# State of Alaska
# Community Development Block Grant
# Mitigation Action Plan

## 2018 Cook Inlet Earthquake
## (Port MacKenzie Earthquake)

## Substantial Amendment #1


**Mike Dunleavy,**
**Governor**
**State of Alaska**

**Julie Sande**
**Commissioner**
**Department of Commerce, Community, and Economic Development**

**Sandra Moller**
**Director**
**Community and Regional Affairs**
**Department of Commerce, Community, and Economic Development**

# PURPOSE

1. The State of Alaska qualified for receipt of Community Development Block Grant – Mitigation (CDBG-MIT) funds through the U.S. Department of Housing and Urban Development and has prepared this CDBG-MIT Action Plan to fulfill the requirements of Federal Register Notice Docket Number FR-6239-N-01 to receive these funds. This Action Plan describes the allocation of funds for the purpose of implementing high-priority hazard mitigation activities identified by each jurisdiction eligible for funding.

# PUBLIC MEETINGS

**Public Hearing 1:**

Mitigation Virtual Hearing

August 22, 2022, 12:30–1:30 p.m.

https://us06web.zoom.us/webinar/register/WN_p5sAMkEfTwqeQM2fbA4GEA

**Public Hearing 2:**

Mitigation Virtual Hearing

November 14, 2022, at 4:00–5:00 p.m.

https://us06web.zoom.us/webinar/register/WN_p5sAMkEfTwqeQM2fbA4GEA

**Public Hearing 3:**

Mitigation Virtual Hearing

August 21, 2025, at 4:00–5:00 p.m.

https://us06web.zoom.us/webinar/register/WN_p5sAMkEfTwqeQM2fbA4GEA

# CONTACT INFORMATION

Email: ced.cra.cdbgmit@alaska.gov, Fax: 907-269-4563

## U.S. Mail:

State of Alaska
Department of Commerce, Community, and Economic Development
550 West 7th Avenue, Suite 1650
Anchorage, AK 99501

https://commerce.alaska.gov/web/dcra/GrantsSection/CDBG-MIT.aspx

# Substantial Amendment Process

Substantial amendments to the Action Plan will require public notice and 30 days of public comment. The public notice will be posted on the CDBG-MIT website and follow procedures detailed in the Citizen Participation Plan. An amendment shall be considered substantial (requiring public notification and comment period) if the following events are to occur:

1. A change in program benefit or eligibility criteria,
2. Addition or deletion of an activity,
3. A proposed reduction in the overall benefit requirement, or
4. Allocation or reallocation of funds that will constitute a change of 15% or greater of a program budget.

# Substantial Amendment #1 – Summary of Changes

**1. Description of Amendment (86 FR 563 – Criterion 1)**
This Substantial Amendment #1 to the State of Alaska CDBG-MIT Action Plan for the 2018 Cook Inlet Earthquake revises the allocation of funds among approved mitigation activities. The amendment does not change the total allocation of CDBG-MIT funds but reallocates funding across projects to better align with identified mitigation priorities and implementation readiness.

Specifically, this amendment includes the following changes:

**Activities Added**
- Installation of a Building Automation System at Nanwalek K-12 School ($373,400)

**Activities Reduced**
- Kenai Peninsula Borough Tsunami Hazard Siren System (reduced from $543,400 to $170,000)

**Activities Unchanged**
- National Spatial Reference System Conversion for FEMA Remapping of Special Flood Hazard Areas ($1,086,800)
- Matanuska-Susitna Borough Home Flood Mitigation Program ($543,400)
- Administrative funds committed to the Municipality of Anchorage, Matanuska-Susitna Borough, and Kenai Peninsula Borough ($114,400)

No activities are deleted through this amendment. All amended activities remain eligible CDBG-MIT activities under Title I of the Housing and Community Development Act and applicable HUD waivers and alternative requirements.

Table 1 (Summary of Changes) in section 1.4 reflects the reallocation of funds and the revised budget totals for all CDBG-MIT activities included in this Action Plan.

**2. Consistency With the Mitigation Needs Assessment (86 FR 563 – Criterion 4)**
This Substantial Amendment is consistent with the State's Risk-Based Mitigation Needs Assessment included in Section 2 of the Action Plan. The amended allocation of CDBG-MIT funds continues to address the highest priority current and future hazard risks identified for the Municipality of Anchorage, the Matanuska-Susitna Borough, and the Kenai Peninsula Borough.

The amended activities support mitigation of identified risks related to flooding, earthquakes, tsunamis, and impacts to critical facilities. Continued investment in flood mitigation and improved floodplain and hazard data supports long-term risk reduction and informed land use and emergency planning decisions. Ongoing funding for tsunami alert infrastructure continues to address coastal hazard risks in vulnerable communities.

