

CLIMATE DISASTER RESILIENCE & RECOVERY

Lisa Craig

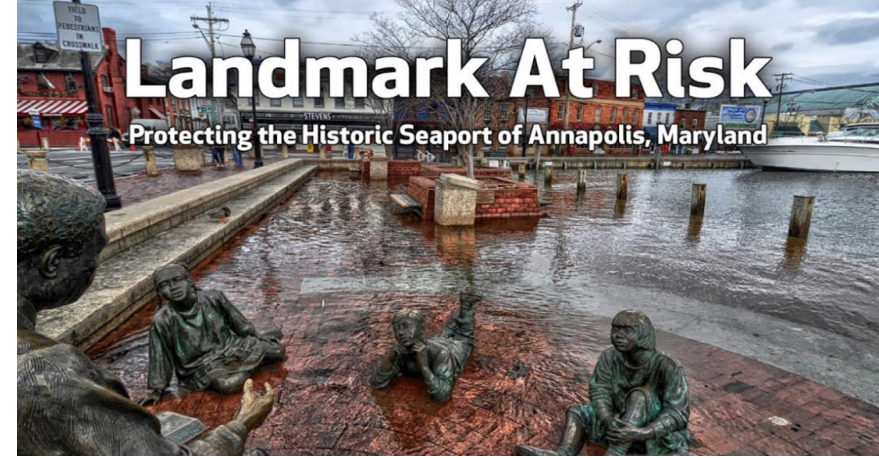
President, The Craig Group
Partners, LLC

Mayor, City of Lodi





THE CRAIG GROUP



We help communities to survive, adapt, and grow while protecting the places that contribute to their collective identity.

- Collaborating with decision-makers & community leaders
- Identifying vulnerabilities & adaptation priorities
- Using FEMA's 4-step approach to mitigation planning
- Assessing community values
- Engaging business and civic stakeholders
- Prioritizing implementation of adaptation strategies



Resilience Means **SAVING PLACES**



CLIMATE DISASTER RESILIENCE & RECOVERY

United States Disaster Vulnerability

- California
 - Sacramento San Joaquin Delta

California Climate Bond

Resilience & Recovery Planning

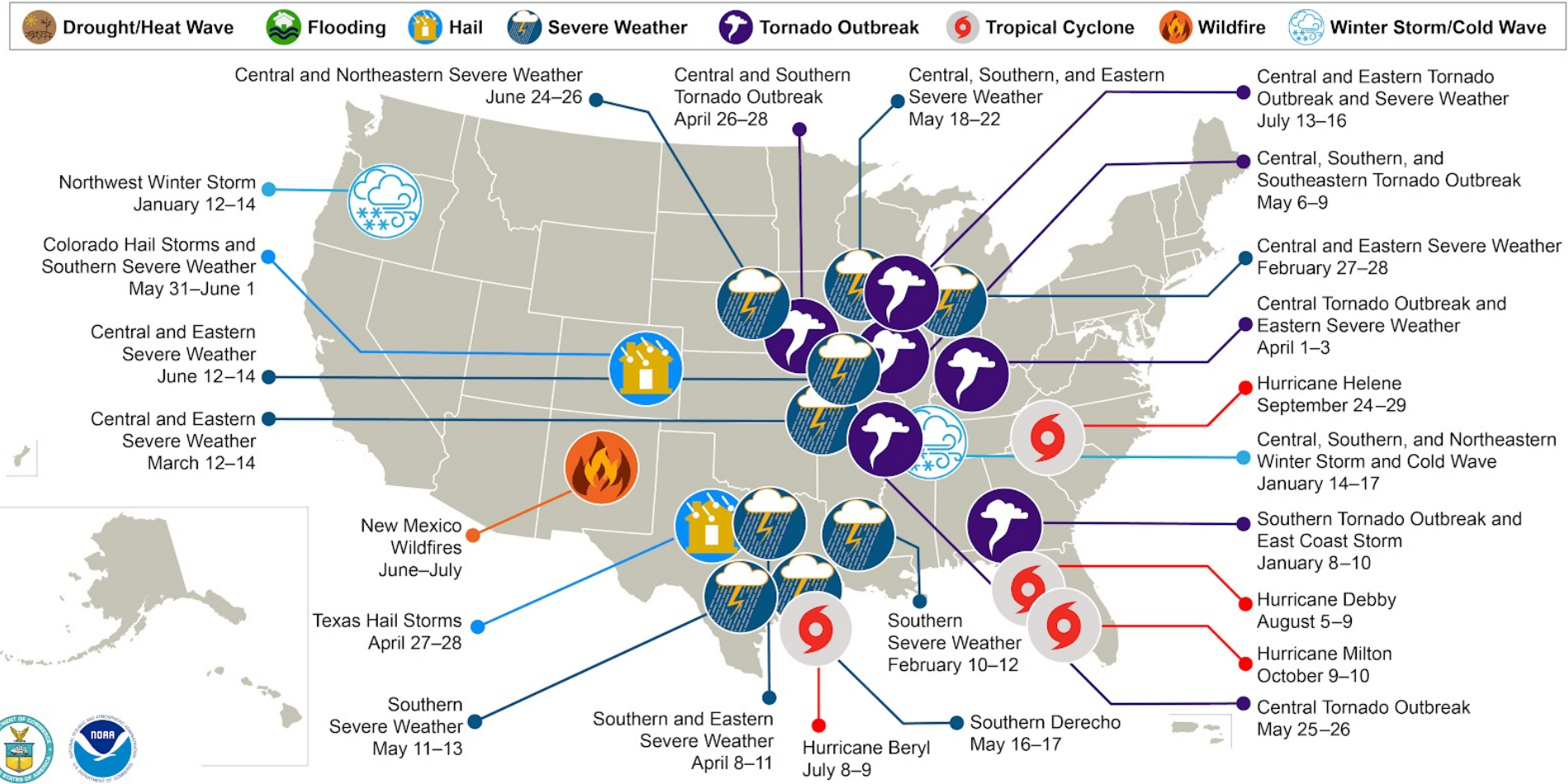
Case Studies:

