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11 February 2015

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Executive Summary

1. Framework Introduction

- 1.1. Overview
- 1.2. Defining Communities
- 1.3. Community Resilience
- 1.4. Community Resilience of the Built Environment
 - 1.4.1. Resilience Concept
- 1.5. Why is Community Resilience Needed?
 - 1.5.1. Developing a Plan for Community Resilience
- 1.6. Other Federal Activities Supporting Resilience
 - 1.6.1. The National Preparedness Frameworks
 - 1.6.2. Disaster Mitigation Assessment
- 1.7. Disaster Resilience Framework and Supporting Activities
 - 1.7.1. Disaster Resilience Framework
 - 1.7.2. Disaster Resilience Standards Panel
 - 1.7.3. Model Resilience Guidelines
- 1.8. References

2. The Social Context for Community Resilience

- 2.1. Introduction
- 2.2. Social Dimensions of a Community
 - 2.2.1. Understanding Needs of Community Members
 - 2.2.2. Social Institutions Common to all Communities
 - 2.2.3. Social Vulnerabilities and Disasters
- 2.3. Prioritization of Social Institutions and their Functions
 - 2.3.1. Dependence of Social Institutions on the Built Environment
 - 2.3.2. Dependence of Social Institutions on Other Social Institutions
- 2.4. Community Examples of Recovery and Resilience
- 2.5. Community Engagement in Resilience

3. Community Disaster Resilience for the Built Environment

- 3.1. Community Level Disaster Resilience
 - 3.1.1. Community Disaster Resilience for the Built Environment
 - 3.1.2. Contributing Factors to Disaster Resilience
 - 3.1.3. Acceptable Risks
 - 3.1.4. Implementing Community Resilience Planning
- 3.2. Pathway to Community Resilience
 - 3.2.1. Identifying Clusters of Buildings and Infrastructure Systems

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- 3.2.2. Hazard Events
- 3.2.3. Community Performance Goals
- 3.2.4. Anticipated Performance of the Physical Infrastructure Clusters
- 3.2.5. Summary Resilience Matrix

3.3. Mitigation and Recovery Strategies

- 3.3.1. Non-Construction Strategies
- 3.3.2. Construction Related Strategies
- 3.4. References

4. Dependencies and Cascading Effects

- 4.1. Introduction
- 4.2. Dimensions of Dependency
 - 4.2.1. Internal and External Dependency
 - 4.2.2. Time Dependency
 - 4.2.3. Space Dependency
 - 4.2.4. Source Dependency
- 4.3. Planning for Infrastructure System Dependencies
- 4.4. References

5. Buildings

- 5.1. Introduction
 - 5.1.1. Social Needs and Systems Performance Goals
 - 5.1.2. Reliability v. Resilience
 - 5.1.3. Interdependencies

5.2 Building Classes and Uses

- 5.2.1. Government
- 5.2.2. Healthcare
- 5.2.3. Schools and Daycare Centers
- 5.2.4. Religious and Spiritual Centers
- 5.2.5. Residential and Hospitality
- 5.2.6. Business and Services
- 5.2.7. Conference and Event Venues
- 5.2.8 Detention and Correctional Facilities
- 5.3. Performance Goals
- 5.4 Regulatory Environment
- 5.5 Standards and Codes
 - 5.5.1. New Construction
 - 5.5.2. Existing Construction
- 5.6. Strategies for Implementing Community Resilience Plans
 - 5.6.1 Available Guidance
 - 5.6.2 Strategies for New/Future Construction

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5.7. References

6. Transportation Systems

6.1. Introduction

- 6.1.1. Social Needs and System Performance Goals
- 6.1.2. Interdependencies

6.2. Transportation Infrastructure

- 6.2.1. Roads, Bridges, Highways, and Road Tunnels
- 6.2.2. Rail
- 6.2.3. Air
- 6.2.4. Ports, Harbors, and Waterways
- 6.2.5. Pipelines

