

Guide to Building Community Climate Resilience



By Mary Jane Maxwell, Ph.D., and Hannah Lopez

April 2022

Table of Contents

I. Introduction2

What Is a Climate Resilience Plan?.....5

2. Four Steps to Creating the Climate Resilience Plan.....7

Step One: Build the Case for a Climate Resilient Plan.....7

Public Engagement Strategy7

Step Two: Assess and Identify Climate Trends and Hazards10

Assess Vulnerability and Risk12

Reflect and Recommit14

Step Three: Create the Climate Resilience Plan15

Step Four: Implement, Monitor, and Reassess.....17

3. How WBD Can Help.....20

Sources27

Endnotes.....28





1. Introduction

Communities that adopt climate adaptation initiatives are better able to reduce climate-related impacts and the long-term costs of responding to climate change events.

After a record-breaking rainfall event and flash flood in 1997, the city of Fort Collins, Colorado, adopted its first Climate Action Plan. Soon after, the city became the first in the nation to receive a Federal Emergency Management Agency (FEMA) Pre-Disaster Mitigation Grant.¹ Fort Collins used the funds to improve its stormwater management systems and to preserve and restore open spaces in the floodplain.

When the next catastrophic storm arrived in 2013, there was minimal damage.

Today, Fort Collins has a Class 2 Community rating under the FEMA [Community Rating System](#). Of the more than 1,500 participating communities in the U.S., only nine have Class 1 or 2 rating, making the **city government and its residents eligible for a 45 to 40 percent (respectively) discount on flood insurance premiums**.

In 2020, policyholders in Fort Collins saved [an average of \\$676](#) per annum with the Special Flood Hazard Area premium discount.²



Lessons Learned from the 1997 Flash Flood in Fort Collins

Damage from the 1997 flash flood in Fort Collins, Colorado could have been worse.

The flood was, beyond a doubt, devastating. Losses included:

- Five lives
- Over 200 homes
- 1,500 homes and businesses damaged
- More than \$200 million in property losses

But because of the political will and foresight of Fort Collins and its people, in the early 1990s the city invested \$5 million in flood mitigation measures. Officials estimate those early preventative measures saved lives, homes, and the city coffers between \$2.7 to \$5.5 million just for this single flood event. Those savings prompted the city to create its first Climate Action Plan.

Catastrophic floods like the one in Fort Collins are increasingly severe due to climate change. Besides exacerbating existing vulnerabilities, climate change is creating new risks that affect human health, safety, and economic growth. These climate-related hazards include:

- Increased severe heat events
- Wildfires
- Droughts
- Heavy rains
- Floods
- Reduced snowpack
- Rising sea levels

Climate-related risks will continue to affect ecosystems, water supplies, and air quality.

Substantially reducing greenhouse gases can decrease the most severe impacts of climate change, but **global warming will continue**, especially at the world's current and predicted rate of emission reductions.³ While efforts at the global level to reduce greenhouse gasses remain critical, **it will fall to local governments to meet the immediate needs of their citizens who face the brunt of climate change and prepare for future climate-related challenges.**

Many cities and towns have adopted climate change plans with mitigation initiatives to reduce greenhouse emissions. But **communities that adopt a climate plan with adaptation initiatives are better able to reduce climate-related impacts and the long-term costs of responding to climate change events – they are more resilient to a changing climate.**

At WBD, we help small and medium-sized municipal governments create climate plans that its residents will support. We understand the difficulties

“The impacts of global climate change are already being felt in the United States and are projected to intensify in the future – but the severity of future impacts will depend largely on actions taken to reduce greenhouse gas emissions and to adapt to the changes that will occur.”

[Fourth National Climate Assessment, November 2018](#)

city officials face when undertaking this endeavor – namely, where to begin, what tools are needed, and how to fund it. As part of our strategic advisory services, WBD has developed a holistic, four-step approach to help communities develop and implement a **Climate Resilience Plan (CRP)**. We recommend actions do more than reduce the concentration of greenhouse gasses, climate change **mitigation**, rather we emphasize actions that reduce the impact of climate change – climate change **adaptation**.⁴

Our communication strategists are key; they work closely with city officials to engage the whole community when developing and launching a climate resilience plan. While our [Certified Climate Change Professionals \(CC-P\)](#) obtain or create climate vulnerability assessments and corresponding strategies to mitigate risks, WBD's grant

specialists secure federal awards and funding to offset costs. Throughout the entire planning and implementation process — generally 12 to 24 months — our full range of strategic services provide communication, administrative, and technical support.

The **WBD Guide to Building Community Climate Resilience** illustrates how our strategic advisors

and climate change professionals can help communities develop and implement a CRP that offers a wider range of benefits, such as decreased traffic and congestion, improved air quality, reduced property and infrastructure damage from climate change events, improved health, better access to parks and green spaces, job creation, and cost savings through energy efficiency projects and risk management.



The Current State of the Climate

"It is unequivocal that human influence has warmed the atmosphere, ocean and land. Widespread and rapid changes in the atmosphere, ocean, cryosphere and biosphere have occurred.

Human-induced climate change is already affecting many weather and climate extremes in every region across the globe. Evidence of observed changes in extremes such as heatwaves, heavy precipitation, droughts, and tropical cyclones, and, in particular, their attribution to human influence, has strengthened since the Fifth Assessment Report [2014].

Global surface temperature will continue to increase until at least mid-century under all emissions scenarios considered. Global warming of 1.5°C and 2°C will be exceeded during the 21st century unless deep reductions in CO₂ and other greenhouse gas emissions occur in the coming decades."

[Intergovernmental Panel on Climate Change: Sixth Assessment Report](#). November, 2021.

What Is a Climate Resilience Plan?

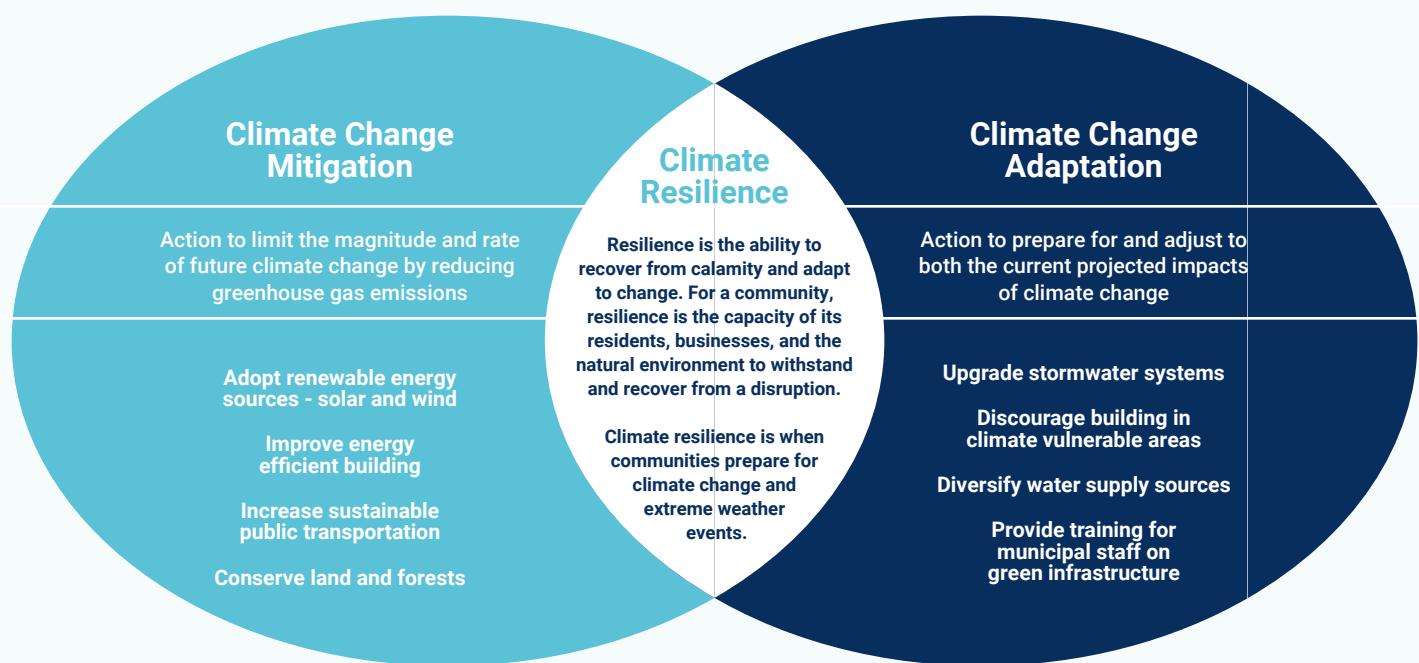
Most community Climate Action Plans call for strategies and initiatives a city can take to reduce greenhouse gas emissions. **A Climate Resilience Plan**, on the other hand, goes beyond reducing emissions and includes the environmental, socio-economic, and health implications related to climate change. As a result, communities can become more **climate resilient**.

