

Hazagation

Integrating climate change into multi-hazard
mitigation planning

What is Hazard Mitigation?

- ❖ Sustained actions taken to reduce or eliminate long-term risk to people and property from hazards and their affects.
- ❖ The purpose of hazard mitigation is to:
 - ❖ Protect people and property from natural and manmade hazards; and
 - ❖ Minimize the costs of disaster response and recovery



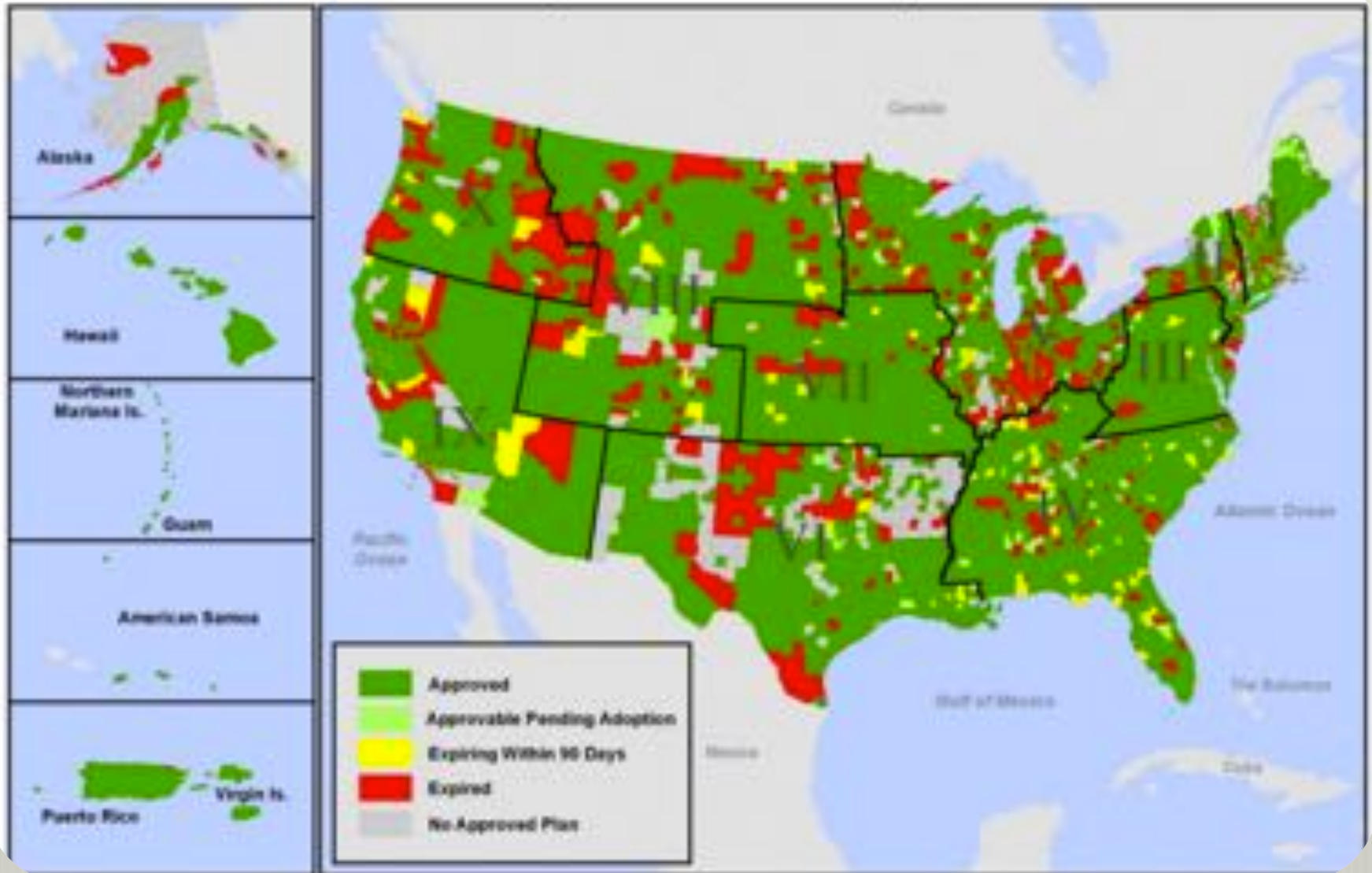
What is a Local Hazard Mitigation Plan (LHMP)?

