

**CITY OF ANIAK
Hazard Mitigation Plan Update**

September 2015



(Cover Aniak 2005 Legacy Plan)

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Acronyms/Abbreviations

°F	Degrees Fahrenheit
ACCIMP	Alaska Climate Change Impact Mitigation Program
ACIA	Arctic Climate Impact Assessment
ACWF	Alaska Clean Water Fund
ADWF	Alaska Drinking Water Fund
AEA	Alaska Energy Authority
AECOM	AECOM, Consultant, or Contractor
AEEE	Alternative Energy and Energy Efficiency
AFG	Assistance to Firefighters Grant
AHFC	Alaska Housing Finance Corporation
AICC	Alaska Interagency Coordination Center
AIDEA	Alaska Industrial Development and Export Authority
AK	Alaska
AMF	Airport Maintenance Facility
ANA	Administration for Native Americans
ARC	American Red Cross
ARW	Airport Runway
AVEC	Alaska Village Electric Cooperative
B/C	Benefit vs. Cost or Benefit/Cost
BCA	Benefit Cost Analysis
BIA	US Bureau of Indian Affairs
CBO	Communications Building-Other
CCP	Citizen Corps Program
CDBG	Community Development Block Grant
CEHHWG	Climate, Ecosystems & Human Health Work Group
CFR	US Code of Federal Regulations
CFP	Community Forestry Program
CGP	Comprehensive Grant Program
CIG	Conservation Innovation Grant
City	City of
CO-OP	Cooperative
Corp	Corporation
CP	City of Aniak's 2002 Comprehensive Plan
CRS	Community Rating System
CTA	Conservation Technical Assistance
CVRF	Coastal Villages Region Fund
CWSRF	Clean Water State Revolving Fund
DCCED	Department of Commerce, Community, and Economic Development
DCRA	Division of Community and Regional Affairs
DEC	Department of Environmental Conservation
Denali	Denali Commission
DHS	US Department of Homeland Security

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Acronyms/Abbreviations

DHS&EM	Division of Homeland Security and Emergency Management
DHSS	Department of Health and Social Services
DGGS	Division of Geological and Geophysical Survey
DMA 2000	Disaster Mitigation Act Of 2000
DMVA	Department of Military and Veterans Affairs
DNR	Department of Natural Resources
DOE	US Department of Energy
DOF	Division of Forestry
DOI	Division of Insurance
DOL	Department of Labor
DOT/PF	Department of Transportation and Public Facilities
DSS	Division of Senior Services
EMPG	Emergency Management Performance Grant
EOC	Emergency Operations Center
EPA	US Environmental Protection Agency
EPPS	Energy Production Plant-Small
EQ	Earthquake
EQIP	Environmental Quality Incentives Program
EWP	Emergency Watershed Protection Program
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FL	Flood
FMA	Flood Mitigation Assistance
FP&S	Fire Prevention and Safety
ft	Feet
FY	Fiscal Year
g	Gravity
GF	Ground Failure
GIS	Geospatial Information System
Hazus	Hazards US – Multi-Hazard Software
HMA	Hazard Mitigation Assistance
HMGP	Hazard Mitigation Grant Program
HMP	Hazard Mitigation Plan
HRD1	Highway/Road - One Lane
HRD2	Highway/Road - Two Lane
HSGP	Homeland Security Grant Program
HUD	Housing and Urban Development
HWBO	Highway Bridge-Other (includes wood)
IBHS	Institute for Business And Home Safety
ICDBG	Indian Community Development Block Grant
IGAP	Indian General Assistance Program
IHBG	Indian Housing Block Grant
IHLGP	Indian Home Loan Guarantee Program

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Acronyms/Abbreviations

INAP	Indian and Native American Programs
IRS	Internal Revenue Service
Kt(s)	Knot(s)
LEG	Legislative Energy Grant
LEPC	Local Emergency Planning Committee
M	Magnitude
MAP	Mitigation Action Plan
MGL	Municipal Grants And Loans
MMI	Modified Mercalli Intensity
mph	Miles Per Hour
msl	Mean Sea Level
MJHMP	Multi-Hazard Mitigation Plan
NAHASDA	Native American Housing Assistance and Self Determination Act
NFIP	National Flood Insurance Program
NIMS	National Incident Management System
NOAA	National Oceanic and Atmospheric Administration
NRF	National Response Framework
NRCS	Natural Resources Conservation Service
NWS	National Weather Service
OTF	Oil Tank Farm
PDM	Pre-Disaster Mitigation
PGA	Peak Ground Acceleration
PNP	Private Non-Profits
PPSB	Potable Water Pumping Station
PSTS	Water Storage Tank-Steel
PWE	Potable Water Well
PWPB	Potable Water Pipelines-Buried
PWS	Port Waterfront Structures (Harbor)
PWTS	Potable Water Treatment (Plant)-Small
RCASP	Remote Community Alert Systems
RD	Rural Development
RL	Repetitive Loss
RurALCAP	Rural Alaska Community Action Program Incorporated
SAFER	Staffing For Adequate Fire and Emergency Response
SBA	US Small Business Administration
SHMP	Alaska State Hazard Mitigation Plan
SHSP	State Homeland Security Program
SOA	State of Alaska
Sq.	Square
Stafford Act	Robert T. Stafford Disaster Relief and Emergency Assistance Act
STAPLEE	Social, Technical, Administrative, Political, Legal, Economic, and Environmental
T/F	Technical / Feasibility

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Acronyms/Abbreviations

US or U.S.	United States
USACE	US Army Corps of Engineers
USC	US Code
USDA	US Department of Agriculture
USFWS	US Fish and Wildlife Service
USGS	US Geological Survey
VFA-RFA	Volunteer Fire Assistance and Rural Fire Assistance Grant
VSW	Village Safe Water
WARN	Warning, Alert, and Response Network
WTF	Water Treatment Facility
WWTS	Wastewater Treatment (Plant)-Small

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Section One provides a brief introduction to hazard mitigation planning, the grants associated with these requirements, and a description of this Hazard Mitigation Plan (HMP).

1.1 OVERVIEW

In recent years, local hazard mitigation planning has been driven by a new Federal law. On October 30, 2000, Congress passed the Disaster Mitigation Act of 2000 (DMA 2000) (P.L. 106-390) which amended the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act) (Title 42 of the United States Code [USC] 5121 et seq.) by repealing the act's previous mitigation planning section (409) and replacing it with a new mitigation planning section (322). This new section emphasized the need for State, Tribal, and local entities to closely coordinate mitigation planning and implementation efforts. In addition, it provided the legal basis for the Federal Emergency Management Agency's (FEMA) mitigation plan requirements for mitigation grant assistance.

To implement these planning requirements, FEMA published an Interim Final Rule in the Federal Register on February 26, 2002 (FEMA 2002a), 44 CFR Part 201 with subsequent updates. The planning requirements for local entities are described in detail in Section 2 and are identified in their appropriate sections throughout this HMP.

In October 2007 and July 2008, FEMA combined and expanded flood mitigation planning requirements with local hazard mitigation plans (44 CFR §201.6). Furthermore, all hazard mitigation assistance program planning requirements were combined eliminating duplicated mitigation plan requirements. This change also required participating National Flood Insurance Program (NFIP) communities' risk assessments and mitigation strategies to identify and address repetitively flood damaged properties. Local hazard mitigation plans now qualify communities for several Federal Hazard Mitigation Assistance (HMA) grant programs.

This HMP complies with Title 44 CFR current as of March 11, 2015 and applicable guidance documents. (FEMA 2015a)

1.2 GRANT PROGRAMS WITH MITIGATION PLAN REQUIREMENTS

FEMA HMA grant programs provide funding to States, Tribes, and local entities that have a FEMA-approved State, Tribal, or Local Mitigation Plan. Two of the grants are authorized under the Stafford Act and DMA 2000, while the remaining three are authorized under the National Flood Insurance Act and the Bunning-Bereuter-Blumenauer Flood Insurance Reform Act. Excerpts from FEMA's 2015 HMA Guidance, Part I, is as follows:

"The U.S. Department of Homeland Security (DHS) FEMA HMA programs present a critical opportunity to reduce the risk to individuals and property from natural hazards, while simultaneously reducing reliance on Federal disaster funds. On March 30, 2011, the President signed Presidential Policy Directive 8 (PPD-8): National Preparedness, and the National Mitigation Framework was finalized in May 2013. The National Mitigation Framework comprises seven core capabilities, including:

- ◆ *Threats and Hazard Identification*
- ◆ *Risk and Disaster Resilience Assessment*
- ◆ *Planning*

- ◆ *Community Resilience*
- ◆ *Public Information and Warning*
- ◆ *Long-Term Vulnerability Reduction*
- ◆ *Operational Coordination*

HMA programs provide funding for eligible activities that are consistent with the National Mitigation Framework’s Long-Term Vulnerability Reduction capability. HMA programs reduce community vulnerability to disasters and their effects, promote individual and community safety and resilience, and promote community vitality after an incident. Furthermore, HMA programs reduce response and recovery resource requirements in the wake of a disaster or incident, which results in a safer community that is less reliant on external financial assistance.

Hazard mitigation is defined as any sustained action taken to reduce or eliminate long-term risk to people and property from natural hazards and their effects. This definition distinguishes actions that have a long-term impact from those that are more closely associated with immediate preparedness, response, and recovery activities. Hazard mitigation is the only phase of emergency management specifically dedicated to breaking the cycle of damage, reconstruction, and repeated damage. Accordingly, States, territories, federally-recognized tribes, and local communities are encouraged to take advantage of funding that HMA programs provide in both the pre- and post-disaster timelines.

In addition to hazard mitigation, FEMA’s Risk Mapping, Assessment, and Planning (Risk MAP) Program provides communities with education, risk communication, and outreach to better protect its citizens. The Risk MAP project lifecycle places a strong emphasis on community engagement and partnerships to ensure a whole community approach that reduces flood risk and builds more resilient communities. Risk MAP risk assessment information strengthens a local community’s ability to make better and more informed decisions. Risk MAP allows communities to better invest and determine priorities for projects funded under HMA. These investments support mitigation efforts under HMA that protect life and property and build more resilient communities.

The whole community includes children, individuals with disabilities, and others with access and functional needs; those from religious, racial, and ethnically diverse backgrounds; and people with limited English proficiency. Their contributions must be integrated into mitigation/resilience efforts, and their needs must be incorporated as the whole community plans and executes its core capabilities.

WHOLE COMMUNITY

A. HMA Commitment to Resilience and Climate Change Adaptation

FEMA is committed to promoting resilience as expressed in PPD-8: National Preparedness; the President’s State, Local, and Tribal Leaders Task Force on Climate Preparedness and Resilience; the Administrator’s 2011 FEMA Climate Change Adaptation Policy Statement (Administrator Policy 2011-OPPA-01); and the 2014–2018 FEMA Strategic Plan. Resilience refers to the ability to adapt to changing conditions and withstand and rapidly recover from disruption due to emergencies. The concept of resilience is closely related to the concept of hazard mitigation, which reduces or eliminates potential losses by breaking the cycle of damage, reconstruction, and repeated damage. Mitigation capabilities include, but are not limited to, community-wide risk

reduction projects, efforts to improve the resilience of critical infrastructure and key resource lifelines, risk reduction for specific vulnerabilities from natural hazards and climate change, and initiatives to reduce future risks after a disaster has occurred.

FEMA is supporting efforts to streamline the HMA programs so that these programs can better respond to the needs of communities nationwide that are addressing the impacts of climate change. FEMA, through its HMA programs:

- ◆ *Develops and encourages adoption of resilience standards in the siting and design of buildings and infrastructure*
- ◆ *Modernizes and elevates the importance of hazard mitigation*

FEMA has issued several policies that facilitate the mitigation of adverse effects from climate change on the built environment, structures and infrastructure. Consistent with the 2014–2018

FEMA Strategic Plan, steps are being taken by communities through engagement of individuals, households, local leaders, representatives of local organizations, and private sector employers and through existing community networks to protect themselves and the environment by updating building codes, encouraging the conservation of natural and beneficial functions of the floodplain, investing in more resilient infrastructure, and engaging in mitigation planning. FEMA plays an important role in supporting community-based resilience efforts, establishing policies, and providing guidance to promote mitigation options that protect critical infrastructure and public resources.

FEMA encourages better integration of Sections 404 and 406 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended (Stafford Act), Title 42 of the United States Code (U.S.C.) 5121 et seq., to promote more resilience during the recovery and mitigation process. FEMA regulations that implement Sections 404 and 406 of the Stafford Act allow funding to incorporate mitigation measures during recovery activities. Program guidance and practice limits Section 406 mitigation to the damaged elements of a structure. This limitation to Section 406 mitigation may not allow for a comprehensive mitigation solution for the damaged facility; however, Section 404 funds may be used to mitigate the undamaged portions of a facility.

Recognizing that the risk of disaster is increasing as a result of multiple factors, including the growth of population in and near high-risk areas, aging infrastructure, and climate change, FEMA promotes climate change adaptation by:

- ◆ *Incorporating sea level rise in the calculation of Benefit-Cost Analysis (BCA)*
- ◆ *Publishing a new HMA Job Aid on pre-calculated benefits for hurricane wind retrofit measures, see HMA Job Aid (Cost Effectiveness Determination for Residential Hurricane Wind Retrofit Measures Funded by FEMA)*
- ◆ *Encouraging floodplain and wetland conservation associated with the acquisition of properties in green open space and riparian areas*
- ◆ *Reducing wildfire risks*
- ◆ *Preparing for evolving flood risk*
- ◆ *Encouraging mitigation planning and developing mitigation strategies that encourage community resilience and smart growth*

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- ◆ *Encouraging the use of building codes and standards (the American Society of Civil Engineers/Structural Engineering Institute [ASCE/SEI] 24-14, Flood Resistant Design and Construction) wherever possible.*

For additional information, see <http://www.fema.gov/climate-change>” (FEMA 2015b).

1.2.1 Hazard Mitigation Assistance (HMA) Grant Programs

HMA grant program activities include:

Table 1-1 HMA Eligible Activities

Activities	HMGP	PDM	FMA
1. Mitigation Projects	✓	✓	✓
Property Acquisition and Structure Demolition	✓	✓	✓
Property Acquisition and Structure Relocation	✓	✓	✓
Structure Elevation	✓	✓	✓
Mitigation Reconstruction	✓	✓	✓
Dry Floodproofing of Historic Residential Structures	✓	✓	✓
Dry Floodproofing of Non-residential Structures	✓	✓	✓
Generators	✓	✓	
Localized Flood Risk Reduction Projects	✓	✓	✓
Non-localized Flood Risk Reduction Projects	✓	✓	
Structural Retrofitting of Existing Buildings	✓	✓	✓
Non-structural Retrofitting of Existing Buildings and Facilities	✓	✓	✓
Safe Room Construction	✓	✓	
Wind Retrofit for One- and Two-Family Residences	✓	✓	
Infrastructure Retrofit	✓	✓	✓
Soil Stabilization	✓	✓	✓
Wildfire Mitigation	✓	✓	
Post-Disaster Code Enforcement	✓		
Advance Assistance	✓		
5 Percent Initiative Projects	✓		
Miscellaneous/Other ⁽¹⁾	✓	✓	✓
2. Hazard Mitigation Planning	✓	✓	✓
Planning Related Activities	✓		
3. Technical Assistance			✓
4. Management Cost	✓	✓	✓
⁽¹⁾ Miscellaneous/Other indicates that any proposed action will be evaluated on its own merit against program requirements. Eligible projects will be approved provided funding is available.			

(FEMA 2015b)

The Hazard Mitigation Grant Program (HMGP) is a competitive, disaster funded, grant program. Whereas the other Unified Mitigation Assistance Programs: Pre-Disaster Mitigation (PDM) and Flood Mitigation Assistance (FMA) programs although competitive, rely on specific pre-disaster

grant funding sources, sharing several common elements. The 2015 HMA Guidance provides the following programmatic information:

“HMGP is authorized by Section 404 of the Stafford Act, 42 U.S.C. 5170c. The key purpose of HMGP is to ensure that the opportunity to take critical mitigation measures to reduce the risk of loss of life and property from future disasters is not lost during the reconstruction process following a disaster.

HMGP funding is available, when authorized under a Presidential major disaster declaration, in the areas of the State requested by the Governor. Federally-recognized tribes may also submit a request for a Presidential major disaster declaration within their impacted areas (see <http://www.fema.gov/media-library/assets/documents/85146>). The amount of HMGP funding available to the Applicant is based on the estimated total Federal assistance, subject to the sliding scale formula outlined in Title 44 of the Code of Federal Regulations (CFR) Section 206.432(b) that FEMA provides for disaster recovery under Presidential major disaster declarations. The formula provides for up to 15 percent of the first \$2 billion of estimated aggregate amounts of disaster assistance, up to 10 percent for amounts between \$2 billion and \$10 billion, and up to 7.5 percent for amounts between \$10 billion and \$35.333 billion. For States with enhanced plans, the eligible assistance is up to 20 percent for estimated aggregate amounts of disaster assistance not to exceed \$35.333 billion.

The Period of Performance (POP) for HMGP begins with the opening of the application period and ends no later than 36 months from the close of the application period.

PDM is designed to assist States, territories, federally-recognized tribes, and local communities to implement a sustained pre-disaster natural hazard mitigation program to reduce overall risk to the population and structures from future hazard events, while also reducing reliance on Federal funding in future disasters. Congressional appropriations provide the funding for PDM.

The total amount of funds distributed for PDM is determined once the appropriation is provided for a given fiscal year. It can be used for mitigation projects and planning activities.

The POP for PDM begins with the opening of the application period and ends no later than 36 months from the date of subapplication selection.

FMA is authorized by Section 1366 of the National Flood Insurance Act of 1968, as amended (NFIA), 42 U.S.C. 4104c, with the goal of reducing or eliminating claims under the National Flood Insurance Program (NFIP). FMA was created as part of the National Flood Insurance Reform Act (NFIRA) of 1994. The Biggert-Waters Flood Insurance Reform Act of 2012 (Public Law 112-141) consolidated the Repetitive Flood Claims and Severe Repetitive Loss grant programs into FMA. FMA funding is available through the National Flood Insurance Fund (NFIF) for flood hazard mitigation projects as well as plan development and is appropriated by Congress. States, territories, and federally-recognized tribes are eligible to apply for FMA funds. Local governments are considered subapplicants and must apply to their Applicant State, territory, or federally-recognized tribe.

The City of Aniak actively participate(s) in FEMA’s National Flood Insurance Program (NFIP), tracks repetitively flooded properties, and is therefore eligible for Flood Mitigation Assistance (FMA) associated grant funding opportunities.

The POP for FMA begins with the opening of the application period and ends no later than 36 months from the date of subapplication selection” (FEMA 2015b).

As the State Hazard Mitigation plan states:

“The [FMA] provides pre-disaster grants to State and Local Governments for planning and flood mitigation projects. Created by the National Flood Insurance Reform Act of 1994, its goal is to reduce or eliminate NFIP claims. It is an annual nationally competitive program. Residential and non-residential properties may apply for FMA grants through their NFIP community and are required to have NFIP insurance to be eligible. FMA grant funds may be used to develop the flood portions of hazard mitigation plans or to do flood mitigation projects. FMA grants are funded 75% Federal and 25% applicant.

The Biggert-Waters Flood Insurance Reform Act of 2012 eliminated the Repetitive Flood Claims (RFC) and Severe Repetitive Loss (SRL) grant programs. Elements of these flood programs have been incorporated into FMA. The FMA program now allows for additional cost share flexibility:

- *Up to 100-percent Federal cost share for severe repetitive loss properties.*
- *Up to 90-percent Federal cost share for repetitive loss properties.*
- *Up to 75-percent Federal cost share for NFIP insured properties.*

The FMA program is available only to communities participating in the NFIP. In the State of Alaska, the Department of Commerce, Community, and Economic Development (DCCED) manages this program” (SHMP 2013).

HMP Layout Description

The HMP consists of the following sections and appendices:

Section 1 Introduction

Defines what a hazard mitigation plan is, delineates federal requirements and authorities, and introduces the Hazard Mitigation Assistance program listing the various grant programs and their historical funding levels.

Section 2 Community Description

Provides a general history and background of the Aniak, including historical trends for population and the demographic and economic conditions that have shaped the area.

Section 3 Planning Process

Describes the HMP update’s planning process, identifies the Planning Team Members, the meetings held as part of the planning process, and the key stakeholders within the City and the surrounding area. This section documents public outreach activities (support documents are located in Appendix D); including document reviews and relevant plans, reports, and other appropriate information data utilized for HMP development; actions the plans to implement to assure continued public participation; and their methods and schedule for keeping the plan current.

This section also describes the Planning Team’s formal plan maintenance process to ensure that the HMP remains an active and applicable document throughout its 5-year lifecycle. The process includes monitoring, reviewing, evaluating (Appendix F – Maintenance Documents), updating the HMP; and implementation initiatives.

Section 4 Jurisdictional Adoption

Describes the community’s HMP adoption process (support documents are located in Appendix C)

Section 5 Hazard Analysis

Describes the process through which the Planning Team identified, screened, and selected the hazards to for profiling in this version of the HMP. The hazard analysis includes the nature, previous occurrences (history), location, extent, impact, and future event recurrence probability for each hazard. In addition, historical impact and hazard location figures are included when available.

Section 6 Vulnerability Assessment

Identifies the City of Aniak’s potentially vulnerable assets—people, residential and nonresidential buildings (where available), critical facilities, and critical infrastructure. The resulting information identifies the full range of hazards the Aniak area could face and potential social impacts, damages, and economic losses. Land use and development trends are also discussed.

Section 7 Mitigation Strategy

Defines the mitigation strategy which provides a blueprint for reducing the potential losses identified in the vulnerability analysis. This section lists the community’s governmental authorities, policies, programs and resources.

The Planning Team developed a list of mitigation goals and potential actions to address the risks facing the Aniak area. Mitigation actions include preventive actions, property protection techniques, natural resource protection strategies, structural projects, emergency services, and public information and awareness activities. Mitigation strategies were developed to address NFIP insured properties (if applicable) while encouraging participation with the NFIP and the reduction of flood damage to flood-prone structures.

Section 8 References

Lists reference materials and resources used to prepare this HMP.

Appendices

Appendix A: Delineates Federal, State, and other potential mitigation funding sources. This section will aid the community with researching and applying for funds to implement their mitigation strategy.

Appendix B: Provides the FEMA Local Mitigation Plan Review Tool, which documents compliance with FEMA criteria.

Appendix C: Provides the adoption resolution for the City of Aniak.

Appendix D: Provides public outreach information, including newsletters.

Appendix E: Contains the Benefit-Cost Analysis Fact Sheet used to prioritize mitigation actions.

Appendix F: Provides the plan maintenance documents, such as an annual review sheet and the progress report form.

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Section Two provides the City of Aniak's location, geography, history, and demographic information.

2.1 LOCATION, GEOGRAPHY, AND HISTORY

“Location: Aniak is located on the south bank of the Kuskokwim River at the head of Aniak Slough, 59 miles southwest of Russian Mission in the Yukon-Kuskokwim Delta. It lies 92 air miles northeast of Bethel and 317 miles west of Anchorage. It lies at approximately 61.578330° North Latitude and -159.52222° West Longitude. (Sec. 12, T017N, R057W, Seward Meridian.) Aniak is located in the Kuskokwim Recording District.

Geography. *The entire community of Aniak is surrounded by water, with the Kuskokwim River flowing from east to west along the northern edge of the village, and Aniak Slough flowing south along the eastern edge of the village. The incorporated area encompasses 6.5 sq. miles of land and 2.3 sq. miles of water.*

Aniak falls within the western transitional climate zone, characterized by tundra interspersed with boreal forests, and weather patterns of long, cold winters and shorter, warm summers. Temperatures range between -55 and 87 degrees Fahrenheit. Average yearly precipitation is 19 inches and average yearly snowfall is 60 inches. The Kuskokwim River is ice-free from mid-June through October. (DCCED website information, May 2015 <http://www.commerce.state.ak.us/dca/commdb/CIS.cfm>)

History and Culture. *Aniak is a Yup'ik word meaning "the place where it comes out," which refers to the mouth of the Aniak River. This river played a key role in the placer gold rush of 1900-01. In 1914, Tom L. Johnson homesteaded the site and opened a store and post office. The Yup'ik village of Aniak had been abandoned long before this time. Eskimos Willie Pete and Sam Simeon brought their families from Ohagamuit to Aniak, which reestablished the Native community. A Russian-era trader named Semen Lukin is credited with the discovery of gold near Aniak in 1932. A Territorial school opened in 1936. Construction of an airfield began in 1939, followed by the erection of the White Alice radar-relay station in 1956, which closed in 1978. The City was incorporated in 1972.*

Aniak's population is primarily Yup'ik Eskimos and Tanaina Athabascans. Subsistence foods contribute largely to villagers' diets. Many families travel to fish camps each summer.

Transportation and Facilities. *Access to Aniak is limited to air and water. The State-owned airport has an asphalt runway that is 6,000' long by 150' wide, is lighted, and is equipped for instrument approaches. Regular flights are provided by several carriers, including charter operators. Floatplanes can also land on Aniak Slough. Fuel and supplies are brought in by barge during the summer; other goods are delivered by air year-round.*

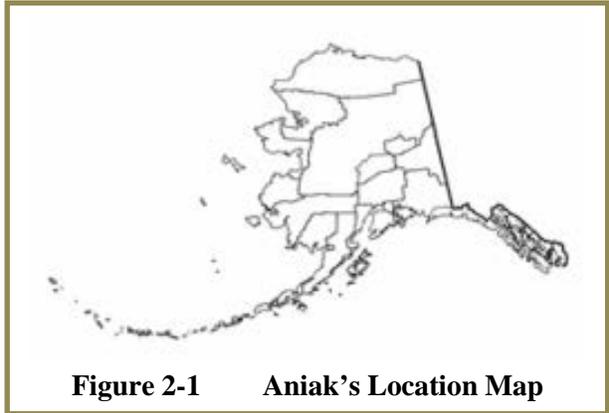


Figure 2-1 Aniak's Location Map

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Aniak is not connected by road to other villages, although trails and the frozen river are used by snow machines during winter. A winter trail is marked to Kalskag (15 mi.) The community has requested construction of a road to Chuathbaluk. Aniak services include piped sewer, a landfill, library, the Aniak Volunteer Fire Department and search and rescue, State-funded Village Public Safety Officer, animal control” Department of Community, Commerce, and Economic Development [DCCED], Division of Community and Regional Affairs [DCRA] DCRA 2014).

2

2.2 DEMOGRAPHICS

The 2010 census recorded 501 residents, of which the median age was 31 indicating a relatively young population. The population of Aniak is expected to remain steady because over half of the population is below 35 years young. Their population is principally a Yup’ik heritage. The male and female composition is approximately 262 and 239 respectively. The 2010 census revealed that there are 166 households with the average household having approximately three individuals. The most recent 2014 DCCED certified population is 533. Figure 3-2 illustrates the City’s historic population.

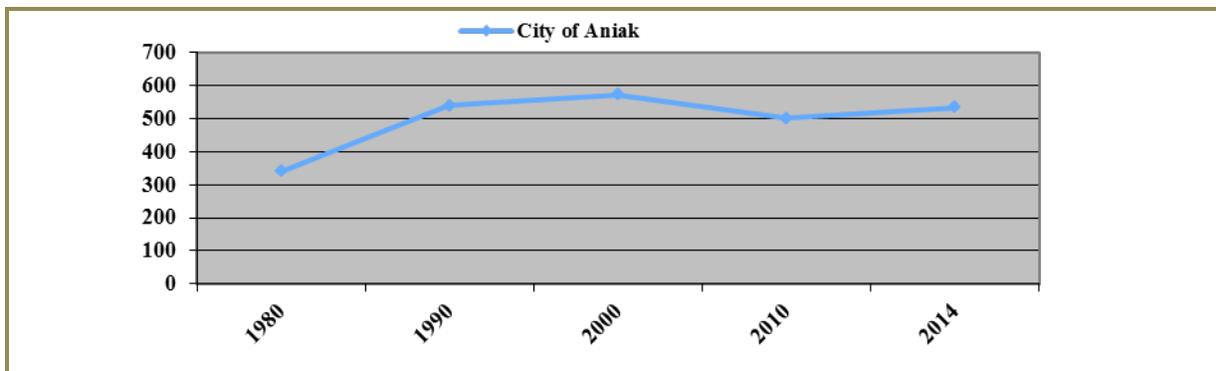


Figure 2-2 Aniak’s Historic Population (DCRA 2015)

2.3 ECONOMY

The economy of Aniak is based on government, transportation and retail services. The City of Aniak is the largest city in the area acting as a service hub for surrounding villages. Subsistence activities supplement part-time wage earnings, and some commercial fishing occurs. Poor fish returns since 1997 have continued to affect the economy of the community. Of the 383 residents age 16 and over eligible to work, 260 were employed in 2013. According to the DCCED 2015 website information on fisheries in the community, eight residents hold commercial fishing permit. No other current fishing permit data is available. The School District, Kuskokwim Native Association, Bush-Tell Inc., and the Aniak Sub-regional Clinic provide most of the year-round employment. Salmon, moose, bear, birds, berries and home gardening provide food sources.

There are a total of 214 housing units in the City and of those, 166 are occupied (households), 48 are vacant, and 13 are vacant due to seasonal use.

Figure 2-3 depicts an aerial photograph of the Aniak area.



2

Figure 2-3 Kuskokwim River at Aniak, 2013 (DHS&EM 2013)

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Section Three provides an overview of the planning process; identifies the Planning Team Members and key stakeholders; documents public outreach efforts; and summarizes the review and incorporation of existing plans, studies, and reports used to develop this HMP. Outreach support documents and meeting information regarding the Planning Team and public outreach efforts are provided in Appendix F.

DMA 2000 and its implementing regulations for the planning process:

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DMA 2000 Requirements
<p>Local Planning Process §201.6(b): An open public involvement process is essential to the development of an effective plan. In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include: Element §201.6(b)(1): An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval; §201.6(b)(2): An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and nonprofit interests to be involved in the planning process; and §201.6(b)(3): Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information. §201.6(c)(1): [The plan shall document] the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved. §201.6(c)(4)(i): The plan maintenance process shall include a) section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle. §201.6(c)(4)(iii): The plan maintenance process shall include a) discussion on how the community will continue public participation in the plan maintenance process.</p>
1. REGULATION CHECKLIST
ELEMENT A. Planning Process
<p>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)) 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)) A3. Does the Plan document how the public was involved in the planning process during the drafting stage? (Requirement §201.6(b)(1)) A4. Does the Plan describe the review and incorporation of existing plans, studies, reports, and technical information? (Requirement §201.6(b)(3)) A5. Is there discussion of how the community(ies) will continue public participation in the plan maintenance process? (Requirement §201.6(c)(4)(iii)) 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))</p>
<p><i>Does the <u>updated plan</u> document how the planning team reviewed and analyzed each section of the plan and whether each section was revised as part of the update process? (Not applicable until 2013 update).</i></p>
<p><i>Source: FEMA, March 2015.</i></p>

3.1 OVERVIEW

The State of Alaska, Division of Homeland Security and Emergency Management (DHS&EM) provided funding and project oversight to AECOM to facilitate and guide Planning Team development and HMP development.

The Community was sent an introductory email explaining the planning process on February 14, 2015 and encouraging the City to establish a local planning team and hold a planning team meeting.

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The planning team examined the full spectrum of hazards listed in the State Hazard Mitigation Plan and the 2005 Legacy HMP. The Planning Team then determined they would include all legacy plan’s natural hazards during their update process. Aniak staff, consultant AECOM and the public began defining critical facilities, compiling the hazard profiles, assessing capabilities, and conducting the risk assessment for each identified hazard.

The Planning Team identified applicable resources and capabilities during the meeting. AECOM explained how the HMP update process differed from the original planning effort. The Planning Team then discussed their rolls such as: acting as an advocate for the planning process, assisting with gathering information, and supporting public participation opportunities. There was also a brief discussion about hazards that affect the community such as erosion, sediment deposition, and permafrost impacts, which are increasing in intensity.

The Planning Team further discussed the hazard mitigation planning process, asking participants to help identify hazard impacts since the legacy 2005 HMP as implemented.

In summary, the following five-step process took place from November 2014 through September 2015.

1. Organize resources: Members of the Planning Team identified resources, including staff, agencies, and local community members, who could provide technical expertise and historical information needed in the development of the hazard mitigation plan.
2. Monitor, evaluate, and update the plan: The Planning Team developed a process to ensure the plan was monitored to ensure it was used as intended while fulfilling community needs. The team then developed a process to evaluate the plan to compare how their decisions affected hazard impacts. They then outlined a method to share their successes with community members to encourage support for mitigation activities and to provide data for incorporating mitigation actions into existing planning mechanisms and to provide data for the plans five year update.
3. Assess risks: The Planning Team identified the hazards specific to Aniak and with the assistance of a hazard mitigation planning consultant (AECOM), developed the risk assessment for seven identified hazards. The Planning Team reviewed the risk assessment, including the vulnerability analysis, prior to and during the development of the mitigation strategy.
4. Assess capabilities: The Planning Team reviewed current administrative and technical, legal and regulatory, and fiscal capabilities to determine whether existing provisions and requirements adequately address relevant hazards.
5. Develop a mitigation strategy: After reviewing the risks posed by each hazard, the Planning Team developed a comprehensive range of potential mitigation goals and actions. Subsequently, the Planning Team identified and prioritized the actions for implementation.