The addition of the Building Automation System at Nanwalek K-12 School enhances the resilience of a critical public facility serving a remote and hazard-prone community. This investment supports the Mitigation Needs Assessment's emphasis on protecting essential services and reducing future disaster-related disruptions to critical infrastructure.

Overall, this amendment maintains alignment with the State's risk-based mitigation strategy by prioritizing data-informed investments and resilience improvements that reduce long-term risk to life, property, and critical community assets.

# Contents

# 1. Introduction

In response to damages and unmet needs resulting from the 2018 Cook Inlet Earthquake (DR-4413), the U.S. Department of Housing and Urban Development (HUD) allocated $35,856,000 in Community Development Block Grant – Disaster Recovery (CDBG-DR) funds to the State of Alaska. Additionally, HUD allocated $2,288,000 in Community Development Block Grant – Mitigation (CDBG-MIT) funds to support the State's efforts to prepare for and reduce the risk of future disasters. This Action Plan describes the State's intended use of CDBG-MIT funds for high-priority disaster preparedness and hazard mitigation activities across the region impacted by the qualifying disaster.

## 1.1 Appropriations Act and Funding Authority

### CDBG-DR Funding

On January 27, 2020, HUD allocated Community Development Block Grant – Disaster Recovery (CDBG--DR) funding (Federal Register Notice Document Number FR-6182-N-01 (Reference 1) to provide financial assistance to grantees recovering from qualifying disasters that took place in 2017, 2018, and 2019. This funding was provided by the Supplemental Appropriations for Disaster Relief Act of 2018 and the Additional Supplemental Appropriations for Disaster Relief Act of 2019. CDBG-DR funding will address unmet disaster recovery needs concerning the restoration of housing, infrastructure, and economic revitalization in the "most impacted and distressed" (MID) areas. The State of Alaska was allocated $35,856,000 to address its unmet housing recovery needs. HUD identified the Municipality of Anchorage, the Matanuska-Susitna Borough, and the Kenai Peninsula Borough as the only CDBG-DR eligible jurisdictions, in their entirety, and identified the Municipality of Anchorage as a MID area. The State is investing its CDBG-DR funds in the relocation of households to safer areas, affordable housing, other unmet housing needs, and planning activities to aid in regional recovery. More information about the State's CDBG-DR grant activities can be found here at https://www.commerce.alaska.gov/web/dcra/GrantsSection/CDBG-DR.aspx.

### CDBG-MIT Funding

HUD published a Federal Register Notice (Docket Number FR-6239-N-01 Reference 2) on January 6, 2021, allocating more than $186 million in CDBG-MIT funds to grantees recovering from qualifying 2018 disasters. Funds allocated by this Notice were made available by the Additional Supplemental Appropriations for Disaster Relief Act of 2019 (Public Law 116-20).

HUD's CDBG-MIT Program goals, which will provide guidance to the State in its program delivery, include:

- Supporting data-informed investments, focusing on repetitive loss of property and critical infrastructure.
- Building capacity to comprehensively analyze disaster risks and update Hazard Mitigation Plans.
- Supporting the adoption of policies that reflect local and regional priorities that will have long-lasting effects on community risk reduction, including risk reduction to community lifelines and decreasing future disaster costs.
- Maximizing the impact of funds by encouraging leveraging, private-public partnerships, and coordination with other federal dollars.

CDBG-MIT funds represent a unique and significant opportunity for the State of Alaska, particularly the municipalities and boroughs most impacted by recent disaster events, to carry out strategic, data-driven, transformative activities to minimize or eliminate the risks and reduce losses from future disasters. CDBG-

MIT funds will enable the State to mitigate against these disaster risks and provide an opportunity to improve State and local planning to align with its mitigation goals.

The guiding appropriations act provides CDBG-MIT funds as a supplemental appropriation to the CDBG-DR Program. Accordingly, the alignment of CDBG-MIT funds with other federal mitigation programs also must occur within the basic CDBG framework.

The National Objectives of the CDBG Program are (1) providing benefits to low- to moderate-income persons, (2) preventing or eliminating slum and blight conditions, and (3) addressing a severe and recently arising urgent community welfare or health need. For the purposes of the Slum and Blight National Objective, additional approval will be required from HUD because this National Objective generally is not applicable in the context of mitigation activities. Unlike other forms of federal disaster recovery assistance, CDBG-MIT grants have a statutory focus on benefiting vulnerable lower income people and communities and targeting MID areas.

