

City of Emmonak, Alaska
Local Hazards Mitigation Plan



Emmonak, July 18, 2006

March 9, 2008

Prepared by:
City of Emmonak
WHPacific, Inc.
Bechtol Planning and Development

Acknowledgements

Emmonak City Council

Jacob D. Redfox, Mayor
Cornelius Benedict, St.
Anna R. Lee
Billy Charles
James Kameroff
Edward Andrews
Andrew Kelly, Sr.

City Staff

Martin Moore, City Manager
John Moses, City Planner
City of Emmonak
P.O. Box 9
Emmonak, AK 99581
Phone: (907) 949-1227
Fax: (907) 949-1926
Email: emkcity@unicom-alaska.com

Consultants

WHPacific, Incorporated
Nicole McCullough, Project Manager
300 West 31st Avenue
Anchorage, Alaska 99503
Phone: (800) 478-4153 or (907) 339-6500
Email: nmccullough@ascg.com

Bechtol Planning and Development
Eileen R. Bechtol
P.O. Box 3426
Homer, Alaska 99603
Phone: (907) 399-1624
Email: bechtol@pobox.xyz.net

Technical Assistance

Scott Simmons, Alaska State DHS&EM
Ervin Petty, Alaska State DHS&EM
Taunnie Boothby, Alaska State DCRA

Photography

Eileen R. Bechtol, July 18, 2006

The preparation of this plan was financed by funds from a grant from the Division of Homeland Security and Emergency Management and the Federal Emergency Management Agency.

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1. Land Use Map, Georeferenced photo
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1. July 18, 2006 Site Visit Pictures

Acronyms

ADOT/PF	Alaska Department of Transportation and Public Facilities
AEIS	Alaska Earthquake Information System
ANCSA	Alaska Native Claims Settlement Act
AVCP	Association of Village Council Presidents
AVEC	Alaska Village Electric Cooperative
AWCG	Alaska Wildfire Coordinating Group
BFE	Base Flood Elevation (100 year flood)
CDBG	Community Development Block Grant
CDQ	Community Development Quota Program
CFR	Code of Federal Regulations
cfs	cubic feet per second
CMP	Coastal Management Plan
CRS	Community Rating System
CRSA	Coastal Resource Service Area
DCRA	(Alaska) Division of Community and Regional Affairs
DHS&EM	Alaska Division of Homeland Security and Emergency Management
DMA	Disaster Mitigation Act
FBFM	Flood Boundary and Floodway Map
FDIC	Federal Deposit Insurance Corporation
FEMA	Federal Emergency Management Agency
FHBM	Flood Hazard Boundary Map
FHLBB	Federal Home Loan Bank Board
FIRM	Flood Insurance Rate Map
GIS	Geographic Information System
HAZUS	Hazards U.S.
LHMP	Local Hazards Mitigation Plan
LYSD	Lower Yukon School District
MSL	Mean Sea Level
NFIP	National Flood Insurance Program
NOAA	National Oceanographic and Atmospheric Administration
NRCS	Natural Resources Conservation Service
NWS	National Weather Service
PDMG	Pre-disaster Mitigation Grant
SBA	Small Business Administration
USARC	U.S. Arctic Research Commission
USCOE	United States Army Corps of Engineers
UTM	Universal Transverse Mercator
YDFM	Yukon Delta Fish Marketing Cooperative



City of Emmonak

P.O. Box 9, Emmonak, Alaska 99581
(907) 949-1227 • (907) 949-1249 • Fax (907) 949-1926
email: emkcity@unicom-alaska.com

City of Emmonak, Alaska
Local Hazards Mitigation Plan Adoption Resolution
Resolution # 08-04

Adoption of the City of Emmonak Local Hazards Mitigation Plan

WHEREAS, the City of Emmonak recognizes the threat that local natural hazards pose to people and property; and

WHEREAS, undertaking hazards mitigation projects before disasters occur will reduce the potential for harm to people and property and save taxpayer dollars; and

WHEREAS, an adopted Local Hazards Mitigation Plan is required as a condition of future grant funding for mitigation projects; and


WHEREAS, the Emmonak Local Hazards Mitigation Plan has been sent to the Alaska Division of Homeland Security and Emergency Management and the Federal Emergency Management Agency for their approval.

NOW, THEREFORE, BE IT RESOLVED, that the Emmonak City Council, hereby adopts the City of Emmonak Local Hazards Mitigation Plan as an official plan; and

BE IT FURTHER RESOLVED, that the City of Emmonak will submit the adopted Local Hazards Mitigation Plan to the Alaska Division of Homeland Security and Emergency Management and the Federal Emergency Management Agency officials for review and approval.

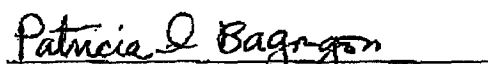
Passed and Approved on this 24th day of July, 2008 in the Emmonak by a vote of 4 in-favor, ___ against, 3 excused and ___ absent.

