Community Resilience Workshop
Data Needs for Resilience Planning and Decision Making

Workshop Co-Sponsors

Dr. Therese McAllister

National Institute of Standards and Technology

Prof. John van de Lindt

Prof. Bruce Ellingwood

Center for Risk Based Community Planning

Thursday, October 25, 2018

Welcome!

Steering Committee

Donna Boyce

NIST Community Resilience Fellow

Shannon Burke

American Planning Association (APA)

Susanne DesRoches

NYC Mayor's Office

Dan Genua

Department of Homeland Security (DHS)

Beth Keller

International City/County Management Association (ICMA)

Linda Langston

National Association of Counties (NACO)

Eric Letvin

Federal Emergency Management Agency (FEMA)

Cooper Martin

National League of Cities (NLC)

Chris Poland

NIST Community Resilience Fellow

Don Scott

PCS Structural Solutions

Brett Schwartz

National Association of Development Organizations (NADO)

Leslie Wollack

National Association of Regional Councils (NARC)

Community Speakers

KeyNote

- **Sandi Fowler**, Deputy City Manager, City of Cedar Rapids, IA

Session 1

- **Sean McGlynn**, City Manager, Santa Rosa, CA
- **Janet Zeis**, Community Resilience Coordinator, Chester County, PA

Session 2

- **Edward Fratto**, Northeast States Emergency Consortium
- **Justin Kates**, Emergency Manager, Nashua, NH
- **Jay Wilson**, Resilience Coordinator, Clackamas County, OR

Session 3

- **Jane Cage**, InsightFive, Citizens Advisory Recovery Team, Joplin, MO
- **Scott Davis**, SGD Urban Solutions, Washington, DC
- **Josh Ghaffari**, Office of Planning, Comprehensive Plan Manager, Washington, DC
- **Gerry Horak**, Mayor Pro Tem, Fort Collins, CO

The Make-It-Happen Team

- **Applied Research Associates**
  - Frank Lavelle
  - David Mizzen
  - Peter Vickery

- **Energetics Facilitators**
  - Kate Schwartzer
  - Caroline Dollinger
  - Tommi Maliki
  - Scott Morgan
  - Julia Rotondo
  - Emmanuel Taylor
  - Walter Zalis

- **Breakout Note Takers**
  - Frank Lavelle, ARA
  - David Mizzen, ARA
  - Lauren Mudd, ARA
  - Peter Vickery, ARA
  - Maria Dillard, NIST
  - Juan Fung, NIST
  - Ken Harrison, NIST
  - Jennifer Helgeson, NIST
  - Jo Johnson, NIST
  - Terri McAllister, NIST
  - Hussam Mahmoud, CSU
  - Shane Crawford, CSU
  - Andre Barbosa, OSU

Who Is Here?

- **Community Representatives**
  - National Community Organizations
  - Emergency Management
  - Planners
  - City Managers
  - Regional Councils
  - State Community Development
- **Federal Agencies and Laboratories**
  - EDA
  - NOAA
  - DHS
  - FEMA
  - Argonne National Labs
  - Idaho National Labs
  - IDA Science and Technology Policy Institute
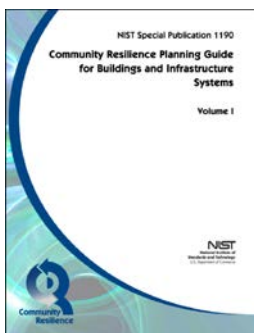
- **Researchers**
  - Center for Risk-Based Community Planning
  - National Academies
  - Universities
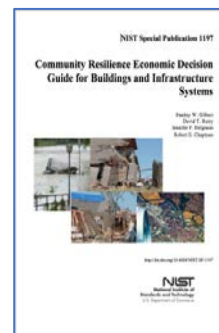- **Practitioners & Non-Profits**
  - AIA
  - CARRI
  - IBTS
  - ISO
  - LEED
  - NFPA
  - NIBS
  - Designers
  - Insurance
  - 100 Resilient Cities
  - Pew Charitable Trust
  - Resilient Virginia

NIST Community Resilience Program

- **Community Engagement:** Multi-faceted outreach effort to inform the development of community resilience guidance documents and tools.


- **Disaster and Failure Studies:** Conduct field studies and develop DFS metrology that supports validation of community resilience tools.

