climate change can be a positive way to end the workshop, particularly since clean energy is now readily available and can save residents money while providing local, family wage jobs.

risk. Otherwise, the group will run out of time for those further down the list. The breakout facilitator will help the group stay on task and the notetaker will ensure that the group's conversation is captured on the flip charts. Encourage the groups to think creatively, and to write down all strategies and actions that are seriously being considered. Those that are not popular will not make the final list, but there is no harm in writing them on the flip charts.

- ▶ Each group should have a series of flip charts already hung on the wall. The column headers should include the following:
 - ▶ **Risk** (from the Vulnerability Assessment) – The risks should all be numbered and should be worked on in order of priority. Closely related risks can be worked on together.
 - ▶ **Strategy** – The group is tasked with developing one or more strategies to address the risks. Strategies are the overall approach you can take to reduce the risks. Strategies can reduce the sensitivity or exposure of the target, increase the adaptive capacity, or do both. If none of these is possible, consider revising the goal of the strategy. For instance, if no strategies are available to address the risks of a high elevation species, then the conservation goals for that species may need to be revisited.
 - ▶ **Actions** – Each strategy should be accompanied by one or more actions (specific steps) to achieve that strategy.
 - ▶ **Co-benefits** – List any potential positive impacts of the strategy/action to groups, resources, or populations other than those that are the focus of the action. The co-benefits do not need to be linked to climate impacts.
 - ▶ **Trade-offs** – List any potential negative impacts related to the strategy/action to groups, resources, or populations other than those that are the focus of the action. The trade-offs do not need to be linked to climate impacts, but be sure to consider how the strategy/action could exacerbate climate impacts or prevent resilience in other sectors (for instance, new dams can exacerbate climate impacts to native fish and negatively impact people who are reliant on subsistence fisheries).
 - ▶ **Responsible party** – List who is potentially responsible for implementing the strategy/action. Be as specific as possible, listing a particular government agency (state, federal, municipal, etc.), department, industry or business sector, civic organization, etc. Include the title or position if possible. You can list more than one responsible party, but highlight the primary party.
 - ▶ **Cost** – Rank the cost as High, Medium, or Low based on best available information on presumed relative cost (resources that would be needed to implement the strategy/action). Educational costs, for instance, are generally low while major infrastructure costs are generally quite high. Natural

resource restoration costs and infrastructure improvement costs usually fall somewhere in the middle. Some actions will result in cost savings over time, and this is important to note.

- ▶ **Effectiveness** – Rank the effectiveness of the proposed strategy as High, Medium, or Low based on how much certainty is associated with the strategy/action actually reducing vulnerability and leading to climate resilience. Consider whether the strategy/action has been tested, whether the outcome is well-understood, and whether there is a risk of negative outcomes.
- ▶ **Parking Lot** – Have a flip chart up for additional information that needs to be captured, but is not part of the immediate discussion. Use this chart as much as possible to keep the conversation moving quickly and to avoid get-

ting bogged down by issues that are not central to the discussion.

- ▶ **Prioritize** – When the breakout group is done developing resilience strategies/actions, give each participant 5 stickers or a colored marker and have them “vote” on the strategies for each risk that they think are the most effective. The number of stickers or markings they are allowed to make on the flipcharts is variable depending on the number of strategies/actions developed. You want to give them enough stickers or markings so that you can see how the group thinks about the different options, but not so many that people “vote” for most of what is on the sheets. A good rule is to give them 1/3-1/2 the number of stickers as the number of strategies. So, if there are 10 actions to choose between, give them three to five stickers.



Photo by M. Koopman

Part C. Share Strategies and Prioritize (30 minutes)

- ▶ Once identification and ranking is complete, each breakout group will report out to the larger group on the strategies they have identified to address the risks their group was tasked with. This is an important step as it allows participants to hear the strategies that other breakout groups are developing to address different risks. Participants can sometimes see connections between strategies identified in different breakout groups, which can allow for pooled funding and other resources. This report out also allows others in the room to identify concerns regarding proposed strategies in other breakouts, which can lead to the conversations necessary to ensure that solutions create benefits in multiple sectors. This comprehensive understanding of the breadth and depth of potential climate resilience strategies across the community is critically important in the effort to implement the strategies that are identified in the plan.
- ▶ After all groups have reported out, workshop participants can move from one breakout group matrix to another adding their thoughts to those of the group. Have them do this with a different color pen than the breakout groups used.
- ▶ Each participant will now rank strategies across all sectors. This ranking will assist you and the Taskforce in prioritizing strategies across the community in the final climate resilience plan. Participants should put dots next to the strategies they think are the most important for the community to implement. Again, the number of dots is variable, so feel free to give fewer than 10 dots if appropriate. They should only cast one vote per strategy. You can allow individuals to use their own personal criteria to rank the strategies by importance, but also remind them of the common values that your group is working toward.

Part D. Introduction to Mitigation (20 minutes)

- ▶ This step is optional, but with the right speaker, it can be very powerful. As the workshop participations develop resilience strategies, they will realize that many of the impacts are of such magnitude that it will be difficult to maintain the quality of life and local values that the group is working to maintain. Resilience strategies can help, but it becomes obvious that reducing the overall magnitude of climate change is also needed. Reducing greenhouse gas emissions is critically important in this effort and we find that many workshop participants are eager to start this conversation as part of strategy development. If you choose not to include this topic as an agenda item for your workshop, you will still want to make sure you are ready for mitigation questions in the workshop.
- ▶ If a local speaker from a university, government agency, NGO, or other trusted organization is available to talk about reducing greenhouse gas emissions, have them provide information on the reductions needed and actions similar communities are using to achieve those reductions. Be sure they focus on both reducing emissions and storing carbon in forests, grasslands, and soils. If a local business person has started taking action to reduce energy consumption or develop renewable energy sources, having them share their story can be a powerful addition to this part of the workshop. Discussing how to reduce the

overall magnitude of climate change can be a positive way to end the workshop, particularly since clean energy is now readily available and can save money while providing local, family wage jobs. There are many resources available to help you navigate this topic, such as the book Drawdown, which is edited by Paul Hawken and has a strong business element. Additional mitigation resources can be found in Appendix C.

Part E. Close Out/Next Steps (10 minutes)

It is best to have the person who opened the day with an inspirational message close the day by:

- ▶ thanking the participants for their energy, expertise, and time
- ▶ acknowledging that what they have grappled with is difficult, but that they have done very important work

Risk	Strategy	Action	Co-benefits	Trade-offs	Responsible Party	Relative Cost (H, M, L)	Effectiveness (H, M, L)	Notes
1. Increased rates of asthma and allergies	1.1. Reduce air pollution	1.1.a. Identify region's largest contributors to ground level ozone	Helps the community meet state and federal air quality standards; Reduces heart disease		Partnership among multiple municipalities in the County; Council of Governments	Low	Medium	Further action would be needed once information is collected
		1.1.b. Incentivize alternative transportation	Increases walking and biking, Improving health; Reduces traffic congestion; Improves options for low-income residents		Municipal transportation department	Medium	Medium	Needs to be coupled with other air quality reduction actions
	1.2. Improve indoor air quality	1.2.a. Upgrade HVAC systems in schools		Increased energy use can affect GHG emissions	School District facilities manager	Low	High	
		1.2.b. Install HVAC systems in low-income homes	Also addresses impacts associated with heat waves; provides benefits to low-income populations; improves energy efficiency overall		NGO providing support for low-income homeowners and renters	Medium	High	Could be targeted to reach families with children and elders first
Risk	Strategy	Action	Co-benefits	Trade-offs	Responsible Party	Relative Cost (H, M, L)	Effectiveness (H, M, L)	Notes
2. Increased demand and reduced water availability for agriculture, leading to more water conflict	2.1. Improve water use efficiency among farmers	2.1.a. Incentivize new water-saving infrastructure and technology	Saves money over the long term; reduces water withdrawals that affect fish; reduces pressure on groundwater		Council of Government; Dept. of Agriculture	High	High	
		2.1.b. Research crop options that are better suited to future climate conditions (both heat and drought)	Improves local availability of fruits and vegetables, with health benefits		University Agriculture Extension Service	Low	Medium	Can easily be incorporated into ongoing research and outreach efforts; Some long-lived crops, such as stone fruits or nuts, will be harder to replace than annual crops

FIGURE 5 Example strategy table for the second workshop, showing potential resilience strategies for two priority risks from the Vulnerability Assessment.

- ▶ letting them know what they can expect next. They will be given an opportunity to provide comments on the draft Resilience Strategies report that will result from this workshop. Then the Climate Trends Primer, Community Primer, Vulnerability Assessment and Resilience Strategies will all be brought together in a draft Climate Resilience Plan that will be put forward to the larger community for comment and review before being finalized. Then it is on to implementation.

Include time to have people fill out an evaluation of the workshop. That evaluation should include

a question that asks how they can help the process going forward.

Part F. Logistics Wrap Up

Take pictures of the notes on the walls prior to removing them. Also, make sure to gather the notes from all of the breakout groups and number them as you take them down from the wall so that you can re-create that order when pulling information from those sheets to develop the draft report. If note takers have electronic notes, ask them to send them to you immediately so you can integrate them with the paper notes.



TIPS FOR SUCCESS

Have someone responsible for roaming the room and circulating among groups.

If any groups are lagging behind the others, or getting stuck on certain points, the roamer should not be shy about jumping in and helping them move forward.

Make it engaging, creative, and dynamic. We have all been to workshops that are effective at sharing information, but do not really engage the participants in a meaningful way. The more you can encourage creativity and active participation, the better.

Have colored sheets of paper in the middle of the table and encourage people to jot down their thoughts at any time. Then collect the colored sheets before people leave. Some folks are uncomfortable sharing their insights in a large group, especially on controversial topics, or may not feel they are able to get their voice heard. Make sure there are a variety of opportunities for these participants to contribute.

OUTPUTS

- A completed Strategy Development workshop
- Notes compiled from the workshop for report development

RESOURCES

A current list of resources is available on the Climate Ready Communities website: <https://climatereadycommunities.org/resilience-resources/>

General Resources

Climate Adaptation Knowledge Exchange (CAKE) provides case studies and resources on climate change adaptation – www.cakex.org

Georgetown Climate Center's Adaptation Clearinghouse helps communities find resources they need to prepare for climate change – www.georgetownclimate.org

Workshop facilitation resources and workshop openers and activities can be found in Appendix E

Annual Support subscribers

Tutorial: Numbering System, Entering Data, Sorting Data

Template: Flip Chart Guidance

Template: Strategy Development Workshop Evaluation

Subscriber resources for this task are [here](#).

Other Services (available with or without a subscription)

Workshop facilitation

Blocks of consulting time to:

answer questions, explain concepts, and provide guidance

Other Services are [here](#)



Task 3: Develop Draft Resilience Strategies Report

Using the information gathered from your Strategy Development workshop, you will develop a draft Resilience Strategies report, and engage with workshop participants, the Task Force, identified stakeholders, and the public for feedback. Step 5 provides additional guidance on finalizing the resilience plan and incorporating an implementation plan.

Your Resilience Strategies Report will include components of previous reports and the results of the two workshops:

- ▶ Introduction to the larger resilience planning process and the purpose of the Climate Resilience Plan
- ▶ Historical climate change, model projections and ecological trends
- ▶ Description of the workshops, including a list of participants
- ▶ Vulnerabilities identified and prioritized at the first workshop
- ▶ Resilience strategies developed and prioritized at the second workshop
- ▶ A table that allows the reader to see all of the strategies and actions that were prioritized, as well as all of the sectors that are affected

Your first step will be to gather and review the flip chart notes from the workshop, making sure you have them in the correct order and that they are understandable. If you have questions about any of the material, reach out to the table facilitator and/or the note taker for that breakout group to clarify the information on the notes.

Use those flip chart notes to develop a spreadsheet with the same column headings you used on the flip charts. Identify the strategies and actions that received the most votes (combination of breakout

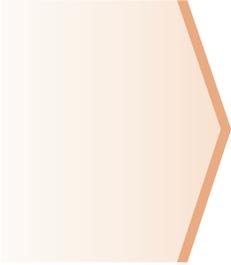
group voting and voting by all participants across sectors) during the workshop. The cutoff for the number of votes needed for a strategy/action to be included in the plan is up to you, but should be higher than 1. The strategy prioritization process is designed to ensure that unsupported or misguided strategies are not moved forward in the process.

