Increasing Community Resilience by Integrating Hazard Mitigation into Local Comprehensive Planning Efforts

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What is Resilience?

Resilience is the capability to anticipate risk, limit impact, and bounce back rapidly through survival, adaptability, evolution, and growth in the face of turbulent change.

What is a Resilient Community?

A resilient community is not only prepared to help prevent or minimize the loss or damage to life, property and the environment, but also it has the ability to ***"bounce back"***, i.e. quickly return citizens to work, reopen businesses, and restore other essential services needed for a full and swift economic recovery.

Community Resilience

Focusing on Community Resilience

- Multi-Hazard Mitigation Planning
- Floodplain Management; National Flood Insurance Program (NFIP)
- Risk Mapping, Assessment, and Planning (Risk MAP)

What is Hazard Mitigation?

Hazard mitigation is defined as sustained actions taken to reduce or eliminate long-term risk to people and property from hazards and their affects.

The purpose of hazard mitigation:

(1) Protect people and property from natural and man-made hazards

(2) Minimize the costs of disaster response and recovery*

* FEMA IS 393.A Introduction to Hazard Mitigation

Multi-Hazard Planning Program

- Managed from the Division of Homeland Security and Emergency Management (DHS&EM/DMVA) by the State Hazard Mitigation Officer (SHMO)
- Responsibilities
  - State Hazard Mitigation Plan
  - Local Hazard Mitigation Plans (LHMP)
  - Technical Assistance
  - Hazard Mitigation Grant Programs

State Hazard Mitigation Plan

- Strategy for Alaska's hazard mitigation program
- Written in cooperation between local, state, and federal agencies
- Defines a proactive, unified approach to statewide hazard mitigation
- Identifies natural and man-made hazards, risks, goals, measures and funding

What is a Local Hazard Mitigation Plans (LHMP)?

- A LHMP is a local jurisdiction or Tribal mitigation plan. It is a formal means through which a local jurisdiction

(1) Identifies and profiles local hazards

(2) Assesses the community's risk from local hazards

(3) Develops a hazard mitigation strategy, which is a long-term plan to reduce potential losses identified in the risk assessment (goals, objectives, priorities, actions)

- Required for eligibility for federal mitigation program funding (44 CFR Part 201)
- A LHMP is not regulatory

Technical Assistance

- Planning staff provides communities mitigation planning technical assistance
  - Local Hazard Mitigation Planning
  - Hazard Mitigation project application development
  - Acquisition of emergency response equipment through various grant programs

Hazard Mitigation Grant Programs

- FEMA programs
  - Hazard Mitigation Grant Program (HMGP): tied to federally declared disasters
  - Pre-Disaster Mitigation Program (PDM), Flood Mitigation Assistance (FMA), and Severe Repetitive Loss (SRL)

What is Floodplain Management?

Floodplain management refers to all the actions society can take to responsibly, sustainably, and equitably manage the areas where floods occur and which serve to meet many different social, economic, natural resource and ecological needs. Since this includes reducing the hazard and suffering caused by floods, floodplain and flood management consist of many common activities.

Mekong River Commission, 2001

Alaska Floodplain Management

Floodplain Management Program's mission is to reduce public and private sector losses and damage from flooding and erosion.

DCRA provides coordination, compliance reviews and technical assistance to local governments to facilitate informed decision-making for hazard resilient communities.

National Flood Insurance Program (NFIP)

What is the National Flood Insurance Program?

