Collaboration opportunity for SF Lifelines Council with the Applied Technology Council (ATC)

About the Opportunity

CIVIC INNOVATION CHALLENGE

The Civic Innovation Challenge is a multi-agency, federal government research and action competition that aims to fund **ready-to-implement, research-based pilot projects** that have the potential for scalable, sustainable, and transferable **impact on community-identified priorities**. It aims to flip the community-university dynamic, inviting communities to identify civic priorities ripe for innovation and to then partner with researchers to address those priorities.

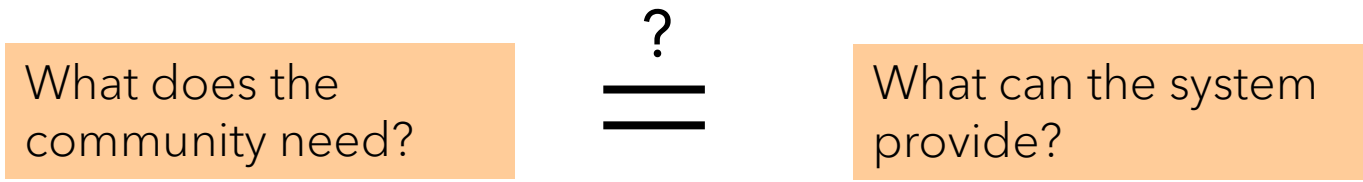
U.S. Department of Homeland Security

U.S. National Science Foundation

U.S. Department of Energy

U.S. Department of Agriculture

Challenge Topic: Bridging the gap between essential resources and services and community needs



Solicitation Information: Budget and Schedule

Stage 1, Planning phase (up to 40 proposals selected for Stage 1 funding):

- To be submitted by May 1, 2024
- Budget up to $75,000 for 6 months

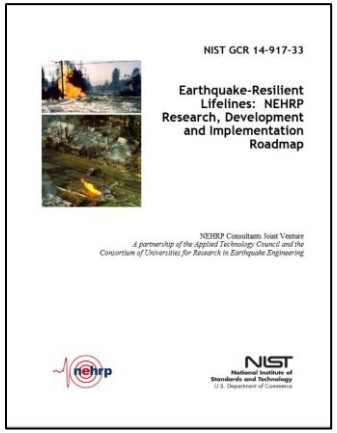
Stage 2, Full award (up to 20 of Stage 1 awardees selected for Stage 2 funding):

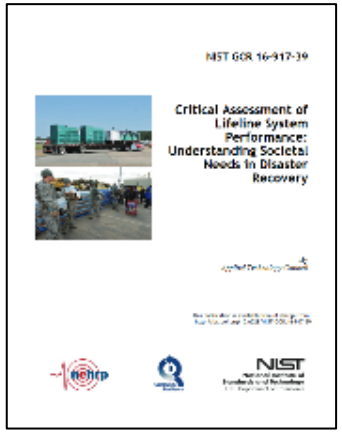
- To be submitted by February 10, 2025
- Budget up to $1 million for 12 months

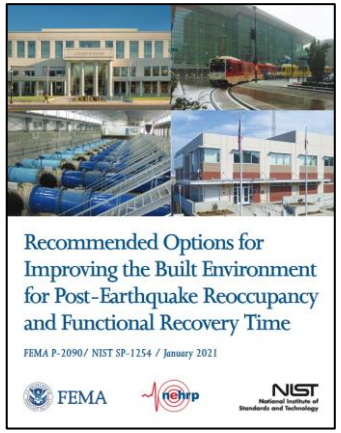
Cost sharing is prohibited

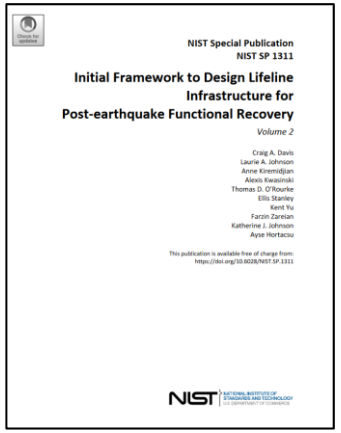
Opportunity for Lifelines Council to Collaborate with ATC

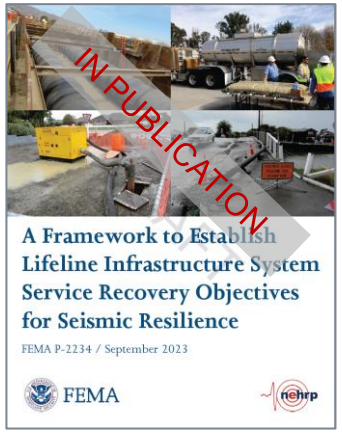
- Applied Technology Council (ATC) is a structural engineering non-profit organization established in 1973 by the Structural Engineers Association of California (SEAOC) to enable rapid technology transfer from research to practice.
- ATC has a successful track record of working with the City and County of San Francisco on:
  - development of the Community Action Plan for Seismic Safety (CAPSS)
  - development of the CCSF Tall Buildings Strategy
  - ongoing contract with the Office of Resilience and Capital Planning (ORCP) for seismic technical support services