3.2 PLANNING TEAM

Table 3-1 lists the planning team comprised of the City Manager, Mayor, City and Tribal Councils.

3-1 Hazard Mitigation Planning Team

Name	Title	Organization	Key Input
Megan Learhy	City Manager	City of Aniak	Planning Team Lead, HMP review.
Bill Wilson	Mayor	City of Aniak	Planning Team Member, data input and HMP review.
Abby Zito	City Councilmember	City of Aniak	Planning Team Member, data input and HMP review.
Lillian Aelila	City Councilmember	City of Aniak	Planning Team Member, Tribal data input and HMP review.
Jeanette Hoffman	City Councilmember	City of Aniak	Planning Team Member, Tribal data input and HMP review.
Morgan Adkins	City Councilmember	City of Aniak	Planning Team Member, Tribal data input and HMP review.
Scott Simmons	Emergency Management, Hazard Mitigation, and Climate Change Planner	AECOM, Alaska	Temporary Team Member, Responsible for HMP development, lead writer, project coordination.
Eileen Bechtol	Bechtol Planning & Development	HMP update, project planner	Eileen Bechtol

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3.3 PUBLIC & AGENCY INVOLVEMENT

AECOM extended an invitation to all individuals and entities identified on the project mailing list described the planning process and announced the upcoming communities’ planning activities. The announcement was emailed to relevant academia, nonprofits, and local, state, and federal agencies on November 20, 2014. The following agencies were invited to participate and review the HMP:

- University of Alaska Fairbanks, Geophysical Institute, Alaska Earthquake Information Center (UAF/GI/AEIC)
- Alaska Native Tribal Health Consortium-Community Development (ANTHC)
- Alaska Volcano Observatory (AVO)
- Association of Village Council Presidents (AVCP)
- Denali Commission
- Alaska Department of Environmental Conservation (DEC)
- DEC Division of Spill Prevention and Response (DSPR)
- DEC Village Safe Water (VSW)
- Alaska Department of Transportation and Public Facilities (DOT/PF)
- Alaska Department of Community, Commerce, and Economic Development (DCCED)
- DCCED, Division of Community Advocacy (DCRA)
- Alaska Department of Military and Veterans Affairs (DMVA)
- DMVA, Division of Homeland Security and Emergency Management (DHS&EM)
- US Environmental Protection Agency (EPA)
- National Weather Service (NWS) Northern Region
- NWS Southeast Region
- NWS Southcentral Region

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- Natural Resources Conservation Service (NRCS)
- US Department of Agriculture (USDA)
- USDA Division of Rural Development (RD)
- US Army Corps Of Engineers (USACE)
- US Bureau of Indian Affairs (BIA)
- US Bureau of Land Management (BLM)
- US Department of Housing and Urban Development (HUD)
- US Fish & Wildlife Service (USFWS)

44 CFR requires communities to schedule HMP Planning Team meetings and teleconferences to review, discuss, and determine mitigation implementation accomplishments, track data relevance for future HMP update inclusion and document recommendations for future HMP updates.

Table 3-2 lists the community’s public involvement initiatives focused to encourage participation and insight for the HMP effort.

Table 3-2 Public Involvement Mechanisms

Mechanism	Description
Newsletter #1 Distribution (February 14, 2015)	In February 2015, the jurisdiction distributed a newsletter introducing the upcoming planning activity. The newsletter encouraged the City to provide hazard and critical facility information. It was posted at City offices, bulletin boards, local stores, and on the City’s website to enable the widest dissemination.
Agency Involvement eMail (November 20, 2014)	Invited agencies to participate in mitigation planning effort and to review applicable newsletters located on the DHS&EM Local/Tribal All Hazard Mitigation Plan Development website at: http://ready.alaska.gov/plans/localhazmitplans.htm
Newsletter #2 Distribution (June 2015)	In June 2015, the jurisdiction distributed Newsletter #2 that described the availability of the HMP and presented potential HMP projects for review. The newsletter encouraged comments and input. It was posted at City offices, bulletin boards, local stores, and on the City’s website to enable the widest dissemination.
Planning Team Meeting (July 13, 2015)	Notice of the meeting was added to Newsletter #2 and was posted according to public notice procedures, which included posting at City offices.
Planning Team Meeting (September 2, 2015)	Notice of the meeting was posted according to public notice procedures, which included posting at City offices.

The Planning Team held a teleconference (open and advertised to the public) on July 13, 2015. The team completed the critical infrastructure table and reviewed the mitigation table and decided on which actions to carry forward to the 2015 HMP Update.

At the September 2, 2015 the City Council meeting, the public was updated that the draft plan was available for review prior to sending for State and FEMA and for their respective review and approvals. The Councils (Planning Team) provided input for improving Section 2, Community Information.

3.4 LEGACY 2005 HMP REVIEW

The Legacy 2005 HMP document was revised as described below.

- Section 1. **Introduction:** added entire new section explaining the plan process.
- Section 2. **Community Description:** updated and expanded community information, including new census and State data.
- Section 3. **Planning Process:** updated this section to reflect 2015 public process including newsletters, public meetings and 2015 Planning Team.
- Section 4. **Plan Adoption:** 2015 resolutions and dates.
- Section 5. **Hazard Profile Analysis:** reviewed hazard identification and risk assessment for earthquake, flooding, ground failure, tsunami and volcano, adding 2005 to 2015 descriptions and data.
- Section 6. **Vulnerability Analysis:** added a new section to analyze vulnerability with 2015 critical facilities and infrastructure tables.
- Section 7. **Mitigation Strategy:** reviewed 2005 mitigation goals and actions and added new goals and action for the 2015 Mitigation Action Plan.
- Section 8. **References:** revised to reflect 2015 Update.

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The Planning Team did not complete their designated annual HMP reviews or plan maintenance activities. Therefore it became a primary consideration to update the existing Legacy 2005 HMP to include all hazards that have, or could potentially have, impacted the Aniak area during the legacy HMP’s 5-year lifecycle.

Table 4 delineates Planning Team identified HMP components that necessitated information update. The Team determined how community changes, construction and infrastructure conditions, climate change impacts, and population increases or decreases have influenced hazard risks and/or facility vulnerabilities.

The 2015 HMP Update process included inviting new and existing stakeholders to review the existing HMP to determine what was accomplished versus what was intended to accomplish.

Pertinent section data are identified within Table 3-3, which provided the foundation for completing the 2015 HMP Update.

Table 3-3 HMP Review and Update Needs Determination

2005 HMP	2005 HMP Items to be Updated	Status: F: Fulfilled NF: Not Fulfilled	2015 HMP Identified items for Deletion	Newly Identified Items to be Added for HMP Compliance	New Action Commitment
Planning Process	<ul style="list-style-type: none"> •Planning team membership •Mitigation resource list •Public outreach initiatives •Plan Maintenance Activities •Plan Review 	<ul style="list-style-type: none"> •NF: Did not meet or complete annual HMP review •NF: Adding Manmade/ Technological Hazards •NF: Continued 	•None	•Refine plan maintenance processes and responsibilities	<ul style="list-style-type: none"> •Planning Team will begin to hold annual review meetings and •Strive to integrate HMP initiatives into other plans, ordinances, and

Table 3-3 HMP Review and Update Needs Determination

2005 HMP	2005 HMP Items to be Updated	Status: F: Fulfilled NF: Not Fulfilled	2015 HMP Identified items for Deletion	Newly Identified Items to be Added for HMP Compliance	New Action Commitment
	Obligations	Plan Development			resolutions. <ul style="list-style-type: none"> •Planning Team will continue meetings and strive to integrate HMP initiatives into other plans, ordinances, and resolutions.
Hazard Profile Update	<ul style="list-style-type: none"> •Update hazard profile and new event history •Profile newly identified hazard risks 	<ul style="list-style-type: none"> •NF: Update hazard profile and new event history 	<ul style="list-style-type: none"> •Mitigation projects that were deleted or combined due to similarity 	<ul style="list-style-type: none"> •Identify new hazards •Develop new Mitigation Action Plan (MAP) •Update existing hazards' impacts 	<ul style="list-style-type: none"> •Delineate new actions within the MAP
Risk Analysis and Vulnerability Assessment	<ul style="list-style-type: none"> •Asset inventory •Vulnerability analysis & summaries 	<ul style="list-style-type: none"> •NF: Identify development and land use changes 	<ul style="list-style-type: none"> •None 	<ul style="list-style-type: none"> •Develop asset inventory •Determine infrastructure vulnerabilities •Determine residential structure vulnerabilities •Identify repetitive loss properties as appropriate 	<ul style="list-style-type: none"> •Fill data gaps •Locate scientific information to augment these data. •Delineate climate change scenario future development analysis
Mitigation Strategy	<ul style="list-style-type: none"> •Determine existing mitigation actions status •Define mitigation action, implementation successes or barriers 	<ul style="list-style-type: none"> •NF: Did not track project implementation process 	<ul style="list-style-type: none"> •Delete completed, combined, or deleted actions •Implemented & non-relevant mitigation actions 	<ul style="list-style-type: none"> •Identify existing 2005 mitigation plan actions' status •Identify new mitigation actions for newly identified hazard implementation •Develop community specific capability assessment(s) 	<ul style="list-style-type: none"> •Annually review MAP project's status and feasibility

Continued Plan Development

The 2005 legacy HMP indicated additional manmade/technological hazards would be addressed during the next HMP update slated for 2010. However, the Planning Team determined these non-natural hazards are no longer essential to their mitigation planning effort and will no longer be considered for future HMP expansion.

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3.5 EXISTING DATA INCORPORATION

During the planning process, the Planning Team reviewed and incorporated information from existing plans, studies, reports, and technical reports into the HMP.

Table 3-4 lists existing plans and other documents reviewed and referenced for the jurisdiction information and hazard profiles in the risk assessment of the HMP.

Table 3-4 Existing Plans and Other Relevant Information

Existing plans, studies, reports, ordinances, etc.	Contents Summary (How will this information improve mitigation planning?)
Aniak Comprehensive Plan Update (2002) City & Tribe of Aniak.	Implementation of mitigation measures, stakeholder consultation
University of Alaska, Fairbanks, and Alaska Earthquake Information Center website at: http://www.giseis.alaska.edu/Seis/	Spatial information for mitigation planning, reports, historical information.
USGS Earthquake Probability Mapping	Spatial information for mitigation planning.
Aniak Flood Protection Inspection of Completed Works, Memorandum for Record (August 2004), Harlan Legare, Hydraulics Hydrology Section, U.S. Army Corps of Engineers.	Development of mitigation measures, infrastructure background, floodplain description
Aniak Community Profile (May 2015)	Implementation of mitigation measures, stakeholder consultation
Alaska All-Hazard Risk Mitigation Plan. Prepared by and for DHS&EM, October 2007	Mitigation measures development.
US Army Corps of Engineers, Alaska Baseline Erosion Assessment, 2009	US Army Corps of Engineers, Alaska Baseline Erosion Assessment, 2009
US Army Corps of Engineers, Floodplains, 2009	Describes floodplains in Alaska
US Army Corps of Engineers, Alaska Baseline Erosion Assessment, 2009	Defined local erosion impacts

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Note: A complete list of references list is provided in Section 8.

3.6 PLAN MAINTENANCE

This section describes a formal plan maintenance process to ensure that the HMP remains an active and applicable document. It includes an explanation of how the Planning Team intends to organize their efforts to ensure that improvements and revisions to the HMP occur in a well-managed, efficient, and coordinated manner.

The following three process steps are addressed in detail here:

1. Implementation into existing planning mechanisms
2. Continued public involvement
3. Monitoring, reviewing, evaluating, and updating the HMP

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3.6.1 Implementing HMP Precepts

DMA 2000 and its implementing regulation for HMP implementation through existing planning mechanisms:

DMA 2000 Requirements
Incorporation into Existing Planning Mechanisms §201.6(b)(3): Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.
1. REGULATION CHECKLIST
ELEMENT A Planning Process (Continued)
A4. Does the Plan describe the review and incorporation of existing plans, studies, reports, and technical information?
Source: FEMA, March 2015.

Once the HMP is community adopted and receives FEMA’s final approval, Each Planning Team Member ensures that the HMP, in particular each Mitigation Action Project, is incorporated into existing planning mechanisms whenever possible. Each member of the Planning Team has undertaken the following activities.

- Conduct a review of the community-specific regulatory tools to assess the integration of the mitigation strategy. These regulatory tools are identified in the following capability assessment section
- Work with pertinent community departments to increase awareness of the HMP and provide assistance in integrating the mitigation strategy (including the Mitigation Action Plan) into relevant planning mechanisms. Implementation of these requirements may require updating or amending specific planning mechanisms

3.6.2 Continued Public Involvement

DMA 2000 and its implementing regulation for continued public involvement:

DMA 2000 Requirements
Continued Public Involvement §201.6(c)(4)(iii): The plan maintenance process shall include a] discussion on how the community will continue public participation in the plan maintenance process.
1. REGULATION CHECKLIST
ELEMENT A Planning Process (Continued)
A5. Is there discussion of how the community(ies) will continue public participation in the plan maintenance process? (Requirement §201.6(c)(4)(iii))
Source: FEMA, March 2015.

The Community is dedicated to involving the public directly in the continual reshaping and updating the HMP. A paper copy of the HMP and any proposed changes would be available at the City and Tribal office. An address and phone number of the Planning Team Leader to whom people can direct their comments or concerns will also be available at those offices.

The Planning Team will continue to identify opportunities to raise community awareness about the HMP and the hazards that affect the area. This effort could include attendance and provision of materials at Community-sponsored events, outreach programs, and public mailings.

Comments received regarding the HMP will be collected by the Planning Team Leader, included in the annual report, and considered during future HMP updates.

3.6.3 Monitoring, Reviewing, Evaluating, and Updating the HMP

DMA 2000 and its implementing regulation for monitoring, reviewing, evaluating, and updating the HMP:

DMA 2000 Requirements
Monitoring, Evaluating and Updating the Plan §201.6(c)(4)(i): The plan maintenance process shall include a) discussion on how the community will continue public participation in the plan maintenance process. §201.6(d)(3): A local jurisdiction must review and revise its plan to reflect changes in development, progress in local mitigation efforts, and changes in priorities, and resubmit if for approval within 5 years in order to continue to be eligible for mitigation project grant funding.
1. REGULATION CHECKLIST
ELEMENT A. Planning Process (Continued)
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?)
Source: FEMA, March 2015.

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This section provides an explanation of how the Planning Team intends to organize their efforts to ensure that improvements and revisions to the HMP occur in a well-managed, efficient, and coordinated manner.

The following three process steps are addressed in detail here:

1. Review and revise the HMP to reflect development changes, project implementation progress, project priority changes, and resubmit
2. HMP resubmittal at the end of the plan’s five year life cycle for State and FEMA review and approval
3. Continued mitigation initiative implementation

3.6.3.1 *Monitoring the HMP*

The HMP was prepared as a collaborative effort. To maintain momentum and build upon previous hazard mitigation planning efforts and successes, they will continue to use the Planning Team to monitor, review, evaluate, and update the HMP. Each authority identified in the Mitigation Action Plan (MAP) matrix (Table 7-8) will be responsible for implementing the Mitigation Action Plan and determining whether their respective actions were effectively implemented. The City Manager, the hazard mitigation Planning Team Leader, (or designee), will serve as the primary point of contact and will coordinate local efforts to monitor, evaluate, revise, and track HMP actions’ status.

3.6.3.2 *Reviewing the HMP*

The Planning Team will review their success for achieving the HMP’s mitigation goals and implementing the Mitigation Action Plan’s activities and projects during the annual review process.

During each annual review, each agency or authority administering a mitigation project will submit a Progress Report (Appendix F) to the Planning Team. The report will include the current status of the mitigation project, including any project changes, a list of identified implementation problems (with an appropriate strategies to overcome them), and a statement of whether or not the project has helped achieve the appropriate goals identified in the plan.

3.6.3.3 *Evaluating the HMP*

The Annual Review Questionnaire (Appendix F) provides the basis for future HMP evaluations by guiding the Planning Team with identifying new or more threatening hazards, adjusting to changes to, or increases in, resource allocations, and garnering additional support for HMP implementation.

The Planning Team Leader will initiate the annual review two months prior to the scheduled planning meeting date to ensure that all data is assembled for discussion with the Planning Team. The findings from these reviews will be presented at the annual Planning Team Meeting. Each review, as shown on the Annual Review Worksheet, will include an evaluation of the following:

- Determine authorities, outside agency, stakeholders, and resident’s participation in HMP implementation success
- Identify notable risk changes for each identified and newly considered natural or human-caused hazards
- Consider land development activities and related programs’ impacts on hazard mitigation
- Mitigation Action Plan implementation progress (identify problems and suggest improvements as necessary)
- Evaluate HMP local resource implementation for HMP identified activities

3.6.3.4 *Updating the HMP*

In addition to the annual review, the Planning Team will update the HMP every five years. This section explains how they will review, evaluate, and explain implementation successes.

DMA 2000 Requirements
Reviewing, Evaluating, and Implementing the Plan §201.6(d)(3): A local jurisdiction must review and revise its plan to reflect changes in development, progress in local mitigation efforts, and changes in priorities, and resubmit if for approval within 5 years in order to continue to be eligible for mitigation project grant funding.
1. REGULATION CHECKLIST
ELEMENT A. Planning Process (Continued)
D1. Was the plan revised to reflect changes in development? (Requirement §201.6(d)(3))
D2. Was the plan revised to reflect progress in local mitigation efforts? (Requirement §201.6(d)(3))
D3. Was the plan revised to reflect changes in priorities? (Requirement §201.6(d)(3))
<i>Source: FEMA, March 2015</i>

The Planning Team did not review the legacy HMP during its five-year life cycle. However, they recommitted to annually reviewing the HMP and

completing an Annual Review Questionnaire (Appendix F) as described in Section 3.5.3.2. This will facilitate updating the HMP every five years (or when significant changes occur).

A complete Annual Review Questionnaire will enable the Team to identify possible changes (successes, failures, and roadblock experiences) in the HMP Mitigation Action Plan by refocusing on new or more threatening hazards, resource availability, and acquiring stakeholder support for the HMP project implementation.

No later than the beginning of the fourth year following the updated HMP adoption, the Planning Team will undertake the following activities:

- Request grant assistance from DHS&EM or FEMA to update the HMP (this can take up to one year to obtain and one year to update the plan)
- Ensure that each authority administering a mitigation project will submit a Progress Report to the Planning Team
- Develop a chart to identify those HMP sections that need improvement, the section and page number of their location within the HMP, and describing the proposed changes
- Thoroughly analyze and update the natural hazard risks
 - Determine the current status of the mitigation projects
 - Identify the proposed Mitigation Plan Actions (projects) that were completed, deleted, or delayed. Each action should include a description of whether the project should remain on the list, be deleted because the action is no longer feasible, or reasons for the delay
 - Describe how each action’s priority status has changed since the HMP was originally developed and subsequently approved by FEMA
 - Determine whether or not the project has helped achieve the appropriate goals identified in the plan
 - Describe whether the community has experienced any barriers preventing them from implementing their mitigation actions (projects) such as financial, legal, and/or political restrictions and stating appropriate strategies to overcome them
 - Update ongoing processes, and to change the proposed implementation date/duration timeline for delayed actions they still desire to implement
 - Prepare a “new” MAP matrix for the updated HMP
- Prepare a new Draft Updated HMP
- Submit the updated draft HMP to the Division of Emergency Management (DHS&EM) and FEMA for review and approval

3.6.3.5 Formal State and FEMA HMP Review

Completed HMPs do not automatically qualify the City or Tribe for mitigation grant program eligibility until they have been reviewed and adopted by the City and Tribal councils and received State and FEMA final approval.

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Upon completion, the City (or its contractor) and Aniak Traditional Council will submit the updated HMP to the DHS&EM for initial review and preliminary approval. Once any corrections are made, DHS&EM will forward the HMP to FEMA for their review and conditional approval.

The City of Aniak and the Aniak Traditional Council are represented in this HMP and meet the requirements of Section 409 of the Stafford Act and Section 322 of DMA 2000, and 44 CFR §201.6(c)(5) and §201.7 respectively

The Aniak Traditional Council has participated with this HMP's development and it intends to follow and implement applicable tribal activities to qualify the Village Tribal Council for tribal grant opportunities. The Aniak Traditional Council supports 44 CFR 201 and assures compliance with all applicable Federal statutes and regulations.

The City of Aniak's Council and the Aniak Traditional Council, with assistance from the State DHS&EM's State Hazard Mitigation Officer, and the State Hazard Mitigation Advisory Committee (SHMAC), are responsible for monitoring, evaluating, and updating their portion of Aniak's Hazard Mitigation Plan in accordance with 44 CFR §201.7. Their respective jurisdictional councils will monitor the plan to evaluate progress and update the plan every five years, or within 90 days of a Presidential Declared Disaster (as required), to reflect changes in State or Federal law. The Hazard Mitigation Plan Annual Progress Report and Hazard Mitigation Plan Annual Evaluation Forms are plan review tools.

The City and Traditional councils, with assistance from the DHS&EM and FEMA, determines when significant changes warrant an update prior to the scheduled date.

Once the plan has fulfilled all FEMA criteria, the City of Aniak's and the Aniak Traditional Councils will pass an HMP Adoption Resolution and forward to the State and FEMA for final approval. FEMA's final approval assures they are eligible for applying for appropriate mitigation grant program funding.

Section Four is included to fulfill the City of Aniak’s updated HMP’s adoption requirements.

4.1 JURISDICTIONAL ADOPTION

DMA 2000 and its implementing regulations for governing body formal HMP adoption:

DMA 2000 Requirements
Local Plan Adoption §201.6(c)(5): [The plan shall include...] Documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval of the plan (e.g., City Council, County commissioner, Tribal Council). For multi-jurisdictional plans, each jurisdiction requesting approval of the plan must document that it has been formally adopted.
1. REGULATION CHECKLIST
ELEMENT E. Plan Adoption
E1. Does the Plan include documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval??) (Requirement §201.6(c)(5))
<i>Source: FEMA, March 2015.</i>

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The City of Aniak and the Aniak Traditional Council are represented in this HMP; they meet the requirements of Section 409 of the Stafford Act, Section 322 of DMA 2000, and 44 CFR §201.6(c)(5) and §201.7 respectively.

The Aniak City Council adopted the HMP on [REDACTED], 2015 and submitted the final draft HMP to FEMA for formal approval.

The Aniak Traditional Council adopted the HMP on [REDACTED], 2015.

A scanned copy of their formal adoptions are included in Appendix C

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Section Five identifies and profiles the hazards that could affect the City of Aniak.

5.1 OVERVIEW

A hazard analysis includes the identification, screening, and profiling of each hazard. Hazard identification is the process of recognizing the natural events that threaten an area. Natural hazards result from unexpected or uncontrollable natural events of sufficient magnitude. Human and Technological, and Terrorism related hazards are beyond the scope of this plan. Even though a particular hazard may not have occurred in recent history in the study area, all natural hazards that may potentially affect the study area are considered; the hazards that are unlikely to occur or for which the risk of damage is accepted as being very low, are eliminated from consideration.

Hazard profiling is accomplished by describing hazards in terms of their nature, history, magnitude, frequency, location, extent, and probability. Hazards are identified through historical and anecdotal information collection, existing plans, studies, and map reviews, and study area hazard map preparations when appropriate. Hazard maps are used to define a hazard’s geographic extent as well as define the approximate risk area boundaries.

DMA 2000 and its implementing regulations for hazard identification:

DMA 2000 Requirements
<p>Identifying Hazards §201.6(c)(2)(i): The risk assessment shall include a) description of the type, location and extent of all natural hazards that can affect the jurisdiction. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events. §201.6(c)(2)(iii): For multi-jurisdictional plans, the risk assessment section must assess each jurisdiction’s risks where they vary from the risks facing the entire planning area.</p>
1. REGULATION CHECKLIST
ELEMENT B. HAZARD IDENTIFICATION AND RISK ASSESSMENT
<p>B1. Does the Plan include a description of the type, location, and extent of all natural hazards that can affect each jurisdiction? B2. Does the Plan include information on previous occurrences of hazard events and on the probability of future hazard events for each jurisdiction? 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? B4. Does the Plan address NFIP insured structures within the jurisdiction that have been repetitively damaged by floods?</p>
<p><i>Source: FEMA, March 2015.</i></p>

5.2 HAZARD IDENTIFICATION AND SCREENING

For the first step of the hazard analysis, the City’s Council reviewed the Legacy 2005 HMP which listed four hazards that could affect the City. They evaluated and screened the comprehensive list of potential hazards based on a range of factors, including prior knowledge or perception of their threat and the relative risk presented by each hazard, the ability to mitigate the hazard, and the known or expected availability of information on the hazard (Table 5-1). The Planning Team determined that four hazards (combining flood and erosion) pose a great threat to the City: earthquake, flood, severe weather, and wildland fire.



Table 5-1 Identification and Screening of Hazards

Hazard Type	Should It Be Profiled?	Explanation
Natural Hazards		
Earthquake	Yes	Periodic, unpredictable occurrences. The City area experienced no damage from the 11/2003 Denali EQ, but experienced minor shaking from the earthquake and its aftershocks, from the 1964 Good Friday Earthquake. The City has experienced seven earthquakes with the largest earthquake M4.6 within 100 miles of the community.
Flood (Riverine and/or coastal related floods and resultant erosion)	Yes	Snowmelt run-off and rainfall flooding occurs during spring thaw and the fall rainy season. Events occur from soil saturation. Several minor flood events cause damage. Severe damages occur from major floods. The City experiences storm surge, river flooding/break-up/ice run-up, and riverine erosion along the area's rivers, streams, and creek embankments from high water flow, riverine high water ice flows, wind, surface runoff, and boat traffic wakes.
Ground Failure (Avalanche, Landslide/Debris Flow, Permafrost, Subsidence)	No	Ground Failure does not pose a threat to the City.
Severe Weather (Cold, Drought, Rain, Snow, Wind, etc.)	Yes	Severe weather impacts the City with climate change/global warming and changing El Niño/La Niña Southern Oscillation (ENSO) patterns generating increasingly severe weather events such as winter storms, heavy or freezing rain, thunderstorms and with subsequent secondary hazards such as riverine or coastal storm surge floods, landslides, snow, and wind etc. Severe weather events cause fuel price increases and frozen pipes. Heavy snow loads potentially damage house roofs. Winds potentially remove or damage roofs and moved houses off their foundations.
Tsunami (Seiche)	No	Tsunamis do not pose a threat to the City.
Volcano	No	Volcano-generated ash does not pose a threat to the City.
Wildland (Tundra) Fire	Yes	Wildland fire poses a threat to the City.

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5.3 HAZARD PROFILES

DMA 2000 and its implementing regulations for hazard profiles:

DMA 2000 Requirements
Profiling Hazards
Requirement §201.6(c)(2)(i): [The risk assessment shall include a] description of the location and extent of all natural hazards that can affect the jurisdiction. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.
1. REGULATION CHECKLIST
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? (Requirement §201.6(c)(2)(i))
B2. Does the Plan include information on previous occurrences of hazard events and on the probability of future hazard events for each jurisdiction?
<i>Source: FEMA, March 2015.</i>

The specific hazards selected by the Planning Team for profiling have been examined in a methodical manner based on the following factors:

- Nature (Type)
 - Potential climate change impacts are primarily discussed in the Severe Weather hazard profile but are also identified where deemed appropriate within each hazard profile.
- History (Previous Occurrences)
- Location
- Extent (breadth, magnitude, and severity)
- Impact (Section 5 provides general impacts associated with each hazard. Section 6 provides potential impacts to Aniak’s residents and critical facilities)
- Recurrence Probability

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NFIP insured Repetitive Loss Structures (RL) are addressed in Section 6.0, Vulnerability Analysis.

Each hazard is assigned a rating based on the following criteria for magnitude/severity (Table 5-2) and future recurrence probability (Table 5-3).

Estimating magnitude and severity are determined based on historic events using Table 5-2 identified criteria from Section 5.3’s narrative descriptions.

Table 5-2 Hazard Magnitude/Severity Criteria

Magnitude / Severity	Criteria
<i>4 - Catastrophic</i>	<ul style="list-style-type: none"> • Multiple deaths. • Complete shutdown of facilities for 30 or more days. • More than 50 percent of property is severely damaged.
<i>3 - Critical</i>	<ul style="list-style-type: none"> • Injuries and/or illnesses result in permanent disability. • Complete shutdown of critical facilities for at least two weeks. • More than 25 percent of property is severely damaged.
<i>2 - Limited</i>	<ul style="list-style-type: none"> • Injuries and/or illnesses do not result in permanent disability. • Complete shutdown of critical facilities for more than one week. • More than 10 percent of property is severely damaged.
<i>1 - Negligible</i>	<ul style="list-style-type: none"> • Injuries and/or illnesses are treatable with first aid. • Minor quality of life lost. • Shutdown of critical facilities and services for 24 hours or less. • Less than 10 percent of property is severely damaged.

Similar to estimating magnitude and severity, Probability is determined based on historic events, using Table 5-3 identified criteria, to provide estimated future event recurrence likelihood.

Table 5-3 Hazard Recurrence Probability Criteria

Probability	Criteria
<i>4 - Highly Likely</i>	<ul style="list-style-type: none"> • Event is probable within the calendar year. • Event has up to 1 in 1 year chance of occurring (1/1=100 percent). • History of events is greater than 33 percent likely per year. • Event is "Highly Likely" to occur.
<i>3 - Likely</i>	<ul style="list-style-type: none"> • Event is probable within the next three years. • Event has up to 1 in 3 years chance of occurring (1/3=33 percent). • History of events is greater than 20 percent but less than or equal to 33 percent likely per year. • Event is "Likely" to occur.
<i>2 - Possible</i>	<ul style="list-style-type: none"> • Event is probable within the next five years. • Event has up to 1 in 5 years chance of occurring (1/5=20 percent). • History of events is greater than 10 percent but less than or equal to 20 percent likely per year. • Event could "Possibly" occur.
<i>1 - Unlikely</i>	<ul style="list-style-type: none"> • Event is possible within the next ten years. • Event has up to 1 in 10 years chance of occurring (1/10=10 percent). • History of events is less than or equal to 10 percent likely per year. • Event is "Unlikely" but is possible to occur.

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The hazards profiled for the Aniak area are presented throughout the remainder of Section 5.3. The presentation order does not signify their importance or risk level.

5.3.1 Earthquake

5.3.1.1 Nature

An earthquake is a sudden motion or trembling caused by a release of strain accumulated within or along the edge of the earth's tectonic plates. The effects of an earthquake can be felt far beyond the site of its occurrence. Earthquakes usually occur without warning and after only a few seconds can cause massive damage and extensive casualties. The most common effect of earthquakes is ground motion, or the vibration or shaking of the ground during an earthquake.

Ground motion generally increases with the amount of energy released and decreases with distance from the fault or epicenter of the earthquake. An earthquake causes waves in the earth's interior (i.e., seismic waves) and along the earth's surface (i.e., surface waves). Two kinds of seismic waves occur: P (primary) waves are longitudinal or compressional waves similar in character to sound waves that cause back and forth oscillation along the direction of travel (vertical motion), and S (secondary) waves, also known as shear waves, are slower than P waves and cause structures to vibrate from side to side (horizontal motion). There are also two types of surface waves: Raleigh waves and Love waves. These waves travel more slowly and typically are significantly less damaging than seismic waves.