Credit: FEMA News Photo

NIST Community Resilience Program

- **Science-Based Tools**: Develop technical basis for tools to assess community resilience and support informed decision-making for communities of all sizes.
    - **Resilience Assessment** - metrics, methods, data
    - **Systems Modeling** – built environment performance & recovery, impacts on social and economic institutions, assessment of alternatives
    - **Economic Assessment** – benefit cost analysis, business recovery, CGE
    - **Design Methods** – resilience-informed design methods and assessment criteria for buildings and infrastructure
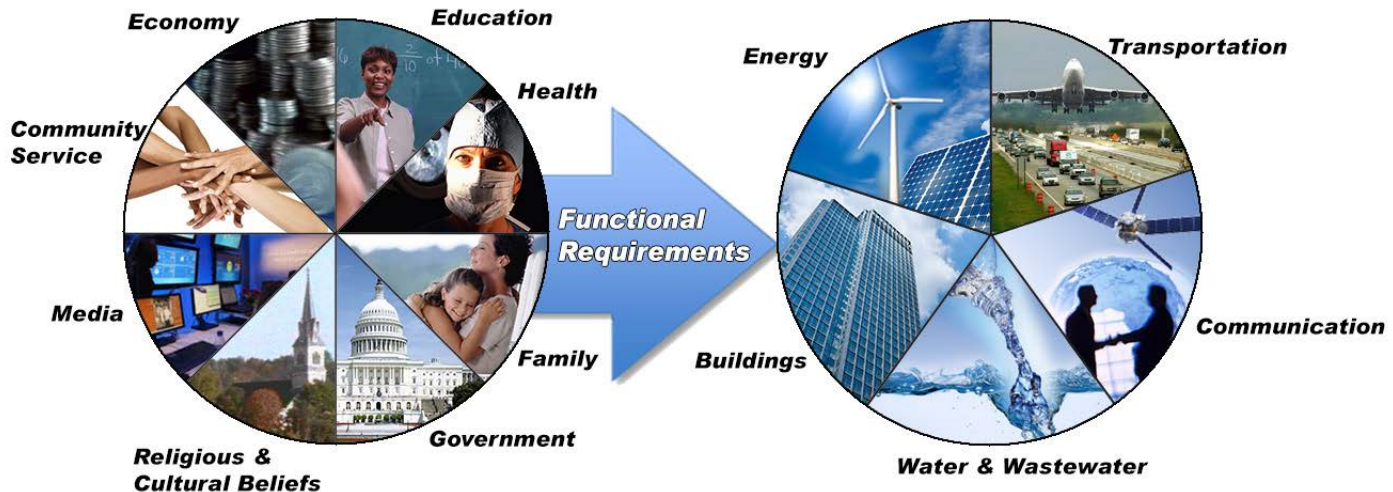
NIST Community Resilience Program
NIST and CoE Longitudinal Field Study

Lumberton, NC Impacts from 2016 Hurricane Matthew

- Implemented novel field study data collection methods:
  - Focus around social dimensions (e.g., education) critical to community resilience
  - Sample plans ensure representativeness with respect to damage, socio-demographics, and housing types
  - Combined GIS-enabled software and hardware to design structured surveys that integrate physical and social impacts
  - Initiated first longitudinal study of community recovery
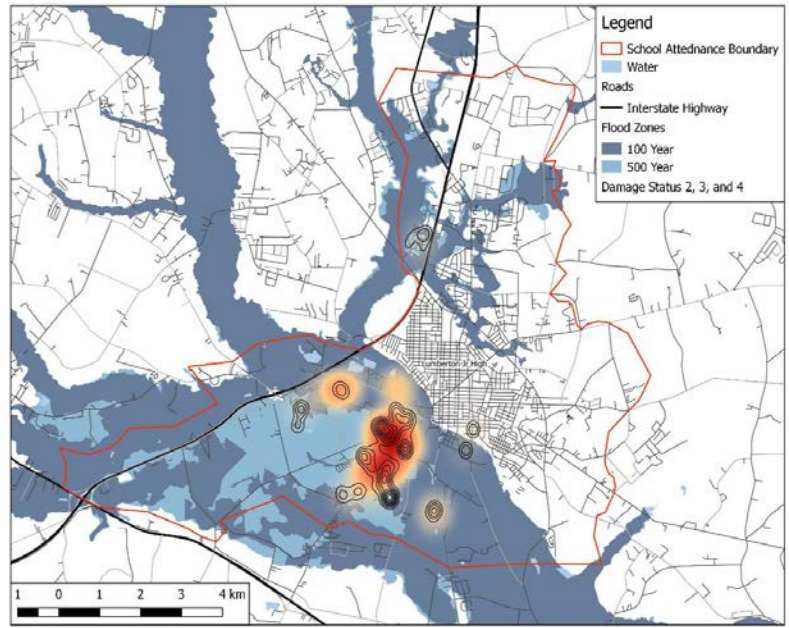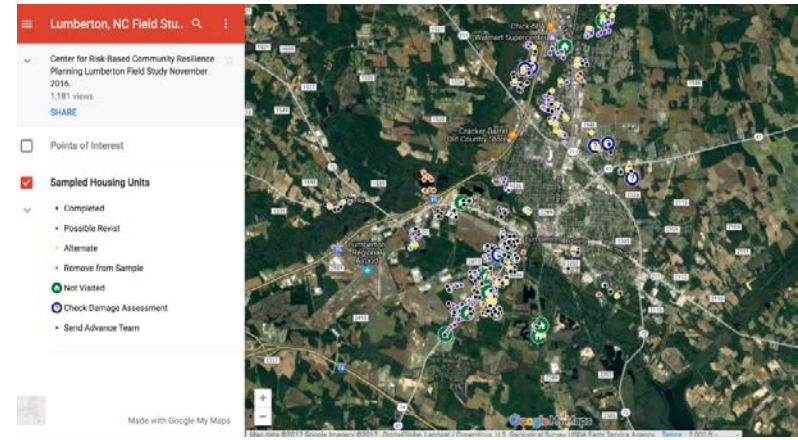
Introducing the Center for Risk-Based Community Planning

