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Destruction at Tyndall Air Force Base following Hurricane Michael



EPI READINESS AND ENVIRONMENTAL PROTECTION INTEGRATION PROGRAM





### August 1, 2022 Climate Risk & Resilience

#### Tancred Miller NC Division of Coastal Management



## **Regulatory Program**

- 4 District Offices; Local Permitting Officers

**Elizabeth City** 

Washington

**Morehead City** 

Wilmington

# **Policy and Planning**

- Policy development w/ CRC
- CAMA Land Use Planning
- Coastal Resilience Planning
- Waterfront Access Grants

# **Coastal Reserve Program**

- 10 Coastal Reserves
- Focus on research and education

# **Legislative Leadership**

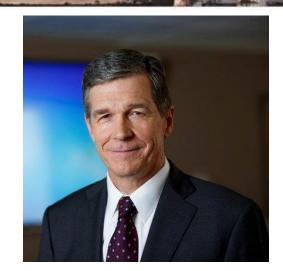
– Sen. Jim Perry and Rep. John Bell



- Comprehensive and inclusive process to identify & implement best models for state investment and programs
- \$800M in current biennium for disaster recovery & building resilience against future disasters (funds LGs & state agencies)
- \$50M for conservation trust funds
- \$20M for Statewide Flood Resiliency Blueprint
- \$10M for resiliency planning

### **Executive Branch Leadership**

- Governor's Executive Order 80
  - a. Climate Science Report
  - b. Climate Risk & Resilience Report
  - c. Resilient Communities Program (RISE & RCCP)
- Governor's Executive Order 266
  a. Update NC Uniform Floodplain Management Policy
  b. Avoid or mitigate risk of state construction in floodplains



# NC Resilient Coastal Communities Program



**Build local capacity** for vulnerability assessments, planning and project development, and implementation

**Provide technical assistance** for resilience planning, vulnerability assessments, and project/program identification and design

Supply funds to plan and implement resilience projects and programs

# NC Resilient Coastal Communities Program

Community Engagement & Risk / Vulnerability Assessment



Planning, Project Selection, and Prioritization

Engineering & Design

Implementation

# NC Resilient Coastal Communities Program

NCGA (SL 2019-224) NFWF ECRF NFWF NCRF HUD NOAA/CZMA Funding NCGA (SL 2021-180)



\$1,350,000 \$1,060,000 \$545,860 \$500,000 \$60,000 \$1,450,000

\$4,965,860

*\$1.1M in E&D awards just announced.* 

## **Final Thoughts**

- 1. Avoid maladaptation.
  - Plan, be strategic and analytical
  - Time pressure to spend can lead to hasty/bad decisions
- 2. <u>Consider local needs for green, gray, hybrid solutions.</u>
  - nature-based solutions are not effective against all hazards
  - nature-based solutions take time to reach full effectiveness
  - difficult to do cost-benefit analyses (to justify projects)
- 3. <u>Scale is critical.</u>
  - Challenges are local in impact, but need statewide approach
  - Frameworks and capacity must operate at both scales

