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On Local Hazard Mitigation Plan Integration

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Caveat

- The assumptions used and subsequent guidance that follows is the opinion and reflects the experience and expertise of the author of this presentation, W. Nick Grinstead
- The information results from the author’s experiences; formal education and training; and subsequent expertise in writing, editing, and aiding approval of local and state hazard mitigation plans and from research of publicly available and official documents produced by named and implied agencies.
- The information presented should not be interpreted as representative of the views of the agencies mentioned explicitly or of agencies implied, except where cited on the slide itself.



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Introduction

- The components of a hazard mitigation plan and limitations
- Integration through Vulnerability
 - Comprehensive Economic Development Strategies
- Integration through Vulnerability Toward the Mitigation Strategy
 - Cybersecurity and Infrastructure Security Agency (Infrastructure)
 - Energy
 - Watershed Management and Planning
- Integration through the Mitigation Strategy
 - Nature-Based Solutions (NBS)
- Additional Limitations
- Planning-Related Activities (PRAs)



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The Fundamental Purpose of the Mitigation Plan

- All components of the hazard mitigation plan lead to the/are an argument for a list of mitigation actions prioritized for funding, primarily, by FEMA and its HMA programs.



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The Fundamental Purpose of the Mitigation Plan

- Eligibility for FEMA Hazard Mitigation Assistance (HMA) Programs:
 - **Hazard Mitigation Grant Program (HMGP)**
 - **Building Resilient Infrastructure and Communities (BRIC)**
 - **Formerly Pre-Disaster Mitigation (PDM)**
 - **Flood Mitigation Assistance (FMA)**



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FEMA Local Plan Review Tool: Plan Process (Element A.)

- ***Document the planning process, including how it was prepared and who was involved for each jurisdiction. (A1)***
- Document an opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, agencies that have the authority to regulate development, and “other interests” to be involved in the planning process. (A2)
- ***Document how the public was involved in the planning process during the drafting stage. (A3)***



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FEMA Local Plan Review Tool: Plan Process

- *Describe the review and incorporation of existing plans, studies, reports, and technical information. (A4)*
- “Plan Maintenance” (A5 and A6)
 - Discuss how the communities will continue public participation in the plan maintenance process.
 - Describe the method and schedule for keeping the plan current (i.e., monitoring, evaluating, and updating the mitigation plan within a five-year cycle).



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FEMA Local Plan Review Tool: Plan Process

- Implications and Limitations for Integration:
 - FEMA does not specify who should participate in mitigation planning.
 - FEMA does not specify *how* the planning process is conducted.
 - However, breadth of participation is implied and certainly encouraged.
 - Do (and record) what is needed to elicit the information necessary to identify and prioritize mitigation actions (and to fully realize the risk assessment).
 - ***Limitation: Whole Community vs. Stakeholders***



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FEMA Local Plan Review Tool: Risk Assessment (Element B.)

- (B1): Describe the:
 - Type,
 - Location, and
 - Extent of all natural hazards that can affect each jurisdiction.
- (B2): Inform on:
 - Previous occurrences of hazard events and the
 - Probability of future hazard events for each jurisdiction
- Describe each identified hazard’s impact on a community. (B3)
- Address Repetitive-Loss properties within each jurisdiction. (B4)
- ***Summarize a community’s vulnerability to each identified hazard.*** (B3)
 - Vulnerability Assessment



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FEMA Local Plan Review Tool: Risk Assessment

- Implications:
 - A risk assessment emphasizes information resulting from the planning process.
 - A risk assessment relies on personalized opinion/desire and anecdotes.
 - The risk assessment justifies the identification and prioritization of mitigation actions and the strategy to implement those actions.



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FEMA Local Plan Review Tool: Risk Assessment

- Of Particular Focus
 - The full reporting of the types, locations, extent, impacts (damages), and previous occurrences of hazard events tend to be the barriers to FEMA approval of a multi-jurisdictional mitigation plan.
 - Probability as a function of frequency
 - Every county and every city must identify type, location, extent, impact, and previous occurrences for each hazard type.
 - Karst Terrain/Sinkholes, Landslides, Wildfires, Flooding tend to be the hazards where plan participation is most necessary.
 - State agency participation is very helpful here.
- ***Limitation: Integration’s emphasis on vulnerability analysis vs. the need for basic data collection***



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FEMA Local Plan Review Tool: Mitigation Strategy (Element C.)