Then develop a report outline that includes the above sections of information. The report can be organized in different ways, but usually it makes the most sense to organize it by the five systems (Built, Human, Natural, Cultural, and Economic). There may be a different organizational structure that makes more sense for your community. Within each system, there will be different sectors and topics that were covered. For each of these, show the vulnerabilities and the strategies and actions that were developed to address them.

An alternative approach is to include a condensed version of the Vulnerability Assessment, and then

EXAMPLE: Resilience Strategies Report Outline

- ▶ Executive Summary/Handout
- ▶ Introduction
- ▶ Purpose
- ▶ Community Values and Positive Vision
- ▶ Key Climate Trends
- ▶ Sector-specific Vulnerabilities
- ▶ Risk Matrix
- ▶ Resilience Strategies
- ▶ Conclusions and Next Steps
- ▶ References
- ▶ Appendix: Participants and full list of strategies identified at the workshop



Reach out to the stakeholders you identified earlier in the process and encourage them to share the electronic summary and survey with their networks. The more participation you are able to generate in this step, the easier it will be to implement the plan.

the resilience strategies, organized by sector. It is best to do this while memories are fresh for the participants, facilitators, and note takers in case any additional questions arise.

All of the information from the breakout groups should be captured and included as an appendix, but only the strategies that received support from the larger group will be covered in the main body of the report.

Offer this draft to the Task Force for edit suggestions. The Task Force should have the authority to tweak strategies, if needed. We recommend a shared document (Google docs or another system) with a request that reviewers suggest edits rather than make permanent edits. It is always good to keep a clean copy in Word format outside of the shared document to ensure that you have a backup. Two weeks time is sufficient for the Task Force to review the draft Resilience Strategies report.

Task Force members should review the draft Resilience Strategies Report to ensure that it is:

- ▶ understandable by a general audience
- ▶ written in such a way that it does not create unnecessary political opposition (pay particular attention to word choices)
- ▶ positive and hopeful—a “can do,” solutions-oriented attitude
- ▶ speaks to the values of your community

Watch for indications that strategies might be maladaptive. Be sure to ask:

- ▶ Does the strategy have any potentially negative consequences?
- ▶ If so, who or what will be affected by those negative consequences?
- ▶ Has the community considered other strategies or adjustments to this strategy to deal with those negative consequences?
- ▶ If certain people or resources are going to be negatively impacted, have they or their representatives been involved in the strategy development process and has the strategy been developed in a way that recognizes and addresses that impact?
- ▶ Does the strategy help or hinder efforts to reduce greenhouse gas emissions?
- ▶ Will this strategy help or hinder the community in its efforts to address chronic community stressors (unemployment, poverty, homelessness, etc.)?
- ▶ Is it likely that the strategy will still be seen as adaptive in 20 or 30 years?

Incorporate the edits into the document and then release the revised draft to the workshop participants using the same shared document format above. Again, two weeks is generally sufficient for the workshop participants to review the document.

Incorporate the edits from workshop participants into the draft Resilience Strategies report. It is now ready to be shared with the public. If you have continued to develop an electronic presentation of the process, now is the time to add the resilience strat-

egies into that presentation. When complete, the electronic presentation should include information from the Climate Trends Primer, the Community Primer, the Vulnerability Assessment, and the Resilience Strategies developed in the process.

Before you send it out, create a short survey to collect feedback from your residents. The survey should ask about any strategies that have been missed and ask them to prioritize the strategies. Send the draft Resilience Strategies Report, the electronic presentation (if you have one), and the survey out to the public through whatever channels are available to you. The more participation you are able to generate in this step, the easier the next steps and eventual implementation will be.



As was the case when engaging the public around the draft Vulnerability Assessment in Step 3, this is another important opportunity to address issues of equity. Go back to your initial list of stakeholders and reach out to each of them to encourage them to



Bigstock / Denise Campbell

share the electronic summary and survey with their networks. If there is a particular segment of your population that is not well-represented in the feedback you have received, we encourage you to take additional steps to get that feedback. Additional steps can include working with local organizers in that community to bring together a group of community leaders for a feedback discussion or increasing efforts to get information about the survey into that particular segment of the community.

As with the previous step, this may be a good time for another public event to gather feedback if your community is fully supportive of this work. If not, it may be best to just work with electronic feedback at this time.

Leave the survey open as long as possible as you work to organize the strategy development workshop. Once you have closed the survey, incorporate the public feedback, pass it back through the Task Force highlighting any changes that you have made due to public feedback, and finalize the Resilience Strategies report.



Shutterstock / Pressmaster

TIPS FOR SUCCESS

Remember that the more time that passes between the workshop and the analysis of the notes, the more difficult it will be to make sense of them. As with the analysis of the notes from the Vulnerability Assessment, it is good to have the Strategy Development workshop notes compiled within two weeks. Entering them into an Excel spreadsheet is helpful for sorting and categorizing, as well as assessing co-benefits across sectors.

There is still one more round of engagement with the public, so make this a good draft, but know it will change because of that feedback.

OUTPUT

- Completed Draft Resilience Strategies Report

RESOURCES

A current list of resources is available on the Climate Ready Communities website: <https://climatereadycommunities.org/resilience-resources/>

General Resources

The Ostrich Paradox: Why We Underprepare for Disasters by Howard Kunreuther and Robert Meyer explores why humans are so poor at dealing with disastrous risks and what can be done about it when developing strategies to address risk.

Annual Support subscribers

Template: Strategy Development Spreadsheet
 Template: Strategies Report – Detailed Outline
 Subscriber resources for this task are [here](#).

Other Services (available with or without a subscription)

Workshop facilitation and/or processing of workshop output
 Writing and layout of the Draft Resilience Strategies Report
 Blocks of consulting time to:
 answer questions, explain concepts, and provide guidance
 review the draft Resilience Strategies report
 Other Services are [here](#)

If You Host One Combined Workshop:

If you choose to do one workshop for both the vulnerability assessment (Step 3) and strategy development (Step 4), we recommend the following:

- ▶ Schedule the workshop so that it is spread over two days. The afternoon of the first day and morning of the second is often a good layout for both your workshop team as well as any participants who have to travel. Be sure to offer a chance for participants to connect and relax in between the first and second days, such as a dinner or reception. The discussion of climate change vulnerabilities can be disturbing for many, and interaction with colleagues will help them process their feelings and decompress. This will also help groups work together to develop cross-sector strategies the following day.
- ▶ Plan for the time it takes to re-organize between the vulnerability assessment section on Day 1 and the strategy development section on Day 2. The output from the vulnerability assessment will determine the topics for the strategy development breakout groups, so you and your team will need to spend some after dinner hours processing information and preparing for the next day. If you have to have this workshop all in one day, schedule a longer lunch time to ensure that your team has time to do this data processing.
- ▶ Train your team ahead of time for the data processing aspect of this work so that they understand the task when it is upon them and can help facilitate vulnerability assessment breakout groups with the understanding of how the outputs from those breakout groups will be used. It can be helpful to take your team through a practice run by creating a brainstormed list of vulnerabilities and then working through the process laid out in Step 3 to combine them into larger themes.
- ▶ Make sure every sector is fully represented at the workshop. Because you will not have time to fill in the gaps to the vulnerability assessment before moving onto strategy development, it is critically important that the workshop has representatives from each sector present for both the vulnerability assessment and strategy development sessions of the workshop.

If you have feedback or ideas about how we might improve this Guide, please contact us at: info@geosinstitute.org.

STEP

5

Finalize and Share the Plan

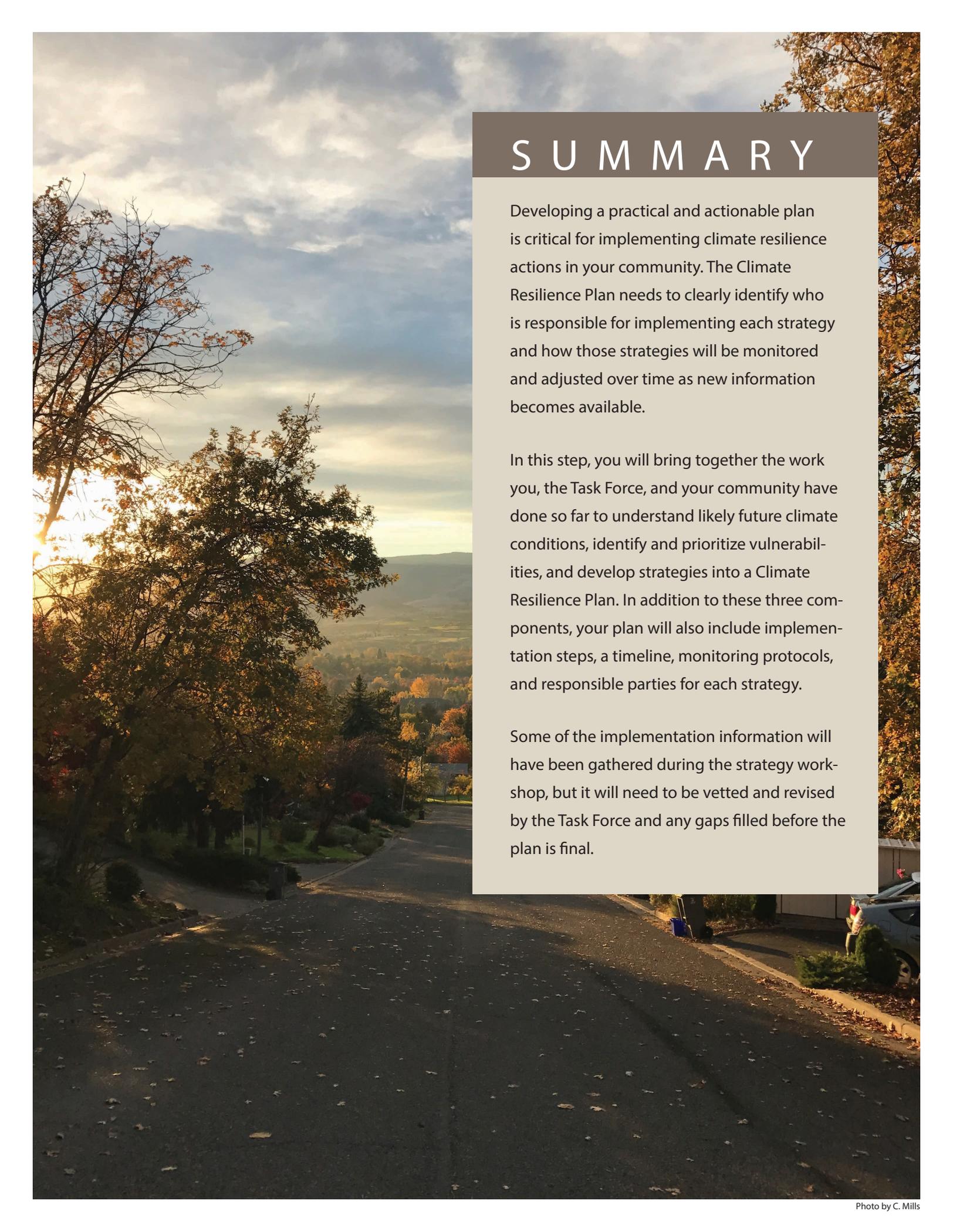
YOUR GOAL

Finalize an inspiring climate resilience plan using the primers, vulnerability assessment, and resilience strategies developed in Steps 2, 3, and 4. The plan will also include clear steps and a timeline for implementation.

Engagement efforts will help generate the community support you need to put the plan into action.

Task 1: Develop the Draft Climate Resilience Plan

Task 2: Finalize the Plan



S U M M A R Y

Developing a practical and actionable plan is critical for implementing climate resilience actions in your community. The Climate Resilience Plan needs to clearly identify who is responsible for implementing each strategy and how those strategies will be monitored and adjusted over time as new information becomes available.

In this step, you will bring together the work you, the Task Force, and your community have done so far to understand likely future climate conditions, identify and prioritize vulnerabilities, and develop strategies into a Climate Resilience Plan. In addition to these three components, your plan will also include implementation steps, a timeline, monitoring protocols, and responsible parties for each strategy.

Some of the implementation information will have been gathered during the strategy workshop, but it will need to be vetted and revised by the Task Force and any gaps filled before the plan is final.