The State of Alaska, Department of Commerce, Community, and Economic Development (the Department) has seven major divisions, including:

- Office of the Commissioner
- Division of Administrative Services
- Division of Banking and Securities
- Division of Community and Regional Affairs
- Division of Corporations, Business, and Professional Licensing
- Division of Economic Development
- Division of Insurance

The CDBG-DR and CDBG-MIT programs will be operated under the oversight of the Division of Community and Regional Affairs (DCRA), which is also referred to as “the Division” herein.

DCRA has three sections—Grants and Funding, Local Government Assistance, and Research and Analysis. The CDBG-DR and CDBG-MIT programs will be administered by the Grants and Funding section.

## 1.2 Hazard Mitigation-Eligible Activities

HUD has identified that the eligible activities for which CDBG-MIT funds may be used are the same as the eligible activities under CDBG-DR, including:

- Supporting infrastructure projects, housing activities, public services, economic development, disaster preparedness, and planning efforts that relate to eligible hazard mitigation activities.
- Increasing resilience and reducing or eliminating risks per HUD’s definition of “mitigation.”
- Ability to be used as a flexible funding match.

However, HUD differentiates between the purpose of CDBG-MIT funds and CDBG-DR funds in that CDBG-MIT funds are to be used for mitigation activities that “increase resilience to disasters and reduce or eliminate the long-term risk of loss of life, injury, damage to and loss of property, and suffering and hardship, by lessening the impact of future disasters.”

All CDBG-MIT activities must (1) meet the definition of mitigation activities that has been provided above; (2) address current and future risks as identified in the Mitigation Needs Assessment included in Section 2 of this Action Plan; (3) be CDBG-eligible activities under Title I of the Housing and Community Development

Act of 1974 (HCDA) or otherwise eligible pursuant to a waiver or alternative requirement; and (4) meet a National Objective, including any additional criteria for mitigation activities and covered projects.

## 1.3 CDBG-MIT Administration and Action Plan Development

The State of Alaska Department of Commerce, Community, and Economic Development, Division of Community and Regional Affairs (the Division) has been designated as the lead administrative agency for CDBG-MIT funds. As such, the Division has led the effort to create this Action Plan and provide an in-depth analysis of current and future risks to the State, as well as propose a high-level strategy for how the funding will be used to address these risks and disaster mitigation needs in eligible jurisdictions.

The State of Alaska has developed the CDBG-MIT 2018 Cook Inlet Earthquake Action Plan as described in the Federal Register Notices published on January 6, 2021, at Docket No. FR-6239-N-01 and August 30, 2019 (Reference 2), at Docket No. FR-6109-N-02 (Reference 3) and the guidelines set forth by HUD for the CDBG-MIT Program. This Action Plan is in alignment with the State of Alaska's 2018 Hazard Mitigation Plan (Reference 5), which was prepared and maintained by the Department of Military and Veterans Affairs/Division of Homeland Security and Emergency Management (DHS&EM).

This Action Plan has been developed through collaboration and partnership with appropriate State and federal agencies, including the State Hazard Mitigation Office, Federal Emergency Management Agency (FEMA) Region X, and the National Geodetic Survey and National Oceanic and Atmospheric Administration (NOAA). Citizen and stakeholder participation have been key throughout the process—the Division has engaged with the three CDBG-MIT eligible jurisdictions, economic development corporations/divisions, nonprofits and social services providers, the business community, and the general public through public hearings and ongoing opportunities to provide written or electronic comments to create an Action Plan that is reflective of local needs and priorities.

## 1.4 CDBG-MIT Proposed Activities

Based on the findings of the Mitigation Needs Assessment and feedback solicited through public hearings and consultations with stakeholders, the Division is proposing the following CDBG-MIT programs in Table 1 that will work to achieve the goals of risk reduction and increased resilience.

**Table 1: State of Alaska CDBG-MIT 2018 Cook Inlet Earthquake Proposed Activity Budget – Summary of Changes**

| Programs | Original Allocation | Revised Allocation Total | HUD MID Area (50%) Municipality of Anchorage | State MID Areas (50%) Matanuska-Susitna and Kenai Peninsula Boroughs | Percentage of Total Allocation by Program |
|---|---|---|---|---|---|
| National Spatial Reference System Conversion for FEMA Remapping of Special Flood Hazard Areas | $1,086,800 | $1,086,800 | $1,086,800 | $0 | 47.5% |
| Kenai Peninsula Borough Tsunami Hazard Siren System | $543,400 | $170,000 | $ | $170,000 | 7.4 % |
| Installation of Building Automation System at Nanwalek K-12 School | $0 | $373,400 | | $373,400 | 16.3% |
| Matanuska-Susitna Borough Home Flood Mitigation Program | $543,400 | $543,400 | $0 | $543,400 | 23.8% |
| State Planning | $0 | $0 | $0 | $0 | 0.0% |
| State Administration | $114,400 | $114,400 | $57,200 | $57,200 | 5.0% |
| **GRAND TOTAL** | **$2,288,000** | **$2,288,000** | **$1,144,000** | **$1,144,000** | **100%** |

Additional information on all of the programs above, including eligible applicants, can be found in Section 4 of this Action Plan.

