

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**.
- For example, in 2018, Hurricane Michael devastated Tyndall Air Force Base—compromising training grounds, impairing valuable equipment, and creating hazardous conditions for personnel. This event prevented military units from conducting critical training activities and led to almost **\$5 billion in repairs**, diverting resources away from other mission-critical efforts.



Destruction at Tyndall Air Force Base following Hurricane Michael



UNITED STATES DEPARTMENT OF DEFENSE

REPI READINESS AND ENVIRONMENTAL
PROTECTION INTEGRATION PROGRAM





August 1, 2022

Climate Risk & Resilience

Tancred Miller

NC Division of Coastal Management



NC Division of Coastal Management

Regulatory Program

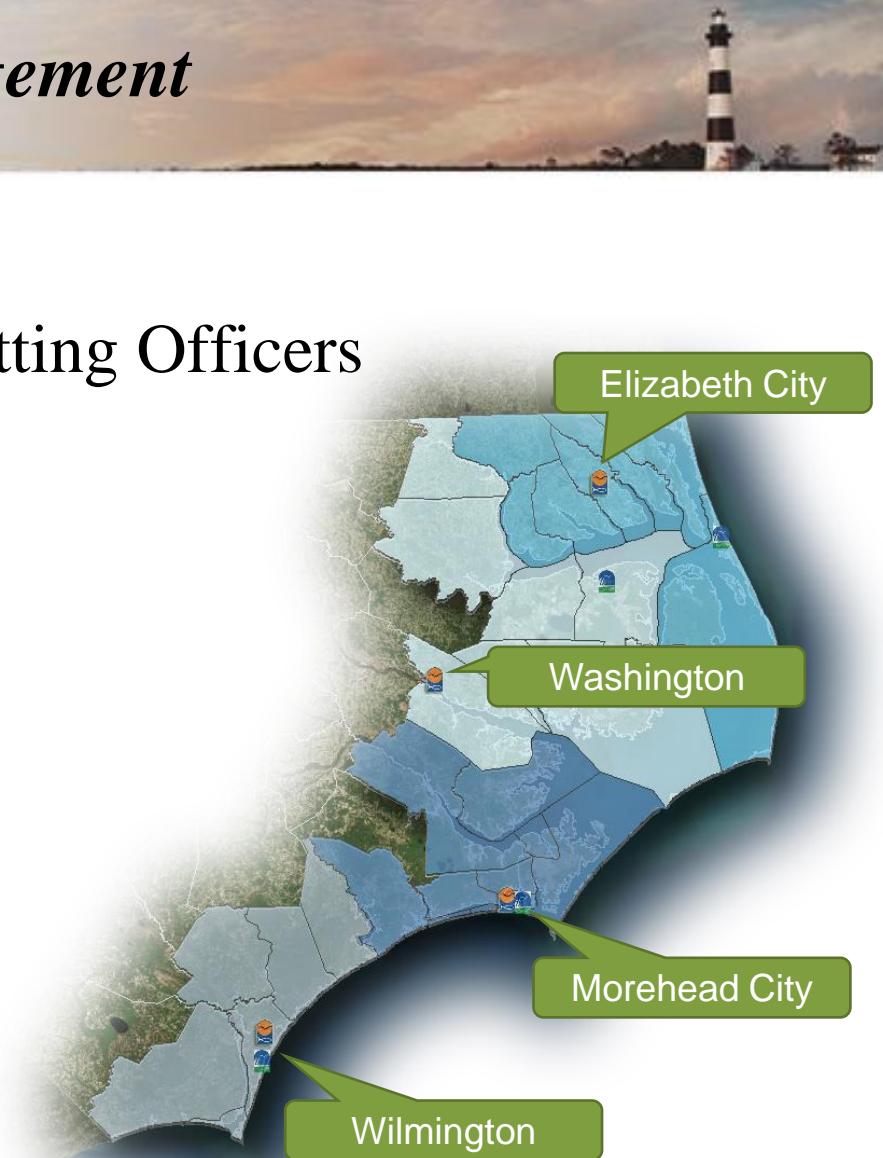
- 4 District Offices; Local Permitting Officers