- ❖ A plan through which a local jurisdiction or Tribe:
 - ❖ Identifies and profiles local hazards;
 - ❖ Assesses the community's risk from local hazards; and
 - ❖ Develops a hazard mitigation strategy to reduce potential losses identified in the risk assessment
- ❖ LHMP's are required for eligibility for some federal mitigation program funding (44 CFR Part 201)
- ❖ A LHMP is not regulatory

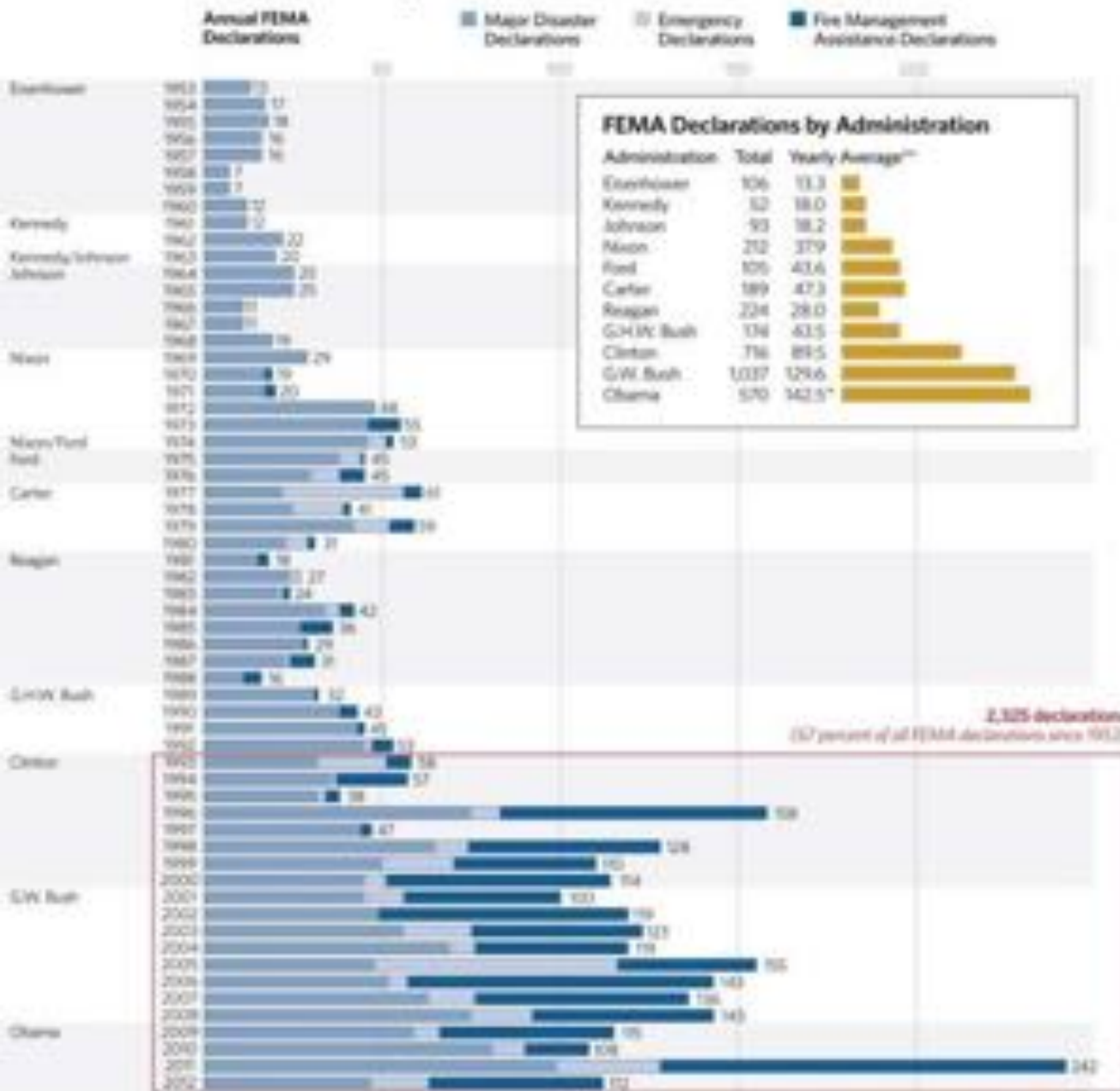


A Quick Snapshot

Local Hazard Mitigation Plan Status as of January 15, 2016



FEMA Declarations, by Year and by Presidential Administration



Disaster Frequency is Increasing

* Based on data through December 31, 2012. ** Figures are provided for Kennedy, Johnson, Nixon, and Ford Administrations.

Note: Annual totals may not add up to presidential totals during the same time period due to the January 20 inauguration date.

Source: FEMA Disaster Search Database, <http://www.fema.gov/Disaster/Search/Result> (accessed March 12, 2013).

