

WELCOME

RESILIENCE AMERICORPS ACADEMY

JANUARY 13, 2015

#RESILIENCEAMERICORPS

















SAM CARTER

ASSOCIATE DIRECTOR,
THE ROCKEFELLER FOUNDATION



MAX FINBERG

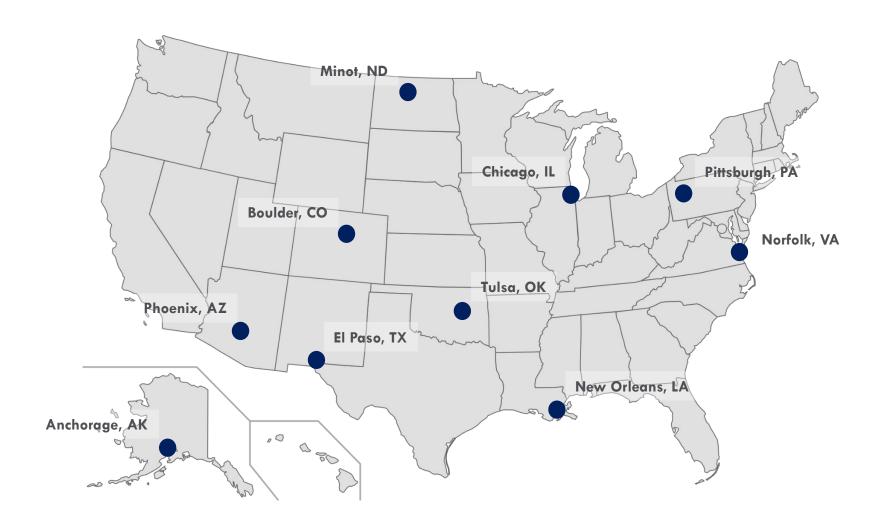
DIRECTOR AMERICORPS VISTA



ACADEMY APPROACH

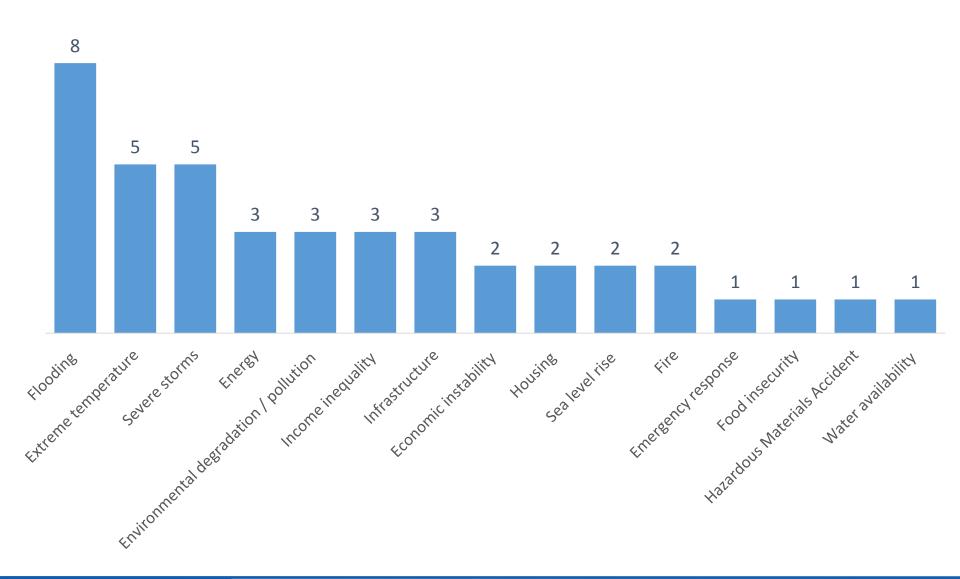
KAYE MATHENY, HR&A ADVISORS, INC.

RESILIENCE AMERICORPS PILOT CITIES





SUMMARY OF COHORT CITY CHALLENGES





GOALS OF THE AMERICORPS RESILIENCE ACADEMY

AmeriCorps VISTAs, their supervisors, subject matter experts, and a range of federal partners will convene to:

- Gain an understanding of resilience concepts and practice
- Assess risks and resilience challenges and opportunities in their city and project area
- Design resilience strategies and implementable projects

- Gain exposure to a range of tools and resources that can support their resilience strategies and projects
- Build city team and Cohort relationships that will grow over the year
- Connect to and grow a national network of resilience practitioners



ACADEMY OVERVIEW

Day 1

Introduction to Resilience in your City

Day 2

Building Resilience in Your City

Why Resilience
AmeriCorps?

Understanding Risk

City Resilience
Narrative

Defining a Resilience Approach Engaging Stakeholders Resilience
Project
Planning

Where are you today?

- What are the risks?
- What are the strengths? weaknesses?
- What are the project areas?
- What are the issues and opportunities?



ACADEMY OVERVIEW

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Resilience
Approach

Engaging Stakeholders

Resilience
Project
Planning

Where do you want to be?

- What are aspirations for building resilience?
- What are your project ideas?
- What is the project resilience value?
- How will you define success?

ACADEMY OVERVIEW

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Resilience
Project
Planning

How will we get there?

- What is the project resilience value?
- Who are the key stakeholders?
- How will you implement?
- How will you measure success?



DAY 1 AGENDA INTRODUCTION TO RESILIENCE IN YOUR CITY

0.45	Borner of the Control	and the second of the second
8:45a – 9:30a	Presentation: Intr	oduction to Resilience

ACADEMY HOUSEKEEPING

City leads and staff

Program Team

SME / Co-facilitator

Federal Agency Representative

Wifi Network:

hrcguest

Login: guest

Password: guest

Social media #resilienceamericorps



INTRODUCTION TO RESILIENCE

BUILDING RESILIENCE IN COMMUNITIES

SAM CARTER

RESILIENT IN BOULDER, COLORADO



2013 FLOODING IN THE STATE OF COLORADO



DOWNTOWN BOULDER FARED BETTER THAN OTHERS



EVERYDAY BENEFITS

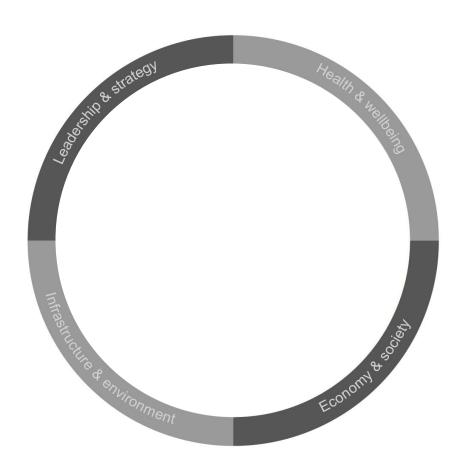


INVESTING MORE TO EXPAND THE GREENWAY

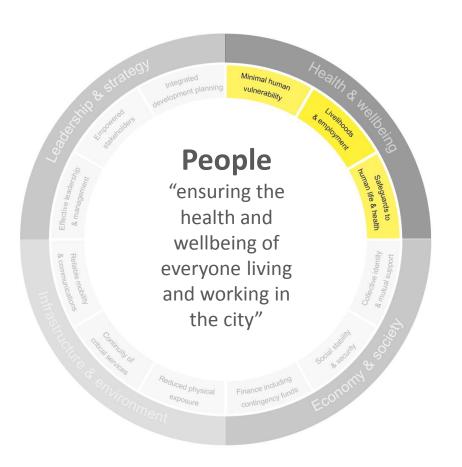


DEFINING RESILIENCE

The capacity to survive, adapt, and thrive in the face of chronic stresses and acute shocks, and even transform when conditions require it.



The CRF is a way to articulate resilience in a measurable, evidence-based and accessible way to inform planning, practice, and investment patterns that enable communities to survive and thrive multiple shocks and stresses.



Meets basic needs



Supports livelihoods and employment



Ensures public health services





Promotes cohesive and engaged communities

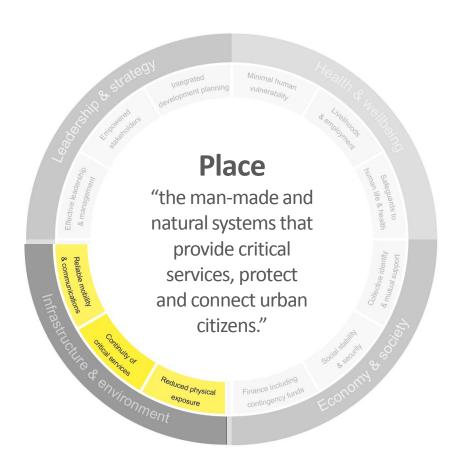


Ensures social stability, security and justice



Fosters economic prosperity





Enhances and provides protective natural & man-made assets

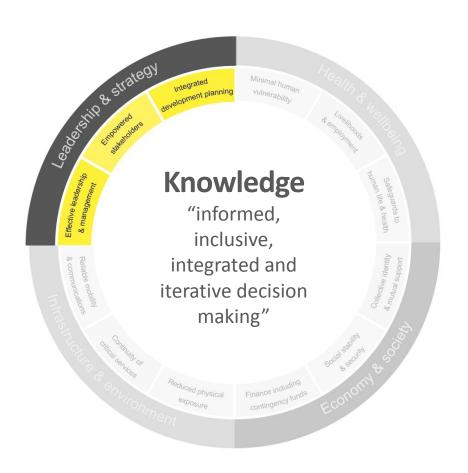


Ensures continuity of critical services



Provides reliable communication and mobility





Promotes
leadership and
effective
management



Empowers a broad range of stakeholders

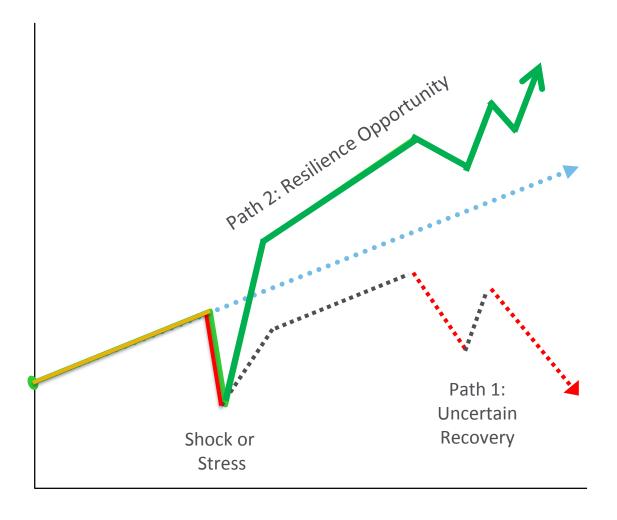


Fosters
long-term and
integrated
planning





THE RESILIENCE DIVIDEND



- Shocks and stresses can bring opportunities for places to evolve and in some circumstances transform
- In Phase 2 we will focus on maximizing the resilience dividend of projects

THE RESILIENCE DIVIDEND IN ACTION







THE RESILIENCE DIVIDEND IN ACTION





WHY RESILIENCE AMERICORPS?

