Risk Mapping, Assessment and Planning

RiskMAP

Sally Russell Cox ♦ Alaska RiskMAP Coordinator ♦ Division of Community and Regional Affairs
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RiskMAP is a new 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.
RiskMAP

Five year effort to modernize maps
Result: digital flood data and digital maps for 92% of population
Improved flood data quality
Limited up-front coordination
Scoping not mandatory

Collaborative approach
Goals: quality data, public awareness, action that reduces risk
Watershed-oriented
Focus on up-front coordination
Discovery is mandatory
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.
The Vision for Risk MAP

Through collaboration with State, Local, and Tribal entities, Risk MAP will deliver **quality data** that increases **public awareness** and leads to **action that reduces risk** to life and property.
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
Discovery

Discovery is the process of data mining, collection, and analysis with the goal of initiating a flood risk or mitigation project and risk discussions with the watershed.

When:
- After an area/watershed has been prioritized
- Before a Risk MAP project is scoped or funded

Required for new and updated:
- Flood studies
- Flood risk assessments
- Mitigation planning technical assistance projects

Why:
- Increases visibility of flood risk information, education, involvement
- Helps inform whether a Risk MAP project will occur in the watershed
How Risk MAP can help your community

Increase Community Resiliency

- Develop GIS data to capture community assets
- Capture or Develop Hazard Data
- Estimate Losses
- Develop Problem Statements

Tables and Maps of Community Assets
Maps & Data of Prevalent Hazards
Mitigation Plan Input
Potential Community Assets

- Agriculture and Food
- Banking and Finance
- Chemical
- Commercial Facilities
- Communications
- Critical Manufacturing
- Dams
- Defense Industrial Base
- Emergency Services
- Energy
- Government Facilities
- Healthcare
- Information Technology
- Nuclear Reactors, Materials and Waste
- Postal and Shipping
- Transportation Systems
- Water

Develop GIS data to capture community assets
Capture or Develop Hazard Data
Estimate Losses
Develop Problem Statements
Develop GIS data to capture community assets

Capture or Develop Hazard Data

Estimate Losses

Develop Problem Statements

Flood
- Existing Studies
- New FEMA Studies

Avalanche
- WSL Institute for Snow and Avalanche Research SLF, Switzerland

Wildfire
- Alaska DNR – Division of Forestry

Landslide
- Alaska DNR - DGGS

Earthquake/Tsunami
- Alaska DNR - DGGS
- USGS/NOAA
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HAZUS-MH Risk Assessments

FEMA program that uses GIS data to estimate losses of life and property - and shows those losses on a map

Estimates impacts to the physical, social, and economic vitality of community from earthquakes, hurricane winds, and floods
HAZUS-MH Risk Assessments

- Highlights areas where risk reduction actions may produce highest return on investment
- Multiple Scenario Flood Events
- Estimated Potential Losses
- Population, Debris, and Essential Facility Impacts
- Results of HAZUS analysis can be incorporated into hazard mitigation plans (or other plans)
Multi-Hazard Assessments

- Flood
- Fire
- Earthquake
- Tsunami
- Sea-level Rise
- Dam Failure
Review and analyze the results of the hazard loss estimations

- Identify areas with highest vulnerabilities on a map

Develop list of problem statements based on findings

- The manufactured home park is the most vulnerable area to flooding. This area floods each year. Flooding is caused by excessive rains

- The sewage treatment plant is located in the 100-year floodplain

- The lighthouse, of significant historic value, is threatened by erosion from coastal flooding. The rate of erosion is 5 feet per year.
FIS Reports and DFIRM Maps will continue to fulfill regulatory requirements and support the NFIP.
Non-Regulatory Products

- Changes Since Last Flood Insurance Rate Map (FIRM)
- Depth Grids
- Base Flood Elevation + Grid
- HAZUS Risk Assessment
- Risk Report
- Risk Database
Changes Since Last FIRM

Helps communities understand changes to their flood maps and prepare for the upcoming flood map adoption process.

- Spatial dataset that identifies areas of floodplain and flood zone changes that have occurred since previous flood map study.
Changes Since Last FIRM

- Captures areas where the floodplain and floodway have increased or decreased
- Captures areas where flood zone designation has changed (e.g., A to AE)
- Built environment affected by the change is quantified and summarized to help locate previously unidentified areas at risk
Flood Depth and Analysis Grids

- Help communities to better understand their flood hazard and risk in the mapped floodplain.
- Illustrate how flood depth and velocity vary within a floodplain.