## 1.5 Expenditure of Funds

HUD requires that 50% of Alaska's CDBG-MIT funds benefit persons with low to moderate incomes (LMI). Additionally, 50% of CDBG-MIT funds allocated through projects approved in this Action Plan must be expended within 6 years of execution of the grant agreement with HUD, and 100% of the funds must be expended within 12 years of execution of that CDBG-MIT grant agreement.

## Overall Benefit Requirement

While Federal Register Docket No. FR-6239-N-01 (Reference 4) provides the allocation to the State of Alaska, the overall benefit requirement is within the Main CDBG-MIT Notice at Docket No. FR-6109-N-02 (Reference 3). Under this Federal Register Notice, HUD requires that 50% of funds must be used for activities that benefit LMI persons. Alaska will meet this requirement by allocating a large portion of their funding to LMI communities (see Table 2).

**Table 2: Overall Benefit Requirement**

| Alaska CDBG-MIT Activity Budget | | | | |
|---|---|---|---|---|
| | Total | HUD MID (Anchorage) | State MID (Kenai Peninsula and Matanuska-Susitna Boroughs) | LMI Expenditure (percentage of total allocation) |
| Eligible Activities - Tsunami Alert System & Installation of Building Automation System at Nanwalek K-12 School<br>- Home Flood Mitigation Program | $1,086,800 | $0 | $1,086,800 | 100% |
| National Spatial Reference System Conversion (subject to a waiver of the planning cap waiver) | $1,086,800 | $1,086,800 | $0 | 0% |
| Administration | $114,400 | | | 0% |
| **TOTAL** | **$2,288,000** | | | **100%** |

## Waiver of Limitation on Planning Expenses

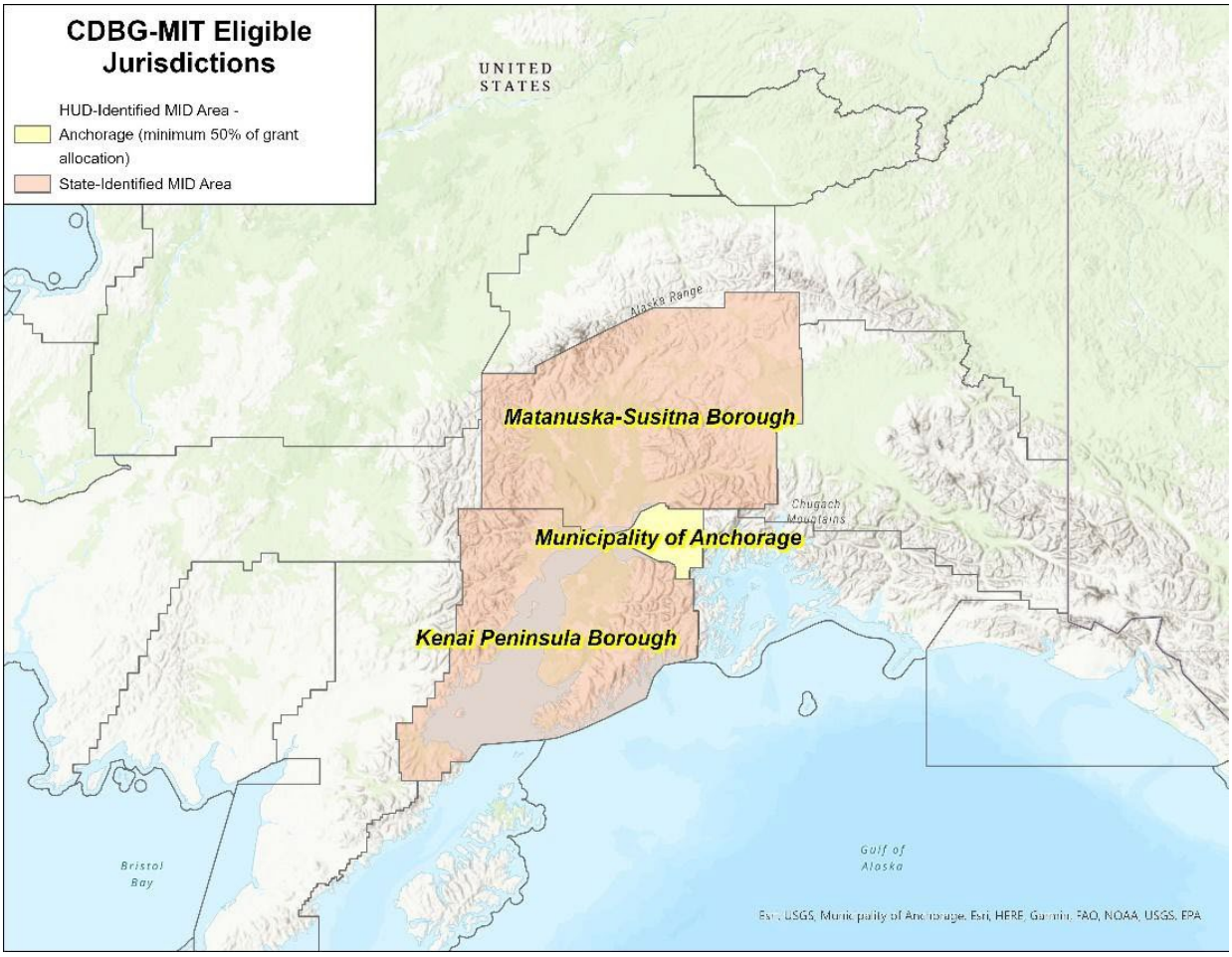
The State of Alaska anticipates a waiver of HUD's requirement to limit planning expenses to 15% of the grant to instead allow 50% of grant funds to be allocated to the National Spatial Reference System Conversion planning activity. This activity will verify and update the global positioning system (GPS) coordinates of all benchmarks within the Municipality of Anchorage. This is a National Geodetic Survey requirement for communities to participate in the modernized National Spatial Reference System. This update will enable more accurate flood elevation data to be collected and used by NOAA, FEMA, local land use planners, engineers, developers, emergency responders, and other federal and local specialists. It will provide significant long-term environmental and socioeconomic benefits to the municipality through improved floodplain mapping, coastal resource management, construction, agriculture, and emergency evacuation planning. The Division will collaborate with the Anchorage Department of Emergency Management, NOAA, and FEMA, as well as other entities operating in the municipality since the development of this data will have critical impacts on long-term mitigation goals and objectives.

