



Resilient Communities — Starter Kit —

Presented by:

Resilient Communities and Watersheds

A Joint Program of the Lincoln Institute of Land Policy & Sonoran Institute

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INTRODUCTION

Historically, built environments in the Intermountain West have emerged from a connection with the landscape, dating back to Native American tribes and pioneer settlements of the US westward expansion. Communities have grown by using natural assets available for recreation, agriculture, tourism, or other opportunities. Preserving these natural systems in built environments leads to vibrant communities with healthy citizens, safe neighborhoods, and strong economies.

However, increased climate stress is affecting community health, safety, and welfare throughout the West. Droughts, wildfires, and floods are more prevalent and damaging. Excessive heat diminishes air quality, leads to dying landscapes and rivers, and disrupts human environments. These issues are costly and require thoughtful responses, plans, and engagement. To respond to increasing uncertainty and risk, communities are building resilience by planning for interconnected systems that support enduring built and natural environments.

This Resilient Communities Starter Kit uses an adaptive risk management framework to prepare for and defend against the volatility and disruption of an uncertain future. It is flexible enough to be used by the diversity of communities across the Intermountain West, including those with limited resources, to match available planning capacity. Most communities already have existing expertise to respond to many climate risks, but may not realize it or may have more pressing priorities. This starter kit will highlight ways in which resilience planning is deeply interconnected with existing community tools and stakeholders. As you proceed, you will promote comprehensive, sustainable solutions that strengthen the economic, social, and environmental foundations of your community.

UNDERSTANDING CLIMATE CHANGE AND RESILIENCE

This starter kit is designed to be inclusive for robust, meaningful, stakeholder interaction, including participation from stakeholders that may not be aware of climate risks or may not understand why this issue matters. To start, it is important to operationally define how this starter kit looks at climate change and why it defines a framework for community resilience.

ADDRESSING CLIMATE CONFUSION AND CONTENTION

Responding to climate issues can be challenging due to confusion about vocabulary, and it is important to use correct terminology. Taking the time to understand the difference between weather and climate can reduce confusion. Weather reflects daily conditions of the atmosphere at a given location and can change from minute to minute, hour to hour, day to day, and season

to season. Climate reflects the average condition of the atmosphere over an extended period, often 30-years, for a given region.

Understand that [stakeholders may have polarizing views about causes and solutions for climate change](#). It will help your message to stay on point by using effective terms and avoiding those that may be contentious. The term climate change may confuse or dissuade some people, but there is often more consensus around concepts to improve community resilience or by talking about disruptions like drought and wildfire risks, which are increased by climate change. This starter kit includes a series of communication and engagement strategies to assist you on your path to resilience, and it is important to understand the potential for polarizing messages from the very beginning.

WHAT IS CLIMATE CHANGE?

Climate change refers to the shifting of long-term averages for daily weather and may include trends for temperature, precipitation, humidity, wind, and seasons. These climate

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patterns fundamentally shape natural ecosystems, human economies, and the cultures that depend on them. However, normal climate trends are changing, and the past is no longer a reliable predictor of the future. Patterns for climate change in the West most commonly include extreme heat and storm events and increases in flooding, wildfires, and drought. Even the smallest climatic changes have cascading effects on all aspects of where and how people, plants, and animals live. For example, a change in the usual timing of rains or temperatures can affect when plants bloom and set fruit, when insects hatch, and when streams are at their peak flow.

In the West, annual temperatures are expected to increase up to [9.5 degrees](#) by the end of the century according to the National Climate Assessment, and increased temperatures are already having an impact in some locations. Declines in snowpack and Colorado River flows have caused water resources to decrease in many communities. Hotter summers are expected to increase the length and severity of drought, causing further reductions in water supplies, straining economic engines like agriculture and tourism, and putting environmental pressures on forests and other ecosystems. Although climate concerns are regional, the impacts are specific to each community. Many communities in the West will face, or already are facing, these impacts.



WHAT IS RESILIENCE?

This starter kit provides a framework for pursuing community resilience, but the term resilience may be interpreted and used in a variety of ways for different applications, including those for ecosystem management, disaster preparedness, and community planning. As it applies to this starter kit, resilience is defined as the capacity of a system to absorb disturbance and reorganize while undergoing change to retain essentially the same function, structure, identity, and feedback. As communities achieve resilience, they will increase their capacity to absorb volatility and disruption, while maintaining critical functions for natural and human systems.

USING THE RESILIENT COMMUNITIES STARTER KIT

The Resilient Communities Starter Kit is designed to help your community identify strategies to minimize potential disruptions from increasing stress and changing conditions. Using the kit will help your community create support for the planning process and provide the structural means to move forward. You will leverage a series of effective communication and engagement tools to support your goals. You will identify the most vulnerable community assets based on exposure and risk, and devise strategies to address those vulnerabilities through community plans and implementation strategies. Finally, you will devise plans to revisit the process, evaluate progress, and adjust course as needed.

The starter kit planning process includes a sequential series of steps in Chapters 1-6 to help you build a custom pathway to resilience. Each chapter includes a worksheet with exercises that encourage you to reflect on how the tools can be applied to the unique conditions in your community. The starter kit includes case studies and resources to explore available strategies, tools, and success stories. Beyond the core planning process, Chapters 7-9 provide additional support to develop management actions specific to drought, wildfire, and flood risks.

The starter kit showcases a broad spectrum of strategies and activities that can be tailored to your community, and these can be further supported with resources available at www.ResilientWest.org. The kit allows you to pick and choose depth of effort based on available capacity. However, all strategies will help to expand knowledge, engage stakeholders, and begin adaptation actions that will improve community resilience.

CH1 PREPARE FOR YOUR JOURNEY

This chapter sets the stage for your journey toward community resilience with activities that will prepare you for the specific interactive planning processes in Chapters 2-6. Moreover, these efforts will create an enduring framework to support all future efforts for resilience. First, you will develop a leadership structure by identifying your core team and support system. With this in place, you will consider the path forward for critical communication strategies by analyzing stakeholders and developing a purpose statement to set the stage for project messaging. You will analyze the framework of existing community policies and tools that offer natural opportunities to connect with resilient strategies. Finally, you will consider methods to build funding and support for community resilience.

DEVELOP LEADERSHIP STRUCTURE

FORM A CORE TEAM

Start the process by engaging with a core team of 2-3 people to get the project off the ground. As a team, perform initial due diligence and identify a preliminary and very concise purpose statement to inform future leadership members about community goals and objectives. Begin to engage in conversations about the journey ahead and identify stakeholder support, as well as potential barriers to success. Plan recruiting efforts for a resiliency champion and task force.

RECRUIT A RESILIENCY CHAMPION

Why: Recruit a resiliency champion who will serve to showcase the benefits of the project and will help bring other stakeholders into the planning process. With support from this champion, you can initiate the climate adaptation planning process and achieve collaboration from a wider group of departments, agencies, and community leaders. Without a champion, planning activities gain little traction and can encounter major resistance. It is critical that your champion has the influence and will to effectively make things happen.

Who they are: Effective champions have great public speaking abilities, have compassion for the community and its citizens, and are approachable with “easy to talk to” personalities. Traditional champions include mayors, city council members, and city managers. If a clear resiliency champion candidate is not immediately apparent, look to leaders outside of the government including former elected officials or department heads, former utility directors, respected business leaders, long-range planners, leaders of citizen-driven boards or commissions, and economic leaders. In choosing a leader, reflect on the values of your community and consider, for example, whether an economic leader may have more influence than an environmental champion.

What they do: A champion mobilizes involvement and support, shepherds planning processes, and promotes political and community collaboration for your efforts. While your champion may not lead all planning activities, he or she will encourage support for those activities and for adaptation planning actions.

ESTABLISH A TASK FORCE

After you identify a resiliency champion, create a task force to support the development of your plan and methods for communicating the process. Determine an effective task force structure that ensures guidance and accountability toward common goals, while providing needed support to members. Customize the structure to meet local needs, but at a minimum, create roles for a task force chairperson, a communication leader, and a community liaison. Identify defined roles and responsibilities that allow each member to contribute equally and on a regular basis, and to be held accountable for his or her actions.

Recruit members that will effectively fill the defined task force structural roles. For example, consider the role of a task force chair to serve as a liaison among the governing body, champions, partners, and task force members. A person for this role should have a commitment to local climate action, excellent communication and organizational

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SUMMIT COUNTY, CO: FRAME EFFORTS IN A WAY THAT SETS AN EXAMPLE FOR OTHERS TO FOLLOW

In 2005, Summit County was one of the first counties in Colorado to develop a [Community Wildfire Protection Plan](#) (CWPP). Early engagement from a grassroots task force of realtors, developers, contractors, and planners helped to garner support for the plan. After implementing and sharing the plan, the CWPP process is now required throughout the state, and other communities have an example to follow.

skills, a demonstrated ability to motivate volunteers, and an ability to manage relationships among elected officials, municipal staff, and volunteers. As you fill out the task force, bring together expertise and points of view from different sectors of the community, including a mix of government staff and volunteers, both expert and non-expert. Recruit task force members that reflect community diversity, focusing on those who are supportive of the process and that will be effective communicators. Create an understanding on the task force that each person may have a different reason for participating, but you are unified in your purpose and mission to support the resiliency planning process.

IDENTIFY A PROJECT MANAGER

Once your task force is in place, identify a project manager to act on behalf of the task force to coordinate each part of the planning process. This role requires a more significant level of involvement to gather stakeholders and to plan and execute activities. Consider this role in relationship to your scope and resources available. You may be able to hire a full-time project manager or you may designate this role as a part-time responsibility for existing planning staff. In some communities, the resiliency champion or a member of the task force could fill this position in addition to their role. In other cases, this role could be partially provided by task force members or existing staff, and augmented by contracting a facilitator for support.

Your project management requirements will depend on your community needs and the scope of the planning process. For a large effort in Boulder County, the Preparedness Plan required one person working full-time for about 2.5 years to complete the plan. In Missoula, the mayor appointed volunteer members to an Advisory Group on Climate Change and Sustainability, a Greenhouse Gas Energy Conservation Team, and a task force charged with drafting a Conservation & Climate Action Plan. These groups collaboratively developed plan objectives and were selected by matching key community members to appropriate roles based on expertise and interest to support these initiatives.



SET THE STAGE FOR EFFECTIVE COMMUNICATION AND ENGAGEMENT

Effective communication and engagement strategies are critical to your success for resiliency planning. This starter kit provides a series of communication and engagement checkpoints that will help you implement and maintain a cohesive communication strategy throughout the resiliency planning process. Checkpoints reflect the need for consistent communication and engagement efforts at various stages to ensure that your strategy and actions add the most value to support the planning process.

Already, you have reviewed the importance of effective climate terminology to avoid contention, and your leadership team began thinking about messaging when developing a first purpose statement to recruit support. With a larger team in place, it is now time to strategically consider how ongoing communication and engagement efforts can support this project.

The Desert Landscape Conservation Cooperative prepares for an engagement workshop



COMMUNICATION CHECKPOINT 1: COMPLETE A PURPOSE STATEMENT

Your first communications effort was to create a concise purpose statement for outreach to task force members. That statement may have only been one or two sentences to describe why this effort is important, but you can now work with your entire planning team to refine that purpose statement to reflect your goals. A complete purpose statement will frame your intent, identify methods to be used, and prepare you to answer questions about the planning process. Consider the following when refining your purpose statement:

- Why should people care?
- Why now? What is happening in your community that makes this relevant?
- Who are we? What are we trying to accomplish?
- Who will benefit from this effort? What will be the result if we succeed or fail?

Once developed, share the purpose statement with the governing body for review and approval.

COMMUNICATION CHECKPOINT 2: GET TO KNOW YOUR AUDIENCE

To develop an inclusive plan, it is important to understand your audiences. Information on critical stakeholders and how they get information will help you effectively engage them in the planning process and provide insight to make the plan more inclusive. The worksheet at the end of this chapter will help to analyze stakeholder impact on the planning process. Before engaging, learn more about each stakeholder and ask questions about how they affect the development and implementation of a resiliency plan:

- Will they be resistant to it?
- Will they embrace it and what would make it embraceable?
- How can the plan be made relevant to their issues?

Available resources may allow for varying amounts of effort in this process, but even the most basic stakeholder analysis will provide insight into your audience and better support your plan.

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UNDERSTAND YOUR AUDIENCE

Understanding the core values and needs of the community is important when creating policies. Values are the principals and standards of behavior a person lives by, that hold strong and do not waiver in uncertainty. These are often shared across diverse groups, but these diverse groups may use different words to talk about the same value. Aligning values can help build consensus and agreement around an issue, and can help prioritize what the community wants based on its values. In addition, identifying values can help create a shared language or common dialogue within a diverse community. There are many ways to understand your community values; a successful example is highlighted below.

In 1997, [Envision Utah](#) launched an unprecedented public effort aimed at keeping Utah beautiful, prosperous, healthy, and neighborly for future generations. A key part of this effort was understanding the core values of those living in Utah. Envision Utah conducted over 80 in-depth interviews to find out what people value about living in Utah, with the objective of guiding the public, community leaders, and policymakers in making better informed and coordinated decisions to protect, promote, and preserve what people truly care about. Envision Utah applied community values to its communication strategies and to the development of policies to ensure community needs were met in the process.