- Orville Dam – Flood Recovery
- Isleton – Flood Resilience
- Nevada City – Wildfire Resilience
- Lodi – Adaptation for Mitigation

Funding Resources

UNITED STATES BILLION-DOLLAR NATURAL DISASTERS (2024)

U.S. 2024 Billion-Dollar Weather and Climate Disasters



This map denotes the approximate location for each of the 24 separate billion-dollar weather and climate disasters that impacted the United States through October 2024.

365

weather and climate disasters sustained in the U.S. since 1980

24

weather and climate disaster events as of Nov. 2024



CALIFORNIA'S BILLION- DOLLAR NATURAL DISASTERS

46 events

- 6 flooding
- 4 severe storms
- 19 wildfires
- 14 drought
- 3 freeze

CALIFORNIA'S LARGEST WILDFIRES

#1 August Complex	1,032,648	#6 Creek	379,895
#2 Dixie	963,309	#7 LNU Lightning Cmplx	363,220
#3 Mendocino Cmplx	459,123	#8 North Complex	318,935
#4 SCU Lightning Cmplx	396,625	#9 Thomas	281,893
#5 Park	383,619	#10 Cedar	273,246





CENTRAL VALLEY FLOOD RISK

<https://youtu.be/4p0Hc56vJ2Y>

SACRAMENTO-SAN JOAQUIN DELTA

“Climate change and aging infrastructure are clear threats to the Delta’s natural and cultural resources.”

Delta Protection Commission - *Sacramento-San Joaquin Delta National Heritage Area Management Plan*

Sacramento-San Joaquin Delta National Heritage Area Management Plan



Delta Protection Commission
2101 Stone Blvd., Suite 200
West Sacramento, CA 95691
(916) 375-4800
delta.ca.gov

Public Review Draft
February 5, 2024



A Guide to Proposition 4:

The Safe Drinking Water,
Wildfire Prevention, Drought
Preparedness, and Clean
Air Bond Act of 2024



Published: August 2024

Climate Bond

- \$10 billion for climate impacts to communities
- Supports preparing for and recovering from wildfire, flood, drought, extreme heat, climate-related events
- Supports restoration and protection of climate-impacted natural systems

CLIMATE BOND: BY THE DOLLARS

\$3.8 billion - water projects to improve water quality & protect from floods and droughts; restoring rivers and lakes

\$1.95 billion - wildfire and extreme heat projects

\$1.9 billion - natural lands, parks and wildlife projects

\$1.2 billion - coastal lands, bays and ocean protection

\$850 million - clean energy projects

\$300 million - agricultural projects



CLIMATE BOND 2024 – FLOOD & WILDFIRE

FLOOD MANAGEMENT - \$550 MILLION

- For flood management with priority given to projects designed and implemented to achieve both flood safety and ecosystem functions.
- \$150 million for Sacramento-San Joaquin Delta projects to improve existing levees, increase flood protection and improve climate resiliency

WILDFIRE PREVENTION - \$1.2 BILLION

- To improve local fire prevention capacity, improve forest health and resilience, and reduce the risk of wildfire spreading into populated areas from wildlands.