In addition to ground motion, several secondary natural hazards can occur from earthquakes such as:

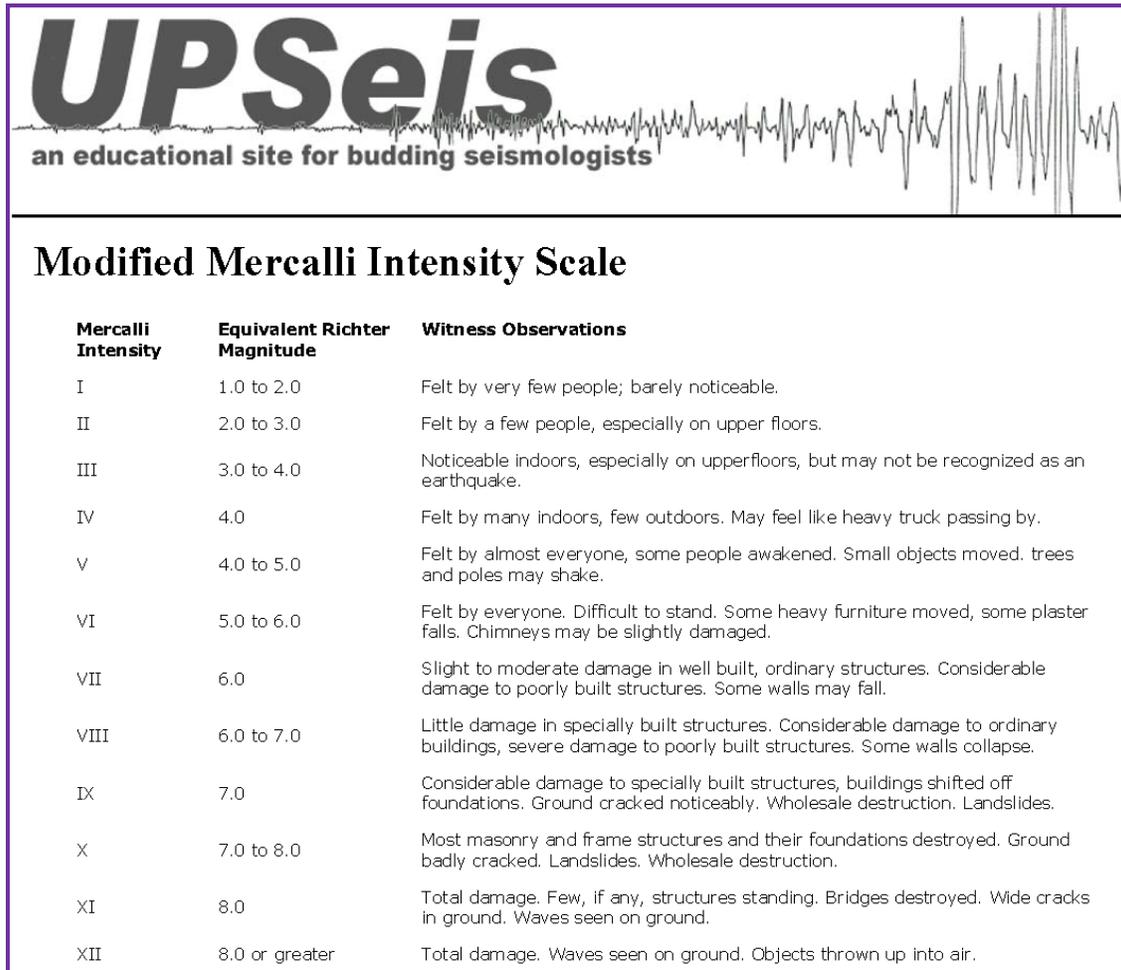
- **Surface Faulting** is the differential movement of two sides of a fault at the earth's surface. Displacement along faults, both in terms of length and width, varies but can be significant (e.g., up to 20 feet [ft]), as can the length of the surface rupture (e.g., up to 200 miles). Surface faulting can cause severe damage to linear structures, including railways, highways, pipelines, and tunnels.

- **Liquefaction** occurs when seismic waves pass through saturated granular soil, distorting its granular structure, and causing some of the empty spaces between granules to collapse. Pore water pressure may also increase sufficiently to cause the soil to behave like a fluid for a brief period and cause deformations. Liquefaction causes lateral spreads (horizontal movements of commonly 10 to 15 ft, but up to 100 ft), flow failures (massive flows of soil, typically hundreds of ft, but up to 12 miles), and loss of bearing strength (soil deformations causing structures to settle or tip). Liquefaction can cause severe damage to property.
- **Landslides/Debris Flows** occur as a result of horizontal seismic inertia forces induced in the slopes by the ground shaking. The most common earthquake-induced landslides include shallow, disrupted landslides such as rock falls, rockslides, and soil slides. Debris flows are created when surface soil on steep slopes becomes totally saturated with water. Once the soil liquefies, it loses the ability to hold together and can flow downhill at very high speeds, taking vegetation and/or structures with it. Slide risks increase after an earthquake during a wet winter.

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The severity of an earthquake can be expressed in terms of intensity and magnitude. Intensity is based on the damage and observed effects on people and the natural and built environment. It varies from place to place depending on the location with respect to the earthquake epicenter, which is the point on the earth's surface that is directly above where the earthquake occurred. The severity of intensity generally increases with the amount of energy released and decreases with distance from the fault or epicenter of the earthquake. The scale most often used in the U.S. to measure intensity is the Modified Mercalli Intensity (MMI) Scale. As shown in Table 5-4, the MMI Scale consists of 12 increasing levels of intensity that range from imperceptible to catastrophic destruction. Peak ground acceleration (PGA) is also used to measure earthquake intensity by quantifying how hard the earth shakes in a given location. PGA can be measured as acceleration due to gravity (g) (MMI 2006).

Magnitude (M) is the measure of the earthquake strength. It is related to the amount of seismic energy released at the earthquake's hypocenter, the actual location of the energy released inside the earth. It is based on the amplitude of the earthquake waves recorded on instruments, known as the Richter magnitude test scales, which have a common calibration (see Figure 5-1).



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Figure 5-1 Modified Mercalli Intensity Scale (MMI 2015)

5.3.1.2 History

Accurate seismology for Alaska is relatively young with historic data beginning in 1973 for most locations. Therefore, data is limited for acquiring long-term earthquake event data. The HMP’s Alaska earthquake information is based on best available data; obtained from the U.S. Geological Survey (USGS) and the State of Alaska, UAF Geophysical Institute’s archives. Research included searching the US Geological Survey (USGS) earthquake database for events spanning from 1973 to present (Table 5-4); none of which exceeded M4.6 located within 100 miles of the City.

Therefore the Planning Team The Planning Team determined that based on available recorded data, the City has a minor concern for earthquake damages as they have not experienced damaging impacts from their historical earthquake events and only need to be concerned with earthquakes with a magnitude greater than M4.0. This is substantiated in Table 9, which lists seven historical earthquakes with the largest ones (M4.6) occurring on January 30, 2983 and June 8, 2005.

Table 5-4 Historical Earthquakes in Aniak

Date	Time	Latitude	Longitude	Depth (miles)	Magnitude
1/30/83	8:52 AM	61.811	-159.321	33	4.6
6/8/05	11:41 PM	61.274	-158.426	45	4.6
5/27/05	7:34 AM	61.27	-158.508	20	4.5
5/27/05	7:35 AM	61.158	-157.94	30.4	4.5
1/26/91	4:04 AM	61.881	-159.321	33	4.1
7/25/84	12:36 PM	61.504	-157.329	33	4.1
8/4/83	11:38 PM	61.404	-157.875	33	4

(USGS 2014)

North America's strongest recorded earthquake occurred on March 27, 1964 in Prince William Sound measuring M9.2 and was felt by many residents throughout Alaska. Aniak experienced minimal ground motion from this historic event. Planning Team members further stated that the City has experienced no ground shaking from the November 3, 2002 M7.9 Denali EQ.

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5.3.1.3 Location, Extent, Impact, and Recurrence Probability

Location

The entire geographic area of Alaska is prone to earthquake effects. However, due to the City's location in a low seismically active location they have experienced very few earthquakes; all of which have been below M5.0.

Figure 5-2 shows the locations of active and potentially active faults in Alaska.

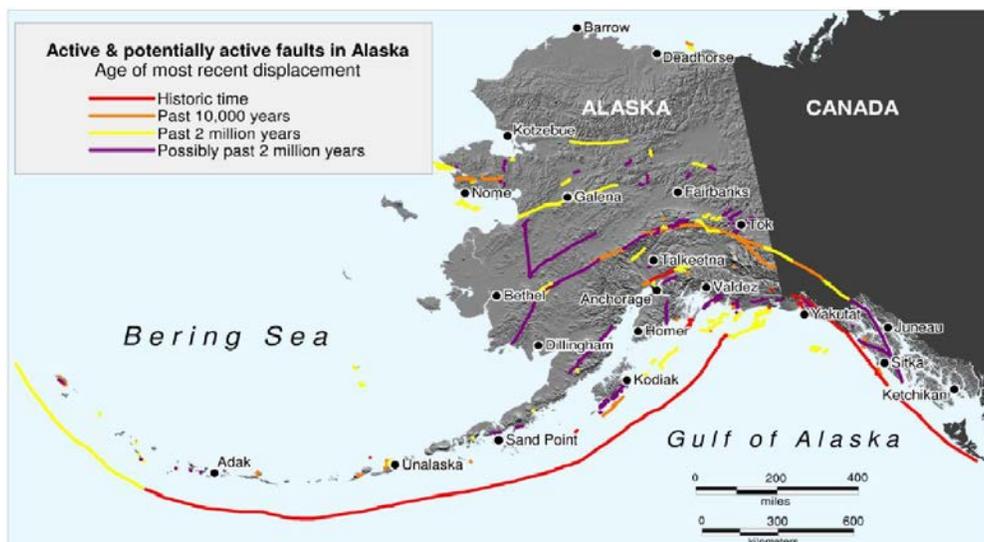


Figure 5-2 Active and Potentially Active Faults in Alaska (DGGs 2009)

Extent

Earthquake damage would be area-wide with potential damage to critical infrastructure up to and including the complete abandonment of key facilities. Limited building damage assessors are

available in the City to determine structural integrity following earthquake damage. Priority would have to be given critical infrastructure to include: public safety facilities, health care facilities, shelters and potential shelters, and finally public utilities.

Since all of Alaska is at risk for an earthquake event Aniak could be at risk for an earthquake that causes extensive damages.

City staff and elders have stated that to their knowledge an earthquake has never caused any damage in the Aniak area.

Using the criteria in Table 7 and the low number of earthquakes in Aniak the extent of damage is considered “Negligible”. The event is unlikely but it is possible to occur and the magnitude/severity of an event is expected to be negligible.

Impact

The impact on the community of Aniak from a severe earthquake could be extensive. Depending on the location and magnitude, ground failure could cause damage; destruction or even abandonment of critical facilities and services could be disrupted for an extended period. Limited building damage assessors are available in the region to determine structures integrity following earthquake damage. Priority would have to be given critical infrastructure to include: public safety facilities, health care facilities, shelters and potential shelters, and finally public utilities.

Recurrence Probability

As indicated, while it is not possible to predict when an earthquake will occur, the Shake Map was generated using the United States Geological Survey (USGS) Earthquake Mapping Model to generate the 2014 Shake Map (Figure 5-5). This modelling effort incorporates current seismicity in its development and is the most current map available for this area. Peter Haeussler, USGS, Alaska Region states, it is a viable representation to support probability inquiries.

“The occurrence of various small earthquakes does not change earthquake probabilities. In fact, in the most dramatic case, the probability of an earthquake on the Denali fault was/is the same the day before the 2002 earthquake as the day afterward. Those are time-independent probabilities. The things that change the hazard maps is changing the number of active faults or changing their slip rate” (Haeussler, 2009).

The State of Alaska State Hazard Plan designates Aniak as being located in Zone 1, with minimal potential earthquake danger (on a scale of 0 being the lowest and 31-100 the highest). Therefore, Aniak is considered an area of low seismic probability. While it is not possible to predict an earthquake, the USGS has developed Earthquake Probability Maps that use the most recent earthquake rate and probability models. These models are derived from earthquake rate, location and magnitude data from the USGS National Seismic Hazard Mapping Project.

Figure 5-3 indicates that the USGS earthquake probability model designates there is an approximately 25 percent chance of an earthquake occurring with an intensity of 5.0 or greater occurring within 31 miles (50 kilometers) of Aniak during the next 50 years.

Probability of earthquake with M > 5.0 within 50 years & 50 km

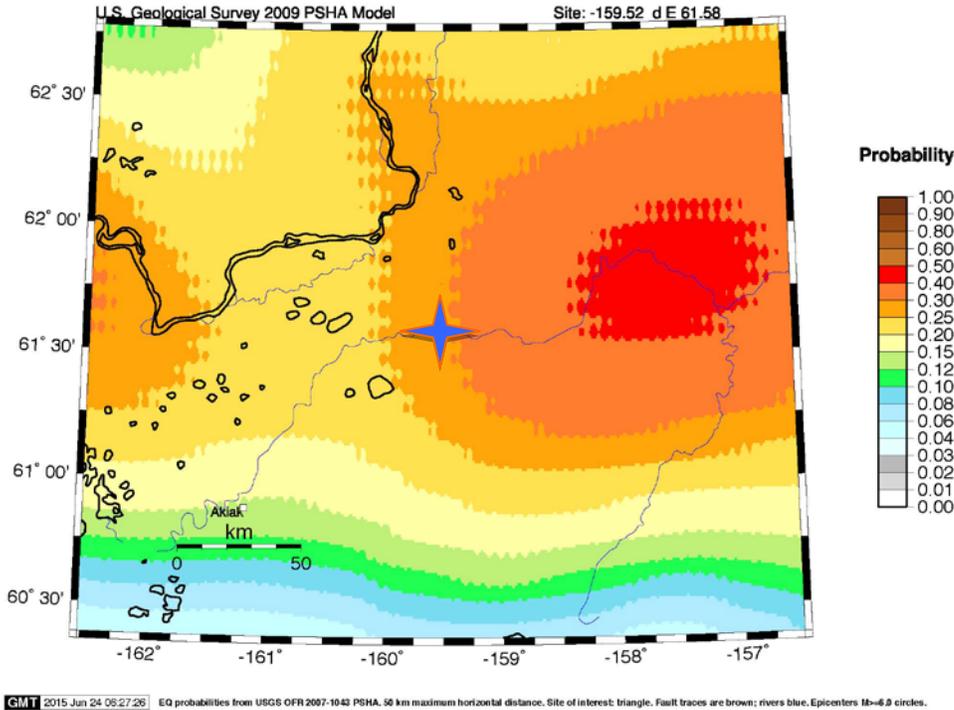


Figure 5-3 USGS Aniak Earthquake Probability Map (USGS 2015)

Based on the USGS model and the criteria in Table 8 an earthquake event in Aniak is “Possible”. The event has up to 1 in 5 year’s (1/5=20 percent) chance of occurring with a history of events being greater than 10 percent but less than or equal to 20 percent likely per year.

5.3.2 Flood

5.3.2.1 Nature

Flooding is the accumulation of water where usually none occurs or the overflow of excess water from a stream, river, lake, reservoir, glacier, or coastal body of water onto adjacent floodplains. Floodplains are lowlands adjacent to water bodies that are subject to recurring floods. Floods are natural events that are considered hazards only when people and property are affected.

Flood events not only impact communities with high water levels, or fast flowing waters, but sediment transport also impacts infrastructure and barge and other river vessel access limitations. Dredging may be the only option to maintain an infrastructure’s viability and longevity.

There are two primary types of flooding that directly impact Aniak : snowmelt and spring ice jam floods; each causing riverine embankment scour.

Snowmelt Floods typically occur from April through June. The depths of the snowpack and spring weather patterns influence the magnitude of flooding.

Ice-Jam floods occur when warming temperatures and rising water flows causes the ice to break-up and disconnect from the embankment. The large ice chunks begin to flow and move down river. The ice does not flow easily, often impacting with adjacent blocks resulting in occasional ice jams. Some ice jams quickly break apart, however, larger jams occur which create small dams causing the water to exert increasing pressure on the jam creating a damming effect. Water subsequently begins to build depth and often overtops adjacent embankments which flood upstream communities.

When the ice-jam breaks the built-up water rushes downstream with great force. Ice blocks scour the embankment, destroying infrastructure such as fuel headers, barge landings, and boat mooring structures. Large house sized ice blocks may even be driven above the embankment destroying any structure in its path. Communities are virtually helpless against such devastation.

Riverine Scour results from the force of flowing water and ice formations in and adjacent to river channels. This scouring affects the river the channel, river bed and banks and can alter or preclude any channel navigation or riverbank development. In less stable braided channel reaches, scour, and material deposition are constant issues. In more stable meandering channels, scour episodes may only occasionally occur from human activities including boat wakes and dredging.

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Attempts to control scour using shoreline protective measures such as groins, jetties, levees, or revetments can lead to increased embankment loss or damage.

Land surface loss results from high flowing surface water across roads due to poor or improper drainage. These events typically occur from rain and snowmelt run-off.

Event Recurrence Intervals

Many flood damages are predictable based on rainfall and seasonal thaw patterns. Most of the annual precipitation is received from April through October with August being the wettest. This rainfall leads to flooding in early/late summer and/or fall. Spring snowmelt increases runoff, which can cause excessive surface flooding. It also breaks riverine winter ice cover, exacerbating localized ice-jam flood or coastal ice override damage impacts.

5.3.2.2 History

DHS&EM most current Cost Disaster Index, dated January 20, 2015 listed the following flood disasters for Aniak:

***19. Aniak, June 15, 1983.** Flooding during spring breakup caused by ice jams and excessive stream flow resulted in damage to a public roadway and a number of public buildings in Aniak. Several families were forced to temporarily relocate due to high water. The Governor's Proclamation of a Disaster Emergency provided public assistance for the purpose of restoring the roadway to its predisaster condition. No assistance was provided for individuals and families.*

***57. Aniak, October 27, 1986.** The city experienced a catastrophic failure of the sewer system serving the public day care center, laundry, library and home canning facility. Disaster assistance in the form of a loan to the City of Aniak.*

***62. Aniak, May 29, 1987.** Flooding during breakup of the Kuskokwim River caused damage to the city dike, road system, waste dump and sewage lagoon. The city repaired these items using funds authorized by the Governor's Declaration of Disaster Emergency.*

94. Spring Floods, FEMA declared (DR-0832) on June 10, 1989. *Presidential Declaration of Major Disaster, incorporated sixteen local declarations and applied to all communities on Yukon, Kuskokwim and Kobuk rivers and their tributaries. Provided public and individual assistance to repair damage.*

120. Lower Kuskokwim, September 4, 1990. *A severe storm compounded by high tides caused extensive flooding in coastal communities of the Kuskokwim and Bristol Bay areas and along the lower Kuskokwim River. The flooding caused damage to both public and private property. The disaster declaration authorized assistance to local governments, individuals and families affected by the flooding.*

132-142. Fairbanks/North Star Borough, Aniak, McGrath, Red Devil, Anvik, Grayling, Emmonak, Holy Cross, Alakanuk, Shageluk, Galena. the Governor declared on May 3-23, 1991 FEMA declared May 30, 1991. *Flooding. Record snowfalls in the interior combined with sudden Spring melt caused flooding all along the Yukon and Kuskokwim River systems. Numerous State Declarations were combined into a single Presidential Declaration of Major Disaster (FEMA-0909-AK) that authorized assistance for repair of public property only. State Disaster Relief Funds were used to implement the Individual and Family Grant Program in all of the communities included in the federal declaration.*

147. Aniak, August 7, 1991. *At the recommendation of OMB, the Alaska Energy Authority and the Office of the Attorney General, the Governor declared a Disaster to authorize an emergency loan from the Disaster Relief Fund to the City of Aniak. Funds were for the purchase of fuel and for averting a general fiscal crisis in the City.*

177. Aniak Ice Jam Flood. *On June 5, 1995, the Governor declared that a condition of disaster emergency exist in the City of Aniak, as a result of ice jam flooding of the Kuskokwim River and Aniak Slough. As a result of this disaster sections of Birch Road, Airport Boulevard, and the landfill access road were severely damaged.*

02-200 02 Interior Floods (AK-DR-1423) Declared May 29, 2002 by Gov Knowles then FEMA Declared (DR-1423) on June 26 2002. *Flooding occurred in various interior and western Alaska river drainages, including the Tanana, Kuskokwim, Nushagak, Susitna and Yukon River drainages beginning on April 27, 2002 and continuing. The floods caused widespread damage to and loss of property in the Fairbanks North Star Borough (Tanana River drainage); in McGrath, Lime Village, Sleetmute, Red Devil, Crooked Creek, Aniak and Kwethluk (Kuskokwim River drainage); Ekwok and New Stuyahok (Nushagak River drainage); in the Susitna River drainage from Chase to Montana Creek; and in Emmonak (Yukon River drainage). The following conditions exist as a result of this disaster: widespread damage to public facilities and infrastructure, including damage to public airports, roads, and buildings; to public utilities, including water, sewer, and electrical utilities; to personal residences, in some areas requiring evacuation and sheltering of residents; to commercial operations; and to other public and private real and personal property. Public & Individual Assistance provided as well as the 404 Mitigation Program. Added: Gov amendment dated July 12, 2002 added Alakanuk to the State Declaration. Gov declaration dated July 12, 2002 was also made for DOTPF to access FHWA Emergency Relief Funds for damages to roads in the State. Individual Assistance totaled \$292K for 60. Public Assistance totaled \$4.42 million for 29 applicants with 55 PW's. Hazard Mitigation totaled \$725K. The total for this disaster is \$6.13 million. (closeout data: \$5.1 million total paid out(\$3.8 mil fed and 1.3 mil state)—includes \$419,000 mitigation and \$238,000 IA/posted 7/29/08-rbs)*

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09-227 2009 Spring Flood declared by Governor Palin on May 6, 2009 then FEMA declared under DR-1843 on June 11, 2009. Extensive widespread flooding due to snow melt and destructive river ice jams caused by rapid spring warming combined with excessive snow pack and river ice thickness beginning April 28, 2009 and continuing. The ice jams and resultant water backup along with flood waters from snow melt left a path of destruction along 3,000 miles of interior rivers, destroying the Native Village of Eagle and forcing the evacuation of multiple communities. The following jurisdictions and communities in Alaska have been impacted: Alaska Gateway Rural Regional Educational Attendance Area (REAA) including the City of Eagle and Village of Eagle; the Copper River REAA including the Village Community of Chisotchina; the Matanuska-Susitna Borough; the Yukon Flats REAA including the City Community of Circle, and City of Fort Yukon, the Villages Communities of Chalkyistik, Beaver, Stevens Village, and Rampart; the Yukon-Koyukuk REAA including the Cities of Tanana, Ruby, Galena, Koyukuk, Nulato, and Kaltag; the Iditarod Area REAA including the Cities of McGrath, Grayling, Anvik, and Holy Cross; the Northwest Arctic Borough including the Cities of Kobuk, and Buckland; the Lower Yukon REAA including the Cities of Russian Mission, Marshall, Saint Mary’s, Mountain Village, Emmonak, Alakanuk and Pilot Station and the Community of Ohogamiut; the Lower Kuskokwim REAA including the Cities of Bethel, Kwethluk, Napakiak, Napaskiak, and the Village Community of Oscarville; the Yupit REAA including the City of Akiak, and the Villages of Akiachak, and Tuluksak; the Kuspuk REAA including the Cities of Aniak, Upper Kalskag, Lower Kalskag, and the Villages Communities of Stony River, Sleetmute, Red Devil, Crooked Creek, and Napaimute; the Fairbanks North Star Borough including the City of North Pole and Community of Salcha; the Bering Strait REAA including the City of Nome area” (DHS&EM 2014).

Table 5-5 lists the historical flood and break-up history in Aniak. No data for break up date is available for after 1998.

Table 5-5 Aniak Historical Flood History

Break up Date	Flooded	Break up Date	Flooded
May 13, 1960	No	May 1, 1980	No
May 19, 1961	No	May 5, 1981	No
May 19, 1962	Yes	May 15, 1982	No
May 17, 1963	Yes	May 9, 1983	Yes
May 30, 1964	Yes (latest) Worst Flood	May 13, 1984	No
May 14, 1965	No	May 21, 1985	No
May 12, 1966	No	May 14, 1986	No
May 5, 1967	No	May 8, 1987	Yes
May 17, 1968	Yes	May 8, 1988	Yes
May 5, 1969	No	May 5, 1989	Yes
May 11, 1970	No	May 2, 1990	No
May 21, 1971	Yes	May 4, 1991	Yes (Deepest ever at Matters Store)
May 18, 1972	Yes	May 21, 1992	No
May 17, 1973	No	April 27, 1993	No

Table 5-5 Aniak Historical Flood History

Break up Date	Flooded	Break up Date	Flooded
May 5, 1974	No	May 1, 1994	Yes
May 15, 1975	Yes	April 29, 1995	Yes (Extensive)
May 8, 1976	Yes	May 5, 1996	No
May 13, 1977	No	May 1, 1997	No
May 2, 1978	No	April 17, 1998	No (Earliest Ever)
April 28, 1979	No	--	--

(City of Aniak)

Flood or high water flow induced erosion events

The Army Corp of Engineers (USACE) floodplain manager stated in their October 2001 report “

“Comments: The community was inundated with 6-8 ft of water in 1962. The high water mark from this flood was 18 inches above the windowsill at the Aniak Lodge. The flood control dike, then at elevation 91.2 ft, was overtopped at its upstream end in 1971.

Published Flood Insurance Rate Maps (FIRM) show detailed flood information. FIRM can be purchased from Federal Emergency Management Agency (FEMA) at

*FEMA Maps
Flood Map Distribution Center
6730 (A–G) Santa Barbara Court
Baltimore, MD 21227-5623
Toll free 800-358-9616” (USACE 2011)*

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5.3.2.3 Location, Extent, Impact, and Future Events Probability

Location

The Planning Team indicated that Aniak experiences repetitive, annual flooding impacts; most of which occur from ice jab flooding down river from their location. When water back flows around their protective levee, the water collects in low terrain depressions and may rise to just below a structures first step.

Aniak and the surrounding area experience annual flooding and subsequent embankment damages in the spring; resulting from snow melt and ice jam flooding events. The 2009 USACE Baseline Erosion Assessment, January 27, 2009 detailed study depicts Aniak’s erosion impact areas and historical land loss since 1950 (Figure 5-4).

5

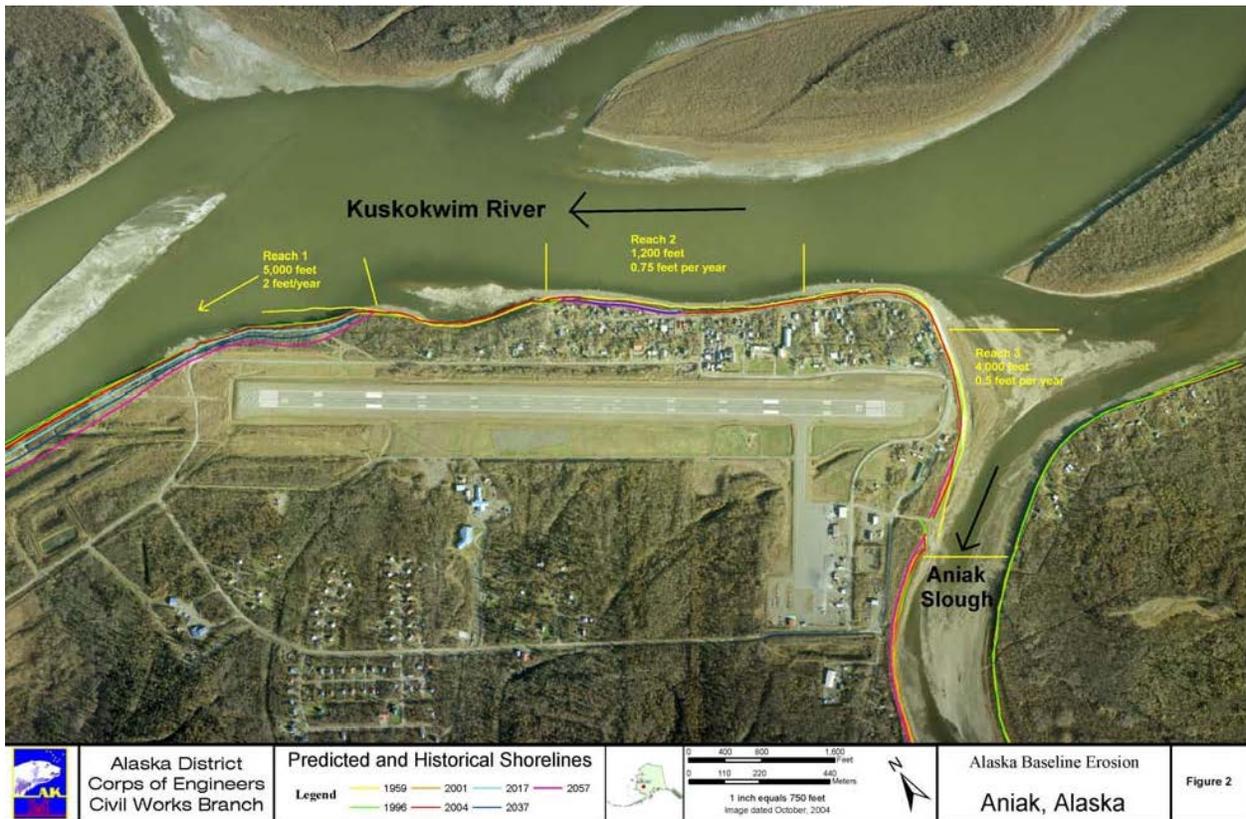


Figure 5-4 Aniak Predicted and Historical Shorelines (USACE 2009)

“Erosion primarily takes place during spring when the river ice begins to break up. Fragmented ice flows down the river and is arrested at natural channel constrictions just downstream of Aniak; this initiates an ice jam which then restricts flow and raises water levels upstream of the jam. During these events, the high water levels allow ice to scour the fine grained materials that compose the banks along the Kuskokwim River at Aniak. An ice jam will generally take place sometime between April and May. Secondary flooding and erosion can also occur during snowmelt and summer rainfall, but historically these have not severely flooded Aniak. For this study the riverbank has been divided into three reaches. Reach 1 is a 5,000-foot stretch of land just north and west of the airport and is eroding at an average rate of 4 feet per year. Reach 2 is a 1,200-foot stretch of land in town along the Kuskokwim River, and is eroding at an average rate of 0.75 feet per year. Reach 3 is a 4,000-foot stretch of land along the Aniak Slough and is eroding at an average rate of 0.5 feet per year” (USACE 2009).

Figure 5-5 depicts Aniak’s USACE placed flood gauge with annotated flood depths identifying relevant events.



Figure 5-5 Aniak's Flood Gauge (USACE 2011)

Extent

Floods are described in terms of their extent (including frequency, and severity described as its horizontal area affected and the vertical depth of floodwaters) and its related recurrence probability.

The following factors contribute to riverine flooding frequency and severity:

- Rainfall intensity and duration
- Antecedent moisture conditions
- Watershed conditions, including terrain steepness, soil types, amount, vegetation type, and development density
- The attenuating feature existence in the watershed, including natural features such as swamps and lakes and human-built features such as dams
- The flood control feature existence, such as levees and flood control channels
- Flow velocity
- Availability of sediment for transport, and the bed and embankment watercourse erodibility
- location related to identified-historical flood elevation

Aniak's flood and erosive scour extent is measured in this plan by using historical past events and the 2009 USACE's Baseline Erosion Assessment's Detailed study:

"The primary erosion concern for the City of Aniak is erosion of the flood protection levee that borders Aniak along the Kuskokwim River and Aniak [S]lough. This levee was constructed in a piecemeal fashion with the original portions construction in the 1950's. Subsequent phases were constructed in 10-year intervals through the mid-1990[s]. The levee in its current form consists of a 2,200-foot section constructed in 1996 that is armored with concrete mat that protects the point at the upstream confluence of Aniak slough with the Kuskokwim River. South of the concrete mat the levee has a layer of

gravel protecting the riverbank for approximately 1,800 feet. Two earthen levees extend to the west and south from these armored sections along the Kuskokwim River and Aniak [S]lough, respectively. The areas of the levee that have experienced the most erosion are the areas that have been armored either with a concrete mat or with sacrificial gravel” (USACE 2009).

Aniak experiences periodic riverine flooding with flood induced high water flow scour impacts. Therefore, based on past high water flow event history and the criteria identified in Table 5-2, the extent of flooding and resultant damages to infrastructure and their protective embankments in the are considered “Critical” where critical facilities would shut-down for at least two weeks with more than 25 percent of property being severely damaged.

Impact

Nationwide, floods result in more deaths than any other natural hazard. Physical damage from floods includes the following:

- Structure flood inundation, causing water damage to structural elements and contents
- High water flow storm surge floods scour (erode) coastal embankments, coastal protection barriers, and result in infrastructure and residential property losses. Additional impacts can include roadway embankment collapse, foundations exposure, and damaging impacts
- Damage to structures, roads, bridges, culverts, and other features from high-velocity flow and debris carried by floodwaters. Such debris may also accumulate on bridge piers and in culverts, decreasing water conveyance and increasing loads which may cause feature overtopping or backwater damages
- Sewage, hazardous or toxic materials release, materials transport from wastewater treatment plant or sewage lagoon inundation, storage tank damages, and/or severed pipeline damages can be catastrophic to rural remote communities

Floods also result in economic losses through business and government facility closure, communications, utility (such as water and sewer), and transportation services disruptions. Floods result in excessive expenditures for emergency response, and generally disrupt the normal function of a community.

Impacts and problems also related to flooding are deposition as well as embankment, coastal erosion, and/or wind. Deposition is the accumulation of soil, silt, and other particles on a river bottom or delta. Deposition leads to the destruction of fish habitat, presents a challenge for navigational purposes, and prevents access to historical boat and barge landing areas. Deposition also reduces channel capacity, resulting in increased flooding or bank erosion. Embankment erosion involves material removal from the stream or river banks, coastal bluffs, and dune areas. When bank erosion is excessive, it becomes a concern because it results in loss of embankment vegetation, fish habitat, and land, property, and essential infrastructure (BKP 1988).

Flooding in the low-lying central portion of Aniak could cut off portions of the community from critical services located on the other side. Flooding events, even for those properties unaffected directly, will cause road closures, impacts to public safety (access and response capabilities), limited availability of perishable commodities, and isolation.