Task 1: Develop the Draft Climate Resilience Plan

Much of what you need to develop in the Climate Resilience Plan has been created by developing the Resilience Strategies Report in the previous step. You will build on that strong base by adding implementation plans and metrics to the chosen strategies to develop the Climate Action Plan. The plan should be positive, engaging, and concise. The people in your community need to be able to see themselves within the Plan, understand why it is important, understand how the goals are achievable, and feel optimistic that the community will succeed.

Develop implementation plans for each strategy

To begin, the Task Force will, over a series of meetings, ensure that the following is identified for each strategy.

- ▶ Desired outcomes – what will happen when the strategy is effective?
 - ▶ The municipal staff, federal/state/county agency or department, school, community organization or other entity responsible for implementation of the strategy.
 - ▶ Other departments, agencies, businesses, schools, or organizations that have a strong interest in implementing each strategy. The likelihood of implementation and success increases with greater interest.
 - ▶ Any policy or rule changes that are needed in order for the strategy to be implemented.
 - ▶ Opportunities for mainstreaming (incorporating the strategy into ongoing plans that are already funded and slated for implementation).
 - ▶ Implementation tools and opportunities that can be leveraged. These include community efforts, such as comprehensive planning, school bonds, transportation and emergency management plans, activities by NGOs, etc.
- ▶ Sample ordinances or models that might be useful.
 - ▶ Timeline for implementation.
 - ▶ Capacity needs for sustained implementation. Identify whether existing staff and resources are sufficient or whether additional resources are needed. It is also important to identify how much funding is needed for each strategy as well as what funding sources are available to provide it.
 - ▶ Potential institutional barriers to implementation, such as existing zoning laws, federal and state policy, or water rights. Reach out to agencies and organizations that can help to make the needed changes.
 - ▶ Ways in which core equity values are to be met in the implementation of the strategy.
 - ▶ Performance or effectiveness measures to be monitored for this strategy. It will be easier to identify measurable outcomes for some strategies than for others, but it is important to make sure that you identify a tracking mechanism for each strategy so that course corrections can be made, if needed. If a strategy is hard to track, such as efforts to reduce the risk of rare or unpredictable events, acknowledge the difficulty in documenting success, but also put monitoring in place to determine effectiveness when those unpredictable events finally occur.
 - ▶ Baseline data that needs to be collected to monitor and adjust the strategy over time.
 - ▶ Triggers – what new information or situations in the future would signal you that the strategy needs to be re-assessed?

You will need to reach out to specific stakeholders and government departments in this phase if they are impacted by a strategy or action for which you are planning implementation steps or if they are expected to help implement it. Their feedback may make it possible to improve the strategy or action so that it is easier to implement and/or more effective. Taking this extra time now can help you avoid public challenges to the strategies included in the plan.

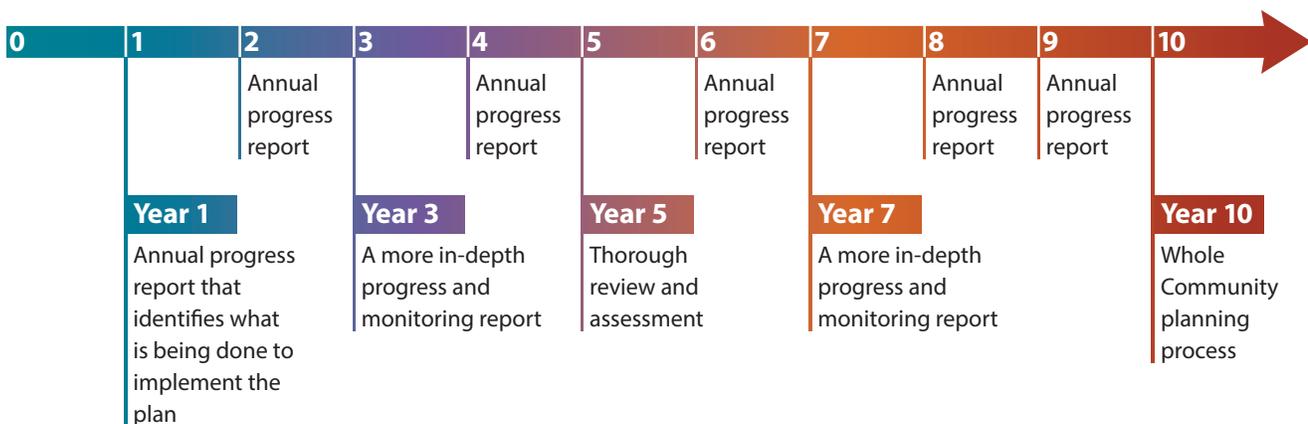
Develop implementation strategy for the plan as a whole

Once all actions and strategies have appropriate implementation and monitoring elements identified, you will identify the following implementation factors for the plan as a whole:

- ▶ **Plan approval and adoption.** Determine next steps for local government approval of the plan (if the scope of your planning effort is a municipality or county). Some local governments pass a resolution or ordinance to mandate plan implementation, which creates more accountability. Ordinances can identify schedules for reporting, require the hiring of a Climate Resilience Officer, and increase consistency when leadership changes take place. A resolution is a good option if you find it difficult to get local government to adopt an ordinance.

- ▶ **Priorities.** Look for some projects that can be implemented right away, with highly visible and tangible benefits. These demonstration projects can help to build local support for the plan as a whole and for less visible resilience efforts. Projects that have many benefits across the community also help to build support and enthusiasm.
- ▶ **Staffing capacity.** It is important that one person be responsible for the overall plan. This person can be employed by the municipality or a civic organization, and is responsible for monitoring progress, reporting to the community, redirecting actions that are not achieving desired results, updating the plan, and continuing community engagement. The person in this role will interact closely with the Implementation Team and provide key coordination assistance along with implementation expertise. Your community may want to hire a Climate Resilience Officer. Small communities may be able to add this role to a new or existing staff position that also has other duties.
- ▶ **Training needs.** There are many people in different municipal organizations who have not been significantly involved in the development of the plan, but are crucial to its implementation. Identify which governmental entities and stakeholders groups need to learn more

Suggested Revision Schedule for Climate Resilience Plans



specifics about the plan and develop a process for quickly getting to a shared general understanding of the plan across these groups.

- ▶ Review and updates.
 - ▶ An annual progress report is recommended to track implementation and keep the community engaged.
 - ▶ Every three years, it is useful to scan for new information to incorporate into your plan and revisit any strategies that are affected by that new information.
 - ▶ Every five years, it will be time for a more thorough review—a formal process of incorporating new data, assessing the effectiveness of resilience strategies, and making course corrections to strategies where needed. This is a time to develop new strategies if new vulnerabilities have become apparent or to shift priorities depending on local circumstances.
 - ▶ At the ten year mark, take your community through another Whole Community resilience update.

Report writing can occur in a variety of ways. You can write the report and get feedback from the Task Force and other stakeholders, the Task Force can take on report writing, or you can create committees to take up certain sections and bring edits back to the Task Force. If the latter is chosen, you may also consider tapping workshop participants who are particularly enthusiastic about remaining involved beyond the workshops. This is a good time to engage the new champions you identified in your workshops and anyone else you and the Task Force members think may be well-suited to serving on the Implementation Team that will soon be formed. In any event, much of what needs to be included in the draft Climate Resilience Plan will have already been written earlier in the process and will simply need to be updated.

EXAMPLE: Climate Resilience Plan Outline

- ▶ Executive Summary/Handout
- ▶ Introduction
- ▶ Vision and Community Values
- ▶ City or County Commitment to the Plan
- ▶ Climate Change Science, Trends, and Projections
- ▶ Cross-sector Vulnerabilities and Strategies
- ▶ Implementation Plan
- ▶ Conclusions
- ▶ Glossary
- ▶ References

Start with an outline of your Climate Resilience Plan (see box) and begin to drop information in from the Resilience Strategy Report and the work done in this task. The plan should include a three to five page Executive Summary that makes the information accessible to people who are not inclined to read a longer document. The vision and community values section comes from the values exercises done in the workshops. You will work with city and/or county officials to determine what should go in the “City or County Commitments to the Plan” section. Cross-sector Vulnerabilities and Strategies includes the specific implementation actions for each individual strategy, while the Implementation Plan section includes the work you have done to identify how the overall plan will be implemented. Feel free to use the glossary in Appendix A of this Guide in your Climate Resilience Plan.

Note that you might want to adjust this schedule such that this process is done a year before the next major local planning effort so that the strategies developed here will be well-positioned to be included in long-term community plans.

- ▶ Performance under other rating systems, such as STAR Communities, the National Flood

Insurance's Community Rating System, or the Global Covenant of Mayors for Climate & Energy. These programs reward communities for actions taken to reduce risk from climate related disturbances. Ensure that you are developing monitoring metrics that will allow you to get credit in these programs for the actions you take as part of your Climate Resilience Plan.

- ▶ **Engagement strategies.** Building local resilience is an ongoing effort that requires continual investment of community resources, including the personal energy of local citizens. Because of this reality, it is important to build on the solid foundation of community engagement you and the Task Force have laid in this process by developing an ongoing public engagement effort. This effort should

continue to educate, engage, and reinforce positive action toward the goals in the plan. Maintaining a strong engagement process will make it much easier to secure community investment for future implementation actions and help ensure that future revisions to the plan can be done efficiently.

Draft the plan

Develop a draft Climate Resilience Plan for the Task Force to review and edit at least once before finalizing it. The Plan should be positive, engaging, and concise. The people in your community need to be able to see themselves within the final plan, understand why it is important, see how the goals are achievable, and feel optimistic that the community will succeed.





Photo by K. Sauer

TIPS FOR SUCCESS

Look to nonprofits, faith communities, business communities, racial equity groups, and others for capacity to implement resilience strategies, rather than focusing only on governmental action.

Plan to implement a number of early projects that have high visibility and can create engagement opportunities.

It is important to have many of the individuals who will eventually be responsible for implementing specific resilience strategies involved in the development of the strategies as well as implementation components. If key people have not been involved up to this point, invite them in during conversations about implementation.

Embed as many strategies as possible into existing plans and structures (such as Comprehensive Plans, Transportation Plans, School Bonds, Development Plans, County Zoning, Emergency Response Plans, etc.) to ensure that they are funded and implemented.

Remember that different strategies have different time horizons, so they will need to be assessed for effectiveness according to those time frames. For some strategies, you will be able to see immediate results. For others, it may take decades. By ensuring each strategy has a realistic timeframe, you will provide the information needed to assess the effectiveness of strategies as the plan is updated in the future.

Identify the strategies that create important co-benefits across different populations and resources to create opportunities for mainstreaming and pooling available energy and resources.

OUTPUT

- A draft Climate Resilience Plan that is ready to be put before your community prior to implementation.

RESOURCES

A current list of resources is available on the Climate Ready Communities website: <https://climatereadycommunities.org/resilience-resources/>

Annual Support subscribers

Template: Strategy Implementation Spreadsheet
Subscriber resources for this task are [here](#).

Other Services (available with or without a subscription)

Writing and layout of the final Climate Resilience Plan

Blocks of consulting time to:

- answer questions, explain concepts, and provide guidance
- review the draft Climate Resilience Plan

Other Services are [here](#)



Photo by Leah Kelley via Pexels

Task 2: Finalize the Plan

Engaging Stakeholders and Public Officials

Your community engagement efforts are designed to continue to collect feedback and input for the Climate Resilience Plan. They are also intended to continue the education and engagement effort with your community. A successful engagement effort with the plan will help create the momentum needed to move implementation forward successfully.

By this point in the process, you and the Task Force have learned quite a lot about how best to engage stakeholders and the general public on this issue. You will use that information to develop your engagement plan. We recommend that you have some form of electronic presentation of the full draft Climate Resilience Plan with a survey. If you have developed an electronic presentation through the earlier steps in this process, you will simply need to update it for this step.