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

North Carolina

**RESILIENT
COASTAL
COMMUNITIES
PROGRAM**



NC Resilient Coastal Communities Program



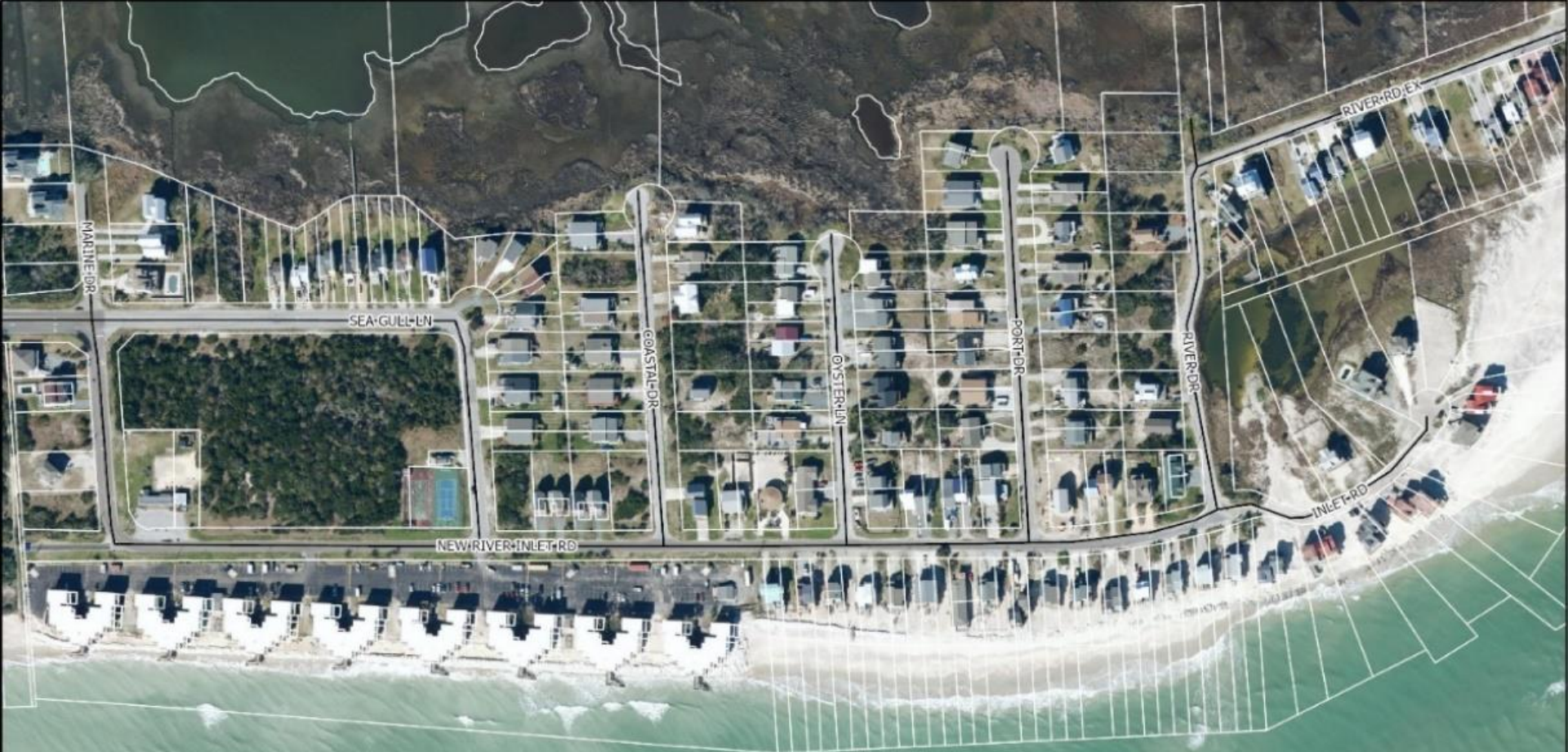
NCGA (SL 2019-224)	\$1,350,000
NFWF ECRF	\$1,060,000
NFWF NCRF	\$ 545,860
HUD	\$ 500,000
NOAA/CZMA Funding	\$ 60,000
NCGA (SL 2021-180)	<u>\$1,450,000</u>
	\$4,965,860

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



Final Thoughts

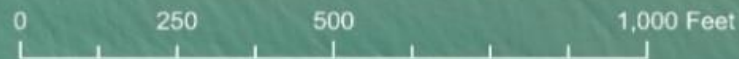
1. Avoid maladaptation.
 - Plan, be strategic and analytical
 - Time pressure to spend can lead to hasty/bad decisions
2. Consider local needs for green, gray, hybrid solutions.
 - nature-based solutions are not effective against all hazards
 - nature-based solutions take time to reach full effectiveness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



North Topsail Beach at New River Inlet



Legend
— Roads
□ Parcels
2020 Imagery





Ocean Isle Beach at Shallotte Inlet



- Legend
- Roads
 - Parcels
 - 2020 Imagery

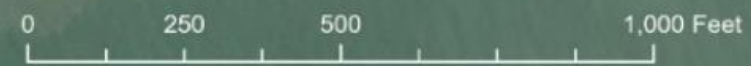




Buxton



Legend
— Roads
2020 Imagery





Avon



Legend
— Roads
2020 Imagery



North Carolina Division of Coastal Management

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





Colorado Resiliency Office: Toward a Resilient Future

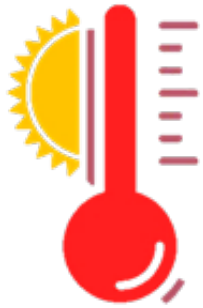
Anne Miller, Director

August 1, 2022



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How much will future hazards cost?