REVIEW POLICY FRAMEWORK FOR RESILIENCE

Potential success of community resilience efforts will rely on developing an effective community framework that can provide a mechanism for success. Before moving forward, it is important to identify community policies, ordinances, guidelines, and plans that may interrelate with resiliency planning efforts. While you will revisit some of these plans for more details and specific adaptation actions later, at this stage it is important to understand the context and relationship of these plans to your efforts. For example, perhaps your community stormwater management plan does not consider increased flooding risks over time. Understanding this context affects how you think about vulnerability in [Chapter 2](#) and may also relate to opportunities to improve resilience for the [Chapter 4](#) Adaptation Action Plan.

Start by reviewing the following key documents, if available:

- comprehensive or general plans;
- emergency preparedness or management plans;
- public works plans, including water and wastewater utilities;
- stormwater management and water supply plans;
- economic development plans;
- energy plans;
- heat relief initiatives and urban tree plans;
- wildfire prevention and management measures;
- urban agriculture policies; and
- sustainability or greenhouse gas plans.

Identify if these documents have goals, objectives, guidelines, or actions that would relate to urban heat, drought, wildfires, flooding, or other locally significant climate risks.

As you consider this existing community policy framework, take the opportunity to engage experts into the planning process. For example, amending a stormwater management plan would require expertise and participation from associated engineers and planners. This kind of expert involvement will be critical to successfully defining risks and developing strategies that will work within your existing policy framework. Coordinate this effort with communication strategies identified above.



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CONSIDER AVAILABLE RESOURCES AND FUNDING OPPORTUNITIES

Before you start to identify assets at risk and create adaptation plans, perform a preliminary analysis of what resources may be available to help implement adaptation actions. Resources may include internal capacity, partnership opportunities, or external funding sources. First, determine what community capacity exists to support adaptation planning and plan implementation. Identify internal staff that have may have the expertise and capacity to support the project, and determine if political will and community leadership will consider provision of time and resources for the project.

Second, determine if there are other regional stakeholders that may have similar interests to improve resilience in the region. Is there a university that might be willing to provide climate education, student mapping support and analysis, or even champion one of the plan components? Is there a conservation organization or state agency with mutual

water resource interests? Are downtown businesses interested in an urban tree plan? Partnerships can allow you to share resources to achieve greater impact.

Finally, consider the funding landscape for adaptation actions. What local, regional, state, or national funding is available for specific projects? Note that political will can significantly affect public funding for climate adaptation, and opportunities can change very quickly. Beyond public funding, consider nonprofit foundations, businesses, and individuals that may provide funding for climate adaptation projects. Significant public funding is often available after major damaging events.

Almost all funding is very competitive, and one way to better position your community for funding is to develop plans and actions to increase community resilience, and to implement those plans into policy. Your roadmap to reduce future risk will strengthen funding applications. More discussion of how external funding can support specific implementation measures is available in [Chapter 5](#).

CASE STUDIES AND RESOURCES

(more examples available at www.ResilientWest.org)

CASE STUDY: [MISSOULA, MONTANA, CONSERVATION AND CLIMATE ACTION PLAN](#)

Missoula's mayor appointed representatives for a citizen climate task force made up of individuals with varying points of view. The Citizen Task Force included representatives from nonprofit organizations, private businesses and industry, the local hospital, the University of Montana, and city staff. Together, they developed a plan that demonstrated how climate action makes fiscal, environmental, and social sense for the City of Missoula.

CASE STUDY: ROCKY MOUNTAIN WEST SPORTSMEN'S ENGAGEMENT AND EDUCATION

The Theodore Roosevelt Conservation Partnership used multiple tools to engage and educate Sportsmen in the West. They developed [Sportsmen's Value Mapping](#) for four western states to engage sportsmen to map the most highly regarded areas for hunting and fishing. They also led a [campaign](#) to educate sportsmen about predicted impacts of climate change on fish and game through additional workshops, printed materials, and radio ads.

RESOURCES

- The US Climate Resilience Toolkit identifies various [funding opportunities](#).
- The National Association of Climate Resilient Planners provides a [Framework for Community-Driven Climate Resilience Planning](#).
- Regional approaches for the Intermountain West can be found in the [Regional Climate Adaptation Planning Alliance Report on Climate Change and Planning Frameworks](#) prepared by ICLEI.

WORKSHEET 1

IDENTIFY AND ANALYZE KEY STAKEHOLDERS

Very early in the process, it is important to identify and analyze community stakeholders that can influence your resiliency planning process. Some stakeholders may provide tremendous support for the planning process, while others could make it much more difficult. Identifying those who may not be supportive of the process will allow you to engage them early to listen to their input, educate them on the process, and seek to allay their concerns. This analysis may also provide insight into how your organization and task force can communicate to the public about the action plan.

There are two types of stakeholders: **Primary Stakeholders** who have the power to deliver your goal or secure your victory, or conversely shut down your effort; and **Secondary Stakeholders** that are prominent individuals (academic, business, etc.) who can help influence targeted decision makers. Keep in mind that you don't need to influence everyone, so focus your efforts on identifying stakeholders who can have a direct impact on your effort. Consider a variety of stakeholders including, but not limited to:

1. former elected officials or department heads,
2. business leaders/respected community leaders,
3. long-range planners,
4. economic leaders, and
5. leaders of boards or commissions.

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WORKSHEET 1

The worksheet below is populated with example data, and blank worksheets for you to complete are available at ResilientWest.org/resources.

Identify your top community stakeholders and identify whether each is a champion or opponent of your effort, as well as whether each is a primary or secondary stakeholder. Also, analyze stakeholder potential to influence the planning process (on a scale from 1-10, with 1 being no influence, and 10 being complete influence), and consider potential roles in the planning process.				
Name	Position on Issue	Type	Level of Influence (1-10)	Potential Role
Mayor , John Smith	Champion / Opponent	Primary / Secondary	8	Positive Resilience Messenger
Town Council Chairman, Jane Scott	Champion / Opponent	Primary / Secondary	7	Identify customized role that allows stakeholder to overcome concerns and take ownership in the product
Economic Development Board Chair, Bob Doe	Champion / Opponent	Primary / Secondary	5	Member of Resilience Task Force, economic workgroup
Resilient America, Executive Director	Champion / Opponent	Primary / Secondary	5	Member of Resilience Task Force, leading communication effort
Emergency Manager	Champion / Opponent	Primary / Secondary	6	Member of Resilience Task Force, messenger to community about importance of resilience
Public Works Director	Champion / Opponent	Primary / Secondary	4	Leader to integrate plans into community policy or code and support financing initiatives
Fire Department Chief	Champion / Opponent	Primary / Secondary	4	Participate in wildfire workgroup, lead community efforts with regard to wildfire
Downtown Tree Coalition (small business representative)	Champion / Opponent	Primary / Secondary	6	Outgoing supporters of resilience efforts, may be willing to financially support resilience actions.
Joe Shmoh, outspoken climate denier	Champion / Opponent	Primary / Secondary	5	Could increase community resistance to resilience planning if he disapproves of any action to combat climate change.
Citizens for Fiscal Responsibility	Champion / Opponent	Primary / Secondary	7	Could derail any conversations about developing community resilience as they consider it fiscally irresponsible.

CH2 IDENTIFY HAZARDS AND VULNERABILITY

Over the course of the next two chapters, you will perform a customized climate vulnerability assessment that identifies and analyzes risks to different community systems. With this information, you can implement an adaptive risk management framework that allows you to effectively prioritize efforts for resilience. Key to this assessment is an analysis of community hazards and vulnerability. First, however, it is important to consider the context for your assessment by reviewing regional climate trends, considering community impacts, and defining a planning horizon.

FRAME YOUR REGIONAL CLIMATE CONTEXT

Before focusing in on the details of your community, perform the following research to help understand the climate context in your region, including data trends and common climate concerns. Then, answer questions about how this regional information might relate to your community.

Perform research:

- Review the [Environmental Protection Agency's](#) (EPA) summary of climate impacts that affect your state.
- Go to the [States at Risk](#) preparedness report card and summary for your state and review the distinct levels of threat for extreme heat, drought, and wildfire.
- Visit the [Climate Explorer](#) within the US Climate Resilience Toolkit and search for your community to identify historic data and projected trends for temperature, precipitation, and heating/cooling days.

Answer the following questions:

- What are the top statewide climate concerns that relate to your community?
- What, if any, statewide preparedness actions have been implemented?

- What do historic and projected trends for temperature and precipitation mean for your community?

These resources can jump-start your investigation, but to further understand how climate is affecting your community, conduct interviews with climate professionals working in your region. Check with your local or regional university to find professors working in climate and atmospheric sciences or consult your state's climatologist. Ask them to share data or speak to your community on regional climate trends and challenges.

CONSIDER CLIMATE IMPACTS TO YOUR COMMUNITY

As you learn more about climate, consider impacts to community health, safety, and welfare. Safety is a primary concern and excessive heat, wildfire, droughts, and flooding can all create significant safety issues. Hazards may affect certain populations and locations differently, but vulnerable populations will particularly benefit from planning to reduce vulnerability, and support to quickly respond to major events. Take time to consider how some of the regional climate concerns might impact safety in your community.

Direct impacts of fire and drought are well-known in the West. However, potentially significant impacts of climate trends on your local economy are not always obvious. Costs for water, energy, food, insurance, and disaster response will all be impacted by climate trends. Consider your community needs and resources and how they relate to your local climate. What does your community import or export to or from another region? What will happen to costs for agricultural products, energy, water, or other resources as these are affected by climate trends? What might happen to the recreation and tourism economy of your region?

As you consider health, safety, and welfare impacts; further engage with community stakeholders that deal with the impacts of climate constantly. Discuss findings



with community managers from environmental services, planning, transportation, public works, parks and recreation, community and economic development, fire, water, and human services. Collectively, consider how some of the long-term impacts of climate change will impact your community, and use these discussions to frame future resiliency planning efforts.

DETERMINE YOUR PLANNING HORIZON

As you start to understand regional trends and local impacts for climate change, it is important to consider your planning horizon for resiliency planning. A planning horizon is the timeline for consideration when identifying and assessing hazards, and for developing adaptation strategies. Climate impacts tend to have very long timescales, but planning processes often have well-defined and achievable goals over a much shorter period. At the local level, it is often advantageous to consider coordination with community capital investment or regulatory planning timelines. Develop a logical planning horizon for your community to use for analyzing hazards and vulnerability.

IDENTIFY AND MAP HAZARDS

A key process of resiliency planning is identifying and mapping hazards in your community. **Hazards** are the drivers that cause volatility and disruption, including things like extreme heat, drought, wildfires, and flooding. Hazards can lead to impacts like injury or death, damage to infrastructure or natural capital, and interference with stakeholder activities. Wildfire, flooding, drought, shifts in seasonal onsets, excessive heat, and severe weather events are all hazards, and how you characterize these

can be as specific as the planning process requires. Many communities may prefer to define broad, overarching hazards such as drought or wildfire, whereas others may want to incorporate exposure and context into the hazard definition, such as reduced water availability for agriculture or health effects from heat. Both the magnitude of hazards and the community context can change over time. For example, increased temperature and precipitation trends may lead to more frequency and intensity of droughts. Population growth and urban development may cause increased risk for flooding events, more urban interface for wildfire, destruction of habitats, and depleted watersheds and rivers. Create a list of hazards to map and analyze in your community, based on magnitude of risk and future community context.

As you begin the mapping process, ask if your community has a Geographic Information Systems (GIS) specialist, or partner with local academics and students working with GIS. Develop a physical or digital map of your community and create a geographic boundary for your planning process. Identify adjacent jurisdictions, groups or agencies that may be critical for regional collaboration and more meaningful results. If available, consider data for wildland urban interface (WUI) and FEMA flood zones, which are representations for current wildfire and flood hazards. However, realize that you are not going to perfectly represent all hazards on one map, and understand that many datasets do not consider future climate impacts. Also, some hazards, like excessive heat and drought, may not have useful data that matches the scale of your community. To the greatest extent possible, map out the hazards in your community, but also note that hazards may exist elsewhere in your community even if they are not mapped.

IDENTIFY AND MAP VULNERABILITY

Next, you will identify and map community vulnerability.

Vulnerability is the degree to which systems and resources are susceptible to, and unable to cope with climate hazards. Vulnerability is often described as a function of: (1) the level of exposure to a hazard, (2) the level of sensitivity to a hazard, and (3) the ability to adapt to a hazard. Vulnerability assessments are very complex and require local stakeholder knowledge, technical expertise, and an understanding of how potential impacts will affect multiple community systems at multiple scales. Worksheet 2 provides a tool to help you determine vulnerability through stakeholder engagement at a workshop. Complete Worksheet 2 to categorize community vulnerability and provide context for future adaptation strategies.