Engaging the Public

Public forums can be very energizing as long as the need for the resilience work is generally understood and accepted in the community. If you go forward with a public forum, reach out to your stakeholder list and make sure your Task Force members and some local elected officials are prepared to share in the task of being the public face of the resilience planning process. Make sure that the forum is designed to inspire attendees and motivate support. Task Force members should commit to attending and we encourage you to put extra time into ensuring that a significant number of workshop participants are in attendance as well. It is particularly important that you limit the opportunities for forum attendees to “grab the mic” as forums can tend to bring out the

Special events for elected officials to offer feedback can be instrumental in developing and growing support for the plan in the wider community. While some elected officials have likely been involved throughout the process, the completion of the draft plan provides a good opportunity to walk local elected officials through the resilience planning process, share information about future conditions, vulnerabilities, and strategies, and gather their feedback. Given their perspective from the inside of local government, they can often provide invaluable insight on the implementation process. And, as a general rule, elected officials tend to like to have details about things like this before any public forums so that they can be prepared to speak intelligently to the issues addressed in the plan.

two poles of public opinion—those who are deeply committed to addressing climate change and those who are deeply opposed. A good way to handle this forum is to set up tables or “stations” where people can ask questions about each step of the process and the outcome from those conversations.

If you have elements of your community that you believe make a public forum too risky, consider a series of smaller, living room conversations with the stakeholders you identified at the beginning of this process. To the extent that this can include some form of engagement with elected officials, we recommend you move in that direction as local action most often requires the support of local officials.

Final Edits and Local Government Approval

Once you have gathered input from electronic and in person engagement efforts, the Task Force will make any final edits and present the plan to local government for approval. Follow the plan you developed in Task 1 of this step to request approval. In some cases, this plan may have been developed outside the boundaries of city government. However, it will still be most effective if the plan can be approved by a local governing body, especially if local govern-

ment is expected to help implement any of the strategies contained in the plan.

Finally, announce the completion of your plan and share it with other communities via professional networks or adaptation portals, such as the Climate Adaptation Knowledge Exchange or Georgetown Climate Center.

TIPS FOR SUCCESS

While the primary focus at this point is not feedback, you are still gathering input so expect to make some changes between the draft and final versions of your plan based on public and elected official feedback.

The more detailed the implementation strategies, responsible parties, and timelines, the easier it will be to monitor progress and maintain accountability in the implementation process.

There will be excitement in the community to get to work. Capitalize on that by moving through the steps of final report approval at a good pace.

Make the plan concise and graphics rich for engagement with the public and local leaders. Provide clear graphics that can be used in engagement efforts to tell the story of the plan, how people will save money and have better health, and how it sets the community up for success.

Develop that messaging with both your draft and final Climate Resilience Plan.

OUTPUT

- A final Climate Resilience Plan and a community inspired to implement it.

If you have feedback or ideas about how we might improve this Guide, please contact us at:
info@geosinstitute.org.

RESOURCES

A current list of resources is available on the Climate Ready Communities website: <https://climatereadycommunities.org/resilience-resources/>

Annual Support subscribers

Template: Strategy Implementation Spreadsheet
Subscriber resources for this task are [here](#).

Other Services (available with or without a subscription)

Writing and layout of the final Climate Resilience Plan

Blocks of consulting time to:

answer questions, explain concepts, and provide guidance

review the draft Climate Resilience Plan

Other Services are [here](#)

STEP

6

Implement the Plan

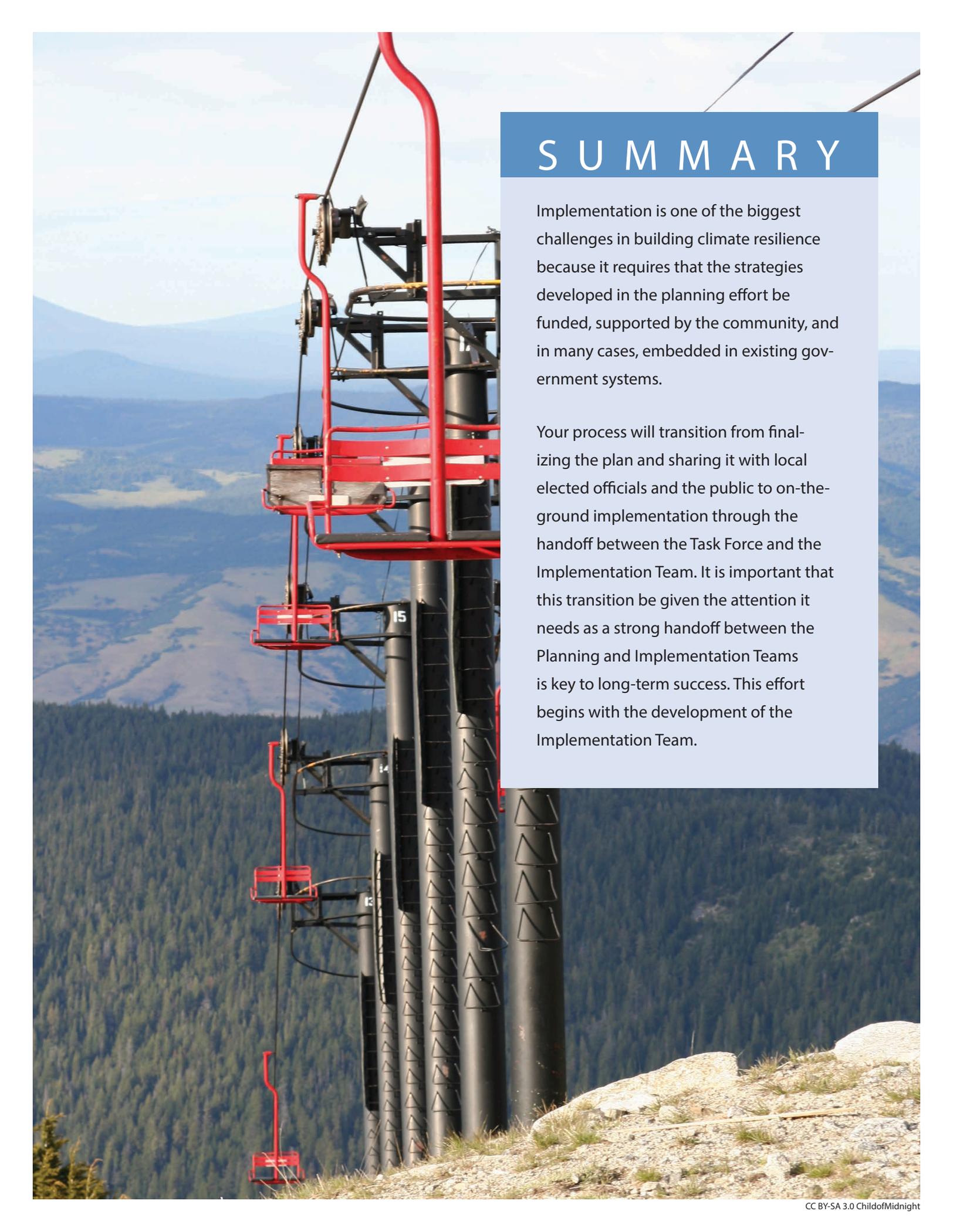
YOUR GOAL

Implement the Climate Resilience Plan with strong community support and an Implementation Team that is ready to lead. All of your community's hard work is about to pay off as you implement the strategies and actions identified in your Climate Resilience Plan.

Task 1: Develop Implementation Team

Task 2: Implement Initial Strategies

Task 3: Ongoing Implementation



SUMMARY

Implementation is one of the biggest challenges in building climate resilience because it requires that the strategies developed in the planning effort be funded, supported by the community, and in many cases, embedded in existing government systems.

Your process will transition from finalizing the plan and sharing it with local elected officials and the public to on-the-ground implementation through the handoff between the Task Force and the Implementation Team. It is important that this transition be given the attention it needs as a strong handoff between the Planning and Implementation Teams is key to long-term success. This effort begins with the development of the Implementation Team.

The climate adaptation field is focused heavily on developing new tools to assist with implementation of climate resilience plans. However, much can be learned from similar processes with different types of plans. In their report, *Passing Go: Moving Beyond the Plan*, the Federation of Canadian Municipalities identifies the following keys to implementation success:

- ▶ **Oversight:** Create a multi-organizational body to oversee implementation and to identify short-term actions.
- ▶ **Partner engagement:** Engage key organizations from different sectors and develop a way to continually expand the list of partners.

- ▶ **Community-wide actions:** Enable organizations (not just municipalities) to implement the plan.
- ▶ **Communications:** Design communication activities to enable networking and to reach citizens.
- ▶ **Monitoring and measurement:** Develop a monitoring system to allow for adjustments along the way, and for plan renewal at appropriate milestones.

By keeping these components in mind as you develop the Implementation Team and move through the implementation process, you will increase the likelihood of long-term success for your community.



Shutterstock / oneinchpunch

Task 1: Develop Implementation Team

The Task Force will develop the Implementation Team in much the same way that you developed the Task Force—by identifying individual people to fill

specific roles and engaging the community across all sectors and populations.

Guidance for selecting Implementation Team members:

- ▶ Tap people who exhibited local expertise, knowledge, and enthusiasm during previous steps of the planning process, such as the workshops
- ▶ Be sure to retain some of the original Task Force members for continuity
- ▶ Bring many of the people who will be responsible for implementation of high priority components of the plan onto the Team
- ▶ Ensure you are creating a geographically, racially, and gender diverse Team
- ▶ Because you are building for their future, include some young people on the Team
- ▶ Select people who will be effective champions of the implementation process from a variety of community sectors and municipal departments

- ▶ Confirm that selected Team members can serve at least a one-year term.
- ▶ Include an elected leader to serve on the Team, possibly as the Chairperson

Implementation Teams can vary in size depending on your community and the number of strategies developed. They will generally be smaller in smaller communities. Teams much larger than 18 can be difficult to manage. As you did with the Planning Taskforce, create a form to track invitations, notes, and responses as you develop the Implementation Team.

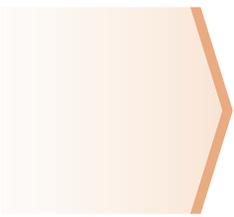
You will need specific terms for Team members, such as 1-3 years. The people who are carrying over from the Task Force might be asked to serve a one-year term on the Implementation Team to start, whereas others may be asked to serve a 2 or 3 year term. A three year term system with evenly distributed members across the term lengths results in 1/3 of the Team potentially turning over in any year. This helps maintain stability and continuity.

The Task Force should ensure that a charter is developed for the Implementation Team prior to the transition. This charter should identify the Implementation Team's tasks, authority, and

responsibilities, including how often it will report to a particular government body, such as a city council or board of commissioners. In developing the Implementation Team, the Task Force should appoint two people to serve as Chair and Vice-Chair who will be responsible for ensuring that the Team works efficiently to meet its goals.

It is most effective if the Implementation Team can be supported with administrative assistance from the municipality, county, or organization that is taking the lead on implementation. This ensures that records are kept at the meetings and that the Team is well-supported.

The Task Force will need to be officially disbanded in order to make room for the Implementation Team. It is important that this be done in a way that recognizes the hard work and dedication of the Task Force members while welcoming the Implementation Team to carry the baton forward. Consider a celebration and recognition event with local elected officials and community leaders. It is particularly helpful if they can write up notes of lessons learned to hand off to the Implementation Team in this transition. This ensures that those lessons, particularly the ones involving public engagement, will inform the decisions of the Implementation Team moving forward.



Remember to look back at your stakeholder list and consider strong leaders who have emerged at the workshops for your Implementation Team.



Bigstock / paulista

TIPS FOR SUCCESS

If you have an especially small community, consider working closely with other communities in your region, or other individuals with overlapping interests who might serve on the Implementation Team. For example, your community might rely on the county for emergency services, so bring a County Emergency Services staff person on board, even if the plan was not developed at the county level.

The importance of local champions on the Implementation Team cannot be overstated. Look to informal leaders who are trusted in the community as well as enthusiastic and skilled people from municipal departments to join the Team.

Ensuring that the Team has administrative support helps maintain momentum and allows the Team to keep its focus on implementation, not setting meetings and keeping minutes.

Ensure that both Chair and Vice-chair are experienced in running effective meetings either by recruiting people with those skills or by investing in training for them. There are excellent, low-cost guides to running effective meetings available to help and they can be found in Appendix E. By offering training, you open these positions up to people who have not had opportunities to lead the community in the past, but who could bring new ways of thinking or leading.

Recruit at least one (but potentially more) Team member who is skilled at community engagement to take the lead on those efforts.

OUTPUTS

- The initial Task Force is disbanded and honored for their service.
- The Implementation Team is in place with administrative support to ensure its success.
- The Chair and Vice Chair of the Implementation Team have been identified.
- The Implementation Team has a clear charter that identifies its work, responsibilities, and reporting requirements.