### North Topsail Beach at New River Inlet

EA-GULL-LN-

Legend Roads Parcels 2020 Imagery 250 500 1,000 Feet

ran a

NC Division of Coastal Management - 2022

# Ocean Isle Beach

at Shallotte Inlet



NC Division of Coastal Management - 2022





### North Carolina Division of Coastal Management

#### Contact: Tancred.Miller@ncdenr.gov 252-515-5432



# Colorado Resiliency Office: Toward a Resilient Future

Anne Miller, Director

August 1, 2022



**COLORADO Resiliency Office** Department of Local Affairs

# How much will future hazards cost?



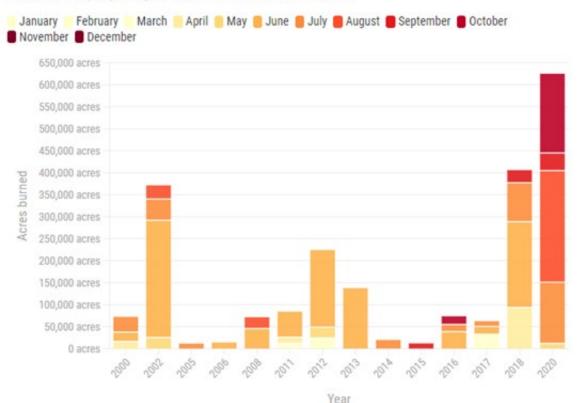
# WILDFIRE

DROUGHT

# 2020 Wildfires

#### Large wildfires started later in 2020

Acres burned per year by the month in which the fire started



Source: Rocky Mountain Area Coordination Center

#### Source: Colorado Sun (Oct 2020)



# **IMAGINING 2050** Future conditions with no actions taken to improve resilience



#### **Future conditions with resilient planning solutions**





COLORADO Resiliency Office Department of Local Affairs

# **Colorado Resiliency Office**

Wildfires and floods cause more than \$5 billion in damages, more than 3,000 homes destroyed, and-tragically, 17 lives lost 2012-2013

Colorado hosts the

Colorado Resiliency

Summit and the

Working Group is

formed

2014

signs the Colorado Resiliency Framework, establish a roadmap for building resiliency in Colorado 2015 Local Resiliency State's first Resiliency for fire and flood-

Governor Hickenlooper

Frameworks developed impacted communities along the Front Range 2015-2016

Web-based resiliency resource center launched online at www.coresiliency.com 2017

Formed the Long term Recovery Working Group to coordinate State recovery support to disaster-impacted communities 2018

Launched Resilient Colorado Communities Workshop series 2019

Colorado Disaster Emergency Act is updated to create the Colorado Resiliency Office under the Department of Local Affairs and mandate creation of a resiliency and community recovery program 2018

Began the Colorado Resiliency Institutionalization Project to integrate resiliency into State departmental investments and operations 2018

#### **COLORADO'S RESILIENCY STORY**

HB18-1394 created the Colorado Resiliency Office with bi-partisan support.



# **Resiliency Definition**

Resiliency is the ability of communities to **rebound and positively adapt to or thrive amidst changing conditions or challenges**—including human-caused and natural disasters and maintain quality of life, healthy growth, economic vitality, durable systems and conservation of resources for present and future generations.

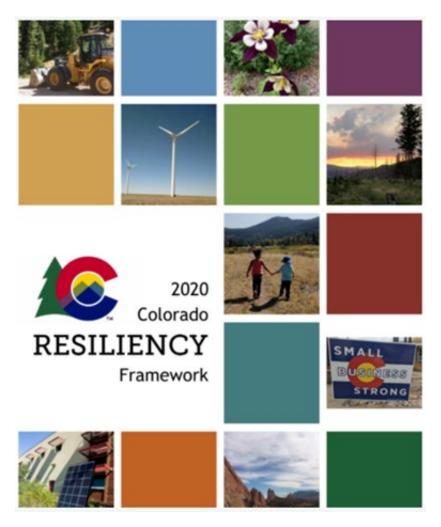
- 2018 Update to the Colorado Disaster Emergency Act



# Colorado Resiliency Office Role

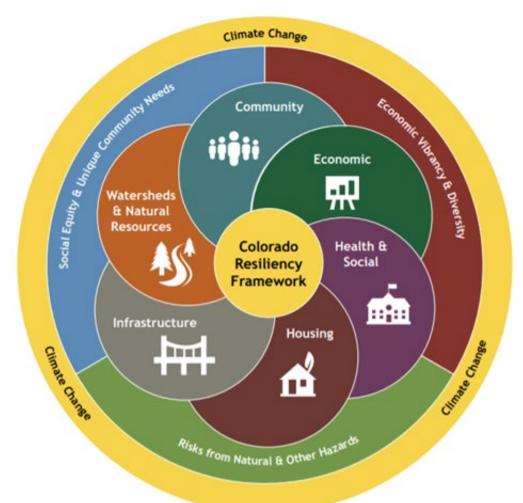
Designated State lead for resilience.

