



*National Center for
Employee
Development (NCED)*

Norman, OK

October 27-28, 2014

NIST Community Resilience Program – Third Stakeholder Workshop

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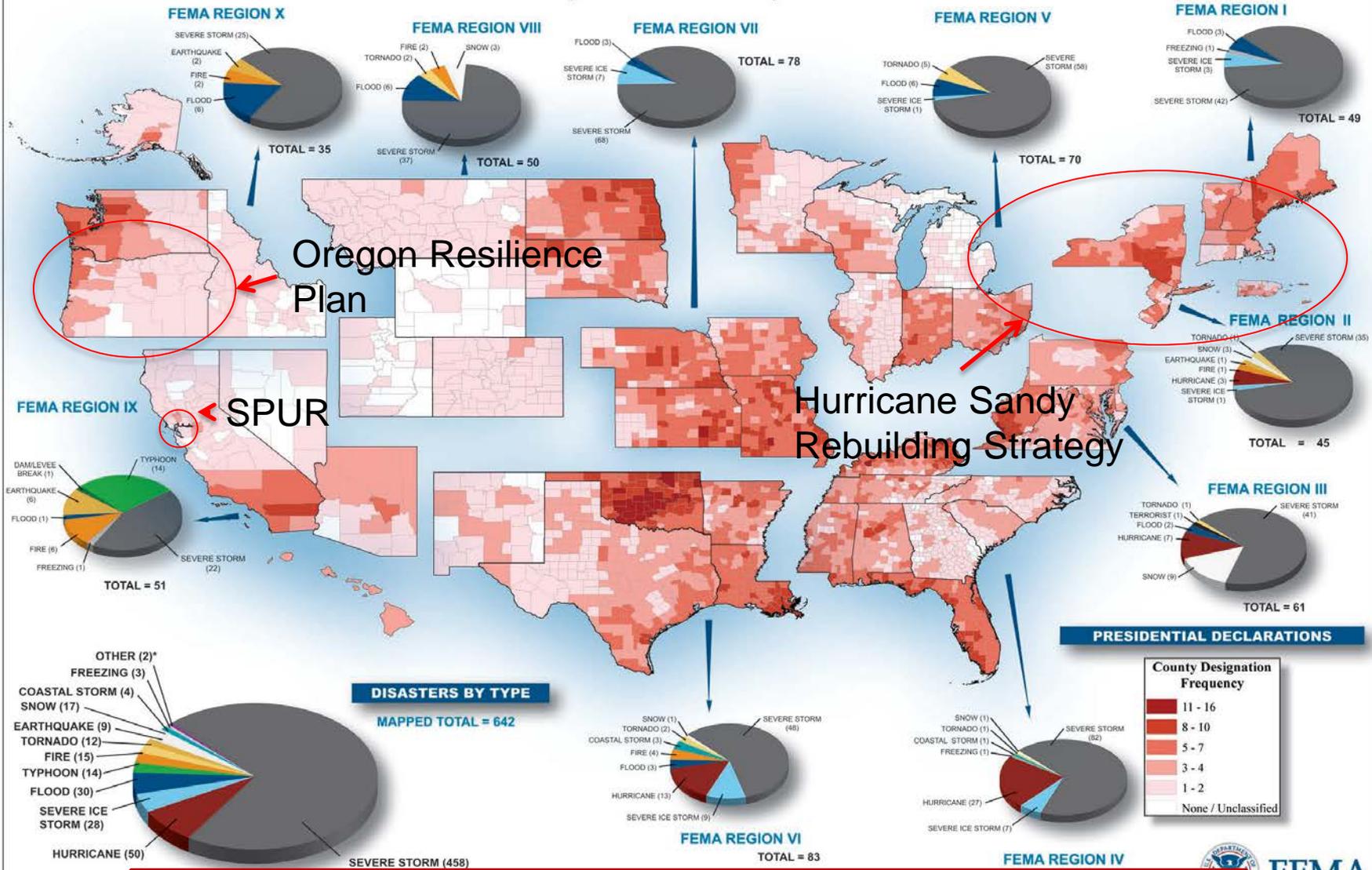
What is the Problem?