## HUD and State MID Areas

Federal Register Notice Docket No. FR-6239-N-01 (Reference 4) outlines the HUD-identified "most impacted and distressed" areas as the Municipality of Anchorage. HUD mandates that no less than $1,144,000 (50%) of Alaska's CDBG-MIT funds be expended within the Municipality of Anchorage, and remaining funds may be expended within the Matanuska-Susitna Borough and the Kenai Peninsula Borough. These three jurisdictions were the areas within the State that sustained the greatest damage resulting from the qualifying disaster for which funds were awarded. The Municipality of Anchorage is the largest metropolitan area in the State of Alaska, with a 2021 population of 288,121. The Matanuska-Susitna Borough is located approximately 30 miles north of Anchorage, encompassing 24,682 square miles, and, in 2021, had a population of 110,686. The Kenai Peninsula Borough is located across the

Turnagain Arm, about 40 miles south of Anchorage, and, in 2021, had a population of 59,767. These three contiguous jurisdictions affected by the earthquake comprise more than 60% of the State's total population and a substantial portion of Alaska's economic base. This area, particularly the Kenai Peninsula, is home to many remote, rural communities that are accessed only by boat or airplane.

**Figure 1: CDBG-MIT Eligible Jurisdictions**




# 2. Risk-Based Mitigation Needs Assessment

## 2.1 Introduction

The Mitigation Needs Assessment is a risk-based assessment that summarizes the natural threats and hazards in the Municipality of Anchorage, the Matanuska-Susitna Borough, and the Kenai Peninsula Borough. HUD identified these jurisdictions as "most impacted and distressed" (MID) by the 2018 Cook Inlet Earthquake. The Mitigation Needs Assessment was undertaken to inform the use of the State's $2,228,000 CDBG-MIT funds and help build resilience and mitigation measures into recovery programs and projects.

Importantly, this assessment not only evaluates earthquake risk but also the risk of any natural hazard likely to impact the MID jurisdictions, including flooding, wildfire, severe weather (winter), tsunamis, volcanoes, cryosphere hazards, and ground failure/landslides. These hazards were identified in Alaska's most recent FEMA-approved State Hazard Mitigation Plan, as well as plans for the Municipality of Anchorage, the Matanuska-Susitna Borough, and the Kenai Peninsula Borough.