UNDERSTANDING RISK AND ASSESSMENT TOOLS

KAYE MATHENY

PAST DISASTERS ARE NOT FUTURE DISASTERS



RISK IS f (HAZARD \times CONSEQUENCE)

HAZARD



SHOCK

STRESS



Additional Emphasis

CONSEQUENCE

EXPOSURE



VULNERABILITY



Broad definitions

UNDERSTANDING HAZARDS | SHOCKS

RISK = f (HAZARD**X**CONSEQUENCE)

Landslides Civil Unrest Violence urricane Earthquake **Epidemic** Drought **Economic crisis Disruption to business**



UNDERSTANDING HAZARDS | STRESSES

 $RISK = f(HAZARD \times CONSEQUENCE)$





UNDERSTANDING CONSEQUENCE | EXPOSURE

RISK = f(HAZARD > CONSEQUENCE)



Hurricane damages home



Hurricane damages regional food distribution center, impacting jobs and access to food supplies.

UNDERSTANDING CONSEQUENCE | VULNERABILITY

 $RISK = f(HAZARD \times CONSEQUENCE)$





RESILIENCE AND EQUITY

Disasters tend to **exacerbate existing inequalities** in a community, leaving previously disadvantaged populations both **absolutely and relatively worse-off** than they were prior to the event









RISK AND A RESILIENCE STRATEGY

- Risk is dynamic Cities, states, and counties must understand future risks to prepare for impacts of shocks and stresses.
- Risk involves stresses as well as shocks.
- Risk requires broad definitions of exposure and vulnerability.

PANEL | UNDERSTANDING RISK AND ASSESSMENT TOOLS

Kaye Matheny – Moderator

HR&A Advisors

Amy Luers

Office of Science and Technology Policy, The White House

Joel Scheraga

Environmental Protection Agency

David Herring

National Oceanic and Atmospheric Administration

Emily Cloyd

US Global Change Research Program



RESILIENCE AMERICORPS

AMY LUERS

OFFICE OF SCIENCE AND TECHNOLOGY POLICY,
THE WHITE HOUSE

Building Climate Resilience: The Role of Data & Tools

Amy Luers, Ph.D.

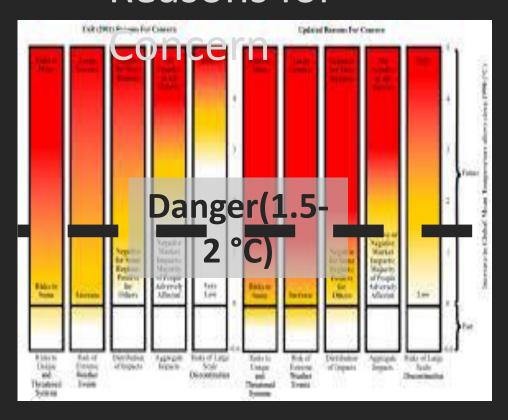
White House Office of Science and Technology Policy Executive Office of the President

January 13, 2016

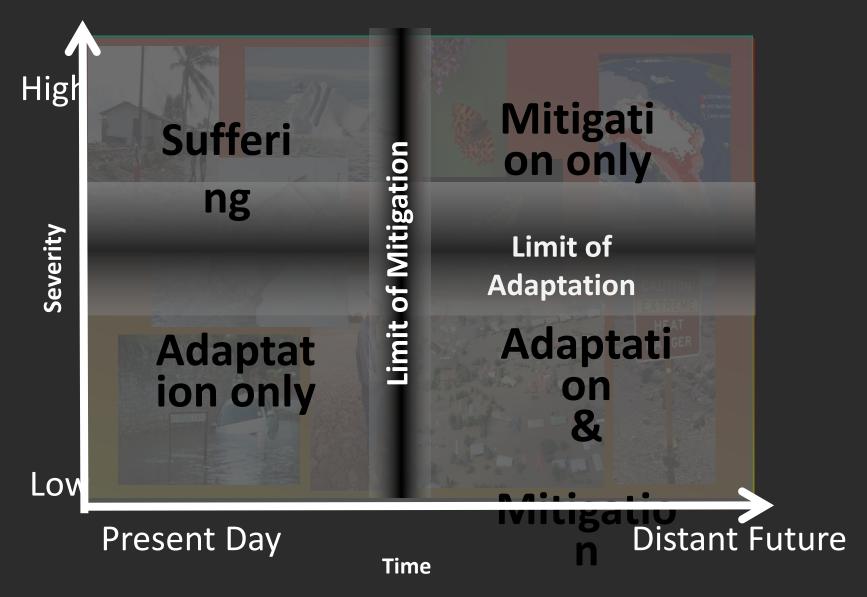
Data & Tools have been critical for characterizing the risks of climate variability and change



Reasons for

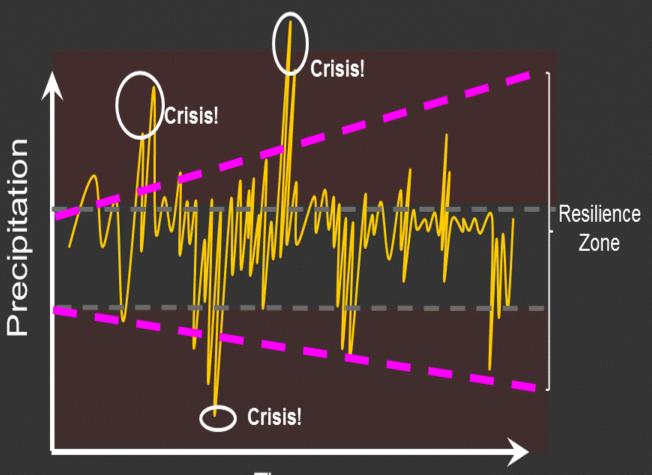


Climate Risks Quadrants



Graph and placement of impact for illustrative purposes only

Managing climate risks is about <u>expanding Resilience Zones</u>

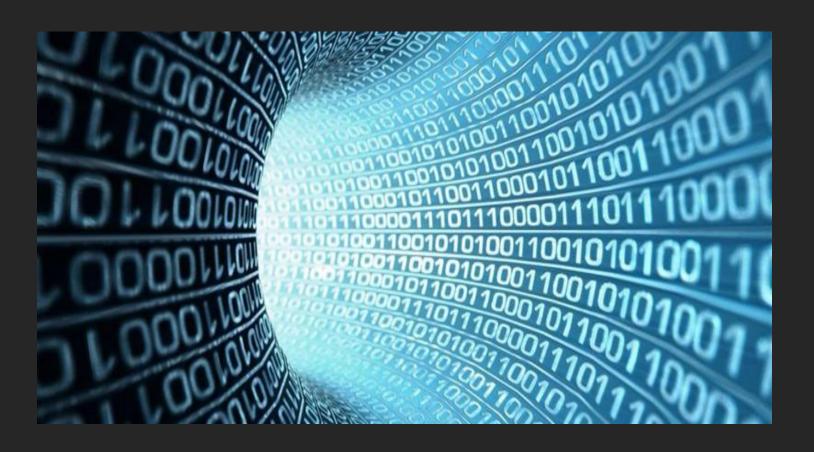


Ok so...The next question is often:

What <u>data and tools</u> do I use to see how far out of my resilience zone I could be in 30 -60 years?

Valid Question...good news there are lots of data and tools to help you explore this...

At first you might be overwhe

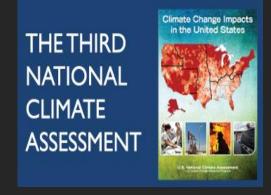


Lots of help for notgetting Overwhelmed











Ok so...The next question is often: What data and tools do I use to see how far out of my resilience zone will I be in 30-60 years?

But the harder question is:

How do I increase my resilience zone?

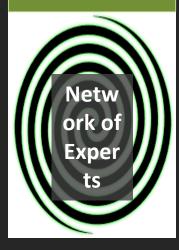
Data and Tools will Not Provide *the* Answer

Can help to:

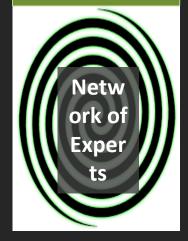
- -- explore the risks
- -- identify opportunities and constraints
- -- inform design and implementation

Climate Resilience Building Process

Dialogue Connect



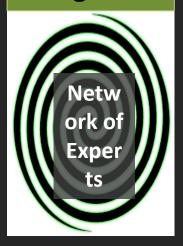
Dat a & Tool s Design
Dialogue
Connect



Dat a & Tool

S

Implement
Dialogue
Connect
Design



Time



Get Started Taking Action Tools Topics Expertise

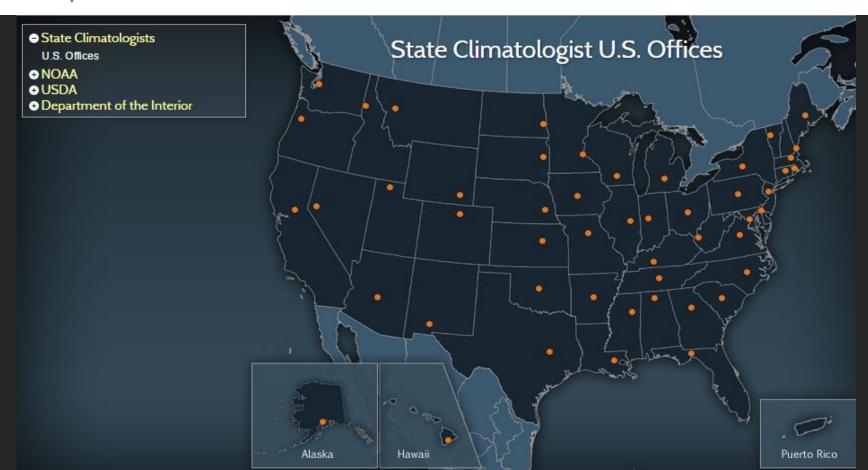
About | Contact | Funding Opportunities | FAQ

Search

Q

Help → Find Experts →

Find Experts



And a growing a network of climate adaptation, risk management and resilience professionals



Climate Resilience Building Process

Dialogue Connect



Dat a & Tool s Design
Dialogue
Connect



Dat a & Tool Implement
Dialogue
Connect
Design



Time

Thank You!



RESILIENCE AMERICORPS

JOEL SCHERAGA

ENVIRONMENTAL PROTECTION AGENCY



Preparing the United States for the Impacts of Climate Change: EPA Tools and Resources

Presentation to Resilience AmeriCorps Academy

Joel D. Scheraga, Ph.D.