WILDFIRE



DROUGHT



FLOOD

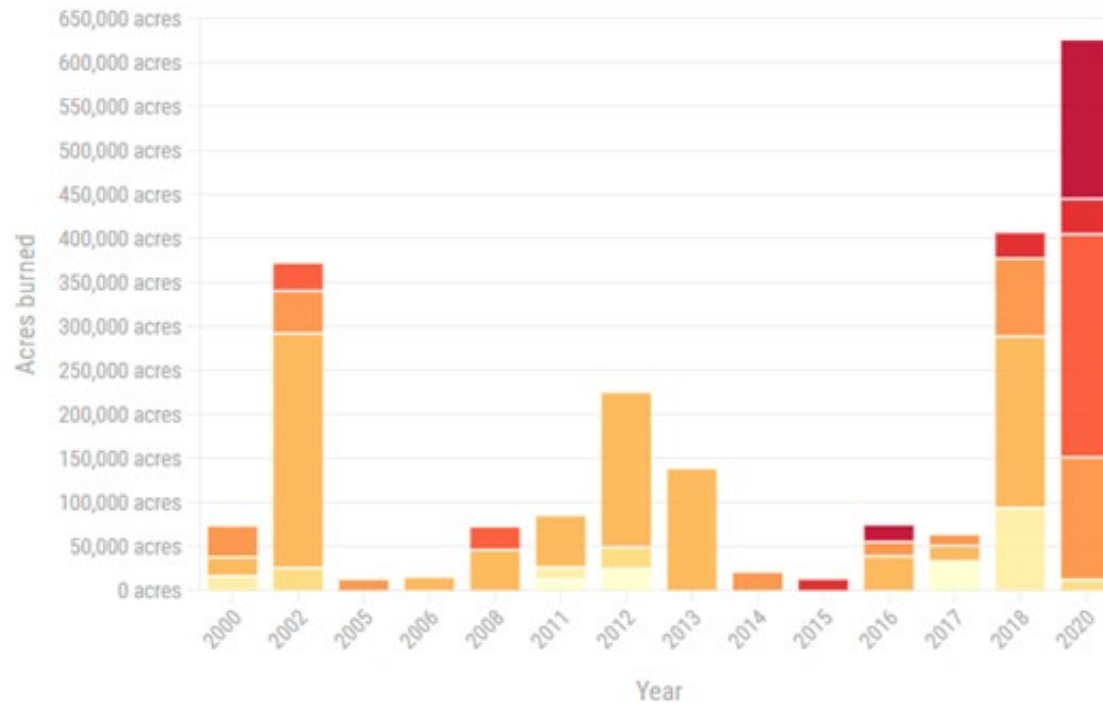


2020 Wildfires

Large wildfires started later in 2020

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

January February March April May June July August September October
November December



Source: [Rocky Mountain Area Coordination Center](#)

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



IMAGINING 2050

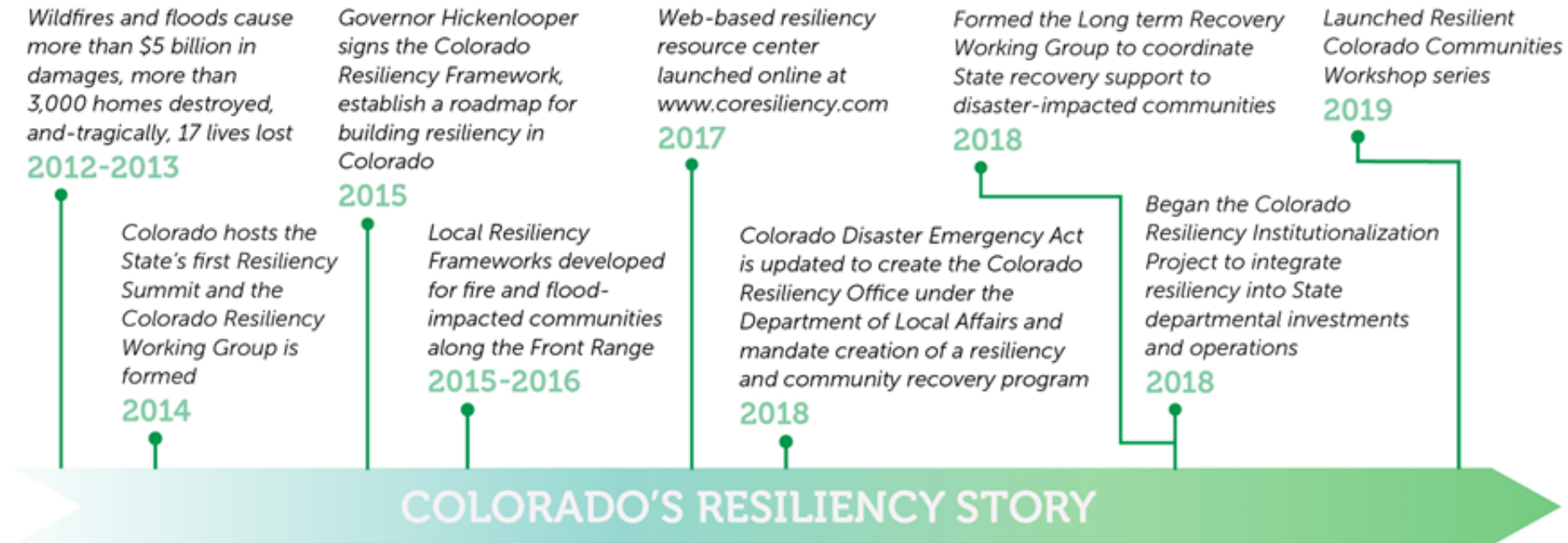
Future conditions with no actions taken to improve resilience