- Resiliency and community recovery program
- Long-term recovery
- State and local technical assistance
- State investments and grants programs





# Colorado Resiliency Framework (2020) Sectors & Themes





# **Priorities:**





COLORADO Resiliency Office Department of Local Affairs

Future-Ready Economy & Workforce

Climate & Natural Hazard Resiliency

Building &

Infrastructure

Sustainability



Agriculture & Food Security



Housing

Attainability



Community Capacity

# Strategies:

Strategy Tables (pp 49-67 in the Colorado Resiliency Framework), for example:

#### OVERARCHING STRATEGIES (OA)

While most of the strategies closely align with one priority, several strategies are broad and relate to all the resiliency priorities.

Strategy Name	Strategy Description	Resiliency Priorities Supported		
OA1. Establish a Statewide Resilient & Sustainable Community/	Facilitate coordination across jurisdictions on resiliency and sustainability issues. Develop and manage a program for communities to take concrete steps to improve their resiliency and sustainability		Contract & Notices & Reserved Contract & Reserved	Contraction of the second seco
Regional Program	performance.	& Food	Attainability	Capacity
OA2. Attract & Leverage Resiliency	Integrate resiliency criteria into State competitive grant programs and investments. Secure additional resources	(B) Economy b Workforce	Consta 8 Referred Hassards	Building B Infrastructure
Funding Opportunities	and investment to implement resiliency solutions.	Agriculture	E Housing Attainability	Community



# Planning for the Future

Not just responding to challenges, also preparing for the future we want



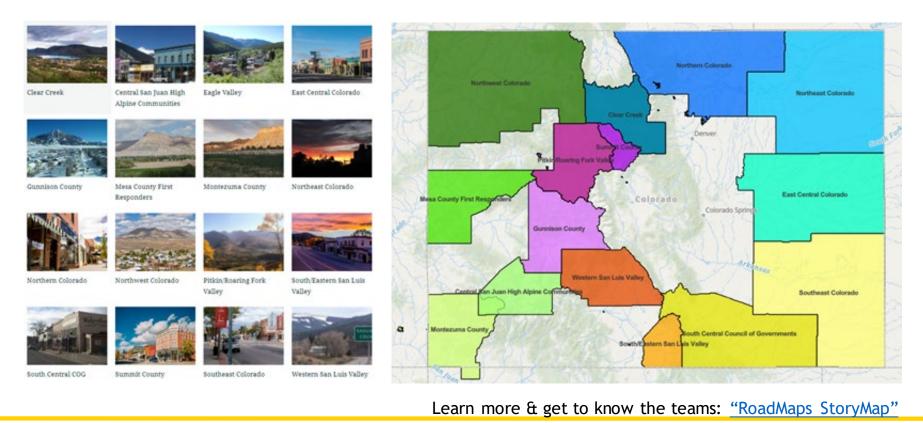


COLORADO Resiliency Office Department of Local Affairs Hart Van Denburg / CPR News

# Planning for the Future

#### Rural Resiliency & Recovery Roadmaps Program

A regional approach to help Colorado's rural communities recover from COVID and be more resilient to future shocks and stressors.



COLORADO Department of Local Affairs



COLORADO Office of Economic Development & International Trade





# Planning for the Future

COLORADO Resiliency Office

Home The CRO Programs Learn Prepare & Adapt Recover Engage Resources

#### Community Readiness And Resilience Toolkit Step 1: Get Started - Planning scope and partners

St	e	P	1	

Get Started

Identify Concerns and Gather

Step 2

Information

Assess Vulnerability & Understand Risks

Step 3

Develop Resilience Strategies

Step 4

Step 6

Monitor, Adjust, and Maintain Your Plan

**Future Avoided Cost Explorer:** 

**Colorado Hazards** 

#### coresiliency.com





PLANNING FOR HAZARDS Land Use Solutions for Colorado

# Explore economic impacts of flood, drought, and wildfire in 2050

Step 5

Take Action

Intro Explore by Hazard Explore by Sector & Region Explore by Future Scenario Explore by Resilience Actions