Senior Advisor for Climate Adaptation

Office of the Administrator / Office of Policy

U.S. Environmental Protection Agency



Central Element of EPA Climate Adaptation Activities: Building Adaptive Capacity

- ➤ Goal: Build the "adaptive capacity" of EPA's partners in the states, tribes, and local communities
- > Key mechanisms:
 - ✓ <u>Training</u>: increase awareness of ways climate change may affect ability to implement effective programs
 - ✓ <u>Financial incentives</u>: support climate-resilient investments in communities across the country
 - ✓ Toolkit: provide tools, training, technical assistance, data, and information



Empower communities & private sector through partnerships!



EPA Focuses on the Specific Needs of Different Users

- > EPA tailors its tools, training, and technical assistance to the needs of specific users.
- > Examples:
 - ✓ Local government officials
 - ✓ Municipal staff, e.g.,
 - Water resource managers
 - Air quality managers
 - Waste management officials
 - Public health officials
 - ✓ Neighborhood organizations
- Relationships with state governments must be considered

Training...

... to increase awareness and understanding of the importance of climate adaptation

www.epa.gov/localadaptationtraining



Released by EPA on May 6, 2015

EPA Climate Change Adaptation Training for Local Governments

Focus is on the threats posed by climate change to the services provided by local government officials to their communities:

- Water and Wastewater Services
- Air Quality Protection
- Safeguarding Public Health
- Contaminated Site Cleanup
- Emergency Response
- Transportation

Decision Support Tools

EPA is producing tools to inform adaptive management decisions.



Climate Resilience Evaluation & Awareness Tool (CREAT)





About CREAT

- Software tool for conducting risk assessment of potential climate change impacts at your utility
- Multiple climate scenarios provided to help capture uncertainty
- Assessments will help inform adaptation planning
- Results from CREAT help utilities compare potential costs, risk reduction and energy implications of different options





http://water.epa.gov/infrastructure/watersecurity/climate/creat.cfm

Pilot Project: Norfolk, VA

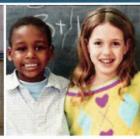
COMMUNITY-BASED ADAPTATION TO A CHANGING CLIMATE











COMMUNITIES ARE FACING A CHANGING WORLD – a world of warmer temperatures, less predictable weather patterns, and rising sea levels. While impacts vary by location, these and other impacts threaten the reliable delivery of many community services. This resource discusses how climate change is affecting community services, presents sample adaptation strategies, gives examples of successful community adaptation actions, and provides links to other key federal resources.

IMPACTS OF CLIMATE CHANGE ON LOCAL GOVERNMENT SERVICES

Water Resources Management

Changing precipitation patterns and increased intensity of rainfall events, storms and sea level rise are major elements of a changing climate. These changes may degrade water quality by increasing stormwater runoff, overflows of separate and combined sewer systems, and stream bank erosion. Community facilities, including drinking water and wastewater treatment facilities, may be at risk due to more frequent and severe flooding.

What are some water management adaptation strategies?

- Account for future flood risk (e.g., using the new federal flood standard) to protect drinking water and wastewater treatment facilities
- Use green infrastructure to reduce stormwater runoff
- Preserve wetlands and establish vegetated buffers along rivers and streams to reduce flooding, runoff, and erosion

Adaptation in Action: The 2008 lowa River floods caused extensive flooding along the lowa City, lowa riverfront. After the flood, the community worked with state and federal organizations, including the EPA, to develop a master plan to rebuild the riverfront, promote equitable development, and address challenges from a changing

climate. The "Riverfront Master Plan" reduces future flooding risk by promoting green infrastructure; creating a green buffer along the riverfront; and redirecting growth away from the floodplain. By decommissioning a flood-prone wastewater facility and expanding service elsewhere, the city chose to adapt and reduce future flooding risk. Several years after the floods, the community continues to adapt and implement projects under the Riverfront Master Plan.

Clean Air

A warming climate is expected to worsen air quality, including ground-level ozone, which can aggravate lung diseases and lead to premature death. Actions taken to reduce ozone can both reduce greenhouse gas emissions and yield adaptation benefits. People most at risk from ozone exposure include people with asthma, children, older adults, and those who are active outside, especially outdoor workers. People with health conditions such as obesity or diabetes may also have higher risk of ozone-related health effects.

What are some clean air adaptation strategies?

- Reduce vehicle emissions by encouraging smart growth development where people can work, live, and play within a walkable area
- Upgrade existing municipal fleets to reduce air pollutants



Additional Examples from EPA's Toolkit

EPA tools can help with:

- Developing risk-based adaptation plans
- Stormwater management
- Flood resilience
- Identifying Superfund and RCRA sites most vulnerable to climate impacts
- Assessing and managing climate impacts on sediment loading to streams
- Regional water planning
- Measuring progress toward communities' sustainability goals
- Obtaining integrated climate and land-use scenarios

Financial Assistance

... to support climate-resilient investments in states, tribes, and local communities

Supporting Climate-Resilient Investments

- State Revolving Loan Funds: EPA's National Water Program is recognizing and encouraging consideration of climate change in the management of Clean Water and Drinking Water State Revolving Loan Funds. (Commitment in the President's Climate Action Plan.)
- <u>Brownfield Grants</u>: The EPA Office of Solid Waste and Emergency Response is requiring brownfield grant recipients to take potential changing climate conditions into consideration when evaluating cleanup alternatives. (Commitment in the President's *Climate Action Plan*.)
- ➤ EPA Region 2: Working with stakeholders to build climate resiliency into Hurricane Sandy recovery activities.
- ➤ EPA Region 5: Integrating consideration of climate impacts and adaptation into Great Lakes Restoration Initiative-funded projects.



SANDY FLOODING, GREATER BRIDGEPORT REGION

Source: FEMA



EPA's New Climate Adaptation Resource Center

An integrated platform containing:

- > Implications of climate change for outcomes of concern to specific users
- Adaptation strategies
- Case studies (with "Quick Start" guides)
- ➤ Toolkit: Tools, training, and reference material to help implement adaptation strategies
- > EPA funding opportunities

Coming in Spring 2016



Contact Information

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Email: Scheraga.Joel@epa.gov



RESILIENCE AMERICORPS

DAVID HERRING

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTATION



Evolving the U.S. Climate Resilience Toolkit to Support a Climate-Smart Nation

David.Herring@noaa.gov

AmeriCorps Workshop

January 13, 2016

Acknowledgments: James Fox, LuAnn Dahlman, Nina Hall, Ned Gardiner & Jamie Herring









Our society will not make decisions based solely on Climate Threats

- People must be able to integrate climate information with their other value drivers (things they care about)
- Information must be relevant to their values & motivations
- They must trust the information source
- Adaptation is easiest understood through a resilience frame and successful paths walked by others





Water Resources

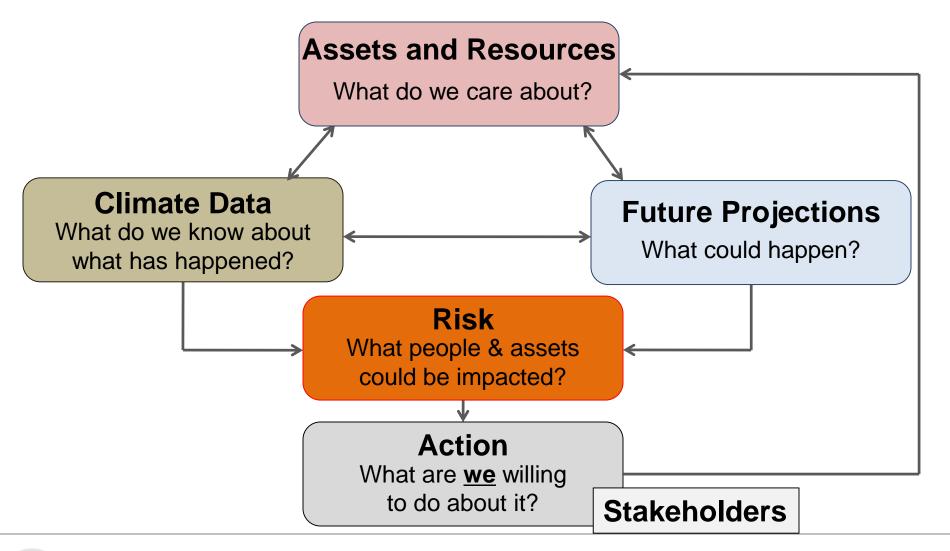


Development Pressure



Energy Costs

Adaptation isn't totally a linear process





5-Step Adaptation Workflow (Getting Started Steps)

from the U.S. Climate Resilience Toolkit

Step 1 : Identify the Problem

Did you know?

Step 2: Assess your vulnerability

Why should we care?

Step 3 : Identify options to build resilience

Step 4: Evaluate the risk and choose the best option

What can we do about it?

Step 5 : Implement – Take Action!



toolkit.climate.gov

The CRT v1.0 was first published in Nov 2014.

The front page offers multiple entry points for finding & exploring climate-related decision-support tools, information, & subject matter expertise.



Get Started Taking Action Tools Topics Expertise

About | Contact | Funding Opportunities | FAQ

Meet the Challenges of a Changing Climate

Find resources and a framework to understand and address climate issues that impact people and their communities.

- Identify the Problem
- Determine Vulnerabilities
- 3 Investigate Options
- 4 Evaluate Risks & Costs
- 5 Take Action

Find Out How People Are Building Resilience



Transitions and Traditions: Adaptation on Tribal Lands (0:44) Watch video



Preview: Conserving Sky Islands (0:26) Watch video >



Watching for Wind (0:37)
Watch video >



Adapting to Climate Change: A Water Utility's Approach (1:27) Watch video >

Climate Explorer



Climate Explorer lets you access map overlays

Site Overview



For many Americans, adapting to new climate.

Featured

Adaptation Workbook for Natural Resources Forest managers, natural resource professionals, and motivated landowners can use this structured process to consider the... Read more >

Climate Adaptation Knowledge Exchange



The CRT addresses nine climate-related topics & sub-topics.

This page acts as a table of contents & point-ofentry for topic-based exploration of climaterelated hazards.

There's an interagency virtual team of subject experts behind each of these topic sections.



Select a topic of interest below to learn about climate-related risks and opportunities.