Flood Depth Grids

- Riverine: 10%, 4%, 2%, 1%, & 0.2% Annual Chance Floods
- Coastal: 1% Flood
Base Flood Elevation + Grid

- +1’, +2’, +3’ feet to be used in planning for sea level rise impacts

The analysis grids used to create additional analyses that depict % annual chance of flooding and % chance of flooding over a 30-year time period in the floodplain.
Areas of Concern/Areas of Mitigation Interest

*Helps communities better understand impact of multiple physical factors on floodplain elevation and extent.*

- Identifies conditions within a flood risk project area that may contribute to severity of flood hazard and associated losses.
Risk Report

Provides communities with comprehensive understanding of flood hazard and other hazard risk within their community or watershed.

- Provides risk assessment information at the project level, placing emphasis on risk reduction activities.
Risk Map

Included with Risk Report

- Depicts select flood and other hazard risk data for jurisdictions within the project area, emphasizing that risk reduction activities may have an impact beyond the site.
Flood Risk Database

- Primary source to access information collected and developed during the flood risk assessment process.

- Project-level database that includes flood risk assessment data collected, created, and analyzed during the flood risk project.
Outreach Inserts

Severe Storms

LOCAL HISTORY

All areas of Spokane County are vulnerable to severe storms annually. Affects can range from minor disruptions to major structural damage and business closures. The best way to be prepared is to recognize the risks associated with your area and to start preparing around your own home and local community. Here are five simple steps you can take today as well as offer multiple ways to reduce the overall risk from severe winter weather and storms.

REDUCING YOUR RISK

BEFORE

• Design and landscape your home with wildfire safety in mind. Select materials and plants that help contain fire rather than fuel.
• Plant fire resistant shrubs and trees; hardwood trees are less flammable than evergreen, pine, eucalyptus or fir trees.
• Regularly clean gutters and roof.
• Have your chimney cleaned and inspected at least twice a year, contact your local fire department for exact specifications regarding spark arrestor installations.
• Use 1/8-inch mesh screens beneath porches, decks, floor areas and the home itself. Screen opening to roof, fen, and attic so that burning embers cannot accumulate.

DURING

• If advised to evacuate your home, do so immediately. Be sure to take your disaster supply kit, lock your home, and choose a route that travels away from the fire hazard.
• If you haven’t received evacuation orders, FEMA recommends the following precautions:
  • Gather fire tools such as rake, axe, hand saw/chainsaw, and water sprayer. Remove flammable vegetation.
  • Close outside attic, eaves and basement vents, windows and doors. Remove flammable drapes and curtains.
  • Shut off any natural gas or fuel supplies at the source.
  • Close all doors inside the house to prevent drafts. Open the fireplace, but close the fireplace screen.

Preparing your Home for Wildfire

In order to make your home as defendable as possible against wildfire risk, there are a host of measures that can be taken. This list is not exhaustive, but does provide a number of safety measures to better protect your property during fire season. It is recommended that you create a 30 to 100 foot safety zone around your home. Within this area, you can take steps to reduce potential exposure to flames and radiant heat. Homes built within pine forests should have a minimum safety zone of 100 feet. If your home sits on a steep slope, additional safety precautions should be taken. Contact your local fire department or forestry service for additional information.

- Rake leaves, dead limbs and twigs. Clear all flammable vegetation.
- Remove leaves and rubbish from under structures.
- Thin a 15-foot space between tree crowns and remove limbs within 15 feet of the ground.
- Remove dead branches that extend over the roof.
- Prune tree branches and shrubs within 15 feet of a stovepipe or chimney outlet.
- Ask the power company to clear branches from powerlines.
- Remove vines from the walls of the home.
Use of Non-Regulatory Products

- Supplement regulatory products (FIRM/FIS)
- Provide data to inform Hazard Mitigation Plans
- Can guide land use and development plans
- Can inform incident response plans
Natural Hazard Resiliency

Integrating the Local Natural Hazard Mitigation Plan into a Community’s Comprehensive Plan

A Guidebook for Local Governments

FEMA Region X
Technical Support and Training

- NFIP Training and Technical Support
- Outreach Support
- Hazus Training and Technical Support
- Hazard Mitigation Planning Support
- CRS Details/Training
Alaska RiskMAP Status

Community RiskMAP Studies
A RiskMAP Discovery meeting was held with the Municipality of Anchorage on April 22, 2013. The scope of the Municipality’s RiskMAP Study is currently being developed.
A Physical Map Revision (PMR) is currently underway.