- Document each jurisdiction’s existing authorities, policies, programs, and resources; its ability to expand on and improve these existing policies and programs. (C1)
- Address each jurisdiction’s participation in the NFIP and continued compliance with NFIP requirements. (C2)
- Include goals to reduce/avoid long-term vulnerabilities to identified hazards. (C3)
 - Goals must be linked to mitigation actions and projects.



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FEMA Local Plan Review Tool: Mitigation Strategy

- **(C4):** *Identify and analyze a comprehensive range of specific mitigation actions and projects for each jurisdiction being considered to reduce the effects of hazards,*
 - *With emphasis on new and existing buildings and infrastructure.*
- Develop an action plan that describes how identified mitigation actions will be prioritized (including cost-benefit review), implemented, and administered by each jurisdiction. **(C5)**



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FEMA Local Plan Review Tool: Mitigation Strategy

- ***Describe a process by which local governments will integrate the requirements of the mitigation plan into other planning mechanisms, such as comprehensive or capital improvement plans. (C6)***
 - Description of Area Development District (ADDs) regional planning responsibilities and processes in developing regional plans.
 - Amendments to the mitigation plan and tie to “plan maintenance” is a process.
 - Application for Planning-Related Activities (PRAs)



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FEMA Local Plan Review Tool: Mitigation Strategy

- Implications:
 - Again, emphasis on personalized opinion
 - Again, breadth of plan participation is important:
 - Risk assessment heavily values individual input and perspective on where and how hazards affect a community.
 - The more areas and processes identified, the more potential projects to be devised and prioritized.
 - Capital projects to be administered are disproportionately valued.
 - The mitigation plan is not a static document.
 - Natural integration: C4 – C6
- ***Limitations: Mitigation projects vs. other activities; whole community vs. stakeholders***



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FEMA Local Plan Review Tool: Implementation (Element D.)

- **Revise the plan to reflect changes in development. (D1)**
 - Ties into Vulnerability Assessment
- **Revise the plan to reflect progress in local mitigation efforts. (D2)**
- **Revise the plan to reflect changes in priorities. (D3)**



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A Secondary Purpose of the Mitigation Plan

- Integration of Planning and Federal Initiatives
 - FEMA is not the only source of mitigation funding.
 - FEMA’s HMA programs expand scope of eligible project, i.e., BRIC:
 - Infrastructure Project
 - Project mitigating risk to one (1) or more “Lifelines”
 - Incorporation of nature-based solutions



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A Secondary Purpose of the Mitigation Plan

- Integration of Planning and Federal Initiatives
 - Integration through the Vulnerability Assessment
 - The planning process is very important here.
 - Integration through the Mitigation Strategy
 - Identify projects
 - Prioritize projects
 - The method of prioritizing all projects may be affected by the expressed need to pursue a GI/LID project or atypical project type.



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Integration through Vulnerability

- Assessing vulnerability provides context to the risk assessment. It is the whole picture.
 - Identify critical infrastructure, facilities. Explain why or how it is critical.
 - Identification of assets and, again, how the assets contribute to the whole picture of risk.
 - Remember the point of the mitigation plan: Justifying identified and prioritized mitigation projects to be funded primarily by FEMA and its HMA programs.



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Integration through Vulnerability: CEDS

- The Comprehensive Economic Development Strategy (CEDS)
- Its “Summary Background” and “SWOT Analysis” sections either are or include statements of vulnerability to identified natural hazard risks.
- CEDS is supposed to address the questions, “What have we done?” and “Where are we now?”
 - This has a direct link to the “Implementation” component of the Plan Review Tool.
 - Addresses changes in development.
 - Potentially addresses evaluating past mitigation efforts.



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Integration through Vulnerability: CEDS

- The “Summary Background” includes:
 - Demographic and socioeconomic data;
 - Environmental, climatic, geographic, and cultural data;
 - Environmental elements that constrain or generally affect the regional economy
 - Identification of infrastructure assets (relating to economic development);
 - Water, sewer, energy distribution systems, transportation modes, broadband/telecommunications
 - Emerging or declining clusters or industry sectors;
 - Specifically, whether stated decline is a function of repeated effects from natural hazards, i.e., if mitigation is conducted, then economic vibrancy within a sector may result



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Integration through Vulnerability: CEDS