Arctic

Arctic Oceans, Sea Ice, and Coasts

Melting Glaciers, Snow, and Ice

U.S. Climate

Arctic Weather and Extreme

Permafrost and Arctic Landscapes

Arctic Development and Transport

Arctic Peoples and Ecosystems

Arctic-Global Linkages



Coastal Flood Risk

Sea Level Rise

Coastal Erosion

Storm Surge

Tsunami

Inland Flooding

Shallow Coastal Flooding (Nuisance Flooding)

Building Resilience in Coastal Communities



Ecosystem Vulnerability

Fire Regimes

Water Resources

Carbon Balance

Invasive Species

Biodiversity Conservation

Protecting and Enhancing the Resilience of Ecosystems



Energy Supply and Use

Energy Consumption

Energy Production

Energy Facilities

Building Resilience in Energy Supply and Use



Food Resilience

Food Production

Food Distribution

Food Safety and Nutrition

International Food Security

Building Food Resilience



Human Health

Extreme Heat

Extreme Events

Increased Levels of Air Pollutants

Food- and Water-Related Threats

Changing Ecosystems and Infectious Diseases

Building Health Care Sector Resilience



Transportation and Supply

Land-Based Transportation

Waterborne Transportation

Aviation

Supply Chain Security



Tribal Nations

Assessment and Planning

Adaptation

Mitigation

Disaster Risk Reduction

Relocation

Capacity Building



Water Resources

Municipal Water Supply

Flooding

Drought

Ecosystems



Get Started Taking Action Tools Topics Expertise



Topics > Water Resources > Drought >



Tools are available to help you manage your climate-related risks and opportunities, and to help guide you in building resilience to extreme events. Browse the list below, or filter by topic and/or tool functionality in the boxes above. To expand your results, click the Clear Filters link.

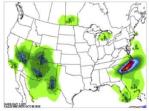
Forecasts & Outlooks



U.S. National Weather Forecasts

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Visit data source >



24-hour Precipitation Total

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Visit data source >



Weather Model Analyses & Guidance

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Visit data source >



Probability of Exceeding a **Precipitation Threshold**

Visit data source >

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Visit data source >



U.S. Precipitation Outlooks

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Water Resources Dashboard Taking Action:

- Flooding

- Drought

Browse Topics

Coastal Flood Risk

Food Resilience > Human Health

Tribal Nations Water Resources

Ecosystem Vulnerability Energy Supply and Use

> Transportation and Supply Chain

- Municipal Water Supply

Modeling Tool Helps Optimize Use of Groundwater

Managing Water for Irrigated Agriculture in the Central Arizona Desert >

Motivating the Agricultural Community to Build Climate

Climate Outlooks Help Water Supply Planning > Early Warning Information Increases Options for Drought Mitigation >

1 of 2 next >

Tools:

Advanced Hydrologic Prediction Service > Crop Decision Dashboard >

El Niño-Southern Oscillation (ENSO) Indicators > Disaster Behavioral Health Information Series >

TreeFlow: Streamflow Reconstructions from Tree Rings >

1 of 2 next >

Several lines of descriptive text goes



Coming soon: A new

Water Resources

Dashboard where

people can go to

access forecasts &

outlooks of weather

& climate conditions

from days to months

into the future...



U.S. Hazard Outlooks

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Visit data source >

What was...

...now becomes...

Step 1: Identify the Problem

Step 1: Explore climate threats

Step 2: Assess your vulnerability

Step 2: Assess vulnerability

Step 3: Identify options to build resilience

Step 3: Identify options

Step 4: Evaluate the risk and choose the best option

Step 4: Evaluate options

Step 5: Implement – Take Action!

Step 5: Plan & take action



Get Started Taking Action

Tools

Topics Expertise

Filter by topic: ▼

Search

Filter by steps to resilience: ▼

6

Filter by region: ▼

The Taking Action section now has 96 case studies relating to every CRT topic, and from every region in the United States.

Use the menus (upper right) to quickly filter by topic, by the 5 steps to resilience, &/or by region.

Taking Action

Communities and businesses are taking action to reduce their vulnerability to climate-related impacts and to unit reduce their vulnerability to climate-related impacts and to unit reduce their vulnerability to climate-related impacts and to unit reduce their vulnerability to climate-related impacts and to unit reduce their vulnerability to climate-related impacts and to unit reduce their vulnerability to climate-related impacts and to unit reduce their vulnerability to climate-related impacts and to unit reduce their vulnerability to climate-related impacts and to unit reduce their vulnerability to climate-related impacts and to unit reduce their vulnerability to climate-related impacts and to unit reduce their vulnerability to climate-related impacts and to unit reduce their vulnerability to climate-related impacts and to unit reduce their vulnerability to climate-related impacts and to unit reduce their vulnerability to climate-related impacts and to unit reduce their vulnerability to climate-related impacts and to unit reduce their vulnerability to climate-related impacts and to unit reduce their vulnerability to climate-related impacts and to unit reduce their vulnerability to climate-related impacts and to unit reduce their vulnerability to climate reduce the vulne



Partnerships Promote Healthy Forests and Clean Water

Two major fires and subsequent flooding events wreaked havoc on a critical watershed and reservoir that supplies Denver, Colorado, with water. Now, a public-private partnership is working to ensure a clean, reliable water supply.

Read more >



Waterfront Restaurant Rebuilds to Remain Open Through Future Storms

Property owners in New Jersey can check their vulnerability to sea level rise and storm surge using an



Restoring Surfers' Point: Partnership's Persistence Pays Off

Coastal erosion has repeatedly damaged bike paths and parking lots near Ventura, California. It took local groups with varying viewpoints more than a decade to agree upon a strategy, but the first phase of their solution is now complete.

Read more v



Ranchers in Marin County Consider Carbon Credits

Ranchers are participating in a pilot project to improve carbon storage and reduce net greenhouse gas emissions. After quantifying their



Show Don't Tell: Visualizing Sea Level Rise to Set Planning Priorities

City officials in Tybee Island, Georgia, recognized sea level rise as a growing problem for their community. Visualizations from a sea level rise viewer helped them raise awareness of the city's vulnerabilities and set priorities for adaption efforts.

Read more +



Climate Outlooks Increase Farmer's Odds for Success

From weeks-long dry spells to extreme precipitation events, farmers face significant challenges in bringing crops to market. Here's how one grower uses seasonal climate forecasts to increase his chances for success.

Read more >



Browser-Based Tools Show Current and Historical Crop Cover and Health

To manage their businesses successfully, farmers and food production companies need to



Quantifying Risk Shows Value of Replacing Highway

Louisiana's Highway 1 carries a significant fraction of the gas and oil that comes from the Gulf of Mexico to distribution points in the United



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Arctic Weather and Extreme

Permafrost and Arctic Landscapes

Arctic Development and Transport

Arctic Peoples and Ecosystems

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Storm Surge

Tsunami

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Shallow Coastal Flooding (Nuisance Flooding)

Building Resilience in Coastal Communities



Ecosystem Vulnerability

Fire Regimes

Water Resources

Carbon Balance

Invasive Species

Biodiversity Conservation

Protecting and Enhancing the Resilience of Ecosystems



Energy Supply and Use

Energy Consumption

Energy Production

Energy Facilities

Building Resilience in Energy Supply and Use



Food Resilience

Food Production

Food Distribution

Food Safety and Nutrition

International Food Security

Building Food Resilience



Human Health

Extreme Heat

Extreme Events

Increased Levels of Air Pollutants

Food- and Water-Related Threats

Changing Ecosystems and Infectious Diseases

Building Health Care Sector Resilience



Transportation and Supply

Land-Based Transportation

Waterborne Transportation

Aviation

Supply Chain Security



Tribal Nations

Assessment and Planning

Adaptation

Mitigation

Disaster Risk Reduction

Relocation

Capacity Building



Water Resources

Municipal Water Supply

Flooding

Drought

Ecosystems





Get Started Taking Action Tools Topics Expertise

0

Taking Ac

Communities and illustrate the appli expand your result

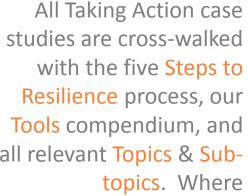


Taking Action > Crop Insurance Smooths Income Fluctuations for Ranchers and Forage Farmers >

Raising livestock on grasses or hay depends on receiving the right amount of rain at the right time of year. When a growing season is dry, crop insurance can make the difference between ranchers' financial success and failure.

THE CONSTRUCTION ASSESSMENT OF THE TO

Forage Farmers



Stressors and impacts

Farmers typically use one of two common methods to feed livestock: either the livestock is turned out to graze in a pasture, or forage is grown specifically for the animals. Regardless of the strategy, sufficient rainfall during the growing season is essential to a prosperous farm. During seasons when conditions aren't favorable for growing—too dry, too cold, or too wet—ranchers and farmers may need to resort to costly alternatives. For example, feed can be purchased at a premium from other producers, or animals can be sold in their current condition (often at an unfavorable price). Costs can rise quickly, erasing profit margins, reducing family incomes, and impacting local economies.

As the climate warms, the frequency and severity of droughts and extreme weather in parts of the U.S. may increase. Without a stabilizing force to smooth fluctuations in their income, the livelihoods of ranchers and forage producers are at risk.

Related Video: "Pasture, Rangeland, and Forage Insurance" from Climate.gov



Reducing financial risk with insurance

To address the potential for financial instability of at-risk producers, the U.S. Department of Agriculture's Risk Management Agency developed insurance programs for pasture, rangeland, and forage crops. These programs complement the already commonplace insurance plans

Steps to Resilience:

Step 1: Identify the Problem

Step 2: Determine Vulnerabilities

Step 3: Investigate Options

Step 4: Evaluate Risks & Costs

Step 5: Take Action

Tools:

Pasture, Rangeland, and Forage Decision Support Tool >
CropScape >

U.S. Drought Portal >

Topic:

Food Resilience > Food Production >

Additional Resources:

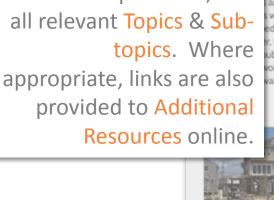
Climate go. | Osing Climate Data to Protect Growers and Ranchers >

Partners:

U.S. Department of Agriculture Risk Management Agency | Pasture, Rangeland, and Forage Program >

Datasets Used:

CPC Unified Gauge-Based Analysis of Daily Precipitation over CONUS >





Waterfront Res Rebuilds to Rer Through Future

Property owners in check their vulners rise and storm sun farmers can buy for their cash crops.

Well before the growing season, ranchers and farmers can buy insurance for two or more two-month periods coinciding with peak growing seasons. At the end of each insured period,

The Climate Explorer is a main, featured tool in the CRT. It has an instructional landing page to show people how to use it.

Users can launch Climate Explorer from this page, or from the CRT's front page, and most case studies in the 'Taking Action' section.





About | Contact | Funding Opportunities | FAQ

Tools > Climate Explorer-Visualizing Climate Data in Maps and Graphs >



Launch Climate Explorer

About the Tool and Data

Climate Explorer is a research application built to support the U.S. Climate Resilience Toolkit. The tool offers interactive visualizations for exploring maps and data related to the toolkit's Taking Action case studies.