The PMR includes:

- Hydrology study of Eyak Lake and the outlet to Eyak River; Ibek Creek, Fleming Creek, Creek No. 1, and Creek No. 2
- Hydraulic study of Eyak Lake, Eyak River and Ibek Creek
- Updated 1.0 miles of portions of Zone X on Fleming Creek, Creek No. 1, and Creek No. 2 using approximate study analysis
- 9.7 miles of coastal analysis including seven transects

Draft maps are scheduled to be provided to the community in Spring 2014.
A Coastal Physical Map Revision was conducted to update the DFIRM for the Homer Spit. The effective date of the new maps is November 6, 2013. The Homer coastal area is also part of Coastal Physical Map Revision of the Kenai Peninsula Borough. Draft maps were presented to the community in a Flood Study Review Meeting held in Homer on August 28, 2013.
A RiskMAP Discovery meeting was held with the City and Borough of Juneau on September 26, 2013. The scope of the CBJ RiskMAP Study is currently being developed.
A Coastal Physical Map Revision is underway. Draft maps were presented to the Borough in a Flood Study Review Meeting held in Soldotna on August 27, 2013.

The study includes 28 detailed miles of coastal studies as well as 15 miles of riverine studies in the following locations:

- Cooper Creek – 8 miles of detailed study
- Ninilchik – 2 miles of detailed study
- Anchor Point – 5 miles of detailed study
A RiskMAP Discovery meeting was held with the Ketchikan Gateway Borough on August 7, 2013. The scope of the KGB RiskMAP Study is currently being developed.
City of Kotzebue

A RiskMAP Discovery meeting was held February 23, 2011. Non-regulatory technical assistance will be provided including training on Hazard Mitigation Planning, the NFIP, and HAZUS Risk Assessment.
State of Alaska

Matanuska-Susitna Borough

RiskMAP Discovery meetings were held in the Borough April 23-25, 2013. The scope of the Borough’s RiskMAP Study is currently being developed.
A Physical Map Revision was conducted of the Japanese Creek Alluvial Fan. The new DFIRM became effective September 27, 2013.

The Seward coastal area is also part of Coastal Physical Map Revision of the Kenai Peninsula Borough. Draft maps were presented to the community in a Flood Study Review Meeting held in Soldotna on August 27, 2013.
A RiskMAP Discovery meeting was held with the City and Borough of Sitka on August 5, 2013. The scope of the CBS RiskMAP Study is currently being developed.
A Physical Map Revision of coastal and riverine areas is currently underway. Draft maps are scheduled to be provided to the community in Spring 2014. The study area includes:

<table>
<thead>
<tr>
<th>Study Area</th>
<th>Study Length</th>
<th>Location Description</th>
<th>Study Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lowe River</td>
<td>13.3</td>
<td>From Port Valdez upstream to the LiDAR extent</td>
<td>Detailed Riverine</td>
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<tr>
<td>Mineral Creek</td>
<td>5.7</td>
<td>From Port Valdez upstream to the LiDAR extent</td>
<td>Detailed Riverine</td>
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<tr>
<td>Valdez Glacier Stream</td>
<td>6.6</td>
<td>From Port Valdez upstream to the LiDAR extent</td>
<td>Detailed Riverine</td>
</tr>
<tr>
<td>Alpine Woods</td>
<td>4.3</td>
<td>Small drainages behind Alpine Woods Subdivision</td>
<td>Detailed Riverine</td>
</tr>
<tr>
<td>Mineral Creek Loop Road</td>
<td>3</td>
<td>Coastline along Mineral Creek Loop Road</td>
<td>Detailed Coastal</td>
</tr>
<tr>
<td>Robe River</td>
<td>3</td>
<td>From Port Valdez upstream to the outlet of Rober Lake</td>
<td>Detailed Riverine</td>
</tr>
</tbody>
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Contact

Sally Russell Cox
State of Alaska RiskMAP Coordinator
Alaska Division of Community and Regional Affairs
550 W. 7th Avenue, Suite 1640
Anchorage, Alaska 99501
Phone: 907-269-4588
Email: sally.cox@alaska.gov