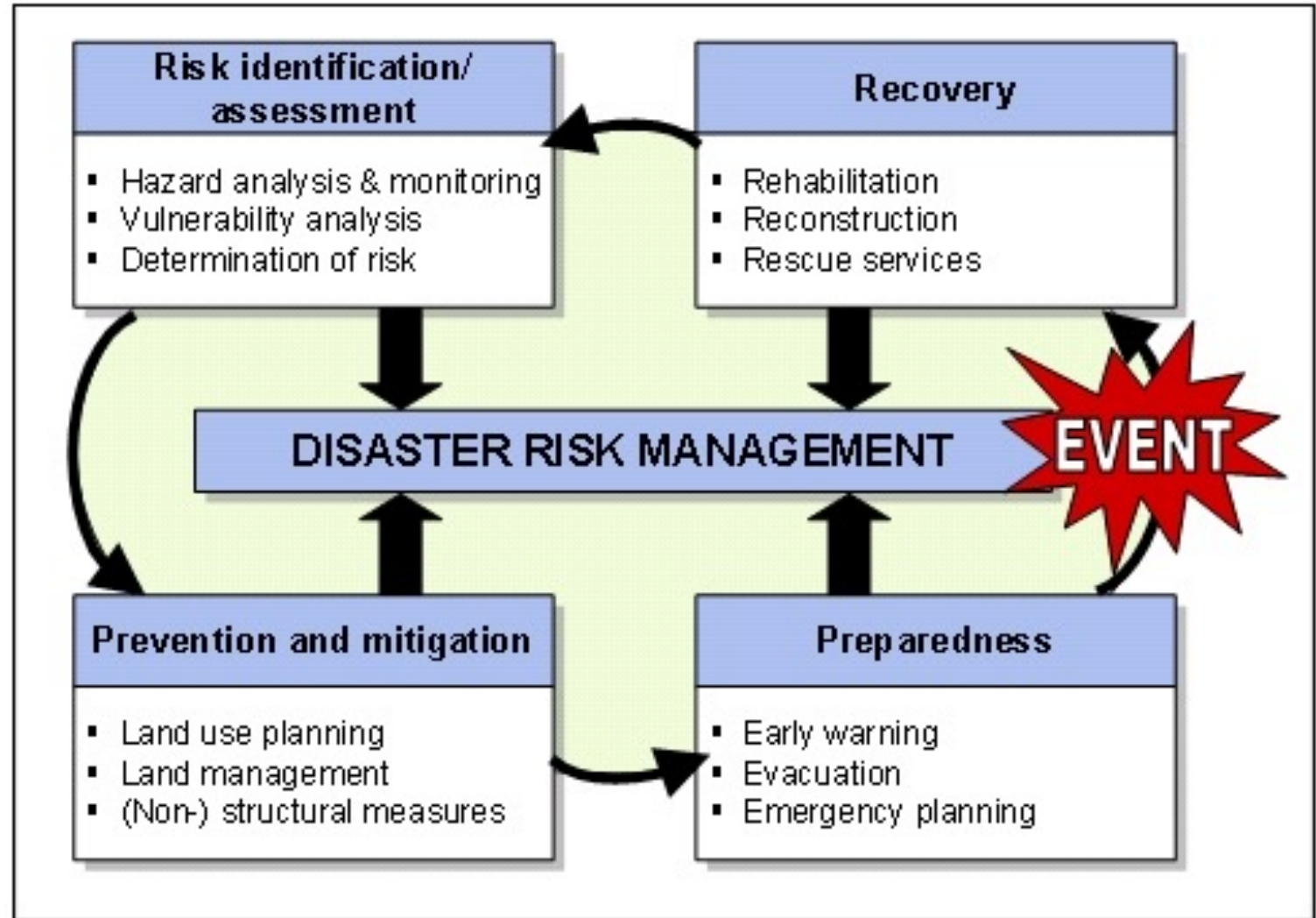
COASTAL & FLOOD MANAGEMENT - \$350 MILLION

- For coastal and combined flood management on developed shoreline areas with critical community infrastructure such as transportation, ports, and nature-based resilience projects.
- To implement the Sea Level Rise Adaptation Strategy to address the impacts of sea level rise in coastal state parks, support recreational opportunities, and protect coastal natural ***and cultural resources***.