Map layers in the tool represent geographic information available through climate.data.gov. Each layer's source and metadata can be accessed through its information icon. Climate Explorer graphs display 1981-2010 U.S. Climate Normals for temperature and precipitation, overlain with daily observations from the Global Historical Climatology Network-Daily (GHCN-D) database. Please note that GHCN-D data have been checked for obvious inaccuracies, but they have not been adjusted to account for the influences of historical changes in instrumentation and observing practices. GHCN-D data are useful for comparing weather and climate, but for longterm climate change analyses, we recommend the National Climatic Data Center's Climate at a Glance.

Navigating the map

at top left.

- · Zoom in or out using your mouse wheel or the plus and minus icons
- · To pan-or move around on the map-click and drag.
- · Toggle between a street map and satellite imagery using the button at the bottom left.



Exploring map layers

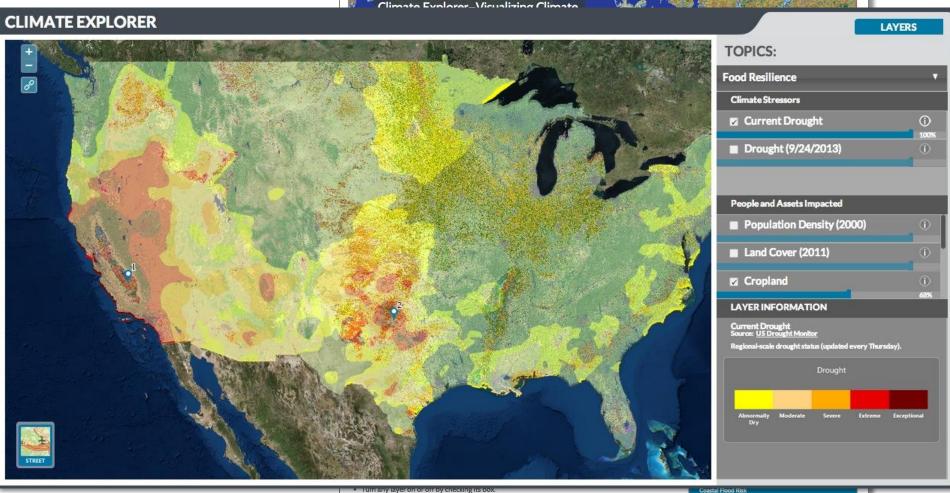
Find and display available data layers from the LAYERS tab at top right.

- · Select any Theme from the top drop-down menu to see the list of layers associated with that theme. Available layers appear in two groups, Climate Stressors and People and Assets Impacted.
- · Turn any layer on or off by checking its box.