RESOURCES

A current list of resources is available on the Climate Ready Communities website:

<https://climatereadycommunities.org/resilience-resources/>

Annual Support subscribers

The Stakeholder/Task Force Template completed in Step 1 will have potential Implementation Team members and help you track your progress.

Other Services (available with or without a subscription)

Blocks of consulting time to:

- answer questions, explain concepts, and provide guidance

- review documents associated with creating the Implementation Team

Other Services are [here](#)

Task 2: Implement Initial Strategies

The success of the first implementation strategies is particularly important as it sets the tone for ongoing plan implementation and is critical for maintaining momentum and community support. While the Task Force identified high priority strategies

and actions, it is up to the Implementation Team to assess current local conditions and opportunities in developing both a three-year implementation plan as well as a one-year work plan.



Photo by Lloyd Rozimo

Three-Year Implementation Plan

The Implementation Team will begin by reviewing the highest priority vulnerabilities and their associated strategies to determine the timing for implementing those strategies. Any strategies that are both important and inexpensive or relatively easy to implement should be considered for first tier implementation. Other considerations include prioritizing strategies that represent multiple wins across the community or are “no-regrets” strategies. “No-regrets” strategies are those that are important for climate resilience, but are also just good to do even without looking through the climate lens.

Many important strategies are long-term strategies, so it is generally a good idea to start moving on some of those strategies that will take longer to implement and see results while implementing some of the nearer term strategies.

Mainstreaming – Scan local planning efforts to identify any opportunities to mainstream resilience strategies into existing planning efforts. Emergency management, natural hazards mitigation, and comprehensive plans are good opportunities to embed climate resilience strategies into local government, as are school bonds. Embedding strategies into these processes can provide funding streams and staff support for implementing the strategies. Mainstreaming is a difficult step, requiring in-depth understanding of a variety of planning processes, plan review cycles, and how various plans are linked to one another. A systematic review of the agency

or community’s plans will be needed to determine the order and timing for updating various plans that the Implementation Team can ensure that they reflect an understanding of climate change, as well as the new strategies outlined in the Resilience Plan.

Training Municipal Staff – Many efforts to mainstream climate considerations into local government processes require that municipal staff be trained specifically about climate change as part of their ongoing professional credentialing. Department leads and their line staff need to understand why it is critically important to address climate change, where they can go for more information, what the community is doing to address it, and their specific responsibilities related to climate change. Ensuring that local government staff have that training and are evaluated, in part, on their climate resilience efforts is key to long-term implementation of your Climate Resilience Plan.

Training and credentialing programs are available through the Association of Climate Change Officers and municipalities can negotiate a group rate to train multiple staff. Some of the training modules for this credentialing are available to communities that take advantage of the Annual Support package and time spent working through the Climate Ready Communities process can be used to meet some of the experiential requirements of that credentialing process.



Mainstreaming the strategies from your process into existing government and community systems improves the likelihood that they will be implemented and builds awareness about climate change in those systems.



If a subcommittee is needed, consider inviting others from the community who are enthusiastic and knowledgeable about how to implement the strategy to serve on it.

Other Considerations – If your community is creating a Climate Action Plan that includes both mitigation and adaptation (resilience), or already has a mitigation plan, you will need to coordinate between the two efforts. You may want to consider combining your Implementation Team with the body responsible for implementing the mitigation plan or creating official channels of communication.

Ordinances or other regulatory requirements can help to institutionalize resilience measures and encourage consideration of climate change in the management of departments or agencies. For instance, an ordinance can mandate that all improvements or major changes to critical assets improve community climate resilience.

Remember to include significant education and engagement efforts in your three-year plan in order to maintain community support and to ensure that the plan continues to incorporate the lived experiences of your residents. It is often helpful at this stage to determine when you will report back to local government and to develop a general engagement plan that will be refined in the one-year work plan.

From the prioritization work completed at the beginning of this Task, develop a three-year implementation plan. In each year there should be a mix of long-term and short-term strategies, as well as at least one high profile strategy that is widely supported in the community.

One-Year Work Plan – Once the three-year implementation plan is complete, develop a detailed workplan for year 1 that includes Implementation Team leads for all strategies, a timeline for activities to move the strategy forward, and plans to keep the community engaged in the implementation work. This plan will be used to set meeting agendas and track progress over time.

Remember that each strategy has a monitoring element. It can be very tempting to just get started and deal with monitoring later, but in order for monitoring to be effective, you will need baseline data. For this reason, it is very important that efforts to develop baseline data and monitor strategies be implemented at the same time as the actual strategy or action.

Begin implementation of the chosen strategies for the first year by reaching out to the people, organizations, or departments responsible for them. This will generally be the work of individual Implementation Team members for more discrete strategies, but subcommittees may be necessary for long-term, complex solutions. If a subcommittee is needed, consider inviting others from the community who are enthusiastic and knowledgeable about how to implement the strategy to serve on the subcommittee. These subcommittee appointments can be useful ways to develop new community champions and recruit new Implementation Team members as existing members move on over time.

Reporting Your Results

It is helpful to have an online display of your community's climate resilience goals and its progress in achieving them so that residents can see progress over time. It can be difficult to get this amount of information onto an electronic platform in a way that makes sense and is easy to navigate for your residents. Fortunately, companies are developing dashboard platforms that communities can now use to track their progress against approved plans. One example of such a platform is the KLA Community Dashboard, which is available from KLA Associates for a monthly fee for communities interested in tracking their progress toward climate resilience and other sustainability goals.

This is also where you will plan to report your results to any program your community is participating in, including the STAR Communities program, the Global Covenant of Mayors, and FEMA's Community Rating System, among others. Also, you may consider reporting your results to the Carbon Disclosure Project, which has a program that supports communities in reporting their progress, financing adaptation and resilience solutions, and comparing their results with similar communities. Make sure to include any such reporting requirements in your three-year implementation plan and one-year workplan.

A Note About Municipal Credit Ratings

Municipal credit rating companies, such as Moody's and Standard and Poor's, have come to understand that unaddressed climate change impacts may represent a financial risk that should be represented in a municipality's credit rating. This has caused some communities to fear that unearthing a significant vulnerability in a resilience planning process may cause their credit rating to drop. This is not the case. Credit rating companies have access to climate projections for your area already so they know what types of risks your community is likely to be fac-

ing. At this point, climate risk for municipalities is evaluated as part of the assessment of management practices. They are looking for whether municipalities understand that they may be exposed to risk from climate impacts and whether they are doing something to understand and address that risk. Therefore, completing a resilience planning process and then reporting out through a climate action platform (Carbon Disclosure Project, Global Covenant of Mayors, etc.), is seen as a positive action from the standpoint of municipal credit rating companies.



WoodyPhotos

TIPS FOR SUCCESS

Moving quickly through the first steps of getting organized and developing a year 1 work plan will help maintain momentum on the Implementation Team.

Report back to the community as soon as you have a workplan identified and at “newsworthy” points along the way. They have been activated by the planning process and many will be eager to see progress.

Make sure individuals know how they can help implement the plan by doing public education events and programs designed to help them make progress in their homes and businesses.

Avoid tackling the biggest, most contentious strategy first. It is better to get some early wins and be able to show strong community support for the resilience process.

OUTPUTS

- A three-year detailed implementation plan
- A one-year workplan
- Implementation Team members identified to lead each selected implementation strategy
- A well-run, functional Implementation Team that inspires its members and the community to keep moving forward to build resilience

RESOURCES

A current list of resources is available on the Climate Ready Communities website: <https://climatereadycommunities.org/resilience-resources/>

General Resources

Adaptation Pathways Network provides a guide for implementation that can help you make decisions today but not cut off your options for the future. 'Adaptation pathways' are especially useful when the future contains changes that are large, long-term and uncertain. This website is a place to connect people using and developing these ideas. <http://www.adaptationpathways.net/>

The Association of Climate Change Officers offers a variety of training options for different professions within local government - <https://accoonline.org/>

Carbon Disclosure Project offers communities an opportunity to report on their climate resilience actions, connect with potential resilience investors, and compare their resilience work to similar communities. <https://www.cdp.net/en>

Enterprise creates opportunity for low- and moderate-income people through affordable housing in diverse, thriving communities. They bring together nationwide know-how, partners, policy leadership and investment to multiply the impact of local affordable housing development. <https://www.enterprisecommunity.org/>

The Federation of Canadian Municipalities' publication *Passing Go: Moving Beyond the Plan* provides a helpful structure for Sustainable Community Plans, but their framework and information is very relevant to communities in the US that are working to implement climate resilience plans – https://data.fcm.ca/documents/tools/GMF/SS_PassingGo_EN.pdf

The KLA Community Dashboard is a communications platform that allows you to track progress towards identified goals, engage with the community, meet transparency and accountability expectations, and increase ongoing and equitable engagement. It is available for a fee. <https://kimlundgrenassociates.com/sustainability-dashboard/>

Union of Concerned Scientists created a "Built to Last" guide for Climate-Smart Infrastructure, especially in the Western U.S. <https://www.ucsusa.org/global-warming/regional-information/california-and-western-states/climate-smart-infrastructure#.XBIHTPx7k0p>

Annual Support subscribers

Template: Sample annual and 3-year workplans
Subscriber resources for this task are [here](#).

Other Services (available with or without a subscription)

Blocks of consulting time to:

- answer questions, explain concepts, and provide guidance
- review three-year implementation plan and annual workplan

Other Services are [here](#)

Task 3: Ongoing Implementation

Once initial implementation is underway, it is time to focus attention on the ongoing program of building resilience in your community. This program involves continuing to implement the plan as well as efforts to educate and engage citizens and municipal staff.

Community Engagement

Ongoing support for the Climate Resilience Plan is critical for implementation. To maintain this support, the community will need to be engaged, be informed of progress, and understand the role of individuals and other groups. The annual progress

report identified in the Suggested Revision Schedule for Climate Resilience Plans (Step 5) provides a regular opportunity to engage the community around the progress that is being made and to remind residents what they can do to help implement the plan. Annual progress reports can be used to generate newspaper articles and social media posts.

The Implementation Team can act as a central hub to collect information on progress being made by the community as a whole. It should also be prepared to fill empty seats quickly in order to keep up momentum.



Photo by Brian Barr



To maintain support for implementation, the community will need to be engaged, be informed of progress, and understand the role of individuals and other groups.

Remember that people move in and out of town on a regular basis. To address this, build and maintain an engagement program that includes basic information about why it is important to build climate resilience and what the community has done in that regard. The electronic presentations and other outreach materials that were developed during this process can continue to be used to maintain community support. Make sure you provide education and outreach efforts that continuously engage those who are already involved with new actions they can take in their businesses and homes. An electronic dashboard that allows people to track their own progress, as well as the community's progress, can help with ongoing engagement.

Ongoing Training

It is critical that city and county staff understand and support the goals of the Climate Resilience Plan, but local government experiences regular staff turnover. All staff members at every level of government will need to be trained and kept up to date about the plan as they make decisions daily that can affect the community's ability to meet its climate resilience targets. Training materials can be shared with local businesses and nonprofit organizations to help them train their staff on the importance of the Climate Resilience Plan and their respective roles.

Sharing Results

Implementation and monitoring of climate resilience strategies are ongoing in your community.

Because there is a continual need to integrate new data and adjust strategies to new circumstances, the work of building climate resilience is never complete. The community will need to understand that climate resilience is a cultural shift in how it functions. Messaging around this can be included in annual progress reports and in outreach related to specific strategies. As this cultural shift begins to take place, it is important to celebrate progress and exhibit pride in changes that the community makes. Many of the climate resilience strategies can be celebrated based on their extensive co-benefits, such as clean water, improved health, fish and wildlife habitat, and safety for residents.

Another way to maintain momentum is to connect yourself and the Implementation Team members with others who are doing similar work in their communities. Many national and regional professional associations have climate resilience networks and programs to support their members. Staying connected to these networks can be a great way to learn from colleagues and spur innovative actions in your own community.

Networking allows information to be shared about what is working in what locales—and just as importantly, what is not working. It can also create a personal support network for you and the Implementation Team members, which can be helpful for maintaining momentum.



CCA 2.0 NPS

TIPS FOR SUCCESS

Regularly review the Implementation Team's engagement with the larger community around strategies that are being implemented in the plan. News items on specific tasks related to the plan should be shared on a regular basis.