SIGNED:



Jacob D. Redfox, Mayor

ATTEST:



Patricia A. Bagongon, City Clerk

Chapter 1. Planning Process and Methodology

Introduction

The scope of this plan is natural hazards: flooding, erosion, severe weather, and tundra/wildland fire and earthquake hazards. However, some of the mitigation projects for natural hazards would also mitigate impacts from other hazards.

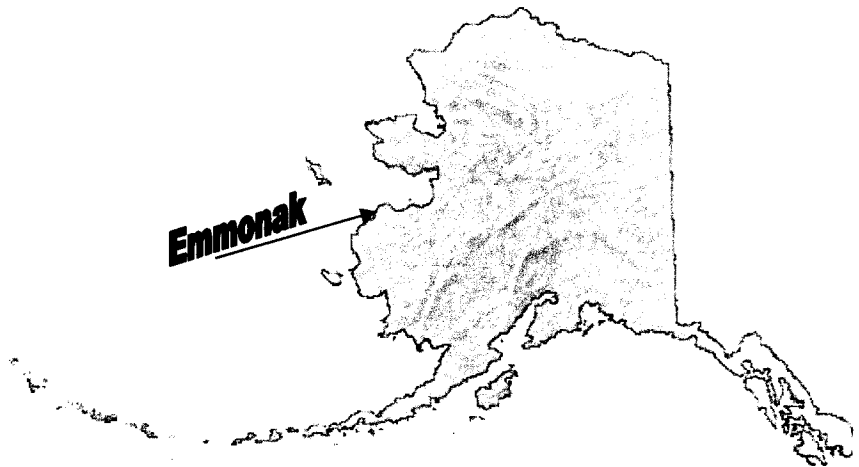
The City of Emmonak Local Hazards Mitigation Plan (LHMP) includes information to assist the city government, the Tribal government, and residents with planning to avoid potential future disaster losses. The plan provides information on natural hazards that affect Emmonak, descriptions of past disasters, and lists projects that may help the community prevent disaster losses. The plan was developed to help the City make decisions regarding natural hazards that affect Emmonak.

Plan Development

Location

Emmonak is located at the mouth of the Yukon River, 10 miles from the Bering Sea, on the north bank of Kwiguk Pass. It lies 120 air miles northwest of Bethel and 490 air miles from Anchorage, in the Yukon

Delta National Wildlife Refuge. It lies at approximately 62.777780° North Latitude and -164.52306° West Longitude. (Sec. 17, T031N, R081W, Seward Meridian.) Emmonak is located in the Bethel Recording District. The area encompasses 7.5 square miles of land and 1.1 square miles of water. A maritime climate predominates in Emmonak. Temperatures range from -25 to 79 degrees Fahrenheit. Precipitation is 19 inches per year, while snowfall is 50 to 60 inches per year. Freeze-up occurs during October; break-up occurs in June.



Project Staff

The Emmonak City Manager Martin Moore and City Planner John Moses were City representatives on the plan. ASCG Incorporated and Eileen R. Bechtol of Bechtol Planning & Development were hired to write the plan.

Scott Simmons and Ervin Petty of the Division of Homeland Security & Emergency Management (DHS&EM) provided technical assistance and reviewed the drafts of this plan.

Plan Research

The plan was developed utilizing existing Emmonak plans and studies as well as outside information and research. Outside sources are credited in parentheses after their inclusion and in the bibliography.

Public Involvement

A site visit was conducted on July 18, 2006; the contractor met with City Manager Martin Moore, the Emmonak Mayor, and city staff.

Emmonak held public meetings on the plan on October 19, 2006 and March 22, 2007 to review the first draft and to add local mitigation projects. The contractor participated by teleconference. See pages 31 and 32 for a list of critical issues brought up by the community. The Village Council and Corporation members were also invited to the meetings, and in several cases are members of the city and native organizations.

The meetings were advertised using usual city council meeting notices, the attendance at these meetings were the Emmonak City Council, Emmonak City Staff, and members of the public. A copy of the draft Plan is available for public perusal at City Hall.

Plan Implementation

The City Council of Emmonak will be responsible for adopting the Emmonak LHMP and all future updates or changes. This governing body has the authority to promote sound public policy regarding hazards. The LHMP will be assimilated into other Emmonak plans and documents as they come up for review according to each plan's review schedule. Please see the following table for plan review schedules.

Table 1. Emmonak Plans

Document	Completed	Next Review
Emmonak Community Plan	Preliminary Plan 1984	Not scheduled
Capital Improvement Projects	Annually	Annually
Comprehensive Economic Development Strategy Plan	1997	Not scheduled
Transportation Plan	2002	To be determined
Ceñaliulriit (Yukon-Kuskokwim) CRSA* Coastal Management Plan	2006	2011
Emergency Operation Plan	Not completed	As needed

* Coastal Resource Service Area

Continuing Review Process

The City Manager of Emmonak will evaluate the Emmonak LHMP on an annual basis to determine the effectiveness of programs and to reflect changes in land development, status, or other situations that make changes to the plan necessary. The City Manager and his staff will review the mitigation project items to determine their relevance to changing situations in the city, as well as changes in state or federal policy and to ensure that mitigation continues to address current and expected conditions. The City Manager will review the hazard analysis information to determine if this information should be updated and/or modified, given any new available data or changes in status.

