

DISASTER RESILIENCE WORK PLAN AND FRAMEWORK

Table of Contents

Executive Summary	Error! Bookmark not defined.
1. Introduction	Error! Bookmark not defined.
1.1. Authority	Error! Bookmark not defined.
1.2. NIST Plan.....	Error! Bookmark not defined.
1.2.1. Disaster Resilience Framework	Error! Bookmark not defined.
1.2.2. Model Resilience Guidelines	Error! Bookmark not defined.
1.2.3. Regional Workshops.....	Error! Bookmark not defined.
1.2.4. Disaster Resilience Standards Panel	Error! Bookmark not defined.
1.3. Key Elements in Disaster Resilience Framework.....	Error! Bookmark not defined.
1.4. Standards Identified for Implementation	Error! Bookmark not defined.
1.5. Needs for Standard Development	Error! Bookmark not defined.
1.6. Alignment with Other Disaster Resilience Programs	Error! Bookmark not defined.
2. Community Disaster Resilience for the Built Environment ...	Error! Bookmark not defined.
2.1. Community Level Disaster Risks	Error! Bookmark not defined.
2.1.1. Community Disaster Resilience for the Built Environment.....	Error! Bookmark not defined.
2.1.2. Hazard Events and Potential Impacts	Error! Bookmark not defined.
2.1.3. Diversity of Communities.....	Error! Bookmark not defined.
2.1.4. Community Vulnerabilities and Consequences of Failure and Disruption.....	Error! Bookmark not defined.
2.2. Pathway to Community Resilience	Error! Bookmark not defined.
2.2.1. Performance Goals, Values and Objectives.....	Error! Bookmark not defined.
2.2.2. Acceptable Risks.....	Error! Bookmark not defined.
2.2.3. Non-Construction Strategies	Error! Bookmark not defined.
2.2.4. Construction Related Strategies	Error! Bookmark not defined.
3. Examples of Community Disaster Resilience	Error! Bookmark not defined.
3.1. Introduction.....	Error! Bookmark not defined.
3.2. Past Performance of Communities and Their Critical Buildings and Infrastructure Systems	Error! Bookmark not defined.
3.2.1. 2005 Hurricanes Katrina and Rita.....	Error! Bookmark not defined.
3.2.2. 2012 Hurricane Sandy.....	Error! Bookmark not defined.

3.2.3. 2011 Joplin Tornado	Error! Bookmark not defined.
3.2.4. 2013 Colorado Flooding	Error! Bookmark not defined.
3.2.5. 1994 Northridge Earthquake	Error! Bookmark not defined.
3.2.6. 2010 Chile Earthquake.....	Error! Bookmark not defined.
3.2.7. 2011 New Zealand Earthquake	Error! Bookmark not defined.
3.2.8. 2013 Japan Tsunami	Error! Bookmark not defined.
3.2.9. 2007 Southern California Wildland-Urban Interface Fires.....	Error! Bookmark not defined.
3.2.10. 2012 Colorado Wildland-Urban Interface Fires	Error! Bookmark not defined.
3.3. Current Performance and Common Problems	Error! Bookmark not defined.
3.4. Identification of gaps and challenges for disaster resilience standards development and harmonization.	Error! Bookmark not defined.
4. Sectors, Interdependencies and Cascading Effects.....	Error! Bookmark not defined.
4.1. Sectors to be Considered.....	Error! Bookmark not defined.
4.2. Interdependencies of Sectors	Error! Bookmark not defined.
4.3. Buildings and Transportation.....	Error! Bookmark not defined.
4.4. Buildings and Lifelines for Functionality	Error! Bookmark not defined.
4.5. Transportation and Lifelines for Functionality	Error! Bookmark not defined.
4.6. Energy and Other Lifelines	Error! Bookmark not defined.
4.7. Cascading Effects.....	Error! Bookmark not defined.
4.8. Sequential Recovery from Disasters by Sector.....	Error! Bookmark not defined.
4.8.1. Critical Buildings	Error! Bookmark not defined.
4.8.2. General Recovery Sequence	Error! Bookmark not defined.
5. Building Sector	Error! Bookmark not defined.
5.1. Introduction.....	Error! Bookmark not defined.
5.2. Importance of Building Stock Data	Error! Bookmark not defined.
5.3. Performance Goals for Buildings.....	Error! Bookmark not defined.
5.4. Government.....	Error! Bookmark not defined.
5.5. Business and Services	Error! Bookmark not defined.
5.6. Industry	Error! Bookmark not defined.
5.7. Residential.....	Error! Bookmark not defined.
5.8. Existing Buildings.....	Error! Bookmark not defined.
5.9. New Construction	Error! Bookmark not defined.
5.10. Resilience Gaps.....	Error! Bookmark not defined.
5.10.1. Standards and Codes	Error! Bookmark not defined.
5.10.2. Practice gaps and research needs	Error! Bookmark not defined.
5.11. Summary and Recommendations	Error! Bookmark not defined.