ATC's extensive national leadership in lifelines resilience policy and standards

- *Earthquake Resilient Lifelines: NEHRP Research, Development and Implementation Roadmap* (National Institute of Standards and Technology (NIST CGR 14-917-33, 2014) (ATC-102)
- *Critical Assessment of Lifeline System Performance: Understanding Societal Needs in Disaster Recovery* (NIST CGR 16-917-39, 2016) (ATC-126)
- *Recommended Options for Improving the Built Environment for Post-Earthquake Reoccupancy and Functional Recovery Time* (Federal Emergency Management Agency FEMA P-2090/ NIST SP-1254, 2021)
- *Initial Framework to Design Lifeline Infrastructure for Post-Earthquake Functional Recovery, Volume 2* (NIST SP 1311, 2024) (ATC-152)
- *A Framework to Establish Lifelines Infrastructure System Service Recovery Objectives for Seismic Resilience* (FEMA P-2234, In publication) (ATC-150)

Other Collaborators for ATC and Lifelines Council

- Professor Kenichi Soga (Berkeley Center for Smart Infrastructure + NSF-funded Sim Center (consortium led by UC Berkeley))– network simulation
- Professor Louise Comfort – (U Pittsburgh and Berkeley Center for Information Technology Research in the Interest of Society (CITRIS) and the Banatao Institute) - societal considerations
- Professor Rachel Davidson (U Delaware) - framework implementation
- Craig Davis (retired LA DWP) – framework implementation
- Laurie Johnson – framework implementation
- Professor Jim Kendra (U Delaware) – survey tool for community input
- Civic engagement partner – community input
- Additional consultants
    - Mitigation design
    - Earthquake hazard level selection and impacts on system
    - Community outreach/surveyor
    - Graduate students

Proposed Project: Defining and Meeting Objectives for Infrastructure System Resilience

- Vision: Using a practical, replicable, transparent process, communities—with input from community members, system operators, government agencies, and others—are able to define their infrastructure system resilience objectives and develop and implement plans to meet them

- Scope:
  - Focus on the potable water distribution system, including consideration for user adaptations and interdependencies to other lifeline systems.
  - Select a geographic zone for study, e.g., a "service area" or "pressure zone" of the water network, with Lifelines Council input
  - Using community engagement, identify community needs, consequences, utilizing FEMA P-2234 framework
  - Using simulation models developed by the SimCenter, identify system performance and recovery times for the restoration of basic services
  - Iterate simulations and community engagement in order to identify asset mitigations and organizational actions necessary to meet the community needs
  - (If time allows) incorporate dependencies that the water network has with other lifelines, such as transportation, electric power, and wastewater. These can be limited to key input locations (i.e., transportation & electric power) to the water system service area, and key output issues (i.e., water flow from users into the wastewater system).

Bridging the gap between essential resources and services and community needs

Community Engagement

- Types of users
- Types of uses
- Availability of adaptations
- Organizational actions
- Consequences due to lack of services

What does the community need?

?

What can the system provide?

Model Simulation

- Hazard scenario
- System information
- Dependencies
- Parameters for measuring services

If not equal:

- Mitigate assets
- Establish organizational actions
- Communicate

…. Iterate!!!

Lifelines Council Discussion

What will be provided?

- Potential template for each system operator to use in resilience planning
- Advance Lifelines Council's prior studies on system interdependencies and restoration performance

What is needed?