- Natural and man-made disasters cause an estimated \$57B in average annual costs.
- Superstorm Sandy caused over \$65B in losses.
- Large single events can cause losses exceeding \$100B.
- Current approach of response and rebuilding is impractical and inefficient for dealing with natural disasters.
- Planning does not account for interconnected nature of buildings and infrastructure, nor for the affect on social institutions.
- Changing nature of hazards is not always considered.



PRESIDENTIAL DISASTER DECLARATIONS

January 10, 2000 to January 28, 2011



Oregon Resilience Plan

SPUR

Hurricane Sandy Rebuilding Strategy

45 to 81 Presidential Disaster Declarations are made every year



What is Disaster Resilience?

- The term "resilience" means the ability to *prepare for* and *adapt to* changing conditions and *withstand* and *recover rapidly* from disruptions*
- In the context of community resilience, the emphasis is not solely on mitigating risk, but implementing measures to ensure that the community recovers to normal, or near normal *function*, in a reasonable timeframe.

*As defined in Presidential Policy Directive 21.



Community Needs Drive Functional Requirements for Buildings and Infrastructure



Community Resilience for the Built Environment



- Natural hazards
- Manmade hazards
- Degradation
- Climate change

- Performance Goals
- Mitigation
- Response
- Recovery



Attributes of Resilience

- **Functionality** – Resilience should be based on the ability of social systems to resume function within a prescribed period of time following an expected event. Buildings and infrastructure must be functional to support these social systems.
- **Interdependence** – Resilience must consider the interdependence of buildings and infrastructure (functionality) *and* the relationship of individuals and organizations with the built environment.



Attributes of Resilience (Cont.)

- Three levels of hazard
 - Routine
 - Expected (design level)
 - Extreme
- Time basis – Resilient performance will require a timescale for when buildings and infrastructure need to be returned to service to meet social needs.
- Three phases of recovery for resilience
 - Days
 - Weeks
 - Months/Years



NIST Community Resilience Program

NIST is:

- **Convening** the highly diverse stakeholder interests to:
 - Develop the first version of a comprehensive **Disaster Resilience Framework** for achieving community resilience that considers the interdependence of the community's physical and human assets, operations, and policies/regulations
 - Establish a **Disaster Resilience Standards Panel** to further develop the **Disaster Resilience Framework (version 2.0)** and,
 - Develop **Model Resilience Guidelines** for critical buildings and infrastructure systems essential to community resilience based on model standards, codes, and best practices
- It is envisioned that the Disaster Resilience Standards Panel will update the framework and guidance on a regular basis and recommend improvements that enhance resilience to standards and codes.



Stakeholder Engagement is Critical

- Codes and standards organizations
- State, local, and regional officials
- Insurance/re-insurance industry
- Architects
- Engineers
- Social scientists
- Utility operators
- Urban planners
- Industry
- Emergency managers
- Relief organizations
- Regulators
- Academia



Federal Stakeholders

- Federal stakeholders include, but are not limited to:
 - Executive Office of the President (National Security Staff, OSTP, NSTC)
 - Department of Homeland Security
 - Department of Commerce
 - Department of Defense
 - Environmental Protection Agency
 - U.S. Army Corps of Engineers
 - Department of Energy
 - Department of Health and Human Services
 - Department of Housing and Urban Development
 - Department of Transportation
 - U.S. Geological Survey
 - National Science Foundation



Disaster Resilience Framework 1.0

- The Disaster Resilience Framework focuses on the role that buildings and infrastructure systems play in ensuring community resilience.
- The Framework will:
 - Establish types of performance goals and ways to express them
 - Identify existing standards, codes, and best practices that address resilience
 - Identify gaps that must be addressed to achieve resilience
 - Capture regional differences in perspectives on resilience
- The Disaster Resilience Framework will be informed through a series of stakeholder workshops.