In thinking about vulnerability, consider [exploratory scenario planning](#) as a tool to help stakeholders understand how increasing disruption and volatility could affect their objectives and strategies. Scenario planning stages potential regional outcomes in a variety of different ways, with the objective of working with diverse stakeholders to uncover as many potential questions and answers as possible. Scenarios identify potential futures for increasingly powerful vectors, like wildfires or floods, and help stakeholders better visualize how different actions will affect that future, in some scenarios toward increased volatility, and in other scenarios toward community resilience.



CASE STUDY AND RESOURCES

(more examples available at www.ResilientWest.org)

CASE STUDY: [COLORADO CLIMATE CHANGE VULNERABILITY STUDY](#)

Colorado used economic impacts as a cornerstone of identifying vulnerabilities across multiple systems including ecosystems, water, agriculture, energy, transportation, recreation and tourism, and public health. By linking vulnerabilities to long-term impacts on the economy, vulnerability assessments can often avoid climate ambivalence or negative responses from climate skeptics, valuing prosperity as an end and resiliency as the means.

RESOURCES

- The [National Oceanic and Atmospheric Administration](#) (NOAA) provides free access to an archive of historical weather and climate data, with quality-controlled daily, monthly, seasonal, and yearly measurements of temperature, precipitation, wind, and excessive heat days; as well as radar data and 30-year climate norms.
- [Regional Climate Centers \(RCCs\)](#) are engaged in the production and delivery of climate data, information, and knowledge for decision makers and other users at the local, state, regional, and national levels. The RCCs that cover the West include the Desert Research Institute in Reno, Nevada and the University of Nebraska in Lincoln.

WORKSHEET 2

ASSESS AND PRIORITIZE VULNERABILITY

To complete this Worksheet, host a workshop to assess vulnerability of assets, resources, and systems. To prepare for this activity, further develop your prior map of hazards to additionally locate infrastructure, community population, business/economy, and natural and environmental systems, including subcategory data identified on the worksheet below. If you lack effective spatial data for any system, add a note to the map and verbally describe this situation at the workshop for stakeholder consideration. Now that you have hazards and community systems on your map, prepare for and host a workshop to categorize community vulnerability. Begin with participatory mapping and ask participants to determine and map additional assets, resources, and systems as necessary. Examples of these are shown below.

Example Assets, Resources, and Systems for Each Category			
Municipal Infrastructure and Operations	Community Populations	Business/Economy	Natural Environment
Water	Economically Disadvantaged	Agriculture	Hiking Trails
Waste	Racial and Ethnic Minorities	Industry	Camp Sites
Energy	Elderly	Grocery	Parks
Transportation	Homeless	Banks	Protected Areas
Communications	Chronically Ill	Healthcare	Natural Historical Sites
Education	Locally Important Populations	Retail	Forests
Public Safety		Car Repairs	Lakes and Rivers
Hospitals		Fuel/Gas Stations	Beaches and Coastlines
Hazardous Sites			Wetlands

Next, you will calculate the vulnerability of each community asset, resource, or system. Your task force will measure these qualitatively based on key criteria of exposure, sensitivity, and adaptive capacity.

1. Identify climate hazards that will have the most significant impact on your community. These may include things like excessive heat, drought, wildfire risk, flooding, or others.
2. Identify the categories and the asset, resource, or system based on your map of hazards and vulnerabilities, as well as input from stakeholders that know the community.
3. Identify the Exposure, Sensitivity, and Adaptive Capacity of each asset. Use the vulnerability scoring matrix table to identify scores based on the magnitude identified.
4. Calculate the Overall Vulnerability Score by adding the exposure, sensitivity, and adaptive capacity scores.

RESILIENT COMMUNITIES STARTER KIT

WORKSHEET 2

The worksheet below is populated with example data, and blank worksheets for you to complete are available at ResilientWest.org/resources.

After completing the worksheet, you should have a list of assets that can be prioritized by vulnerability. This will assist in identifying adaptation solutions in future efforts.

Vulnerability Scoring Matrix			
Value	Exposure	Sensitivity	Adaptive Capacity
1	Minimal (limited system contact; no past events; no people affected)	Minimal (limited damage from past hazards; limited damage expected for future hazards)	Strong (policy or safety measure ongoing or in place, strong system ability to regenerate or renew, strong disaster management program)
2	Moderate (moderate system contact; some past events; some people affected)	Moderate (limited to moderate damage from past hazards; moderate damage expected for future hazards)	Moderate (policy or safety measure ongoing or under consideration, moderate system ability to regenerate or renew, disaster management program exists, but could improve)
3	Significant (significant system contact; many past events; many people affected)	Significant (moderate or greater damage from past hazards; moderate or greater damage expected for future hazards)	Weak (no current policy or safety measure, limited system ability to regenerate or renew, disaster management program lacking)

Climate Hazard: Wildfire Risk					
Category (Infrastructure, Populations, Business, or Environment)	Exposed Asset, Resource, or System	[A] Exposure (1–3)	[B] Sensitivity (1–3)	[C] Adaptive Capacity (1–3)	(A+B+C) Vulnerability Score (3–9)
Infrastructure	Hillside Wastewater Treatment Facility	1	1	2	4
Infrastructure	Electric Substation	2	2	1	5
Populations	Sunny Brooks High School	3	1	1	5
Populations	The Pines Retirement Community	2	2	3	7
Business	Mine INC.	1	1	1	3
Business	Soaring Community Hospital	1	2	1	4
Environment	Bear Mountain National Forest	3	2	3	7
Environment	Grey Lake Community Park	2	1	1	4

CH3 EVALUATE RISK AND PRIORITIZE RESPONSES

In [Chapter 2](#), you mapped community assets, resources, and systems that are vulnerable to climate hazards. With that information, you are now ready to assess the risk that those vulnerabilities pose to your community. In this chapter, you will identify and prioritize community risks and consider appropriate responses by evaluating both the severity and likelihood of community impacts. These can combine into a scoring system that allows comparison of each vulnerable asset, resource, or system against all others. By completing this type of scoring system, you can prioritize where the most significant responses are needed in your community.

IDENTIFY COMMUNITY RISK

ESTIMATE SEVERITY OF IMPACT

For each of the hazards and vulnerabilities that you developed in [Chapter 2](#), potential impacts can affect people, infrastructure and equipment, natural capital, or operations. Part of the risk to a community is based on the severity of impact. Although impact severity can be measured quantitatively (using dollars of damage or fatalities, for example), it is often easier for resiliency planners to assess severity qualitatively on a scale.

For Worksheet 3, you will assign values for the severity of impact of each vulnerable asset, resource, or system. Impacts on people include death, injury, and illness and

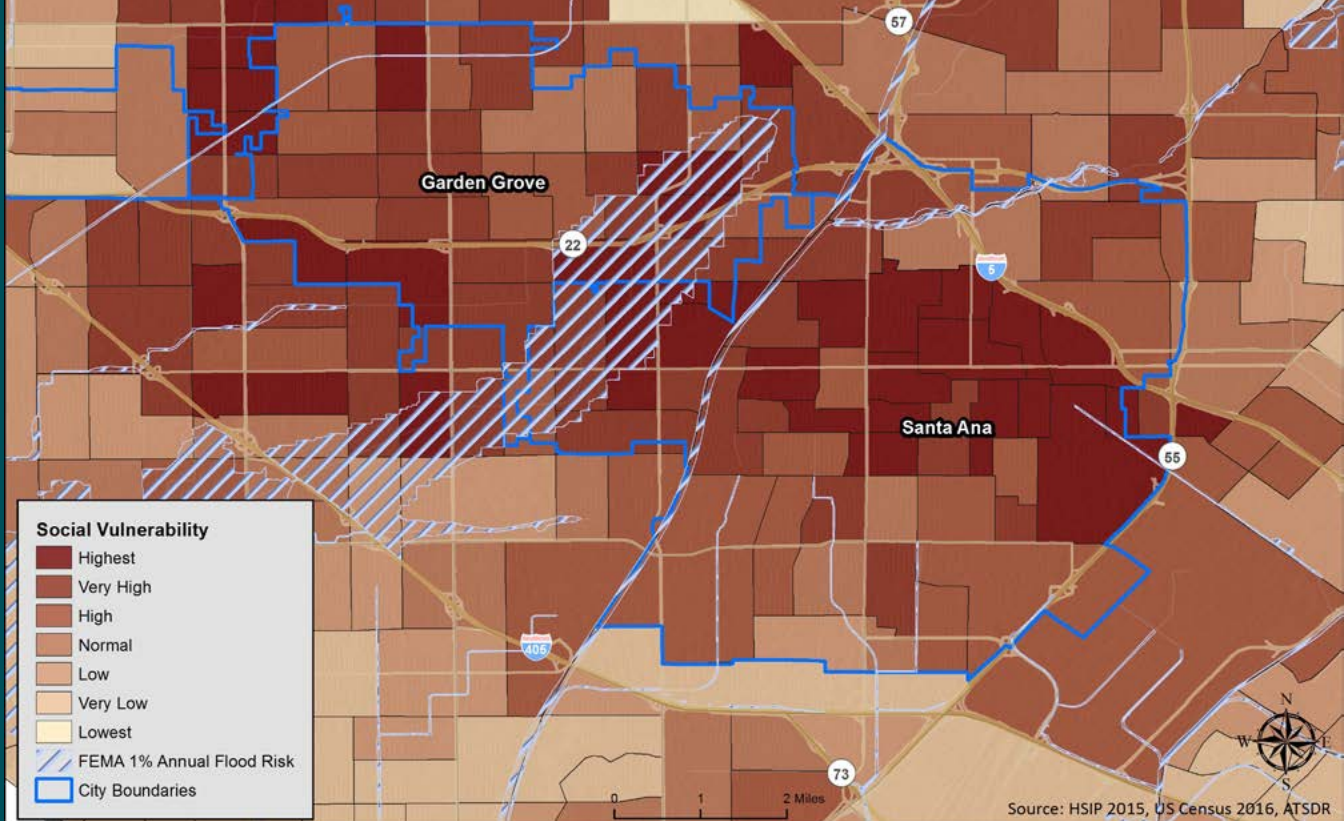
may be short- or long-term. Infrastructure impacts may include damage or destruction, even those covered by insurance. Finally, interruption of activities or operations occur where impacts cause adjustments to the time, place, or manner of that activity. When assessing impact, keep in mind the planning horizon and the scope of the study, and feel free to revisit the list of hazards if it becomes difficult to define the impacts associated with a broad hazard.

ESTIMATE PROBABILITY OF IMPACT

Next, consider the probability that the impact may occur. Probability refers to the likelihood that the relevant stakeholders or assets will experience impact of the determined severity. Note that probability is more complex than just the likelihood of the hazard occurrence, and also accounts for the exposure potential for each asset to reach the level of severity defined. Like severity, probability can be assessed quantitatively, but planners may find it easier to evaluate on a qualitative scale.

Probability should be analyzed based on the entire planning horizon. If your planning horizon is 50 years and you expect no impact for the first 25 years, but a continuous impact for the latter 25 years, then your overall probability should consider the combination over the planning horizon, which would balance as moderate or occasional probability.





DETERMINE OVERALL RISK

Traditional risk assessment combines probability and risk severity into a single, overall risk level. Worksheet 3 includes a risk matrix that combines qualitative rankings for severity and probability. Complete Worksheet 3 to identify severity, probability, and overall risk for the most vulnerable assets to each hazard; as well as the relevant stakeholders that may be involved in future responses. Your resulting score will serve as an overall risk score for each vulnerable asset in your community.

PRIORITIZE RESPONSE NEEDS

Once overall risk levels have been prepared, create one prioritized list of vulnerable assets, resources, and systems based on the numerical results, with the highest risk first. Once complete, discuss the results with the task force and consider if the resulting priorities make sense. If the task force cannot confirm the results, engage in discussions that highlight the link to community risk and develop operational definitions for new ratings that best reflect the hazard and its community impact. Update numerical scores and rankings to create a prioritized list of vulnerable assets.

Through the steps identified in Chapters 2-3, you have now completed a customized vulnerability assessment for your community where you have identified and prioritized the most significant risks. Revisit the map that you created and add the overall risk score and relevant stakeholders to each asset identified on the map. If you identified new

vulnerable assets through discussions with stakeholders, then add those to your map as well. The result should show spatially-defined priorities that can help you consider responses and adaptation actions in your community.

CASE STUDY AND RESOURCES

(more examples available at www.ResilientWest.org)

CASE STUDY: [FLAGSTAFF, ARIZONA](#) [RESILIENCY AND PREPAREDNESS STUDY](#)

The City of Flagstaff created a relative assessment framework that identified the risk ranking of various community systems based on vulnerability, a sensitivity analysis, and existing adaptive capacity. From this framework, a cumulative scoring matrix allowed the City to prioritize the most important adaptation responses.

RESOURCES

- [Ready.gov](#) provides a risk assessment process to help communities identify hazards and analyze what could happen if a hazard occurs.
- FEMA provides a [series of information and resources](#) for conducting risk assessments for various categories of risk, including drought, flood, wildfire, and others.