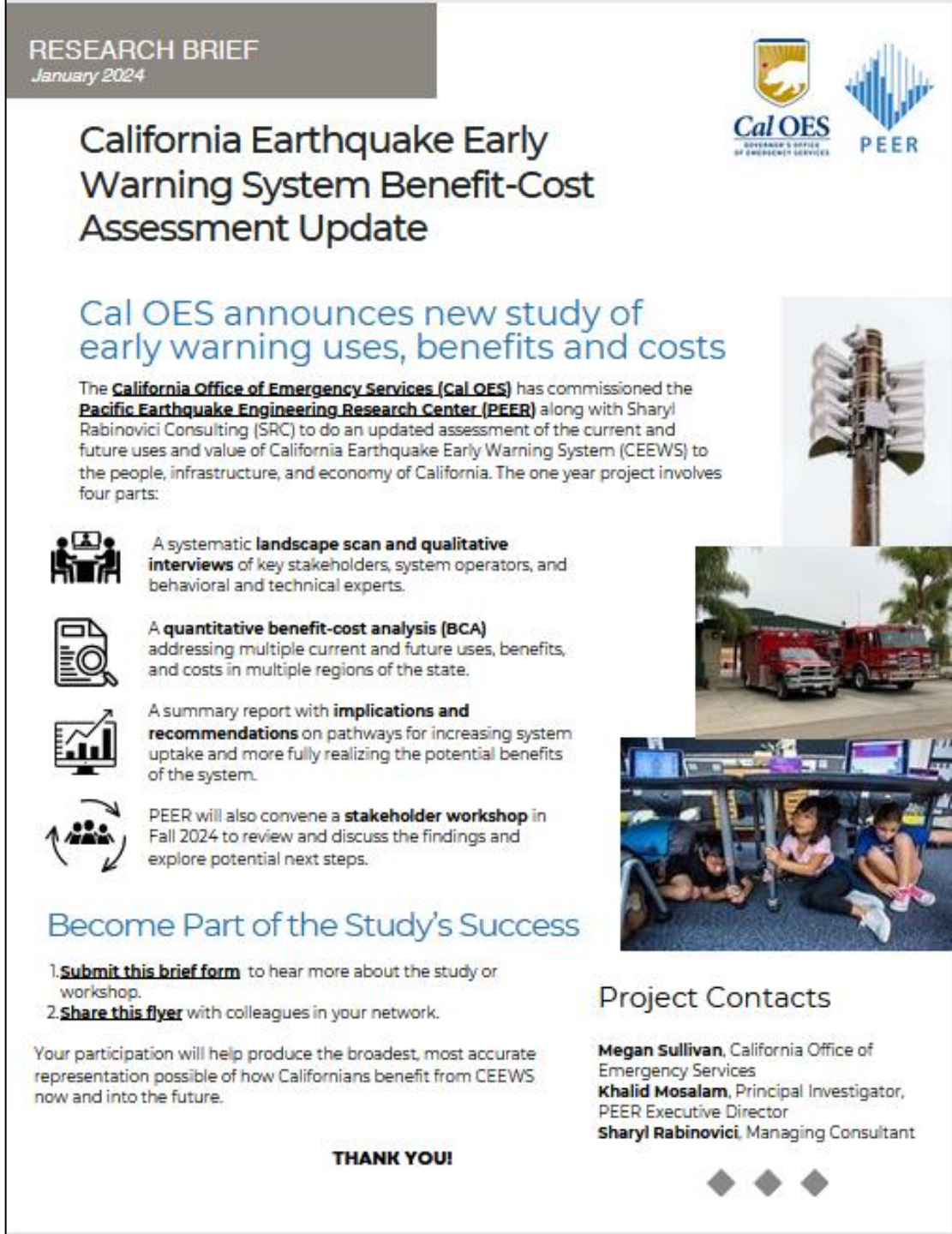
- Letter of support from CCSF/Lifelines Council to accompany the proposal
- If funded,
  - Participate in community needs assessment
  - Provide adequate system(s) information to develop the simulation model

Quick Plug

Lifelines Council members to engage with Cal OES/PEER Earthquake Early Warning System Benefit-Cost Assessment

Pick up a flyer!

Email: laurie@lauriejohnsonconsulting.com



RESEARCH BRIEF
January 2024

Cal OES PEER

California Earthquake Early Warning System Benefit-Cost Assessment Update

Cal OES announces new study of early warning uses, benefits and costs

The **California Office of Emergency Services (Cal OES)** has commissioned the **Pacific Earthquake Engineering Research Center (PEER)** along with Sharyl Rabinovici Consulting (SRC) to do an updated assessment of the current and future uses and value of California Earthquake Early Warning System (CEEWS) to the people, infrastructure, and economy of California. The one year project involves four parts:

- A systematic **landscape scan and qualitative interviews** of key stakeholders, system operators, and behavioral and technical experts.
- A **quantitative benefit-cost analysis (BCA)** addressing multiple current and future uses, benefits, and costs in multiple regions of the state.
- A summary report with **implications and recommendations** on pathways for increasing system uptake and more fully realizing the potential benefits of the system.
- PEER will also convene a **stakeholder workshop** in Fall 2024 to review and discuss the findings and explore potential next steps.

Become Part of the Study's Success

1. **Submit this brief form** to hear more about the study or workshop.
2. **Share this flyer** with colleagues in your network.

Your participation will help produce the broadest, most accurate representation possible of how Californians benefit from CEEWS now and into the future.

THANK YOU!

Project Contacts

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Sharyl Rabinovici, Managing Consultant