6. Transportation Sector	Error! Bookmark not defined.
6.1. Introduction.....	Error! Bookmark not defined.
6.2. Performance Goals for Transportation.....	Error! Bookmark not defined.
6.3. Assessing Critical Transportation Infrastructure	Error! Bookmark not defined.
6.3.1. Roads, bridges, highways	Error! Bookmark not defined.
6.3.2. Rail (including subway systems)	Error! Bookmark not defined.
6.3.3. Air	Error! Bookmark not defined.
6.3.4. Ports, harbors and waterways	Error! Bookmark not defined.
6.4. Resilience Gaps.....	Error! Bookmark not defined.
6.4.1. Standards and Codes	Error! Bookmark not defined.
6.4.2. Practice gaps and research needs	Error! Bookmark not defined.
6.5. Summary and Recommendations	Error! Bookmark not defined.
7. Energy Sector	Error! Bookmark not defined.
7.1. Introduction.....	Error! Bookmark not defined.
7.2. Performance Goals.....	Error! Bookmark not defined.
7.3. Critical Energy Infrastructure	Error! Bookmark not defined.
7.3.1. Electric Power	Error! Bookmark not defined.
7.3.2. Liquid Fuel.....	Error! Bookmark not defined.
7.3.3. Natural Gas	Error! Bookmark not defined.
7.3.4. Emergency Power	Error! Bookmark not defined.
7.4. Resilience Gaps.....	Error! Bookmark not defined.
7.4.1. Standards and Codes	Error! Bookmark not defined.
7.4.2. Practice Gaps and Research Needs	Error! Bookmark not defined.
7.5. Summary and Recommendations	Error! Bookmark not defined.
8. Communication and Information Sector.....	Error! Bookmark not defined.
8.1. Introduction.....	Error! Bookmark not defined.
8.2. Performance Goals.....	Error! Bookmark not defined.
8.3. Critical Communication and Information Infrastructure ..	Error! Bookmark not defined.
8.3.1. Landline Telephone Systems	Error! Bookmark not defined.
8.3.2. Internet Systems.....	Error! Bookmark not defined.
8.3.3. Cellular/Mobile Systems.....	Error! Bookmark not defined.
8.4. Resilience Gaps.....	Error! Bookmark not defined.
8.4.1. Standards and Codes	Error! Bookmark not defined.
8.4.2. Practice Gaps and Research Needs	Error! Bookmark not defined.
8.5. Summary and Recommendations	Error! Bookmark not defined.
9. Water and Wastewater Sector	Error! Bookmark not defined.
9.1. Introduction.....	Error! Bookmark not defined.
9.2. Performance Goals.....	Error! Bookmark not defined.

9.3. Critical Water Infrastructure	Error! Bookmark not defined.
9.3.1. Water Systems	Error! Bookmark not defined.
9.3.2. Wastewater Systems	Error! Bookmark not defined.
9.3.3. Combined Storm and Sewer Lines	Error! Bookmark not defined.
9.4. Resilience Gaps.....	Error! Bookmark not defined.
9.4.1. Standards and Codes	Error! Bookmark not defined.
9.4.2. Practice Gaps and Research Needs	Error! Bookmark not defined.
9.5. Summary and Recommendations	Error! Bookmark not defined.
10. Tools and Metrics for Evaluating Disaster Resilience.....	Error! Bookmark not defined.
10.1. Community Resilience Metrics.....	Error! Bookmark not defined.
10.2. Prioritization of resilience alternatives	Error! Bookmark not defined.
10.3. Risk management approach for evaluating resilience alternatives	Error! Bookmark not defined.
11. Recommendations and Next Steps	Error! Bookmark not defined.
11.1. Standards Identified for Implementation	Error! Bookmark not defined.
11.2. Priority Action Plans for Standard Development	Error! Bookmark not defined.
11.3. Research Needs	Error! Bookmark not defined.