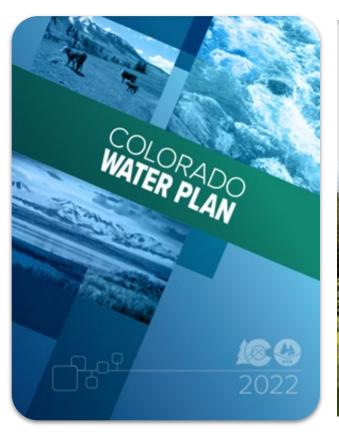
#### cwcb.colorado.gov/FACE



COLORADO Resiliency Office

# **Integrating Resilience**

#### State Plans:

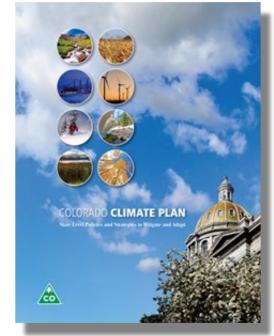


Colorado Department of Public Safety

2018-2023 Colorado Hazard Mitigation Plan









# Investing in Resilience

- <u>SB22-206</u> Disaster Preparedness & Recovery Resources (includes \$35M for resilient rebuilding)
- <u>HB22-1379</u> Wildfire Mitigation, Watershed Restoration, and Local Capacity (ARPA bill) (\$20M)
- <u>SB22-215</u> IIJA cash fund for match (\$81.5M)
- Historic opportunities to leverage funding!

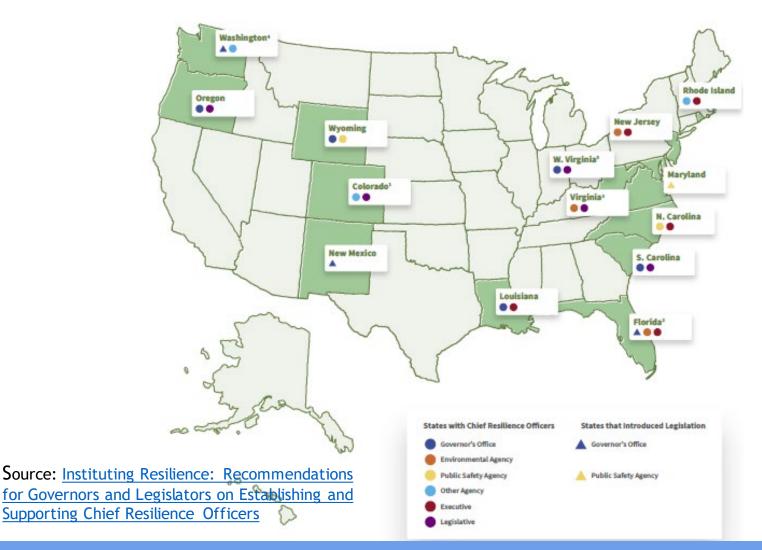
# Moving Colorado Forward American Rescue Plan Act Infrastructure Investment & Jobs Act Colorado Recovery Plan Funding Opportunities

coforward.colorado.gov



# Investing in Resilience

States with or exploring Chief Resilience Officer positions



Legislation: U.S. Rep Jason Crow (CO), joined by David Rouzer (NC), introduced the <u>CLEARAct</u> in March 2022, which authorizes a new grant program for States and Tribes to create and maintain resilience offices.