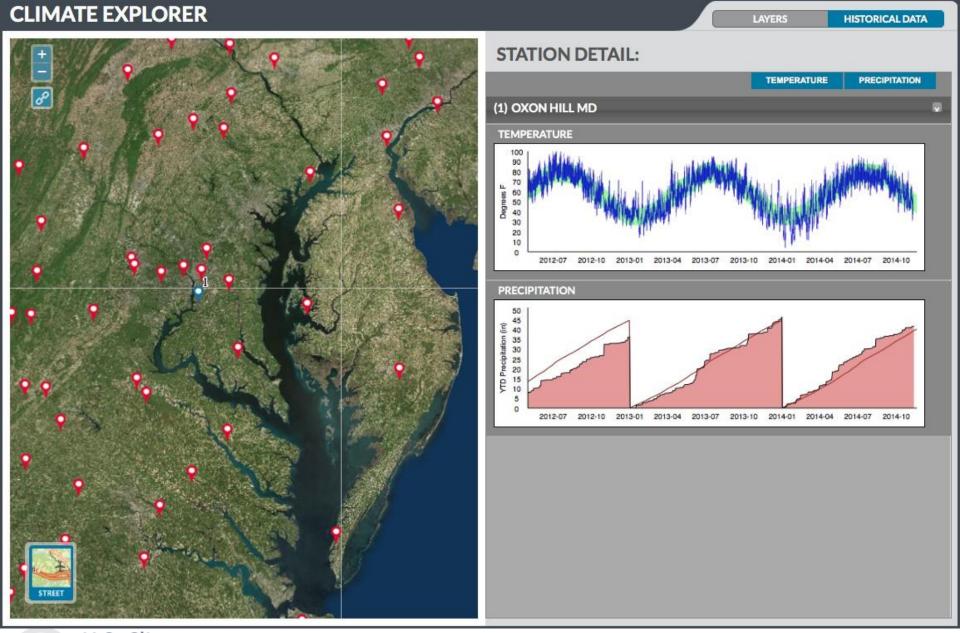






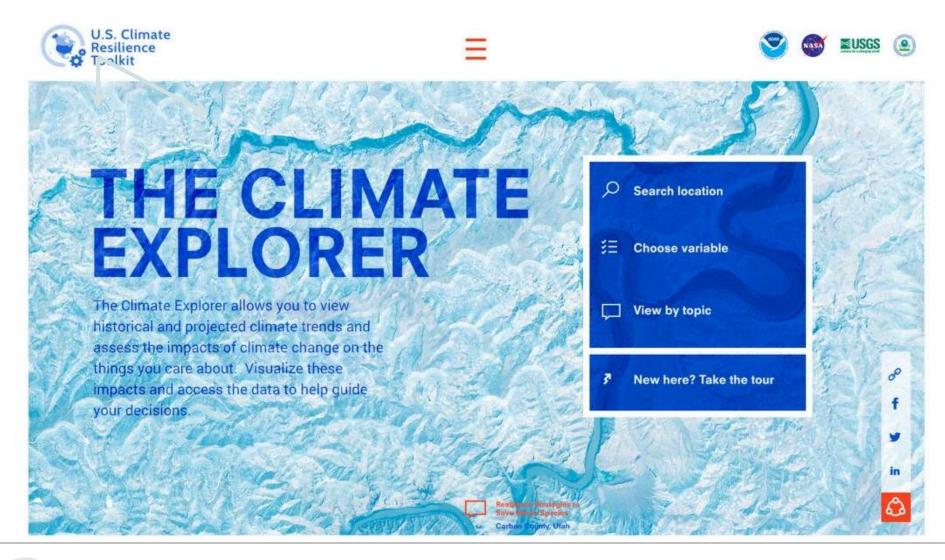






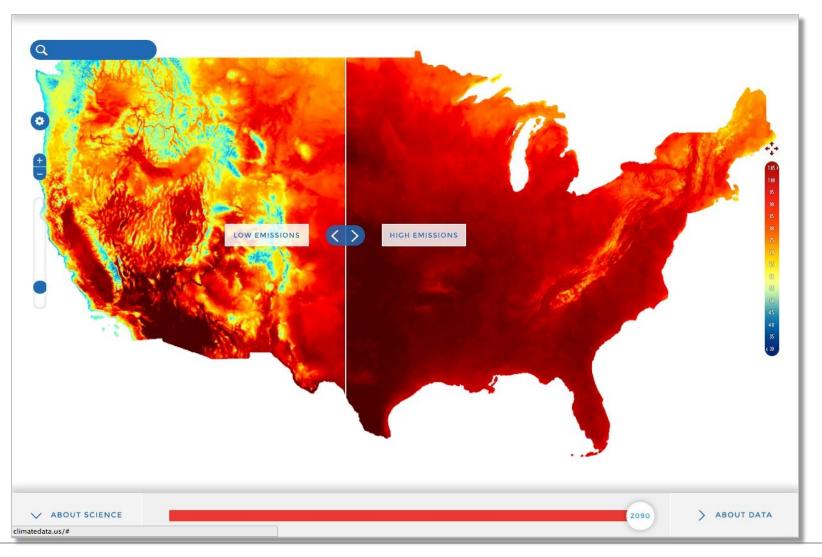


The New Climate Explorer



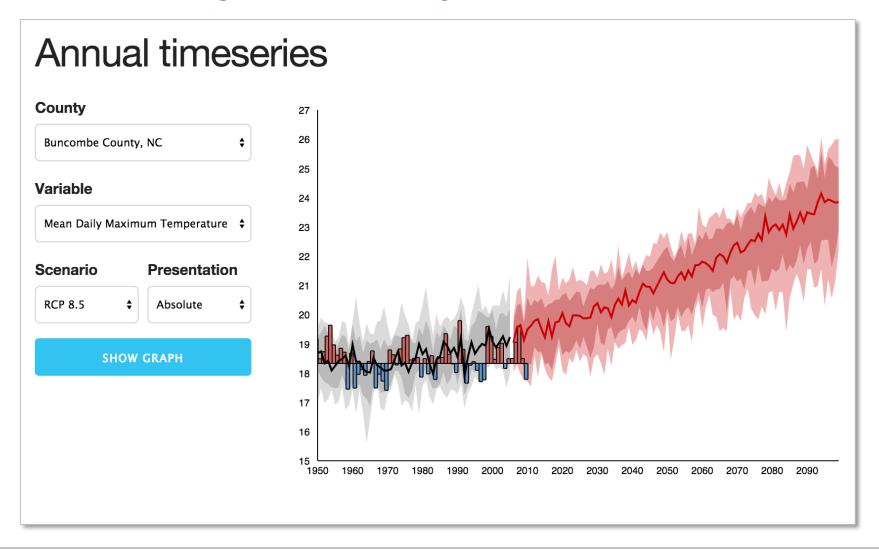


Climate Projection Maps



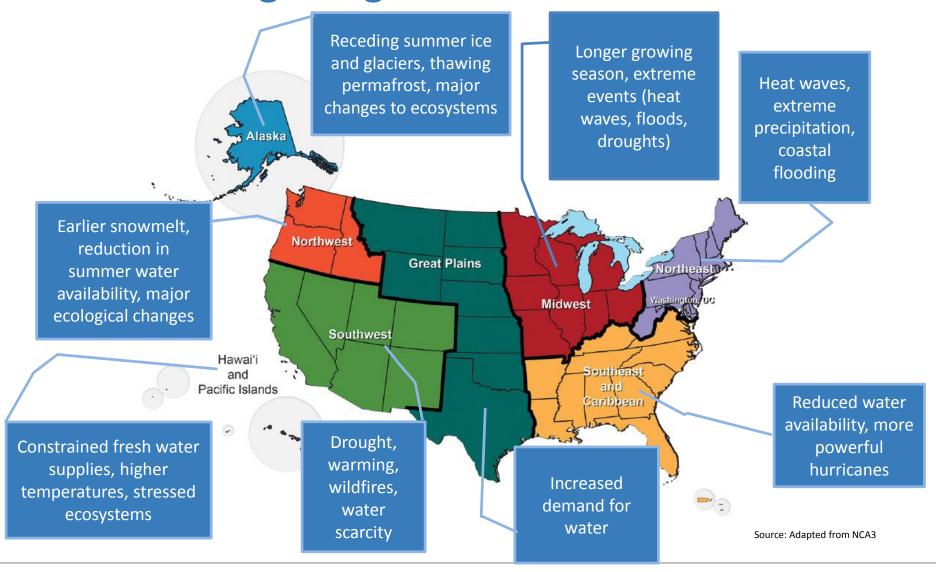


Climate Projection Graphs



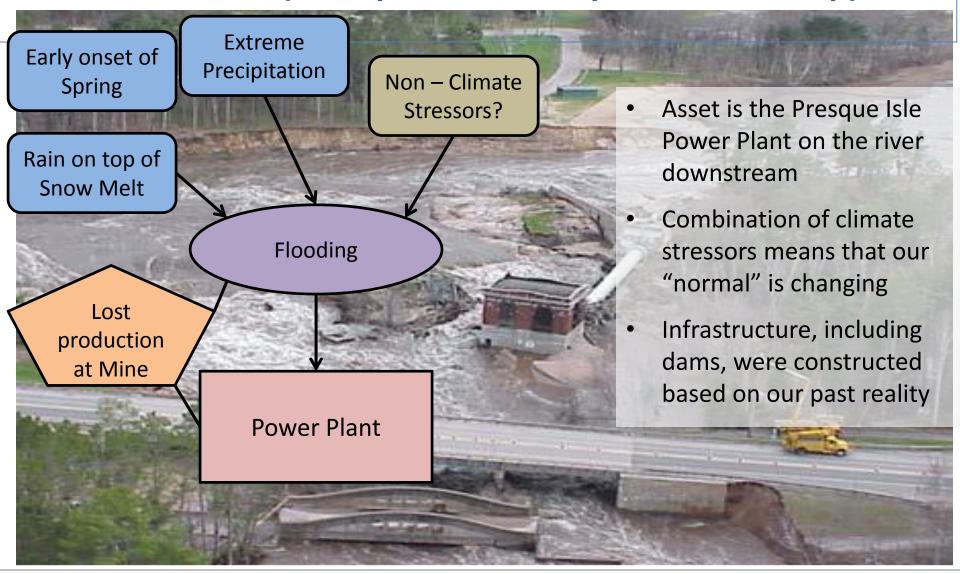


We are adding a Regions Section to the CRT





2003 Flood Event (Example from Marquette Workshop)





Our Funding Opportunities page presents a curated list of about two dozen grant funding mechanisms offered by the federal government and non-profit foundations.



Get Started Taking Action Tools Topics Expertise



Home > About

Funding Opportunities

Many of the strategies for increasing climate resilience come with a price tag. In the United States, a range of government entities and private foundations offer financial and technical resources to advance local adaptation and mitigation efforts. At the global scale, The World Bank and other organizations support financial strategies to build resilience. For your convenience, we have gathered information and links describing funding opportunities that may be relevant for building climate resilience. Please follow the external links to learn about any program.

NOAA 2015 Regional Coastal Resilience Grant Program

The Regional Coastal Resilience Grant program will support regional approaches to undertake activities that build resilience of coastal regions, communities, and economic sectors to the negative impacts from extreme weather events, climate hazards, and changing ocean conditions. Eligible applicants include nonprofit organizations, institutions of higher education, regional organizations, private (for profit) entities, and local, state, and tribal governments. Up to \$5 million will be available; award amounts will range from \$500,000 to \$1 million. Proposals are due by July 24, 2015.

NOAA Habitat Conservation: Coastal Ecosystem Resiliency Grants

The Coastal Ecosystem Resiliency awards will fund projects that develop healthy and sustainable coastal ecosystems through habitat restoration and conservation. NOAA anticipates that \$4 million will be available in 2015 for 1-3 year projects. Projects will primarily be funded through cooperative agreements; typical awards will range from \$500,000 to \$1 million. Applications are due by July 2, 2015.

. Building Blocks for Sustainable Communities

The EPA's Building Blocks for Sustainable Communities provides quick, targeted technical assistance to selected communities using a variety of tools that have demonstrated results and widespread application.

· Partnership for Sustainable Communities

The U.S. Department of Housing and Urban Development (HUD), U.S. Department of Transportation (DOT), and the U.S. Environmental Protection Agency (EPA) work together to help communities nationwide improve access to affordable housing, increase transportation options, and lower transportation costs while protecting the environment. The site's map of grants shows information on awards already made through Partnership programs.

• FEMA (Federal Emergency Management Agency) Preparedness (Non-Disaster) Grants

FEMA provides state and local governments with preparedness program funding to enhance the capacity of their emergency responders to prevent, respond to, and recover from a range of hazards.

FEMA Hazard Mitigation Assistance

FEMA's Hazard Mitigation Assistance grant programs provide funding to protect life and property from future natural disasters.

- o Hazard Mitigation Grant Program (HMGP) assists in implementing long-term hazard mitigation measures following a major disaster.
- o Pre-Disaster Mitigation (PDM) provides funds for hazard mitigation planning and projects on an annual basis.
- Flood Mitigation Assistance (FMA) provides funds for projects to reduce or eliminate risk of flood damage to buildings that are insured under the National Flood Insurance Program (NFIP) on an annual basis.

FEMA Disaster Survivor Assistance

Disaster survivors can find step-by-step instructions for preparing to apply for assistance, completing an application for assistance, and following up after receiving disaster assistance.



Get Started Taking Action Tools Topics Expertise

About | Contact | Funding Opportunities | FAQ

Search > Results >

Search

powered by webLyzard

health resilience assessment tool

101

Filter: Human Health Risks

Tool - All Federally Funded Sites

1536 documents round. You can narrow your results writh the above filter settings.

Health Impact Assessments A Tool for Designing Climate Change Resilience into Green Building and Planning Projects

www.ccrun.org

Impact Assessments A Tool for Designing Climate Change Resilience into Green Building and Planning Projects. on Wed, 08/21/2013 - 20:24. Title Health Impact Assessments A Tool for Designing Clim ...

VA Verification Assessment Tool - BusinessUSA

business.usa.gov

process and applicability of the Veteran's First policies, we have developed the Verification Assessment Tool. The Verification Assessment Tool is a firm's assessment, designed to provide the (VOSBs/S ...

USGCRP Climate & Health Assessment

www.globalchange.gov

Assessment. The USGCRP Climate and Health Assessment will be an evidence-based, quantitative assessment of observed and projected climate change impacts on human health in the United States. Developme ...

Community Health Resilience Guide and Toolset

toolkit.climate.gov

strengthen community health resilience across the country. The CHRI site combines a Community Health Resilience Planning Guide with Community Health Resilience-related tools. The tools on the site can ...

Webinar on Cornell Soil Health Assessment: A Diagnostic Approach for Evaluating and Managing Soil Health Adapt-N blog

(e) blogs.cornell.edu

beyond nutrient limitations and excesses currently limit agroecosystem sustainability, resilience to drought and extreme rainfall, and progress in soil and water conservation. On much of today's agric ...

Metadata Access Tool for Climate and Health - MATCH

toolkit.climate.gov

Metadata Access Tool for Climate and Health, known as MATCH, is a searchable clearinghouse of publicly available federal metadata—or data about data. It provides links to datasets on both climate and ...

FACT SHEET: Strengthening the Climate Resilience of the Health Care Sector - The White House

www.whitehouse.gov

change impacts on the sector are both a public health and an economic threat. The HHS climate resilience guide, titled "Primary Protection: Enhancing Healthcare Resilience for a Changing Climate," is ...

Our semantic web search tool allows users to quickly search the CRT site; or the entire U.S. federal gov't & grantees.

Use the filters menus to winnow result sets by topic of interest and/or resources type.



RESILIENCE AMERICORPS

EMILY THERESE CLOYD

Engagement and Outreach Lead US Global Change Research Program

ecloyd@usgcrp.gov

U.S. GLOBAL CHANGE RESEARCH PROGRAM



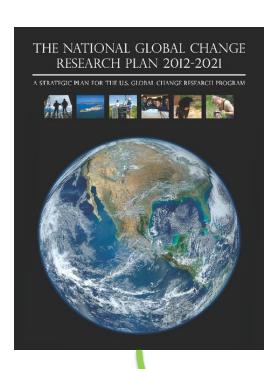
Global Change Research Act (1990):

"To provide for development and coordination of a comprehensive and integrated United States research program which will assist the Nation and the world to understand, assess, predict, and respond to human-induced and natural processes of global change."



www.globalchange.gov

USGCRP STRATEGIC PLAN (2012)



Advance science Advance scientific knowledge of the integrated natural and human components of the Earth system to understand climate and global change

Inform decisions Provide the scientific basis to inform and enable timely decisions on adaptation and mitigation

Conduct sustained assessments Build sustained assessment capacity that improves the Nation's ability to understand, anticipate, and respond to global change impacts and vulnerabilities

Communicate and educate Advance communication and education to broaden public understanding of global change and develop the scientific workforce of the future

We're updating our Strategic Plan and want to hear from you! More info at http://1.usa.gov/1IYYqYH



INTERAGENCY WORKING GROUPS

IWGs are designed to bring agencies together to plan, develop, and implement coordinated activities, and to identify and fill gaps in the Program's plans.

- Observations
- Integrative Modeling
- Scenarios and Interpretive
 Science
- Process Research
- Social Sciences
- Carbon Cycle

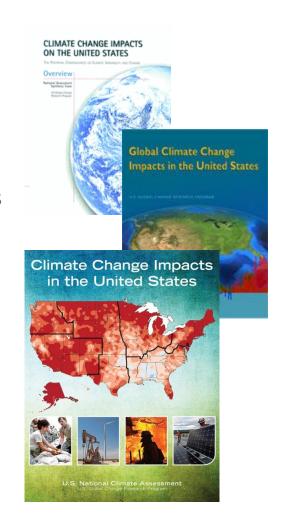
- Human Health
- Adaptation Science
- National Climate Assessment
- Global Change Information System
- Indicators
- International Research and Cooperation
- Education



NATIONAL CLIMATE ASSESSMENT GLOBAL CHANGE RESEARCH ACT (1990): SECTION 106

...not less frequently than every 4 years, the Council... shall prepare... an assessment which –

- integrates, evaluates, and interprets the findings of the Program (USGCRP) and discusses the scientific uncertainties associated with such findings;
- analyzes the effects of global change on the natural environment, agriculture, energy production and use, land and water resources, transportation, human health and welfare, human social systems, and biological diversity; and
- analyzes current trends in global change, both humaninduced and natural, and projects major trends for the subsequent 25 to 100 years.