As Implementation Team members move on, replace them with people who have similar skills—or new skills needed by the Team—to maintain the effectiveness of the team.

OUTPUT

- Your community is building climate resilience by implementing its plan, engaging residents, and preparing for future updates to the plan.

RESOURCES

A current list of resources is available on the Climate Ready Communities website: <https://climatereadycommunities.org/resilience-resources/>

Annual Support subscribers

As you move into implementation, remember that the Annual Support program is designed for both planning and implementing actions to build local climate resilience. The cost of an annual subscription drops after the first year to allow communities to stay connected and take advantage of new implementation resources as they develop over time.

If you have feedback or ideas about how we might improve this Guide, please contact us at: info@geosinstitute.org.

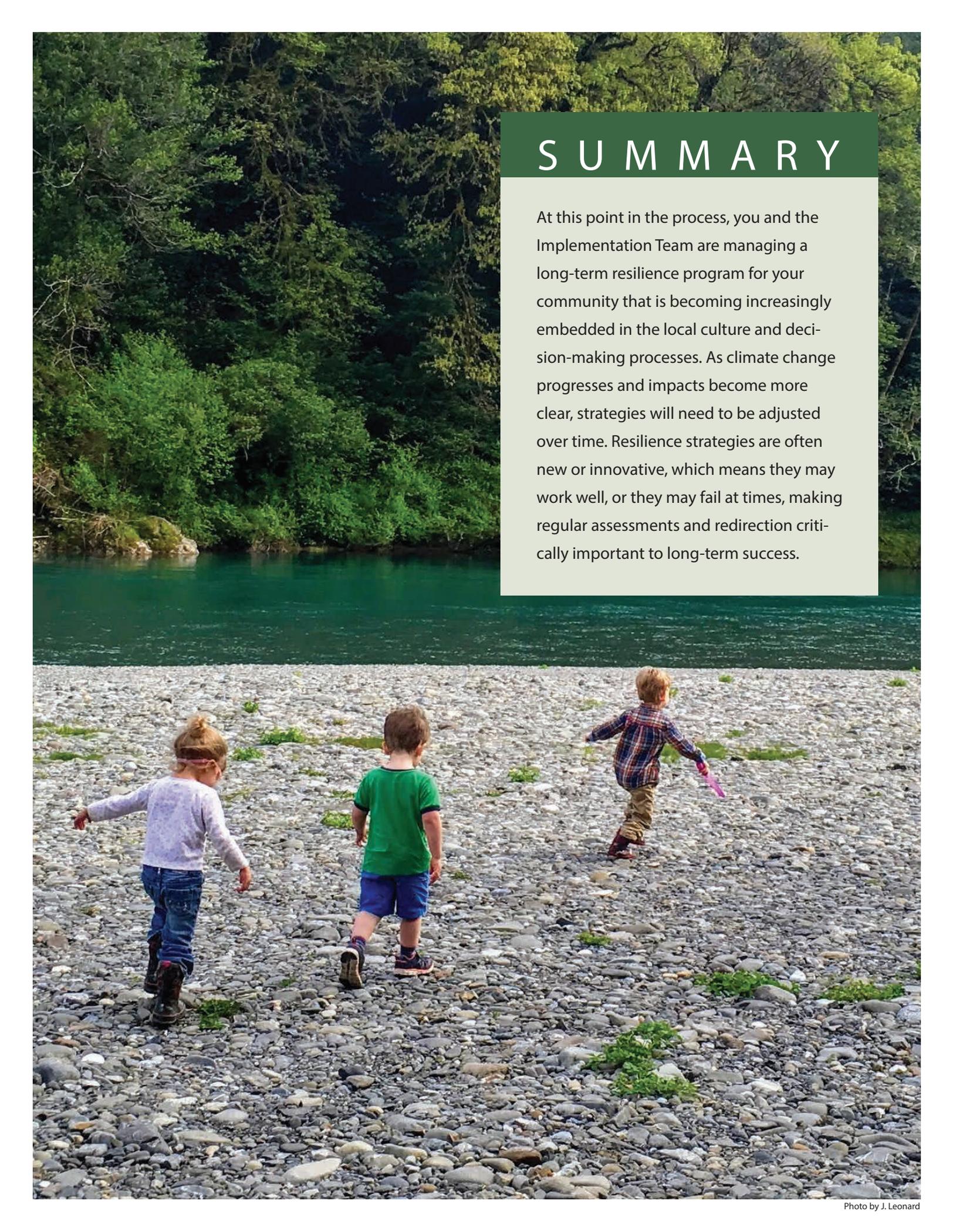
STEP

7

Monitor and Reassess

YOUR GOAL

Maintain your community's resilience program over time by monitoring progress, incorporating new data and information, adjusting strategies, and continuing to engage all populations within the community.

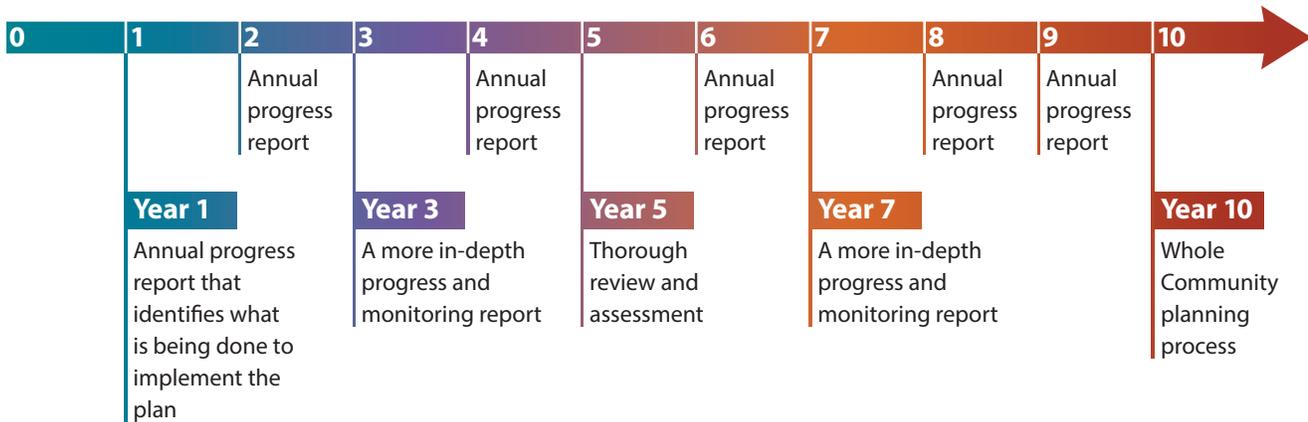


S U M M A R Y

At this point in the process, you and the Implementation Team are managing a long-term resilience program for your community that is becoming increasingly embedded in the local culture and decision-making processes. As climate change progresses and impacts become more clear, strategies will need to be adjusted over time. Resilience strategies are often new or innovative, which means they may work well, or they may fail at times, making regular assessments and redirection critically important to long-term success.

As a reminder, here is our suggested timeline for progress reports, updates, and revisions to the Plan initially shared in Step 5.

Suggested Revision Schedule for Climate Resilience Plans



In order to be effective, your Climate Resilience Plan will need to be regularly updated and revised. Due to changes in technology, the progression of climate change, better models, socioeconomic changes to the community, and widespread changes to natural systems and their services, many important features of the Plan will change over time. In response, you will need to follow the scheduled review and update timeline, and invest in full plan revisions at regular intervals. The reviews and updates rely on monitoring information that tells you where progress is being made, and where changes in strategy are needed.

During the review, it is important to be able to answer the following questions:

- 1 Did the strategy get implemented as planned? If not, why? If the strategy is still relevant, how can the Implementation Team move it to implementation?
- 2 If the strategy has been implemented, how effective is it? If it is less effective than planned, can any adjustments be made? If it is successful, can the strategy be implemented more widely?

Natural systems and vulnerable populations

Natural systems provide vital services, such as clean water, flood abatement, recreation, and quality of life. Healthy and functional natural systems are the foundation for healthy, vibrant communities. Similarly, healthy and functional populations, including the most vulnerable populations, are also the foundation for vibrant communities. It will be important to regularly consider whether the strategies being implemented are supporting both of these important systems. Are any of the strategies causing stress to ecological function? To vulnerable populations? Are any vulnerable populations missing out on the benefits? Are there ways to improve implementation to better protect and enhance both vulnerable people and nature?



Some of the data used in your initial planning process may make it difficult to fully commit to a particular strategy. For instance, some models may predict that your planning area is likely to be drier while others may predict more precipitation. Over time, tracking actual precipitation patterns will help you determine the direction to take and conflict between models may be resolved.

As you adjust existing strategies and develop new ones, make sure you identify monitoring processes to help you track the success of those strategies just as you did in your initial planning process. And, as monitoring processes from the initial strategies become less relevant, be ready to change how you invest in the community's monitoring needs.

Maintain the public engagement aspects of the resilience program, paying special attention to people in positions that have significant responsibility for implementing the plan. Consider developing an ongoing program of training and equipping elected

officials, municipal department directors, and community leaders from other sectors with the knowledge and tools they need to successfully maintain and support the local climate resilience program.

It is critically important that innovators, like you and the Implementation Team, working at the community level share stories of success and failure so that others can learn and replicate or avoid strategies as needed. Stay connected with others like you and be courageous in sharing those great ideas that did not work out. Try to understand why something did not work so that you can know the lesson to share with others.

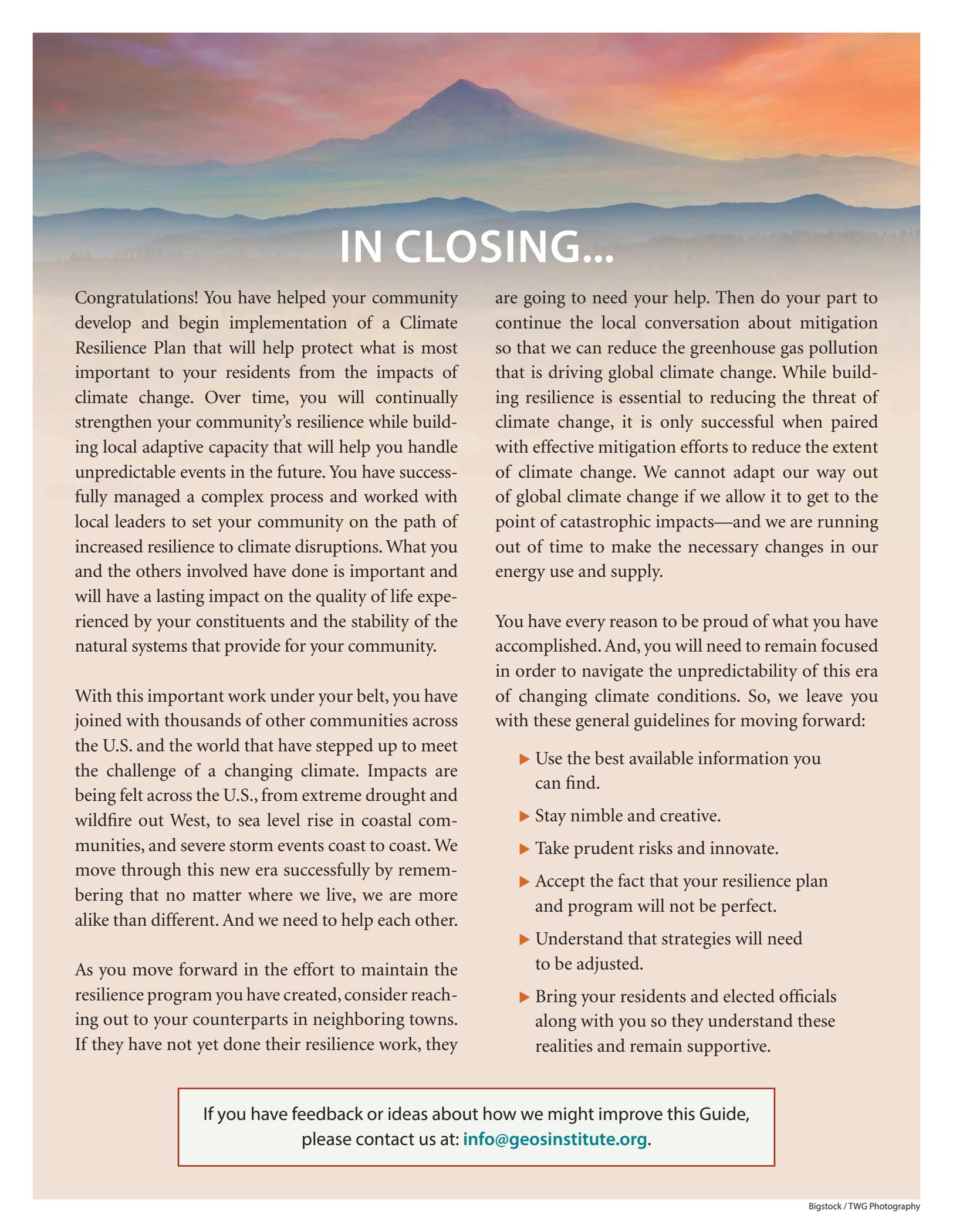
Finally, the costs associated with climate impacts are expected to be substantial and to rise over time. Therefore, investment now to reduce the cost of impacts later is very important. As you continually report back to your community, include an economic assessment of the money, property, and lives saved over time, when possible.