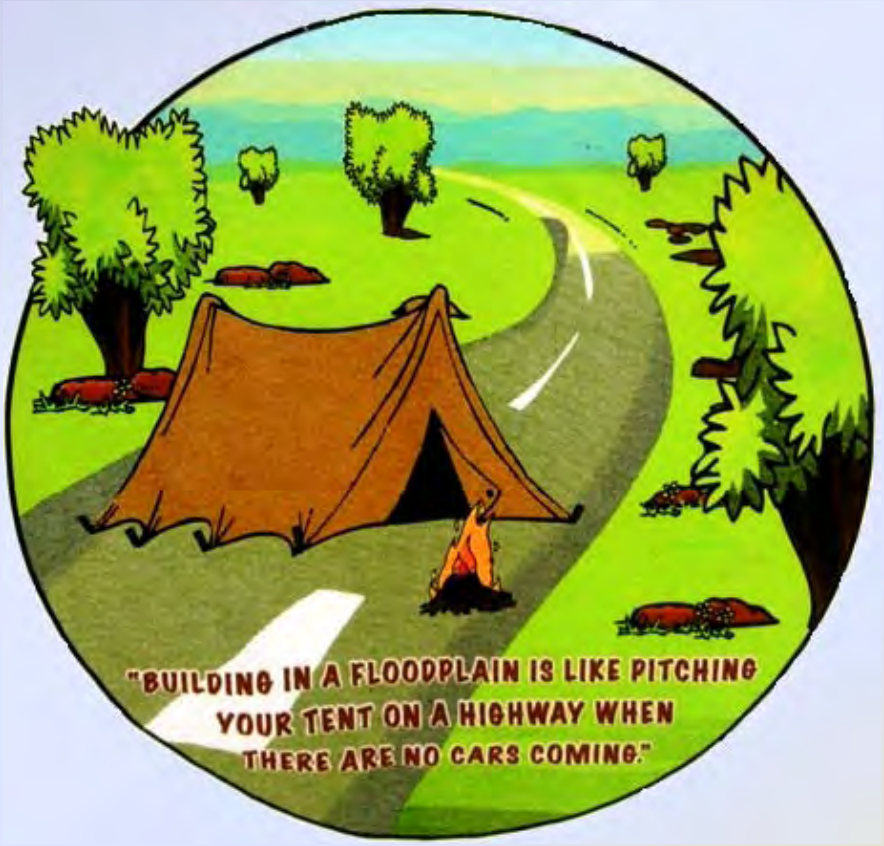
- In 1968 congress created the National Flood Insurance Act to minimize the impacts of flood related disasters.
- A voluntary program, where a mutual agreement is mage between the federal government and local communities.
- In exchange for adopting and enforcing a Flood Damage Prevention Ordinance, federal flood insurance would be made available to property owners throughout communities that participate in the program.

Objectives of the NFIP


Mat-Su – Sept 2012

- Stimulate sound floodplain management to guide future development
- Prevent damage to new construction
- Don't worsen the flood hazard for existing construction
- Provide a better form of assistance to flood victims

Strategy for Floodplain Development



Common sense is defined by *Merriam-Webster* as, “sound and prudent judgment based on a simple perception of the situation or facts.“ Common sense ideas tend to relate to events within human experience.

Flood Resiliency

- Community Rating System (CRS) – Higher development and regulatory standards
  - No Adverse Impact
  - Natural and Beneficial Functions
  - Nonstructural Flood proofing
  - Elevations
  - Relocations
  - Buy-outs

What is Risk MAP?

Risk Mapping, Assessment, and Planning (Risk MAP)

Risk MAP is a FEMA program that moves beyond FEMA's Flood Map-Modernization effort to:

- Deliver quality data that increases public awareness of natural hazards and leads to action that reduces risk to life and property.
- Provide communities with flood information and tools to enhance mitigation plans and better protect citizens.

Through more accurate flood maps, risk assessment tools, and outreach support, local ability is strengthened to make informed decisions about reducing risk.