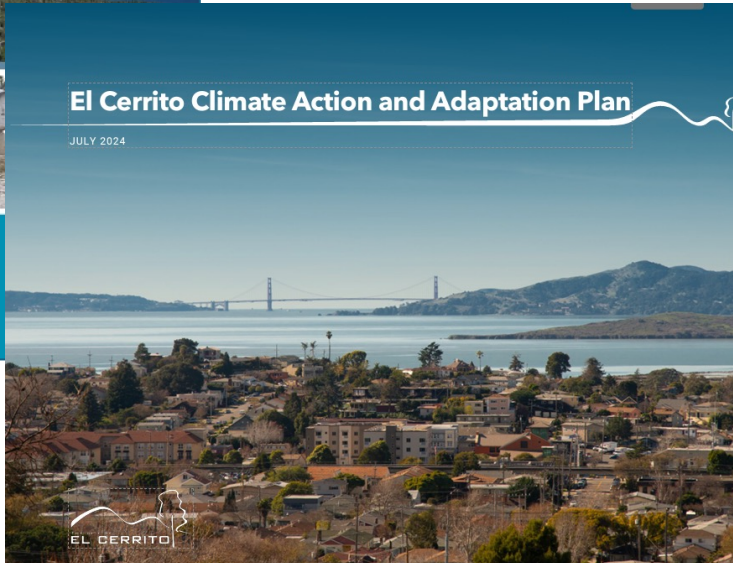
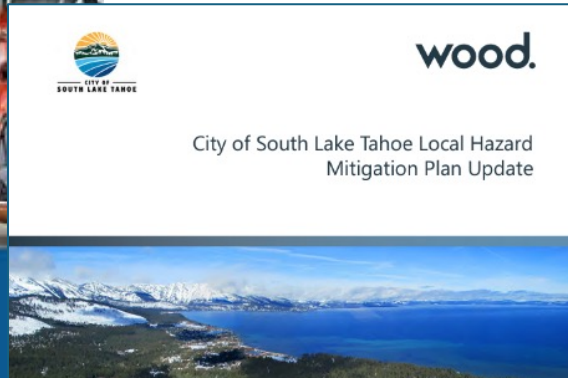
Disaster / Climate Resilience Planning: Key Terms

RESILIENCE: The capacity of the social, built, or natural environment to **bounce back and return to normalcy** following a disaster.

ADAPTATION: adjustments in ecological, social, or economic systems in response to actual or expected climatic impacts and to changes in processes, practices, and structures to moderate potential damages or **benefit from opportunities** associated with climate change.



DISASTER / CLIMATE RESILIENCE & RECOVERY PLANNING: PLAN INTEGRATION = DISASTER FUNDING



FEMA National Response Framework

- Emergency Management Plan
- Response & Recovery Plan
- Debris Management Plan
- Hazard Mitigation Plan
- Post-Disaster Redevelopment Plan

Resilience Plan

- Adaptation Plan
- Climate Action Plan

Comprehensive / General Plan

- Master Plan
- Vulnerability Assessment

Capital Improvement Plan



Lake Oroville

Emergency Spillway Overflow Weir

Main Dam

Gated Service Spillway Headworks

Hyatt Power

Tailrace

Service Spillway Chute



CASE STUDY: OROVILLE DAM

FAILING INFRASTRUCTURE
CLIMATE IMPACT OF ATMOSPHERIC
RIVERS



PROBLEM

- Rapid erosion of *foundation* and adjacent ground
- Atmospheric rivers resulted in the reservoir rising, overtopping emergency spillway
- Though flow was less than 4% of design capacity, the hillside was eroding
- Fear of emergency spillway failure
- Fear of downstream flooding
- Service spillway gates opened
- Evacuation of 188,000 people
- 23,000 National guardsman on standby