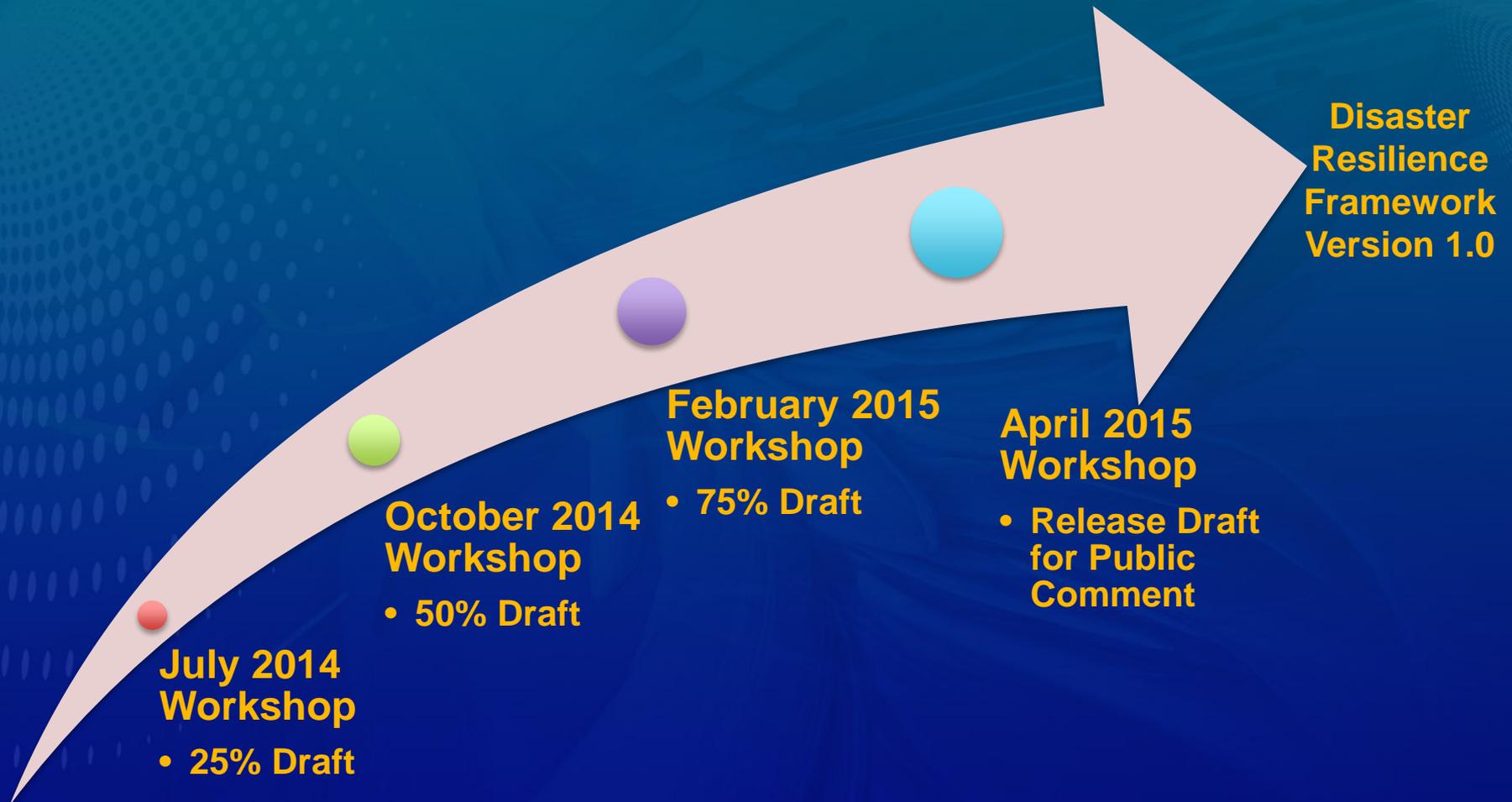


Disaster Resilience Standards Panel

- The DRSP will represent the broad interests of the stakeholder community.
- The DRSP will be:
 - open to all interested participants
 - a self-governing entity
- The DRSP will lead development of:
 - Disaster Resilience Framework 2.0
 - Model Resilience Guidelines