And...the Climate is Changing

NEWER SIMULATIONS FOR PROJECTED TEMPERATURE (CMIP5 MODELS)

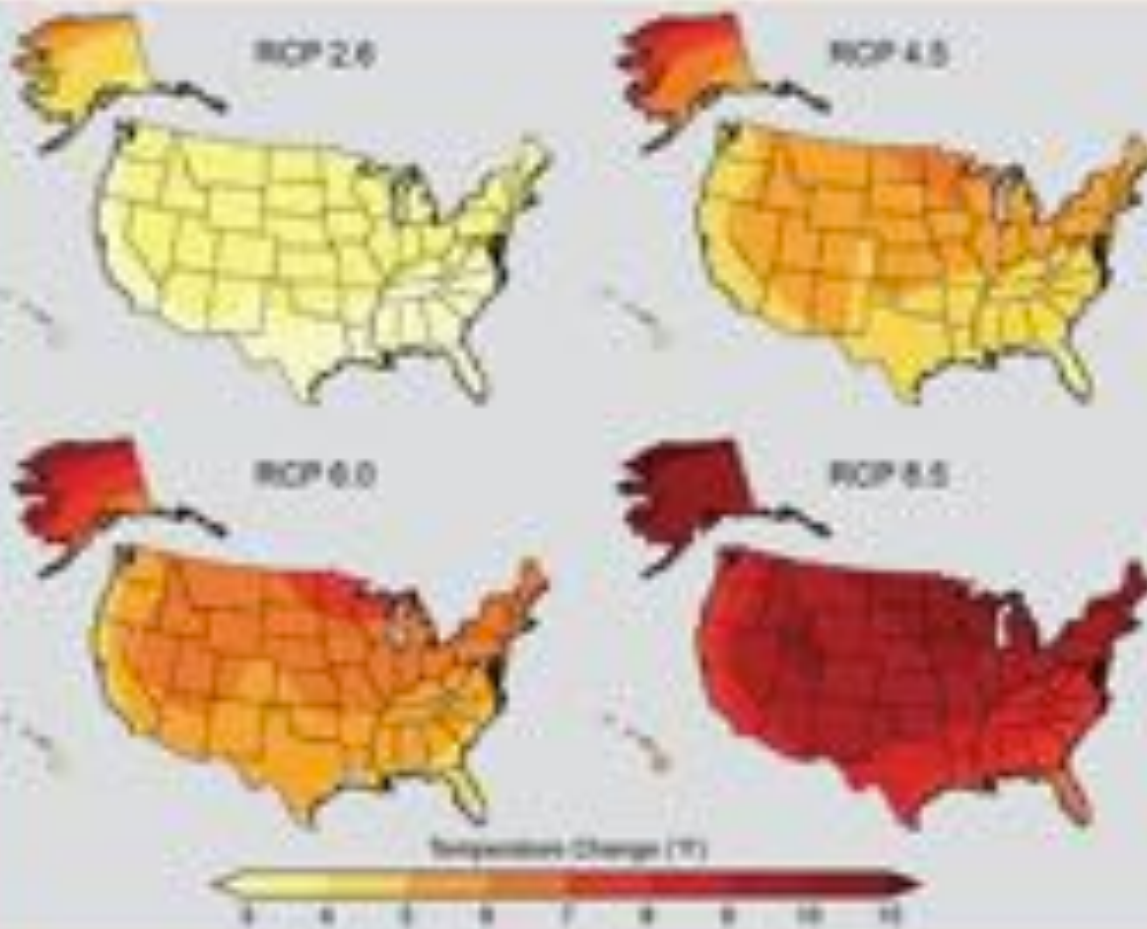


Figure 2.8. The largest uncertainty in projecting climate change beyond the next few decades is the level of heat-trapping gas emissions. The most recent model projections (CMIP5) take into account a wider range of options with regard to human behavior, including a lower scenario than has been considered before (RCP 2.6). This scenario assumes rapid reductions in emissions – more than 70% cuts from current levels by 2050 and further large decreases by 2100 – and the corresponding smaller amount of warming. On the higher end, the scenarios include one that assumes continued increases in emissions (RCP 8.5) and the corresponding greater amount of warming. Also shown are temperature changes for the intermediate scenarios RCP 4.5 (which is most similar to B1) and RCP 6.0 (which is most similar to A1B; see Appendix 3: Climate Science Supplement). Projections show change in average temperature in the later part of this century (2071–2099) relative to the late part of last century (1970–1999). (Figure source: NOAA NCDC / CISS-NC)

The Danger of Business as Usual



Hazagation

Embedding future climate change considerations into hazard mitigation planning



Existing and Future Risks

LHMP Requirements

Comparing the Local Mitigation Plan Review Crosswalk with the Local Mitigation Plan Review Tool Regulation Checklist