In addition to current hazards posed to the jurisdictions most impacted by the 2018 Cook Inlet Earthquake, the Mitigation Needs Assessment considers future threats, particularly as severe weather events become more frequent and severe. In this way, the State can ensure that it minimizes vulnerabilities to the impacts of future extreme events through its recovery and mitigation projects and programs.

This assessment will provide a basis upon which to propose programs and projects as part of this plan that will mitigate current and future hazards. In addition, it will inform all proposed projects such that, at a minimum, they do not exacerbate natural hazard threats and make use of scarce resources for recovery and mitigation.

As part of this assessment, the State also sought to identify and address risks to indispensable services, or those services that enable continuous operation of critical business and government functions and/or are critical to human health and safety, and economic security.

## 2.2 Data Sources, Research, and Analysis

The research team referenced national, State, local, and private resources in addition to the State and jurisdictions' Hazard Mitigation Plans to complete this analysis. The following data sources informed this analysis.

### State Hazard Mitigation Plan

This risk analysis is largely informed by Alaska's 2018 State Hazard Mitigation Plan (SHMP) (Reference 5) To produce the 2018 SHMP, the State re-evaluated the legacy 2014 SHMP. The State then analyzed the comprehensive list of additional hazards based on a range of factors, including prior knowledge or perception of a hazard's threat, as well as the relative risk presented by each hazard, the ability to mitigate the hazard, and known or expected information availability. The planning team determined that there are eight natural hazards that potentially threaten Alaska: cryosphere hazards, earthquakes, floods, ground failure, tsunamis, volcanos, severe weather, and wildland fires. The planning team chose hazards that occur most frequently, cause the most damage, and have the highest response and recovery costs. Examinations included hazard characteristics, potential climate change impacts, history (geologic as well as previous occurrences), extent (breadth, magnitude, and severity), impact, and recurrence probability.

### Analysis of Local Hazard Mitigation Plans

The Municipality of Anchorage, the Matanuska-Susitna Borough, and the Kenai Peninsula Borough have each produced a Hazard Mitigation Plan that profiles the natural and human-caused hazards that could impact their jurisdictions. Each natural hazard profile includes a description of the hazard, the location of the hazard, the severity and extent of the hazard, the occurrence of the hazard and losses, and a vulnerability assessment.

#### *The Municipality of Anchorage*

The risk assessment of the Municipality of Anchorage All-Hazards Mitigation Plan (Reference 6) identifies eight natural hazards based on the Municipality of Anchorage's 2022 All-Hazards Mitigation Plan; input from State, federal, and local sources; and research by their planning team. For each hazard, there is a

description of the hazard's characteristics, the location where the hazard can occur, previous occurrences of the hazard, and the assets and facilities vulnerable to the hazard. The eight hazards are identified in Table 3.

**Table 3. Hazards to Municipality of Anchorage**

| Hazards |
|---|
| Earthquakes |
| Wildfires |
| Extreme Weather |
| Flooding |
| Avalanches |
| Ground Failure/Landslides |
| Volcanic Ash Fall |
| Severe Erosion |

### *Matanuska-Susitna Borough*

The risk assessment of the Matanuska-Susitna Borough Hazard Mitigation Plan (Reference 7) identifies six hazards based on the 2020 Matanuska-Susitna Borough Hazard Mitigation Plan Update, previous borough hazard mitigation assessments, a review of the State of Alaska's 2018 Hazard Mitigation Plan, and local input and research. For each hazard, there is a description of the hazard's characteristics, the location where the hazard can occur, previous occurrences of the hazard, and the assets and facilities vulnerable to the hazard. The six hazards are identified in Table 4.

**Table 4 Hazards to Matanuska-Susitna Borough**

| Hazards |
|---|
| Cryosphere Hazards |
| Earthquakes |
| Severe Winter Weather Hazards (Ice/Sleet and Snowstorms) |
| Floods and Erosion |
| Volcanos and Ashfalls |
| Wildfires and Conflagration Fires |

### *Kenai Peninsula Borough*

The risk assessment of the Kenai Peninsula Borough All-Hazard Mitigation Plan (Reference 8) identifies seven hazards based on the 2018 Kenai Peninsula Borough All-Hazard Mitigation Plan Update, previous borough hazard mitigation assessments, a review of the State of Alaska's 2018 Hazard Mitigation Plan, and local input and research. For each hazard, there is a description of the hazard's characteristics, the location where the hazard can occur, previous occurrences of the hazard, and the assets and facilities vulnerable to the hazard. The seven hazards are identified in Table 5.