Framework Development Process

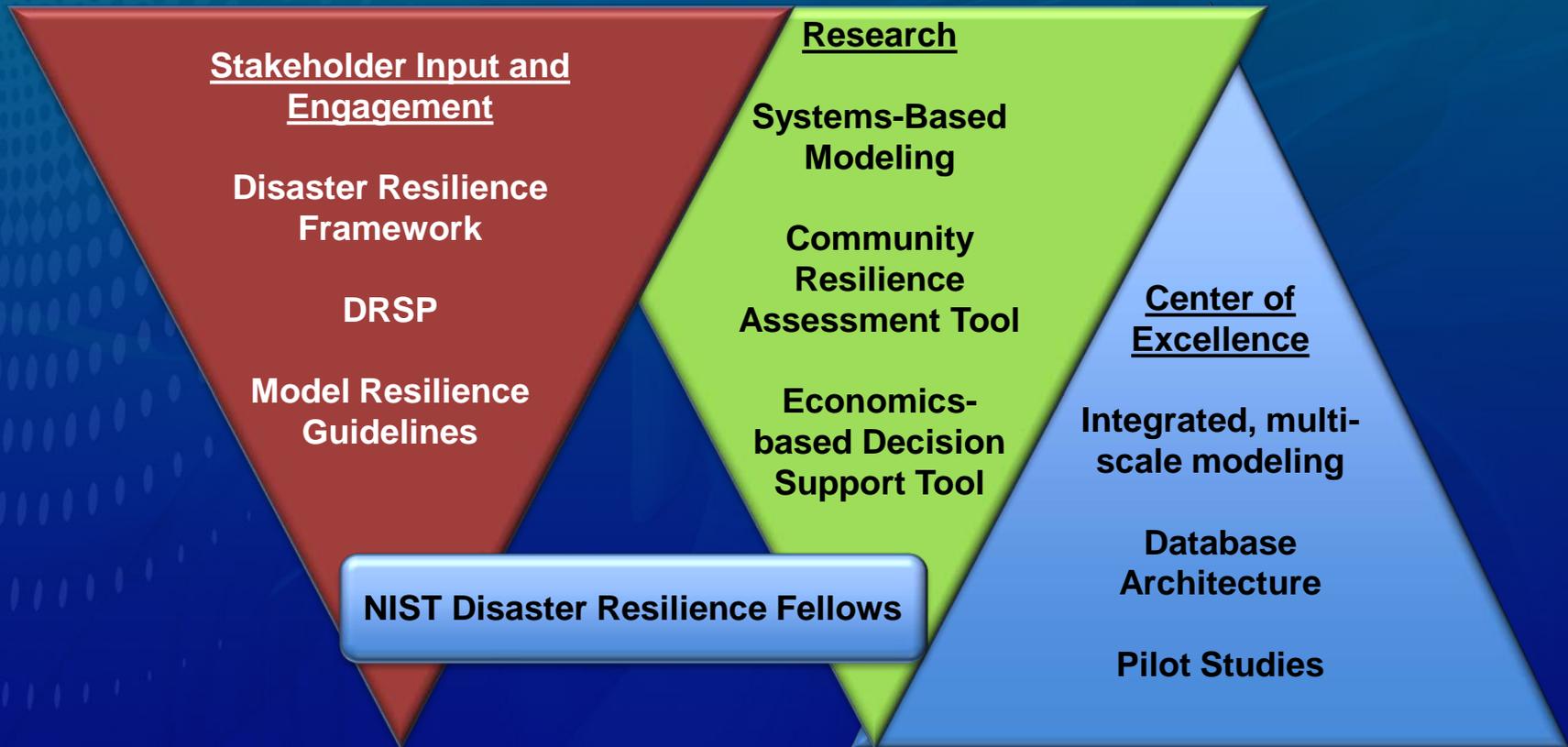


Disaster Resilience Framework – How to Participate

- Attend working sessions at workshops
- Chapters will be announced for each workshop when registration opens
- Review working drafts of the framework posted one week prior to each workshop
- Share your knowledge and experience
- Make others aware of the Framework, DRSP, and Workshops



NIST Community Resilience Program



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