1. REGULATION CHECKLIST	CROSSWALK REFERENCE #
Regulation [44 CFR 201.6 Local Mitigation Plans]	
ELEMENT A. PLANNING PROCESS	
A1. Does the Plan document the planning process, including how it was prepared and who was involved in the process for each jurisdiction? (Requirement §201.6(c)(1))	2A, 3A, 4A, 4B
A2. Does the Plan document an opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, agencies that have the authority to regulate development as well as other interests to be involved in the planning process? (Requirement §201.6(b)(2))	4D
A3. Does the Plan document how the public was involved in the planning process during the drafting stage? (Requirement §201.6(b)(1))	4C
A4. Does the Plan describe the review and incorporation of existing plans, studies, reports, and technical information? (Requirement §201.6(b)(3))	4E
A5. Is there discussion of how the community(ies) will continue public participation in the plan maintenance process? (Requirement §201.6(c)(4)(iii))	20A
A6. Is there a description of the method and schedule for keeping the plan current (monitoring, evaluating and updating the mitigation plan within a 5-year cycle)? (Requirement §201.6(c)(4)(i))	18A, 18B, 18C
ELEMENT A - CHANGES FROM THE CROSSWALK	
<ul style="list-style-type: none"> • A2 clarifies the interpretation of the CFR to involve neighboring communities, agencies involved in hazard mitigation and those with authority to regulate development. • A5 and A6 moves the Plan Maintenance requirements into the Planning Process element. 	

Example: Worcester County, MD

- ❖ Sea level rise identified as a hazard
- ❖ Capacity assessment includes Sea Level Rise Response Strategy
- ❖ Climate-specific actions (research; planning; policy)

Example: Keene, NH

- ❖ Climate Change Adaptation Plan mentioned as part of capacity assessment
- ❖ Hazard assessment includes climate changes impact on heat
- ❖ Climate change in plan maintenance – specifically to make connections to Climate Adaptation Plan

Example: Austin, TX

A bronze statue of a man wearing a wide-brimmed hat and a long coat, standing on a stone pedestal. The background shows a city skyline at night with illuminated buildings and a body of water reflecting the lights.

- ❖ Climate stakeholders on planning team
- ❖ Austin Climate Protection Program part of capacity assessment
- ❖ Climate change specific actions (tree planting; research; downscaling)
 - ❖ Climate impacts: flood, wildfire, drought, extreme heat, infectious disease
- ❖ Plan maintenance – Make connections to CAP

Example: Waveland, MS

- ❖ Climate change and sea level rise are assessed in the Hazard Assessment (stand alone hazard)
- ❖ The vulnerability assessments include a section on “Climate adaptation and X (coastal hazard, erosion, drought, etc.)”
 - ❖ Two presentations of vulnerability: with climate change and without
- ❖ Invited climate adaptation-related stakeholders to public meetings
- ❖ Some climate-specific actions; many actions that have adaptation value

Example: Santa Cruz, CA

A lighthouse stands on a rocky shore at sunset. The sky is filled with vibrant orange and yellow clouds, and the sun is low on the horizon, casting a warm glow over the scene. The lighthouse is a tall, dark structure with a white top section. The foreground shows dark, jagged rocks.

- ❖ All **hazards** include a section on “Climate adaptation considerations”
- ❖ Some sections include details about climate change and future risk and probability of hazard occurrences
- ❖ Same author for LHMP and Adaptation Plan
- ❖ Climate adaptation specific actions: planning; policies
- ❖ Climate Adaptation Plan is an appendix – was originally intended to be the LHMP

Baltimore and Boston



Opportunities for Hazagation

Existing Required Material per the FEMA Crosswalk

Opportunity to Integrate Climate Change

Element B: Hazard Identification and Risk Assessment

B1: Does the Plan include a description of the type, location, and extent of all natural hazards that can affect each jurisdiction?

Consider either: 1) adding climate change as a stand alone hazard; or 2) adding how climate change could affect the type, location, severity, duration, and reoccurrence intervals for all the other hazards in your community. (B1)

B2: Does the Plan include information on previous occurrences of hazard events and on the probability of future hazard events for each jurisdiction?

Make sure that climate change is factored into probability calculations for future hazards. (B2)

B3: Is there a description of each identified hazard's impact on the community as well as an overall summary of the community's vulnerability for each jurisdiction?

Include climate-related changes to hazards in the vulnerability analysis and hazard impact summaries. (B3)

B4: Does the Plan address NFIP insured structures within the jurisdiction that have been repetitively damaged by floods?

Consider also including structures likely to be flooded in the future given changes to the floodplain likely to take place in a climate-altered future. (B4)

Thank You