We now know that improved air quality because of reducing emissions from fossil fuels and other sources improves human health and prevents

economic losses. Investments in public transportation, energy efficiency improvements in commercial buildings and homes, and waste reduction efforts all help to reduce emissions. A comprehensive Climate Resilience Plan can lower emissions and more – it can also:

- Provide potential net savings with climate actions and investments.
- Decrease vulnerability to climate impacts.
- Attract innovation and new businesses in a new green economy.
- Improve public health.
- Increase job opportunities and socio-economic equity.

Community Climate Resilience Plan



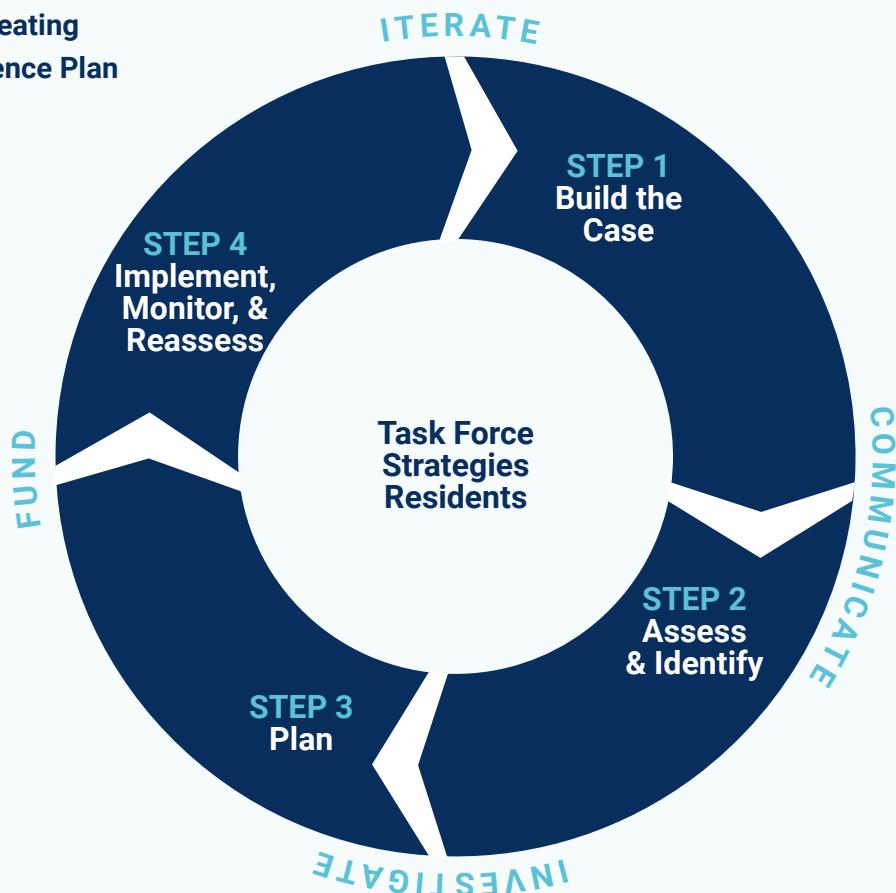
Deciding how to develop and implement a CRP is a daunting task for most U.S. cities and towns. Partnering with WBD helps city officials and their residents prepare a Community Climate Resilience Plan in Four Steps.

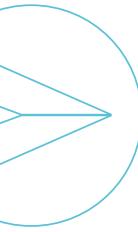
A concurrent public engagement strategy, alongside all Four Steps, will boost community buy-in. The degree to which city and climate planning officials listen and respond to public input and concerns will determine a community climate plan's success.

"Emission reductions help us in the long term to avoid disastrous climate change, but the benefits that we can quantify for health, agriculture, wellbeing, medical expenses, labor and the economy are overwhelmingly driven by clean air in the near term."

— Drew Shindell, Nicholas Professor of Earth Science at Duke University
NASA Global Climate Change

Four Steps to Creating a Climate Resilience Plan





2. Four Steps to Creating the Climate Resilience Plan

The WBD Guide to Building Community Climate Resilience helps municipal governments identify assets that are vulnerable to climate hazards, determine which adaptive measure will reduce climate-related impacts, and decide how to implement them.

Step One: Build the Case for a Climate Resilience Plan

New local initiatives generally result from the initial efforts a champion or a group of champions either from within local government (i.e., city council) or a community grassroots organization. Either on their own or with assistance from a consultancy, this initial team should begin the process of developing, launching, implementing a CRP by creating a **Community Climate Resilience Task Force and determining the scope of the initiative in a draft report**.

Members of the Task Force, composed of 8–12 people, should represent different sectors (e.g., transportation, energy, health, emergency services), disciplines, and include community leaders from underrepresented groups who are willing to dedicate 12–18 months to the planning process. Their job is to engage key stakeholders in the community to begin building support for a future climate resilience plan.

The Task Force, together with internal stakeholders (municipal and regional government agencies) and external stakeholders (e.g., business

leaders, private sector, academic institutions, economic development, and non-government organizations) prepares the draft report.

A draft report should determine a Community Climate Resilience Plan’s scope. The Task Force should:

- Create boundaries – decide if the plan includes surrounding communities.
- Address administrative concerns – align with local city government policies and procedures.
- Produce a timeline – from planning to implementation.
- Draw up a budget.
- Identify state and federal grants and other sources of funding

Public Engagement Strategy

Frequent and open communication is key to achieving community support. The Task Force and city officials should now **prepare to launch a community-wide call to action** and invite city residents to inform and contribute to the development of a Community Climate Resilience Plan.