- Development of measurement science and technology (NIST/U.S. Department of Commerce)

- Twelve-university - partnership funded by U.S. National Institute of Standards and Technology.

- Understanding and quantification of factors that make a community resilient to natural, technological, and human-induced hazards

- National Center for Supercomputing Applications
- External Assessment Panel

Resilience

Center Research Themes

1: Community modeling of physical, social, and economic systems

2: Development of **In**terdependent **Co**mmunity **Re**silience (IN-CORE) modeling environment

3: Recovery modeling, resilience goals, and performance metrics

4: Risk-informed decision support

5: Utilization of IN-CORE as decision tool
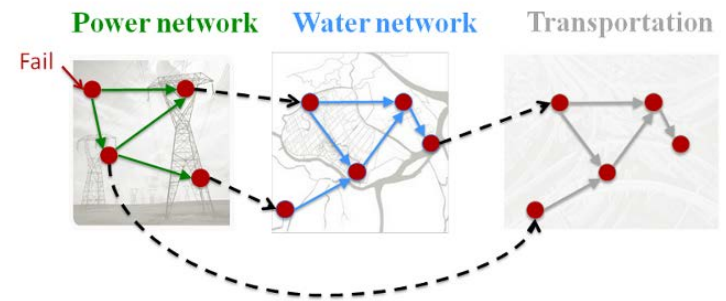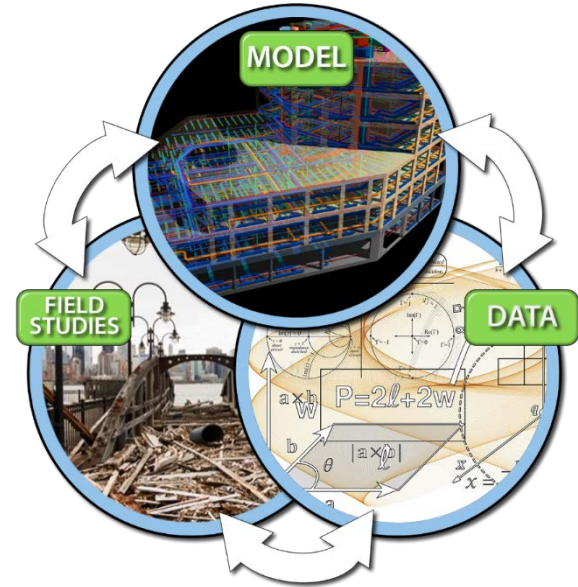
Resilience

Workshop Purpose

- Community resilience is the ability to:
  - Prepare for anticipated hazards
  - Adapt to changing conditions
  - Withstand and recover rapidly from disruptions

- Workshop participants will focus on issues related to how the built environment – buildings and physical infrastructure systems – affect a community's social, economic, and physical resilience.

- The overarching purpose of this workshop is to identify and prioritize data, information and tools:
  - Currently used by communities in resilience planning and decision-making processes
  - Urgently needed by communities to support their resilience planning and decision-making processes

Workshop Objectives

- Gain understanding of the decision-making processes associated with community resilience planning

- Identify the data and information needed to support planning and decision-making

- Inform analysis tools that support planning and decision-making

- Find common data needs for the development and use of analysis tools

- Prioritize needs identified above

Decision Points in Resilience Planning

Where data, information, and tools are needed:

1. Set community resilience goals and priorities

2. Characterize social and economic aspects, and current capacity of building clusters and infrastructure (built environment)

3. Identify gaps between current and desired performance (e.g., time to recovery of function) of built environment

4. Prioritize gaps to improve the performance of built environment

5. Evaluate project options to address performance gaps and meet other community priorities

Breakout Sessions

The 5 decision points are organized around three topics :

- **Topic 1:** How Communities Characterize Themselves, Set Goals, and Make Decisions (Decision Points 1 and 2)

- **Topic 2:** The Gap Between Current and Desired Performance of the Community's Built Environment (Decision Point 3)

- **Topic 3:** Community Resilience Priorities and Solutions (Decision Points 4 and 5)

- What is currently used for planning?
- What is currently used in assessments?
- What is still needed?