More Than Just Flood Maps…

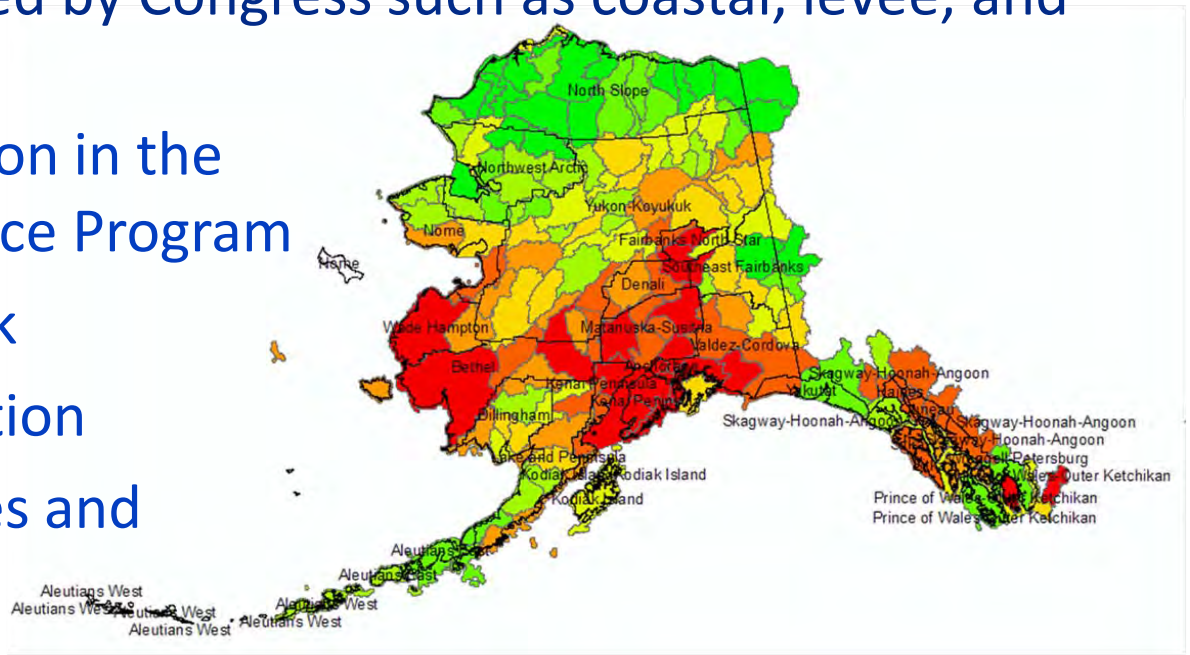
Risk MAP is a process, a continuing partnership to help federal, state, tribal, and local community officials, business owners, private citizens and stakeholders make sound floodplain management decisions and take action to reduce risk from floods and other hazards.

How are Communities Selected for Mapping Studies?

FEMA algorithm weights criteria to determine which watersheds in Alaska are the highest priorities for each fiscal year. Criteria include:

Priority categories identified by Congress such as coastal, levee, and riverine studies

- Community participation in the National Flood Insurance Program
- Population areas at risk
- Floodplain size or location
- Presence of ESA species and habitat.

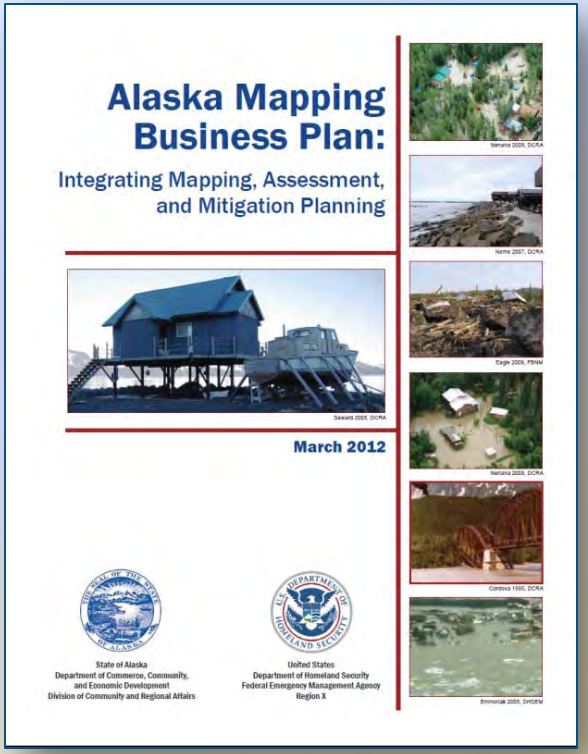


Alaska's Mapping Priorities

Participating states can influence FEMA's prioritization by developing a mapping business plan to identify the state's priorities for future mapping studies.

Some of the new criteria Alaska used:

- Local Hazard Mitigation Plan
- Participation in the NFIP Community Rating System
- Number of Disaster Declarations
- In-House GIS Capabilities
- Planned Future Development



Risk MAP, Floodplain Management and Hazard Mitigation Planning

Why Link Hazard Mitigation to other Community Planning Activities?