WORKSHEET 3

ASSESS AND PRIORITIZE RISK

You will calculate the risk to each community asset, resource, or system based upon severity and probability of impact, which combine to identify risk. Refer to your vulnerability map as needed to support your assessment. The worksheet below is populated with example data, and blank worksheets for you to complete are available at ResilientWest.org/resources.

Do this for all worksheets as appropriate:

1. Identify climate hazards that will have the most significant impact on your community. These may include things like excessive heat, drought, wildfire risk, flooding, or others.
2. Copy the categories, assets, and vulnerability score you determined in Worksheet 2 into the risk assessment and prioritization table.
3. Identify the *Severity of Impact* to each asset. Use the risk scoring matrix table to identify scores based on the magnitude identified.
4. Identify the *Probability of Impact* on each asset. Use the risk scoring matrix table to identify scores based on the magnitude identified.
5. Calculate the *Overall Risk Score* by multiplying the probability times the severity.
6. Identify relevant stakeholders that may be involved for each asset.

Risk Scoring Matrix		
Value	Severity of Impact	Probability of Impact
1	Negligible to Low (minimal injury or damage, few or no impacts on activities)	Negligible to Seldom (may occur)
2	Moderate (minor injuries or damage, degraded activities)	Occasional (Will occur regularly)
3	Severe to Catastrophic (death, loss of assets, interruption of activities)	Frequent to Continuous (will occur much or all of the time)

RESILIENT COMMUNITIES STARTER KIT

WORKSHEET 3

Climate Hazard: Wildfire Risk						
Category (Infrastructure, Populations, Business, or Environment)	Exposed Asset, Resource, or System	Vulnerability Score (1-9)	[A] Severity of Impact (1-3)	[B] Probability of Impact (1-3)	[A x B] Overall Risk Score (1-9)	Relevant Stakeholders
Infrastructure	Hillside Wastewater Treatment Facility	4	1	3	3	Stakeholder C, Stakeholder D
Infrastructure	Electric Substation	5	3	1	3	Stakeholder D, Stakeholder B, Stakeholder C
Populations	Sunny Brooks High School	5	2	2	4	Stakeholder A, Stakeholder B
Populations	The Pines Retirement Community	7	3	2	6	Stakeholder C, Stakeholder D
Business	Mine INC.	3	1	2	2	Stakeholder A, Stakeholder C
Business	Soaring Community Hospital	4	3	2	6	Stakeholder B, Stakeholder D
Environment	Bear Mountain National Forest	7	3	3	9	Stakeholder E
Environment	Grey Lake Community Park	4	1	3	3	Stakeholder A, Stakeholder B, Stakeholder C

CH4 DEVELOP AN ADAPTATION ACTION PLAN

The next step is to create a climate adaptation action plan in response to your prioritized climate risks. At its most basic level, an adaptation action plan creates goals and outlines resiliency planning actions that will reduce community risks. The most effective plans connect economic, environmental, social, and political systems. This chapter outlines a tiered approach for interconnected actions across all systems for the best outcomes. The chapter is not a “one size fits all” solution, but provides the foundational pieces to develop an effective adaptation action plan that can be customized to your community.

DEVELOP RESILIENCE GOALS

Your first step is to determine appropriate goals that will achieve your vision for a resilient community. Collaborative input from many different stakeholders is critical for developing a plan that will be embraced and utilized. Host a workshop and seek participation from all community sectors or [apply for a Resilient Communities Workshop grant](#) from Resilient Communities and Watersheds. At the workshop, seek context for these goals by briefly reflecting on earlier efforts to:

- develop a purpose statement;
- analyze and engage with critical stakeholders;
- review existing community policy frameworks;
- assess the most significant regional climate hazards;
- identify vulnerability to community assets, resources, and systems; and
- rank community risks based on probability and severity of impact.

Next, collaboratively determine a series of goals that best respond to the vulnerabilities in your community. Consider goals that promote enduring solutions to strengthen the economic, social, and environmental foundations of your community. Goals should be focused; collectively address all community systems; respond to each critical risk; respond to the needs of all stakeholders; and achieve economic, environmental, and social outcomes.

DEVELOP POTENTIAL ADAPTATION ACTIONS

Adaptation actions are specific efforts that will provide a measurable response to community risk. Examples may include things like implementing policy mechanisms, creating new partnerships, implementing education campaigns, developing increased capacity, performing targeted interventions for specific risks, or many other efforts. This starter kit provides a detailed framework for adaptation actions in two categories – policy mechanisms and new partnerships – and includes resources at the end of this chapter with examples for other types of actions.

Consider potential adaptation actions that match your community risks and resilience goals. After goals are defined at your workshop, break into small groups and ask each group to draft a series of potential adaptation actions. Seek a variety of actions that respond to all community systems including municipal infrastructure, community populations, business, and natural capital. Gather proposed actions from the small groups and then collectively discuss how each action supports community resilience goals. From this, create an initial list of potential adaptation actions.



Fuel reduction efforts to reduce wildfire risk



Climate Smart Missoula initiatives include shade shelters for heat relief and promoting riparian corridor protection to reduce flooding

POTENTIAL ACTION: IMPLEMENT POLICY MECHANISMS

Communities have many opportunities for action within their policies, codes, and ordinances but are often limited by resources and a shared vision; coordination and collaboration are essential to success. You previously researched existing community policy documents to understand the context for future efforts. You now have much more information to identify policy actions, including data from a vulnerability assessment and ongoing stakeholder interaction. Revisit your research of key policy documents from [Chapter 1](#) and, based on the goals you established, consider opportunities that may be available in policies and plans to improve community resilience. Which documents have regulatory authority and can ensure best practices are maintained and sustained?

Many communities institutionalize resilience goals and actions with a new community climate preparedness, resiliency, or sustainability plan. Other communities may integrate specific actions their comprehensive/general plan or other policies or plans. For example, a community may consider an overlay district for the WUI to reduce wildfire risk through land use controls, or could promote new measures in the emergency management plan to improve responses for major fire and flooding events. The City of Flagstaff adopted a community resolution to institutionalize resiliency as part of all City decisions, which provided resources to accomplish multiple goals.

Policy mechanisms require political will and must build and sustain public support, obtain financing, and adopt sufficient budgets for successful implementation. In some political environments, this may be a challenge. Engage with your resiliency champion as you seek policy actions and communicate how outcomes will limit volatility and disruption; improve community preparedness; and promote public health, safety, and welfare.

POTENTIAL ACTION: DEVELOP UNIQUE PARTNERSHIPS

Actions to develop new partnerships among community stakeholders can provide collaborative resources to achieve normally unattainable actions. The landscape of relevant stakeholders in your community may include non-governmental organizations, universities, municipalities, businesses, and others. Consider actions for special partnerships that can build collective capacity toward achieving your goals.

Universities often have students and faculty interested in providing education and developing, refining, or implementing actions. Non-governmental organizations promote activism and help achieve buy-in for adaptation actions. Businesses have significant stake in functioning communities and can be great partners for actions because healthy, resilient systems will improve their bottom line. Virtually all stakeholders benefit from adaptation actions for community resilience, and building diverse partnerships can provide collective impact for targeted solutions.

IDENTIFY TACTICS AND CRITERIA FOR EACH ACTION

In the previous step, you worked with stakeholders to develop goals and a series of potential actions. Now, further develop each potential action by identifying the tactics needed to achieve the desired outcome. For example, if your potential action is to reduce wildfire risk to community populations, then one tactic might be to perform wildfire risk assessment mapping. For each potential action, identify required tactics. Then, delve deeper to determine the criteria needed to complete each tactic. These criteria may include things like staff hours, cost, political will, community support, and other resources. Conditions are different for every community, and criteria can reflect customized needs and limitations. Complete Worksheet 4 to provide information about various tactics, criteria, and most importantly, the costs of inaction.

PRIORITIZE ADAPTATION ACTIONS

After you have completed Worksheet 4, gather the task force and stakeholders to assess all potential actions. Collectively weigh the metrics for each action against those for other actions to learn more about results that may occur for each, and which tactics provide the most significant return. In addition, consider how collective tactics and strategies will affect the overall context of uncertainties of your planning environment. Tactics that provide multiple benefits for plausible futures should be prioritized. Consider exploratory scenario planning to provide a customized vision of future outcomes from various scenarios.

Prioritization is important because there are never enough human and financial resources to do everything. As you weigh your needs and limitations, prioritize your actions to achieve each of your adaptation strategies. Prioritization will: (1) provide depth and context for elected officials to consider funding, (2) identify which actions require more public outreach to gain community support, and (3) provide a framework for final plan recommendations.

The best actions have broad community support, help to achieve your adaptation strategies and resilience goals, provide a framework toward a long-term successful plan, and use the least amount of resources. Based on tactics and criteria, work with the task force and stakeholders to create a prioritized list of all potential adaptation actions.

Compare this list to your resilience goals and determine the appropriate number of actions that should become part of your adaptation action plan.

Determine a final list of adaptation actions that begins with those that received priority rankings. Consider actions that are presently too costly or of lower priority as longer term or contingent strategies.

COMPLETE ADAPTATION ACTION PLAN

With established resilience goals and a final list of prioritized actions, you now have the cornerstone components for your adaptation action plan. Develop your plan as one cohesive document that includes:

- a summary of the community's climate concern ([see chapter 1](#));
- maps and vulnerability assessments ([see chapters 2-3](#));
- Resilience goals and adaptation actions ([see chapter 4](#));
- a set of tactics ranked based on your criteria, for each adaptive strategy ([see chapter 4](#));
- themes and talking points for outreach and engagement ([will occur in chapter 5](#));
- funding strategies for each adaptation action ([will occur in chapter 5](#)); and
- a set of tools and performance measures or indicators for monitoring progress ([will occur in chapter 6](#)).

Leave placeholders for parts not yet completed, and update after you complete that part of the starter kit.





CASE STUDY AND RESOURCES

(more examples available at www.ResilientWest.org)

CASE STUDY: SIERRA NEVADA CLIMATE CHANGE VULNERABILITY ASSESSMENT AND ADAPTATION STRATEGIES

The U.S. Forest Service and EcoAdapt developed adaptation strategies and actions targeted to different implementation scales in the Sierra Nevada region based on fire threats, reduction in groundwater recharge, altered snowpack, and rising temperatures.

RESOURCES

- The [US Climate Resilience Toolkit](#) provides a series of steps to resilience that allow you to prioritize and plan adaptation strategies.
- [Resilient WEST](#) is an evolving hub of tools, resources and case studies to empower western communities for resilience; including a living library of best policies, practices and plans to address today's changes and tomorrow's uncertainty.
- The [United Nations provides a Planning Toolkit for Climate Change](#), including methods for identifying what matters most in community adaptation planning.
- The Georgetown Climate Center has a repository and interactive maps of [state and local climate adaptation plans](#).

WORKSHEET 4

WEIGH PROPOSED TACTICS FOR EACH STRATEGY

Develop detailed tactics and criteria needed to achieve desired outcomes for each adaptation action. The table below provides an example of potential tactics and criteria, and is filled out as an example for a potential action to reduce wildfire risk to community populations. Refer to your vulnerability map as needed and develop this information for each potential action.

1. Identify the name of the potential action on the top line.
2. Identify a series of tactics that will lead to a successful outcome for the potential action. Order these actions by importance, with the most critical actions first.
3. For each tactic, estimate the criteria necessary to complete each tactic for things like staff hours, cost, political will, community support, and other resources. Include notes if necessary to provide context.
4. Identify the inaction outcome that may occur if this potential action is not performed; use quantitative metrics as possible.

The worksheet below is populated with example data, and blank worksheets for you to complete are available at ResilientWest.org/resources.

Potential Action: Reduce Wildfire Risk to Community Populations						
Tactics	Criteria					
	Staff Hours	Cost	Political Will	Community Support	Partners/ Resources	Notes
1. Perform Wildfire Risk Assessment Mapping (WUI areas).	80	\$960	N/A	N/A	Fire Dept. & Assessor's Office	GIS Intern (\$12/Hr)
2. Research local and/or regional wildfire policies and evaluate for necessary updates.	40	\$600	N/A	N/A	Fire Dept.	Look at neighboring community policies
3. Host workshops for staff and students at schools and daycare centers to inform and educate on Wildfire Safety Measures.	120	\$3,600	Required	Required	Fire Dept. & NFPA	Requires scheduling and coordinating w/ schools
4. Train fire/forestry staff to conduct wildfire risk evaluations around schools and daycare centers; follow up on any risk factors.	240	\$7,200	Required	Required	Fire/Forestry & NFPA	Requires scheduling and coordinating w/ schools
Inaction Outcome:	Estimated eight additional injuries over a 20-year planning horizon					Determine cost-benefit relationships

CH5 ENACT YOUR PLAN

After creating your adaptation action plan, you are now ready to take measurable steps to enact the plan. This chapter will support the forward movement of your plan with efforts to develop themes and talking points, to seek community implementation, to develop action-specific implementation strategies, to perform outreach and engagement, and to identify funding solutions.