# Thank you!

# Anne Miller anne.miller@state.co.us



COLORADO Resiliency Office Department of Local Affairs



READINESS AND ENVIRONMENTAL PROTECTION INTEGRATION PROGRAM



National Conference of State Legislatures Legislative Summit 1 August 2022 | 2:45 – 3:45 PM MDT

Kristin Thomasgard, REPI Program Director, Office of the Assistant Secretary of Defense (Energy, Installations, & Environment)

### **DoD Climate Change Threats**

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- Of the 79 sites surveyed, over two-thirds were found to be vulnerable to recurrent flooding and more than one-half were found to be vulnerable to droughts and wildfires.
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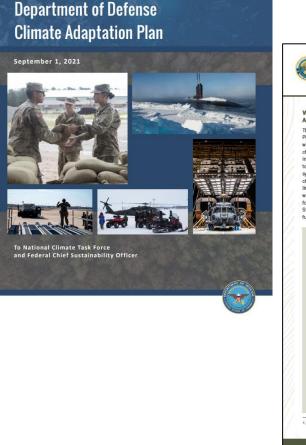
READINESS AND ENVIRONMENTAL TECTION INTEGRATION PROGRAM





#### **DoD Climate Adaptation Plan**

- The DoD Climate Adaptation Plan identifies climate change as a critical national security issue and threat multiplier that will continue to amplify operational demands, increase health risk to Service Members, and degrade installation infrastructure.
- There are five Lines of effort DoD will advance to ensure • the Department can operate under changing climate conditions.
- The REPI program and Sentinel Landscapes Partnership ٠ will help advance lines of effort three and five:
  - Line of Effort Three: Resilient and Built Natural Infrastructure
  - Line of Effort Five: Enhance Adaptation and • **Resilience Through Collaboration**







HOW DO REPI AND SENTINEL LANDSCAPE

The DoD Climate Adaptation Plan identifies the Readiness

and Sentinel Landscapes Partnership as two valuable tools

the Department will use to advance lines of effort three and

five as well as the second strategic enabler, contributing to

enhancing adaptation and resilience through collaboration

Through the REPI program, the Military Services enter into

cost-sharing agreements with state and local governments

and private conservation organizations to remove or avoid

land-use conflicts near installations and ranges, address

Conducting prescribed burns and removing

hazardous fuels to reduce wild fire ris

Recharging aquifers and installing

stormwater detention basins to reduce

regulatory restrictions that inhibit military activities, and

maintain or improve military installation resilience to climate change and extreme weather events. To increase

the expansion of resilient built and natural infrastructure and

and Environmental Protection Integration (REPI) Program

FACTOR INTO THE PLAN?

#### WHAT IS THE DOD CLIMATE ADAPTATION PLAN?

The Department of Defense's (DoD) Climate Adaptation Plan<sup>1</sup> features key actions and strategies the Department will take to enhance resilience to the effects of climate change and reduce greenhouse gas emissions. The plan includes five lines of effort the Department will implement to preserve operational capabilities, enhance natural systems, and ensure the Military Services can operate under changing climate conditions. The Climate Adaptation Plan's lines of effort and strategic outcomes cannot be achieved without four enablers. Together, the five lines of effort and four enablers create the Department's Climate Adaptation Strategic Framework, which will allow DoD to prepare for future climate change threats and sustain military readiness.

#### Lines of Effort

shared ecosystems.

1. Continuous Monitoring and Data Analytic 2. Aligning incentives to Reward Innovation

Enablers

3. Climate Literacy

4. Environmental Justic

- installation resilience and safeguard mission capabilities. installations work with partners to develop off-base natura 1. Climate-informed Decision-Making: Incorporate climate infrastructure solutions. change factors into all threat assessments, cost-benefit analyses, and strategies and policies to prepare for future climate change impacts. Off-Base Natural Infrastructure Solution Train and Equip a Climate-Ready Force: Incorporate climate adaptation concepts into existing training methods and
- exercises to fit climate-related requirements. Resilient Built and Natural Infrastructure: Incom built and natural infrastructure into natural resource plans to protect land near installations and preserve or expand ecosystems services Supply Chain Resilience and Innovation: Incorporate climate
- change considerations into all supply chain assessments to identify risks and corrective actions. Constructing living shorelines, restoring Enhance Adaptation and Resilience Through Collaboration dunes and wetlands, and enhancing Incorporate stakeholder interests and priorities into riparian buffers to reduce flood risk resilience activities to promote common goals and preserv

drought risk

- Building retention berms to reduce impacts of thawing permatrost

Rehabilitating soil to reduce land degradation and desertification

Department of Defense Climate Adaptation Plan, 1 September 2021: https://www.sustainability.cov/pdfs/dod-2021-cap.p