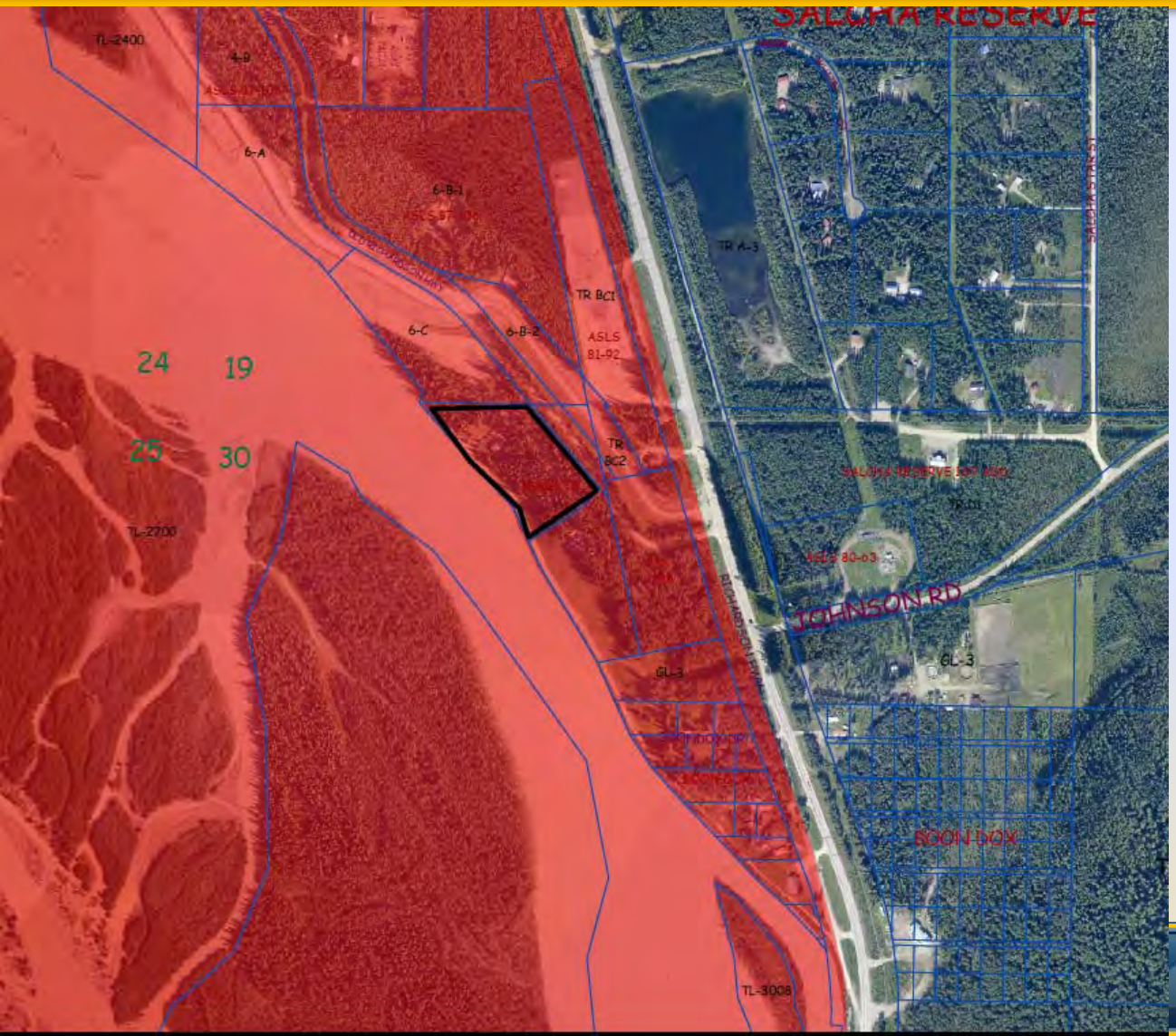
"Community planners have an integral role as advocates in shaping their communities. Tools that are the mainstay of the planning professional— such as building codes, zoning, and land-use plans—are keys to mitigation. However, unless the public understands that we need to change where and how we develop and live, this work won't matter. Therefore, better communication, citizen involvement, and proactive leadership set the priorities, tone, and attitude for development decisions."

W. Craig Fugate, Administrator
Federal Emergency Management Agency
Department of Homeland Security

Why Link Hazard Mitigation to other Community Planning Activities?

- As a stand-alone plan, the local hazard mitigation plan has little legal status for guiding local decision-making regarding land use and capital expenditures.
- To avoid conflicting outcomes when plans are not coordinated and assuring improved outcomes through synchronization.

Flood data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BC2
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JOHNSON RD
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Importance of the Comprehensive Plan

"What is important about the comprehensive plan … is its legal status compared to the [local hazard mitigation plan] LHMP. The comprehensive plan … is typically viewed by courts as a major policy document, and most state laws specify some degree of consistency between zoning and development decisions and the comprehensive plan. This gives the plan considerable weight in emphasizing a community's intent to implement the solutions it spells out, particularly with regard to development regulations."