COMMUNICATION CHECKPOINT 3: DEVELOP THEMES/TALKING POINTS

Now that you have identified your goals and adaptation actions, develop themes and talking points that will support sharing and implementation. Effectively tailored themes can promote engagement with stakeholders, which is primarily driven by *Relevance* (How does it affect stakeholders?) and *Differentiation* (What makes this cause the one to support?).

Developing a Theme: A theme should be an umbrella statement such as a plan objective. For example: “This resiliency plan seeks to reduce wildfire risk within our community.” Keep the theme broad and use it to describe the big picture aspects of the plan.

Developing Talking Points: Each theme should have multiple talking points that provide more specific details. An example of a talking point for the wildfire theme may be “Increased community planning to reduce fire hazards could reduce damage from wildfires.”

Complete Worksheets 5A and 5B to develop themes and talking points for plan implementation. In this process, reflect upon the stakeholder analysis that you completed in [Worksheet 1](#). Then, consider what kind of sustainability message is likely to resonate best in your community – economic, environmental, or social. Finally, develop themes and talking points to ensure consistent and on-point messaging that can be used throughout your implementation efforts, and that will support a comprehensive engagement strategy.

Communicating about climate change can be difficult. [EcoAmerica](#) identified the following tips to help you talk to stakeholders in your community:

- Start with People, Stay with People
- Connect on Common Values
- Acknowledge Ambivalence
- Make it Real
- Emphasize Solutions
- Inspire and Empower
- Focus on Personal Benefit
- End with your “Ask”
- Sequence Matters
- Describe, Don’t Label
- Have at Least One Powerful Fact from a Trusted Messenger
- Ditch Doom and Gloom
- Use Stories to Strengthen Engagement
- Stay Above the Fray
- Message Discipline is Critical

SEEK COMMUNITY IMPLEMENTATION

Next, share your action plan with your governing body (i.e., City/Town Council or County Commissioners) and seek approval. Your efforts to this point have likely included coordination with stakeholders that can assist in this effort. Enlist the support of your resilience champion, and perform efforts to build political will that will ease the path toward official plan adoption. As you share the plan, emphasize how the actions identified can enhance value to existing community efforts to promote health, safety, and welfare. Determine structural barriers or known opposition, and collaborate to identify solutions. Be prepared to engage in a discussion about capacity for implementation and note which components can likely be carried out by existing staff. Highlight necessary expertise, mechanisms, and tools that already exist within the community to deal with risk and uncertainty associated with climate change. Through these steps, seek governing body approval for the plan, and determine how it fits into policy and the Capital Improvement Program to expedite implementation and demonstrate meaningful results that can inform and refine future actions. Identify approval strategies that will provide the most value for plan implementation.



DEVELOP ACTION-SPECIFIC IMPLEMENTATION METHODS

After you share the action plan with your governing body, identify all feedback received and delineate an implementation plan with action-specific strategies. To manage this work, consider creating an implementation task force that mirrors the planning task force and includes stakeholders from each group. The team should organize

and communicate implementation methods to community stakeholders to ensure strategies are relevant and align with goals and actions.

EMPHASIZE THE IMPACTS OF ACTION AND COSTS OF INACTION

Chula Vista's Climate Adaptation Plan emphasized that “the cost of ‘no action’ could be more significant in the long term through public and private infrastructure damages (due to wildfire and flooding), public safety and health issues (due to extreme heat, wildfires, and poor air quality), and energy and water shortages (due to higher local demand).”

The implementation task force should review each action and determine customized implementation strategies and stakeholder involvement. Strategies should include a framework that uses community indicators and performance metrics for tracking progress, building upon the metrics already determined in previous steps for vulnerability and risk. Strategies will include tactics, critical steps, costs, and timelines for each action. Emphasize benefits and the direct and indirect impacts for each action, as well as the return on investment and cost of inaction. A direct impact is an immediate response to your effort and an indirect impact is secondary and may occur over time. For example, an action to reduce wildfire risk would have a direct impact on public safety to reduce the number of wildfires, but it could have a secondary impact benefiting public health because there will be fewer wildfires that affect air quality.

You will likely pursue some strategies for implementation with your community governing body, and others that include many different stakeholders. For the governing body, determine which actions may occur in association with ongoing community efforts and identify pathways for incorporation. Leverage applicable community tools as appropriate to influence policy, planning, and infrastructure. If you received policy approval in the previous step, you are ready to determine very specific implementation steps that can occur in step with community plans and business practices for:

- zoning rules and regulations;
- taxation and tax incentives;

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- building codes/design standards;
- public safety rules and regulations;
- issuance of bonds;
- infrastructure development;
- permitting and enforcement;
- outreach and education; and
- emergency management.

Beyond actions with the governing body, determine similar strategies for implementation of actions in partnership with other stakeholders in the community. Develop a plan to identify and harness external community resources for human capital and financial support. Provide leadership, but also encourage external stakeholders to become champions for those actions where they have expertise, capacity, and resources for implementation.

COMMUNICATION CHECKPOINT 4: PERFORM OUTREACH AND ENGAGEMENT

Advancement of implementation strategies requires significant ongoing collaboration with stakeholders that can help complete actions. Climate change is escalated by the sum of individual behaviors across the community, and more people participating in resiliency planning will improve overall community preparedness. Therefore, it is critical to incorporate effective engagement to achieve citizen consensus for sustainable resilience strategies, and to support your specific actions.

DETERMINE COMMUNICATION, OUTREACH, AND ENGAGEMENT OBJECTIVES

A critical step in implementation is outreach to the community on the plan and its implementation. To accomplish this successfully, you must bring the task force together to frame community outreach objectives. Objectives may include gaining support, providing education and awareness, discovering partners and funding, understanding any conflicting groups, and providing a voice for the community.

SELECT THE CHANNELS FOR OUTREACH

The next step is selecting a communication medium for your target audience. Be strategic in selecting communication mediums for outreach. Different audiences will be more receptive to messages from different mediums. For example, older audiences may be better targeted in newspapers, whereas younger audiences may be better targeted with social media. Use multiple communication mediums to reach all target audiences and connect to their daily lifestyle. Use unique direction for each target audience that may occur through a website with more information, a Facebook page, or a public meeting. Refer to the table below to explore some common communication mediums.

Outreach by Audience Size

Larger Audiences	Smaller Audiences
Newspapers	Public Meeting
Television	Public Forum
Radio	Focus Groups
Fact sheets	Neighborhood Meeting
Social Media	Workshops
Website	Conferences
Blogs	Webinars
Polls	Surveys
Journal and Magazines	Presentations



CONDUCT COMMUNITY OUTREACH

Community outreach is time-sensitive work and often includes interaction with critics in the community. Before you begin communications, ensure that you have ample qualified, professional staff who understand the goals of your action plan. Consider a quality control method to review messages before they go public. Small mistakes can create public relations issues that are difficult to fix, and can cost your initiative a lot of time and resources to resolve. To maintain consistent communication, the task force should develop standard talking points for public communications, which can be tailored to a specific audience. Revisit the themes and talking points created previously and tailor or expand for target audiences. Then conduct outreach and engagement activities as identified to support plan implementation.

DEVELOP A FUNDING STRATEGY

If the action plan or individual strategies are approved by the governing body, the task force can implement the measure based on available funding and pursue additional external funding sources to support long-term plans. Funding sources may include federal and state grants, private foundation grants, or other sponsorships. Funding agencies often seek applicants that can provide a framework for action based on an explicit community commitment, and action plans that have already been approved by a governing body will be more competitive.

The [Tribal Climate Change Guide](#) identifies more than 200 different funding resources for climate change projects. This guide was developed as a part of the Pacific Northwest Tribal Climate Change Project and originally designed as a research tool for tribal lands. However, the funding programs identified are available for all types of climate projects. This tool allows users to search for funding sources by geography, and results include funding organizations, program descriptions, and potential funding amounts.

In addition, identify the value that your actions will have, and then seek partnerships with other stakeholders that would benefit from those actions. For example, some actions may provide ecosystem services for more sustainable, clean water. This outcome may be of interest to utility companies, public health, forestry, game and fish or recreation agencies, other communities, or watershed organizations. Work with those groups to develop partnership funding strategies that can share resources to provide greater impact. Partnership opportunities may include universities, hospitals, healthcare organizations, insurance companies, schools, non-governmental organizations, other communities, or socially and environmentally conscious and proactive businesses.

In a best-case scenario, the plan and implementation strategies will not create a net negative impact on the community's operating budget. For example, actions with required expenditures may be offset by the identification of significant cost savings for municipal operations and the community over time. The task force can identify new cost-cutting measures and opportunities that leverage existing efforts to effectively implement adaptation actions.

COMMUNICATION CHECKPOINT 5: CELEBRATE SUCCESSES!

Take the time to publicly celebrate your progress and promote accomplishments. Use media coverage of successes as a communication tool to share the value of the action plan and to promote ongoing progress. Plan for, and promote, any successes early in the process to provide momentum. Recognize employers and other partners who are making great strides toward achieving shared goals.



CASE STUDY AND RESOURCES

(more examples available at www.ResilientWest.org)

CASE STUDY: [BOULDER COUNTY, COLORADO CLIMATE CHANGE PREPAREDNESS PLAN \(C2P2\)](#)

Boulder County staff reached out to potential supporters and opponents before the plan was released. This approach ensured that there were no surprises or roadblocks down the line in the climate adaptation planning process.

CASE STUDY: [ARIZONA EXTREME WEATHER AND HEALTH PROGRAM](#)

The Agency conducted a capacity assessment to monitor climate and health effects, which was celebrated as a success story by the American Public Health Association in 2015.¹ Success has increased momentum for the program and the agency has since expanded partnerships, developed a heat emergency communication protocol that has become embedded in policy, and developed heat illness safety toolkits for children and older adults.

RESOURCES

- EcoAmerica [provides research on American climate perspectives](#).
- The EPA provides a series of implementation strategies to [coordinate climate change responses with smart growth solutions](#).
- [Preparing for Climate Change: A Guidebook for Local, Regional, and State Governments](#) – Chapter 11: Implement your preparedness plan, University of Washington.
- Colorado's [Planning for Hazards Guide](#) provides information about how to assess a community's risk of hazards and how to implement several land use planning tools and strategies for reducing a community's risk.

¹American Public Health Association, Adaptation in Action: Grantee Success Stories from CDC's Climate and Health Program, March 2015, <https://www.cdc.gov/climateandhealth/pubs/adaptation-in-action.pdf>.

WORKSHEET 5A

DETERMINE MESSAGE FRAMEWORK BASED ON COMMUNITY

Implementation of your plan will require outreach and engagement with many different stakeholders. First, in the space below, consider what types of high-level messages are likely to resonate with the stakeholders in your community. Based on community dynamics, are stakeholders likely to respond positively or negatively to economic messages about resilience? To social messages? To environmental messages? Complete the strengths and weaknesses for each type of message below based on potential appeal to the audiences in your community. Note that your community may require a combination of more than one kind of message.

The worksheet below is populated with example data, and blank worksheets for you to complete are available at ResilientWest.org/resources.

Economic	Social	Environmental
<p>Strengths</p> <ul style="list-style-type: none"> Being fiscally responsible with tax-payer money is a hot topic for the community The cost of preventative action may be much less than the cost of reactionary response May encourage businesses to support the initiative <p>Weaknesses</p> <ul style="list-style-type: none"> Promising economic successes puts a quantifiable check on a resilience action Some benefits cannot be put in economic terms 	<p>Strengths</p> <ul style="list-style-type: none"> People want to improve their community's collective social welfare This method relies the community's compassion to build buy-in Public safety is easy for people to support since it is relatively non-partisan <p>Weaknesses</p> <ul style="list-style-type: none"> Spending money to improve social welfare is not well received in the community 	<p>Strengths</p> <ul style="list-style-type: none"> Environmental protection is easily tied to resilience planning Many people see the health of the environment as an vital to the health of their communities Environment protection supports community health through air and water quality, recreational opportunities, and many other ways <p>Weaknesses</p> <ul style="list-style-type: none"> Not everyone believes that environmental protection should be a priority Linking climate change and resiliency could turn off otherwise supportive individuals.

WORKSHEET 5B

DEVELOP THEMES AND TALKING POINTS

You will effectively plan for community engagement by developing a series of themes and talking point that identify messages that will resonate best. Potential themes may: (1) discuss your community's resiliency concern, (2) share your task force mission and goals, (3) introduce adaptation strategies, (4) promote strategy tactics, (5) encourage community input, and (6) share successes.

In the worksheet below, think of themes that you would like to communicate. Themes should take into account and identify the specific audience to which the message is tailored, and the medium and messenger that will deliver the message. After you identify the theme, write 2–4 talking points that would communicate the theme effectively to the audience you identified. Lastly, identify when you would use these talking points to engage with community members. The worksheet below is populated with example data. Complete this table using blank sheets that are available as an attachment. Repeat as necessary to develop a series of themes and talking points.