UNITED STATES DEPARTMENT OF DEFENSE READINESS AND ENVIRONMENTAL PROTECTION INTEGRATION PROGRAM

3



### **REPI and Military Installation Resilience**

- DoD established the REPI program in 2005 to combat encroachment, which it defines as pressures that adversely affect the military's use of its training and testing lands.
- Traditionally, the program has focused on encroachment risks stemming from land use conversion around military bases—namely, incompatible development and habitat loss.
- In Fiscal Year 2021, Congress expanded REPI's primary legal authority, 10 U.S. Code § 2684a, to include military installation resilience as a core focus of the REPI program.



DoD photo by Lance Cpl. Matthew Bragg, U.S. Marine Corps/Released)



**EPI** READINESS AND ENVIRONMENTAL PROTECTION INTEGRATION PROGRAM

4



### **REPI Natural Infrastructure Solutions**

- The REPI program focuses on enhancing resilience exclusively through the development or management of off-base natural infrastructure.
- Installations and partners can learn more about available natural infrastructure solutions in the REPI Resilience Primer: https://repiprimers.org/
- The figure below provides examples of natural infrastructure solutions executed through the REPI program.



**REPI** Natural Infrastructure Solution Examples



INITED STATES DEPARTMENT OF DEFENSE READINESS AND ENVIRONMENTAL PROTECTION INTEGRATION PROGRAM

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Building Resilience to Climate Change Through Off-Base Natural Infrastructure Solutions

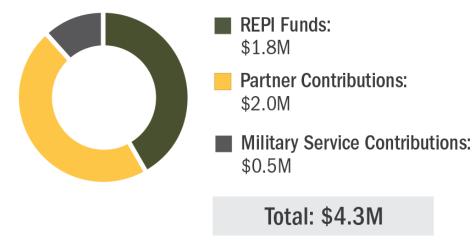
A REPI guide for installations and partners

**REPI** Resilience Primer

🐨 REPI :

# 2022 REPI Challenge Project – Fort Bragg, Seymour Johnson AFB, MCB Camp Lejeune, and MCAS Cherry Point

Nominating Partner: North Carolina Sentinel Landscape Committee





A Marine participates in live-fire training at Camp Lejeune, N.C., Feb. 3, 2021.

- Installations in the Eastern North Carolina Sentinel Landscape are vulnerable to coastal erosion, sea-level rise, degradation of natural resources, and wildfire threats.
- The landscape received **\$1.8 million** through the 2022 REPI Challenge to assess how climate change will impact critical waterways, wildfires, and red-cockaded woodpecker productivity.
- Funding will also secure new conservation easements near Marine Corps installations to increase water-holding capacity and reduce surface runoff and flooding.



#### DoD "Funds as Match" Authority

 Leverage REPI funds to satisfy the cost sharing requirement of ANY resilience or conservation program of ANY federal agency.

#### REPI Challenge

- Explore opportunities through the 2023 and 2024 REPI Challenge. Full proposals for the 2023 REPI Challenge are due September 12, 2022.
- National Conference of State Legislatures
  - Utilize resources from NCSL's Task Force on Military and Veteran Affairs.
  - Increase DoD engagement with existing partnerships (e.g., Sentinel Landscapes Partnership, State Resilience Offices, and State Hazard Mitigation Officers).



An Air National Guard C-130 drops retardant on Beckwourth Complex Fire near Frenchman Lake in Northern California, July 9, 2021.



7





READINESS AND ENVIRONMENTAL PROTECTION INTEGRATION PROGRAM



# For more information:

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**REPI Listserv:** 

http://confirmsubscription.com/h/d/33E9D72CAF1521B6