Agenda

8:30   **Welcome and Introduction**

9:00   **Keynote Presentation**

- *Cedar Rapids: Data and Tools Used in Planning and Carrying Out a Successful Resilience Strategy*

  ***Sandi Fowler**, City of Cedar Rapids, IA, Deputy City Manager*

9:30   **Session 1: How Communities Characterize Themselves, Set Goals, and Make Decisions**

- *Sifting through the Debris/Data: Recovery and Resiliency in Santa Rosa, CA*

  ***Sean McGlynn**, Santa Rosa, CA, City Manager*

- *Resilient? Chester County…… One Community's Love/Hate Relationship with Data, Tools, and Best Practices*

  ***Janet Zeis**, Chester County, PA, Community Resilience Coordinator*

- Moderator: **Linda Langston**, National Association of Counties, Washington, DC

10:00   **Breakout Instructions**

           Break

Agenda

10:30   **Breakout Session 1**

12:20   **Lunch on Your Own**

1:30   **Session 2: How Communities Characterize Themselves, Set Goals, and Make   Decisions**

- *Using HAZUS to Determine the Performance of Critical and Essential Facilities*

    Edward Fratto, *Northeast States Emergency Consortium*

    Justin Kates, *Nashua, NH, Emergency Manager*

- *The 2013 Oregon Resilience Plan: Bridging the Gaps, a Five-Year Review*

    Jay Wilson, *Clackamas County, OR, Resilience Coordinator*

- Moderator: **Donald Scott**, PCS Structural Solutions, Seattle, WA

2:15   **Break**

2:30   **Breakout Session 2**

4:15   **Moderated Panel Session**

5:00   **Day One Conclusion**

Keynote Presentation

Sandi Fowler,

City of Cedar Rapids, IA

Deputy City Manager

Cedar Rapids:

Data and Tools Used in

Planning and Carrying Out a

Successful Resilience Strategy

Breakout Instructions

Kate Schwartzer

Energetics

Breakout Sessions

Concurrent facilitated sessions

- Montrose Room   Group 1
- Jackson Room   Group 2
- Lincoln Room   Group 3
- Monroe Room   Group 4
- Truman Room   Group 5
- Wilson Room   Group 6

LOBBY LEVEL MEETING ROOMS

General Sessions

Group #1

Group #2

Group #3

Group #4

Group #5

Group #6

1. Twinbrook Room
2. Montrose Room
3. Democracy
4. Plaza 3
5. Plaza 2
6. Plaza 1
7. Randolph Room
8. Regency Room

9. Conference Room 1
10. Conference Room 2
11. Conference Room 3
12. Roosevelt Room
13. Madison Room
14. Jefferson Room
15. Adams

16. Wilson Room
17. Truman Room
18. Monroe Room
19. Lincoln Room
20. Jackson Room
21. Washington Theater
22. Eisenhower

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Friday, October 26, 2018

What did we hear so far?

Future Plans

- Next Steps
    - Document discussion from this workshop
    - Identify current data, information, and tools being used
    - Identify outstanding needs
    - Develop a report on gaps and needs to support community resilience

Please mark your calendars and join us on May 1, 2019 for the Center Webinar on Risk-Informed Decision Making

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Agenda

8:30   **Opening Remarks**

8:45   **Session 3: Community Resilience Priorities and Solutions**

- *A Whole Community Approach to Recovery Data and Vision: The Role of Citizens*

  Jane Cage, *InsightFive, Joplin, MO, Citizens Advisory Recovery Team*

- *What Does Resilience Look Like?*

  Scott Davis, *SGD Urban Solutions, Washington, DC*

- *Resilience Planning in Washington, DC*

  Josh Ghaffari, *Washington, DC, Office of Planning, Comprehensive Plan Manager*

- *Resiliency Results from Plans, Implementation, and Collaboration*

  Gerry Horak, *Fort Collins, CO, Mayor Pro Tem*

- Moderator: **Shannon Burke**, American Planning Association, Chicago, IL

9:45   **Break**

10:00   **Breakout Session 3**

11:45   **Moderated Panel Session**

12:30   **Final Remarks and Workshop Conclusion**