The 2009 USACE study describes the City's potential flood impact damages:

4. Potential Erosion Damages

Using the projected erosion interval lines on the aerial photograph, the economic damages were developed for the 50-year period of analysis and broken down into the sub-intervals of 0-10 years, 11-30 years and 31-50 years. Breaking down the economic damages into these sub-intervals allows us to determine when the greatest economic impact is expected to occur. Determining when the greatest economic impact could occur is important so that timely decisions can be made when an erosion retarding measure needs to be taken. For the purposes of this report, damages were assessed by time interval rather than attempting to estimate the exact year that the damage occurs. The analysis was completed in this manner to try and account for two types of uncertainty:

- 1. That which is associated with predicting erosion which is progressing at varying rates over time (including episodic events); and*
- 2. That which exists when performing a surface analysis as opposed to doing an in depth investigation such as soils exploration and expensive modeling efforts.*

Expected Damages

The period of analysis for this evaluation is 50 years and all damage categories have net present values calculated based on the federal fiscal year 2009 discount rate of 4 5/8 percent. The sections below detail expected losses with a summary provided in Table 1.

Aniak is losing 22,900 square feet (0.53 acres) of land per year. Estimated land loss in Reach 1 is 0.46 acres with land loss in Reach 2 of 0.02 acres and land loss in Reach 3 of 0.05 acres. Aniak's land loss is expected to be approximately 26.81 acres over the 50 years valued at \$268,000 with a net present value of \$107,000 with an average annual value of \$5,500.

Structural damages consist of two outbuildings, a residence, and a foundation which are valued at \$255,000 with a net present value of \$146,000. There are no commercial or public buildings expected to be threatened.

Damages to Aniak's infrastructure consists of the following items: a Federal Aviation Administration (FAA) approach light, the school's fueling point, a utility pole, two stretches of road totaling 350 feet and two sections of levee totaling 1,800 feet. Infrastructure damages are valued at \$2.4 million with a net present value of \$1.8 million. Future maintenance of existing levees is expected to be approximately \$7.5 million.

Summary

Over the 50-year period of analysis, it is estimated that Aniak will experience approximately \$10.5 million in damages due to erosion with a net present value of \$5.0 million and an average annual value of \$259,300. These values do not consider flood damages which will likely occur as the levee system around Aniak is compromised.

Table 1 summarizes expected damages by category.

[Table 1 Expected Damages by Category]

Damage Category	Quantity	Time Span (Years)			Total Damages	Net Present Value	Annual Average Value
		0-10	11-30	31-50			
Land	26.81	\$ 58,00	\$ 105,00	\$ 105,00	\$ 268,000	\$ 107,00	\$ 5,50
Residential Structures	4	1,000	253,000	1,000	255,000	146,000	7,500
Infrastructure ¹	--	1,613,000	225,000	610,000	2,448,000	2,772,000	91,500
Future Maintenance	--	1,619,000	2,994,000	2,994,000	7,507,000	2,988,000	154,800
Total Damages		\$3,291,000	\$3,527,000	\$3,660,000	\$10,478,000	\$5,023,000	\$259,300

¹ It is assumed that the State of Alaska will protect the FAA approach light as its loss could be damaging to Aniak and the surrounding communities.

6. Conclusion:

Aniak has a definite erosion problem that is affecting the community over the next 50 years. The community has the potential to have almost \$10.5 million in damages.

Aniak will likely require some sort of assistance to stop the erosion from causing significant future damages as they are unable to solve their own erosion problems due to limited financial resources” (USACE 2009).

5

Recurrence Probability

Using the criteria in Table 8 the USACE’s 2009 assessment, a flood and sour’s recurrence probability event in Aniak is “Likely”. The event is probable within the next three years, with up to a one in three year’s (1/3=33 percent) chance of occurring. History of flooding events is less than 20 percent but less than or equal to 33 percent per year.

5.3.3 Severe Weather

5.3.3.1 Nature

Severe weather occur throughout Alaska with extremes experienced by the City of Aniak that includes thunderstorms, lightning, hail, heavy and drifting snow, freezing rain/ice storm, extreme cold, and high winds. The area experiences periodic severe weather events such as the following:

Climate Change influences the environment, particularly historical weather patterns. Climate change and El Niño/La Niña Southern Oscillation (ENSO) influences create increased weather volatility such as hotter summers (drought) and colder winters, intense thunderstorms, lightning, hail, snow storms, freezing rain/ice storms, high winds and even a few tornadoes within and around Alaska.

ENSO is comprised of two weather phenomena known as El Niño and La Niña. While ENSO activities are not a hazard, they can lead to severe weather events and large-scale damage throughout Alaska’s varied jurisdictions. Direct correlations were found linking ENSO events to severe weather across the Pacific Northwest, particularly increased flooding (riverine, coastal storm surge) and severe winter storms. Therefore, increased awareness and understanding how ENSO events potentially impact Alaska’s vastly differing regional weather.

Climate change is described as a phenomena of water vapor, carbon dioxide, and other gases in the earth’s atmosphere acting like a blanket over the earth, absorbing some of the heat of the

sunlight-warmed surfaces instead of allowing it to escape into space. The more gasses, the thicker the blanket, the warmer the earth. Trees and other plants cannot absorb carbon dioxide through photosynthesis if foliage growth is inhibited. Therefore carbon dioxide builds up and changes precipitation patterns, increases storms, wildfires, and flooding frequency and intensity; and substantially changes flora, fauna, fish, and wildlife habitats.

The governor's Alaska's Climate, Ecosystems & Human Health Work Group is tasked with determining how the changing ecosystems may impact human health and to identify, prioritize, and educate Alaskan's about the connection between their health and changing environmental patterns.

Heavy Rain occurs rather frequently over the coastal areas along the Bering Sea and the Gulf of Alaska. Heavy rain is a severe threat to Aniak.

Heavy Snow generally means snowfall accumulating to four inches or more in depth in 12 hours or less or six inches or more in depth in 24 hours or less.

Drifting Snow is the uneven distribution of snowfall and snow depth caused by strong surface winds. Drifting snow may occur during or after a snowfall.

Freezing Rain and Ice Storms occur when rain or drizzle freezes on surfaces, accumulating 12 inches in less than 24 hours. Ice accumulations can damage trees, utility poles, and communication towers which disrupts transportation, power, and communications.

Extreme Cold is the definition of extreme cold varies according to the normal climate of a region. In areas unaccustomed to winter weather, near freezing temperatures are considered "extreme". In Alaska, extreme cold usually involves temperatures between -20 to -50°F. Excessive cold may accompany winter storms, be left in their wake, or can occur without storm activity. Extreme cold accompanied by wind exacerbates exposure injuries such as frostbite and hypothermia.

High Winds occur in Alaska when there are winter low-pressure systems in the North Pacific Ocean and the Gulf of Alaska. Alaska's high wind can equal hurricane force but fall under a different classification because they are not cyclonic nor possess other hurricane characteristics. Strong winds occasionally occur over the interior due to strong pressure differences, especially where influenced by mountainous terrain, but the windiest places in Alaska are generally along the coastlines.

Winter Storms include a variety of phenomena described above and as previously stated may include several components; wind, snow, and ice storms. Ice storms, which include freezing rain, sleet, and hail, can be the most devastating of winter weather phenomena and are often the cause of automobile accidents, power outages, and personal injury. Ice storms result in the accumulation of ice from freezing rain, which coats every surface it falls on with a glaze of ice. Freezing rain is most commonly found in a narrow band on the cold side of a warm front, where surface temperatures are at or just below freezing temperatures. Typically, ice crystals high in the atmosphere grow by collecting water vapor molecules, which are sometimes supplied by evaporating cloud droplets. As the crystals fall, they encounter a layer of warm air where they particles melt and collapse into raindrops. As the raindrops approach the ground, they encounter a layer of cold air and cool to temperatures below freezing. However, since the cold layer is so

shallow, the drops themselves do not freeze, but rather, are supercooled, that is, in liquid state at below-freezing temperature. These supercooled raindrops freeze on contact when they strike the ground or other cold surfaces.

Snowstorms happen when a mass of very cold air moves away from the polar region. As the mass collides with a warm air mass, the warm air rises quickly and the cold air cuts underneath it. This causes a huge cloud bank to form and as the ice crystals within the cloud collide, snow is formed. Snow will only fall from the cloud if the temperature of the air between the bottom of the cloud and the ground is below 40 degrees Fahrenheit. A higher temperature will cause the snowflakes to melt as they fall through the air, turning them into rain or sleet. Similar to ice storms, the effects from a snowstorm can disturb a community for weeks or even months. The combination of heavy snowfall, high winds and cold temperatures pose potential danger by causing prolonged power outages, automobile accidents and transportation delays, creating dangerous walkways, and through direct damage to buildings, pipes, livestock, crops and other vegetation. Buildings and trees can also collapse under the weight of heavy snow.

Winter storm floods are discussed in Section 5.3.3.

5

Figure 5-6 displays Alaska’s annual rainfall map based on Parameter-elevation Regressions on Independent Slopes Model (PRISM) that combines climate data from NOAA and Natural Resources Conservation Service (NRCS) climate stations with a digital elevation model to generate annual, monthly, and event-based climatic element estimates such as precipitation and temperature.

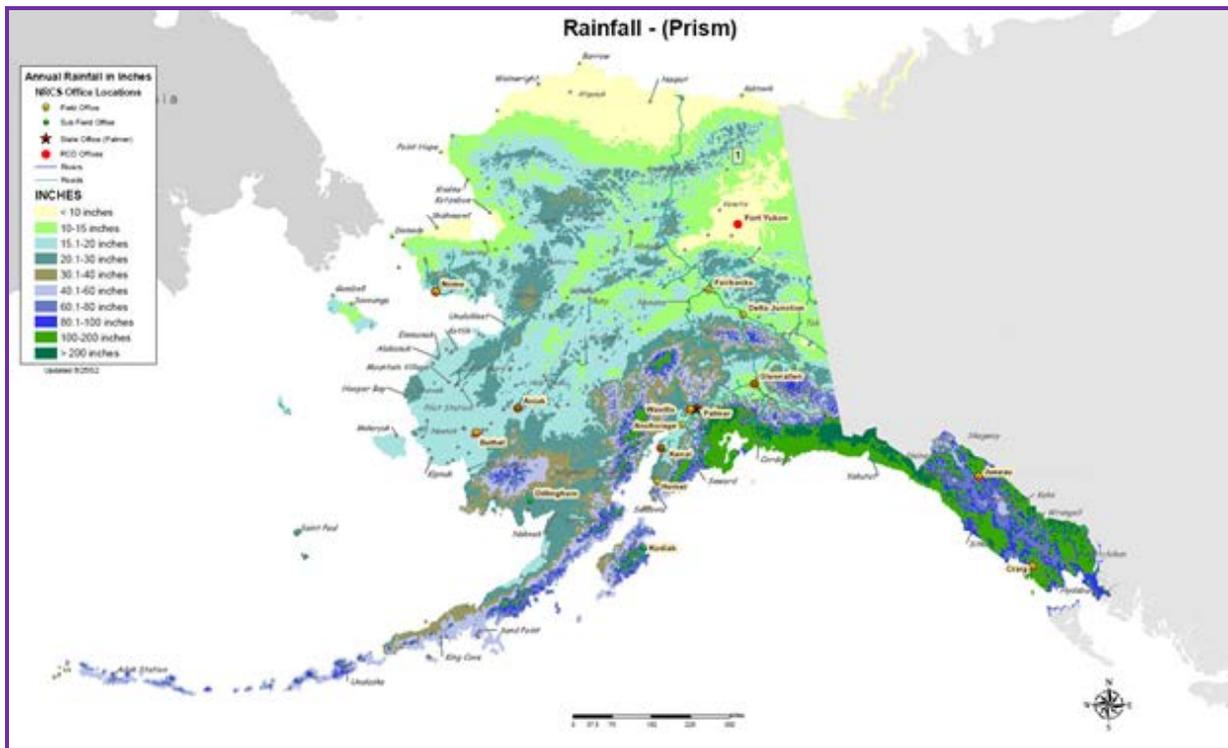


Figure 5-6 Statewide Rainfall Map (PRISM 2012)

5.3.3.2 History

The City of Aniak is continually impacted by severe weather events. Hurricane force wind, and cold typically have disastrous results.

Climate Change. The University of Alaska Fairbanks (UAF) Arctic Climate Impact Assessment (ACIA) describes recent weather changes and how they impact Alaska:

“18.3.3.1. Changes in climate

Alaska experienced an increase in mean annual temperature of about 2 to 3 °C between 1954 and 2003... Winter temperatures over the same period increased by up to 3 to 4 °C in Alaska and the western Canadian Arctic, but Chukotka experienced winter cooling of between 1 and 2 °C...

The entire region, but particularly Alaska and the western Canadian Arctic, has undergone a marked change over the last three decades, including a sharp reduction in snow-cover extent and duration, shorter river- and lake ice seasons, melting of mountain glaciers, sea-ice retreat and thinning, permafrost retreat, and increased active layer depth. These changes have caused major ecological and socio-economic impacts, which are likely to continue or worsen under projected future climate change. Thawing permafrost and northward movement of the permafrost boundary are likely to increase slope instabilities, which will lead to costly road replacement and increased maintenance costs for pipelines and other infrastructure. The projected shift in climate is likely to convert some forested areas into bogs when ice-rich permafrost thaws. Other areas of Alaska, such as the North Slope, are expected to continue drying. Reduced sea-ice extent and thickness, rising sea level, and increases in the length of the open-water season in the region will increase the frequency and intensity of storm surges and wave development, which in turn will increase coastal erosion and flooding...

18.3.3.4. Impacts on people’s lives

Traditional lifestyles are already being threatened by multiple climate-related factors, including reduced or displaced populations of marine mammals, seabirds, and other wildlife, and reductions in the extent and thickness of sea ice, making hunting more difficult and dangerous. Indigenous communities depend on fish, marine mammals, and other wildlife, through hunting, trapping, fishing, and caribou/reindeer herding. These activities play social and cultural roles that may be far greater than their contribution to monetary incomes. Also, these foods from the land and sea make significant contributions to the daily diet and nutritional status of many indigenous populations and represent important opportunities for physical activity among populations that are increasingly sedentary...” (ACIA 2014)

DHS&EM’s Disaster Cost Index records the following severe weather disaster events which may have affected the area:

“83. Omega Block Disaster, January 28, 1989 & FEMA declared (DR-00826) on May 10, 1989 *The Governor declared a statewide disaster to provide emergency relief to communities suffering adverse effects of a record breaking cold spell, with temperatures as low as -85 degrees. The State conducted a wide variety of emergency actions, which included: emergency repairs to maintain & prevent damage to water, sewer & electrical systems, emergency resupply of essential fuels & food, & DOT/PF support in maintaining access to isolated communities.*

The following statistics are from the Western Regional Climate Center (WRCC). Aniak record summaries at the Aniak Airport are only available for the dates shown in Table 5-7 and Figures 5-7 and 5-8.

Table 5-6 Aniak Weather Extremes

Weather Statistic	Record and Date
Record Maximum Temperature:	87° F on July 13, 1951
Record Minimum Temperature:	-72° F on January 27, 1989
Highest Mean Monthly Temperature:	32.5° F in 1957
Lowest Mean Monthly Temperature:	25.2° F in 1961
Average Annual Precipitation:	18.84 inches
Driest year on record:	11.62 inches of precipitation in 1962
Wettest year on record:	29.04 inches of precipitation in 1955
Record High Year of Snowfall:	113.1 inches of snowfall in 1955
Wettest day on record:	June 12, 1957 with 2.17 inches of rain

(WRCC 2015)

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Figures 5-7 and 5-8 portrays Aniak’s historical temperature, precipitation, and snow depth respectively.

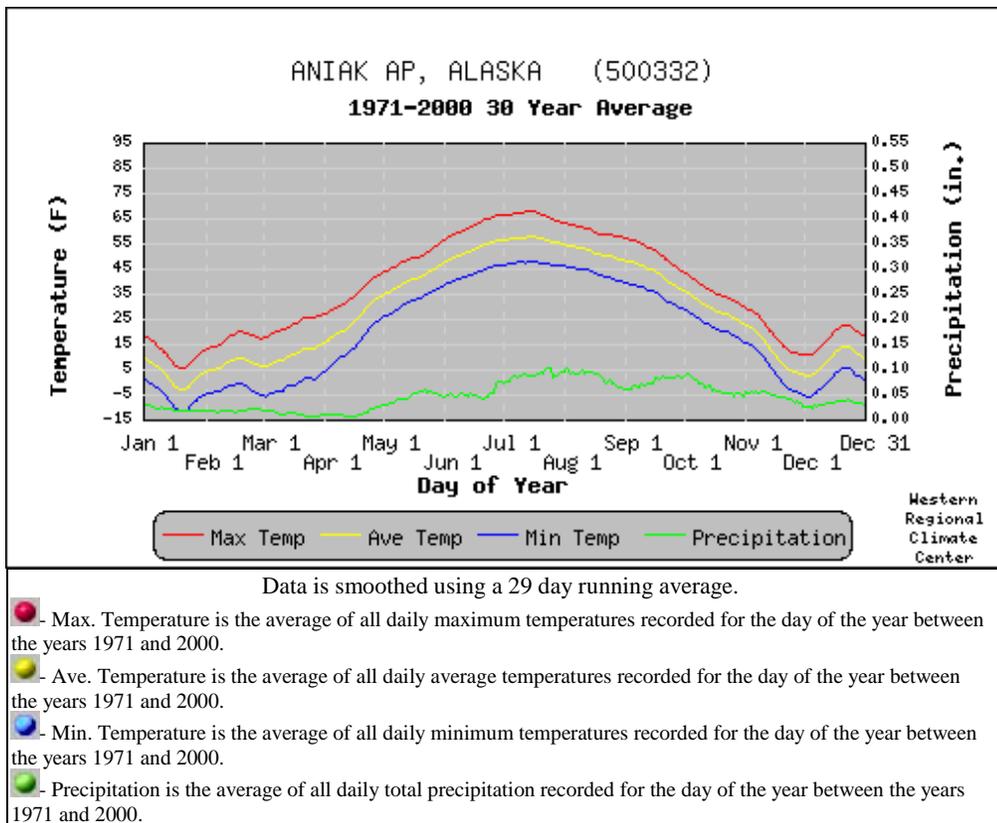
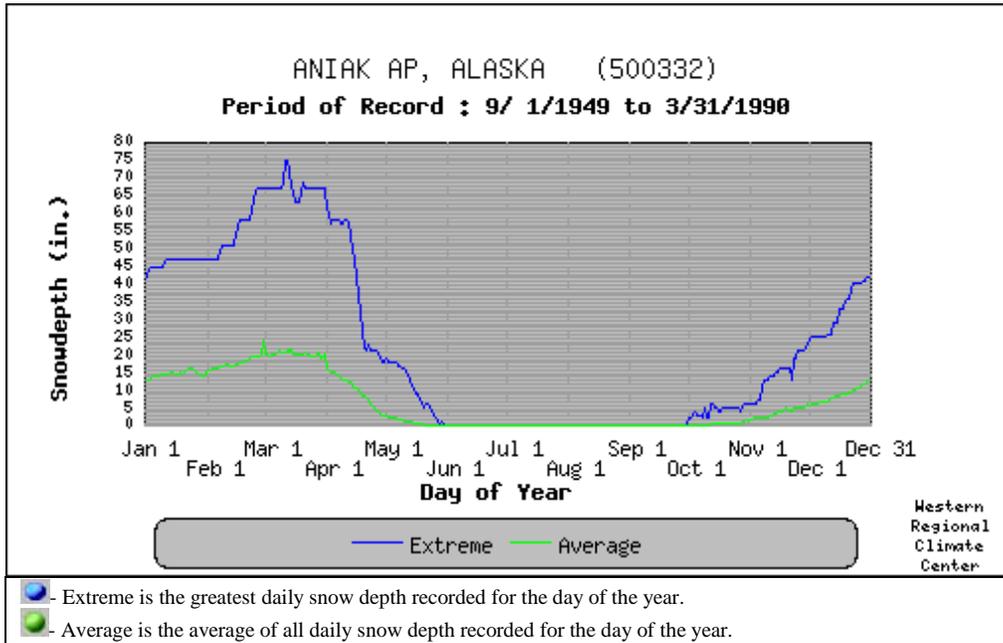


Figure 5-7 Temperature & Precipitation, 1971-2000 (WRCC 2015)



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Figure 5-8 Daily Snow depth Averages and Extremes (WRCC 2015)

Table 5-7 provides general climate summaries from Aniak’s Western Region Climate Center (WRCC).

Table 5-7 Aniak Weather Summaries (WSO 500332)

Period of Record Monthly Climate Summary
(Period of Record : 08/01/1920 to 03/31/1990)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Average Max. Temperature (F)	9.7	15.4	23.3	35.2	51.6	62.4	65.2	60.5	52.7	35.3	21.4	9.3	36.8
Average Min. Temperature (F)	-7.3	-3.7	1.9	17	33.5	43.3	47.2	45.2	36.8	22.2	7	-7.1	19.7
Average Total Precipitation (in.)	0.82	0.86	0.92	0.71	1.08	1.54	2.34	4.11	2.69	1.2	1.46	1.1	18.84
Average Total SnowFall (in.)	7.6	9.4	10	4.5	1.1	0	0	0	0	3.3	10	10	56
Average Snow Depth (in.)	15	18	19	11	1	0	0	0	0	1	4	9	6

* Percent of possible observations for period of record.

Max. Temp.: 63.4% Min. Temp.: 63.3% Precipitation: 64.2% Snowfall: 63.5% Snow Depth: 63.5%

Check Station Metadata or Metadata graphics for more detail about data completeness.

(WRCC 2015)

Figure 5-9 displays Alaska’s annual rainfall map from NOAA and the Natural Resources Conservation Service’s (NRCS) Parameter-elevation Regressions on Independent Slopes Model (PRISM) that combines climate data from climate stations with a digital elevation model to generate annual, monthly, and event-based climatic element estimates such as precipitation and temperature.

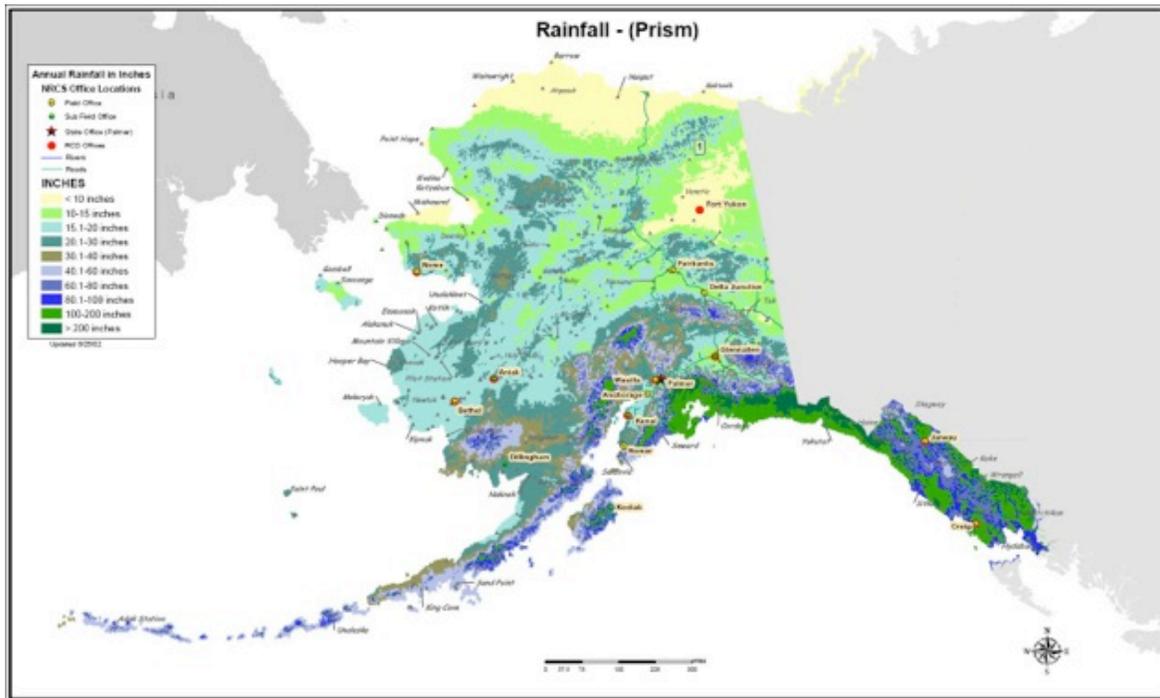


Figure 5-9 Statewide Rainfall Map (PRISM 2012)

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5.3.3.3 Location, Extent, Impact, and Recurrence Probability

Location

The entire area, which includes the Aniak, experiences periodic severe weather impacts. The most common to the area are high winds and severe winter storms. Table 5-7 depicts weather extremes that have impacted the area since 2006 and are provided as a representative sample.

Extent

Because of its remote location, Aniak must be very self-reliant. Severe weather can cut off air access limiting medevac availability and access to goods and services, including groceries and medical supplies. Severe wind causes extensive damage to critical structures including residences and public facilities.

A severe weather event would create an area wide impact and could damage structures and potentially isolate Aniak from the rest of the state.

Based on past severe weather events and the criteria identified in Table 5-2, the extent of severe weather in the Aniak are considered “Critical” where injuries could result in permanent disability, complete shutdown of critical facilities occurs for more than one week, and more than 25 percent of property is severely damaged.

Impact

The intensity, location, and the land's topography influence a severe weather event's impact within a community. Hurricane force winds, rain, snow, and storm surge can be expected to impact the entire Aniak area.

Heavy snow can immobilize a community by bringing transportation to a halt. Until the snow can be removed, airports and roadways are impacted, even closed completely, stopping the flow of supplies and disrupting emergency and medical services. Accumulations of snow can cause roofs to collapse and knock down trees and power lines. Heavy snow can also damage light aircraft and sink small boats. A quick thaw after a heavy snow can cause substantial flooding. The cost of snow removal, repairing damages, and the loss of business can have severe economic impacts on cities and towns.

Injuries and deaths related to heavy snow usually occur as a result of vehicle and or snow machine accidents. Casualties also occur due to overexertion while shoveling snow and hypothermia caused by overexposure to the cold weather.

Extreme cold can also bring transportation to a halt. Aircraft may be grounded due to extreme cold and ice fog conditions, cutting off access as well as the flow of supplies to communities. Long cold spells can cause rivers to freeze, disrupting shipping and increasing the likelihood of ice jams and associated flooding.

Extreme cold also interferes with the proper functioning of a community's infrastructure by causing fuel to congeal in storage tanks and supply lines, stopping electric generation. Without electricity, heaters and furnaces do not work, causing water and sewer pipes to freeze or rupture. If extreme cold conditions are combined with low or no snow cover, the ground's frost depth can increase, disturbing buried pipes. The greatest danger from extreme cold is its effect on people. Prolonged exposure to the cold can cause frostbite or hypothermia and become life-threatening. Infants and elderly people are most susceptible. The risk of hypothermia due to exposure greatly increases during episodes of extreme cold, and carbon monoxide poisoning is possible as people use supplemental heating devices.

Recurrence Probability

Using Table 8 criteria and the history of severe weather in Aniak the probability of a weather event is "Likely". An event is probable within the next three years, the event has up to one in three year's change of occurring (1/3=33 percent). History of events is greater than 20 percent but less than or equal to 33 percent likely per year. Event is "Likely" to occur.

5.3.4 Wildland Fire

5.3.4.1 Nature

A wildland fire is a wildfire type that spreads through vegetation consumption. It often begins unnoticed, spreads quickly, and is usually signaled by dense smoke that may be visible from miles around. Wildland fires can be caused by human activities (such as unattended burns or campfires) or by natural events such as lightning. Wildland fires often occur in forests or other areas with ample vegetation. In addition to wildland fires, wildfires can be classified as tundra fires, urban fires, interface or intermix fires, and prescribed burns.

The following three factors contribute significantly to wildland fire behavior and can be used to identify wildland fire hazard areas.

Topography describes slope increases, which influences the rate of wildland fire spread increases. South-facing slopes are also subject to more solar radiation, making them drier and thereby intensifying wildland fire behavior. However, ridge tops may mark the end of wildland fire spread since fire spreads more slowly or may even be unable to spread downhill.

Fuel is the type and condition of vegetation plays a significant role in the occurrence and spread of wildland fires. Certain types of plants are more susceptible to burning or will burn with greater intensity. Dense or overgrown vegetation increases the amount of combustible material available to fuel the fire (referred to as the “fuel load”). The ratio of living to dead plant matter is also important. Climate change is deemed to increase wildfire risk significantly during periods of prolonged drought as the moisture content of both living and dead plant matter decreases. The fuel load continuity, both horizontally and vertically, is also an important factor.

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Weather is the most variable factor affecting wildland fire behavior is weather. Temperature, humidity, wind, and lightning can affect chances for ignition and spread of fire. Extreme weather, such as high temperatures and low humidity, can lead to extreme wildland fire activity. Climate change increases the susceptibility of vegetation to fire due to longer dry seasons. By contrast, cooling and higher humidity often signal reduced wildland fire occurrence and easier containment.

The frequency and severity of wildland fires is also dependent on other hazards, such as lightning, drought, and infestations (such as the damage caused by spruce-bark beetle infestations). If not promptly controlled, wildland fires may grow into an emergency or disaster. Even small fires can threaten lives and resources and destroy improved properties. In addition to affecting people, wildland fires may severely affect livestock and pets. Such events may require emergency water/food, evacuation, and shelter.

The indirect effects of wildland fires can be catastrophic. In addition to stripping the land of vegetation and destroying forest resources, large, intense fires can harm the soil, waterways, and the land itself. Soil exposed to intense heat may lose its capability to absorb moisture and support life. Exposed soils erode quickly and enhance rivers and stream siltation, thereby enhancing flood potential, harming aquatic life, and degrading water quality. Lands stripped of vegetation are also subject to increased debris flow hazards.

5.3.4.2 History

The Alaska Interagency Coordination Center (AICC) identified 189 wildfires that have occurred within 50 miles of the City since 1939 (Figure 12). However only 62 of those fires occurred since the legacy 2008 HMP was developed. Table 5-8 lists those fires that exceeded 50 burned acres. (The largest one burned over 29,000 acres).

Table 5-8 List of Fires near Aniak since 1939

Fire Name	Fire Year	Estimated Acres	Latitude	Longitude	Specific Cause
Bogus Creek	2015	25,260	61.2052	-160.337	Lightning
Whitefish Lake 1	2015	19,200	61.3812	-160.384	Lightning
Stuyahok River	2015	3,015	62.2167	-160.9	Unknown

Table 5-8 List of Fires near Aniak since 1939

Fire Name	Fire Year	Estimated Acres	Latitude	Longitude	Specific Cause
North Aniak	2015	2,500	61.6538	-159.661	Lightning
Mission Creek	2015	1,500	61.6398	-159.268	Lightning
Village Creek	2015	1,500	61.858	-158.284	Lightning
Whitefish Lake 2	2015	1,000	61.3862	-160.384	Lightning
Reindeer River	2015	1,000	62.2825	-158.717	Lightning
Oskawalik River	2015	500	61.492	-157.876	Lightning
Owhat River	2015	300	61.8	-159.533	Lightning
Fog River	2015	289	60.8939	-160.758	Lightning
Kolmakof River	2015	100	61.8082	-158.625	Lightning
Ophir Creek	2015	96	61.3187	-159.855	Lightning
Getmuna Creek	2015	63	61.9071	-158.356	Lightning
Doestock Creek	2013	29,099	61.2498	-158.959	Lightning
Fish 2	2013	969	61.1585	-160.643	Lightning
Village Creek	2013	130	61.8005	-158.314	Lightning
Muskeg Creek	2013	120	61.845	-159.369	Lightning
Fish	2013	99	61.1578	-160.571	Lightning
Oguohaydok	2013	89	61.7935	-158.28	Lightning
Chicken Creek	2013	80	61.8478	-159.116	Lightning
Rocky Hill	2012	121	61.5831	-160.367	Lightning
Mukslulik	2010	371	60.9914	-158.351	Lightning
Winter Trail	2009	2,310	61.5925	-159.841	Campfire
Cobalt Creek	2009	895	61.8839	-159.293	Lightning
Holokuk River	2009	323	61.4492	-158.46	Lightning
Owhat River	2009	135	61.8617	-159.359	Lightning
Discovery South	2008	3,496	61.3061	-159.762	Unknown
Ophir Creek	2008	217	61.2589	-159.829	Lightning

(AICC 2015)

5.3.4.3 Location, Extent, Impact, and Recurrence Probability

Location

Under certain conditions wildland fires may occur near Aniak when weather, fuel availability, topography, and ignition sources combine. Since fuels data is not readily available, for the purposes of this plan, all areas outside City limits are considered to be vulnerable to tundra/wildland fire impacts. Since 1938, only 189 wildland fire events have occurred within 50 miles of the City (Figure 5-10). Figure 5-10 displays fires that have occurred within 100 miles of Aniak since 1939.