“We expect atmospheric rivers (ARs) to become more potent in a warming climate. We assessed ARs and their evolving contribution to hydroclimate change over western North America in global climate model projections, but **this is the first study that quantified the influence of global warming on a specific, real, recent, and impactful atmospheric river event.**”

Alexander Gershunov
Climate scientist, Scripps Oceanography

SOLUTION

- **Reconstruction & new infrastructure completed in 2018 (Cost: \$1.1 Billion)**
- **Dam Safety Planning Division**
CA Office of Emergency Services
- **Dam safety program** – “extremely high hazard” classification
- **Comprehensive Needs Assessment**
- **Proactive monitoring** – new consideration for climate impacts



CASE STUDY: ISLETON FLOODING

PARAMETRIC INSURANCE

THE PROBLEM

- Sacramento-San Joaquin Delta floodplain (1 in 10 chance of flooding each year)
- Only 1/3rd of rural and 1/5th of city Delta have flood insurance
- High rates of poverty
- NFIP doesn't pay for temporary housing

THE SOLUTION

- Special District - Delta Region Geologic Hazard Abatement District
- Parametric Insurance - No-strings attached payout to help with immediate costs of flood recovery (ie temporary housing)
- Requires Voter approval



“There are two certainties in life: We will all die, and levees will eventually fail. The goal of this program is to protect families if the levee dies first.” - **Kathleen Schaefer, UC Davis**



WILDFIRE

August Complex Fire (2020) – Butte, Plumas & Yuba Counties



Chesser Island Homestead – Sweat Farm / Big Turnaround Wildfire (Okefenokee National Wildlife Refuge) Credit: Firezat, Inc.



Medicine Creek Rock Pictographs Credit: Firezat, Inc.

WILDFIRE ADAPTATION: TEMPORARY PROTECTION



- Fire Resistant Fire Shields
- Aluminized Structure Wrap



CASE STUDY: WILDFIRE MITIGATION - NEVADA CITY

PROBLEM: 3068 Residents Very High Fire Hazard Severity Zone

SOLUTION: WILDFIRE MITIGATION – REGULATORY CONTROLS

Nevada City 2023 – Hardening Your Home

- Defensible Space Ordinance
- Inspection Practices
- Community Outreach for Wildfire Safety

Priority list for building or remodeling with ignition-resistant materials:

- Roof (most important)
- Eaves and Soffits
- Walls
- Decks
- Patio Cover
- Fencing

DEFENSIBLE SPACE ZONES IN ACTION



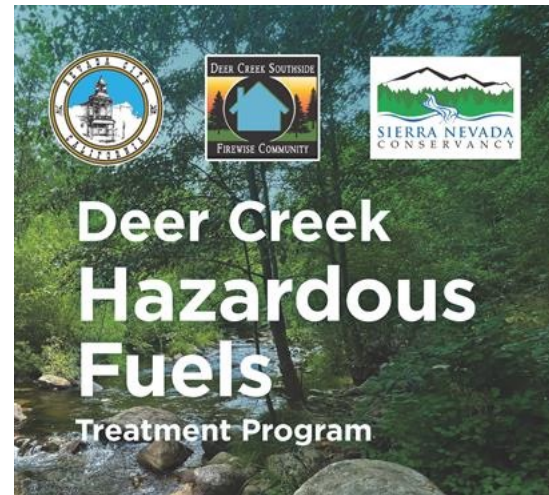
Graphic courtesy of Santa Clara County Fire Safe Council

“Cultural fires themselves are land stewardship lessons. They're also cultural lessons that we're getting back as Native people.”

Melinda Adams – San Carlos Apache Tribe with Diana Almandariz of Nisenan, Wintun, Hupa descent



SOLUTION: WILDFIRE MITIGATION – NATURE-BASED



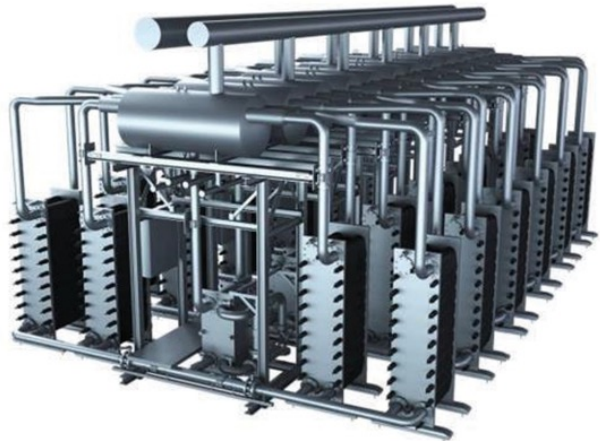
Nevada City partnership with Nevada Irrigation District, Nevada County Office of Emergency Services and the Nisenan Tribe to defend 433 acres of public and private lands from wildfire threat.