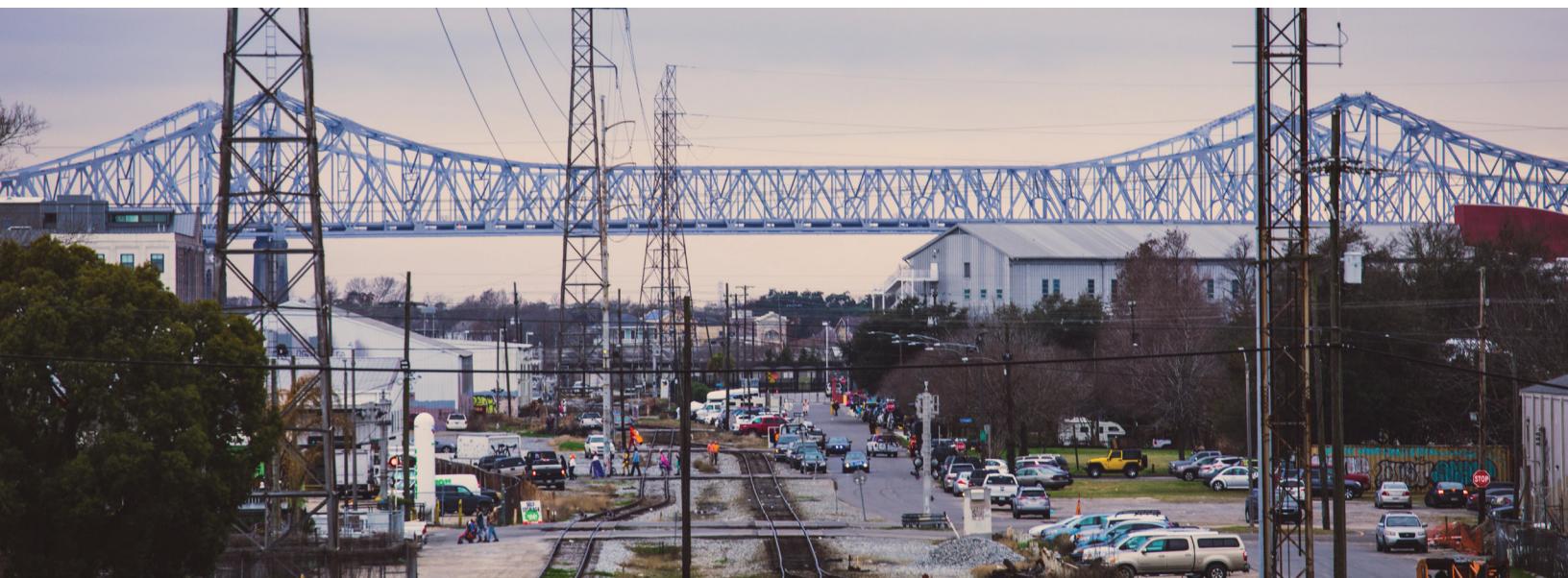
People are more willing to participate in a community plan when they understand how it will affect and benefit their city and neighborhood. Keep in mind that while most Americans are concerned about a changing climate and are interested in moving away from fossil fuels, others are unsure about the causes of climate change and the related steps communities should take to reduce climate-related impacts. **Understanding regional public opinion about climate change** is an essential first step prior to [organizing community-wide events](#) to share information, receive input, and address concerns.⁶

Outreach to [under-represented groups](#) and socially vulnerable groups at the outset is essential, especially in **frontline communities** — where residents experience the “first and worst” consequences of climate change at higher levels.⁷ An example is [low-income communities](#) and communities of color that lack the basic infrastructure to support them during climate-related impacts such as floods or extreme heat events. The tragic example of the Lower 9th Ward in New Orleans during Hurricane Katrina in 2015 is instructive

Key considerations prior to launching a community-wide call to action to encourage community engagement and buy-in:

- Understand local public opinion on climate change.
- Include local people of diverse backgrounds, income, neighborhoods.
- Engage all sectors of community:
 - Business community
 - Academic institutions
 - Health and other industries

here. Developing an inclusive community climate resilience plan, with community leaders representing diverse sectors and demographics, gives city officials the chance to address past and current inequities by building a new alliance with historically marginalized communities.



A Call to Action

A community-wide call to action can generate support by demonstrating accountability and transparency, building relationships among stakeholders and the Task Force. **This is the time to educate and gather input from citizens to align a plan's objectives with community priorities.** Frequent public engagements throughout the planning process help to ensure community buy-in and will strengthen a plan's implementation.

An open public event early in the planning phase is an opportunity to frame climate change as more than an environmental issue, but also **an economic, health, and infrastructure concern.** Hold an event where the Task Force can summarize the draft report and explain the timeline to transition from planning to implementation. Present the potential climate impacts in the community and the **cost of inaction.** This is the time to demonstrate that any future CPR will be equitable among all

Community-wide Call to Action Key Considerations:

- 1 Explain potential climate impacts.
- 2 Show costs of inaction.
- 3 Explain cross-sector and interdisciplinary concepts.
- 4 Demonstrate accountability and transparency.
- 5 Emphasize inclusivity.
- 6 Empower residents to take part in the planning process.
- 7 Strengthen relationships among Task Force and stakeholders.

neighborhoods (and, perhaps, neighboring communities), by listening to concerns and offering opportunities to take part in the planning process.



Step Two: Assess and Identify Climate Trends and Hazards

Across the U.S., states, cities, towns, and communities are consulting with climate experts and using scientific tools to adapt to a changing climate. Information and data on climate trends and impacts are available in the [Fourth National Climate Assessment](#), with examples on what kinds of climate resilience actions cities and states are adopting. For example, in the Midwest, increasing heavy rains are affecting farmlands, causing soil erosion and nutrient loss. To address the issue, [Iowa State University](#) developed a statewide program to use prairie strips in farmland to prevent erosion, preserve nutrients, and increase biodiversity.

Frameworks for building resilience include **climate vulnerability assessments and options to address risks.**⁸ Building resilience begins with identifying a community's valuable assets (e.g., people, farmland, buildings, services, forests), determining which climate-related hazards could harm them (e.g., drought, floods, wildfire), and then taking effective actions to reduce their risk.

Working with community stakeholders and local experts, climate change professionals can support or conduct a complete inventory of a community's physical, social, and economic assets that are [exposed to climate-related hazards.](#)

Once identified, the next step is to explore the potential climate and weather-related hazards in the region, including historical and potential future climate trends. Then each vulnerable asset should be paired with the corresponding climate and weather-related events.⁹

"Be aware that many communities choose to hire consultants, adaptation practitioners, or Architecture and Engineering (A&E) firms to assist them in compiling their vulnerability and risk assessments. Professionals who fill these roles still need plenty of input from the local champion and team, but they can help groups navigate unfamiliar concepts to document the most pressing potential climate problems in your community."

— U.S. Climate Resilience Toolkit

For example, a community asset might be a ski resort that supports the local economy. A corresponding hazard is warming temperatures that affects snowpack and water storage. In many of its federal sustainability and resilience plans, the [U.S. Department of Transportation](#) pairs assets with hazards, then assesses vulnerabilities and proposes adaptation measures.