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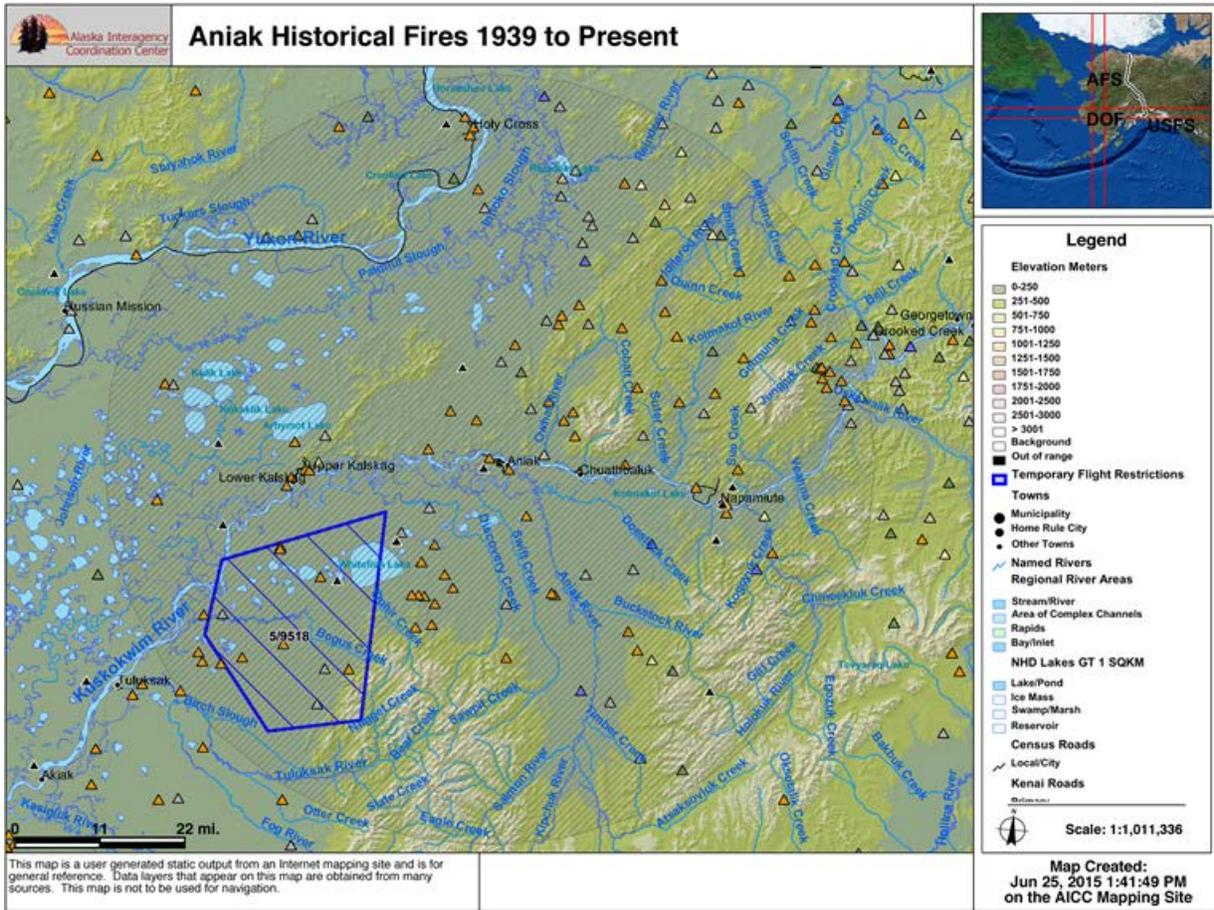


Figure 5-10 Historic Fires within 100 miles of Aniak (AICC 2015)

Extent

Generally, fire vulnerability dramatically increases in the late summer and early fall as vegetation dries out, decreasing plant moisture content and increasing the ratio of dead fuel to living fuel. However, various other factors, including humidity, wind speed and direction, fuel load and fuel type, and topography can contribute to the intensity and spread of wildland fires. The common causes of wildland fires in Alaska include lightning strikes and human negligence.

Fuel, weather, and topography influence wildland fire behavior. Fuel determines how much energy the fire releases, how quickly the fire spreads, and how much effort is needed to contain the fire. Weather is the most variable factor. High temperatures and low humidity encourage fire activity while low temperatures and high humidity retard fire spread. Wind affects the speed and direction of fire spread. Topography directs the movement of air, which also affects fire behavior. When the terrain funnels air, as happens in a canyon, it can lead to faster spreading. Fire also spreads up slope faster than down slope.

Based on the large number of historical fires, amount of burned acreage, and using the criteria in Table 5-3; the potential for a wildland fire in Aniak is classified as “Critical”. Injuries and/or illnesses could result in permanent disability, complete critical facility shutdown o lasting for at least two weeks with more than 25 percent of property being severely damaged.

Impact

Impacts of a wildland fire that interfaces with the population center of Aniak could grow into an emergency or disaster if not properly controlled. A small fire can threaten lives and resources and destroy property. In addition to impacting people, wildland fires may severely impact livestock and pets. Such events may require emergency watering and feeding, evacuation, and alternative shelter.

Indirect impacts of wildland fires can be catastrophic. In addition to stripping the land of vegetation and destroying forest resources, large, intense fires can harm the soil, waterways, and the land itself. Soil exposed to intense heat may lose its capability to absorb moisture and support life. Exposed soils erode quickly and enhance siltation of rivers and streams, thus increasing flood potential, harming aquatic life, and degrading water quality.

Fire is recognized as a critical feature of the natural history of many ecosystems. It is essential to maintain the biodiversity and long-term ecological health of the land. The role of wildland fire as an essential ecological process and natural change agent has been incorporated into the fire management planning process and the full range of fire management activities is exercised in Alaska, to help achieve ecosystem sustainability, including its interrelated ecological, economic, and social consequences on firefighters, public safety and welfare; natural and cultural resources threatened; and the other values to be protected dictate the appropriate management response to the fire. In Alaska, and within 50 miles of the Aniak, the natural fire regime is characterized by a return interval of approximately 150 due to their tundra vegetation, gently rolling topography.

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Recurrence Probability

As increased development occurs along the Aniak's city edge, hazardous wildfire fuels accumulate, and the weather patterns that accompany climate change continue to be uncertain, the probability of an interface wildland fire may be an issue of concern. Increased public education regarding wildfire fuels, evacuation measures, and additional mitigation measures for the wildland interface areas, natural areas, and open spaces may be necessary.

While the role of wildland fire as an essential ecological process and natural change agent and is recognized as a critical feature of the natural history of many ecosystems, it has also required specific attention in the fire management planning process and the fire management activities exercised in Alaska. The interrelated ecological, economic, and social consequences to firefighters, public safety and welfare; to the natural and cultural resources threatened; and for the other values to be protected requires an appropriate management response to the fire. In Alaska, the natural fire regime is characterized by a return interval of 50 to 200 years, depending on the vegetation type, topography and location.

Using the criteria in Table 8 and based on the history of fire in the Aniak area the probability of a fire is "Highly Likely". An event is probable within the calendar year with a 1 to 1 year (1/1=100 percent) chance of occurring. History of events is greater than 33 percent likely per year.

Climate change and flammable vegetation species are prolific throughout Alaska's forests and tundra locations. Fire frequency may increase in the future as a result.

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Section Six outlines the vulnerability process for determining potential losses for the community from various hazard impacts.

6.1 OVERVIEW

A vulnerability analysis predicts the extent of exposure that may result from a hazard event of a given intensity in a given area. The analysis provides quantitative data that may be used to identify and prioritize potential mitigation measures by allowing communities to focus attention on areas with the greatest risk of damage. A vulnerability analysis is divided into eight steps:

1. Asset Inventory
2. Exposure Analysis For Current Assets
3. Repetitive Loss Properties
4. Land Use and Development Trends
5. Vulnerability Analysis Methodology
6. Data Limitations
7. Vulnerability Exposure Analysis
8. Future Development

DMA 2000 and its implementing regulations for current assets, and area future development initiative vulnerability assessment:



DMA 2000 Recommendations
<p>Assessing Risk and Vulnerability, and Analyzing Development Trends §201.6(c)(2)(ii): The risk assessment shall include a) description of the jurisdiction's vulnerability to the hazards described in paragraph (c)(2)(i) of this section. This description shall include an overall summary of each hazard and its impact on the community. <i>All plans approved after October 1, 2008 must also address NFIP insured structures that have been repetitively damaged by floods.</i> The plan should describe vulnerability in terms of: §201.6(c)(2)(ii)(A): The types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard areas; §201.6(c)(2)(ii)(B): An estimate of the potential dollar losses to vulnerable structures identified in ... this section and a description of the methodology used to prepare the estimate. §201.6(c)(2)(ii)(C): Providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions. §201.6(c)(2)(iii): For multi-jurisdictional plans, the risk assessment section must assess each jurisdiction's risks where they vary from the risks facing the entire planning area.</p>
1. REGULATION CHECKLIST
ELEMENT B. Risk Assessment, Assessing Vulnerability, Analyzing Development Trends
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? (Requirement §201.6(c)(2)(ii))
B4. Does the Plan address NFIP insured structures within each jurisdiction that have been repetitively damaged by floods?
C2. Does the Plan address each jurisdiction's participation in the NFIP and continued compliance with NFIP requirements, as appropriate? (Requirement §201.6(c)(3)(ii))
Source: FEMA, March 2015.

Vulnerability assessment requirements include:

- Summarizing the community’s vulnerability to each hazard that addresses the impact of each hazard on the community.
- Identifying the types and numbers of RL properties in the identified hazard areas.
- Identifying the types and numbers of existing vulnerable buildings, infrastructure, and critical facilities and, if possible, the types and numbers of vulnerable future development.
- Estimating potential dollar losses to vulnerable structures and the methodology used to prepare the estimate.

Table 6-1 lists the City of Aniak’s infrastructures’ hazard vulnerability synopsis.

Table 6-1 Vulnerability Overview

Hazard	Area’s Hazard Vulnerability			
	Percent of Jurisdiction’s Geographic Area	Percent of Population	Percent of Building Stock	Percent of Critical Facilities and Utilities
Earthquake	100	100	100	100
Flood	80	80	80	
Ground Failure	100	100	100	100
Weather	100	100	100	100
Wildland Fire	100	100	100	100

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6.2 LAND USE AND DEVELOPMENT TRENDS

6.2.1 Land Use

Land use in the is predominately residential with limited area for commercial services and community (or institutional) facilities. Suitable developable vacant land is in short supply within the boundaries of the , and open space and various hydrological bodies surround the community. One area of town is classified as airport land use.

The 2005 legacy HMP describes the City’s current land use as

“A table describing existing land uses was compiled from the DCCED community profile map for Aniak (DCCED, June 2001, 1”=100 feet). The predominant land use is residential.

<i>Land Use Type</i>	<i>Number of Uses</i>
<i>Residential</i>	<i>159</i>
<i>Commercial</i>	<i>46</i>
<i>Public</i>	<i>37</i>

Utilities are located in the following areas: Aniak Residential Subdivision #1, Aniak Townsite Tract A, State of Alaska Tract 100P, Aniak Slough Subdivision, Napat Subdivision, Kuskokwim Subdivision #1 and #2, Tract 14 B & C of Plat 95-14, ANSCA Tracts, Morgan Road Subdivision, and U.S. Surveys 2236, 3093 Tract A, 6465, and the Fairgrounds and airport.

The following public buildings or critical facilities are considered susceptible to damage from the 100-year flood:

1. *Power Plant Generators*
2. *Community Hall*
3. *Bulk Fuel Storage Tank Farm*
4. *Elementary School*
5. *Teen Center owned by Aniak Traditional Council (on Howard Rock Foundation property)*
6. *Landfill and access road*
7. *Dike/Levee*

The City of Aniak has no future development planned. (Aniak 2015)

6.3 CURRENT ASSET EXPOSURE ANALYSIS

6.3.1 Asset Inventory

Asset inventory is the first step of a vulnerability analysis. Assets that may be affected by hazard events include population (for community-wide hazards), residential buildings (where data is available), and critical facilities and infrastructure.



6.3.1.1 Population and Building Stock

Population data for the City were obtained from U.S. Census and DCCED certified data estimates. The U.S. Census reports the City's total population for 2010 as 501 and 2014 DCCED data reported a population of 533 (Table 6-2).

Table 6-2 Estimated Population and Building Inventory

Population		Residential Buildings	
2010 Census	DCCED 2014 Data	Total Building Count	Total Value of Buildings ¹
501	533	224	U.S. Census \$41,059,200 City of Aniak: 78,400,000

¹ Sources: U.S. Census 2010, and 2014 DCCED population data. US Census listed housing value at \$183,300. The Project Team determined that the average structural replacement value of all single-family residential buildings is \$350,000.

Estimated replacement values for those structures, as shown in Table 6-2, were obtained from the 2010 U.S. Census, and 2014 DCCED certified estimate.

The Planning Team stated that residential replacement values are generally understated because replacement costs exceed Census structure estimates due to material purchasing, barge or

airplane delivery, and construction in rural Alaska. The Planning Team estimates an average 30ft by 40 ft (1,200 sq ft) residential structure costs \$350,000. A total of 244 single-family residential buildings were considered in this analysis.

6.3.1.2 Existing Infrastructure

Table 6-3 list the City’s identified “completed” infrastructure improvement projects. They provide a depiction of the community’s ongoing development trends and focus toward improving aging infrastructure. Produced by DCRA, the table provides a depiction of the community’s ongoing development trends and focus toward improving aging infrastructure.

Table 6-3 Infrastructure improvements

Project Name	Award Year	Grant Status	Award Amount	End Date
Fire Department Peat Project	2013	Closed	\$40,000	7/20/2012
Purchase Bulk Fuel	2010	Closed	\$14,846	6/22/2010
Office Renovation and New Truck	2007	Closed	\$40,000	6/10/2008
W. Interior Regional Training Center Construction	2005	Closed	\$0	6/29/2005

(DCRA 2015)



6.3.1.3 Aniak’s Critical Facilities

A critical facility is defined as a facility that provides essential products and services to the general public, such as preserving the quality of life in the and fulfilling important public safety, emergency response, and disaster recovery functions. Due to many of Alaska’s remote rural location – a long distance from their nearest neighboring community, most all facilities are deemed “critical” to their survival. The critical facilities profiled in this plan include the following:

- Government facilities, such as city and tribal administrative offices, departments, or agencies
- Emergency response facilities, including police department and firefighting equipment
- Educational facilities, including K-12
- Care facilities, such as medical clinics, congregate living health, residential and continuing care, and retirement facilities
- Community gathering places, such as community and youth centers
- Utilities, such as electric generation, communications, water and waste water treatment, sewage lagoons, landfills.

Table 6-4 lists the City’s critical facilities and infrastructure.

Table 6-4 Critical Facilities and Infrastructure

Facility Type	Occupants	Facilities	Street Name	Latitude	Longitude	Estimated Value	Building Type	Earthquake	Flood	Severe Weather	Severe Weather
Government	2	Aniak City Office	Undefined	61.57945	-159.5251	\$250,000	W1	X	X	X	X
	14	Aniak Traditional Council	Undefined	61.58214	-159.5657	\$250,000	S2	X	X	X	X
	3	Public Works Building	Airport Boulevard	Undefined	Undefined	\$1,000,000	S2	X	X	X	X
Emergency	0	Fire Hall	Airport Boulevard	61.57715	-159.5504	\$500,000	W2	X	X	X	X
	3	State Troopers Office	Airport Boulevard	61.57606	-159.5259	\$250,000	W1	X	X	X	X
Education	110	Aniak Middle/High School	High School	61.58078	-159.5498	\$10,000,000	W1	X	X	X	X
	110	Auntie Mary Nicoli Elementary School	Boundary Avenue	61.58094	-159.5285	\$10,000,000	W1	X	X	X	X
	10	Kuspuk School District Offices	Boundary Avenue	61.58282	-159.5360	\$250,000	W1	X	X	X	X
Medical	15	Medical Clinic	Morgan's Road	61.5725	-159.54	\$250,000	W1	X	X	X	X
Community	12	AC Store	Boundary Avenue	61.57862	-159.5229	\$100,000	W1	X	X	X	X
	10	Assembly of God Church	Undefined	61.58008	-159.5277	\$80,000	W1	X	X	X	X
	10	Catholic Church	River Avenue	61.58199	-159.5305	\$40,000	W2	X	X	X	X
	6	KSD Joe Parent Voc. Ed. Center	High School Road	61.5825	-159.53	\$250,000	W2	X	X	X	X
	30	Community Hall	Unnamed Street	61.58042	-159.5229	\$150,000	W1	X	X	X	X
	2	Public Library	Riverfront Drive	61.58172	-159.5300	\$50,000	W1	X	X	X	X
	8	Post Office	Boundary Avenue	61.58225	-159.5350	\$100,000	W1	X	X	X	X
Transportation	40	Airport	Airport	61.5823	-159.54	\$10,000,000	AFO	X	X	X	X
Utilities	1	Aniak Class III Municipal Landfill, Active	Out of town	61.5846	-159.5913	\$1,000,000	N/A	X	X	X	X

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Table 6-4 Critical Facilities and Infrastructure

Facility Type	Occupants	Facilities	Street Name	Latitude	Longitude	Estimated Value	Building Type	Earthquake	Flood	Severe Weather	Severe Weather
	6	Aniak Light & Power Generation Facility	Boundary Avnue	61.58159	-159.5330	\$500,000	EPPS	X	X	X	X
	0	Aniak Power House - Power Generation Facility	Undefined	61.58138	-159.5332	\$1,000,000	OPP	X	X	X	X
	9	Bushtell Telephone	Boundary Avenue	61.58132	-159.5317	\$300,000	CBO	X	X	X	X
	2	Wastewater Treatment Plant	Inside the city six different lift stations	Various	Locations	\$240,000	WL SS	X	X	X	X
	403	Estimated Facility Occupants				Estimated Facility Damages					
						\$36,560,000					

(Aniak 2015, DHS&EM 2009)

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6.4 NFIP PARTICIPATION

DMA 2000 and its implementing regulations for estimating the number and type of structures at risk to repetitive flooding:

DMA 2000 Requirements
<p>Addressing Risk and Vulnerability to NFIP Insured Structures</p> <p>§201.6(c)(2)(ii): The risk assessment shall include a) description of the jurisdiction's vulnerability to the hazards described in paragraph (c)(2)(i) of this section. This description shall include an overall summary of each hazard and its impact on the community. <i>All plans approved after October 1, 2008 must also address NFIP insured structures that have been repetitively damaged by floods. The plan should describe vulnerability in terms of:</i></p> <p>§201.6(c)(2)(ii)(A): The plan should describe vulnerability in terms of] the types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard areas;</p> <p>§201.6(c)(2)(ii)(B): The plan should describe vulnerability in terms of an] estimate of the potential dollar losses to vulnerable structures identified in paragraph (c)(2)(ii)(A) of this section and a description of the methodology used to prepare the estimate;</p> <p>§201.6(c)(2)(ii)(C): The plan should describe vulnerability in terms of] providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions.</p> <p>§201.6(c)(3)(ii): The mitigation strategy shall include a] section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure.</p>
1. REGULATION CHECKLIST
ELEMENT B. NFIP Insured Structures
B4. Does the Plan address NFIP insured structures within the jurisdiction that have been repetitively damaged by floods?
C2. Does the Plan address each jurisdiction's participation in the NFIP and continued compliance with NFIP requirements, as appropriate?
Source: FEMA, March 2015.

The City of Aniak has participated in the NFIP since May 2, 1975. The original flood insurance study for Aniak covered the incorporated area. The study area includes a majority of the community. Flood insurance is available anywhere within the city.

The table below describes the FIRM zones that pertain to Aniak.

Table 6-5 NFIP Designated Flood Zones

Firm Zone	Explanation
A	Areas of 100-year flood; base flood elevations and flood hazard not determined.
AO	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet, average depths of inundation are shown but no flood hazard factors are determined.
AH	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; base flood elevations are shown but no flood hazard factors are determined.
A1-A30	Areas of 100-year flood; base flood elevations and flood hazard factors determined.
B	Areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood.
C	Areas of minimal flooding.
D	Areas of undetermined, but possible, flood hazards.

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NFIP Development Permit Requirements

Development permits for all new building construction, or substantial improvements, are required by the City in all A, AO, AH, A-numbered Zones. Flood insurance purchase may be required in flood zones A, AO, AH, A-numbered zones as a condition of loan or grant assistance. An Elevation Certificate is required as part of the development permit. The Elevation Certificate is a form published by the Federal Emergency Management Agency required to be maintained by communities participating in the NFIP. According to the NFIP, local governments maintain records of elevations for all new construction, or substantial improvements, in floodplains and to keep the certificates on file.

Elevation Certificates are used to:

1. Record the elevation of the lowest floor of all newly constructed buildings, or substantial improvement, located in the floodplain.
2. Determine the proper flood insurance rate for floodplain structures
3. Local governments must insure that elevation certificates are filled out correctly for structures built in floodplains. Certificates must include:
 - The location of the structure (tax parcel number, legal description and latitude and longitude) and use of the building.

- The Flood Insurance Rate Map panel number and date, community name and source of base flood elevation date.
- Information on the building’s elevation.
- Signature of a licensed surveyor or engineer.

Public Notification of Flood-prone Areas

The City has already placed flood elevation signs in eight (8) general areas of Aniak. The signs read:

“High Water Elevation City of Aniak Required Building Level” (Either 87 or 89 feet)

These signs are posted in eight (8) locations throughout Aniak:

1. Power pole at bus turn-around on Morgan’s Road (elevation 87 feet).
2. Power pole at Willow Street & Birch Avenue – Napat Subdivision (elevation 87 ft).
3. Power pole at Birch & Spruce Avenue – Napat Subdivision (elevation 87 feet).
4. On north face of Sackett Community Building (elevation 87 feet).
5. Power pole at KNA Building (elevation 87 feet).
6. On north face of Moffits Fuel building (elevation 89 feet).
7. On east face or Alaska Commercial Company Store building (elevation 89 feet).
8. On power pole in front of Kuspuk School District office building (elevation 89 feet).

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There are also 8 high water markers (HWM) placed throughout Aniak. These serve an important purpose in that they clearly mark the 100-year flood level – the level new construction must be built to or above, and where to avoid construction or to implement floodproofing techniques.

It is crucial that these signs been maintained and/or updated as needed.

6.4.1 Repetitive Loss Properties

Repetitive Loss Properties are defined as a property that is currently insured for which two or more National Flood Insurance Program losses (occurring more than ten days apart) of at least \$1000 each have been paid within any 10-year period since 1978.

The 2005 legacy HMP provides the following repetitive loss properties list (Figure 6-6). FEMA has targeted these properties to try to encourage improvements to limit future flood damage (i.e. flood insurance claim payments).

Table 6-6 Aniak’s Repetitive Loss Properties

Loss Dates	Type (RL)	Community Name (Structure IDs)	Owner	No. of Losses	Flood Insurance (Yes/No)	Structure Value (\$)	Comments
1991, 1983	RL	Lot 16, Block 9 Townsite US Survey 3093 A &B	Charles & Grace Bender	2	Yes	N/A	Pre=Firm Bender’s B&B, frame construction with full basement. Site inspection in and outside of home revealed no easy solutions for floodproofing or

Table 6-6 Aniak’s Repetitive Loss Properties

Loss Dates	Type (RL)	Community Name (Structure IDs)	Owner	No. of Losses	Flood Insurance (Yes/No)	Structure Value (\$)	Comments
							retrofitting this structure.
1991, 1989, and 1987	RL	City of Aniak Subdivision 1, Lot 6	Tony Brown	3	Yes	N/A	Pre-Firm House has been elevated but has no elevation certificate
1995, 1991, and 1983	RL	Lot 8, Across the Slough Subdivision	Golga Kelila Jr.	3	Yes	N/A	Structure probably is a log cabin across the slough in East Aniak; owner is building a new self-help house according to Harry Allain, Native Housing Administrator
1987 and 1983	RL	Lot 5, Block 6, USS 3093 A & B in townsite Subdivision 2 Kuskokwim	Darlene Holmberg	2	No	N/A	Located near the Catholic Church

(2005 Legacy HMP)

However, the Alaska State NFIP Coordinator reported that there have been 14 repetitive losses to properties in Aniak. Table 6-7 provides the only information available from FEMA’s Region X NFIP Coordinator.

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Table 6-7 Aniak’s Repetitive Loss Properties

Type (RL/SRL)	Community Name (Structure IDs)	Occupancy (#)	No. of Losses	Flood Insurance (Yes/No)	Structure Value (\$)¹	Total Claims (\$)²
RL	Aniak, (3 structures)	Single Family		Yes		
RL	Aniak, (2 structures)	Commercial		Yes		

¹Insured structural value as of date.

²Content and building claims.

(FEMA 2015)

6.4.2 Historic NFIP Participation Data

The City of Aniak is an active NFIP participant since an emergency entry on May 2, 1975 (Table 6-8). Regular entry into the program was on April 2, 1990.

Table 6-8 NFIP participation data.

Category	Data	Category	Data
Date joined NFIP	05/02/1975	Number of policies in force	62
CRS class / discount	N/A	Insurance in force	\$12,461,100.00
CAV date	06/22/2005	Number of paid losses	22
CAC date	06/21/1993	Total losses paid	\$235,208.52
Date of current FIRM	09/29/2006	Substantial damage claims since 2004	0

CAC = Community Assistance Contact
 CAV = Community Assistance Visit
 CRS = Community Rating System

FIRM = Flood Insurance Rate Map
 NFIP = National Flood Insurance Program

6.5 VULNERABILITY ASSESSMENT METHODOLOGY

A conservative exposure-level analysis was conducted to assess the risks of the identified hazards. This analysis is a simplified assessment of the potential effects of the hazards on values at risk without considering recurrence probability or damage level.

The Community Planning Team determined their facility locations within identified hazard impact zones. This data was used to develop a vulnerability assessment for those hazards.

Combined structure and contents replacement values were determined by the community for their physical assets. The community's aggregate exposure was calculated by assuming the worst-case scenario (that is, the asset would be completely destroyed and would have to be replaced) for each physical asset located within a hazard area. A similar analysis was used to evaluate the proportion of the population at risk. However, the analysis simply represents the number of people at risk; no estimate of the number of potential injuries or deaths was prepared.

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6.6 DATA LIMITATIONS

The vulnerability estimates provided herein use the best data currently available, and the methodologies applied result in a risk approximation. These estimates may be used to understand relative risk from hazards and potential losses. However, uncertainties are inherent in any loss estimation methodology, arising in part from incomplete scientific knowledge concerning hazards and their effects on the built environment as well as the use of approximations and simplifications that are necessary for a comprehensive analysis.

It is also important to note that the quantitative vulnerability assessment results are limited to the exposure of people, buildings, and critical facilities and infrastructure to the identified hazards. It was beyond the scope of this HMP to develop a more detailed or comprehensive assessment of risk (including annualized losses, people injured or killed, shelter requirements, loss of facility/system function, and economic losses). Such impacts may be addressed with future updates of the HMP.

6.7 VULNERABILITY EXPOSURE ANALYSIS

There is limited GIS data available for the City of Aniak. The following discussion contains data obtained from the Project Team and their subsequent analysis. The results of the exposure analysis for loss estimations are summarized in Tables 6-5 and 6-6.

Table 6-9 provides a summary of the critical facilities and their respective occupants that are potentially at risk from the identified hazard’s impacts.

Table 6-9 Potential Hazard Exposure Analyses – Critical Facilities

Government and Emergency Response		Education	
# Bldgs./# Occ	Values (\$)	#Bldgs./#Occ	Values (\$)
3/19	\$1,500,000	2/3	\$750,000
Medical		Community	
# Bldgs./# Occ	Values (\$)	#Bldgs./#Occ	Values (\$)
1/15	\$250,000	7/78	\$770,000
Utilities		Transportation	
# Bldgs./# Occ	Values (\$)	# Bldgs./# Occ	Values (\$)
5/18	\$3,040,000	5/40	\$10,000,000

6.7.1 Exposure Analysis – Narrative Summaries

Earthquake

The City of Aniak and surrounding area can expect to experience limited earthquake ground movement that may result in infrastructure damage. Intense shaking may be seen or felt based on past events. Although all structures are exposed to earthquakes, buildings within the constructed with wood have slightly less vulnerability to the effects of earthquakes than those with masonry. Based on earthquake probability (PGA) maps produced by the USGS, the entire Aniak area *is not at risk* of experiencing severe earthquake impacts as a result of its close proximity to known earthquake faults.

The probability is low (see Section 5.3.1.3) that impacts to the community such as “severe” ground movement may result in infrastructure damage and personal injury.

Aniak’s entire existing, transient, and future population, residential structures, and critical facilities are exposed to the effects of “moderate” earthquake events. This includes approximately:

- 533 people in 224 residences (approximate value \$73,200,000)
- 19 people in three government and emergency response facilities (approximate value \$1,500,000)
- Three people in two educational facilities (approximate value \$750,000)
- 15 people in one medical facility (approximate value \$250,000)
- 78 people in seven community facilities (approximate value \$770,000)
- 40 people in four transportation facilities (approximate value \$10,000,000)
- 18 people in five utility facilities (approximate value \$3,040,000)

Impacts to future populations, residential structures, critical facilities, and infrastructure are anticipated at the same historical impact level.



Flood

Typical flood impacts associated include structures and contents water damage, roadbed, embankment, and coastal erosion, boat strandings, areas of standing water in roadways. Flood events may also damage or displace fuel tanks, power lines, or other infrastructure. Buildings on slab foundations, not located on raised foundations, and/or not constructed with materials designed to withstand flooding events (e.g., cross vents to allow water pass-through an open area under the main floor of a building) are more vulnerable to flood impacts (see Section 5.3.2.3).

This includes approximately:

- 150 people in 50 residences (approximate value \$17,500,000)
- 19 people in three government and emergency response facilities (approximate value \$1,500,000)
- Three people in two educational facilities (approximate value \$750,000)
- 15 people in one medical facility (approximate value \$250,000)
- 78 people in seven community facilities (approximate value \$770,000)
- 40 people in four transportation facilities (approximate value \$10,000,000)
- 18 people in five utility facilities (approximate value \$3,040,000)

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The anticipates that impacts to future populations, residential structures, critical facilities, and infrastructure will be at the same historical impact level.

Impacts to future populations, residential structures, critical facilities, and infrastructure are anticipated at the same impact level.

Severe Weather

Impacts associated with severe weather events includes roof collapse, trees and power lines falling, damage to light aircraft and sinking small boats, injury and death resulting from snow machine or vehicle accidents, overexertion while shoveling all due to heavy snow. A quick thaw after a heavy snow can also cause substantial flooding. Impacts from extreme cold include hypothermia, halting transportation from fog and ice, congealed fuel, frozen pipes, utility disruptions, frozen pipes, and carbon monoxide poisoning. Additional impacts may occur from secondary weather hazards or complex storms such as extreme high winds combined with freezing rain, high seas, and storm surge. Section 5.3.3.3 provides additional detail regarding severe weather impacts. Buildings that are older and/or not constructed with materials designed to withstand heavy snow and wind (e.g., hurricane ties on crossbeams) are more vulnerable to the severe weather damage.

The entire existing, transient, and future population, residential structures, and critical facilities are exposed to future severe weather impacts. This includes approximately:

- 533 people in 224 residences (approximate value \$73,200,000)
- 19 people in three government and emergency response facilities (approximate value \$1,500,000)

- Three people in two educational facilities (approximate value \$750,000)
- 15 people in one medical facility (approximate value \$250,000)
- 78 people in seven community facilities (approximate value \$770,000)
- 40 people in four transportation facilities (approximate value \$10,000,000)
- 18 people in five utility facilities (approximate value \$3,040,000)

Impacts to future populations, residential structures, critical facilities, and infrastructure are anticipated at the same impact level.

Wildland Fire

Impacts associated with a wildland fire event include the potential for loss of life and property. It can also impact livestock and pets and destroy forest resources and contaminate water supplies. Buildings closer to the outer edge of town, those with a lot of vegetation surrounding the structure, and those constructed with wood are some of the buildings that are more vulnerable to the impacts of wildland fire. Section 5.3.4.3 provides additional detail regarding wildland/tundra fire impacts

According to the Alaska Fire Service, there are no wildland fire areas within Aniak’s boundaries. However, 189 wildland fires have occurred within a 50-mile radius of Aniak (see Section 5.3.4.3). There is a slight potential for wildland fire to interface with the population center of the City. This area includes approximately:

- 533 people in 224 residences (approximate value \$73,200,000)
- 19 people in three government and emergency response facilities (approximate value \$1,500,000)
- Three people in two educational facilities (approximate value \$750,000)
- 15 people in one medical facility (approximate value \$250,000)
- 78 people in seven community facilities (approximate value \$770,000)
- 40 people in four transportation facilities (approximate value \$10,000,000)
- 18 people in five utility facilities (approximate value \$3,040,000)



6.8 FUTURE DEVELOPMENT

The Planning Team stated they had no future development to report.

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Section Seven delineates the City’s HMP mitigation strategy.