James C. Schwab, AICP
Manager , APA Hazards Planning Research Center

Alaska Statutes – Title 29

Sec. 29.40.030. Comprehensive plan.

(a) The comprehensive plan is a compilation of policy statements, goals, standards, and maps for guiding the physical, social, and economic development, both private and public, of the first or second class borough, and may include, but is not limited to, the following:

(1) statements of policies, goals, and standards;

(2) a land use plan;

(3) a community facilities plan;

(4) a transportation plan; and

(5) recommendations for implementation of the comprehensive plan.

(b) With the recommendations of the planning commission, the assembly shall adopt by ordinance a comprehensive plan. The assembly shall, after receiving the recommendations of the planning commission, periodically undertake an overall review of the comprehensive plan and update the plan as necessary. (§ 11 ch 74 SLA 1985)

Alaska Statutes – Title 29

Sec. 29.40.040. Land use regulation.

(a) *In accordance with a comprehensive plan adopted under AS 29.40.030 and in order to implement the plan*, the assembly by ordinance shall adopt or amend provisions governing the use and occupancy of land that may include, but are not limited to,

(1) zoning regulations…

(2) land use permit requirements…

Principles of Integration

Successful integration of hazard mitigation into the comprehensive plan involves a series of key points:

1. Include a hazards element.
2. Identify in all other elements of the comprehensive plan those areas where hazard mitigation may play a role in advancing the overall goals of the plan.
3. Establish the linkages between identified hazards in the hazard element and these specific opportunities, and cross-reference them to clarify where and how mitigation needs to address these problems.
4. If the plan has an implementation element, be sure that it includes specific provisions, such as financing and timing, for how mitigation solutions will actually be achieved, and by whom.

TABLE 3.2. POTENTIAL RELEVANCE OF DISASTER TYPES TO MITIGATION PROVISIONS IN COMPREHENSIVE PLAN ELEMENTS

Type of Plan Element	Flood	Coastal Hazards (includes tsunami)	Seismic	Wildfire	Tornado	Landslide	Volcano
Hazards	x	x	x	x	x	x	x
Land Use	x	x					
Conservation	x	x		x		x	x
Public Facilities	x	x	x	x	x	x	x
Transport	x	x	x	x		x	x
Capital Improvements	x	x	x	x	x	x	x
Housing	x	x	x	x	x	x	
Historic Preservation	x	x	x	x		x	
Economic Development	x	x	x	x		x	
Recreation and Open Space	x	x	x (near fault lines)	x		x	x
Environment	x	x	x	x		x	x
Implementation	x	x	x	x	x	x	x

Source: James C. Schwab

Questions to Ask: Comprehensive Plan

Land Use

- Does the future land-use map clearly identify natural-hazard areas?
- Do the land-use policies discourage development or redevelopment within natural-hazard areas?
- Does the plan provide adequate space for expected future growth in areas located outside of natural-hazard areas?

Questions to Ask: Comprehensive Plan

Transportation

- Does the transportation plan limit access to hazard areas?
- Is transportation policy used to guide growth to safe locations?
- Are movement systems designed to function under disaster conditions (e.g., evacuation)?

Questions to Ask: Comprehensive Plan

Public Safety

- Are the goals and policies of the comprehensive plan related to those of the FEMA Hazard Mitigation Plan?
- Is safety explicitly included in the plan's growth and development policies?
- Does the monitoring and implementation section of the plan cover safe-growth objectives?

Integrating Hazards into the Implementation Tools of Planning

Three Primary Goals:

- Keeping future development out of known hazard areas
- Keeping hazards from affecting existing developed areas
- Strengthening existing development to resist hazards

Development Management Tools

- **Building standards that regulate the details of construction** *(traditional building codes,* flood-proofing requirements, seismic standards and retrofit requirements)
- **Development regulations** *(zoning, flood-zone regulations, setbacks, and sensitive lands* protection)
- **Critical and public facilities policies** *(long-term capital improvement programs, siting public facilities and schools at hazard-free sites, incentives to private facilities to discourage siting in sensitive or hazardous areas)*

Development Management Tools

- **Land and property acquisition** *(development rights, transfer of development rights, and the relocation of buildings and uses)*
- **Taxation and fiscal policies** *(shift public costs to owners or developers of property within hazardous areas such as water and sewer lines)*
- **Information dissemination** *(sharing public information, hazard disclosure requirements for real estate sellers, and the posting of warning signs in high-hazard areas)*

Development Management Principles for Hazard Mitigation

- ***Use clear and authoritative maps of the hazard.*** *Maps* should be clear and unambiguous, so that planners and public officials can tell which zones apply to a particular property. A credible scientific body or expert, who is seen as being unbiased, should issue the maps.
- ***Link clear and realistic design guidelines to the maps.*** Public planners and private developers need to know what to do with a hazard map. The clearer the instructions, the more likely they will be to follow them.