- The “SWOT Analysis” includes:
 - A discussion of which “clusters” (and industries and occupations within “clusters”) are growing or declining and why growth or decline is occurring;
 - Again, in terms of environmental/natural hazard effects to stated growth or decline.
 - A discussion of the state of the regional economy;
 - What is driving job creation or constraining job creation? Do the perennial effects from natural hazards contribute to job creation (or lack thereof)?
 - A discussion of external trends and forces
 - External trends may be increasing job growth, thus necessitating mitigation from the effects from natural hazards, i.e., natural hazards now have a larger financial effect than in the past.
 - The effects from natural hazards may itself be an external force contributing to job creation/economic growth



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Comprehensive Economic Development Strategy

- Can help satisfy **C1**:
 - In order to develop an economic strategy, a jurisdiction’s capacity must be explained.
- Applies to **B3**:
 - Capacity is vulnerability.
 - Can help direct “problem statements.”
- Helps satisfy **C6**:
 - CEDS can integrate (reference) other planning mechanisms.



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Integration through Vulnerability Toward Mitigation Strategy

- Critical Infrastructure and Systems Analysis
- Cybersecurity and Infrastructure Security Agency (CISA)

Critical Infrastructure

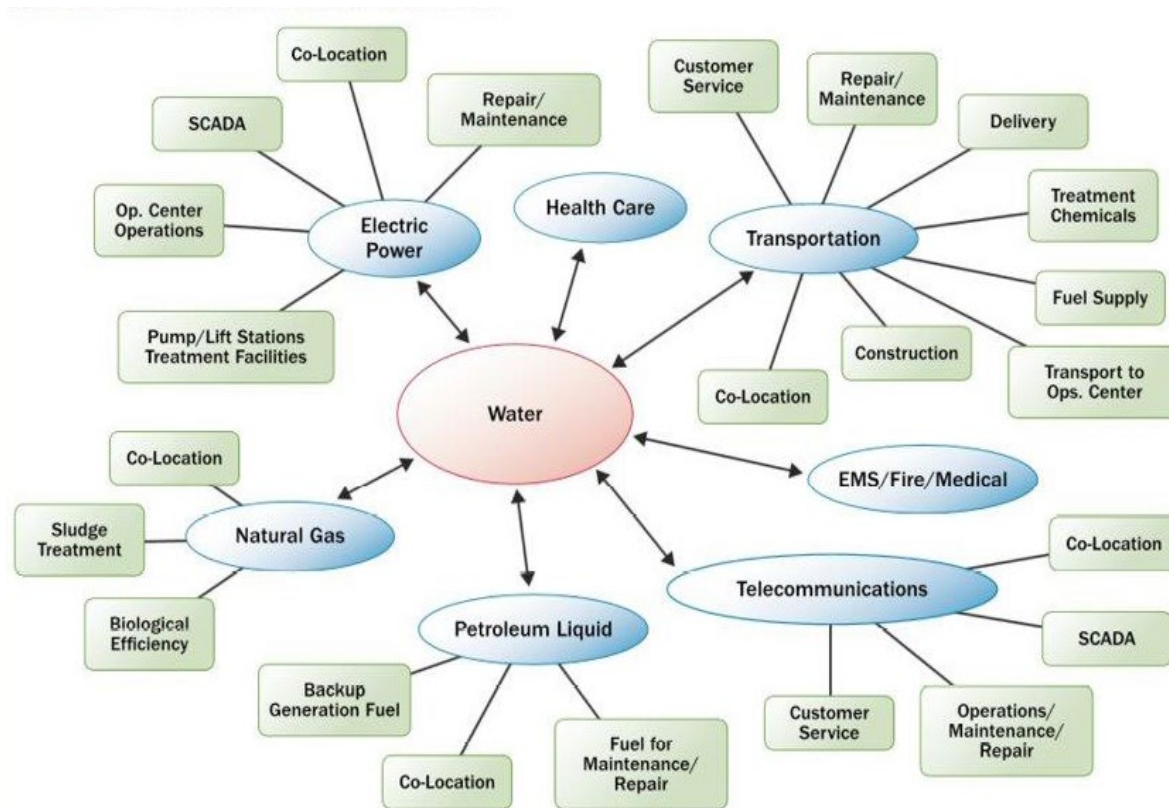
- **Critical Infrastructure:** Systems and assets, whether physical or virtual, so vital that its incapacity or destruction may have a **debilitating impact** on the security, economy, public health or safety, environment, or any combination of these matters, **across any Federal, State, regional, territorial, or local jurisdiction.**”
- **Resilience:** The ability to prepare for, withstand, adapt to, and rapidly recover from changing conditions and acute disruptions.