7.1 OVERVIEW

The mitigation strategy provides the blueprint for implementing desired activities that will enable the community to continue to save lives and preserve infrastructure by systematically reducing hazard impacts, damages, and community disruption. A vulnerability analysis is divided into six steps:

1. Identifying each jurisdiction’s existing authorities for implementing mitigation action initiatives
2. NFIP Participation
3. Developing Mitigation Goals
4. Identifying Mitigation Actions
5. Evaluating Mitigation Actions
6. Implementing the Mitigation Action Plan (MAP)

DMA 2000 and its implementing regulations for comprehensive mitigation strategy development:

DMA 2000 Requirements
<p>Identification and Analysis of Mitigation Actions §201.6(c)(3): [The plan shall include the following:] A <i>mitigation strategy</i> that provides the jurisdiction’s blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs, and resources, and its ability to expand on and improve these existing tools. §201.6(c)(3)(i): [The hazard mitigation strategy shall include a] description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards. §201.6(c)(3)(ii): [The mitigation strategy shall include a] section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure. §201.6(c)(3)(iii): [The hazard mitigation strategy shall include an] action plan, describing how the action identified in paragraph (c)(3)(ii) of this section will be prioritized, implemented, and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs. §201.6(c)(3)(iv): [For multi-jurisdictional plans, there must be identifiable action items specific to the jurisdiction requesting FEMA approval or credit of the plan. Requirement §201.6(c)(4): [The plan shall include a] process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvements, when appropriate.</p>
1. REGULATION CHECKLIST
ELEMENT C. Mitigation Strategy
C1. Does the plan document each jurisdiction’s existing authorities, policies, programs and resources and its ability to expand on and improve these existing policies and programs?
C2. Does the Plan address each jurisdiction’s participation in the NFIP and continued compliance with NFIP requirements, as appropriate? <i>(Addressed in Section 6.4)</i>
C3. Does the Plan include goals to reduce/avoid long-term vulnerabilities to the identified hazards?



DMA 2000 Requirements
C4. Does the Plan 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?
C5. Does the Plan contain an action plan that describes how the actions identified will be prioritized (including cost benefit review), implemented, and administered by each jurisdiction?
C6. Does the Plan 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, when appropriate?
<i>Source: FEMA, March 2015.</i>

7.2 ANIAK'S CAPABILITY ASSESSMENT

The Community's capability assessment reviews the technical and fiscal resources available to the community. DMA 2000 and its implementing regulations for technical and fiscal resources available to the community for HMP project implantation and management:

DMA 2000 Requirements
Incorporation into Existing Planning Mechanisms §201.6(c)(3): [The plan shall include the following:] A <i>mitigation strategy</i> that provides the jurisdiction's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs, and resources, and its ability to expand on and improve these existing tools.
1. REGULATION CHECKLIST
ELEMENT C. Incorporate into Other Planning Mechanisms
C1. Does the plan document each jurisdiction's existing authorities, policies, programs and resources and its ability to expand on and improve these existing policies and programs?
C6. Does the Plan 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, when appropriate?
<i>Source: FEMA, March 2015.</i>

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Tables 7-1, 7-2, and 7-3 delineate the City of Aniak's regulatory tools, technical specialists, financial and training resource available for project management. The Tribe does not have regulatory authority in Aniak. However, they may advise and assist the local City Government. Appendix A provides a detailed list of potential funding resources.

Table 7-1 City of Aniak Regulatory Tools

Regulatory Tools (Ordinances, Codes, Plans)	Existing Yes/No?	Comments (Year Of Most Recent Update; Problems Administering It, Etc.)
Comprehensive Plan	Yes	Explains the City's land use initiatives and natural hazard impacts.
Land Use Plan	Yes	Explains the City's land use goals and initiatives.
Tribal Land Use Plan	Yes	Describes the Tribal Council development goals and initiatives for their lands.
Emergency Response Plan	Yes	Emergency Operation Plan, 2010
Wildland Fire Protection Plan	No	
Building code	Yes	The City can exercise this authority.
Zoning ordinances	No	The City can exercise this authority.

Table 7-1 City of Aniak Regulatory Tools

Regulatory Tools (Ordinances, Codes, Plans)	Existing Yes/No?	Comments (Year Of Most Recent Update; Problems Administering It, Etc.)
Subdivision ordinances or regulations	Yes	The City can exercise this authority.
Special purpose ordinances	No	The City can exercise this authority.

Local Resources

The Community has a number of planning and land management tools that will allow it to implement hazard mitigation activities. The resources available in these areas have been assessed by the hazard mitigation Planning Team, and are summarized below.

Table 7-2 Technical Specialists for Hazard Mitigation

Staff/Personnel Resources	Yes / No	Department/Agency And Position
Development and land management practices	Yes	Community Development Planner
Planner or engineer with an understanding of natural and/or human-caused hazards.	Yes	Community Development Planner
Floodplain Manager	Yes	Community Development Planner
Surveyors	Yes	The City hires consultants when they need a surveyor.
Staff with education or expertise to assess the jurisdiction's vulnerability to hazards.	Yes	Community Development Planner
Personnel skilled in Geospatial Information System (GIS) and/or Hazards Us-Multi Hazard (Hazes-MH) software	Yes	Community Development Planner
Scientists familiar with the hazards of the jurisdiction	No	The City works with BLM, ADNR (Alaska Fire Service/AICC), USFWS, ADFG, ADOT&PF
Emergency Manager	Yes	Community Development Planner
Finance (Grant writers)	Yes	Community Development Planner and community representatives
Public Information Officer	Yes	The City Mayor and Tribal President

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Table 7-3 City of Aniak Financial Resources

Financial Resource	Accessible Or Eligible To Use For Mitigation Activities
General funds - City and Tribe	Can exercise this authority with voter approval
Payment in Lieu of Taxes (PILT) - City	Provides operating support funding
Municipal Energy Assistance Program (MEAP)	Provides operating support funding
Community Development Block Grants (CDBG)	Available for both the City and Tribe
Capital Improvement Project Funding	City may exercise this authority with voter approval
Authority to levy taxes for specific purposes	City may exercise this authority with voter approval
Incur debt through general obligation bonds	City may exercise this authority with voter approval
Incur debt through special tax and revenue bonds	City may exercise this authority with voter approval
Incur debt through private activity bonds	City may exercise this authority with voter approval
Hazard Mitigation Grant Program (HMGP)	FEMA funding which is available to cities & tribes after a Presidentially-declared disaster. It can be used

Table 7-3 City of Aniak Financial Resources

Financial Resource	Accessible Or Eligible To Use For Mitigation Activities
	to fund both pre- and post-disaster mitigation plans and projects.
Pre-Disaster Mitigation (PDM) grant program	FEMA funding which available on an annual basis. This grant can only be used to fund pre-disaster mitigation plans and projects only for cities and tribes
Flood Mitigation Assistance (FMA) grant program	FEMA funding which is available on an annual basis. This grant can be used to mitigate repetitively flooded structures and infrastructure to protect repetitive flood structures.
United State Fire Administration (USFA) Grants	The purpose of these grants is to assist state, regional, national or local organizations to address fire prevention and safety. The primary goal is to reach high-risk target groups including children, seniors and firefighters.

The Planning Team developed their mitigation goals and potential mitigation actions to address identified potential hazard impacts (refer to Section 5.3) for the Aniak area.

7.3 DEVELOPING MITIGATION GOALS

DMA 2000 stipulated and implementing regulations for developing hazard mitigation goals:

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DMA 2000 Requirements
Local Hazard Mitigation Goals §201.6(c)(3)(i): The hazard mitigation strategy shall include a description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.
1. REGULATION CHECKLIST
ELEMENT C. Mitigation Goals
C3. Does the Plan include goals to reduce/avoid long-term vulnerabilities to the identified hazards?
<i>Source: FEMA, March 2015.</i>

The exposure analysis results were used as a basis for developing the mitigation goals and actions (Table 7-4). Mitigation goals are defined as general guidelines that describe what a community wants to achieve in terms of hazard and loss prevention. Goal statements are typically long-range, policy-oriented statements representing community-wide visions. As such, seven goals were developed to reduce or avoid identified long-term hazard vulnerabilities.

Table 7-4 Mitigation Goals

No.	Goal Description
Multi-Hazards (MH)	
MH 1	Provide outreach activities to educate and promote recognizing and mitigating all natural and manmade hazards that affect the City of Aniak (City) and/or Aniak Traditional Council□
MH 2	Cross-reference mitigation goals and actions with other City and Tribal planning mechanisms and projects.
MH 3	Develop construction activities that reduce possibility of losses from all natural and manmade

Table 7-4 Mitigation Goals

No.	Goal Description
	hazards that affect the City and Tribe.
Natural Hazards	
EQ 4	Reduce structural vulnerability to earthquake (EQ) damage.
FL 5	Reduce flood (FL) and erosive scour damage and loss possibility.
SW 6	Reduce structural vulnerability to severe weather (SW) damage.
WF 7	Reduce structural vulnerability to tundra/wildland fire (WF) damage.

7.4 IDENTIFYING MITIGATION ACTIONS

DMA 2000 requirements and implementing regulations for identifying and analyzing mitigation actions:

DMA 2000 Requirements
Identification and Analysis of Mitigation Actions
§201.6(c)(3)(ii): [The mitigation strategy shall include a] section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure.
1. REGULATION CHECKLIST
ELEMENT C. Mitigation Actions
C4. Does the Plan 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?
<i>Source: FEMA, March 2015.</i>

After developing mitigation goals, the Planning Team reviewed a comprehensive list of potential mitigation actions that were identified during this HMP development process for each hazard type including.

The Planning Team assessed the potential mitigation actions to carry forward into the mitigation strategy. Mitigation actions are activities, measures, or projects that help achieve the goals of a mitigation plan. Mitigation actions are usually grouped into three broad categories: property protection, public education and awareness, and structural projects.

During the planning process January 2014 through June 2015 the Planning Team selected City natural hazard, mitigation actions for potential Mitigation Action Plan (MAP) implementation during the five-year life cycle of this HMP.

Table 7-5 breaks out the project criteria as deferred/ongoing, delated, considered, selected, reworded, or combined with other actions to best reflect community needs. The Planning Team considered projects from a comprehensive list for each hazard type. They identified numerous legacy HMP “deferred/ongoing” mitigation actions currently in process as well as others that were listed in other City or tribal planning documents.

Table 7-5 Mitigation Plan and Potential Actions

(Blue texts are 2005 Legacy Plan actions)

Goals		Status		Actions
NO.	DESCRIPTION	Status: Considered, Selected Brought Forward Complete, Deferred, Deleted, or Ongoing	Explain Status	Description
MH 1	Provide outreach activities to educate and promote recognizing and mitigation all natural and manmade hazards that affect the City.	Newly selected project		Identify and pursue funding opportunities to implement mitigation actions.
		Newly selected project		Enhance public awareness of potential risk to life and personal property from all natural hazard events (EQ, Flood, Severe Weather, Tundra Fire)
		Newly selected project		Encourage individuals to apply mitigation measures in their properties immediate vicinity.
		<i>Ongoing / Deferred</i>	<i>Awaiting funding</i>	<i>Research and consider instituting the National Weather Service program of "Storm Ready".</i>
		<i>Ongoing / Deferred</i>	<i>Awaiting funding</i>	<i>Conduct special outreach/awareness activities, such as Winter Weather Awareness Week, Flood Awareness Week, etc.</i>
		<i>Ongoing / Deferred</i>	<i>Awaiting funding</i>	<i>Expand public awareness about NOAA Weather Radio for continuous weather broadcasts and warning tone alert capability.</i>
MH 2	Cross reference Mitigation goals and actions with other City and Traditional Council planning mechanisms and projects.	Newly selected project		Add Mitigation Goals and Actions into other City documents such as Comprehensive Plan.
		<i>Ongoing / Deferred</i>	<i>Waiting for Community Support</i>	<i>Encourage development of or revision to building codes and requirements.</i>
MH 3	Develop construction activities that reduce possibility of losses from all natural and manmade hazards that affect the City.	<i>Ongoing / Deferred</i>	<i>Reworded to reflect all hazards & move to MH1 Awaiting funding</i>	<i>Educate the public in construction techniques to mitigate hazard damage.</i>
		<i>Ongoing / Deferred</i>	<i>Reworded to reflect all hazards Awaiting funding</i>	<i>Pursue mitigation actions such infrastructure repair, elevation or relocation of critical facilities as funding become available.</i>
		<i>Ongoing / Deferred</i>	<i>Reworded to reflect all hazards Awaiting funding</i>	<i>Encourage weather resistant building construction materials and practices.</i>
EQ 4	Reduce vulnerability, damage, or loss of	<i>Ongoing / Deferred</i>	<i>Awaiting funding</i>	<i>If funding is available, perform an engineering assessment of the earthquake vulnerability of each identified critical infrastructure owned by the City</i>

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Table 7-5 Mitigation Plan and Potential Actions

(Blue texts are 2005 Legacy Plan actions)

Goals		Status		Actions
NO.	DESCRIPTION	Status: Considered, Selected Brought Forward Complete, Deferred, Deleted, or Ongoing	Explain Status	Description
	structures from earthquake damage			<i>of Aniak.</i>
		Newly selected project		Inspect, prioritize, and retrofit any critical facility or public infrastructure that does not meet current State Adopted Building Codes.
		Newly selected project		Install non-structural seismic restraints for large furniture such as bookcases, filing cabinets, heavy televisions, and appliances to prevent toppling damage and resultant injuries to small children, elderly, and pets.
FL 5	Reduce vulnerability, damage, or loss of structures from flooding and erosion.	Newly selected project		Ensure that community development occurs through the permitting process mandated by the NFIP. Ensure that new infrastructure is properly permitted before construction begins.
		Newly selected project		Work with SOA NFIP coordinator to improve and further develop flood hazard mitigation strategies and capabilities.
		Newly selected project		Ensure that all personnel are adequately trained in NFIP procedure and regulations. Coordinate training with State NFIP coordinator.
		<i>Ongoing / Deferred</i>	<i>Awaiting Funding</i>	<i>Obtain Approval of new Flood Insurance Rate Maps (FIRM)</i>
		<i>Ongoing / Deferred</i>	<i>Awaiting Funding</i>	<i>Work with property owners that have repetitive loss damages to mitigate future flooding.</i>
		<i>Delete</i>	<i>Combined with FIRM</i>	<i>Map Aniak</i>
		<i>Delete</i>	<i>Combined with MH 3</i>	<i>Perform dike/levee improvements</i>
		<i>Delete</i>	<i>Combined with MH 3</i>	<i>Critical Facilities – KAE list a. Power Plant – Elevated b. Power Plant – Relocate c. Aniak Community Hall d. Fuel Farm e. Elementary School f. Teen Center g. Landfill and Access Road</i>
		<i>Delete</i>	<i>Administrative Action</i>	<i>Restrict Vehicle Access on the Dike to Mitigate Erosion</i>
		<i>Delete</i>	<i>Combined with MH 1</i>	<i>Public Education</i>
<i>Delete</i>	<i>Combined with MH 3</i>	<i>Airport Improvements, Sewer and Water Projects, Helicopter Pad Improvements</i>		

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Table 7-5 Mitigation Plan and Potential Actions

(Blue texts are 2005 Legacy Plan actions)

Goals		Status		Actions
NO.	DESCRIPTION	Status: Considered, Selected Brought Forward Complete, Deferred, Deleted, or Ongoing	Explain Status	Description
SW 6	Reduce structural vulnerability to severe weather (SW) damage.	<i>Newly select project</i>		Install a siren to warn people of a severe weather or disaster event.
		<i>Ongoing / Deferred</i>	<i>Awaiting funding</i>	<i>Installation of automated weather sensors. Automated weather sensors are the chief method by which the National Weather Service detects the occurrence of incoming severe weather.</i>
WF 7	Reduce structural vulnerability to tundra/wildland fire (WF) damage	<i>Ongoing / Deferred</i>	<i>Awaiting Funding</i>	<i>Encourage mitigation measures in the immediate vicinity of their property such as firebreaks, which greatly assist in controlling wildland fires. They can be developed in the form of roads and natural water channels. The firebreaks would also provide transportation corridors.</i>
		<i>Deleted</i>	<i>Combined with action above</i>	<i>Remove fuels/build firebreaks</i>
		<i>Deleted</i>	<i>Combined with MH 1</i>	<i>Enhance public awareness of potential risk to life and personal property</i>
		<i>Deleted</i>	<i>Combined with MH 1</i>	<i>Continue to work with residents to become more fire ready and better prepared for fire and potential evacuation.</i>

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7.5 EVALUATING AND PRIORITIZING MITIGATION ACTIONS

DMA 2000 stipulated and implementing regulations for evaluating and implementing mitigation actions:

DMA 2000 Requirements: Mitigation Strategy - Implementation of Mitigation Actions
Implementation of Mitigation Actions
§201.6(c)(3)(iii): [The hazard mitigation strategy shall include an] action plan, describing how the action identified in paragraph (c)(3)(ii) of this section will be prioritized, implemented, and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.
1. REGULATION CHECKLIST
ELEMENT C. MITIGATION STRATEGY
C5. Does the Plan contain an action plan that describes how the actions identified will be prioritized (including cost benefit review), implemented, and administered by each jurisdiction? (Requirement §201.6(c)(3)(iv)); (Requirement §201.6(c)(3)(iii))
Source: FEMA, March 2015.

The Planning Team evaluated and prioritized each of the 2005 legacy HMP’s mitigation actions to determine each actions’ current status and whether they would be included in the Mitigation Action Plan (MAP). The MAP represents mitigation projects and programs to be implemented through the cooperation of multiple managing entities. To complete this task, the Planning Team first prioritized the hazards that were regarded as the most significant within the community (earthquake, flood, severe weather, and tundra/wildland fire).

The Planning Team reviewed the simplified social, technical, administrative, political, legal, economic, and environmental (STAPLEE) evaluation criteria (Table 7-6) and the Benefit-Cost Analysis Fact Sheet (Appendix G) to consider the opportunities and constraints of implementing each particular mitigation action. For each action considered for implementation, a qualitative statement is provided regarding the benefits and costs and, where available, the technical feasibility. A detailed cost-benefit analysis is anticipated as part of the application process for those projects the Planning Team chooses to implement.

Table 7-6 Evaluation Criteria for Mitigation Actions

Evaluation Category	Discussion “It is important to consider...”	Considerations
<u>S</u> ocial	The public support for the overall mitigation strategy and specific mitigation actions.	Community acceptance Adversely affects population
<u>T</u> echnical	If the mitigation action is technically feasible and if it is the whole or partial solution.	Technical feasibility Long-term solutions Secondary impacts
<u>A</u> ministrative	If the community has the personnel and administrative capabilities necessary to implement the action or whether outside help will be necessary.	Staffing Funding allocation Maintenance/operations
<u>P</u> olitical	What the community and its members feel about issues related to the environment, economic development, safety, and emergency management.	Political support Local champion Public support
<u>L</u> egal	Whether the community has the legal authority to implement the action, or whether the community must pass new regulations.	Local, State, and Federal authority Potential legal challenge
<u>E</u> conomic	If the action can be funded with current or future internal and external sources, if the costs seem reasonable for the size of the project, and if enough information is available to complete a Federal Emergency Management Agency (FEMA) Benefit-Cost Analysis.	Benefit/cost of action Contributes to other economic goals Outside funding required FEMA Benefit-Cost Analysis
<u>E</u> nvironmental	The impact on the environment because of public desire for a sustainable and environmentally healthy community.	Effect on local flora and fauna Consistent with community environmental goals Consistent with local, state, and Federal laws

The hazard mitigation Planning Team considered each hazard’s history, extent, and probability to determine each potential actions priority. A rating system based on high, medium, or low was used.

- High priorities are associated with actions for hazards that impact the community on an annual or near annual basis and generate impacts to critical facilities and/or people.
- Medium priorities are associated with actions for hazards that impact the community less frequently, and do not typically generate impacts to critical facilities and/or people.
- Low priorities are associated with actions for hazards that rarely impact the community and have rarely generated documented impacts to critical facilities and/or people.

Prioritizing the mitigation actions within the MAP matrix (Table 7-8) was completed to provide the City with an implementation approach.

7.6 MITIGATION ACTION PLAN

The City of Aniak has a flat management structure. Like most rural-remote Alaskan communities there is limited budget; therefore no funding is available for developing and maintaining departmental or other infrastructure responsibilities. The City and Traditional Councils’ are managed by their mayoral led City Council or tribal elected official respectively. This process enables the each jurisdiction to maximize governance capacity, coordinate project prioritization, and closely monitor their limited budget constraints.

Table 7-7 delineates the acronyms used in the MAP (Table 7-8).

Note: See Appendix A for summarized agency funding source descriptions.

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Table 7-7 Potential Funding Source Acronym List

(See complete funding resource description in Appendix A)

<p>City of Aniak (City Mayor’s Office) Aniak Tribal Council (Tribal Council Office) US Department of Homeland Security (DHS) <i>Citizens Corp Program (CCP)</i> <i>Emergency Operations Center (EOC)</i> <i>Homeland Security Grant Program (HSGP)</i> <i>Emergency Management Performance Grant (EMPG)</i> <i>State Homeland Security Program (SHSP)</i> Federal Management Agency (FEMA)/ <i>Hazard Mitigation Assistance Grant Programs (HMA)</i> <i>Emergency Management Program Grant (EMPG)</i> <i>Debris Management Grant (DM)</i> <i>Flood Mitigation Assistance Grants (FMA)</i> <i>National Earthquake Hazards Reduction Program (NEHRP)</i> <i>National Dam Safety Program (NDS)</i> US Department of Commerce (DOC)/ <i>Remote Community Alert Systems Program (RCASP)</i> National Oceanic and Atmospheric Administration (NOAA) <i>Economic Development Administration (EDP)</i> <i>Public Works and Development Facilities Program (PWDFP)</i> US Environmental Protection Agency (EPA)/ <i>Indian Environmental General Assistance Program (IGAP)</i></p>

<p>US Department of Agriculture (USDA)/ <i>USDA, Farm Service Agency</i> <i>Emergency Conservation Program (ECF)</i> <i>Rural Development (RD)</i></p> <p>USDA, Natural Resources Conservation Service (NRCS) <i>Conservation Technical Assistance Program (CTA)</i> <i>Conservation Innovation Grants (CIG)</i> <i>Environmental Quality Incentives Program (EQIP)</i> <i>Emergency Watershed Protection Program (EWPP)</i> <i>Watershed Planning (WSP)</i></p> <p>US Geological Survey (USGS) <i>Alaska Volcano Observatory (AVO)</i></p> <p>Assistance to Native Americans (ANA) <i>Native American Housing Assistance and Self Determination Act (NAHASDA)</i></p> <p>US Army Corp of Engineers (USACE)/ <i>Planning Assistance Program (PAP)</i> <i>Capital Projects: Erosion, Flood, Ports & Harbors</i></p> <p>Alaska Department of Military and Veterans Affairs (DMVA), Division of Homeland Security and Emergency Management (DHS&EM) <i>Mitigation Section (for PDM & HMGP projects and plan development)</i> <i>Preparedness Section (for community planning)</i> <i>State Emergency Operations Center (SEOC for emergency response)</i></p> <p>Alaska Department of Community, Commerce, and Economic Development (DCCED) <i>Division of Community and Regional Affairs (DCRA)/</i> <i>Community Development Block Grant (CDBG)</i> <i>Alaska Climate Change Impact Mitigation Program (ACCIMP)</i> <i>Flood Mitigation Assistance Grants (FMA)</i></p> <p>Alaska Department of Transportation <i>State road repair funding</i></p> <p>Alaska Energy Authority (AEA) <i>AEA/Bulk Fuel (ABF)</i> <i>AEA/Alternative Energy and Energy Efficiency (AEEE)</i></p> <p>Alaska Department of Environmental Conservation (DEC)/ <i>Village Safe Water (VSW)</i> <i>DEC/Alaska Drinking Water Fund (ADWF)</i> <i>DEC/Alaska Clean Water Fund [ACWF]</i> <i>DEC/Clean Water State Revolving Fund (CWSRF)</i></p> <p>Alaska Division of Forestry (DOF)/ <i>Volunteer Fire Assistance and Rural Fire Assistance Grant (VFAG/RFAG)</i> <i>Assistance to Firefighters Grant (AFG)</i> <i>Fire Prevention and Safety (FP&S)</i> <i>Staffing for Adequate Fire and Emergency Response Grants (SAFER)</i> <i>Emergency Food and Shelter (EF&S)</i></p> <p>Denali Commission (Denali) <i>Energy Program (EP)</i> <i>Solid Waste Program (SWP)</i></p> <p>Lindbergh Foundation Grant Programs (LFGP) Rasmuson Foundation Grants (RFG)</p>

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The City’s MAP, Table 7-8, depicts how each mitigation action will be implemented and administered by the Planning Team. The MAP delineates each selected mitigation action, its priorities, the responsible entity, the anticipated implementation timeline, and provides a brief explanation as to how the overall benefit/costs and technical feasibility were taken into consideration.

Table 7-8 Aniak Mitigation Action Plan

Goal/ Action Id	Description	Priority (High, Medium, Low)	Responsible Department	Potential Funding Source(s)	Timeframe (1-3 Years 2-4 Years 3-5 Years)	Benefit-Costs (B/C) / Technical Feasibility (T/F)
MH 1.1	Identify and pursue funding opportunities to implement mitigation actions.	High	Aniak City Manager Aniak Traditional Council (The Native Council is included as a viable responsible entity in order to obtain Administration for Native Americans (ANA) funding, the Tribe would need to be the applicant for those projects)	City, Tribe, (See Appendix A)	Ongoing	B/C: City and Village life requires this as an ongoing activity; it is essential for rural communities as there are limited funds available to accomplish effective mitigation actions. TF: This activity is ongoing demonstrating its feasibility.
MH 1.2	Enhance public awareness of potential risk to life and personal property from all natural hazard events (EQ, Flood, Severe Weather, Tundra Fire)	Medium	City Manager Tribal Council	City, Tribe DCRA, DHS&EM	0 – 5 years	B/C: Sustained mitigation outreach program has minimal cost and will help build and support area-wide capacity. This type activity enables the public to prepare for, respond to, and recover from disasters. TF: This low cost activity can be combined with recurring community meetings where hazard specific information can be presented in small increments. This activity is ongoing demonstrating its feasibility.
MH 1.3	Encourage individuals to apply mitigation measures in their properties immediate vicinity.	High	City Manager Tribal Council	City Tribe	1-3 years	B/C: This project will ensure the community looks closely at their hazard areas to ensure they can safely evacuate their residents and visitors to safety during a natural hazard event. TF: This is technically feasible using existing City and tribal resources.
MH 1.4	<i>Research and consider instituting the National Weather Service program of “Storm Ready”.</i>	<i>High</i>	<i>City Manager Tribal President</i>	<i>City Tribe</i>	<i>Ongoing</i>	<i>B/C: Sustained emergency response planning, notification, and mitigation outreach programs have minimal cost and will help build and support community capacity enabling the public to prepare for, respond to, and recover from disasters. TF: This project is technically feasible using existing City staff</i>
MH 1.5	<i>Conduct special outreach/awareness activities, such as Winter Weather</i>	<i>High</i>	<i>City Manager Tribal Council</i>	<i>City, Tribe DCRA, DHS&EM</i>	<i>Ongoing</i>	<i>B/C: Sustained mitigation outreach programs combined with ordinance development, implementation, and</i>

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Table 7-8 Aniak Mitigation Action Plan

Goal/ Action Id	Description	Priority (High, Medium, Low)	Responsible Department	Potential Funding Source(s)	Timeframe (1-3 Years 2-4 Years 3-5 Years)	Benefit-Costs (B/C) / Technical Feasibility (T/F)
	<i>Awareness Week, Flood Awareness Week, etc.</i>					<i>enforcement can effectively reduce future losses to hazardous events. TF: This project is technically feasible and enforceable.</i>
MH 1.6	<i>Expand public awareness about NOAA Weather Radio for continuous weather broadcasts and warning tone alert capability.</i>	<i>High</i>	<i>City Manager Tribal Council</i>	<i>City, Tribe DCRA, DHS&EM</i>	<i>Ongoing</i>	<i>B/C: Sustained emergency response planning, notification, and mitigation outreach programs have minimal cost and will help build and support community capacity enabling the public to prepare for, respond to, and recover from disasters. TF: This project is technically feasible using existing City staff</i>
MH 1.7	<i>Educate the public in construction techniques to mitigate hazard damage.</i>	<i>Medium</i>	<i>City Manager Tribal Council</i>	<i>City, Tribe FEMA HMA programs, AFG, FP&S, and SAFER</i>	<i>Ongoing</i>	<i>B/C: Sustained mitigation outreach programs have minimal cost and will help build and support area-wide capacity. This type activity enables the public to prepare for, respond to, and recover from disasters. T/F: This low cost activity can be combined with recurring community meetings where hazard specific information can be presented in small increments. This activity is ongoing demonstrating its feasibility.</i>
MH 2.1	<i>Add Mitigation Goals and Actions into other Community documents such as Comprehensive Plan.</i>	<i>Medium</i>	<i>City Manager Tribal President</i>	<i>City, Tribe, Denali Commission, Division of Community and Regional Affairs (DCRA)</i>	<i>1-3 years</i>	<i>B/C: Coordinated planning ensures effective damage abatement and ensures proper attention is assigned to reduce losses and damage to structures and residents. TF: This is feasible to accomplish as cost can be associated with plan reviews and updates. The action relies on staff and review committee availability and willingness to serve their community.</i>
MH 2.2	<i>Encourage development of or revision to building codes and requirements.</i>	<i>Medium</i>	<i>City Manager Tribal Council</i>	<i>City, Tribe FEMA HMA programs, AFG, FP&S, and SAFER</i>	<i>Ongoing</i>	<i>B/C: Coordinated planning ensures effective damage abatement and ensures proper attention is assigned to reduce losses and damage to structures and City residents. TF: This is feasible to accomplish as no cost is associated with the action and</i>

Table 7-8 Aniak Mitigation Action Plan

Goal/ Action Id	Description	Priority (High, Medium, Low)	Responsible Department	Potential Funding Source(s)	Timeframe (1-3 Years 2-4 Years 3-5 Years)	Benefit-Costs (B/C) / Technical Feasibility (T/F)
						<i>only relies on member availability and willingness to serve their community.</i>
MH 3.2	<i>Pursue mitigation actions such as infrastructure repair, elevation or relocation of critical facilities as funding becomes available.</i>	<i>Medium</i>	<i>City Manager Tribal President</i>	<i>City, Tribe FEMA HMA programs, AFG, FP&S, and SAFER</i>	<i>Ongoing</i>	<i>B/C: This project would protect and/or remove threatened structures from hazard areas, eliminating future damage while keeping land clear for perpetuity. TF: This project is feasible using existing staff skills, equipment, and materials. Acquiring contractor expertise may be required for large facilities.</i>
MH 3.3	<i>Encourage weather resistant building construction materials and practices.</i>	<i>Medium</i>	<i>City Manager Tribal Council</i>	<i>City, Tribe FEMA HMA programs, AFG, FP&S, and SAFER</i>	<i>Ongoing</i>	<i>B/C: This project would ensure threatened infrastructures are available for use – their loss would exacerbate potential damages and further threaten survivability. T/F: This project is feasible using existing staff skills, equipment, and materials.</i>
EQ 4.1	<i>Perform an engineering assessment of the earthquake vulnerability of each identified critical infrastructure owned by the City of Aniak.</i>	<i>High</i>	<i>City Manager or Public Works Director as applicable</i>	<i>City, HMA, NRCS, ANA, USACE, US USDA, Lindbergh</i>	<i>Ongoing</i>	<i>B/C: This project would ensure threatened infrastructures are available for use – their loss would exacerbate potential damages and further threaten survivability. T/F: This project is feasible using existing staff skills, equipment, and materials.</i>
EQ 4.2	<i>Inspect, prioritize, and retrofit any critical facility or public infrastructure that does not meet current State Adopted Building Codes.</i>	<i>Medium</i>	<i>City Manager or Public Works Director as applicable</i>	<i>City, HMA, NRCS, ANA, USACE, US USDA, Lindbergh</i>	<i>1-3 years</i>	<i>B/C: Retrofit projects can be very cost effective methods for bush communities as materials and shipping costs are very high. Project viability is depending on the cost and extent of the modifications. A comprehensive BCA needs to be conducted to validate this activity. TF: The City will need phase funding to obtain engineering and design expertise to determine project viability.</i>
EQ 4.3	<i>Install non-structural seismic restraints for large furniture such as bookcases, filing cabinets, heavy</i>	<i>High</i>	<i>City Public Works Director Tribal Council</i>	<i>City, HMA, NRCS, ANA, USACE, tribe USDA, Lindbergh</i>	<i>1-3 years</i>	<i>B/C: Non-structural mitigation projects have minimal cost and will help the community reduce recurring earthquake impact damages from future</i>

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Table 7-8 Aniak Mitigation Action Plan

Goal/ Action Id	Description	Priority (High, Medium, Low)	Responsible Department	Potential Funding Source(s)	Timeframe (1-3 Years 2-4 Years 3-5 Years)	Benefit-Costs (B/C) / Technical Feasibility (T/F)
	televisions, and appliances to prevent toppling damage and resultant injuries to small children, elderly, and pets.					events. TF: This project is technically feasible using existing Tribal Council staff.
FL 5.1	Ensure that community development occurs through the permitting process mandated by the NFIP. Ensure that new infrastructure is properly permitted before construction begins.	Medium	City Manager & Council	City, FEMA	2-4 years	B/C: Flood hazard mitigation is among FEMA's highest national priorities. Proactive mitigation activities have a high/cost benefit ratio and result in less costly construction before a problem develops. T/F: The CITY has the skill to implement this action.
FL 5.2	Work with State NFIP Coordinator to improve and further develop flood hazard mitigation strategies and capabilities.	Medium	City Manager Tribal President	City, Tribe FEMA	2-4 years	B/C: Flood hazard mitigation is among FEMA's highest national priorities. Proactive mitigation activities have a high/cost benefit ratio and result in less costly construction before a problem develops. T/F: The CITY has the skill to implement this action.
FL 5.3	Ensure that all personnel are adequately trained in NFIP procedure and regulations. Coordinate training with State NFIP coordinator.	Medium	City Manager Tribal President	City, Tribe FEMA	2-4 years	B/C: Sustained mitigation outreach programs have minimal cost and will help build and support area-wide capacity. This type activity enables the public to prepare for, respond to, and recover from disasters. TF: This low cost activity can be combined with recurring community meetings where hazard specific information can be presented in small increments. This activity is ongoing demonstrating its feasibility.
FL 5.4	<i>Obtain Approval of new Flood Insurance Rate Maps (FIRM)</i>	<i>Medium</i>	<i>City Manager & Council</i>	<i>City, FEMA</i>	<i>Ongoing</i>	<i>B/C: Identifying threatened infrastructure proximity to natural hazards is vital to their sustainability. There are currently few mapped hazard areas. This is a vital first step. This knowledge will help the community focus on activities to protect their vital infrastructure. TF: The project is technically feasible as the community has considerable knowledge about</i>

Table 7-8 Aniak Mitigation Action Plan

Goal/ Action Id	Description	Priority (High, Medium, Low)	Responsible Department	Potential Funding Source(s)	Timeframe (1-3 Years 2-4 Years 3-5 Years)	Benefit-Costs (B/C) / Technical Feasibility (T/F)
						<i>their resources and historical impact areas.</i>
FL 5.5	<i>Work with property owners that have repetitive loss damages to mitigate future flooding.</i>	<i>High</i>	<i>City Manager</i>	<i>City, FEMA</i>	<i>Ongoing</i>	<i>B/C: Flood hazard mitigation is among FEMA's highest national priorities. FEMA desires communities focus on repetitive flood loss properties. This activity will ensure the City and Tribal Councils focus on priority flood locations and projects. TF: Low to no cost makes this outreach activity very feasible.</i>
SW 6.1	Install a siren to warn people of a severe weather or disaster event.	Medium	City Manager, Traditional Council, or Public Works Director as applicable	City, Tribe FEMA	2-4 years	B/C: This project would potentially provide early weather and flood threat warning, enabling responders to mitigate potential damages. It will also enable the community to ensure they can safely evacuate their residents and visitors to safety during a natural hazard event. TF: This is technically feasible using existing city and tribal resources.
SW 6.2	<i>Installation of automated weather sensors. Automated weather sensors are the chief method by which the National Weather Service detects the occurrence of incoming severe weather.</i>	<i>Medium</i>	<i>City Manager Tribal President</i>	<i>City, Tribe HMA, ANA FEMA</i>	<i>Ongoing</i>	<i>B/C: This project would potentially provide early weather and flood threat warning, enabling responders to mitigate potential damages. TF: This project is feasible using existing staff skills, equipment, and materials.</i>
WF 7.1	<i>Encourage mitigation measures in the immediate vicinity of their property such as firebreaks, which greatly assist in controlling wildland fires. They can be developed in the form of roads and natural water channels. The firebreaks would also provide transportation corridors.</i>	<i>High</i>	<i>City Manager & Council Tribal Council</i>	<i>City Tribe</i>	<i>Ongoing</i>	<i>B/C: Scheduling maintenance and implementing mitigation activities will potentially reduce severe winter storm damages caused by heavy snow loads, wind, and freezing rain. TF: This type activity is technically feasible within the community typically using existing labor, equipment, and materials. Specialized methods are not new to rural communities as they are used to importing required contractors.</i>

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7.7 IMPLEMENTING MITIGATION STRATEGY INTO EXISTING PLANNING MECHANISMS

DMA 2000 and its implementing regulations for implementing the HMP into existing planning mechanisms:

DMA 2000 Requirements
Incorporation into Existing Planning Mechanisms
§201.6(c)(4)(ii): [The plan shall include a] process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvement plans, when appropriate.
1. REGULATION CHECKLIST
ELEMENT C. Incorporate into Other Planning Mechanisms
C6. Does the Plan 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, when appropriate?
<i>Source: FEMA, March 2015.</i>

After the adoption of the HMP, each Planning Team Member will ensure that the HMP, in particular each Mitigation Action Project, is incorporated into existing planning mechanisms. Each member of the Planning Team will achieve this incorporation by undertaking the following activities.