THIRD NATIONAL CLIMATE ASSESSMENT MAY 2014

- Climate Change and the American People
- Overview and Report Findings
- Our Changing Climate
- Sectors
- Regions
- Response Strategies
- Appendices



HTTP://NCA2014.GLOBALCHANGE.GOV/

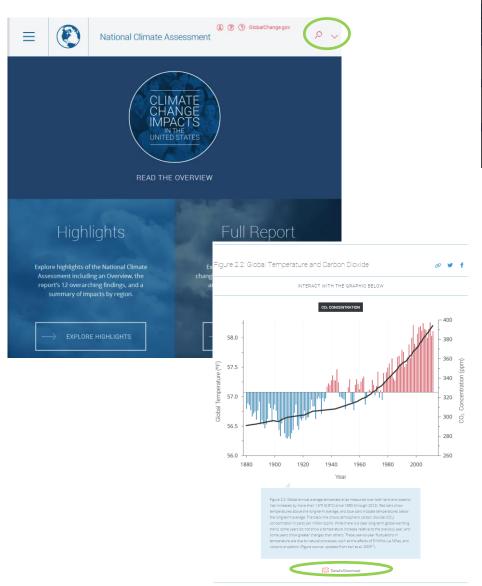
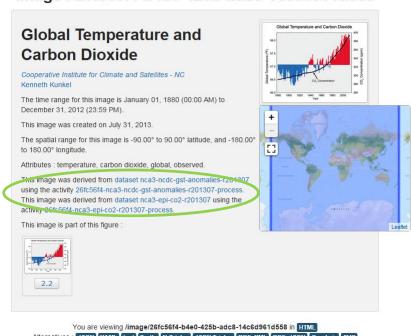






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Search



HTTP://WWW.GLOBALCHANGE.GOV/BROWSE/FEDERAL-ADAPTATION-RESOURCES

Resources by and for Federal agencies, intended to support the planning and implementation of measures to adapt to climate change

Resources range from executive orders and technical reports to programs, networks, tools, and guides

- Built Infrastructure
- Communication & Training
- Human Health
- Natural Resources
- Disaster Response
- Regional Climate
 Information & Modeling
- Observations & Monitoring

Transportation

Transportation and Climate Change Clearinghouse

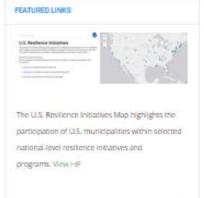
Developed by the Department of Transportation (DOT), this site is intended to be a one-stop source of information on transportation and climate change issues. It includes resources on greenhouse gas (GHG) inventories, analytic methods and tools, GHG reduction strategies, and potential impacts of climate change on transportation infrastructure. Go >



Virtual Framework for Vulnerability Assessment

This section of the Federal Highway Administration (FHWA) website brings together tools, guidance, case studies, and other information to help local and regional transportation agencies assess their vulnerability to climate change, step by step. It is designed to help transportation professionals implement FHWA's Climate Change and Extreme Weather Vulnerability Assessment Framework (published in 2012). Go >







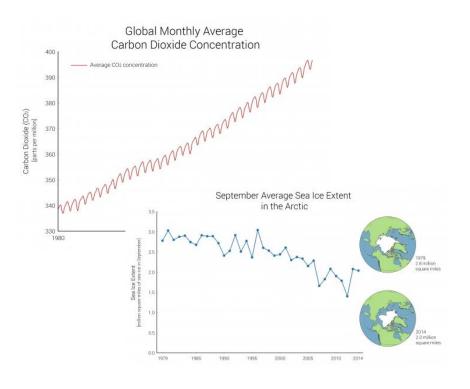
The U.S. Climate Resilience Toolkit has sciencebased tools and real-world case studies on topics such as coastal flood risk, ecosystem vulnerability, food resilience, water resources, and human health. View >

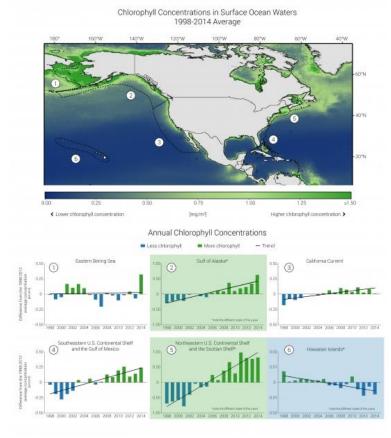


Climate.Data.Gov provides free access to Federal data relevant to climate impacts on coasts, ecosystems, food, water, and health. view >

USGCRP PILOT INDICATOR SYSTEM

HTTP://WWW.GLOBALCHANGE.GOV/BROWSE/INDICATORS





Help us improve the indicator system!



NCANET: CREATING A NETWORK OF COLLABORATORS

http://ncanet.usgcrp.gov

- Sharing wisdom, ideas, and best practices
- Building long-term capacity
- Cultivating collaboration

170+ members

- Monthly conversations
- "Affinity groups" model
- Connecting the NCA to member organizations' stakeholders
- Adding value to existing and new climate-related activities

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Acclimatise | Adaptation International | A
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University Presidents' Climate Commitment
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 Society Policy Program | American Plan
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 Civil Engineers | American Statistical
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 | Next Generation | North Carolina Depart
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   (PIRCA) | Pacific Northwest Tribal Cli
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Portland Water Bureau | Program on
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RESILIENCE AMERICORPS

Come visit us tomorrow during the Resource Fair!



Emily Therese Cloyd Engagement and Outreach Lead ecloyd@usgcrp.gov



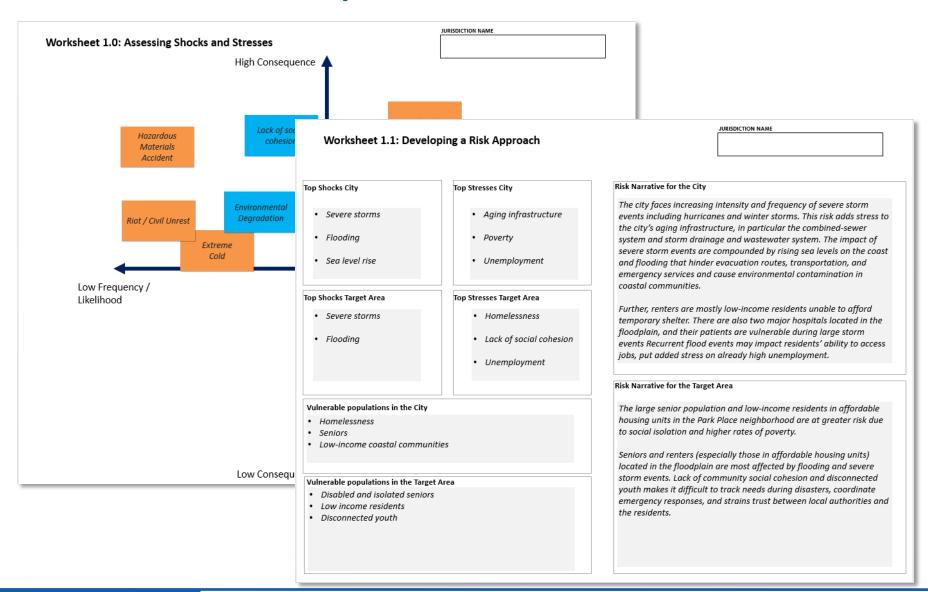
Sarah Zerbonne
Adaptation and Decision Science Coordinator szerbonne@usgcrp.gov



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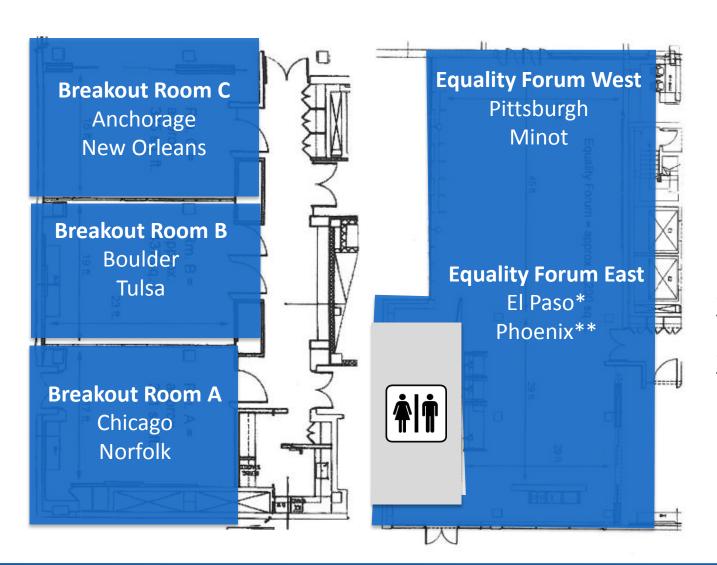
Q&A

EXERCISE | UNDERSTANDING RISK





CITY TEAM BREAKOUT ROOM ASSIGNMENTS



*Move to **Breakout A** on **Thursday from 11:00a - 11:45a**

Move to **Breakout B on **Thursday from 11:00a - 11:45a**





RESILIENCE AMERICORPS

WENDY SPENCER

CHIEF EXECUTIVE OFFICER
CORPORATION FOR NATIONAL
AND COMMUNITY SERVICE



DEVELOPING RESILIENCE STRATEGIES AND PROJECTS

ASIMA JANSVELD, HR&A ADVISORS, INC.

2008 FLOODS, CEDAR RAPIDS, IOWA

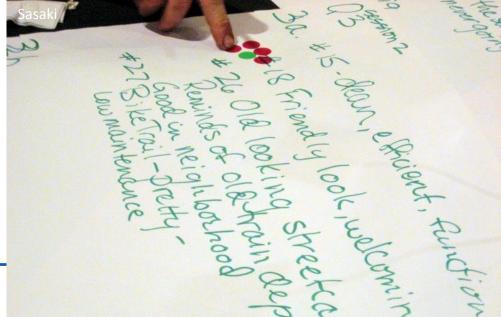


10-MONTH COLLABORATIVE VISIONING PROCESS

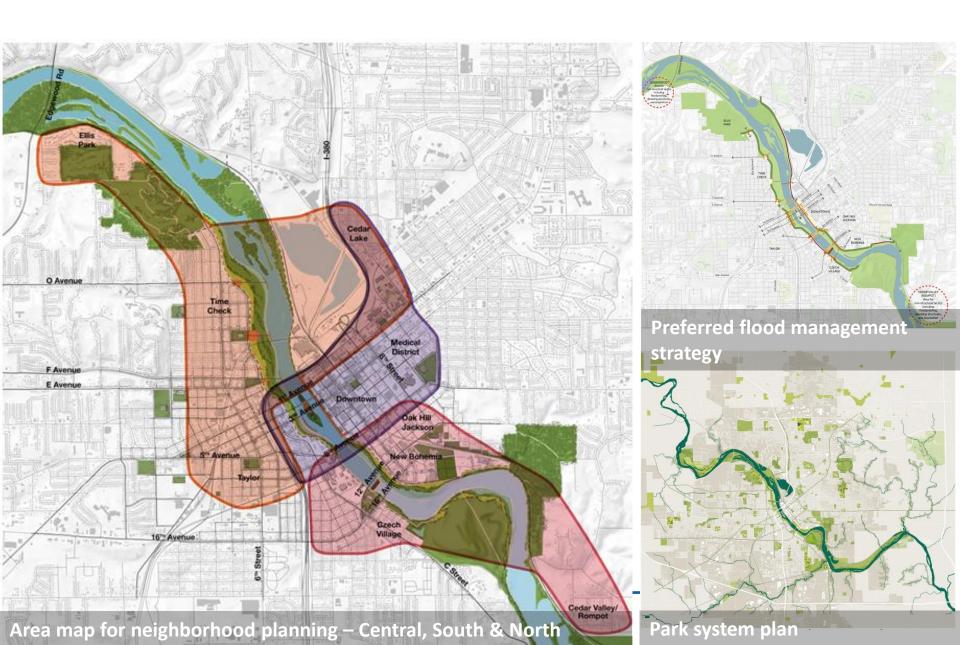








BRIDGING NEIGHBORHOODS THROUGH PLANNING



DESIGN-DRIVEN, ITERATIVE REVITALIZATION







DEFINING RESILIENCE PROJECTS

A process that was...