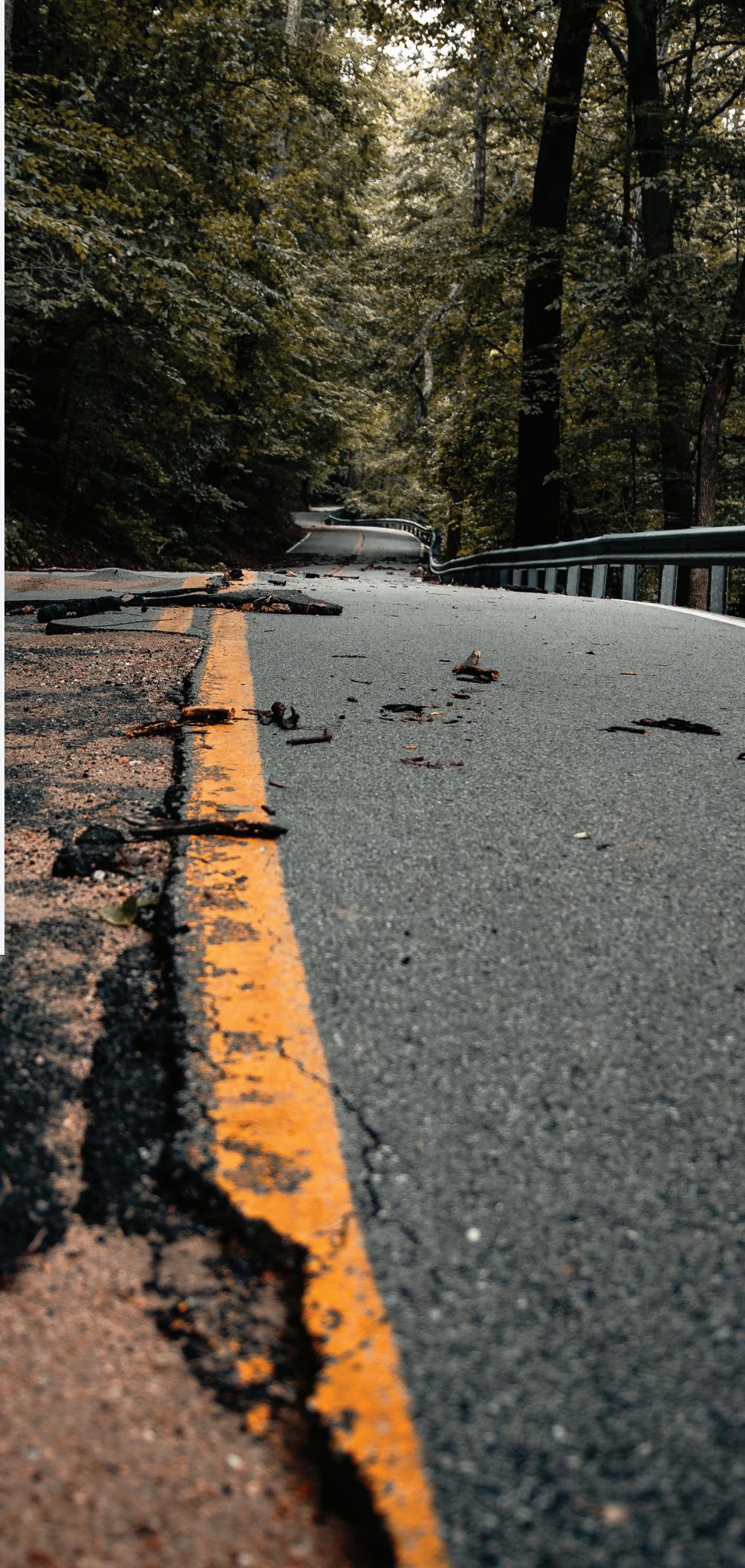
Mapping technologies and federal data can help assess **exposure to hazards** at this stage, such as information in the 4th National Climate Assessment and the U.S. Climate Resilience Toolkit. A best practice is to look at a range of global and regional trends (e.g., temperature,



Asset and Hazard Inventory

Assess assets and hazards in a series of WBD workshops among all stakeholders:

- Climate scientists/climate-change professionals
- Task force
- City government officials
- Business and community leaders
- Critical service representatives:
 - Social services
 - Transportation
 - Utilities
 - Parks and wildlife
 - Engineering and construction



precipitation, frequency of extreme events, length of wildfire season, rise in sea level) from reliable scientific sources, including data from the [National Oceanic and Atmospheric Administration \(NOAA\)](#), the [Environmental Protection Agency \(EPA\)](#), [state climatology offices](#), and [universities](#).

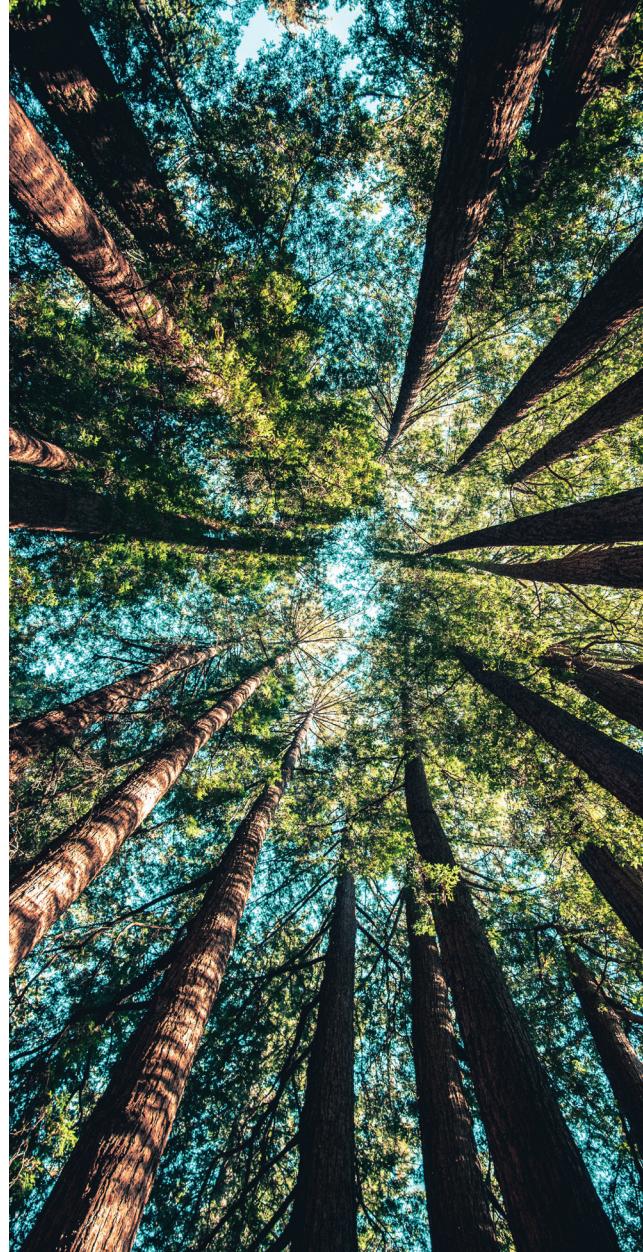
Developing a **greenhouse gas inventory** at this point will identify the major sources of a community's emissions and establish a baseline metric [to track progress](#) toward future goals (Step Four). Future decision-making to address a community's climate-related vulnerabilities will prioritize the actions that also reduce greenhouse gas emissions.

This is the time to publish a widely available **Community Asset and Hazard Report** to reinforce transparency, accountability, and critical value of the CRP.

Assess Vulnerability and Risk

Climate change vulnerability is the degree a community and its assets can adapt to changes in temperature, precipitation, and more frequent and extreme weather events. **Climate change vulnerability assessments** are the tools used to identify the direct and indirect effects of climate change that contribute to vulnerability and determine the best course for adaptation.

Once assets are paired with hazards, climate change professionals determine an asset's vulnerability based on its **sensitivity** to a hazard, or the degree an asset might be affected when exposed to a climate-related hazard. Some assets are more sensitive to hazards than others. For example, extreme heat is a hazard for residents of a community; but infants, the elderly, and the



Understanding Climate Change Vulnerability

Climate scientists use three terms to determine the extent of climate change vulnerability: **exposure, sensitivity, and adaptive capacity**.

- 1 Exposure** is the presence of assets in places that could be adversely affected by a hazard.
- 2 Sensitivity** is the degree to which an asset might be affected when exposed to a climate-related hazard.
- 3 Adaptive capacity** is the ability of a community to develop resilience and adjust to climate-related hazards.