**Table 5 Hazards to Kenai Peninsula Borough**

| Hazards |
|---|
| Floods and Costal Erosion |
| Wildfires |
| Severe Winter Weather Hazards (Ice/Sleet and Snowstorms) |
| Earthquakes |
| Tsunamis and Seiches |
| Volcanoes |
| Avalanches |

## 2.3 Additional Resources Considered

- Alaska Earthquake Center
  - Alaska Earthquake Center
- Alaska Volcano Observatory
  - Alaska Volcano Observatory
- Federal Emergency Management Agency (FEMA), Flood Map Service Center
  - FEMA Flood Map Service Center
- Federal Emergency Management Agency (FEMA), National Risk Index
  - National Risk Index (FEMA.gov)
- First Street Foundation, Defining America's Climate Risk
  - First Street Foundation
- Intergovernmental Panel on Climate Change (IPCC), Cryosphere
  - Technical Summary – Special Report on the Ocean and Cryosphere in a Changing Climate (ipcc.ch)
- Kenai Peninsula All Lands All Hands Action Plan, 2018
  - 2018 Kenai Peninsula All Lands All Hands Action Plan
- Kenai Peninsula Community Wildfire Protection Plan, 2022
  - 2022 Kenai Peninsula Community Wildfire Protection Plan
- National Climate Assessment (NCA), Alaska, 2018
  - Alaska – Fourth National Climate Assessment (globalchange.gov)
- National Aeronautics and Space Administration (NASA), ICE
  - NASA ICE
- National Oceanic and Atmospheric Administration (NOAA), National Centers for Environmental Information, State Climate Summaries, 2022
  - Alaska – State Climate Summaries 2022 (ncics.org)
- National Oceanic and Atmospheric Administration (NOAA), Cryosphere
  - What is the cryosphere? (noaa.gov)
- United States Department of Agriculture, United States Forest Service, Wildfire Risk to Communities
  - Wildfire Risk to Communities
- United States Geological Survey (USGS), U.S. Landslide Inventory

  - U.S. Landslide Inventory, U.S. Geological Survey (usgs.gov)
- United States National Park Service
  - Climate of Alaska – Alaska Nature and Science (U.S. National Park Service) (nps.gov)
- USGS Alaska Science Center
  - Alaska Earthquake and Tsunami Hazards

## 2.4 Overview of State Landscape and Climate Conditions

With 656,425 square miles, Alaska is the largest State in the United States, measuring approximately one-fifth the size of the contiguous 48 States. Its geographic location makes the United States one of eight Arctic nations. Alaska is divided into eight distinct regions based on variations in climate, terrain, and economics. The jurisdictions in this analysis are located on the Gulf Coast and Southcentral regions of the State. The State has an abundance of natural resources and is highly dependent upon oil, mining, fishing, and tourism revenues. Changes in climate can have positive and negative impacts on these resources. Four main factors influence the State's climate: its northerly latitude crossing the Arctic Circle, its large elevation range, regional variations in proximity to the ocean, and the seasonal distribution of sea ice along its western and northern boundaries.

Alaska's temperature climate is highly variable. The greatest seasonal changes in temperature occur in the State's Interior region, where summer average maximum temperatures are in the upper 60 degrees Fahrenheit and winter average minimums are 15°F to 25°F below zero (Reference 9). As part of the Arctic, Alaska is on the front lines of climate change and is among the fastest warming regions on Earth. Temperatures in Alaska have increased at a faster rate than in the contiguous United States. Since 1900, Alaskan temperatures have increased by about 3°F, compared to about 1.8°F for the contiguous United States. The years 2016 and 2019 were the warmest 2 years on record.

As the climate continues to warm, snow in Alaska melts earlier each spring, lengthening the snow-free summer season. Increasing temperatures also result in permafrost thawing, which causes substantial repercussions for the ecology and infrastructure (e.g., damage to buildings, pipelines, roads, airports, water supply, sewage systems). The cost of a warming climate is projected to be huge, potentially ranging from $3 billion to $6 billion, between 2008 and 2030.