Source: National Infrastructure Protection Plan 2013



Courtesy of DHS

Infrastructure System Dependencies



Courtesy of
DHS



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Integration through Vulnerability Toward Mitigation Strategy Infrastructure

- Ideally, identify critical infrastructure and map (describe) systems and their interrelationships and dependencies in order to best identify and prioritize where mitigation actions and projects are needed.



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Infrastructure

- Would need to satisfy all steps of the planning process (A1, A2, A3, and A4).
- Satisfies C4 and C5:
 - The point is to develop and prioritize mitigation projects that protect infrastructure, systems.
 - Specific, multi-faceted projects
- Linked also with comprehensive/CEDS:
 - Projects could alter environment.
- Will integrate secondarily with B3:
 - In order to develop infrastructure projects, context/vulnerability is clarified.



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Integration through Vulnerability Toward Mitigation Strategy

Energy

- Energy Assurance Plans (EAPs)
 - Intended as an intersection of energy vulnerabilities and disaster/natural hazard mitigation
- Energy Assurance: Confidence in ability to respond to energy emergency or disruption
- Energy Security: Uninterrupted availability of energy (at affordable prices)
- Energy Reliability: Ability of energy production system to provide consistent and expected levels of energy



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Integration through Vulnerability Toward Mitigation Strategy

Energy

- Has a particular usefulness in focusing efforts to identify “systems” and critical infrastructure.
 - “Systems” are an abstraction. But, identifying energy production or energy needs is a concrete application that can reveal a “system.”
- Energy is an example of limitations of integration: Many of the actions resulting from an assessment of energy needs are not obviously fundable through FEMA Hazard Mitigation Assistance (HMA).
- But, for those actions/projects within FEMA HMA eligibility (e.g., generators) the identification of systems can better manage resources and will affect the prioritization of mitigation actions (Element C.).



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Integration through Vulnerability Toward Mitigation Strategy

Watershed Management and Planning

- Watershed plan results in a workplan and strategy for achieving water resource goals.
 - Identifies a watershed and its uses
 - Identifies pollutants impairing identified uses
 - Identifies sources (institutional, behavioral) of pollutants
- Has a particular limitation to integration with a mitigation plan: Watershed management and planning outcomes primarily concern water quality



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Integration through Vulnerability Toward Mitigation Strategy

Watershed Management and Planning

- Has a particular limitation to integration with a mitigation plan: Watershed management and planning outcomes primarily concern water quality.
 - Actions are disproportionately managerial, i.e., to minimize effects to water quality.
- But, assessing a watershed, again, ends up identifying “systems” and “critical infrastructure.”
 - Agricultural systems
 - Effects from municipal storm sewers
 - How highways, roads, bridges, contribute to flooding (runoff)
 - Identification of facilities that produce negative externalities (e.g., package plant)



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Integration through Vulnerability Toward Mitigation Strategy

Watershed Management and Planning

- Assessing factors to which watersheds are vulnerable informs the identification of mitigation projects, the prioritization of projects, and, potentially, their overall benefits.
 - For example, FEMA HMA funds stream restoration. Watershed plans identify stream restoration projects as an outcome of the planning. That a stream restoration project has both mitigation and water quality (pollutant minimizing) effects potentially changes the ranking of that project and potentially effects the willingness to devote finite resources to it.



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Integration through Mitigation Strategy

Nature-Based Solutions (NBS)

- Green Infrastructure (GI)/Low-Impact Development (LID) Projects
- Assuming NBS are substitutes for eligible “grey” mitigation project types
- An integration that fits squarely within the mitigation strategy of a mitigation plan
 - One purpose of integration is to substitute for other project types, i.e., substitute “green” for “grey.”
 - It is not especially necessary to enhance a vulnerability or risk assessment in order to justify project types’ inclusion in the plan.



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Integration through Mitigation Strategy

Nature-Based Solutions (NBS)

- LID: an approach to stormwater management that mimics a site’s natural hydrology as the landscape is developed
 - Stormwater managed on-site; calculation of pre-development hydrology
 - Complements, replaces traditional stormwater management systems, e.g.,
 - Moving stormwater off-site via pipes, ditches, ponds, curbs
- Green Infrastructure: an approach to wet-weather management
 - Technologies that infiltrate, evapotranspire, capture, and reuse stormwater to maintain natural hydrologies



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Integration through Mitigation Strategy

Nature-Based Solutions (NBS)