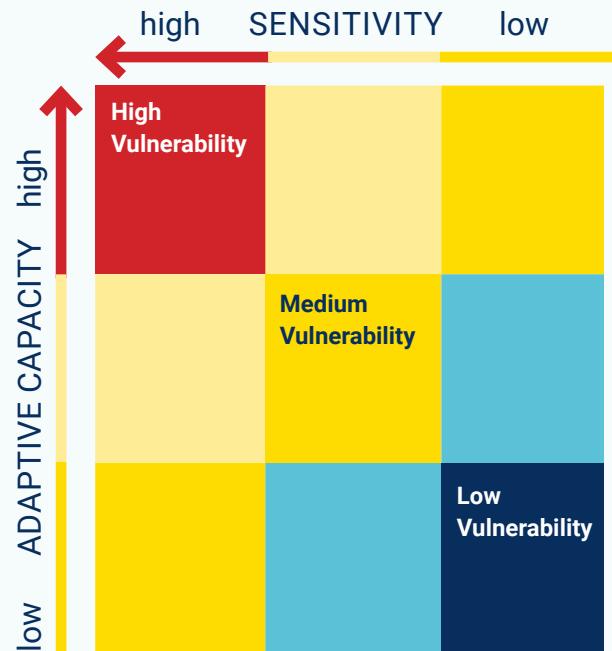
homeless are more sensitive to extreme heat. Extreme sensitivity determines how to prioritize assets in preparation for the climate vulnerability assessment.

Another measure of vulnerability is an asset's adaptive capacity, or its ability to adjust to a hazard. If an asset's **adaptive capacity** is high, say farmers are now planting new strains of drought-resistant crops, then it decreases an asset's vulnerability.

Once a community determines its asset and hazard pairs, then climate change professionals or other experts should determine which ones face the greatest risk of damage from hazards using digital tools and scientific data that identify historical trends and increased frequency and severity of extreme climate-related events.

FEMA's [National Risk Index](#) is a digital mapping application that provides communities with a holistic view of their risk to natural hazards through the analysis of 18 identified natural hazard types, expected annual loss, social vulnerability, and community resilience. Maps in FEMA's National Risk Index let users compare Expected Annual Loss, Social Vulnerability, and Community Resilience for 18 natural hazards. Access the interactive online

Asset Adaptive Capacity



mapping application from FEMA to check your community's status. The tool uses available source data for these hazard and risk components and establishes a baseline relative risk measurement for each U.S. county and census tract.

Asset	Hazard	Adaptive Capacity	Risk
Marina	Sea level rise	Low	High
Neighborhood 1	Flooding	Low	High
Neighborhood 2	Flooding	High	Med
Residents	Extreme heat	Med	Med
Park	Flooding	Low	Med
Ski resort	Snowmelt	Med	High

Index data, which includes both a composite Risk Index score and individual hazard type Risk Index scores, informs communities about their natural hazard risk and enables better decision-making when implementing climate change mitigation and resilience strategies. Such insights allow communities to update emergency and hazard mitigation plans, enhance the prioritization and allocation of resources, and improve education and engagement.

From here, experts rate each asset/hazard pair vulnerability as low, medium, or high.

Financial and risk analysts can now **determine the financial and social costs if a climate-related hazard would occur and even estimate how long it would take to recover, based on current and/or future climate adaptative measures**. Case studies from past events with a similar risk scenario offer valuable information.

Reflect and Recommit

Once climate professionals complete the vulnerability assessment, the report should be published widely. At this point, the Task Force and internal and external stakeholders have a good understanding of the risks and will transition from identifying and prioritizing vulnerabilities to identifying and prioritizing climate-risk solutions.

Before moving to the next phase – designing the plan – take stock of people's time commitments moving forward and identify facilitators for Step Three and Four, designing and implementing the Community Climate Resilience Plan.



Vulnerability Assessment Key Questions:

- How frequently has a climate-related hazard occurred in the past?
- What are the predictions for a hazard's frequency and intensity in the future?
- What is the potential impact of a hazard on an asset?
- What is the asset's adaptive capacity?
- What is the asset's level of risk?
- What would be the financial and social cost if a climate-related hazard occurred?

Step Three: Create the Climate Resilience Plan

Researching options, exploring [case studies](#), evaluating solutions — all these and more go into identifying options to address a community's climate-related vulnerabilities. A best practice is to gather multiple solutions from [diverse sources](#).

Federal and state government and trustworthy climate change organizations have published hundreds of climate resilience plans for nearly every type of hazard. This information-gathering phase presents another [community workshop opportunity](#) to co-create equitable solutions to the vulnerabilities identified and prioritized in the Vulnerability Assessment.

After gathering information, list the available options to reduce risk. Options will either reduce exposure to risks or increase adaptability to a changing climate. Some might require immediate responses and others long-term planning. Some will entail transforming existing systems, and others might mean building new climate resilient infrastructure.

Highlight the proposed risk reduction actions with both climate mitigation and adaptation features, as these will be a priority to implement and the most likely to receive government grants. Link the funding and grant options alongside each proposed solution.

Here is a step-by-step plan of action to develop the final Community Resilience Plan:

1. Identify an expansive list of plausible solutions for each risk:

- Facilitate a community workshop to capture historical knowledge on potential solutions.
- Research case studies from cities with similar

risks that have developed successful solutions.

2. Evaluate, discuss, and determine the best solutions for each risk:

- Evaluate the capacity to implement each solution.
- Weigh the costs of each action against the cost of inaction.
- At this critical step, risk management consultants should conduct a cost-benefit analysis for each solution proposed.

3. Prioritize each solution based on risks that MUST be addressed:

- Rank solutions that include both mitigation and adaptation features.
- Consider solutions that, if implemented, simultaneously address multiple priorities.

4. Collect baseline data and determine measurable goals for each action:

- Classify each goal as short term (1–2 years); medium term (10–15 years); and long term (25+ years).
- Collect data to serve as indicators. For example, a goal might be to increase renewable energy sources to 25 percent by 2035.

5. Write a detailed plan with input (thus buy-in) from key stakeholders:

- Present the solutions in the order they will be implemented, a plan for how they will be implemented, and milestones (e.g., indicators and targets).
- Prepare a communications strategy and publish the plan.

Throughout the planning phase, a concurrent team should be identifying sources of funding and means to receive federal and state grants and awards to prepare for the implementation phase.



Case Study: Urban Heat Management in Louisville, KY

A solution that addresses multiple priorities and includes both mitigation and adaptation features.

Louisville is one of the fastest-growing urban heat islands in the U.S. The metropolitan area is about 10 degrees warmer than its surrounding rural areas, due to human activities.

Dark-colored asphalt and dark buildings contribute to the urban heat effect, causing residents and businesses to run their air-conditioning longer and higher, which drives up energy costs, and the hotter air increases pollution which leads to more global warming.

Increased air pollution also puts residents with asthma or other medical conditions at risk. Each year, more than 85 Louisville residents die of heat-related causes.

To reduce urban heat, Louisville launched an initiative to reduce the number of rooftops that absorb heat from the sun. Businesses can install white or light-colored roofs, which reflect heat, or green roofs that have the added benefit of improving air quality, soaking up rainwater, and keeping water out of the sewer system. Homeowners can use light colors the next time they need a new roof.

The city is also planting more trees and has hired an urban forester. The goal is to have an urban tree canopy at 45 percent; currently Louisville is at 37 percent.