Intended Audience: General Public	Message Medium: Resilience Planning Outreach Materials (video, trifold, etc.)	Messenger: Fire Department Chief
Climate Resilience Action/Plan Theme: Our resiliency plan seeks to improve fire safety within the community.	Talking Point Background: Due to drought, more wildfires have burned in our community over the past 10 years, causing millions of dollars in damage	
	Talking Point Context: Increased community planning to reduce fire hazards and burnable materials could reduce damage from wildfires in our community	
	Talking Point Why it Matters: In implementing our resiliency plan, we would like to work with all stakeholders to develop a fire hazard improvement plan that makes sense for everyone in our community.	
	Talking Point Desired Outcome: We are committed to improving community safety through cost-efficient and effective ways to reduce wildfire hazards.	
When to engage: Prior to the initiation of the development of the Wildfire Hazard Improvement Plan.		

CH6 EVALUATE PROGRESS

Now that you have completed your action plan and started to take steps toward implementation, you have chartered a course toward community resilience. However, the journey may be a long one, and it is important to evaluate your progress and manage the process in ways that respond to successes, challenges, and opportunities along the way.

DETERMINE BASELINE FOR PERFORMANCE METRICS

Worksheet 6 helps you to determine and measure performance metrics for your plan. As you complete the worksheet, you will revisit the framework of indicators that you previously completed in Chapters 2-3. These indicators identified risk (impact severity x impact likelihood) and vulnerability (exposure + risk + adaptive capacity) for each asset, resource, and system in your community. You used these scores to prioritize adaptation actions for your plan.

These same indicators can be measured over time to show progress toward your goals and outcomes. Complete Worksheet 6 to develop a baseline framework for performance metrics of each adaptation action. Your measurements for vulnerability and risk provide a start for evaluation, but you can often add value with additional customized performance metrics. Effective metrics first identify the baseline condition at or near plan completion and then provide values that can be measured over time to show progress. The National Institute of Standards and Technology provides a range of different metric systems in [chapter 17 of the Community Resilience Planning Guide](#), and suggests including at least broad metrics for recovery times, economic vitality, and social well-being. Performance metric examples are shown in the table to the right.

As you create this system for adaptive risk management, consider ways to leverage technology with real-time monitoring or measuring systems. As one example, the City of Albuquerque is [installing moisture sensors](#) in parks and golf courses that can be used to determine water needs. Working with modern technology can not only improve your climate action plans, but can also provide a means for engaging corporate support and partnerships.

Action	Example performance metrics
Reduce wildfire risk to vulnerable populations	WUI % maintained in optimal defensive position
	Vulnerable population % educated on wildfire safety
	Building evaluations completed for vulnerable populations
Improve preparedness for drought conditions	Water use ratio per building area for each land use type
	Homeowner % educated on xeriscape principles
	Water use system % with auto leak detection
Reduce flood risk to community infrastructure	Mapping % for natural floodplains and community assets
	Building owner % educated on flood risks
	CIP Plans updated to improve infrastructure resilience

PLAN FOR ADAPTIVE MANAGEMENT

Adaptive management includes creating a process for revisiting your plan as time goes on. As you move forward, devote time and energy to regularly returning to your risk assessment and adaptation actions to make sure that information is up to date and that the assessments are still accurate. It can be helpful to determine a consistent schedule, like an annual update, as well as update triggers based on significant events or changes in the community, including new understanding of climate through improved science or more experience.

If the process is going to be valuable to the community, it must accurately and regularly report on performance metrics. Tracking progress will allow your task force to modify action plans based on measurable accomplishments that you have made. Develop a schedule for adaptive



management of your plan, with consideration of your planning horizon and other community planning processes. Your schedule may include multiple efforts at different intervals. For example, you may choose to measure and update performance metrics annually, while revisiting and performing an update to your plan less frequently.

As you report on performance metrics regularly document the status of implementation and keep the community informed of progress. Use communication mediums that correspond to the target audience whose strategies have progress to report. Within the plan, each action should have a timeline for implementation and a mechanism for evaluation, along with the person or department responsible for seeing the activity through.

MEASURE PROGRESS

A key feature of adaptive risk management is repeating certain steps at defined intervals to determine progress. You can measure progress through periodic evaluations that review the prioritized list of hazards and adaptation actions to see if the assessment still makes sense. Ratings for exposure, sensitivity, adaptive capacity, severity, and likelihood may change over time. As part of your regular evaluation process, regularly evaluate performance metrics for changes to vulnerability and risk, or other defined metrics, for each system. Re-measure the baseline performance metrics you completed in Worksheet 6 at regular intervals using the criteria previously used in chapters 2-3, or the alternative metrics you created above.

As you move forward, periodically measure status, estimated impact, and cost for each adaptation action. If possible, maintain this information online to provide transparency and to promote community engagement. Your measurement process may help to determine new hazards to add or old ones to remove. It will be particularly helpful to note when the risk changes because of an implemented adaptation action, to evaluate the overall effectiveness of the program.

Beyond the defined adaptive risk management process above, you can also measure some components of community resilience based on: (1) political or other support available in the community; (2) overall knowledge level about adaptation and resiliency measures; and (3) support for continued efforts. Traditional survey mechanisms work well for evaluating this kind of community capital.

Develop a survey to measure community capital, as well as community response to planning interventions. Seek to identify awareness, understanding, and effectiveness of planning mechanisms and the progress of implementation. Surveys should also measure general support for implementation, as well as specific funding mechanisms identified during the process. Finally, surveys should be designed to gather quantitative information where appropriate. Engage with local academics or students to develop neutral survey questions. Develop an appropriate recurring schedule (surveys often happen annually) and implement the survey. Gather and store responses digitally and, when resources are available, analyze them for useful information and trends.

COMMUNICATION CHECKPOINT 6: EVALUATE YOUR AUDIENCE, MESSAGE, MESSENGER, AND MEDIA

As you track feedback, you will learn more about your audience to enhance decision-making. Based on survey information or specific community outreach activities, consider the following over time and adjust as necessary:

- Was the target audience appropriate? Who was missing or left out?
- Were the appropriate messengers chosen to assist with outreach?
- Were the tailored messages appropriate for each target audience?
- Was the communication media appropriate for the messages and target audience?
- What improvements could be made?
- Were the objectives of the community outreach achieved? Why or why not?

ADJUST COURSE

Where appropriate, change course! Adjust the plan to meet changing needs, resources, scope, and knowledge. The need to change course can be developed through evaluation of performance metrics, survey responses, or community outreach. Strategies that do not make sense can be discarded, and strategies that do work can be emphasized. Innovative ideas and new personnel can reinvigorate the process. Never stick to a plan just because it was written down; always be willing to re-engage new stakeholders and bring innovative ideas to the table.

Removing Brownsville dam to
restore the Calapooia River



CASE STUDIES AND RESOURCES

(more examples available at www.ResilientWest.org)

CASE STUDY: ONTARIO CENTRE FOR CLIMATE IMPACTS AND ADAPTATION RESOURCES

The Ontario Centre for Climate Impacts and Adaptation Resources is a resource hub for researchers and stakeholders implementing and measuring adaptation actions in response to planning interventions.

RESOURCES

- [Learning for Sustainability](#) provides a series of checklists, articles, frameworks, and other resources on the adaptive management process.
- The [USAID Learning Lab](#) provides recommendations to develop your adaptive management framework.

WORKSHEET 6

ANALYZE PERFORMANCE METRICS

For this worksheet, you will determine and measure performance metrics for your plan. As you complete the worksheet, you will revisit the framework of indicators that you previously completed in Chapters 2-3.

1. Identify the action from your plan.
2. Insert the asset, resource, or system that was associated with the action.
3. Add a brief summary of tactics completed up to the current date.
4. Copy the baseline values calculated from worksheet 2 and worksheet 3 in the Baseline Condition row. These values should be the same as they were for those worksheets. Exposure, Sensitivity, Adaptive Capacity (Adapt. Cap), Sensitivity, and Probability should be ranked from 1 to 3. The Vulnerability Score and the Risk Score should be ranked from 1 to 9.
5. Identify alternative or additional metrics as needed. Develop these with your task force to define measurable progress toward your desired goal. Insert metrics into the Other Metrics field in the worksheet and identify the baseline condition.
6. Revisit the worksheet over time to update the current condition. Repeat the processes used in worksheet 2, worksheet 3, and when you created the baseline condition for this worksheet. Input new values in the current row. Compare the current condition to the baseline condition to show measurable progress toward resiliency goals.

The worksheet below is populated with example data. Complete this table with as many sheets as needed to develop performance metrics for each of the actions in your plan. After completing this worksheet, you should have performance metrics that you can utilize for an adaptive risk management framework.

The worksheet below is populated with example data, and blank worksheets for you to complete are available at ResilientWest.org/resources.

RESILIENT COMMUNITIES STARTER KIT

WORKSHEET 6

Action: Implement an Urban Canopy Plan to Reduce Excessive Heat Risk	Exposed Asset Resource/System	Tactics to Date: Hired landscape architect and prepared plan; seeking funding for implementation.								
	Downtown business district		Exposure	Sensitivity	Adapt. Cap.	Vulnerability	Severity	Probability	Risk	
		Baseline	3	2	2	7	3	3	9	
		Current	TBD	TBD	TBD	TBD	TBD	TBD	TBD	
			Other Metrics	Funding			Shade Canopy %			
			Baseline	\$0			15%			
			Current	TBD			TBD			
Action: Reduce Wildfire Risk to Community Populations	Exposed Asset Resource/System	Tactics to Date: Calculated and mapped the WUI; researched wildfire policies.								
	Schools and daycare centers		Exposure	Sensitivity	Adapt. Cap.	Vulnerability	Severity	Probability	Risk	
		Baseline	2	3	3	8	2	2	4	
		Current	TBD	TBD	TBD	TBD	TBD	TBD	TBD	
			Other Metrics	Training workshops			Schools above desired risk		Daycares above desired risk	
			Baseline	0			5		3	
			Current	TBD			TBD		TBD	
Action: Pursue funding and hire a Floodplain Manager to reduce flood risk.	Exposed Asset Resource/System	Tactics to Date: Applied for two grants, but have not yet received funding for hire.								
	County infrastructure		Exposure	Sensitivity	Adapt. Cap.	Vulnerability	Severity	Probability	Risk	
		Baseline	3	1	2	6	1	3	3	
		Current	TBD	TBD	TBD	TBD	TBD	TBD	TBD	
			Other Metrics	Funding			Flood Mapping		Community NFIP Discount	
			Baseline	\$0			No comm. rating system		0%	
			Current	TBD			TBD		TBD	

CH7 WHAT YOU NEED TO KNOW ABOUT DROUGHT

Drought is a period of unusually dry weather that persists long enough to cause environmental or economic impacts, such as water supply shortages or crop damage. Predictions and indicators for drought are complex and are relative to your location; a drought in New Mexico could be a wet year in Idaho.

The long-term trend in the West is for higher temperatures and reduced precipitation, which will increase drought risks over time. Hotter temperatures and longer summers will affect snowpack, rivers, streams, and groundwater resources. In particular, the Colorado River is the water lifeline of many Western cities, and drought-induced snowpack decline in Western mountain states may instigate critical water supply shortages that affect many communities.

Three different types of drought include meteorological drought, hydrological drought, and agricultural drought; which are defined below. These each occur in different ways, and you can experience one type independently of the others. For instance, earlier snowmelt may not change the total quantity of water available but can lead to earlier runoff that is out of phase with peak water demand in the summer. Thus, it is possible to have an agricultural drought in the absence of a meteorological drought.

Due to its complexities, drought affects various resources and stakeholders in different ways, including farmers, water resource managers, utilities, recreation planners, and ecosystems. Efforts to build community resilience to drought should be based on unique community conditions and the needs of impacted stakeholders and ecosystems. Many communities have prepared for the drought they experience today, but climate trends point to increased frequency and magnitude for future droughts, and few communities have effectively planned for increased risks. Many planning tools are available to build resilience to drought and the associated impact on your community.

This chapter provides an examination of drought management actions that can help improve community resilience, such as drought management plans, drought planning activities, water use strategies, and audience-tailored communications materials. These sections are further defined in the following pages: (1) Emergency Response and Monitoring, (2) Homeowner Assistance and Public Education, and (3) Planning and Regulatory Activities. Many potential actions are identified below to improve community resilience. In coordination with [Chapter 4](#) of this starter kit, consider how these actions might become part of your adaptation action plan.

Types of Drought

Meteorological Drought assesses the degree of dryness (compared to a local or regional average) and the duration of the dry period, which is highly specific to a region because average precipitation may vary considerably from place to place.



Hydrological Drought is how decreased precipitation affects streamflow, soil moisture, reservoir and lake levels, and groundwater recharge.



Agricultural Drought is when available water supplies are not able to meet crop water demands for a variety of reasons, including low precipitation, timing of water availability, or decreased access to water supplies.



RESILIENT COMMUNITIES STARTER KIT

EMERGENCY RESPONSE AND MONITORING

Planning for and managing drought requires regular monitoring of water availability and climate factors to effectively gauge the severity of drought. The following actions can help monitor the drought conditions in your community and provide emergency responses to take when drought is severe.