- Implies a focus of substitution for identification of projects within a mitigation strategy.
 - Reduce (i.e., substitute for) impervious surfaces
 - Substitute natural systems to promote infiltration of water
 - Substitute materials (e.g., porous concrete, porous asphalt)
- Within eligible mitigation projects category, FEMA Hazard Mitigation Assistance already accounts (de facto) for GI/LID: Minor localized flood reduction projects
 - Drainage improvement
 - Floodwater diversion and storage
 - Floodproofing measures
 - Floodplain and stream restoration



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Nature-Based Solutions (NBS)

- Would need to satisfy all steps of the planning process (A1, A2, A3, and A4).
- Satisfies C4 and C5:
 - The point is to develop and prioritize mitigation projects that emphasize NBS.
 - Addresses D3 (priority changes)
- Will integrate secondarily with B3:
 - In order to develop GI/LID projects, context/vulnerability is clarified.
 - Underrepresented areas discussed.



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Integration through Mitigation Strategy

Nature-Based Solutions (NBS)

- That said, there is one particular planning consideration to integrating GI/LID into mitigation plans:
 - They affect the prioritization of projects in the mitigation action plan, especially given the requirement consider benefit-cost ratios.
 - They affect, potentially, the scope of minor localized flood reduction project.
 - They affect, potentially, the proportion of resources required to developing a mitigation project and implementing it.



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Additional Limitations:

- Integration of plans affects disproportionately “vulnerability.”
- Each of the abovementioned integrations involve plan participation by different audiences.
- Time
 - Mitigation plan expiration dates
 - This expiration date neither can be extended nor negotiated.
 - Local mitigation plans are paid for through FEMA HMA grants.
 - Local mitigation plan updates are subject to application timeline.
 - Local mitigation plan update grants must be cost-shared.
 - Cost-share effectively limits the total amount able to be requested.
- Administrative capacity
- Keeping focused on the functional purposes of plans
 - e.g., “management” vs. “project identification”



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Planning-Related Activity (PRA)

- Activities that enhance an existing mitigation plan consistent with mitigation planning regulations for state and/or local governments.
- “Risk Assessment Add-On”
- Used to only be allowable under HMGP
 - Now, an eligible project under BRIC and FMA
- Allows concentration of planning audiences
- Allows focused time required to flesh out vulnerability, identify systems
- Allows time required to fully develop one or a set of particular project types



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Planning-Related Activity (PRA)

- Eligible Activities:
 - Updating or enhancing sections of the mitigation plan, such as:
 - Risk and vulnerability assessments based on new information, e.g., economic analyses;
 - Mitigation Strategy: Strengthening linkage to mitigation action implementation (emphasis on HMA grant funding);
 - Risk Assessment and/or Mitigation Strategy: Incorporating climate adaptation, green building, smart growth principles, or historic properties and cultural resources information



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Planning-Related Activity (PRA)

- Eligible Activities:
 - Integrating information from mitigation plans, especially risk assessment or mitigation strategies, with other planning efforts, such as:
 - Disaster recovery strategy, preparedness, or response plans;
 - Comprehensive (e.g., land-use, master) plans;
 - Capital improvement or economic development plans;
 - Resource management/conservation plans (e.g., stormwater, open-space);
 - Other long-term community planning initiatives (e.g., transportation or housing)



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Planning-Related Activity (PRA)

- Ineligible Activities:
 - Hazard identification or mapping and related equipment for the implementation of mitigation activities;
 - GIS software, hardware, and data acquisition whose primary aim is mitigation activity;
 - Public awareness or education campaigns about mitigation;
 - Project scoping or development, such as BCA, engineering feasibility studies, application development, construction design, or Environmental/Historic Preservation data collection;
 - Activities not resulting in a clearly defined product or products



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Planning-Related Activity (PRA)

- Enhancing the risk and vulnerability assessment based on new information, including supporting studies (e.g., economic analyses or RiskMAP results);
- Strengthening the mitigation strategy by incorporating actions to reduce vulnerabilities over the long-term, as well as linking proposed actions to available funding;
 - HUD-CDBG; EPA loans and funds
- Incorporating green building, smart growth principles, housing, infrastructure, historic preservation, habitat protection or cultural resource considerations into the risk assessment and/or mitigation strategy;



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Planning-Related Activity (PRA)

- Incorporating diverse and/or underserved populations that have unique needs into the planning process, risk assessment, and/or mitigation strategy;
- Integrating mitigation planning with flood management planning;
- Integrating information from mitigation plans, specifically risk assessment or mitigation strategies, with other planning efforts, e.g.,
 - Resource management
 - Other long-term community planning initiatives



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