Development Management Principles for Hazard Mitigation

- ***Ensure that lower-hazard land is available for development.*** Communities need safety valves for growth pressures, and every jurisdiction with extremely hazardous areas should also have areas of lower hazard designated for development.
- ***If trying to rearrange or restrict land uses in hazardous areas, do so before the land is subdivided.*** Once land is subdivided, the individual parcels may be sold and owners are entitled to the use of their property.

Development Management Principles for Hazard Mitigation

- ***Offer incentives to encourage developers to locate projects outside of hazardous areas and to adopt hazard mitigation measures that exceed those required by law.*** Examples include tax abatements, density bonuses, or waiver of off-street parking requirements.
- ***If hazardous land is subdivided and built out, be prepared to purchase selected properties.*** Local governments should be prepared to acquire properties located in highly flood-prone areas, coastal erosion zones, or actively unstable slopes. Often more cost-effective than waiting for extensive property damage, injuries or loss of life to occur, all of which may also be accompanied by costly litigation.

Development Management Principles for Hazard Mitigation

- ***Use project-specific design approaches.*** Well-designed comprehensive plans can establish the policy context for approaches are that can be implemented on a project-by-project basis.
- ***Use the post-disaster window of opportunity to encourage individual owners to retrofit or relocate.*** Individuals are most aware of the hazard in the immediate aftermath of disaster.

Goal	Purpose	Example
Keeping future development out of known hazard areas	To influence location of public and private investment, guiding it away from known hazard areas and toward safe growth locations.	Directing private development away from hazard areas by zoning and subdivision regulations; use capital improvement programs (CIPs) to direct funding to locations outside hazard areas
Keeping hazards from affecting existing developed areas	To improve protection of already built-up areas through structural mitigation projects or environmental management techniques that modify the progression of the hazard itself	Constructing dams and levees to protect low-lying developed areas from future flooding; using reforestation and wetland preservation for flood control
Strengthening existing development to resist hazards	To enhance hazard resistance by enacting and enforcing construction code provisions concerning hazard stresses and impacts	Including design standards and project review procedures in subdivision regulations and building codes to ensure the safety of projects subject to earthquake, landslide, wildfire, and flood hazards

Alaskan Example: City of Kenai

The City of Kenai has included a Natural Hazard and Disasters element in the update to the public review draft of the City's Comprehensive Plan update

6.8 Goal 7 - Natural Hazards and Disasters: Prepare and protect the citizens of Kenai from natural hazards and disasters

Vision: Kenai has coordinated and proactive public policies, emergency plans and procedures, and educational programs that minimize the risk to the community from natural hazards and disasters.

Kenai's natural hazards identified in the Hazard Mitigation Plan include erosion, wildland fires, floods, volcanoes, earthquakes, and a low risk of a tsunami.

Issues:

- Bluff Erosion.
- Conservation easements along the Kenai River.
- Continued public educational programs.
- Development in designated hazard areas.

Bluff Erosion along Kenai River

Table 23: Goal 7 - Natural Hazards and Disasters: Prepare and protect the citizens of Kenai from natural hazards and disasters.

Objectives	*Strategies*	*Priority*	*Department*	*Funding*
22. Implement the Hazard Mitigation Plan strategies.	Develop and demonstrate defensible space and landscaping techniques to encourage community and home construction contractor participation.	**High**	Public Safety	City
	Reduce fuels in hazard areas and emergency egress routes in cooperation with the Kenai Peninsula Spruce Bark Beetle Mitigation Office, State Division of Forestry and landowners.	**High**	Public Safety	City KPB State
	Raise public awareness of the possible magnitude of flood damage and debris based on historical events using on site visits and meetings during the permit process.	**Medium**	Public Works Planning	City KPB State
	Educate the public of the importance of securing of docks, vehicles, trash and utilities (LPG tanks, fuel tanks, etc.) to reduce loss and reduce influx of debris into waterways during floods.	**Medium**	Public Works Planning	City KPB State
	Alert the public to the harmful effects of volcanic ash fallout to life and property.	**Medium**	Public Safety	City KPB