Future conditions with resilient planning solutions



Colorado Resiliency Office



[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.

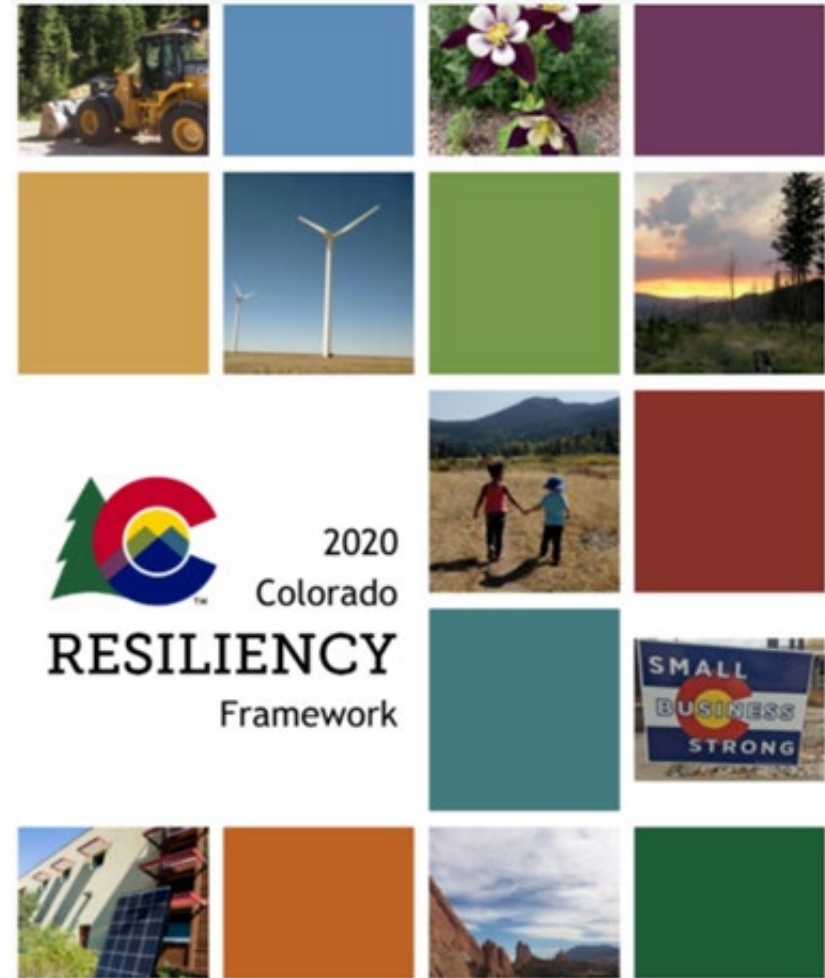
– 2018 Update to the Colorado Disaster Emergency Act