Take Action:

- Develop an emergency drought rating system that corresponds to your jurisdiction's water supply.
- Adopt water use best practices.
- Develop a monitoring program to identify and respond to water leaks and wasteful use.
- Establish water hauling programs.
- Provide emergency water to domestic well users.
- Implement water use restrictions during water emergencies.

HOMEOWNER ASSISTANCE, EDUCATION, AND DEMONSTRATION PROJECTS

Community action may also include providing information, publications, or technical assistance to the public to reduce water consumption, promote active and passive water harvesting techniques, and provide general information. Topics may include education or assistance for drought risks, water audits, xeriscape or native landscape design, water retention and reuse systems, green infrastructure, and public outreach demonstration projects such as water-wise gardening.

Take Action:

- Add drought and water conservation tips to your community website and/or water bill.
- Supply educational materials on drought, water supply, and water conservation to property owners.
- Provide materials and assistance to homeowners to get leaks fixed and to reduce water waste in the community.
- Adopt native plant ordinances and landscaping codes or guidelines.

- Develop a drought public education campaign that includes long-term and short-term strategies.
- Create a water-wise demonstration garden and/or xeriscape garden.
- Provide a list of drought-tolerant plants to residents.



PLANNING AND REGULATORY ACTIVITIES

Creating community resilience involves implementing measures to best mitigate the impact of drought on your community. Regulations that affect drought exist at multiple levels, including cities and counties. Planning and regulatory activities may include drought management plans, water restrictions, and landscaping and building codes; as well as other laws and regulations to promote your community's adaptive capacity. Many different tools are available to reduce your susceptibility to drought and to minimize any associated negative health, safety, and economic impacts on your community. As you develop your adaptation action plan, consider how the following actions may support resilience in your community.

Take Action:

- Coordinate a regional drought management task force made up of City and County staff, additional stakeholders, and experts to work on water and drought issues.
- Create a drought management plan.
- Adopt watering restrictions that include seasonal and time of day limits for outdoor water uses including landscaping, community use recreational turf areas, vehicle and equipment washing, fountains, misting systems, or other uses.

RESILIENT COMMUNITIES STARTER KIT

- Adopt native plant landscape ordinances and codes or guidelines for construction.
- Adopt conservation provisions for golf course irrigation.
- Adopt an emergency water conservation ordinance.
- Adopt regulations for man-made lakes and other water features.
- Research and, if appropriate, develop drought surcharge rates.
- Create a monetary penalty system for water waste during high drought times.
- Develop incentives and rebates for residents to reduce water consumption, replace existing non-water-efficient appliances, and even replace non-native vegetation such as grass.
- Offer free or discounted water-use audits for property owners.

CASE STUDIES AND RESOURCES

(more examples available at www.ResilientWest.org)

CASE STUDY: [CALIFORNIA WATER AWARENESS CAMPAIGN](#)

The California Water Awareness Campaign is led by organizations throughout California to heighten public awareness about the conservation, supply, quality, and distribution of water.

CASE STUDY: [DENVER WATER OUTDOOR WATER USE RESTRICTIONS](#)

Denver Water has adopted a Drought Response Plan to address drought based on four defined levels of drought severity. The basic response to a Stage 1 drought is voluntary; Stage 2 drought results in mandatory restrictions; Stage 3 drought imposes prohibitions on lawn watering; and water rationing stems from Stage 4 drought.

CASE STUDY: [LOS ANGELES COUNTY DROUGHT-TOLERANT LANDSCAPING CODE](#)

Minimum standards for using drought-tolerant and native plants that require minimal use of water are incorporated into codified landscape requirements for appropriate materials based on the region's climate and nature of use.

CASE STUDY: [CITY OF TUCSON EMERGENCY WATER CONSERVATION ORDINANCE](#)

Tucson enacted an Emergency Water Conservation Ordinance in 1995, giving the council, and mayor the authority to declare a water emergency and to implement mandatory water conservation measures targeting nonessential uses.

RESOURCES

- [The National Drought Mitigation Center](#) (NDMC) is the go-to resource for drought planning including introductory information on key concepts around drought, a list of state and local drought plans to review, and a Community Guide to Drought Preparedness.
- The [US Drought Portal](#) provides data, maps, tools, and resources about drought conditions and dealing with the impacts of drought.
- The [US Drought Monitor](#) is a national collaborative effort that provides a weekly map of drought conditions for regions in the United States.
- The [Colorado Guidelines to Develop a Drought Management Plan](#) provides community pathways to create policies in response to drought.

CH8 WHAT YOU NEED TO KNOW ABOUT WILDFIRE

Wildfires are a normal process in many natural landscapes and plant communities; and can benefit forests and ecosystems. However, rising temperatures, prolonged drought, reductions in spring snowpack, bark beetle infestations causing die-offs, and less soil moisture contribute to larger, more frequent wildfires in the West that can have damaging impacts for communities. Over time, the frequency of wildfires has increased dramatically in the West, and there are currently seven times more large fires annually than occurred in the 1970's. Community firefighting and disaster budgets are often heavily stressed by wildfires.

One way for communities to analyze wildfire risk is to look at the wildland-urban interface (WUI), which is the zone where the built environment meets, or is within forested lands. Growing populations, particularly in rural communities, often push new development farther into the WUI. Along with climate-induced increases in wildfire frequency, this poses significant risks to people and property.

Many communities are effectively prepared for today's wildfire risks, but very few have considered future changes in risk based on long-term climate impacts. As a result, readiness for future climate-driven wildfire threats is generally very low in the West. However, many planning tools are available to build community resilience toward these future risks.

This chapter provides an examination of wildfire management actions and strategies that can help improve community resilience, such as wildfire protection plans, fuel reduction strategies, and audience-tailored communications materials. These sections are further defined in the following pages: (1) Wildfire Risk Assessment and Mapping; (2) Homeowner Assistance, Education and Training, and Demonstration Projects; and (3) Planning and Regulatory Activities. Many potential actions are identified below to improve community resilience. In coordination with [Chapter 4](#) of the starter kit, consider how these actions might become part of your adaptation action plan.

WILDFIRE RISK ASSESSMENTS AND MAPPING

Risk Assessment Mapping is a tool for communities to show where the highest-risk parcels and assets are located. Many U.S. states have developed risk assessment maps. Assessments at the regional, state, and county levels are used to target high-risk areas for intervention. Current intervention practices are based on GIS data using remote sensing and fire behavior models.

Take Action:

- Rank the assets that are most vulnerable and map the findings.
- Perform vulnerability assessment of community WUI assets using inventory of assets in WUI.
- Research local and regional wildfire policies/safety measures to educate and raise awareness.
- Form an action and implementation plan.
- Train fire/forestry staff to conduct evaluations around homes by taking the National Fire Protection Association's (NFPA) Assessing Wildland Fire Hazards in the Home Ignition Zone seminar.
- Use NFPA's sample Home Ignition Evaluation Form to assess and reduce the risk at sites in the WUI.



HOMEOWNER ASSISTANCE, EDUCATION AND TRAINING, AND DEMONSTRATION PROJECTS

Community action is necessary and important when managing wildfire risk. Homeowner assistance includes evaluating individual homes for debris disposal that provides fuel for wildfires. Education and training includes wildfire curriculum for K-12 classrooms, work training, educating the public and fire crews on different management strategies, and community meetings that discuss issues related to wildfire. Demonstration projects provide homeowners with an opportunity to see fuel treatment in a landscape like their own, presenting an example of the best way to create defensible space around a home.

Take Action:

- Encourage homeowner participation in the national Firewise Communities/USA® Recognition program.
- Provide wildfire information and homeowner safety tips on your community website.
- Develop a public health information program related to wildfire smoke.
- Establish an education and volunteer program to create defensible space around homes or businesses.
- Offer WUI homeowners a form to self-assess their vulnerability to wildfire risks.
- Offer publications that promote hazard reduction, fire protection/safety, and fire-resistant landscaping.
- Train fire crews to fight wildland fires as well as structure fires.
- Coordinate a regional wildfire task force made up of City and County staff, additional stakeholders, and experts.
- Offer demonstration projects to provide examples of fuel treatment for homes, businesses, and landscapes.
- Organize a WUI fire summit or conference.

PLANNING AND REGULATORY ACTIVITIES

Creating community resilience to wildfire could involve efforts to prevent, manage, and recover from wildfires. As your community reduces the vulnerability of people and infrastructure to wildfire, you will improve community health, safety, and welfare outcomes. Recovery programs are important because individual wildfires are very difficult to predict and may still occur even if mitigation efforts are created. Recovery efforts may include supporting vulnerable populations, helping those displaced from their homes, or rebuilding property and infrastructure.

Planning and regulatory activities may include community wildfire protection plans, zoning ordinances, subdivision regulations, and building and fire codes. Many tools can minimize wildfire damage and associated negative health, safety, and economic community impacts. As you develop your adaptation action plan, consider how the following actions may support resilience in your community.

Take Action:

- Develop a community wildfire protection plan.
- Hire a wildfire protection coordinator.
- Adopt model development standards in the WUI that require creation and maintenance of defensible space, fire-resistant landscaping, screens on all chimneys and vents, ignition-resistant or non-combustible roofing and building materials, access for emergency vehicles, water supply for fire suppression, and multiple escape routes.
- Adopt fuel reduction strategies on public and private land in the wildland urban interface.
- Conduct regular controlled burns or Hazard Reduction Burning (HRB) burns to reduce wildfire risk and enhance natural habitats.





CASE STUDIES AND RESOURCES

(more examples available at www.ResilientWest.org)

CASE STUDY: [PARK COUNTY, MONTANA, COMMUNITY WILDFIRE PROTECTION PLAN](#)

In 2006, Park County completed a Community Wildfire Protection Plan (CWPP) that meets the requirements of the federal 2003 Healthy Forests Restoration Act. The plan includes maps of the wildland urban interface, fire districts, and fire-risk maps based on historical fire starts, population density, structural density, vegetation, weather, slope, and aspect. The section on structural ignitability focuses on what homeowners can do to reduce risks on their properties.

CASE STUDY: [SANTA FE COUNTY, NEW MEXICO, WILDLAND URBAN INTERFACE CODE](#)

The Wildland Urban Interface Code provides special regulations to reduce fire occurrence, limit threats to life and property, and provide emergency access in the WUI.

CASE STUDY: [FIREWISE GARDEN IN BOISE, IDAHO](#)

The Firewise Garden, located within the Idaho Botanical Gardens, has over 300 native and non-native fire-resistant plants. The garden was developed in partnership with the Bureau of Land Management, College of Western Idaho's Horticulture Program, and the Idaho Botanical Garden.

RESOURCES

- The [Community Wildfire Protection Plan \(CWPP\) Handbook](#) provides communities with a step-by-step guide to developing a community wildfire protection plan.
- The [National Fire Protection Association \(NFPA\) Standards](#) provide community guidelines for new development in wildfire risk areas.
- The [Fire Adapted Communities Learning Network](#) provides a Self-Assessment Tool to help communities assess their level of fire adaptation and capacity to live safely with fire over time.
- The Missoula, Montana [Summer Smart Program](#) develops goals to help the community thrive amid increasing summer wildfire, smoke, and heat by helping citizens be physically, mentally, and economically healthy and resilient.
- The [Firewise Communities/USA® Recognition program](#) empowers neighbors to work together to reduce their wildfire risk through networks that prepare and protect their homes against the threat of wildfire.

CH9 WHAT YOU NEED TO KNOW ABOUT FLOODING

Every community in the Intermountain West experiences flooding differently depending on their location, development patterns, infrastructure, vegetation, and level of preparedness. Communities also have different triggers as to when they will experience flooding. For some communities, a strong storm could overwhelm the existing stormwater infrastructure enough to cause flooding, whereas other communities may only experience flooding if there are contributing factors such as a burn scar from a wildfire. In addition, climate trends in the West generally indicate flood events are less likely to occur each year but are more likely to cause severe impacts. Individual communities should determine which factors contribute to their flood risk and identify the appropriate scope of their local flood management efforts.

Many communities are part of the National Flood Insurance Program (NFIP), for which they must meet certain guidelines for flood preparation. NFIP planning efforts delineate areas that have a 1% chance of being flooded in a given year, also known as 100-year flood zones. The NFIP designates Special Flood Hazard Areas (SFHAs) where the purchase of flood insurance is required. Natural floodplains may extend well beyond the NFIP-designated SFHAs, so communities should prepare for flooding in all locations. Although the NFIP provides means to protect property, communities must also consider the social and health

impacts associated with flooding. These impacts can be addressed through a proactive approach to floodplain management, which often requires collaboration across multiple departments within a single community.

If your community is already a member of the NFIP and its Community Rating System (CRS), then you likely are already doing many of these actions. In addition, if you are a part of the CRS, your community can get “credit” for going above and beyond the NFIP minimum requirements. This “credit” can provide additional discounts on your community flood insurance premiums, among other things. Evaluate the actions and strategies your community is already implementing, and those that are left to implement.