Ben Brennan, FEMA

TIP FOR SUCCESS

Be sure to monitor co-benefits as well, which can often bring in more support from businesses and the public than the climate resilience benefits of a particular strategy. This is especially true if those strategies create jobs, reduce social inequities, improve environmental conditions, and improve safety.



IN CLOSING...

Congratulations! You have helped your community develop and begin implementation of a Climate Resilience Plan that will help protect what is most important to your residents from the impacts of climate change. Over time, you will continually strengthen your community's resilience while building local adaptive capacity that will help you handle unpredictable events in the future. You have successfully managed a complex process and worked with local leaders to set your community on the path of increased resilience to climate disruptions. What you and the others involved have done is important and will have a lasting impact on the quality of life experienced by your constituents and the stability of the natural systems that provide for your community.

With this important work under your belt, you have joined with thousands of other communities across the U.S. and the world that have stepped up to meet the challenge of a changing climate. Impacts are being felt across the U.S., from extreme drought and wildfire out West, to sea level rise in coastal communities, and severe storm events coast to coast. We move through this new era successfully by remembering that no matter where we live, we are more alike than different. And we need to help each other.

As you move forward in the effort to maintain the resilience program you have created, consider reaching out to your counterparts in neighboring towns. If they have not yet done their resilience work, they

are going to need your help. Then do your part to continue the local conversation about mitigation so that we can reduce the greenhouse gas pollution that is driving global climate change. While building resilience is essential to reducing the threat of climate change, it is only successful when paired with effective mitigation efforts to reduce the extent of climate change. We cannot adapt our way out of global climate change if we allow it to get to the point of catastrophic impacts—and we are running out of time to make the necessary changes in our energy use and supply.

You have every reason to be proud of what you have accomplished. And, you will need to remain focused in order to navigate the unpredictability of this era of changing climate conditions. So, we leave you with these general guidelines for moving forward:

- ▶ Use the best available information you can find.
- ▶ Stay nimble and creative.
- ▶ Take prudent risks and innovate.
- ▶ Accept the fact that your resilience plan and program will not be perfect.
- ▶ Understand that strategies will need to be adjusted.
- ▶ Bring your residents and elected officials along with you so they understand these realities and remain supportive.

If you have feedback or ideas about how we might improve this Guide, please contact us at: info@geosinstitute.org.

Appendix A

Glossary of Terms

In an effort to promote consistent definitions of terms across the climate resilience sector, we include here the glossary of terms developed by the Climate Resilience Toolkit.

TERM	DEFINITION	EXAMPLE
Adaptation	The process of adjusting to new (climate) conditions in order to reduce risks to valued assets.	Relocating buildings out of flood plains or further inland from rising seas are examples of physical <i>adaptations</i> . Using smaller amounts of water during times of drought is an example of behavioral adaptation.
Adaptive capacity	The ability of a person, asset, or system to adjust to a hazard, take advantage of new opportunities, or cope with change.	Increasing the diameter of culverts that channel stormwater away from assets enhances the <i>adaptive capacity</i> of places that face flooding from increasingly heavy rainfalls.
Assets	People, resources, ecosystems, infrastructure, and the services they provide. Assets are the tangible and intangible things people or communities value.	The infrastructure of roads, airports, and seaports are <i>assets</i> . The service of supply chain stability (supported by transportation infrastructure) is an asset. A community's local "charm" is an example of an intangible asset.
Climate stressor	A condition, event, or trend related to climate variability and change that can exacerbate hazards.	Increasing frequency and intensity of drought conditions can be a <i>climate stressor</i> for forests and crops. Rising sea level is another climate stressor.
Consequence	A subsequent result (usually negative) that follows from damage to or loss of an asset. Quantifying potential consequences is an important part of determining risk.	The destruction of commercial buildings in a flood event could result in the <i>consequence</i> of a reduced tax base for a community.
Ecosystem services	Benefits that humans receive from natural systems.	Humans draw food and fiber from ecosystems. Ecosystems also filter water and air, sequester carbon, and provide recreation and inspiration for people.
Exposure	The presence of people, assets, and ecosystems in places where they could be adversely affected by hazards.	Homes and businesses along low-lying coasts are <i>exposed</i> to coastal flooding from storms.
Hazard	An event or condition that may cause injury, illness, or death to people or damage to assets.	Extended periods of excessive heat are likely to be an increasingly common <i>hazard</i> in the coming decades.
Impacts	Effects on natural and human systems that result from hazards. Evaluating potential impacts is a critical step in assessing vulnerability.	In the West, wildfires are among the <i>impacts</i> of hotter and drier conditions and earlier snowmelt.

TERM	DEFINITION	EXAMPLE
Mitigation	Processes that can reduce the amount and speed of future climate change by reducing emissions of heat-trapping gases or removing them from the atmosphere.	Carbon-neutral energy sources such as solar and wind represent <i>mitigation</i> efforts.
Non-climate stressor	A change or trend unrelated to climate that can exacerbate hazards.	Altering drainage patterns and replacing open land with roads and buildings are <i>non-climate stressors</i> for flooding hazards. Population growth along exposed coasts is another non-climate stressor.
Probability	The likelihood of hazard events occurring. Probabilities have traditionally been determined from the historic frequency of events. With changing climate and the introduction of non-climate stressors, the probability of hazard events also changes.	Locations within a 100-year flood zone have a greater <i>probability</i> for a flood hazard than locations in the same region's 500-year flood zone.
Projections	Potential future climate conditions calculated by computer-based models of the Earth system. Projections are based on sets of assumptions about the future (scenarios) that may or may not be realized.	Climate <i>projections</i> indicate that if human emissions of heat-trapping gases continue increasing through 2100 (a scenario, or possible future), most locations will see substantial increases in average annual temperature (potential future conditions).
Resilience	The capacity of a community, business, or natural environment to prevent, withstand, respond to, and recover from a disruption.	Installation of backflow preventers in the stormwater systems of a coastal city increased their <i>resilience</i> to flooding from extreme high tides.
Risk	The potential total cost if something of value is damaged or lost, <i>considered together with</i> the likelihood of that loss occurring. Risk is often evaluated as the probability of a hazard occurring multiplied by the consequence that would result if it did happen.	Warehouses sited on a floodplain represent a higher <i>risk</i> for flooding when they are filled with products than when they are empty.
Sensitivity	The degree to which a system, population, or resource is or might be affected by hazards.	The yield of crops with a high <i>sensitivity</i> may be reduced in response to a change in daily minimum temperature during the pollination season.
Uncertainty	A state of incomplete knowledge. Uncertainty about future climate arises from the complexity of the climate system and the ability of models to represent it, as well as the inability to predict the decisions that society will make.	Though climate model projections are <i>uncertain</i> about how much precipitation will change in the future, they generally agree that wet places are likely to get wetter, and dry places are likely to get drier.
Vulnerability	The propensity or predisposition of assets to be adversely affected by hazards. Vulnerability encompasses exposure, sensitivity, potential impacts, and adaptive capacity.	Despite the thick walls of the aging lighthouse, its location on a barrier island made it <i>vulnerable</i> to shoreline erosion.

Appendix B

RFP Guidance

Climate change adaptation or resilience planning is a relatively new field. Hiring a consultant to oversee resilience planning can be very helpful, but because of the nascence of the field, there is significant variation from one consultant to another. Consultants may use different types of data and information, they may have different steps in the process, and they can produce quite a range of planning products. Professional certification in climate adaptation

planning is rare, but becoming more common over time, which will help to create more consistency and standards. Because the field is still in flux, it can be difficult to assess whether a consultant will follow generally accepted resilience planning principles.

If you are hiring consulting services and want to secure the tenets of Whole Community Resilience planning, consider including the following in your RFP:

Local Climate Change Projections

1. Base planning on climate projections

Using the latest models, from a reputable source, create projections using one of three approaches:

- ▶ Scenario planning (creating climate storylines to help planners develop strategies that work across different possible future conditions);
- ▶ Bracketing (looking at 3–4 models that, specific to your region, represent the hotter, less hot,

wetter, and drier extremes as well as the middle ground); or

- ▶ Ensembles based on 10 or more models and with consideration/explanation of variation among models (such as the 5th and 95th percentiles) and full range of potential projections.

2. Utilize higher emissions pathways

For climate resilience purposes, using RCP 8.5 (higher emissions) is appropriate at this time, because it is representative of the path the global community is currently on. By planning for higher emissions, the consultant will be less likely to underestimate the impacts (and create a lack of pre-

paredness). It is also useful to have the consultant compare RCP 8.5 to RCP 4.5, as RCP 4.5 represents drastic emissions reductions. This can help people understand the significant value, both in lives and money, in reducing emissions.

3. Assess historic trends, future projections, and extreme events specific to your community

Have your RFP reviewed by trusted scientists and experts familiar with existing stressors, climate change impacts, and natural systems in the planning area. They can help to identify which climate

extremes (e.g. heat waves, floods, crop freezes, forest fires, and other events) are most relevant to your community.

4. Require communication materials for laypeople

Climate change projections in a format the public and local leaders can understand are critically important. Oftentimes, projections are provided, but without an explanation of how to use them, how to manage uncertainty, and what they mean

at the local level. These materials can also be made available in a dynamic online format that can be widely distributed. (Example: <https://prezi.com/tavfbaikives/hot-enough-yet/>).

Vulnerability Assessment

1. Use a science-based process

Many climate resilience projects fail to link the climate projections (as detailed above) to specific and locally-relevant climate change risks to the community. Ensure that the RFP asks for a vulnerability

assessment that identifies, categorizes, and prioritizes risks across all sectors of the community based on exposure (assessed using climate change projections), sensitivity, and adaptive capacity.

2. Hold a highly collaborative and cross-sector process

Require that the resilience planning process include one or more workshops that engage local experts from all community sectors to identify and prioritize vulnerabilities. The five community systems to engage across include:

- ▶ built (buildings, roads, bridges, water, energy, etc.)
- ▶ social (health, emergency response, vulnerable populations, etc.)
- ▶ cultural (native American tribes, minority or disadvantaged communities, etc.)

- ▶ economic (tourism, agriculture, forestry, technology, and other economic drivers)
- ▶ natural (aquatic, marine, and terrestrial ecosystems; endangered species)

In addition, be sure and include efforts to address ongoing chronic community challenges, such as poverty, unemployment, flooding, health issues, or pollution in the planning process. Many co-benefits of climate change resilience measures will include solutions to these stressors as well.

Resilience Planning and Implementation

1. Focus on co-benefits and cross-sector collaboration

Work with the contractor to facilitate a cross-sector workshop to collaboratively develop strategies that address key vulnerabilities identified in the Vulnerability Assessment. This workshop should involve both formal and informal leaders of the community, including city staff, business leaders,

faith communities, schools, emergency response professionals, public health professionals, tribal leaders, natural resource scientists and managers, NGOs, social equity leaders, climate scientists, and many others. Invitees should relevant local expertise and knowledge to contribute to the process.