Colorado Resiliency Office Role

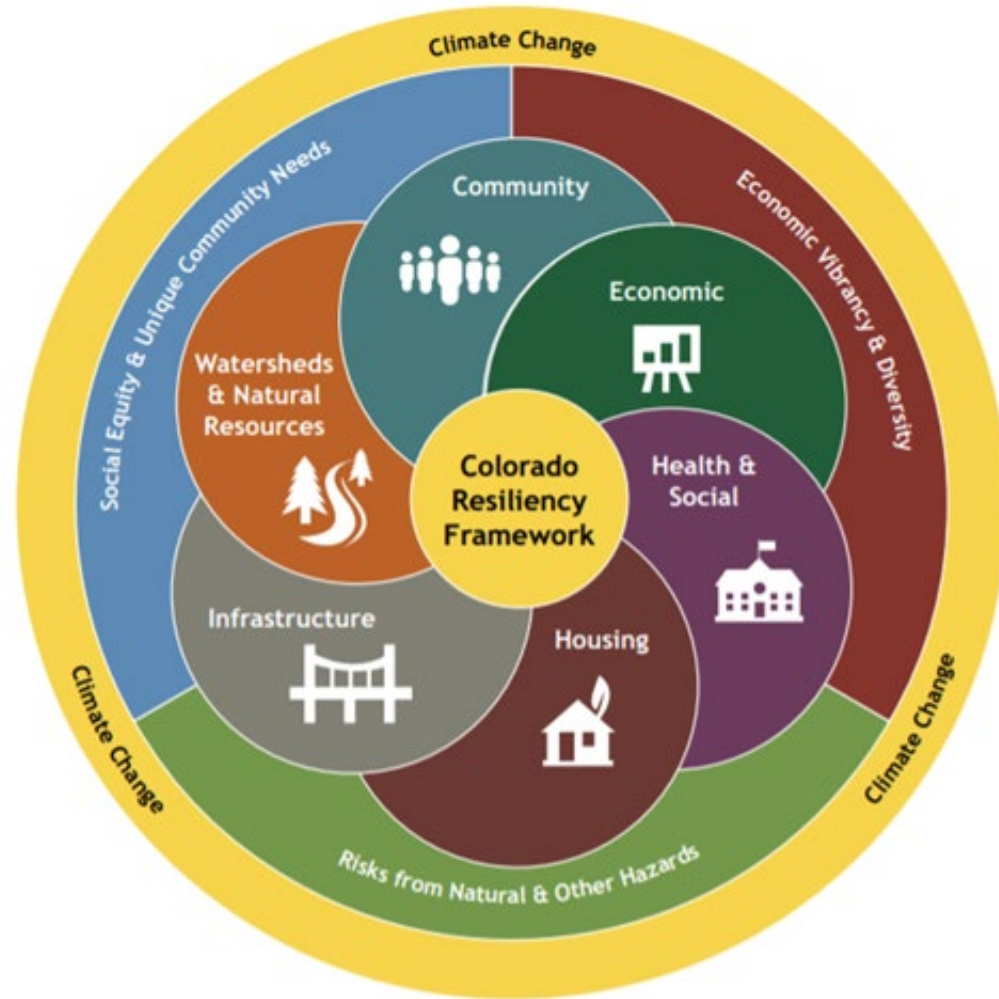
Designated State lead for resilience.

- 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:



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/Regional Program	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 performance.			
				
OA2. Attract & Leverage Resiliency Funding Opportunities	Integrate resiliency criteria into State competitive grant programs and investments. Secure additional resources and investment to implement resiliency solutions.			
				



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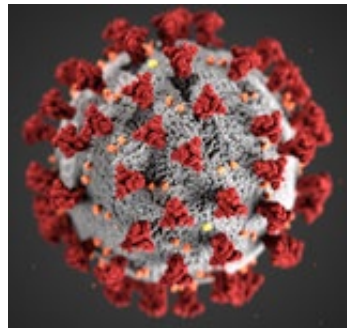
Planning for the Future