- Review the community-specific regulatory tools to determine where to integrate the mitigation philosophy and implementable initiatives. These regulatory tools are identified in Section 7.1 capability assessment.
- Work with pertinent community departments to increase awareness for implementing HMP philosophies and identified initiatives. Provide assistance with integrating the mitigation strategy (including the Mitigation Action Plan) into relevant planning mechanisms (i.e. Comprehensive Plan, Capital Improvement Project List, Transportation Improvement Plan, etc.).
- Implementing this philosophy and activities may require updating or amending specific planning mechanisms.



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Section Eight provides a comprehensive reference list used to develop the HMP.

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Appendix A
Funding Resources

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Funding Resources

Federal Funding Resources

The Federal government requires local governments to have a HMP in place to be eligible for mitigation funding opportunities through FEMA such as the UHMA Programs and the HMGP. The Mitigation Technical Assistance Programs available to local governments are also a valuable resource. FEMA may also provide temporary housing assistance through rental assistance, mobile homes, furniture rental, mortgage assistance, and emergency home repairs. The Disaster Preparedness Improvement Grant also promotes educational opportunities with respect to hazard awareness and mitigation.

- FEMA, through its Emergency Management Institute, offers training in many aspects of emergency management, including hazard mitigation. FEMA has also developed a large number of documents that address implementing hazard mitigation at the local level. Five key resource documents are available from FEMA Publication Warehouse (1-800-480-2520) and are briefly described here:
 - How-to Guides. FEMA has developed a series of how-to guides to assist states, communities, and tribes in enhancing their hazard mitigation planning capabilities. The first four guides describe the four major phases of hazard mitigation planning. The last five how-to guides address special topics that arise in hazard mitigation planning such as conducting cost-benefit analysis and preparing multi-jurisdictional plans. The use of worksheets, checklists, and tables make these guides a practical source of guidance to address all stages of the hazard mitigation planning process. They also include special tips on meeting DMA 2000 requirements (<http://www.fema.gov/hazard-mitigation-planning-resources#1>).
 - Local Mitigation Planning Handbook, March 2013. This handbook explains the basic concepts of hazard mitigation and provides guidance to local governments on developing or updating hazard mitigation plans to meet the requirements of Title 44 Code of Federal Regulations (CFR) §201.6 for FEMA approval and eligibility to apply for FEMA Hazard Mitigation Assistance grant programs. (<http://www.fema.gov/library/viewRecord.do?id=7209>)
 - A Guide to Recovery Programs FEMA 229(4), September 2005. The programs described in this guide may all be of assistance during disaster incident recovery. Some are available only after a Presidential declaration of disaster, but others are available without a declaration. Please see the individual program descriptions for details. (<http://www.fema.gov/txt/rebuild/ltrc/recoveryprograms229.txt>)
 - The Emergency Management Guide for Business and Industry. FEMA 141, October 1993. This guide provides a step-by-step approach to emergency management planning, response, and recovery. It also details a planning process that businesses can follow to better prepare for a wide range of hazards and emergency events. This effort can enhance a business's ability to recover from financial losses, loss of market share, damages to equipment, and product or business interruptions. This guide could be of great assistance to a community's industries and businesses located in hazard prone areas. (<https://www.fema.gov/media-library/assets/documents/3412>)
 - The 2015 Hazard Mitigation Assistance (HMA) Guidance and Addendum, February 27 and March 3, 2015 respectively. Part I of the Hazard Mitigation Assistance (HMA)

Guidance introduces the three HMA programs, identifies roles and responsibilities, and outlines the organization of the document. This guidance applies to Hazard Mitigation Grant Program (HMGP) disasters declared on or after the date of publication unless indicated otherwise. This guidance is also applicable to the Pre-Disaster Mitigation (PDM) and Flood Mitigation Assistance (FMA) Programs; the application cycles are announced via <http://www.grants.gov/>. The guidance in this document is subject to change based on new laws or regulations enacted after publication.

- FEMA, <http://www.fema.gov> - includes links to information, resources, and grants that communities can use in planning and implementing community resilience and sustainability measures.
- FEMA also administers emergency management grants (<http://www.fema.gov/help/site.shtm>) and various firefighter grant programs (<http://www.firegrantsupport.com/>) such as
 - Emergency Management Performance Grant (EMPG). This is a pass through grant. The amount is determined by the State. The grant is intended to support critical assistance to sustain and enhance State and local emergency management capabilities at the State and local levels for all-hazard mitigation, preparedness, response, and recovery including coordination of inter-governmental (Federal, State, regional, local, and tribal) resources, joint operations, and mutual aid compacts state-to-state and nationwide. Sub-recipients must be compliant with National Incident Management System (NIMS) implementation as a condition for receiving funds. Requires 50% match. (<https://www.fema.gov/fiscal-year-2015-emergency-management-performance-grant-program>)
 - National Earthquake Hazards Reduction Program (NEHRP). The National Earthquake Hazards Reduction Program (NEHRP) seeks to mitigate earthquake losses in the United States through both basic and directed research and implementation activities in the fields of earthquake science and engineering. (<https://www.fema.gov/national-earthquake-hazards-reduction-program>)

The NEHRP is the Federal Government's coordinated approach to addressing earthquake risks. Congress established the program in 1977 (Public Law 95-124) as a long-term, nationwide program to reduce the risks to life and property in the United States resulting from earthquakes. The NEHRP is managed as a collaborative effort among FEMA, the National Institute of Standards and Technology, the National Science Foundation, the United States Geological Survey, and the Department of Interior.

The four goals of the NEHRP are to:

- Develop effective practices and policies for earthquake loss-reduction and accelerate their implementation.
- Improve techniques to reduce seismic vulnerability of facilities and systems.
- Improve seismic hazards identification and risk-assessment methods and their use.
- Improve the understanding of earthquakes and their effects.

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- NEHRPDHS information may be found at:
<http://www.fema.gov/plan/prevent/earthquake/nehrrp.shtm>, and
http://www.ehow.com/info_7968511_disaster-research-grant-funding.html
- Assistance to Fire Fighters Grant (AFG), Fire Prevention and Safety (FP&S), Staffing for Adequate Fire and Emergency Response Grants (SAFER), and Assistance to Firefighters Station Construction Grant programs. Information can be found at: (<http://forestry.alaska.gov/fire/vfa.htm>).
 - Department of Homeland Security (DHS) provides the following grants:
 - Homeland Security Grant Program (HSGP), State Homeland Security Program (SHSP) are 80% pass through grants. SHSP supports implementing the State Homeland Security Strategies to address identified planning, organization, equipment, training, and exercise needs for acts of terrorism and other catastrophic events. In addition, SHSP supports implementing the National Preparedness Guidelines, the NIMS, and the National Response Framework (NRF). Must ensure at least 25% of funds are dedicated towards law enforcement terrorism prevention-oriented activities. (<https://www.dhs.gov/homeland-security-grant-program-hsgp>)
 - Citizen Corps Program (CCP). The Citizen Corps mission is to bring community and government leaders together to coordinate involving community members in emergency preparedness, planning, mitigation, response, and recovery activities. (<http://www.dhs.gov/citizen-corps>)
 - Emergency Operations Center (EOC) Guidance. This program is intended to improve emergency management and preparedness capabilities by supporting flexible, sustainable, secure, strategically located, and fully interoperable Emergency Operations Centers (EOCs) with a focus on addressing identified deficiencies and needs. Fully capable emergency operations facilities at the State and local levels are an essential element of a comprehensive national emergency management system and are necessary to ensure continuity of operations and continuity of government in major disasters or emergencies caused by any hazard. Requires 25% match. (<https://www.fema.gov/media-library/assets/documents/20622>)
 - Emergency Alert System (EAS). Resilient public alert and warning tools are essential to save lives and protect property during times of national, state, regional, and local emergencies. The Emergency Alert System (EAS) is used by alerting authorities to send warnings via broadcast, cable, satellite, and wireline communications pathways. Emergency Alert System participants, which consist of broadcast, cable, satellite, and wireline providers, are the stewards of this important public service in close partnership with alerting officials at all levels of government. The EAS is also used when all other means of alerting the public are unavailable, providing an added layer of resiliency to the suite of available emergency communication tools. The EAS is in a constant state of improvement to ensure seamless integration of CAP-based and emerging technologies. (<https://www.fema.gov/emergency-alert-system>)
 - U.S. Department of Commerce's grant programs include:

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- National Oceanic and Atmospheric Administration (NOAA), provides funds to the State of Alaska due to Alaska's high threat for tsunami. The allocation supports the promotion of local, regional, and state level tsunami mitigation and preparedness; installation of warning communications systems; installation of warning communications systems; installation of tsunami signage; promotion of the Tsunami Ready Program in Alaska; development of inundation models; and delivery of inundation maps and decision-support tools to communities in Alaska.
(http://www.tsunami.noaa.gov/warning_system_works.html)
 - Remote Community Alert Systems (RCASP) grant for outdoor alerting technologies in remote communities effectively underserved by commercial mobile service for the purpose of enabling residents of those communities to receive emergency messages.
(<http://www.federalgrants.com/Remote-Community-Alert-Systems-Program-11966.html>) This program is a contributing element of the Warning, Alert, and Response Network (WARN) Act.
 - Public Works and Development Facilities Program. This program provides assistance to help distressed communities attract new industry, encourage business expansion, diversify local economies, and generate long-term, private sector jobs. Among the types of projects funded are water and sewer facilities, primarily serving industry and commerce; access roads to industrial parks or sites; port improvements; business incubator facilities; technology infrastructure; sustainable development activities; export programs; brownfields redevelopment; aquaculture facilities; and other infrastructure projects. Specific activities may include demolition, renovation, and construction of public facilities; provision of water or sewer infrastructure; or the development of stormwater control mechanisms (e.g., a retention pond) as part of an industrial park or other eligible project.
(http://cfpub.epa.gov/fedfund/program.cfm?prog_num=51)
 - US Environmental Protection Agency (EPA). Under EPA's Clean Water State Revolving Fund (CWSRF) program, each state maintains a revolving loan fund to provide independent and permanent sources of low-cost financing for a wide range of water quality infrastructure projects, including: municipal wastewater treatment projects; non-point source projects; watershed protection or restoration projects; and estuary management projects.
(<http://yosemite.epa.gov/R10/ecocomm.nsf/6da048b9966d22518825662d00729a35/7b68c420b668ada5882569ab00720988!OpenDocument>)
 - Indian Environmental General Assistance Program (IGAP). 1992, Congress passed the Indian Environmental General Assistance Program Act (42 U.S.C. 4368b) which authorizes EPA to provide General Assistance Program (GAP) grants to federally-recognized tribes and tribal consortia for planning, developing, and establishing environmental protection programs in Indian country, as well as for developing and implementing solid and hazardous waste programs on tribal lands.

The goal of this program is to assist tribes in developing the capacity to manage their own environmental protection programs, and to develop and implement solid and hazardous waste programs in accordance with individual tribal needs and applicable federal laws and regulations.

<http://www.epa.gov/Indian/gap.htm>

- Department of Agriculture (USDA). Provides diverse funding opportunities; providing a wide benefit range. Their grants and loans website provides a brief programmatic overview with links to specific programs and services.
(<http://www.rd.usda.gov/programs-services>)
 - Farm Service Agency: Emergency Conservation Program, Non-Insured Assistance, Emergency Forest Restoration Program, Emergency Watershed Protection, Rural Housing Service, Rural Utilities Service, and Rural Business and Cooperative Service.
(<http://www.fsa.usda.gov/FSA/stateoffapp?mystate=ak&area=home&subject=landing&topic=landing>)
 - Natural Resources Conservation Service (NRCS) has several funding sources to fulfill mitigation needs.
(<http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/alphabetical/>)
 - Conservation Technical Assistance Program (CTA) is voluntary program available to any group or individual interested in conserving their natural resources and sustaining agricultural production. The program assists land users with addressing opportunities, concerns, and problems related to using their natural resources enabling them to make sound natural resource management decisions on private, tribal, and other non-federal lands.
(<http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/technical/>)
 - Conservation Innovation Grants (CIG) is a voluntary program intended to stimulate developing and adopting innovative conservation approaches and technologies while leveraging Federal investment in environmental enhancement and protection, in conjunction with agricultural production. Under CIG, Environmental Quality Incentives Program funds are used to award competitive grants to non-Federal governmental or nongovernmental organizations, Tribes, or individuals.

CIG enables NRCS to work with other public and private entities to accelerate technology transfer and adoption of promising technologies and approaches to address some of the Nation's most pressing natural resource concerns. CIG will benefit agricultural producers by providing more options for environmental enhancement and compliance with Federal, State, and local regulations.
(<http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/cig/>)
 - The Environmental Quality Incentives Program (EQIP) is a voluntary program that provides financial and technical assistance to agricultural producers through contracts up to a maximum term of ten years in length. These contracts provide financial assistance to help plan and implement conservation practices that address natural resource concerns and for opportunities to improve soil, water, plant, animal, air and related resources on agricultural land and non-industrial private forestland. In addition, a purpose of EQIP is to help producers meet Federal, State, Tribal and local environmental regulations.

(<http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/programs/financial/equip/?cid=stelprdb1242633>)

- The Emergency Watershed Protection Program (EWP) is designed is to undertake emergency measures, including the purchase of flood plain easements, for runoff retardation and soil erosion prevention to safeguard lives and property from floods, drought, and the products of erosion on any watershed whenever fire, flood or any other natural occurrence is causing or has caused a sudden impairment of the watershed.
(<http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/landscape/ewpp/>)
- Watershed Surveys and Planning. NRCS watershed activities in Alaska are voluntary efforts requested through conservation districts and units of government and/or tribes. The purpose of the program is to assist Federal, State, and local agencies and tribal governments to protect watersheds from damage caused by erosion, floodwater, and sediment and to conserve and develop water and land resources. Resource concerns addressed by the program include water quality, opportunities for water conservation, wetland and water storage capacity, agricultural drought problems, rural development, municipal and industrial water needs, upstream flood damages, and water needs for fish, wildlife, and forest-based industries.
(<http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/landscape/wsp/>)
- Department of Energy (DOE), Office of Energy Efficiency and Renewable Energy, Weatherization Assistance Program. This program minimizes the adverse effects of high energy costs on low-income, elderly, and handicapped citizens through client education activities and weatherization services such as an all-around safety check of major energy systems, including heating system modifications and insulation checks.
(<http://www1.eere.energy.gov/wip/wap.html>)
 - The Tribal Energy Program offers financial and technical assistance to Indian tribes to help them create sustainable renewable energy installations on their lands. This program promotes tribal energy self-sufficiency and fosters employment and economic development on America's tribal lands. (<http://energy.gov/eere/wipo/tribal-energy-program>)
- Department of Health and Human Services, Administration of Children & Families, Administration for Native Americans (ANA). The ANA awards funds through grants to American Indians, Native Americans, Native Alaskans, Native Hawaiians, and Pacific Islanders. These grants are awarded to individual organizations that successfully apply for discretionary funds. ANA publishes in the Federal Register an announcement of funds available, the primary areas of focus, review criteria, and application information.
(<http://www.acf.hhs.gov/grants/open/foa/>)
- Department of Housing and Urban Development (HUD) provides a variety of disaster resources. They also partner with Federal and state agencies to help implement disaster recovery assistance. Under the *National Response Framework* the FEMA and the Small

Business Administration (SBA) offer initial recovery assistance.

(http://www.hud.gov/info/disasterresources_dev.cfm)

- HUD, Office of Homes and Communities, Section 108 Loan Guarantee Programs.
This program provides loan guarantees as security for Federal loans for acquisition, rehabilitation, relocation, clearance, site preparation, special economic development activities, and construction of certain public facilities and housing.
(<http://www.hud.gov/offices/cpd/communitydevelopment/programs/108/index.cfm>)
- HUD, Office of Homes and Communities, Section 184 Indian Home Loan Guarantee Programs (IHLGP). The Section 184 Indian Home Loan Guarantee Program is a home mortgage specifically designed for American Indian and Alaska Native families, Alaska Villages, Tribes, or Tribally Designated Housing Entities. Section 184 loans can be used, both on and off native lands, for new construction, rehabilitation, purchase of an existing home, or refinance.
- Because of the unique status of Indian lands being held in Trust, Native American homeownership has historically been an underserved market. Working with an expanding network of private sector and tribal partners, the Section 184 Program endeavors to increase access to capital for Native Americans and provide private funding opportunities for tribal housing agencies with the Section 184 Program.
(<http://www.hud.gov/offices/pih/ih/homeownership/184/>)
- Indian Housing Block Grant / Native American Housing Assistance and Self Determination Act (IHBG/NAHASDA) administration, operating & construction funds. The act is separated into seven sections:

The Indian Housing Block Grant Program (IHBG) is a formula grant that provides a range of affordable housing activities on Indian reservations and Indian areas. The block grant approach to housing for Native Americans was enabled by the Native American Housing Assistance and Self Determination Act of 1996 (NAHASDA).

Eligible IHBG recipients are Federally recognized Indian tribes or their tribally designated housing entity (TDHE), and a limited number of state recognized tribes who were funded under the Indian Housing Program authorized by the United States Housing Act of 1937 (USHA). With the enactment of NAHASDA, Indian tribes are no longer eligible for assistance under the USHA.

An eligible recipient must submit to HUD an Indian Housing Plan (IHP) each year to receive funding. At the end of each year, recipients must submit to HUD an Annual Performance Report (APR) reporting on their progress in meeting the goals and objectives included in their IHPs.

Eligible activities include housing development, assistance to housing developed under the Indian Housing Program, housing services to eligible families and individuals, crime prevention and safety, and model activities that provide creative approaches to solving affordable housing problems.

(http://portal.hud.gov/hudportal/HUD?src=/program_offices/public_indian_housing/ih/grants/ihbg)

- HUD/CDBG provides grant assistance and technical assistance to aid communities in planning activities that address issues detrimental to the health and safety of local

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- residents, such as housing rehabilitation, public services, community facilities, and infrastructure improvements that would primarily benefit low-and moderate-income persons (<http://www.hud.gov/offices/cpd/communitydevelopment/programs/>)
- HUD/Indian Community Development Block Grants (ICDBG) provide grant assistance and technical assistance to aid communities or Indian tribes in planning activities that address issues detrimental to the health and safety of local residents, such as housing rehabilitation, public services, community facilities, and infrastructure improvements that would primarily benefit low-and moderate-income persons (http://portal.hud.gov/hudportal/HUD?src=/program_offices/public_indian_housing/i/h/grants/icdbg)
 - Department of Labor (DOL), Employment and Training Administration, Disaster Unemployment Assistance (DUA). Provides weekly unemployment subsistence grants for those who become unemployed because of a major disaster or emergency. Applicants must have exhausted all benefits for which they would normally be eligible. (<http://www.workforcesecurity.doleta.gov/unemploy/disaster.asp>)
 - The Workforce Investment Act contains provisions aimed at supporting employment and training activities for Indian, Alaska Native, and Native Hawaiian individuals. The Department of Labor's Indian and Native American Programs (INAP) funds grant programs that provide training opportunities at the local level for this target population. (<http://www.dol.gov/dol/topic/training/indianprograms.htm>)
 - U.S. Department of Transportation (DOT), Hazardous Materials Emergency Preparedness (HMEP) Grant. The Hazardous Materials Transportation Safety and Security Reauthorization Act of 2005 authorizes the U.S. DOT to provide assistance to public sector employees through training and planning grants to States, Territories, and Native American tribes for emergency response. The purpose of this grant program is to increase State, Territorial, Tribal, and local effectiveness in safely and efficiently handling hazardous materials accidents and incidents, enhance implementation of the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA), and encourage a comprehensive approach to emergency training and planning by incorporating the unique challenges of responses to transportation situations. (<http://www.phmsa.dot.gov/hazmat/grants>)
 - Federal Financial Institutions. Member banks of Federal Deposit Insurance Corporation, Financial Reporting Standards or Federal Home Loan Bank Board may be permitted to waive early withdrawal penalties for Certificates of Deposit and Individual Retirement Accounts.
 - Internal Revenue Service (IRS), Disaster Tax Relief. Provides extensions to current year's tax return, allows deductions for disaster losses, and allows amendment of previous year's tax returns (<http://www.irs.gov/Businesses/Small-Businesses-%26-Self-Employed/Disaster-Assistance-and-Emergency-Relief-for-Individuals-and-Businesses-1>).
 - U.S. Small Business Administration (SBA) Disaster Assistance Loans and Grants program provides information concerning disaster assistance, preparedness, planning,

cleanup, and recovery planning. (<https://www.sba.gov/category/navigation-structure/loans-grants>)

- May provide low-interest disaster loans to individuals and businesses that have suffered a loss due to a disaster. (<https://www.sba.gov/category/navigation-structure/loans-grants/small-business-loans/disaster-loans>). Requests for SBA loan assistance should be submitted to DHS&EM.
- United States Army Corps of Engineers (USACE) Alaska District's Civil Works Branch studies potential water resource projects in Alaska. These studies analyze and solve water resource issues of concern to the local communities. These issues may involve navigational improvements, flood control or ecosystem restoration. The agency also tracks flood hazard data for over 300 Alaskan communities on floodplains or the sea coast. These data help local communities assess the risk of floods to their communities and prepare for potential future floods. The USACE is a member and co-chair of the Alaska Climate Change Sub-Cabinet.
 - Civil Works and Planning (<http://www.poa.usace.army.mil/Missions/CivilWorksandPlanning.aspx>)
 - Environmental Resources Section (<http://www.poa.usace.army.mil/About/Offices/Engineering/EnvironmentalResources.aspx>)
 - USACE Alaska District Grants (http://search.usa.gov/search?affiliate=alaska_district&query=grants)
- The Grants.gov program management office was established, in 2002, as a part of the President's Management Agenda. Managed by the Department of Health and Human Services, Grants.gov is an E-Government initiative operating under the governance of the Office of Management and Budget.

Under the President's Management Agenda, the office was chartered to deliver a system that provides a centralized location for grant seekers to find and apply for federal funding opportunities. Today, the Grants.gov system houses information on over 1,000 grant programs and vets grant applications for 26 federal grant-making agencies.

State Funding Resources

- Department of Military and Veterans Affairs (DMVA): Provides damage appraisals and settlements for VA-insured homes, and assists with filing of survivor benefits. (<http://veterans.alaska.gov/links.htm>)
 - DHS&EM within DMVA is responsible for improving hazard mitigation technical assistance for local governments for the State of Alaska. Providing hazard mitigation training, current hazard information and communication facilitation with other agencies will enhance local hazard mitigation efforts. DHS&EM administers FEMA mitigation grants to mitigate future disaster damages such as those that may affect infrastructure including elevating, relocating, or acquiring hazard-prone properties. (<http://ready.alaska.gov/plans/mitigation.htm>)

DHS&EM also provides mitigation funding resources for mitigation planning on their Web site at <http://ready.alaska.gov/grants>.

- Division of Health and Social Services (DHSS): On this site you will find information intended to assist all who are interested in DHSS grants and services they support. (<http://dhss.alaska.gov/fms/grants/Pages/grants.aspx> and <http://dhss.alaska.gov/fms/Documents/FY15GrantBook.pdf>)
- Division of Health and Social Services (DSS): Provides special outreach services for seniors, including food, shelter and clothing. (<http://dhss.alaska.gov/dsds/Pages/hcb/hcb.aspx>)
- Division of Insurance (DOI): Provides assistance in obtaining copies of policies and provides information regarding filing claims. (<http://commerce.state.ak.us/dnn/ins/Consumers/AlaskaConsumerGuide.aspx>)
- DCRA within the DCCED administers the HUD/CDBG, FMA Program, and the Climate Change Sub-Cabinet's Interagency Working Group's program funds and administers various flood and erosion mitigation projects, including the elevation, relocation, or acquisition of flood-prone homes and businesses throughout the State. This division also administers programs for State's "distressed" and "targeted" communities. (<http://www.commerce.state.ak.us/dca/>)
 - DCRA Planning and Land Management staff provide Alaska Climate Change Impact Mitigation Program (ACCIMP) funding to Alaskan communities that meet one or more of the following criteria related to flooding, erosion, melting permafrost, or other climate change-related phenomena: Life/safety risk during storm/flood events; loss of critical infrastructure; public health threats; and loss of 10% of residential dwellings. (<http://commerce.state.ak.us/dnn/dcra/PlanningLandManagement/ACCIMP.aspx>)

The Hazard Impact Assessment is the first step in the ACCIMP process. The HIA identifies and defines the climate change-related hazards in the community, establishes current and predicted impacts, and provides recommendations to the community on alternatives to mitigate the impact. (http://commerce.alaska.gov/dca/planning/accimp/hazard_impact.html)
- Department of Environmental Conservation (DEC). DEC's primary roles and responsibilities concerning hazards mitigation are ensuring safe food and safe water, and pollution prevention and pollution response. DEC ensures water treatment plants, landfills, and bulk fuel storage tank farms are safely constructed and operated in communities. Agency and facility response plans include hazards identification and pollution prevention and response strategies. (<http://dec.alaska.gov/>)
 - The Division of Water's Village Safe Water (VSW) Program works with rural communities to develop sustainable sanitation facilities. Communities apply each year to VSW for grants for sanitation projects. Federal and state funding for this program is administered and managed by the VSW program. VSW provides technical and financial support to Alaska's smallest communities to design and construct water and wastewater systems. In some cases, funding is awarded by VSW through the

Alaska Native Tribal Health Consortium (ANTHC), who in turn assist communities in design and construct of sanitation projects.

- Municipal Grants and Loans (MGL) Program. The Department of Environmental Conservation / Division of Water administer the Alaska Clean Water Fund (ACWF) and the Alaska Drinking Water Fund (ADWF). The division is fiscally responsible to the Environmental Protection Agency (EPA) to administer the loan funds as the EPA provides capitalization grants to the division for each of the loan funds. In addition, it is prudent upon the division to administer the funds in a manner that ensures their continued viability. (<http://dec.alaska.gov/water/MuniGrantsLoans/loanoverview.html>)
- Under EPA's Clean Water State Revolving Fund (CWSRF) program, each state maintains a revolving loan fund to provide independent and permanent sources of low-cost financing for a wide range of water quality infrastructure projects, including: municipal wastewater treatment projects; non-point source projects; watershed protection or restoration projects; and estuary management, [and stormwater management] projects. (<http://yosemite.epa.gov/R10/ecocomm.nsf/6da048b9966d22518825662d00729a35/7b68c420b668ada5882569ab00720988!OpenDocument>)

Alaska's Revolving Loan Fund Program, prescribed by Title VI of the Clean Water Act as amended by the Water Quality Act of 1987, Public Law 100-4. DEC will use the ACWF account to administer the loan fund. This Agreement will continue from year-to-year and will be incorporated by reference into the annual capitalization grant agreement between EPA and the DEC. DEC will use a fiscal year of July 1 to June 30 for reporting purposes.

(http://www.epa.gov/region10/pdf/water/srf/cwsrf_alaska_operating_agreement.pdf)

- Department of Transportation and Public Facilities (DOT/PF) personnel provide technical assistance to the various emergency management programs, to include mitigation. This assistance is addressed in the DHS&EM-DOT/PF Memorandum of Agreement and includes but is not limited to: environmental reviews, archaeological surveys, and historic preservation reviews.
 - DOT/PF and DHS&EM coordinate buy-out projects to ensure that there are no potential right-of-way conflicts with future use of land for bridge and highway projects, and collaborate on earthquake mitigation.
 - Additionally, DOT/PF provides the safe, efficient, economical, and effective State highway, harbor, and airport operation. DOT/PF uses it's Planning, Design and Engineering, Maintenance and Operations, and Intelligent Transportation Systems resources to identify hazards, plan and initiate mitigation activities to meet the transportation needs of Alaskans, and make Alaska a better place to live and work. DOT/PF budgets for temporary bridge replacements and materials necessary to make the multi-modal transportation system operational following natural disaster events.
- DNR administers various projects designed to reduce stream bank erosion, reduce localized flooding, improve drainage, and improve discharge water quality through the stormwater grant program funds. Within DNR,

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- The Division of Geological and Geophysical Survey (DGGS) is responsible Alaska's mineral, land, and water resources use, development, and earthquake mitigation collaboration.

Their geologists and support staff are leaders in researching Alaska's geology and implementing technological tools to most efficiently collect, interpret, publish, archive, and disseminate information to the public.

(<http://dggs.alaska.gov/pubs/advanced-search>)

- The DNR's Division of Forestry (DOF) participates in a statewide wildfire control program in cooperation with the forest industry, rural fire departments and other agencies. Prescribed burning may increase the risks of fire hazards; however, prescribed burning reduces the availability of fire fuels and therefore the potential for future, more serious fires.