Source: Louisville.gov



Step Four: Implement, Monitor, and Reassess

With the finalization of the Community Climate Resilience Plan, implementation should begin with a community-wide kick-off. Two key questions must be addressed simultaneously: **How to pay for the plan? Who will manage and oversee implementation of the plan?**

For each new project or program, identify the resources necessary to achieve the goal and to secure funding. Will it require internal or external funding, existing or new staffing, and technical expertise? For example, if communities receive funding from federal and state programs, they are obligated to submit regular updates and official reports. As projects or programs are implemented, they may require additional staff or training to manage and monitor them.

While resources and funding for each new project or program will vary, in general the implementation process should be carried out as outlined below. For each action, include **who will lead the implementation process, who are the appropriate partners, and who will manage, monitor, and assess each program and project implemented.**

1. Define the scope of each project and the duration of the activity and outline the tasks. Each project may be part of a larger program goal.

Example: [South Bend, Indiana, installed three solar systems](#) on municipal buildings to meet green building goals and increase renewable energy use.

2. Define the objectives and goals of each program and the projects/tasks that will evolve over time to achieve each goal.

Example: [Roadmap for the city of Breckenridge, Colorado](#), to achieve 100 percent renewable municipal energy use by 2025.

3. Determine the type and amount of funding for each project and program.

Example: Commercial property assessed clean energy ([CPACE financing](#)) can fund resiliency improvement that makes buildings more resistant to climate hazards and include a clean energy component at the same time.

4. Identify and select, based on best fit, the resources needed.

Example: If a project or program requires technical expertise, investigate the potential to collaborate with a nearby academic institution. The city of Cohoes, New York, partnered with Rensselaer Polytechnic Institute to develop a viable plan for a [municipally owned and operated floating solar installation](#).

5. Pursue resources.

Example: The city of [Concord, New Hampshire](#), issued a Request for Proposal to solar developers to lease land on city-owned property and to “install, own, operate, maintain, and furnish” the city with electricity from solar power.

Monitor, Evaluate, Report, Reassess

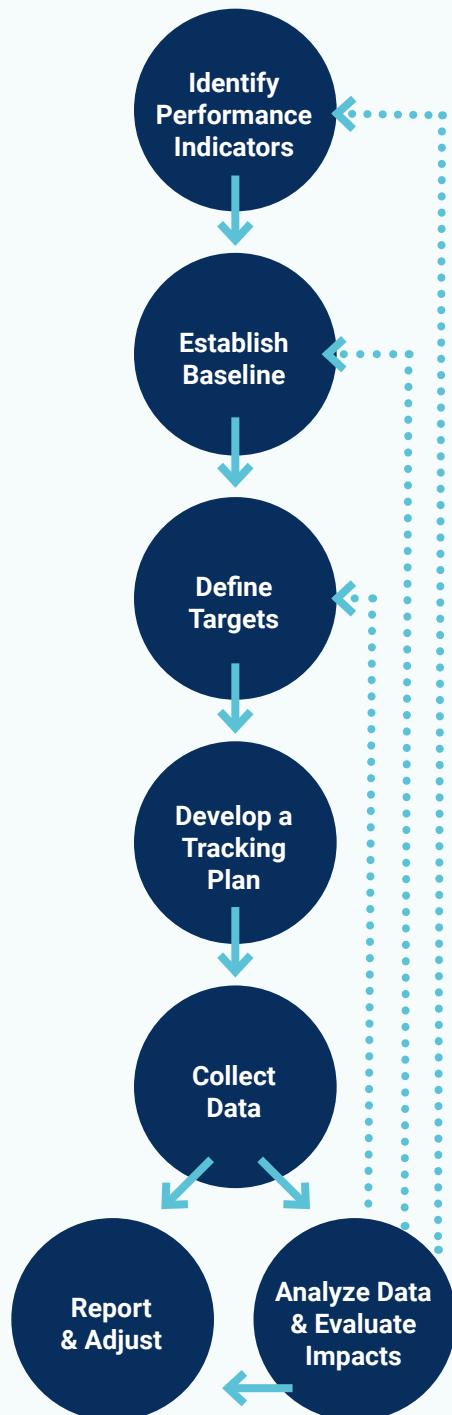
During the design phase, build into each activity's budget the resources to monitor and report on its performance and success. The EPA Local Action Framework provides an excellent template for tracking progress for each project and program and helps city officials identify problems, make improvements, meet goals, and make decisions about future climate resilience actions.

Most projects that receive federal funding require logic models and regular reports on inputs, outputs, and outcomes. Project managers must identify performance indicators to measure progress towards goals and objectives. Establishing a baseline, defining targets, and tracking and collecting data are also part of the monitoring, evaluation, and reporting process.

Communicating each activity's progress to city residents will also generate continued enthusiasm for projects and provides accountability and transparency. Create an opportunity, an event or workshop, for the community to discuss and reassess aspects of the CRP and adjust based on the lessons learned.

Source: [U.S. Environmental Protection Agency Local Action Framework](#)

Monitoring and Evaluation Framework



Source: EPA



Energy Savings Performance Contracting

Local governments can finance renewable energy projects with support from the U.S. Department of Energy.

Energy Savings Performance Contracting (ESPC) is a budget-neutral approach to make building improvements that reduce energy and water use and increase operational efficiency. By partnering with an energy service company (ESCO), a facility owner can use ESPC to pay for today's facility upgrades with tomorrow's energy savings – without tapping into capital budgets. State and local governments can implement ESPC projects in their own facilities as well as support ESPC projects through ESCP programs.

Source: [Department of Energy, State and Local Solution Center](#)





3. How WBD Can Help

The consultants at WBD can help municipal governments obtain federal funding for climate adaptation and mitigation measures. We manage awards from application to close-out. Our communication experts create and disseminate CRP information among all stakeholders, including public officials, organizations, the private sector, and residents.

At WBD, we believe *how* a community realizes its climate resilience plan matters. Our approach in working with city governments emphasizes local values – we help our clients develop a plan that supports their community's unique opportunities and challenges. We emphasize inclusivity to ensure that viewpoints from diverse perspectives are considered at each step of the planning and implementation process, and that historically underserved communities and ones most affected by climate impacts will benefit from a plan's goals and objectives.

Our strategic communications, private sector engagement, and financial, risk, and contract management experts emphasize practical means to achieve realistic goals that can adapt to meet new opportunities and challenges as they emerge. Our Climate Change Professionals ensure actions are well-researched and include evaluation and reassessment measures, especially for long-term programs, that consider new research and can adopt new technologies.

Overall, we help our clients make better decisions by applying a triple-bottom line approach – economic, equity, environment – to each action supporting a community climate resilience plan.

Resilience

WBD supports the U.S. Agency for International Development (USAID) Bureau for Humanitarian Assistance in proactively taking steps to mitigate the effects of future disasters. Through its [Early Recovery, Risk Reduction, and Resilience programs](#), the BHA enhances the recovery and resilience and reduces chronic vulnerability of communities worldwide. This experience aligns with our support in developing effective climate action plans for communities.

Here's how we do it.

Winning Federal Grants and Assistance

Most federal grant programs have competitive application processes and varying eligibility requirements which can make it difficult for some cities to secure funding. WBD can help governments identify grants that align with a community's needs and project goals and ensure efficiency throughout the application process. We offer customer support in all pre-award to all post-award areas throughout the grant administration process.

For our clients, WBD consultants serve as subject matter experts on technical matters related to financial assistance and guidance in observing all grant policies, procedures, and processes. We serve as the liaison between National Institute of Standards and Technology and our customers pursuing financial assistance to ensure there is thorough understanding of the grant award process and all associated requirements. This includes providing recommendations and guidance on the grant submission process, regulations, policies, and procedures to participants and addressing their questions in a timely manner. Our experts perform comprehensive research to gather information and utilize our thorough analytical approach to identify and resolve award issues.