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

2015



2020



Hart Van Denburg/CPR News

2025



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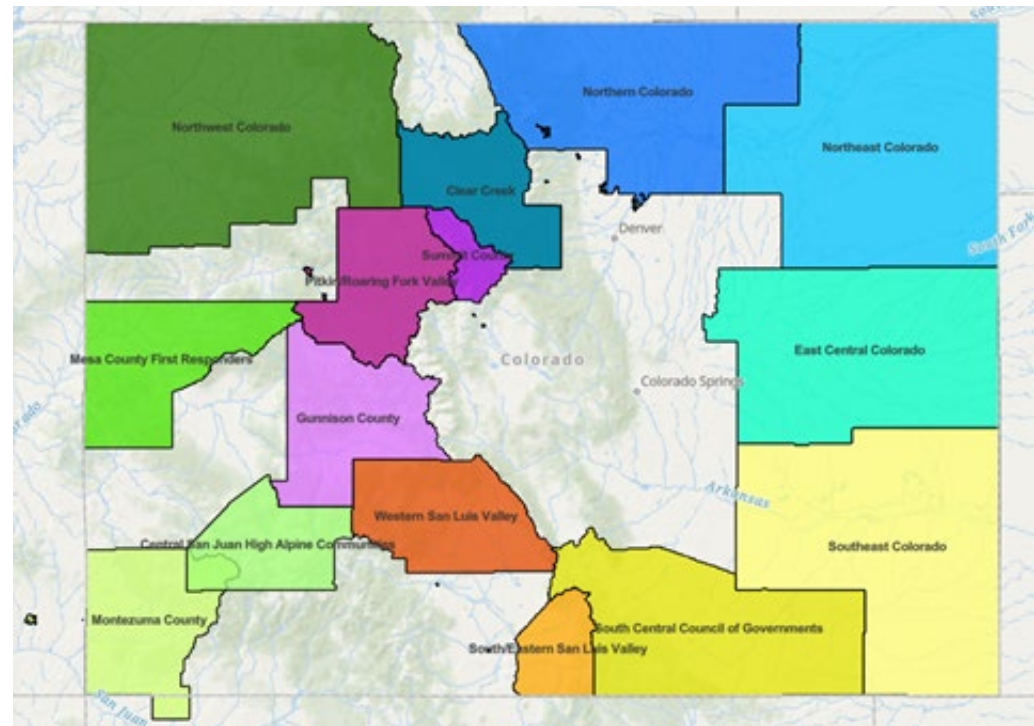
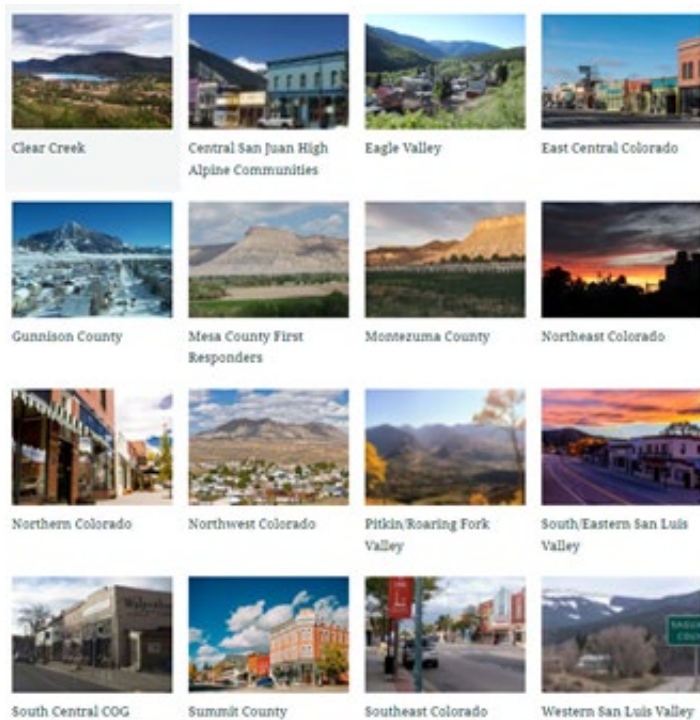


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Planning for the Future

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.



Learn more & get to know the teams: [“RoadMaps StoryMap”](#)



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& International Trade



Planning for the Future



<u>Step 1</u>	<u>Step 2</u>	<u>Step 3</u>	<u>Step 4</u>	<u>Step 5</u>	<u>Step 6</u>
Get Started	Identify Concerns and Gather Information	Assess Vulnerability & Understand Risks	Develop Resilience Strategies	Take Action	Monitor, Adjust, and Maintain Your Plan

coresiliency.com



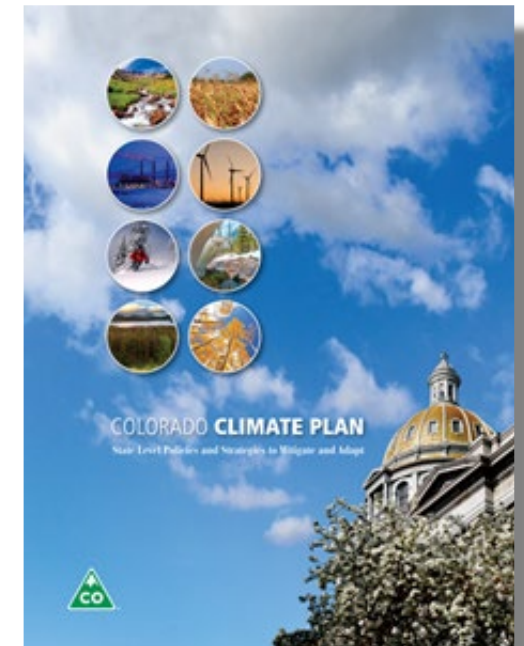
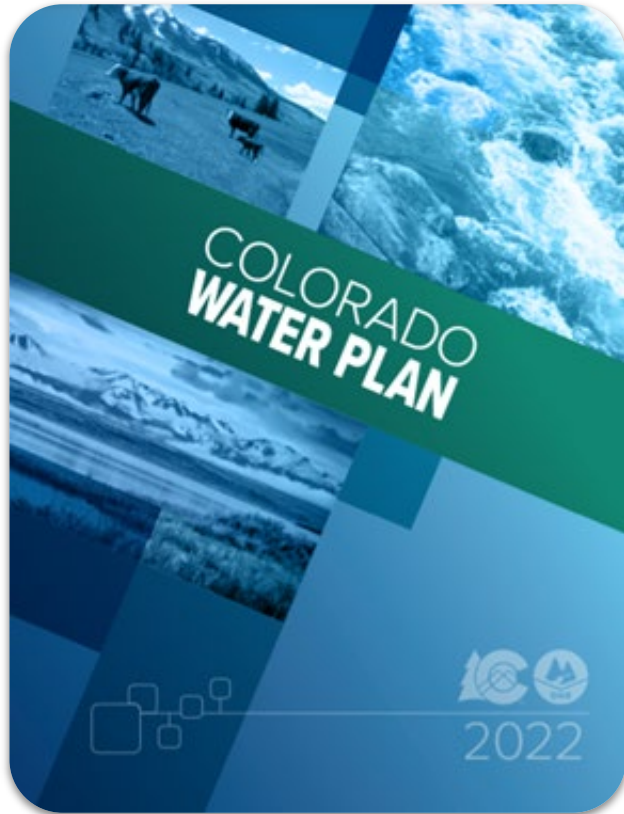
planningforhazards.com