2. Require implementation details

- ▶ Prioritization of strategies based on mid- to long-term goals and objectives, local values, protection of vulnerable populations and resources, effectiveness, and viability over time
- ▶ Consideration of impacts to future populations and resources alongside impacts to current residents
- ▶ Implementation steps, timeline, and responsible entities identified, as well as points of integration into existing community governance systems
- ▶ Integration with efforts to reduce greenhouse gas emissions
- ▶ Monitoring and assessment plan to assess progress, incorporate new information, and evaluate outcomes
- ▶ Dynamic framework that revisits goals, objectives, vulnerabilities, and actions over time as new information becomes available (recommend 3-5 years)



Community-wide engagement

1. Create buy in through engagement

Ask your contractors to build awareness of climate-related risks, challenges and vulnerabilities.

Continue to engage with community members so that there is support for implementation.

2. Ensure community input and collective decision-making

It is important to acknowledge that local community members are the experts on a variety of issues. Have the contractor design engagement to solicit information from the community, particularly those who are traditionally underserved, and use

this information in the development of resilience strategies. When asking for community engagement, know that it takes time and trust, so adjust your budget and timeline accordingly.

Timing

1. Be realistic

Set a realistic timeline (generally at least 12 months) that allows your consultant to create a high quality product and for your community to develop the relationships that are essential for effective community involvement in the process and eventual implementation.



Photo by Keith Henty

Appendix C

Resources for Reducing Greenhouse Gases

As it relates to climate change “mitigation” refers to efforts to reduce or prevent the emission of greenhouse gases. These efforts can take many forms—using new, energy efficient technologies, changing behavior, re-designing community systems, and developing renewable energy sources all work to reduce the use of fossil fuels and the greenhouse gas emissions that come from them. Mitigation efforts can be high tech or low tech and range from actions taken by the individual to those taken by collaborations between nations.

In the course of your climate resilience planning process, you will no doubt have people ask you if we are “locked in” to a certain future, especially when they see the projections for how the climate in your community is changing.

We are locked in to a certain amount of change, but the eventual extent of climate change depends on how long it takes the world to wean itself from fossil fuels. Building climate resilience is critically important because it buys us time and protects us in the near term, but it is not sufficient by itself. To successfully meet the challenge of climate change, each

community, including yours, has a part to play in addressing fossil fuels.

That being said, your community may not yet be ready for that conversation and that’s OK. But as you move through the process, it is important that you do your best to introduce the concept of mitigation when the opportunity presents itself. How you do that depends on the context of the opportunity and your community’s tolerance for the conversation, but many mitigation strategies have other benefits that can be emphasized over their climate benefits. For instance, developing renewable energy resources reduces our dependence on foreign oil and creates family wage jobs for local people.

Our Climate Ready Communities program has been designed to lead smoothly into a mitigation process if your community decides it wants to move in that direction once your resilience plan is in place. Mitigation planning generally includes assessing current local greenhouse gas emissions, setting targets for emissions reduction, developing strategies to meet those targets, and implementing the plan.

Here are mitigation resources we have found particularly helpful for local leaders:

Climate Access has a variety of resources regarding how to approach the topic of climate change mitigation in politically conservative communities. www.climateaccess.org

ClearPath is a web-based climate change mitigation planning platform available at no cost to ICLEI members and Global Covenant of Mayors signatories nationwide. <http://icleiusa.org/clearpath/>

Drawdown: The most comprehensive plan ever proposed to reverse global warming. Edited by Paul Hawken, this book provides a comprehensive look at the various sources of greenhouse gas pollution and the actions that can be taken at all levels to address them.

ICLEI USA offers its Five Milestones of Emissions Management program to member communities. This program builds on the ClearPath platform and provides additional assistance. <http://icleiusa.org/programs/emissions-management/5-milestones/>

SolSmart works to make it faster, cheaper and easier to go solar. The National Civic League works to support the designation program and to encourage communities to engage residents around solar issues. – <https://www.nationalcivicleague.org/environmental-sustainability-solsmart/>

Appendix D

Sample Informational Flyer

Informational flyer for stakeholder engagement begins on next page.

Making Our Community Climate Ready

Communities around the nation and globe are experiencing extreme conditions and rapid change. Storms, floods, drought, and heat waves are becoming more frequent and extreme. Shifts in the ranges of plants, animals, diseases, and pests are disrupting natural systems, communities, and industries alike. And coastal communities are being impacted by storm surge, flooding, and ocean acidification.

We are seeing many changes locally that threaten public health, our economy, infrastructure, natural systems, and the cultural vitality of our community. And, like many other communities, we are taking action to address these challenges.

Our community is initiating a process with the Climate Ready Communities program that will help us take a look at what is happening in terms of climate in our community, think through what that means for our residents, and develop solutions that protect what we care about and make sense.



Photo by U.S. Air Force, 2nd Lt. Brooke Betit

No one knows our community better than the people who have lived here a long time and/or manage our community systems. That is why it is critical that we have local residents bringing their expertise and perspective to the process right from the beginning.

This climate resilience planning process will involve two stakeholder workshops and a public engagement effort over the course of about a year. It will be guided by a local Task Force developed specifically for the planning process. By taking action now, our hope is that we will be able to lessen the impacts from changing conditions while making the best use of any opportunities that may come from these changes.

You are receiving this informational flyer because this process would benefit greatly from your presence. We would like to meet to discuss how you might be involved going forward with this effort to build climate resilience and protect what we love most in our community.



For more information about the program we are starting, visit www.climate-readycommunities.org

Appendix E

Workshop Facilitation Resources

Here we have assembled a variety of resources to help you design the facilitation of the workshops identified in our Climate Ready Communities process. The techniques found in these resources can also be used to ensure effective and engaging Task Force and Implementation Team meetings.

Planning A Workshop by Mind Tools –

<https://www.mindtools.com/pages/article/PlanningAWorkshop.htm>

University of Wisconsin-Madison’s Facilitator Toolkit –

<https://oqi.wisc.edu/resourcelibrary/uploads/resources/Facilitator%20Tool%20Kit.pdf>

International Institute for Facilitation and Change resources –

<http://english.iifac.org/meeting-facilitator/>

If you believe you, or others on your Task Force or Implementation Team, would benefit from facilitation training, you might try FacilitatorU. While most of their offerings are for a fee, they do have some free resources. –

<https://facilitatoru.com/facilitation/facilitation-skills/>

Appendix F

Sample Grant Proposal Language

An editable Word version is available for download at our website:
<https://climatereadycommunities.org/resilience-resources/step-1/>

Summary

(*Name of organization*) requests (*amount of money*) to support our efforts to create and implement a climate resilience plan in (*name of community*) in order to protect our people and natural resources from the impacts of climate change. These impacts – (*pick what is relevant in your area: more severe storms, flooding, drought, extreme heat, wildfire, sea level rise, and permafrost melt*) — are already being felt locally and will accelerate over time. This funding will allow us to (*pick what you need: support our local Task Force as it guides the process, access locally specific climate projections, engage the community in the planning process, coordinate and host vulnerability assessment and strategy development workshops, access expert assistance, and begin implementation of the plan*). By working through the Climate Ready Communities “assisted do-it-yourself” resilience planning process for small to mid-sized communities, we will create a climate resilience plan while building local skills, capacity, and public support needed to implement the plan and adjust it over time.

Need

Climate change is no longer something for us to worry about in the future. It is here. NASA’s Goddard Institute for Space Studies reports that the average global temperature on Earth has increased by 1.4°F since 1880 with two-thirds of that warming happening since 1975. That may seem like a small amount of change, but it means that the Earth is holding onto much more energy than it used to because it takes an enormous amount of energy to heat all the oceans, land, and atmosphere by even a single degree. This larger amount of energy trapped by increasing amounts of greenhouse gases in the atmosphere is creating significant changes to our weather and conditions in our community.

In our region, we are already seeing these impacts. The 4th National Climate Assessment reports that the (*name of region in which your community is located*) is experiencing (*list impacts being seen for your region from the National Climate Assessment*). These issues are getting worse and are expected to continue to accelerate over time. Here in (*community name*) we have seen (*list what you are seeing, such as extreme weather, more frequent or larger floods, droughts, wildfire, storm surge, etc.*), which are threatening our

local economy, public health, culture, natural resources, and quality of life. In order to ensure that (*name of community*) is a thriving community as climate change accelerates, we must act now to build local resilience to the impacts of climate change.

Goals

Our primary goals in this process are to:

- understand the likely local impacts of climate change and determine what those impacts mean to our community;
- identify strategies and actions that are based on our local values and an understanding of our particular resources and constraints; and
- implement actions that will protect our community from these impacts.

Objectives

Our overarching objective is to follow the Climate Ready Communities' *Practical Guide to Building Climate Resilience*, taking advantage of their support services as necessary throughout our process. Specific objectives include:

- Develop and support a Task Force of leaders from local government, business, natural resources, health, and cultural entities to guide the process;
- Access climate change projections for the (*name of community*) community;
- Involve the community in a meaningful way, especially those people who will be impacted more intensely by climate impacts;
- Host a climate vulnerability workshop with 40-60 (*this number is variable so adjust as you need to*) participants to identify vulnerabilities in the community that will be created by the changing conditions identified in the projections;
- Complete a Vulnerability Assessment report;
- Host a strategy development workshop with the same participants as the earlier workshop to develop strategies to address the vulnerabilities identified and prioritized in the Vulnerability Assessment report;
- Create implementation plans for each strategy as well as the overall plan;
- Finalize the Climate Resilience Plan; and
- Begin implementation.

Project Description

Creating the Task Force

Our core team of (*list who is working on this and what organizations they are with*) will develop a 6-12 person Task Force of local leaders from local government, the business community, and nonprofit organizations to guide the process, assist with workshops, provide feedback on documents resulting from the process, and serve as local spokespeople regarding the project. In this process of identifying Task Force members, we will reach out to a wide range of community organizations and stakeholders so that we can share information about the resilience planning process across the community and determine how different groups and populations would like to be involved. We will pay particular attention to ensuring that under-represented groups that are often not involved in public planning processes are invited to participate and provide leadership to the process.

Access local climate change projections

We will secure information regarding climate change projections for our locality. (*Insert details about how you intend to get your projections – download information from a state portal, do it yourself using the Guide, recruit a group of local experts to create it for you, or hire out for expert assistance*).

Host a vulnerability assessment workshop

We will host a vulnerability assessment workshop to determine what those changing climate conditions mean for our community based on what drives our economy, our population, how we have settled the landscape, and existing challenges facing the community. The results of this workshop will be shared with the public to get feedback by (*list here how you will do this – in person event, online survey with video, etc.*).

Finalize the Vulnerability Assessment

We will take the information from the workshop and public engagement effort and develop a Vulnerability Assessment that identifies and prioritizes climate vulnerabilities across the community. This assessment will be used as the foundation for the Strategy Development workshop.

Host a strategy development workshop

We will reconvene the participants from the first workshop to participate in this second workshop, which is focused on developing strategies to address the vulnerabilities identified in the Vulnerability Assessment. As before, the results of this workshop will be shared with the public to get feedback by (*list here how you will do this — in person event, online survey with video, etc.*).

Finalize the Climate Resilience Plan for *(name of community)*

The final Climate Resilience Plan will include the projections, results of the Vulnerability Assessment, and strategies identified for each vulnerability identified in the assessment. The Task Force will develop implementation plans, timelines, and metrics for each strategy as well as for the plan as a whole. That information will be integrated into the Climate Resilience Plan.

Initiate Implementation Efforts

The Task Force will sunset and transition the plan to an Implementation Team made up of local leaders and experts who will oversee implementation of the Plan starting with ensuring that each strategy to be implemented in the first phase has a point person tasked with ensuring it meets its objectives according to the timeline.

Deliverables

- A 6-12 member Task Force made of local community members to guide the process
- A Climate Trends Primer that identifies climate projections for our local area
- A Community Primer that identifies socioeconomic characteristics of our community
- Two completed workshops (Vulnerability Assessment and Strategy Development)
- Final Climate Resilience Plan
- A 6-12 member Implementation Team
- Strategy and action implementation underway
- Effective and meaningful public engagement efforts throughout the process

Budget

(include line items below as needed for your project)

Personnel to support Task Force	\$
Climate projections report (<i>see CRC menu</i>)	\$
Workshop facilitation (<i>see CRC menu</i>)	\$
Expert consultations (<i>see CRC menu</i>)	\$
Climate Ready Communities' Annual Support Package (<i>see CRC menu</i>)	\$
Public engagement expenses (stipends, video creation, etc.)	\$
Workshop expenses (venue rental, lunch/refreshments, easels, pads, stipends, childcare, printing, etc.)	\$
Graphic design	\$
Total	\$