(<http://forestry.alaska.gov/pdfs/08FireSuppressionMediaGuide.pdf>)

- DOF also manages various wildland fire programs, activities, and grant programs such as the FireWise Program (<http://forestry.alaska.gov/fire/firewise.htm>), Community Forestry Program (CFP) (<http://forestry.alaska.gov/community/>), Assistance to Fire Fighters Grant (AFG), Fire Prevention and Safety (FP&S), Staffing for Adequate Fire and Emergency Response Grants (SAFER), and Volunteer Fire Assistance and Rural Fire Assistance Grant (VFA-RFA) programs (<http://forestry.alaska.gov/fire/vfarfa.htm>). Information can be found at <http://forestry.alaska.gov/fire/current.htm>.

- The Alaska Interagency Coordination Center (AICC) is the Geographic Area Coordination Center for Alaska. AICC serves as the focal point for initial attack resource coordination, logistics support, and predictive services for all state and federal agencies involved in wildland fire management and suppression in Alaska.

Fire management planning, preparedness, suppression operations, prescribed burning, and related activities are coordinated on an interagency basis. DOF has cooperative agreements with the Departments of Agriculture and Interior, and numerous local government and volunteer fire departments to respond to wildland fires, reduce duplication of efforts, and share resources.

In 1984 the State of Alaska adopted the National Interagency Incident Management System Incident Command System concept for managing fire suppression. The Incident Command System (ICS) guiding principles are followed in all wildland fire management operations. All State of Alaska Departments adopted ICS in 1996 through the Governor's administrative order.

Other Funding Resources

The following provide focused access to valuable planning resources for communities interested in sustainable development activities.

- Rural Alaska Community Action Program Inc. (RurAL CAP) In the nearly 50 years since it began, it is difficult to imagine any aspect of rural Alaskan lives which has not been touched in some way by the people and programs of RurAL CAP. From Head Start, parent education, adult basic education, and elder-youth programs, to Native land claims and subsistence rights, energy and weatherization programs, and alcohol and substance

abuse prevention, RurAL CAP has left a lasting mark on the history and development of Alaska and its rural Peoples. (http://ruralcap.com/?page_id=334)

- Weatherization Assistance Program assists low to moderate income households in weatherization needs. The program is available to homeowners as well as renters and includes; single family homes, cabins, mobile homes, condominiums and multifamily dwellings. (http://ruralcap.com/?page_id=794)
- Solid Waste Management. RurAL CAP continues to host an expert solid waste liaison, Ted Jacobson, through funding provided by the Environmental Protection Agency (EPA) and Senior Services America, Inc. The liaison provides solid waste management technical assistance to rural communities through training, site visits, hands-on demonstrations, and remote contact. Resources are provided for dump management activities, collaborating with funders for funding and technical assistance on solid waste management, recycling, and backhaul. (http://ruralcap.com/?page_id=198)
- American Planning Association (APA), <http://www.planning.org> - a non-profit professional association that serves as a resource for planners, elected officials, and citizens concerned with planning and growth initiatives.
- Institute for Business and Home Safety (IBHS), an initiative of the insurance industry to reduce deaths, injuries, property damage, economic losses, and human suffering caused by natural disasters. (<http://www.disastersafety.org/>)
- American Red Cross (ARC). Provides for the critical needs of individuals such as food, clothing, shelter, and supplemental medical needs. Provides recovery needs such as furniture, home repair, home purchasing, essential tools, and some bill payment may be provided. (<http://www.redcross.org/find-help>)
- Catalog of Federal Domestic Assistance (DFDA) Crisis Counseling Program (CCP). Provides grants to State and Borough Mental Health Departments, which in turn provide training for screening, diagnosing and counseling techniques. Also provides funds for counseling, outreach, and consultation for those affected by disaster. (<http://dialoguemakers.org/Resources4states+Nonprofits.htm>)
- Denali Commission. Introduced by Congress in 1998, the Denali Commission is an independent federal agency designed to provide critical utilities, infrastructure, and economic support throughout Alaska. With the creation of the Denali Commission, Congress acknowledged the need for increased inter-agency cooperation and focus on Alaska's remote communities. Since its first meeting in April 1999, the Commission is credited with providing numerous cost-shared infrastructure projects across the State that exemplifies effective and efficient partnership between federal and state agencies, and the private sector. (<http://www.denali.gov/grants>)
- The Energy Program primarily funds design and construction of replacement bulk fuel storage facilities, upgrades to community power generation and distribution systems, alternative-renewable energy projects, and some energy cost reduction projects. The Commission works with the Alaska Energy Authority (AEA), Alaska

Village Electric Cooperative (AVEC), Alaska Power and Telephone and other partners to meet rural communities' fuel storage and power generation needs.

- The goal of the solid waste program at the Denali Commission is to provide funding to address deficiencies in solid waste disposal sites which threaten to contaminate rural drinking water supplies.
- Lindbergh Foundation Grants. Each year, The Charles A. and Anne Morrow Lindbergh Foundation provides grants of up to \$10,580 (a symbolic amount representing the cost of the Spirit of St. Louis) to men and women whose individual initiative and work in a wide spectrum of disciplines furthers the Lindberghs' vision of a balance between the advance of technology and the preservation of the natural/human environment.
(<http://www.thelindberghfoundation.org/awards>)
- Rasmuson Foundation Grants. The Rasmuson foundation invests both in individuals and well-managed 501(c)(3) organizations dedicated to improving the quality of life for Alaskans.

Rasmuson Foundation awards grants both to organizations serving Alaskans through a base of operations in Alaska, and to individuals for projects, fellowships and sabbaticals. To be considered for a grant award, grant seekers must meet specific criteria and complete and submit the required application according to the specific guidelines of each program. (<http://www.rasmuson.org/index.php?switch=viewpage&pageid=5>)

- Tier 1 Awards: Grants of up to \$25,000 for capital projects, technology updates, capacity building, program expansion, and creative works.
- Tier 2 Awards: Grants over \$25,000 for projects of demonstrable strategic importance or innovative nature.
- Pre-Development Program: Guidance and technical resources for planning new, sustainable capital projects.

The Foundation trustees believe successful organizations can sustain their basic operations through other means of support and prefer to assist organizations with specific needs, focusing on requests which allow the organizations to become more efficient and effective. The trustees look favorably on organizations which demonstrate broad community support, superior fiscal management and matching project support.
(<http://www.rasmuson.org/index.php>)

Appendix B
FEMA Hazard Mitigation Plan (HMP) Review Tool

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Appendix C
Community HMP Adoption Resolution(s)

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Appendix D
Public Outreach Activities

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Subject: Hazard Mitigation Plan Development Project Initial Notice

Date: Thursday, November 20, 2014 at 12:18:13 PM Alaska Standard Time

From: Simmons, Scott

To: 'mewest@alaska.edu', 'hdenny@anthc.org', 'tneal@usgs.gov', 'swhite@avcp.org', 'steve.heppner.bia.ak@gmail.com', 'kato_howard@ak.blm.gov', 'jneimeyer@denali.gov', 'leslie.pearson@alaska.gov', 'ryan.anderson@alaska.gov', 'Alice.Edwards@alaska.gov', 'taunnie.boothby@alaska.gov', 'scott.nelsen@alaska.gov', 'alan.wien@alaska.gov', 'terri.lomax@alaska.gov', 'Soderlund.Dianne@epamail.epa.gov', 'john.lingaas@noaa.gov', 'joel.curtis@noaa.gov', 'sam.albanese@noaa.gov', 'meg.mueller@ak.usda.gov', 'merlaine.kruse@ak.usda.gov', 'greg.magee@alaska.gov', 'Anna_Plager@dnr.state.ak.us', 'kerry_walsh@dnr.state.ak.us', 'John_Dunker@dnr.state.ak.us', 'Steve_Clautice@dnr.state.ak.us', 'patricia_burns@dnr.state.ak.us', 'Steve_McGroarty@dnr.state.ak.us', 'Mac_McLean@dnr.state.ak.us', 'Margie_Goatley@dnr.state.ak.us', 'Bruce.R.Sexauer@poa02.usace.army.mil', 'colleen.bickford@hud.gov', 'ak_le@fws.gov'

CC: Eileen Bechtol (erbechtol@gmail.com), DHSEM Scott Nelsen, Evans, Jessica, Appleby, Elizabeth, Wasserman, Evan

Dear Potential HMP Development Participants,

URS Corporation has received a 2014 contract from the State Division of Homeland Security and Emergency Management (DHS&EM) to develop 21 Local/Tribal All-Hazard Mitigation Plans for the following communities:

New HMP Development

- Atmautlauk (Unorganized)
- Chitina (Unorganized)
- Copper Center (Unorganized)
- Grayling (Unorganized)
- Kongiganak (Unorganized)
- Kwigillingok (Unorganized)
- City of Merkoryuk (2nd Class City)
- City of Nightmute (2nd Class City)
- Tuntutuliak (Unorganized)
- Tununak (Unorganized)
- City of Wales (2nd Class city)

HMP Update Required

- Newtok (Unorganized)
- City of Aniak (2nd Class City)
- City of Dillingham (1st Class City)
- City of Golovin (2nd Class City)
- Lake and Peninsula Borough, MJHMP
- City of Hooper Bay (2nd Class City)
- City of Kivalina (2nd Class City)
- City of Saint Paul (2nd Class City)
- City of Unalakleet (2nd Class City)
- City and Borough of Yakutat

The Lake and Peninsula Borough (L&PB) Multi-Jurisdictional HMP (MJHMP) consists of six organized cities and 12 unorganized communities:

The Lake and Peninsula Borough, MJHMP

Organized Cities

- City of Chignik (2nd Class City)
- City of Egegik (2nd Class City)
- City of Newhalen (2nd Class City)
- City of Nondalton (2nd Class City)
- City of Pilot Point (2nd Class City)
- City of Port Heiden (2nd Class City)

Unorganized Communities

- Chignik Lagoon
- Chignik Lake
- Igiugig
- Iliamna
- Ivanof Bay
- Kokhanok

We invite you to participate in this important community planning effort during the development

process. Community newsletters will be located on the DHS&EM Local/Tribal All Hazard Mitigation Plan Development website at: <http://ready.alaska.gov/plans/localhazmitplans> as the communities finalize them.

Please feel free to contact me and to forward this email to the most appropriate person within your agency involved with hazard assessments, hazard mitigation plan development or community specific hazard information or planning suggestions. (Please cc me so I may update the contact list)

I encourage you to acknowledge receiving this invitation at your earliest convenience to allow me to include your participation (with appropriate acknowledgments) within the Draft and Final HMPs prior to State and FEMA review and subsequent approvals.

Kind Regards
-Scott-

R. Scott Simmons, CFM, CPM

AECOM + URS

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Subject: Aniak HMP Update

Date: Saturday, February 14, 2015 at 8:50:00 PM Alaska Standard Time

From: Eileen Bechtol

To: Ron Powell

Hello Mr. Powell:

I am writing to introduce myself, Eileen Bechtol, a subcontractor for Scott Simmons, AECOM (formerly known as URS Corporation). AECOM was contracted by the Division of Homeland Security and Emergency Management (DHS&EM) to develop a Hazard Mitigation Plan Update for 21 Alaska jurisdictions. The City of Aniak is one of the selected jurisdictions. I was the lead author for the 2005 Aniak HMP.

I got your name as the City Manager of Aniak from the DCCED website, if there is someone else I should contact about the Aniak HMP Update please forward this email. Thank you.

It is important to note that the City of Aniak does not have to pay anything for this project. This is an important project for your community funded by FEMA through the DHS&EM. URS worked with rural communities to assist them with their hazard mitigation plan development needs. In fact, URS has been developing HMPs nationwide since 2000. Our Alaska office has completed approximately 90 State, Borough and local community, State reviewed, and FEMA approved Hazard Mitigation Plans to-date.

HMP updates require reviewing current plans to identify how conditions have changed since the plan was last approved. For example, the current plan's plan development activities may change such as planning team membership; new plans, reports, and studies reviewed, new hazards identified and newly disaster impacts annotated. These changes could directly change identified planning community vulnerabilities and risks. This requires that the current Mitigation Strategy be reviewed and updated to identify current project's status. Were any project completed or do they need to be modified, merged with similar initiatives for the same impact or location; deleted because they are no longer deemed the most appropriate mitigation initiative, or changed to reflect new jurisdictional needs?

AECOM role in this project is to ensure that the Updated HMP meets state and federal requirements -- part of this requirement is to describe the process in which the community was involved. We are at the beginning stages of this project.

Our task is to write the plan while guiding you through the HMP Update process, maximizing your Planning Team's talent and local knowledge. AECOM will write the plan. The Planning Team will assist the process by working with us to identify changes since 2005 implementation:

Describe how the HMP has changed:

- New Planning Team membership and processes
- HMP update participation and plan reviewers,
- Identify new hazards not formerly addressed,
- Help us explain your hazard impacts since 2009,
- Identify changes to new and existing participating community's critical facilities and their relative location within each identified hazard's impact area,
- Determine their "estimated" replacement costs,
- Define the community's population risk and critical facility vulnerabilities,
- Review current and update the existing hazard mitigation goals if applicable,
- Determine the current status of each project within the Mitigation Strategy; was it completed, deleted, delayed, combined/changed, or is it still viable and ongoing? We will need to provide a brief explanation for any changes.
- Update the HMP Maintenance section to reflect how the City completed HMP annual review commitments and identify whether it was effective or not, then update the process to make it

more effective for future use.

There will be opportunities for the entire community to review the team's work during various public involvement processes because FEMA requires at least two public involvement activities. We will provide planning team meeting minutes and two newsletters for distribution or posting to enable community wide knowledge, providing information during Borough Planning Commission Meetings or other public meetings, and working with us over the phone as we capture needed information.

AECOM will provide two (2) newsletters. The first newsletter will introduce the project and explain the planning process, encourage public involvement; ask the community to identify known hazards, and to confirm their critical infrastructure as identified by DHS&EM's statewide small community Critical Facility Database. The second will introduce the updated draft HMP and encourage the community to review and provide comments to make the plan better or more usable to mitigate your hazards.

Please write me back with the names of whom you want on the Planning Team.

I would like to schedule an introductory teleconference meeting with yourself and other members of the Planning Team to introduce the project and the process letting you know what information we will need to allow us to proceed. I can call you on your speakerphone if that works. Please let me know when a good time is to call you.

I look forward to working with you and your Team. Thank you for your time.

Eileen Bechtol

Make no little plans; they have no magic to stir men's blood and probably themselves will not be realized. Make big plans; aim high in hope and work."

— Daniel Hudson Burnham (1846-1912)

Bechtol Planning & Development

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CITY OF ANIAK HAZARD MITIGATION PLAN UPDATE

Newsletter #1

May 2015

The purpose of this newsletter is to describe the City of Aniak (Aniak) Hazard Mitigation Plan (HMP) development processes to all interested agencies, stakeholders, and the public and to solicit comments on the HMP. It can also be viewed on the State of Alaska Division of Homeland Security and Emergency Management Website at <http://ready.alaska.gov/plans/localhazmitplans>.

The State of Alaska, Department of Military and Veterans Affairs, Division of Homeland Security and Emergency Management (DHS&EM) was awarded a Pre-Disaster Mitigation Program grant from the Federal Emergency Management Agency (FEMA) to update Aniak's 2005 HMP.

AECOM was contracted to assist Aniak with preparing a 2015 FEMA-approvable HMP update. The HMP will identify all applicable natural hazards, such as earthquake, tsunami, flood/erosion, ground failure/avalanche, severe weather, and wildland/tundra fire hazards, etc. The plan will identify the people and facilities potentially at risk and ways to mitigate damage from future hazard impacts. Public participation in the planning process will be documented as part of the project.

What is Hazard Mitigation?

Hazard mitigation eliminates the risks or reduces the severity of the hazard impact to people and property. Hazard mitigation activities may include short- or long-term projects to reduce exposure to, or the effects of, known hazards. Examples include: relocating or elevating buildings; replacing insufficiently sized culverts; using alternative construction techniques; developing, implementing, and enforcing building codes; and public education.

Why Do We Need A Hazard Mitigation Plan?

Communities must have a State- and FEMA-approved and community-adopted mitigation plan to receive FEMA pre- and post- disaster grants identified in their Hazard Mitigation Assistance and agency mitigation grant programs. Aniak plans to apply for mitigation grant funds after the plan is complete.

A FEMA approved and community adopted HMP enables the local government to apply for the Hazard Mitigation Grant Program (HMGP), a disaster related assistance program, the Pre-Disaster Mitigation (PDM), and the National Flood Insurance Program (NFIP) Flood Mitigation Assistance (FMA) grant programs.

The Planning Process

There are very specific federal requirements that must be met when preparing a FEMA approvable HMP. These requirements are commonly referred to as the Disaster Mitigation Act of 2000, or DMA2000 criteria.

Information about the criteria and other applicable laws and regulations may be found at:
<http://www.fema.gov/mitigation-planning-laws-regulations-guidance>.

The DMA2000 criteria require the plan to include and document the following topics:

- ❑ New Planning Team membership and processes
- ❑ HMP update participation and plan reviewers
- ❑ Identify new hazards not formerly addressed
- ❑ Help us explain your hazard impacts since 2005?
- ❑ Identify changes to new and existing participating community's critical facilities and their relative location within each identified hazard's impact area
- ❑ Determine their "estimated" replacement costs
- ❑ Define the community's population risk and critical facility vulnerabilities
- ❑ Review current and update the existing hazard mitigation goals if applicable
- ❑ Determine the current status of each project within the Mitigation Strategy; was it completed, deleted, delayed, combined/changed, or is it still viable and ongoing? We will need to provide a brief explanation for any changes.
- ❑ Update the HMP Maintenance section to reflect how the City completed HMP annual review commitments and identify whether it was effective or not, then update the process to make it more effective for future use.
- ❑ Provide a copy of the community's HMP Adoption Resolution

FEMA has prepared Local Planning Review Guide available at:

http://emilms.fema.gov/is318/assets/local_mtgtn_plan_guidance_0708.pdf. It explains how the HMP Update meets each of the DMA2000 requirements.

We are currently in the very beginning stages of preparing the plan update. We will be conducting a Planning Team Meeting to introduce the project and planning team, to gather comments from community residents update hazards lists, and collect data to refine the vulnerability assessment.

We Need Your Help

Please use the following table to confirm the hazards AND identify new hazards not formerly addressed.

Aniak Hazard Worksheet		
Hazard	2007 Plan	Still Valid Yes/No
Earthquake (EQ)	Yes	
Flood (Erosion) (FL)	Yes	
Ground Failure (GF) Avalanche, Landslide, Melting Permafrost, and/or Subsidence	No	
Severe Weather (SW)	Yes	
Tsunami & Seiche (TS)	No	
Volcano (VO)	No	
Wildland/Tundra Fire (WF)	Yes	

The 2005 HMP identified critical facilities within Aniak and their vulnerability to natural hazards, but the list needs to be reviewed and updated and the estimated value and location (latitude and longitude) determined. In addition, the number and value of structures, and the number of people living in each structure will need to be documented.

This newsletter will be sent to the Aniak Planning Team with the table below listing critical facilities for their review and comment. Once this information is collected, we will determine which critical facilities, residences, and populations are vulnerable to specific hazards in Aniak.

Critical Facilities	Current Natural Hazards			
	FL	SW	WF	EQ
Airport	X	X		
ALASCOM Building	X	X		X
Bulk Fuel Storage Tank Farm	X	X		X
City Office	X	X		X
Electrical Power Lines	X	X	X	
Levee	X			
Library	X	X		X
Powerhouse	X	X		X
Public Health Building	X	X		X
Public Works Building	X	X		X
Roads	X	X	X	
Schools	X	X		X
State offices	X	X		X
Teen Center	X	X		X
Telephone Lines	X	X	X	
Wastewater Treatment	X	X		

Planning Team

Mayor Angela Morgan and City Manager Ron Powell will be leading the planning team with assistance from AECOM throughout the planning process.

Public Participation

The purpose of this newsletter is to encourage public involvement as a continuous effort throughout the project. The goal is to receive comments, identify key issues or concerns, and improve mitigation ideas and to guide the community.

We encourage you to take an active part in the Aniak Hazard Mitigation Plan development effort. The purpose of this newsletter is to keep you informed and to allow you every opportunity to voice your opinion regarding these important plans and projects. Please contact Mayor Angela Morgan; Scott Simmons, AECOM; or Eileen Bechtol, BP&D directly if you have any questions, comments, or requests for more information:

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CITY OF ANIAK HAZARD MITIGATION PLAN (HMP)

Newsletter #2

May 2015

This newsletter discusses the preparation of the City of Aniak (Aniak) Hazard Mitigation Plan. It has been prepared to inform interested agencies, stakeholders, and the public about the project and to solicit comments. This newsletter can also be viewed on the State of Alaska Division of Homeland Security and Emergency Management Website at: <http://www.ready.alaska.gov/plans/localhazmitplans.htm>.

HMP Development

Aniak was one of 21 communities selected by the State of Alaska, Division of Homeland Security and Emergency Management (DHS&EM) for a Hazard Mitigation Planning (HMP) development project. The plan identifies natural hazards that affect the community including earthquake, erosion, flood, ground failure, severe weather, and tundra/wildland fire. The HMP also identifies the people and facilities potentially at risk and potential actions to mitigate community hazards. The public participation and planning process is documented as part of the project.

What is Hazard Mitigation?

Across the United States, natural disasters have increasingly caused injury, death, property damage, and business and government service interruptions. The toll on individuals, families, and businesses can be very high. The time, money, and emotional effort required to respond to and recover from these disasters take public resources and attention away from other important programs and problems.

People and property throughout Alaska are at risk from a variety of hazards that have the potential for causing human injury, property damage, or environmental harm.

The purpose of hazard mitigation is to implement projects that reduce the risk severity of hazards on people and property. Mitigation programs may include short-term and long-term activities to reduce hazard impacts or exposure to hazards. Mitigation could include education, construction or planning projects. Hazard mitigation activity examples include relocating buildings, developing or strengthening building codes, and educating residents and building owners.

Why Do We Need A Hazard Mitigation Plan?

A community is only eligible to receive grant money for mitigation programs by preparing and adopting a hazard mitigation plan. Communities must have an approved mitigation plan to receive grant funding from the Federal Emergency Management Agency (FEMA) for eligible mitigation projects.

The Planning Process

There are very specific federal requirements that must be met when preparing a HMP. These requirements are commonly referred to as the Disaster Mitigation Act of 2000, or DMA2000 criteria. Information about the criteria may be found on the Internet at: <http://www.fema.gov/mitigation-planning-laws-regulations-guidance>.

The DMA2000 requires the plan to document the following topics:

- Planning process
- Community Involvement and HMP review
- Hazard identification
- Risk assessment
- Mitigation Goals
- Mitigation programs, actions, and projects
- A resolution from the community adopting the plan

FEMA has prepared a Local Planning Review Guide) and (available at:

<http://www.fema.gov/library/viewRecord.do?fromSearch=fromsearch&id=4859>). It explains how the HMP meets each of the DMA2000 requirements. FEMA has prepared and “Mitigation Planning Guidance” and “How to Guides” (available at: <http://www.fema.gov/hazard-mitigation-planning-resources>). Aniak’s Hazard Mitigation Plan will follow those guidelines.

The planning process kicked-off on February 14, 2015 by providing an informational email to the community asking that they establish a local planning team, distributing Newsletter #1 and holding a planning team meeting. The planning team examined the full spectrum of hazards listed in the State Hazard Mitigation Plan and identified natural hazards the HMP would address.

Aniak staff, AECOM and the public began identifying critical facilities, compiling the hazard profiles, assessing capabilities, and conducting the risk assessment for the identified hazards. Critical facilities are facilities that are critical to the recovery of a community in the event of a disaster. After collection of this information, AECOM helped to determine which critical facilities and estimated populations are vulnerable to the identified natural hazards in Aniak.

A mitigation strategy was the next component of the plan to be developed. Understanding the community’s local capabilities and using information gathered from the public and the local planning committee and the expertise of the consultants and agency staff, a mitigation strategy was developed. The mitigation strategy is based on an evaluation of the hazards, and the assets at risk from those hazards. Mitigation goals and a list of potential actions/projects were developed as the foundation of the mitigation strategy.

Mitigation goals are defined as general guidelines that explain what a community wants to achieve in terms of hazard and loss prevention. Goals are positively stated future situations that are typically long-range, policy-oriented statements representing community-wide visions. Mitigation actions and projects are undertaken in order to achieve your stated objectives.

The planning team identified projects and/or actions for each hazard that focus on six categories: prevention, property protection, public education and awareness, natural resource protection, emergency services, and structural projects. The mitigation actions identified by the planning team are explained in more detail in the plan.

The selected projects and/or actions will potentially be implemented over the next five years as funding becomes

available. A maintenance plan was also been developed for the hazard mitigation plan. It outlines how the community will monitor progress on achieving the projects and actions that will help meet the stated goals and objectives, as well as an outline for continued public involvement.

The draft plan is available in the City offices for public review and comment. Comments should be made via email or phone to Eileen Bechtol (contact information listed below) and be received no later than July 15, 2015. The plan will be provided to DHS&EM and FEMA for their preliminary approval and returned to the Aniak City Council for formal adoption.

The Planning Team

The plan was developed with the assistance from the community’s planning team consisting of a cross section from the community. Planning Team members who helped with developing the plan including the city’s Team Leader City Manager Megan Learhy, the City Council, and AECOM.

NEXT PLANNING TEAM MEETING, JULY 13, 2015
AT 1 P.M.

Sample of the City of Aniak’s Mitigation Actions. Review the draft HMP for a complete list.		
Train residents in installation of erosion monitoring devises to determine rate of eroding shorelines and riverbanks.	Installation of automated weather sensors. Automated weather sensors are the chief method by which the National Weather Service detects the occurrence of incoming severe weather.	Continue to work with residents to become more fire ready and better prepared for fire and potential evacuation.
Train/advise residents in grant writing and project management.	Improve fire protection capabilities	Ensure that community development occurs through the permitting process mandated by the NFIP. Ensure that new infrastructure is properly permitted before construction begins.

We encourage you to take an active part in the City of Aniak Hazard Mitigation Plan development effort. The purpose of this newsletter is to keep you informed and to allow you every opportunity to voice your opinion regarding these important plans and projects. Please contact City Manager Megan Learhy; Scott Simmons, AECOM; or Eileen Bechtol, BP&D directly if you have any questions, comments, or requests for more information:

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Bechtol Planning & Development

SUBJECT: Aniak HMP Update – July 13, 2015 Planning Team Meeting

Community: City of Aniak, Alaska

Date/Time: July 13, 2015

Attendees: Planning Team and Eileen Bechtol

The Aniak Planning Team and Eileen Bechtol held a teleconference on July 13, 2015 at 1 p.m. The public was invited but no one showed up for the meeting.

The Planning Team completed the critical infrastructure table and reviewed the mitigation action table from the 2005 Legacy Plan. The Planning Team made decisions on which actions should be brought forward to the 2015 Update.

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Bechtol Planning & Development

SUBJECT: Aniak HMP Update – September 2, 2015 Planning Team Meeting

Community: City of Aniak, Alaska

Date/Time: September 2, 2015

Attendees: Planning Team and Eileen Bechtol

The Aniak Planning Team and Eileen Bechtol held a teleconference on September 2, 2015 at 7 p.m during their regularly scheduled and advertised City Council meeting. The Mayor and City Council are on the Planning Team.

The Planning Team was updated that the 2015 Aniak HMP Update was ready to send to the State and FEMA for preliminary approval. The Planning Team made one change to Section 2, Community Information.

There were no other comments from the Planning Team or the public.

Appendix E
Benefit–Cost Analysis Fact Sheet

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Benefit-Cost Analysis Fact Sheet

Hazard mitigation projects are specifically aimed at reducing or eliminating future damages. Although hazard mitigation projects may sometimes be implemented in conjunction with the repair of damages from a declared disaster, the focus of hazard mitigation projects is on strengthening, elevating, relocating, or otherwise improving buildings, infrastructure, or other facilities to enhance their ability to withstand the damaging impacts of future disasters. In some cases, hazard mitigation projects may also include training or public-education programs if such programs can be demonstrated to reduce future expected damages.

A Benefit-Cost Analysis (BCA) provides an estimate of the “benefits” and “costs” of a proposed hazard mitigation project. The benefits considered are avoided future damages and losses that are expected to accrue as a result of the mitigation project. In other words, benefits are the reduction in expected future damages and losses (i.e., the difference in expected future damages before and after the mitigation project). The costs considered are those necessary to implement the specific mitigation project under evaluation. Costs are generally well determined for specific projects for which engineering design studies have been completed. Benefits, however, must be estimated probabilistically because they depend on the improved performance of the building or facility in future hazard events, the timing and severity of which must be estimated probabilistically.

All Benefit-Costs must be:

- Credible and well documented
- Prepared in accordance with accepted BCA practices
- Cost-effective ($BCR \geq 1.0$)

General Data Requirements:

- All data entries (other than Federal Emergency Management Agency [FEMA] standard or default values) **MUST** be documented in the application.
- Data **MUST** be from a credible source.
- Provide complete copies of reports and engineering analyses.
- Detailed cost estimate.
- Identify the hazard (flood, wind, seismic, etc.).
- Discuss how the proposed measure will mitigate against future damages.
- Document the Project Useful Life.
- Document the proposed Level of Protection.
- The Very Limited Data (VLD) BCA module cannot be used to support cost-effectiveness (screening purposes only).
- Alternative BCA software **MUST** be approved in writing by FEMA HQ and the Region prior to submittal of the application.

Damage and Benefit Data

- Well documented for each damage event.
- Include estimated frequency and method of determination per damage event.
- Data used in place of FEMA standard or default values **MUST** be documented and justified.

-
- The Level of Protection MUST be documented and readily apparent.
 - When using the Limited Data (LD) BCA module, users cannot extrapolate data for higher frequency events for unknown lower frequency events.

Building Data

- Should include FEMA Elevation Certificates for elevation projects or projects using First Floor Elevations (FFE).
- Include data for building type (tax records or photos).
- Contents claims that exceed 30 percent of building replacement value (BRV) MUST be fully documented.
- Method for determining BRVs MUST be documented. BRVs based on tax records MUST include the multiplier from the County Tax Assessor.
- Identify the amount of damage that will result in demolition of the structure (FEMA standard is 50 percent of pre-damage structure value).
- Include the site location (i.e., miles inland) for the Hurricane module.

Use Correct Occupancy Data

- Design occupancy for Hurricane shelter portion of Tornado module.
- Average occupancy per hour for the Tornado shelter portion of the Tornado module.
- Average occupancy for Seismic modules.

Questions to Be Answered

- Has the level of risk been identified?
- Are all hazards identified?
- Is the BCA fully documented and accompanied by technical support data?
- Will residual risk occur after the mitigation project is implemented?

Common Shortcomings

- Incomplete documentation.
- Inconsistencies among data in the application, BCA module runs, and the technical support data.
- Lack of technical support data.
- Lack of a detailed cost estimate.
- Use of discount rate other than FEMA-required amount of 7 percent.
- Overriding FEMA default values without providing documentation and justification.
- Lack of information on building type, size, number of stories, and value.
- Lack of documentation and credibility for FFEs.
- Use of incorrect Project Useful Life (not every mitigation measure = 100 years).

Appendix F
Plan Maintenance Documents

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Annual Review Questionnaire

PLAN SECTION	QUESTIONS	YES	NO	COMMENTS
PLANNING PROCESS	Are there internal or external organizations and agencies that have been invaluable to the planning process or to mitigation action			
	Are there procedures (e.g. meeting announcements, plan updates) that can be done more efficiently?			
	Has the Planning Team undertaken any public outreach activities regarding the HMP or implementation of mitigation actions?			
HAZARD PROFILES	Has a natural and/or manmade/ technologically caused disaster occurred during this reporting period?			
	Are there natural and/or manmade/ technologically caused hazards that have not been addressed in this HMP and should be?			
	Are additional maps or new hazard studies available? If so, what have they revealed?			
VULNERABILITY ANALYSIS	Do any critical facilities or infrastructure need to be added to the asset lists?			
	Have there been development patterns changes that could influence the effects of hazards or create additional risks?			
MITIGATION STRATEGY	Are there different or additional resources (financial, technical, and human) that are now available for mitigation planning within the City or Village as applicable?			
	Are the goals still applicable?			
	Should new mitigation actions be added to the Mitigation Action Plan (MAP)?			
	Do existing mitigation actions listed in the Mitigation Strategies' MAP need to be reprioritized			
	Are the mitigation actions listed in the MAP appropriate for available resources?			

MITIGATION ACTION PROGRESS REPORT

2 of 2

Plan Goal(s) Addressed: _____

Goal: _____

Success Indicators: _____

Project Status

On Schedule

Completed

Delayed*

* Explain: _____

Canceled

Project Cost Status

Cost Unchanged

Cost Overrun**

** Explain: _____

Cost Underrun***

*** Explain: _____

Summary of progress on project for this report:

A. What was accomplished during this reporting period? _____

B. What obstacles, problems, or delays did you encounter, if any? _____

C. How was each problem resolved? _____

Next Steps: What is/are the next step(s) to accomplish over the next reporting period?

Other Comments: _____