6.3. Performance Goals

6.4. Regulatory Environment

- 6.4.1. Federal
- 6.4.2. Regional, State, and Local

6.5. Standards and Codes

- 6.5.1. New Construction
- 6.5.2. Existing Construction

6.6. Strategies for Implementing Community Resilience Plans

- 6.6.1. Available Guidance
- 6.6.2. Strategies for New/Future Construction
- 6.6.3. Strategies for Existing Construction

6.7. References

7. Energy Systems

7.1. Introduction

- 7.1.1. Social Needs and Systems Performance Goals
- 7.1.2. Reliability, Energy Assurance, and Resilience
- 7.1.3. Interdependencies

7.2. Energy Infrastructure

- 7.2.1. Electric Power
- 7.2.2. Liquid Fuel
- 7.2.3. Natural Gas
- 7.2.4. Emergency and Standby Power

7.3. Performance Goals

7.4. Regulatory Environment

- 7.4.1. Federal
- 7.4.2. State
- 7.4.3. Local

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- 7.5.1. New Construction
- 7.5.2. Existing Construction

7.6. Strategies for Implementation of Community Resilience Plans

- 7.6.1. Available Guidance
- 7.6.2. Strategies for New/Future Construction
- 7.6.3. Strategies for Existing Construction

7.7. References

8. Communication and Information Systems

8.1. Introduction

- 8.1.1. Social Needs and System Performance Goals
- 8.1.2. Availability, Reliability, and Resilience
- 8.1.3. Interdependencies

8.2. Critical Communication and Information Infrastructure

- 8.2.1. Landline Telephone Systems
- 8.2.2. Internet Systems
- 8.2.3. Cellular/Mobile Systems
 - 8.2.3.1. Cell Towers
 - 8.2.3.2. Backhaul Facilities

8.3. Performance Goals

8.4. Regulatory Environment

- 8.4.1. Federal
- 8.4.2. State
- 8.4.3. Local
- 8.4.4. Overlapping Jurisdiction

8.5 Standards and Codes

- 8.5.1. New Construction
- 8.5.2. Existing Construction

8.6. Strategies for Implementing Community Resilience Plans

- 8.6.1. Available Guidance
- 8.6.2. Strategies for New/Future Construction
- 8.6.3. Strategies for Existing Construction

8.7. References

9. Water and Wastewater Systems

9.1. Introduction

- 9.1.1. Social Needs and Systems Performance Goals
- 9.1.2. Interdependencies

9.2. Water and Wastewater Infrastructure

9.2.1. Water Infrastructure

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9.2.2.	Wastewater	Systems
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9.3. Performance Goals

9.4. Regulatory Environment

- 9.4.1. Federal
- 9.4.2. State
- 9.4.3. Local

9.5. Standards and Codes

- 9.5.1. New Construction
- 9.5.2. Existing Construction

9.6. Strategies for Implementing of Community Resilience Plans

- 9.6.1 Available Guidance
- 9.6.2 Strategies for New Construction
- 9.6.3. Strategies for Existing Construction

9.7. References

10. Community Resilience Metrics

- 10.1. Background
- 10.2. Desirable Characteristics for Community Resilience Metrics

10.3. Types of Metrics

- 10.3.1. Recovery Times
- 10.3.2. Economic Vitality
- 10.3.3. Social Well-Being
- 10.3.4. Hybrids
- 10.3.5. Other Metrics

10.4. Examples of Existing Community Resilience Assessment Methodologies

- 10.4.1. SPUR Methodology
- 10.4.2. Oregon Resilience Plan
- 10.4.3. UNISDR Disaster Resilience Scorecard for Cities
- 10.4.4. CARRI Community Resilience System
- 10.4.5. Communities Advancing Resilience Toolkit (CART)
- 10.4.6. Baseline Resilience Indicators for Communities (BRIC)
- 10.4.7. Rockefeller Foundation City Resilience Framework
- 10.4.8. NOAA Coastal Resilience Index
- 10.4.9. FEMA Hazus Methodology
- 10.4.10. Comparison Matrix

10.5. Economic Evaluation of Community Resilience Investment Portfolio

- 10.5.1. Portfolio Considerations
- 10.5.2. Economic Decision-Making Involving Risk and Uncertainty

10.6. References