Funded by the Sierra Nevada Conservancy

CASE STUDY: LODI HYDROGEN CENTER CLIMATE MITIGATION THROUGH ADAPTATION

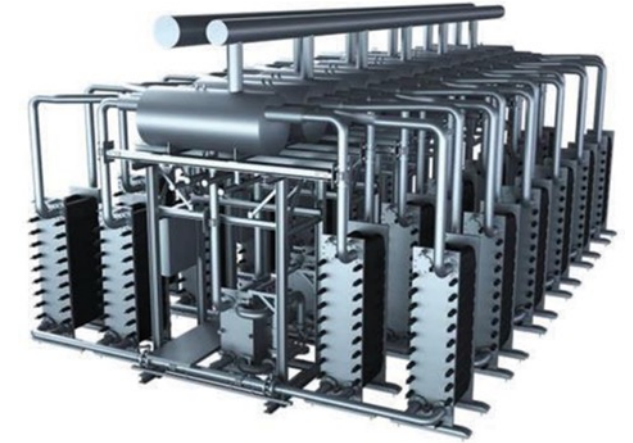
PROBLEM: NCPA’s Lodi Energy Center (2012) is an existing natural gas plant nearing the end of its useful life.

SOLUTION: Transitioning to a clean-energy hydrogen- powered facility



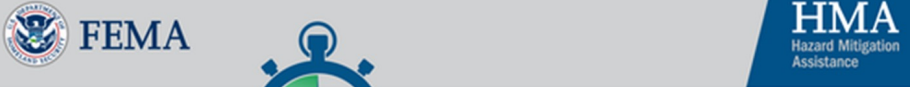
LODI HYDROGEN CENTER CO-BENEFITS

- Supports grid reliability
- Uses on-site reclaimed water to support electrolysis
- Reduces emissions
- Fosters innovation for net-zero solutions through reuse
- Job creation
- Health benefits from emissions reduction
- Alternative Fueling for Transit, Rail, and Long Haul Commercial vehicles



DISASTER RESILIENCE FUNDING

FEDERAL AGENCIES



Mitigation Minute

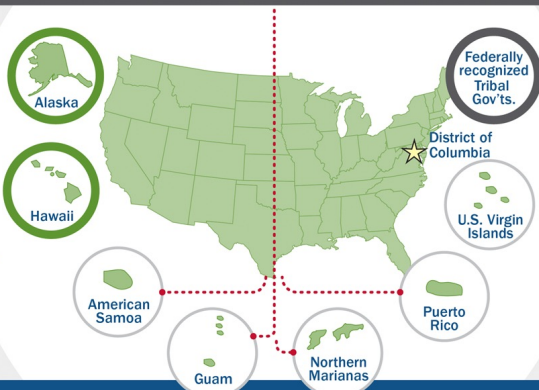
NOTICE OF FUNDING OPPORTUNITY (NOFO):
SAFEGUARDING TOMORROW REVOLVING LOAN FUND PROGRAM

FEMA recently released a funding opportunity for the new **Safeguarding Tomorrow Revolving Loan Fund (Safeguarding Tomorrow RLF) program**.

FEMA has made \$50 million available for capitalization grants so eligible entities can make funding decisions and award loans directly to local governments. These revolving loan funds will provide hazard mitigation assistance for local governments to reduce risks from natural hazards and disasters.

- FEMA Safeguarding Tomorrow Revolving Loan
- FEMA Building Resilient Infrastructure and Communities (BRIC)
- Small Business Administration (SBA) Disaster Loans
- EPA Environmental and Climate Justice Community Change Grants
- DOI Tribal Climate Resilience

Who is eligible for BRIC funding?