Objectives	Strategies	Priority	Department	Funding
	Continue cooperative advisements to the public via Borough Office of Emergency Management (OEM), local media, and City of Kenai websites during periods of increased volcanic and seismic activity.	**Medium**	Public Safety	City KPB
	Provide information regarding measures to prevent illness and damage to air intake of homes, vehicles and businesses.	**Medium**	Public Safety	City
	Prepare citizens and the built environment to better survive the hazards associated with earthquakes through the promotion of public education.	**Medium**	Public Safety	City KPB
	Promote the practice of sheltering in place, and encourage the preparation of citizens for self-sufficiency in a post earthquake scenario.	**Medium**	Public Safety	City KPB
	Continue cooperative advisements to public via Borough OEM, local media, and local emergency responders to collectively evacuate the public.	**Medium**	Public Safety	City KPB

Alaskan Example: City of Nome

The City of Nome has incorporated its local hazard mitigation plan into the City's Comprehensive Plan update

Nome Comprehensive Plan
Phase I, February 2003

Chapter 4 – Nome Hazard Mitigation Plan

Executive Summary

Findings

The City of Nome completed a Hazard Mitigation Plan in September 2002. The purpose of the plan was to fulfill local Hazard Mitigation Plan requirements. The plan identifies hazards, establishes community goals and objectives and outlines mitigation activities that are appropriate for the City of Nome. The City of Nome Hazard Mitigation Plan is the first plan in the State to receive approval from the Federal Emergency Management Agency.

The Disaster Mitigation Act of 2000 (DMA 2000), Section 322 (a-d) requires that local governments, as a condition of receiving federal disaster mitigation funds, have a mitigation plan that describes the process for identifying hazards, risks and vulnerabilities, identify and prioritize mitigation actions, encourage the development of local mitigation and provide technical support for those efforts.

In addition, this plan has fulfilled the requirements of the National Flood Insurance Reform Act of 1994 (NFIRA). With this act, Congress authorized the establishment of a Federal grant program to provide financial assistance to States and communities for flood mitigation planning and activities. The Federal Emergency Management Agency (FEMA) has designated this Flood Mitigation Assistance (FMA).

Under the FMA, FEMA provides assistance to States and communities for activities that will reduce the risk of flood damage to structures insurable under the National Flood Insurance Program (NFIP). FMA is a state-administered, cost-share program through which states and communities can receive grants for flood mitigation planning, technical assistance and mitigation projects.

Only projects for mitigation activities specified in an approved Flood Mitigation Plan are eligible for FMA project grants. These activities include elevation, acquisition, and relocation of flood-threatened, insurable structures.

The purpose of the plan is to produce a program of activities that would best tackle Nome's hazard and flood problems and meet other community needs. Consistent with FEMA planning process guidelines, the purpose of this plan is to accomplish the following objectives:

Nome Hazard Mitigation Objectives

- Ensure that all possible activities are reviewed and implemented so that disaster related hazards are addressed by the most appropriate and efficient solution;
- Link hazard management policies to specific activities;
- Educate residents about potential hazards that threaten the community, including but not limited to flood and erosion hazards, extreme weather conditions, ice override and earthquakes;
- Build public and political support for projects that prevent new problems from known hazards and reduce future losses;
- Fulfill planning requirements for future hazard mitigation project grants; and,
- Facilitate implementation of hazard mitigation management activities through an action plan.

Nome Implementation Projects

1. The current Flood Insurance Rate Maps are very outdated and are in need of updating to address the following items. (Short Term)
   (list included in plan)
2. City of Nome should consider insuring all of the city structures located within the flood plain. (Short Term)
3. City staff should attend a Community Rating System workshop conducted by FEMA. (Short Term)
4. City of Nome should evaluate the benefits of applying to FEMA to join the Community Rating System. (Short Term)
5. Information on how to obtain insurance from the NFIP should be provided to private property owners. (Short Term)

Nome Implementation Projects

6. Elevating, flood proofing, or relocating structures out of the flood plain, including but not limited to the following structures: (Long Term) (list included in plan)
7. Conduct an engineering evaluation of flood proofing buildings. (Short Term)

Recommended Reading

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Thank You!