cwcw.colorado.gov/FACE

Integrating Resilience

State Plans:



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Investing in Resilience

- [SB22-206](#) - Disaster Preparedness & Recovery Resources (includes \$35M for resilient rebuilding)
- [HB22-1379](#) - Wildfire Mitigation, Watershed Restoration, and Local Capacity (ARPA bill) (\$20M)
- [SB22-215](#) - 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

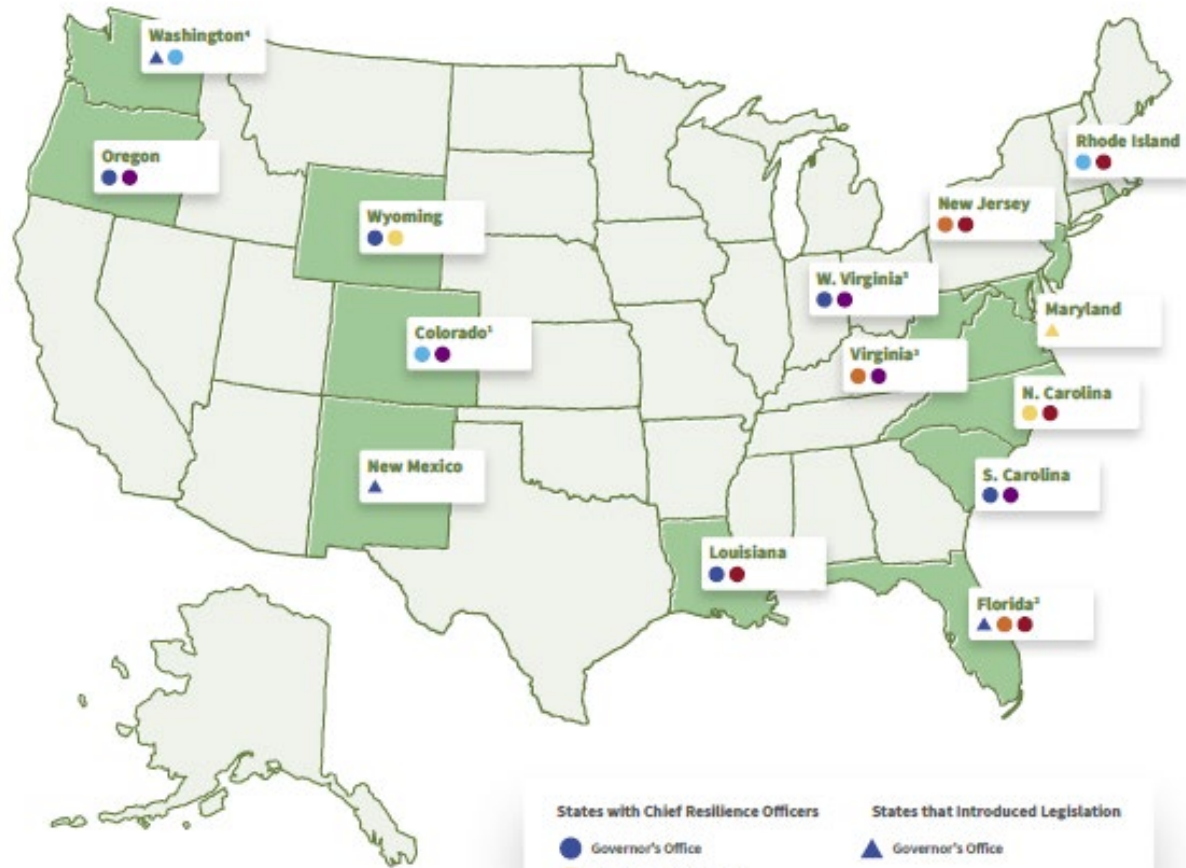
coforward.colorado.gov



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Investing in Resilience

States with or exploring Chief Resilience Officer positions



Source: [Instituting Resilience: Recommendations for Governors and Legislators on Establishing and Supporting Chief Resilience Officers](#)