Applicants:

- ✓ All 50 States
- ✓ U.S. territories
- ✓ Federally recognized Tribal Governments
- ✓ District of Columbia

Subapplicants:

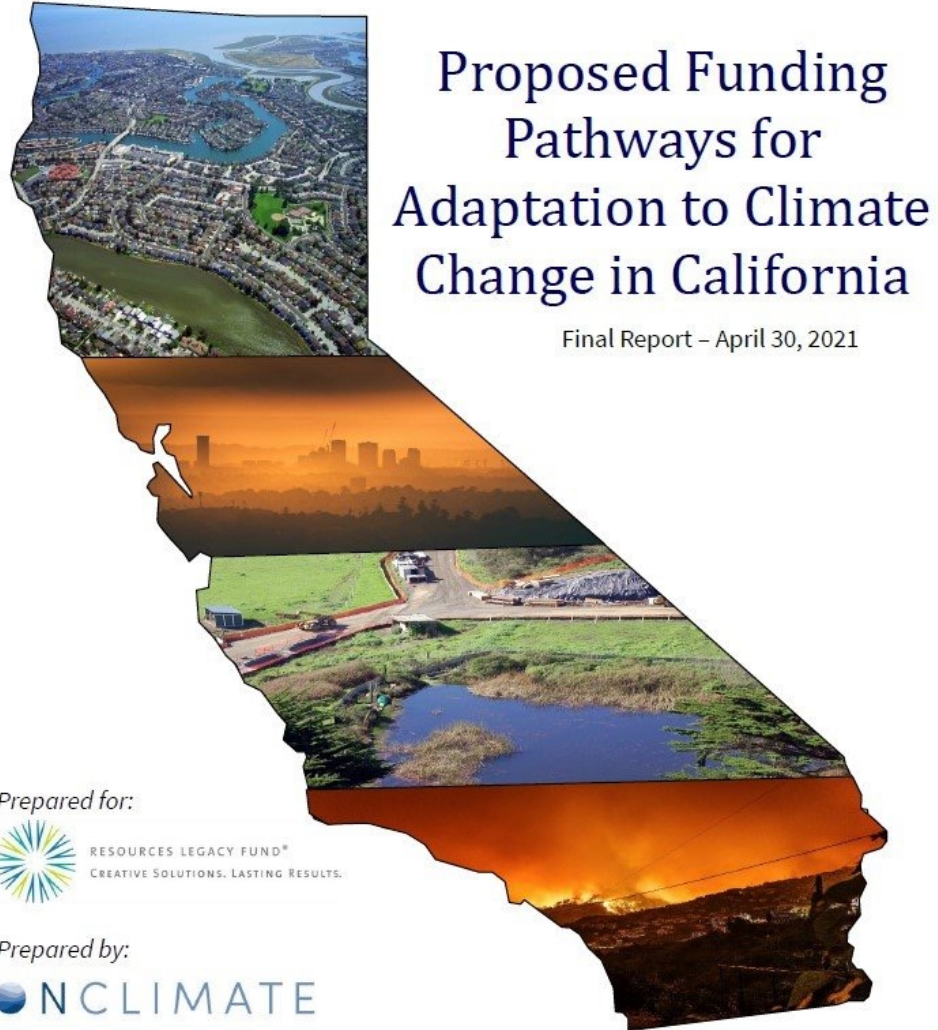
- ✓ Local Governments
- ✓ Tribal Governments
- ✓ State Agencies
- ✓ Tribal Agencies



Disaster Loan Assistance

The SBA offers disaster assistance in the form of low interest loans to businesses, nonprofit organizations, homeowners, and renters located in regions affected by declared disasters. SBA also provides eligible small businesses and nonprofit organizations with working capital to help overcome the economic injury of a declared disaster.

APPLY FOR ASSISTANCE



Proposed Funding Pathways for Adaptation to Climate Change in California

Final Report – April 30, 2021

Prepared for:



Prepared by:



With:



DISASTER RESILIENCE FUNDING STATE OF CALIFORNIA

Post-Disaster Funding

- California Disaster Assistance Act
- State Supplemental Grant Program
- Community Facilities Program Disaster Grants – USDA Rural Development (State)

Pre-Disaster Funding

- Prepare California (Cal OES)
- Hazard Mitigation Grant Program (Cal OES HMGP Unit)
- Climate Adaptation & Resiliency Program – conservation projects

Local Funding Sources & Financial Tools

THANK YOU

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