Continued Plan Development

The plan will continue to be developed as resources become available. Additional hazards not currently covered in the plan, including technological and manmade hazards, will be added if funding becomes available during the next five-year update cycle.

The plan will be updated every five years or as funded or required by the Division of Homeland Security and Emergency Management.

The City Manager will be responsible for updating and maintaining the plan by adding additional hazards and completing vulnerability assessments for existing hazard chapters.

The following table lists the schedule for completion of these tasks, provided that funds are available to do so.

Table 2. Continued Plan Development

Hazard	Status	Hazard Analysis Completion Date	Vulnerability Assessment Completion Date
Floods	Completed	2007	2007
Erosion	Completed	2007	2007
Severe Weather	Completed	2007	2007
Wildland Fire	Completed	2007	2007
Earthquake	Completed	2007	2007
Economic	Future Addition	2012	2015
Technological	Future Addition	2012	2016
Public Health Crisis	Future Addition	2009	2011

Continued Public Involvement

The LHMP will be reviewed annually at a regular meeting. Also the plan will be available for review at regular spring break up meetings. The plan is available on the web-based program that DHS&EM has set up. The website for this program can be found online at: www.mitigationplan.com

A copy of the LHMP will be given to the Tribal council for their review and input.

Risk Assessment Methodology

The goal of mitigation is to reduce the future impacts of a hazard including loss of life, property damage, and disruption to local and regional economies, environmental damage and disruption, and the amount of public and private funds spent to assist with recovery.

Mitigation efforts begin with a comprehensive risk assessment. A risk assessment measures the potential loss from a disaster event caused by an existing hazard by evaluating the vulnerability of buildings, infrastructure, and people. It identifies the characteristics and potential consequences of hazards and their impact on community assets.

A risk assessment typically consists of three components; hazards identification, vulnerability assessment and risk analysis.

1. *Hazards Identification* – The first step in conducting a risk assessment is to identify and profile hazards and their possible effects on the jurisdiction. This information can be found in Chapter 3: Hazards.
2. *Vulnerability Assessment* – Step two is to identify the jurisdiction’s vulnerability; the people and property that are likely to be affected. It includes everyone who enters the jurisdiction including employees, commuters, shoppers, tourists, and others.

Populations with special needs such as children, the elderly, and the disabled should be considered; as should facilities such as the health clinic because of their additional vulnerability to hazards.

Inventorizing the jurisdiction’s assets to determine the number of buildings, their value, and population in hazard areas can also help determine vulnerability. A jurisdiction with many high-value buildings in a high-hazard zone will be extremely vulnerable to financial devastation brought on by a disaster event.

Identifying hazard-prone critical facilities is vital because they are necessary during response and recovery phases. Critical facilities include:

- Essential facilities, which are necessary for the health and welfare of an area and are essential during response to a disaster, including hospitals, fire stations, police stations, and other emergency facilities;
- Transportation systems such as highways, airways and waterways;
- Utilities; water treatment plants, communications systems, power facilities;
- High potential loss facilities such as the levee and bulk fuel storage facilities; and
- Hazardous materials sites.

Other items to identify include economic elements, areas that require special considerations, historic, cultural and natural resource areas and other jurisdiction-determined important facilities.

3. *Risk Analysis* – The next step is to calculate the potential losses to determine which hazard will have the greatest impact on the jurisdiction. Hazards should be considered in terms of their frequency of occurrence and potential impact on the jurisdiction. For instance, a possible hazard may pose a devastating impact on a community but have an extremely low likelihood of occurrence; such a hazard must take lower priority than a hazard with only moderate impact but a very high likelihood of occurrence.

Additionally, the risk analysis must utilize a multi-hazard approach to mitigation. One such approach might be through a composite loss map showing areas that are vulnerable to multiple hazards.

For example, there might be several schools exposed to one hazard but one school may be exposed to four different hazards. A multi-hazard approach will identify such high-risk areas and indicate where mitigation efforts should be concentrated.

Currently there are insufficient funds and data with which to conduct an accurate risk analysis for all the hazards affecting Emmonak. However, risk analysis information will be added as it is completed.

Vulnerability Assessment Methodology

The purpose of a vulnerability assessment is to identify the assets of a community that are susceptible to damage should a hazard incident occur.

Critical facilities are described in the Community Profiles Section of this hazard plan. A vulnerability matrix table of critical facilities as affected by each hazard is provided in Chapter 3 of this document.