Legislation: U.S. Rep Jason Crow (CO), joined by David Rouzer (NC), introduced the [CLEAR Act](#) 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



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Risk and Resilience: The Impact of Natural Disasters on the Military

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)

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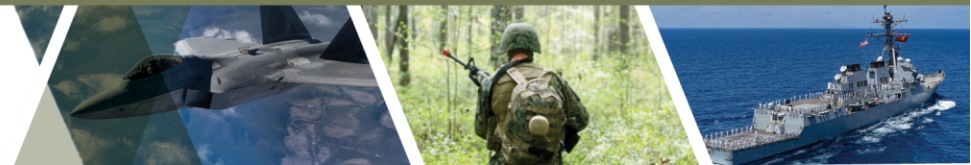
Destruction at Tyndall Air Force Base following Hurricane Michael



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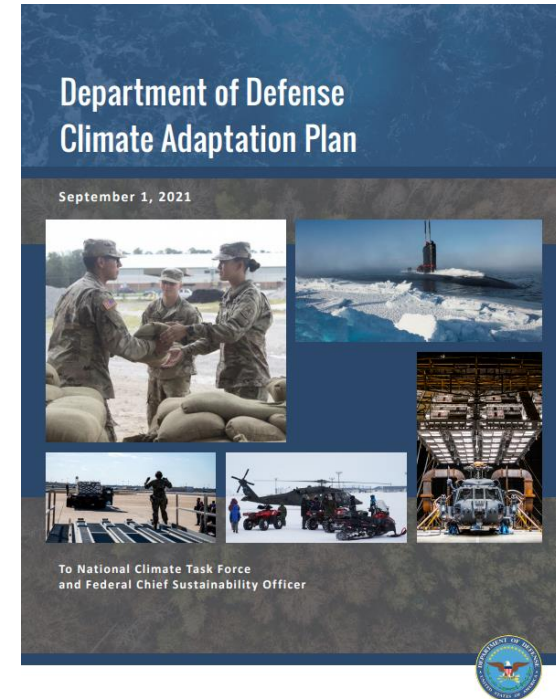
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DoD Climate Adaptation Plan

- 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 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



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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)



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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



REPI Resilience Primer



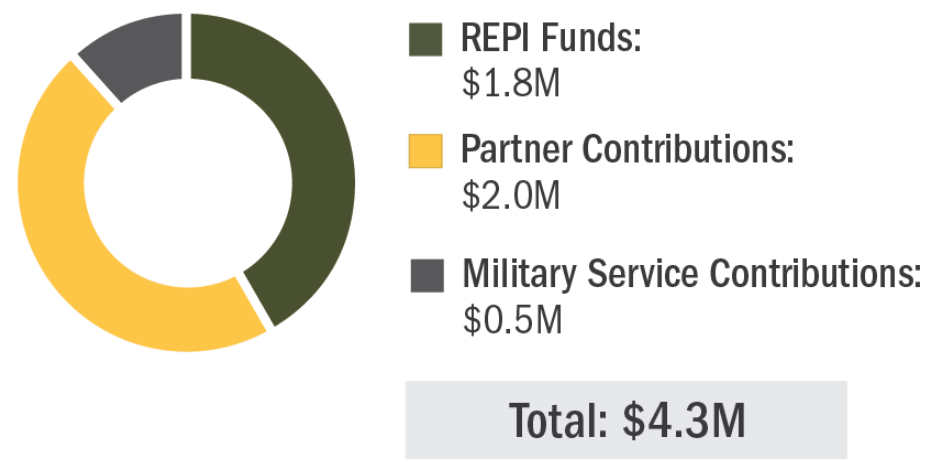
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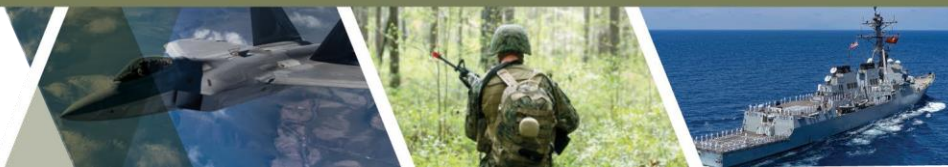
2022 REPI Challenge Project – Fort Bragg, Seymour Johnson AFB, MCB Camp Lejeune, and MCAS Cherry Point

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.



REPI Tools for State Hazard Mitigation

- **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.



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For more information:

Kristin Thomasgard, REPI Program Director,

Office of the Assistant Secretary of Defense (Energy, Installations, & Environment)

osd.repi@mail.mil

www.repi.mil

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