WBD's goal is to maximize the utility of federal dollars available to customers while maintaining compliance. We use our extensive regulatory expertise to provide compliant, innovative, and sound recommendations for the development of funding packages. Our consultants perform financial analysis with respect to budgets, financial risk, and execution for our clients at the Department of Defense and FEMA. We perform thorough cost analysis and risk assessment to determine reasonableness of award budgets and ensure financial feasibility of potential recipients.

After award administration, WBD monitors and reports expenditures to align with Department of Treasury compliance and reporting guidelines through closeout. This includes review of award financial data and documentation, conducting award audit reviews and resolutions, and processing all award amendments and adjustments.

Here are the steps we take to win state and federal grants.

Pre-Award Phase: Funding Opportunities and Application Review

- Prioritize funding needs
- Register with [Grants.gov](#)
- Identify funding opportunity that aligns with project goals
- Perform cost-benefit analysis
- Research and address all grantor's requirements
- Submit and track application

Award Phase: Award Decisions and Notifications

Post-Award Phase: Implementation, Reporting, and Closeout

- Review specific contract requirements
- Prepare plan to manage and meet the administrative, financial, and programmatic reporting requirements of the award
- Create schedule to prepare and submit required reports
- Prepare financial management system to track spending
- Align budget to facilitate (if necessary) multi-year grant spending



“This bill will make historic and significant strides that take on the climate crisis. It will build out the first-ever national network of electric vehicle charging stations across the country. We will get America off the sidelines on manufacturing solar panels, wind farms, batteries, and electric vehicles to grow these supply chains, reward companies for paying good wages and for sourcing their materials from here in the United States, and allow us to export these products and technologies to the world. It will also make historic investments in environmental clean-up and remediation, and build up our resilience for the next superstorms, droughts, wildfires, and hurricanes that cost us billions of dollars in damage each year.”

— Statement by President Biden on the House Passage of the Bipartisan Infrastructure Law, November 6, 2021



Financial and Grant Management Expertise: Covid-19 Recovery in Kansas City, MO

Our Kansas City, Missouri, municipal government client faced an unprecedented challenge in 2020 in administering its Covid-19 pandemic relief funds through the U.S. Federal Government Coronavirus Aid, Relief, Economic Security (CARES) Act, the American Rescue Plan Act, and [FEMA Public Assistance funds](#). WBD met with city leaders to assess the needs of the community and charted a course of action to rapidly obligate, expend, track, and report on funds to meet the demands of the U.S. Treasury Department. WBD assisted the Kansas City Finance Department, City Council, and other city government entities to establish a comprehensive plan for federal Covid-19 aid policies and procedures, ensure the availability of housing and employment opportunities for the hardest-hit residents, and support for small businesses to create a more resilient metropolitan area.

Specifically, the financial and grant management experts at **WBD developed new tools and processes to administer and monitor funds throughout the municipality** and provide guidance for forthcoming grant opportunities.

WBD also provided the city with **long-term budget forecasts and strategic advice to structure grant funding** in support of the city's operational planning and disaster recovery strategy. WBD delivered:

➤ **Real-Time Financial Decision-Making Tool:**

WBD developed the American Rescue Act Budgeting Tool, which allows city leaders to make complex financial decisions in real time, while understanding the constraints and budgetary effects of each decision.

➤ **Integrated Federal Funds Expenditure**

Tracker: To ensure appropriate utilization of Covid-19 spending for Kansas City, WBD built a comprehensive expenditure tracker. It provides financial clarity by tracking, integrating, and reporting on more than \$30 million of expenditures related to the pandemic.

➤ **Reengineered Grants Management Process:**

Through revamped internal grant management processes, WBD uncovered an effective combination of federal funding program usage that resulted in additional dollars for the city's revitalization programs. Further, WBD has instituted measures to track performance metrics for each of the city's recovery plan projects.

Technical Expertise: Greening South Asia's Inland Vessel Fleet

In support of our client, USAID, WBD is developing and promoting inland waterway transport in South Asia as one of the cleanest modes in the transport system. The transport of goods via inland waterways strengthens regional trade among Bangladesh, Bhutan, India, and Nepal, but efficient, safe, and clean energy vessels are in short supply.

To meet the challenge, WBD's team of engineers are helping to ensure these countries have a sustainable, green vessel infrastructure by offering new technical solutions to lower vessel emissions and increase energy efficiency. Concurrently, our private sector engagement experts are developing means for underserved small and medium-size operators to access financing to upgrade and establish a green fleet.

Our technical experts are engaged in activities that provide energy-efficient model design and testing, training and certification for shipbuilding

and inspection authorities, and the development of new financing models. As a result, modern vessels in this region will have fewer waste spills, lower greenhouse gas emissions and air pollution, and will improve overall inland waterway operations through lower transport costs, better fuel efficiency, and improved safety.

Public and private stakeholders are involved in stages of the Greening the Fleet project to guarantee a smooth transition to the implementation stage. Activities are designed to enable remote communities access to safe and clean transport means. With improved ferry operations and facilities at landing sites and jetties (e.g., toilets, lights, waiting areas), **the regional waterway system will become safer for all users, including women, youth, and people with disabilities.**

South Asia's inland shipping vessels currently run on diesel, which has the highest emissions of greenhouse gasses and other pollutants compared with other means of propulsion. WBD engineers are proposing new solutions to improve the environmental performance of South Asia's inland shipping sector.

 Use of Alternative Fuels	 Air Pollutants Emission Reduction	 Energy Consumption Reduction
<ul style="list-style-type: none">▪ Hydrogen▪ GTL / Biofuel Methanol▪ Ethanol▪ LNG/CNG	<ul style="list-style-type: none">▪ After-treatment▪ New engine concepts / optimization▪ Alternative technologies	<ul style="list-style-type: none">▪ Energy-efficient ship design▪ Hybrid/diesel-electric propulsion▪ Electric propulsion▪ Energy-efficient navigation

Strategic Communication Experts for Multiple International, National, and Municipal Clients