Interdisciplinary

Engaged

Iterative and Design Driven

An approach that...

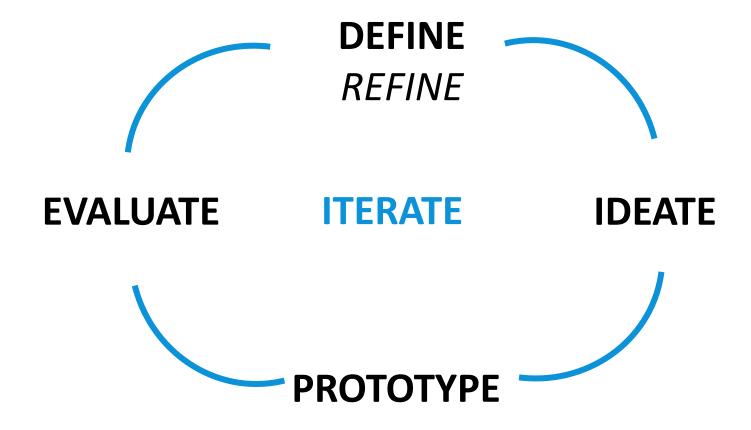
Addressed Multiple Risks

Maximized Co-Benefits

Utilized Leverage



DESIGN THINKING APPLIED



FROM APPROACH TO PROJECT

A resilience APPROACH that...

- Builds resilience in your community
- Addresses multiple risks current and future
- Engages multiple stakeholders to generate innovative strategies
- Maximizes co-benefits and leverage
- Builds capacity to create more resilient communities over the long term

A PROJECT builds resilience and contributes to...

- Demonstrates resilience value to your community
- Scales and can be replicated
- Addresses multiple risks current and future
- Engages multiple stakeholders to generate innovative strategies
- Maximizes co-benefits and leverage
- Builds capacity to create more resilient communities over the long term



PANEL | DEVELOPING RESILIENCE STRATEGIES AND PROJECTS

Asima Jansveld – Moderator

HR&A Advisors

Emily Seyller

Cadmus

Deb Jospin

Cities of Service

Michael McCormick

Office of the Governor, State of California





EMILY WASLEY SEYLLER

CADMUS Senior Climate Risk & Resilience Specialist

emily.seyller@cadmusgroup.com











RESILIENCE AMERICORPS ACADEMY EXERCISES

Why Resilience AmeriCorps?

> Introduce teams and open discussion

Understanding
Risk

- Identify top shocks and stresses in the city and the target area;
- Establish who and what is most vulnerable

City Resilience

 Establish strengths, weaknesses, opportunities and challenges to building resilience Defining an Approach

- Establish the resilience opportunity;
- Brainstorm project ideas;
- Get feedback on resilience approach

Engaging Stakeholders

- Identify key stakeholders;
- Frame a messaging strategy for engagement

Project
Planning

 Create a high-level implementation plan supporting initial approach and project ideas

Day 1

Day 2

EXAMPLE RESILIENCE PROJECTS

- Urban resilience indicators to assess Washington DC's resilience to climate change
- Cost benefit analysis to identify U.S. drought management options
- Community clean energy resilience initiative for State of MA
- Regional climate adaptation, preparedness, and resilience exercise series in the City of Houston and States of Colorado and Alaska



For Immediate Release July 16, 2014

FACT SHEET: Taking Action to Support State, Local, and Tribal Leaders as They Prepare Communities for the Impacts of Climate Change

Building more resilient communities:

• Committing to "Preparedness Pilots." The Administration today announced the launch of two "Preparedness Pilots" in cooperation with the City of Houston and the State of Colorado, with NASA (Johnson Space Flight Center) and the Energy Department (National Renewable Energy Laboratory). The pilots will involve key Federal agencies in each community, including NASA, the Energy Department, the Department of Defense, the Department of the Interior, the U.S. Army Corps of Engineers, and the Department of Agriculture. These pilots will bring together federal agencies and local communities to assess and plan for their region-specific vulnerabilities and interdependencies associated with the impacts of climate change. This effort will advance preparedness planning on the ground and help create models for other communities and agencies to follow.

https://www.whitehouse.gov/the-press-office/2014/07/16/fact-sheet-taking-action-support-state-local-and-tribal-leaders-they-pre



REGIONAL CLIMATE ADAPTATION, PREPAREDNESS, & RESILIENCE EXERCISE SERIES

Project Goals

- Advance the resilience dialogue at the regional scale
- Enhance collaboration between community partners
- Identify gaps in research, information, and capabilities
- Integrate climate considerations into local hazard mitigation planning

Project Implementation

- Coordination and engagement with multiple stakeholders
- Identification of regional and local experts and decisionmakers
- Integration of data from Third NCA
- Co-development of exercise materials, scenarios, risks, opportunities



City of Houston



State of Colorado



State of Alaska



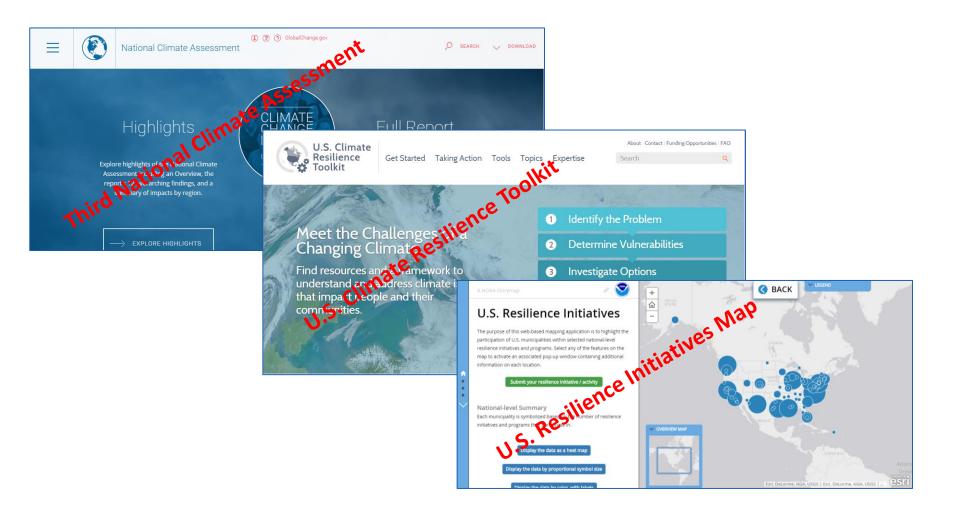
KEY TAKEAWAYS FROM ENGAGEMENT IN RESILIENCE PROJECTS

- Understand your baseline
- Explore long-term community vision and goals
- Ask the "climate question"
- Highlight co-benefits and opportunities
- Build upon community values
- Remember that no one size fits all
- Monitor and evaluate over time
- COLLABORATE!





OTHER USEFUL RESOURCES







DEB JOSPIN

PROGRAM CONSULTANT CITIES OF SERVICES

NASHVILLE FLOOD 2010





NASHVILLE FLOOD 2010





STORM BUSTERS



STORM BUSTERS



MICHAEL MCCORMICK

SENIOR PLANNER
OFFICE OF THE GOVERNOR, STATE OF CALIFORNIA

ADDITIONAL RESOURCES

California Climate Change Portal www.climatechange.ca.gov

California CivicSpark AmeriCorps http://civicspark.lgc.gov

ARCCA www.arccacalifornia.org



EXERCISE | DEFINING AND APPROACH AND PROJECT

Worksheet 3.1: Defining an	Approach, Ideate Appro	ach Ideas and Concepts

URISDICTION NAME		_
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Resilience Opportunity Statement

In the next 10 years, the city has an oppo events and support community assets an vulnerable populations in emergency and emergency.

What ideas do you have to address your Resilience

- · Provide co-benefits such as ecosystem
- Create an opportunity to build emerge networks
- Opportunity to engage disconnected y maintaining a community space and a low-income residents
- Solution will take one-year to start, bu pilot an approach to community green
- · New assets may include a new public (
- Impact of a pilot will be felt in the imn wide and will provide a model for othe

Worksheet 3.2: Draft Approach and Project Ideas

Description

Support flood protection strategies in vulnerable areas to protect transportation networks from disruption, protect aging infrastructure and building stock, and incentivize community cohesion.

Project Elements

- Bio-swales
- Tree plantings
- Community gardens in 2 low-income neighborhoods
- Education program

Project Goals

In the long-term, this initiative should support community cohesion in the Park Place neighborhood and support the resilience goals of the city to build strong neighborhood networks.

In the near-term this initiative should generate a new public space for low-income residents in the Park Place neighborhood and support storm water mitigation priorities of the city.

Project Concepts and Diagrams

JURISDICTION NAME

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CRITIQUE ROOM ASSIGNMENTS

	Equality Forum	Equality Forum	Breakout Room	Breakout Room	Breakout Room
	East	West	Α	В	С
City Teams					
4:45p – 5:15p	El Paso	Pittsburgh	Chicago	Boulder	New Orleans
5:15p – 5:45p	Phoenix	Minot	Norfolk	Tulsa	Anchorage
Partners	Olivia Armenta Curt Baranowski	Stephen Cauffman Keelin Kuipers	Kevin Bush Ginger Hinchcliff	Danielle Arigoni Deb Jospin	Matt Lyttle Asima Jansveld
	Joshua Barnes	Nicholas Lalla	Alice Kamens	Katherine Michonski	Alison Miskiman
	Michael McCormick	Sam Carter	Joel Scheraga	Emily Seyller	Niek Veraart





RECEPTION

THE WHITTEMORE HOUSE
1526 NEW HAMPSHIRE AVENUE NW