This chapter provides an examination of management actions typically found in Flood Management Plans, flood planning activities, and audience-tailored communications materials. These sections are further defined in the following pages: (1) Flood Risk Assessment and Mapping; (2) Emergency Response, Management, and Recovery; (3) Homeowner Assistance and Public Education; and (4) Planning and Regulatory Activities. Many potential actions are identified below to improve community resilience. In coordination with [Chapter 4](#) of the Starter Kit, consider how these actions might become part of your adaptation action plan.



FLOOD RISK ASSESSMENT AND MAPPING

Floodplains in the West are typically associated with rivers or valleys. Riverine floodplains are often flat, and were once deemed as prime development areas before flood cycles were well understood. A natural floodplain does not always align with the SFHAs that are mapped by FEMA. Therefore, it is important that communities fully understand and identify their local floodplains. This can be accomplished by mapping natural areas around rivers and washes.

However, across the country, continued growth pressure has pushed development out of the urban core and into hazardous areas, such as the floodplain. The more people that live in the floodplain, the more people are at serious risk when flooding occurs. Growth can also remove natural infiltration areas, further stressing water management systems. In addition, critical infrastructure such as wastewater treatment plants should avoid flood-prone areas. In some cases, critical infrastructure has been in place for decades and may pre-date modern floodplain management practices.

Risk assessment and mapping helps determine what services and planning steps are needed, and on what scale they are needed, to reduce vulnerability. In addition, implementing development standards that reduce the impacts of urbanization and create development patterns that preserve the natural functions of floodplains decrease the likelihood of worsening flood impacts resulting from growth.

EMERGENCY RESPONSE, MANAGEMENT AND RECOVERY

A flash flood can be difficult to prepare for because it can happen very quickly after a rainfall event, or, in some cases, following a sudden release of water held by an ice or debris jam. Effective planning makes a tremendous difference in the efficacy of emergency response to these types of events. Other critical factors include communication, both with emergency responders and the public, and a detailed flood safety plan. After a flood event, it is critical to have a plan in place to assist with recovery and to rebuild what was damaged or destroyed. The following actions can help ensure that your community can withstand a flood emergency.

Take Action:

- Review existing emergency plans, especially to look for potential communication issues and permanent evacuation measures.
- Set up a flooding/severe weather alert system through different media including news, radio, Internet, and cell phones.
- Schedule regular practice drills and tests of communication systems.
- Establish regular communication with the public on weather issues.
- Develop a plan, or programs, for recovery in the event of a flood.
- Thoroughly document flood events and the aftermath to identify potential plan updates.



HOMEOWNER ASSISTANCE AND PUBLIC EDUCATION

Few Americans believe their home is at risk of flooding, but most Americans have taken at least one step to reduce their flood risk, typically citing a desire to keep themselves and family members safe. Homeowners can be motivated to take these steps through regulations, information, and financial assistance.

Take Action:

- Educate the community about the flood warning and alert system.
- Provide resources to educate residents about how to plan for and recover from a flood event.
- Identify potential community leaders to participate in a community-based initiative.
- Regularly update and enforce septic and well codes to prevent sewage backups.
- Regularly evaluate building codes in conjunction with flood risk information to ensure that homes are built at sufficient elevation and have appropriate drainage facilities.
- Create a guide to familiarize homeowners with sources of funding for flood infrastructure and planning projects.

PLANNING AND REGULATORY ACTIVITIES

Creating community resilience to flooding involves implementing measures to reduce flood risks for critical resources, to manage the impact of floods, and to recover from flood events. The goal of flood management efforts is to reduce susceptibility to flood damage and minimize social and health impacts on the community.

Even with flood management plans and systems in place, floods will still occur, and therefore effective recovery after a flood is critical. Recovery efforts include helping those displaced from their homes and rebuilding property and infrastructure. Planners should document the flood events that have occurred in their community to understand their vulnerabilities and improve their planning efforts for future flood events.

The first step in developing flood resilience is identifying high-risk areas and vulnerable assets in those areas. Traditional management efforts have focused on elevating structures located in SFHAs for the primary purpose of reducing property damage. However, emerging strategies such as green infrastructure (also known as low impact development) have additional benefits such as storm water management, water quality controls, mitigation of pollutants, and habitat protection.

Other planning and regulatory activities include flood safety plans, zoning ordinances, subdivision regulations, flood proofing activities, and building codes; as well as other laws and regulations on municipal, county, state, and federal levels. Activities should encourage the concept of “Sponge Cities” and how they can provide green or passive solutions that are faster and less expensive to implement. Leveraging both traditional and emerging management measures can maximize resilience and improve overall quality of life for people and aquatic life. As you develop your adaptation action plan, consider how the following actions may support resilience in your community.

Take Action:

- Restrict development in high-risk zones for flooding, especially of critical structures and residential areas.
- Ensure that flood proofing methods, such as dikes, dams, and levees, are adequately maintained and complemented by appropriate flood effect standards.
- Plan for relocation of essential city services and infrastructure out of floodplains.
- Designate open space or conservation areas along river corridors and in other flood conveyance areas.
- When appropriate, remove structures or purchase property within a high-flood-hazard area.
- Adopt building and construction standards such as floodproofing and elevating structures.
- Include green infrastructure in development standards.
- Utilize “grey” infrastructure such as bridges, culverts, channels, and canals where green infrastructure is ineffective in context.



CASE STUDIES AND RESOURCES

(more examples available at www.ResilientWest.org)

CASE STUDY: [NORMAN, OKLAHOMA FLOOD HAZARD ORDINANCE](#)

The City of Norman's Flood Hazard Ordinance promotes land conservation to provide flood storage and improve water quality through natural filtration, while providing habitat for wildlife. The ordinance mandates that all portions of lots and parcels located within the floodplain and not part of an existing building envelope shall be permanently protected as open space.

CASE STUDY: [SCOTTSDALE INDIAN BEND WASH GREENBELT](#)

The Indian Bend Wash Greenbelt project transformed a serious flooding hazard into one of the area's top recreational areas with green flood control measures that also provided parks, lakes, and recreational paths.

RESOURCES

- The [FEMA Flood Map Service Center](#) provides access to flood risk maps across America.
- The EPA provides [Green Infrastructures Design Standards](#) that provide the greatest benefit to water resources and the community.
- The FEMA [Community Recovery Management Toolkit](#) helps communities following a disaster to assess local needs, carry out a recovery planning process, and determine projects to support the community's future vision and priorities.
- FEMA provides grant funding for: hazard mitigation projects to reduce risk to people and structures, post-disaster reconstruction and resilient rebuilding, preparing flood mitigation plans, and implementing programs and projects to reduce future flood losses. Resources are available for the [Pre-Disaster Mitigation Program](#), the [Hazard Mitigation Program](#), and the [Flood Mitigation Assistance Program](#).
- The [California Sample Flood Safety Plan](#) provides templates for flood safety and emergency response plans.
- The State of Colorado has established emergency preparedness communication through its [ReadyCOLORADO](#) website including social media outreach, status updates, and preparedness plan examples.
- In California, [Integrated Regional Water Management](#) plans take a regional approach to identify and implement water management and sustainment solutions to achieve social, environmental, and economic outcomes by leveraging community and local stakeholders.
- The Colorado Water Conservation Board provides a [community regulatory template](#) that provides for critical facilities (essential services, hazardous materials, at-risk populations, and vital to restoring normal services) to be regulated to a higher standard than other facilities including increased free board requirements.

GLOSSARY OF TERMS

ADAPTIVE CAPACITY

Adaptive capacity is the ability of a person, resource, system, or community to effectively adjust and re-adjust as conditions shift and change, such as a more unpredictable climate.

ADAPTIVE RISK MANAGEMENT

A system for measuring, monitoring, and evaluating actions to manage risk; and then changing course as needed. An adaptive risk management system incorporates learning into mechanisms to support future decisions.

CLIMATE

Climate is usually defined as the “average weather,” or more rigorously, as the statistical description in terms of the mean and variability of relevant quantities over a period of time ranging from months to thousands of years. The classical period is three decades, as defined by the World Meteorological Organization. These quantities are most often surface variables such as temperature, precipitation, and wind.

CLIMATE ADAPTATION

Climate adaptation refers to the ability of a system to adjust to climate change (including climate variability and extremes), to moderate potential damage, to take advantage of opportunities, or to cope with the consequences.

CLIMATE CHANGE

Climate change refers to the shifting in measures of long-term averages for weather and may include trends for temperature, precipitation, humidity, wind, and seasons. Climate change affects natural ecosystems, human economies, and the cultures that depend on them.

CLIMATE HAZARD

Climate hazards are drivers that may cause negative impacts, including things like extreme heat, drought,

wildfires, and flooding. Hazards can lead to injury or death, damage to infrastructure or natural capital, and interference with stakeholder activities.

CLIMATE RISK

For climate, risk identifies the level of impact of climate hazards for a community, system, population, resource, or asset. Climate risk is often defined as a function of the level of severity caused by a climate hazard and the likelihood of that hazard causing impact.

COMMUNITY WILDFIRE PROTECTION PLANS

Local wildfire protection plans can take a variety of forms, based on the needs of the people involved in their development. Community Wildfire Protection Plans may address issues such as wildfire response, hazard management, community preparedness, structure protection, or all of the above.

DROUGHT

A drought is a period of unusually dry weather that persists long enough to cause environmental or economic problems, such as crop damage and water supply shortages.

DROUGHT TOLERANT PLANTS

A drought-tolerant/resistant plant uses a survival mechanism, such as defoliating or going dormant, to survive abnormally dry conditions, but it needs moisture to resume its normal lifestyle (flowering, setting seed, looking great).

EXPLORATORY SCENARIO PLANNING

Planning tool that involves the development of a series of alternate, plausible futures that respond to driving forces of change and trends affecting the landscape – ranging from climate change, to population growth and other demographic changes, and changes in the economic use of land over time.

RESILIENT COMMUNITIES STARTER KIT

FIRE RESISTANT PLANTS

Fire resistant plants are those that are less susceptible to wildfire. Plants with larger, thicker leaves are slower to ignite in fires. Plants with watery saps are chemically less volatile than plants with resinous sap. While no set of plant characteristics can eliminate fire risk, fire-resistant plants typically have some minor flammability resistance.

GLOBAL WARMING

A gradual increase in the overall temperature of the earth's atmosphere generally attributed to the increased levels of carbon dioxide, chlorofluorocarbons, and other pollutants. Global warming is one type of climate change.

GREEN INFRASTRUCTURE (ALSO KNOWN AS LOW IMPACT DEVELOPMENT)

Approach to water management that protects, restores, or mimics the natural water cycle through designed and built systems that favor use of green or softer materials, rather than heavy infrastructure. In many cases, green infrastructure can be superior to gray infrastructure for economic, social, and environmental outcomes.

INTERMOUNTAIN WEST

The Intermountain West, or Intermountain Region, is a geographic and geological region of western North America, in the Western United States. It is located between the Rocky Mountains on the east and the Cascade Range and Sierra Nevada on the west.

PRESCRIBED FIRE (ALSO KNOWN AS CONTROLLED FIRE)

Prescribed fire is the knowledgeable and controlled application of fire to a specific land area to accomplish planned resource management objectives or to reduce the risk of a catastrophic wildfire. These fires are managed in such a way as to minimize the emission of smoke and maximize the benefits to the site.

RESILIENCE/RESILIENCY

The capacity of a system to absorb disturbance and reorganize while undergoing change to retain essentially the same function, structure, identity, and feedback; with minimum damage to social well-being, the economy, and the environment.

URBAN HEAT ISLAND

An urban area that is measurably hotter than surrounding rural areas due to human activities and built infrastructure.

VULNERABILITY

Vulnerability is the degree to which a system is susceptible to, or unable to cope with, adverse effects of climate hazards. Vulnerability is often described as a function of: (1) the level of exposure to a hazard, (2) the level of sensitivity to a hazard, and (3) the ability to adapt to a hazard.

WATER CONSERVATION

Water conservation encompasses the policies, strategies, and activities to manage water as a sustainable resource, to protect the water environment, and to meet current and future human demand.

WEATHER

Weather reflects daily conditions of the atmosphere at a given location and may include temperature, precipitation, humidity, wind, and other phenomena.

WILDFIRE

A wildfire, or forest fire, is a large, uncontrolled fire that can burn through brush and forest, with the possibility of endangering homes and other structures in surrounding communities. A wildfire is unplanned, unpredictable, and dangerous.

WILDLAND FIRE

Any non-structure fire that occurs in vegetation and natural fuels. Wildland fire includes both prescribed fires and wildfires.

WILDLAND URBAN INTERFACE

Wildland urban interface (WUI) is defined as the area where homes are built near or among lands prone to wildfire.

XERISCAPE (XERISCAPING)

Xersiscape (also known as xeriscaping) is a style of landscape design requiring little or no irrigation or other maintenance, often used in arid regions.



The **Resilient Communities Starter Kit** is a guide for communities that want to tackle the impacts of climate change but don't know where to begin. The kit provides a road map of actions that Intermountain West communities can take to prepare for increased wildfire, drought, flooding, and other extreme weather events. Communities can choose from among a broad spectrum of strategies to fit their unique needs.

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