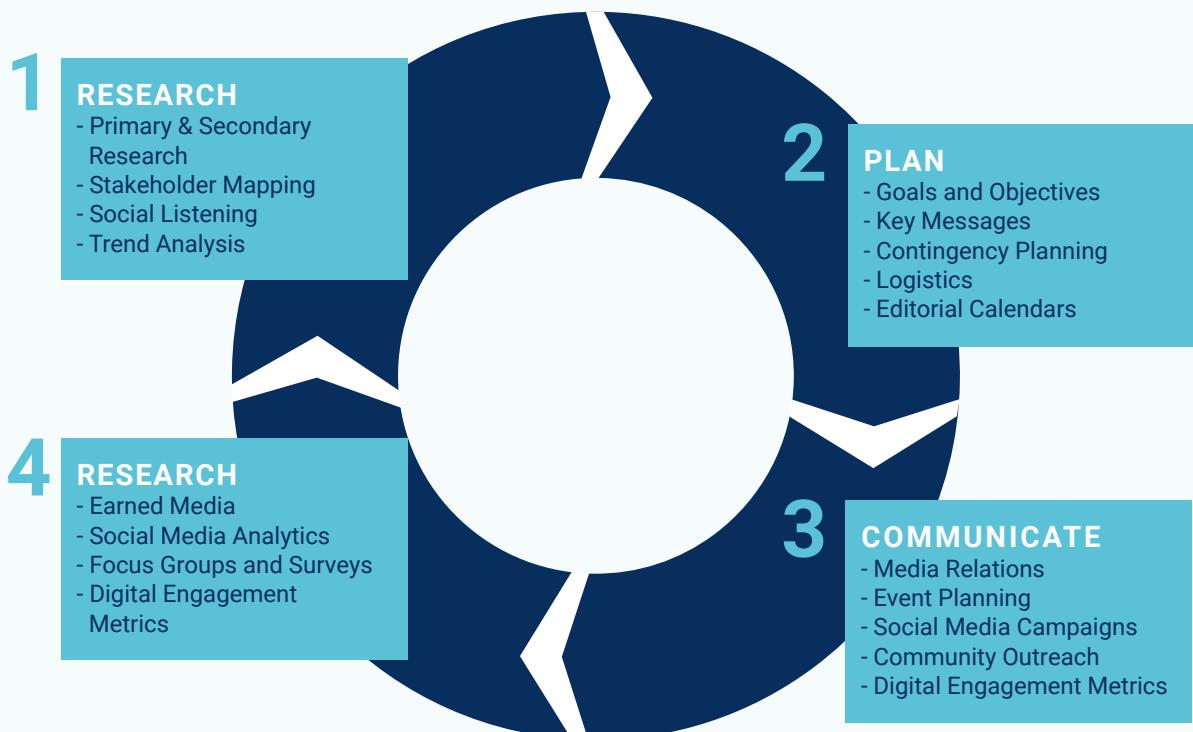
A key feature of a Community Climate Resilience Plan rests on effective communication tools to raise awareness and disseminate information among all stakeholders, including public officials, organizations, the private sector, and residents. Our WBD communication specialists have decades of experience leading communications and strategic programs for our clients at the international, national, and local level. We employ proprietary, data-driven tools and methodologies to manage our client's unique communications needs, including outreach to underserved communities. For our municipal clients, we understand that collective action

among city officials, community members, and key stakeholders is vital to achieving the goals of a climate resilience plan.

The communications experts at WBD can craft customizable communication plans with integrated, strategic approaches. WBD has a proven record of organizing workshops and trainings to promote new initiatives. Our team of communication experts can create and distribute bespoke information materials at these events and help to craft public service announcements on social media, television, and radio.

WBD uses a four-pronged Communication Action Plan (CAP) to develop strategic communication and change initiatives. This approach requires

WBD Communication Action Plan



a team of seasoned experts to research, plan, communicate, and evaluate in an iterative, yet adaptive, cycle.

Our team of **facilitators** routinely guide workshops and strategic meetings for federal government clients at the Departments of Defense and Veterans Affairs, FEMA, and USAID. We can help cities facilitate:

- Webinars on climate change and resilience topics
- Online community forums
- Workshops with access to climate scientists and experts

Our **public affairs experts** are specialized in media relations, congressional liaising, partnerships, social media, and events. For our municipal clients, such as Kansas City, we tailor our approach to meet local needs. For example, to create an environment of increased transparency and accountability, WBD curated public-facing documents for Kansas City to highlight notable expenditures from their CARES Act funding. The documents were designed with Kansas City branding and formatted by an **in-house graphic designer**.

In addition, WBD can help:

- Certify city staff as Climate Change Professionals through the [Association of Climate Change Officers](#).
- Identify climate-change resources and connect city with [STAR Communities Program](#); [Global Covenant of Mayors](#); [Georgetown Climate Center Adaption Clearinghouse](#); [Climate Adaptation Knowledge Exchange](#); and FEMA grants.
- Complete a FEMA grant vulnerability assessment, and pursue FEMA's Community Rating System to decrease urban insurance rates.
- Work with climate scientists to create a [Climate Assessment](#) with Climate Change [data](#) and [models](#) including [historical trends and future projections](#) – a document with global trends and regional and local trends and future projections, what it means.
- Identify available grants and funding through the [Infrastructure Bill](#), the [Centers for Disease Control and Prevention](#), EPA, [DoE](#), [FEMA](#) and more.

Whatever your climate resilience needs, **WBD can help your community make better decisions** in creating and implementing a sustainable, affordable, and achievable climate resilience plan. ●



Sources

[Fourth National Climate Assessment](#), Vol. II:
Impacts, Risks, and Adaptation in the United States

[U.S. Climate Resilience Toolkit](#)

Department of Energy, Office of Energy Efficiency & Renewable Energy, [State and Local Solution Center](#).

U.S. Department of Homeland Security. FEMA, [Building Resilient Infrastructure and Communities](#)

U.S. Environmental Protection Agency, [Being Prepared for Climate Change: Checklists of Potential Climate Change Risks.](#)

CDC Climate-Ready States and Cities Initiative

CDC is using its public health expertise to help state, tribal, local, and territorial health departments prepare for and respond to the health effects that a changing climate may bring to their communities. Likely impacts include increased extreme weather events, wildfires, decreased air quality, and illnesses transmitted by food, water, and disease carriers such as mosquitoes and ticks.

CDC's Climate-Ready States and Cities Initiative (CRSCI) is helping grant recipients from [11 jurisdictions](#) use the five-step [Building Resilience Against Climate Effects \(BRACE\)](#) framework to identify likely climate impacts in their communities, potential health effects associated with these impacts, and their most at-risk populations and locations. The BRACE framework then helps our grant recipients develop and implement health adaptation plans and address gaps in critical public health functions and services.

[Climate Adaptation Knowledge Exchange \(CAKE\)](#)

Centers for Disease Control and Prevention,
[Building Resilience Against Climate Effects \(BRACE\) Framework](#)

Environmental Protection Agency, [Smart Growth](#).

The Intergovernmental Panel on Climate Change. [Sixth Assessment Report 2021](#).

FEMA Grant Opportunities

FEMA has implemented the [Building Resilient Infrastructure and Communities \(BRIC\)](#), a grant program which shifts the focus from disaster recovery spending to proactive investments in community resilience. BRIC promotes projects involving public infrastructure, nature-based solutions, and the adoption of modern building codes. Applicants must apply on a yearly basis to receive funding.

The Hazard Mitigation Grant Program (HMGP) provides funding to state, local, tribal, and territorial governments after a disaster for strategic reconstruction that will mitigate damages from future disasters. A community must submit a Presidential Major Disaster Declaration to request HMGP funding and is typically awarded 15 percent of the total federal assistance amount provided for the recovery of the reported disaster.

The HMGP Post Fire program provides funding for communities to implement hazard mitigation measures that reduce the risk of wildfire disasters. A Presidential Disaster Declaration is not required to activate funding. Instead, FEMA determines funding allocation based on a national aggregate calculation of the historical Fire Management Assistance Grant (FMAG) declarations from the past 10 years.



Endnotes

1. Now awarded through FEMA's [Building Resilient Infrastructure and Communities \(BRIC\)](#)
2. The National Flood Insurance Program (NFIP) [Community Rating System \(CRS\)](#) was implemented in 1990 as a voluntary program for recognizing and encouraging community floodplain management activities that exceed minimum NFIP standards. Any community fully compliant with NFIP floodplain management requirements may apply to join the CRS. [Community Rating System Overview and Participation](#)
3. [*Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II.*](#) U.S. Global Change Research Program. 2018.
4. [Environmental Protection Agency: Smart Growth and Climate Change.](#)
5. NASA. Global Climate Change. ["Reducing Emissions to Lessen Climate Change Would Yield Dramatic Health Benefits by 2030."](#) November 31, 2021.
6. Yale Climate Opinion Maps 2020.
7. A growing body of literature focuses on the disproportionate and unequal risks that climate change is projected to have on communities that are least able to anticipate, cope with, and recover from adverse impacts. See [Climate Change and Social Vulnerability in the United States](#). Environmental Protection Agency. September 2021.
8. [The U.S. Climate Resilience Toolkit](#)