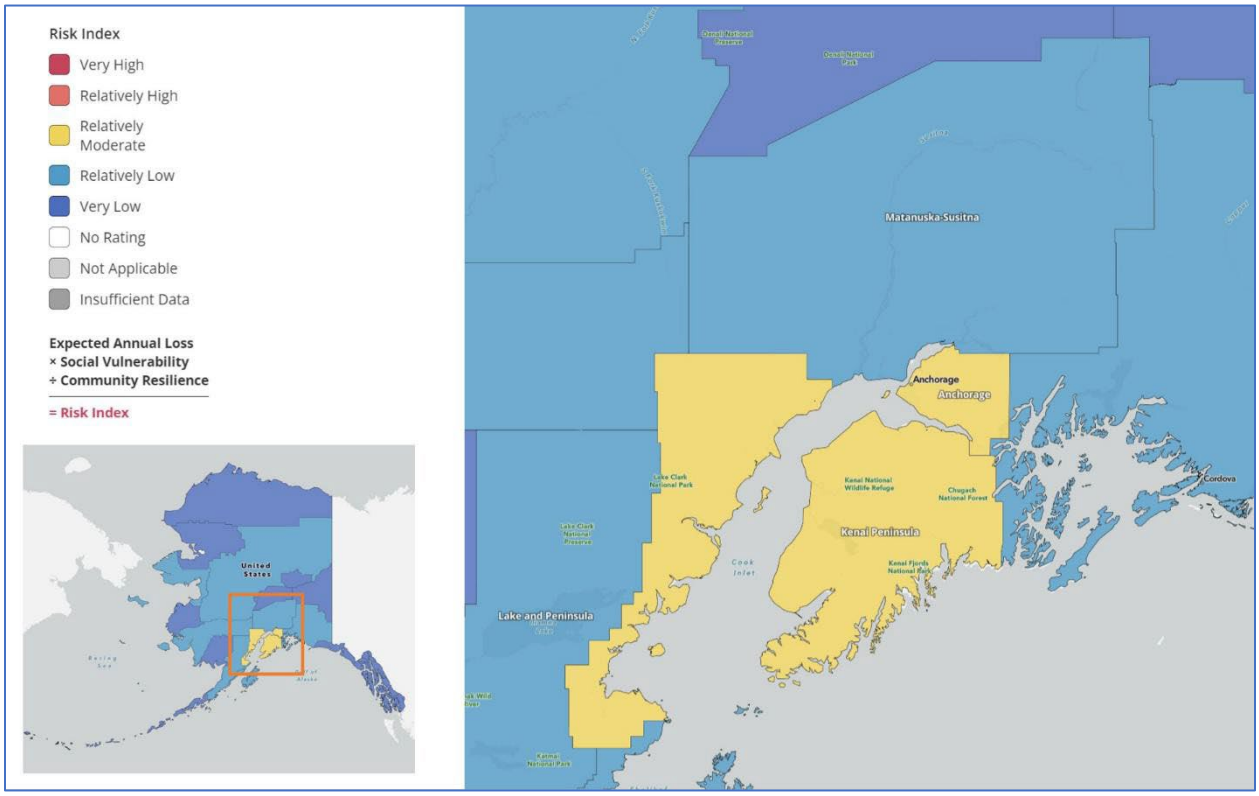
Arctic sea ice plays a vital role in the climate of Alaska, the lives of its inhabitants, and the functionality of its ecosystems. Late-summer arctic sea ice extent and thickness have decreased substantially over the past several decades, and the ice extent is approximately one-half of that observed at the beginning of satellite monitoring in 1979. Warming linked to ice loss influences atmospheric circulation and precipitation patterns both within and beyond the Arctic region (Reference 9).

Total annual precipitation amounts also vary greatly across Alaska. Major mountain ranges in Alaska act as barriers to the moisture spinning off the Pacific Ocean to the south. The warm, moist air masses deposit precipitation on the windward sides of the mountains—rain at low elevations and snow at higher elevations (National Park Service). Therefore, coastal mountain ranges in the southeastern Panhandle receive more than 200 inches of precipitation per year, while totals drop to 60 inches south of the Alaska Range, 12 inches in the Interior, and less than 6 inches on the North Slope. While historical precipitation trends are mixed, average precipitation is projected to increase during all seasons this century, with the greatest increases expected in winter and spring. By the middle of the century, annual precipitation is projected to exceed 10% over most of the State (Reference 9).

Alaska has experienced and will continue to experience an array of natural hazards. FEMA's National Risk Index is a data set and online tool to help illustrate the U.S. communities most at risk for 18 natural

hazards. The Risk Index leverages available source data for natural hazard and community risk factors to develop a baseline relative risk measurement for each U.S. county and census tract. It is a useful tool to illustrate the comparative, combined risk for natural hazards. Figure 2 shows the Risk Index scores for the jurisdictions of interest.

**Figure 2: FEMA national risk index**




Compared with the rest of the country, Alaska has relatively moderate to low risk. However, all three boroughs rank higher than the State average of 6.14. Kenai Peninsula and the Municipality of Anchorage rank above the national average of 10.60. Notably, the Municipality of Anchorage has the highest Risk Index rating of any jurisdiction in Alaska. Comparatively, 89.1% of U.S. counties have a lower Risk Index. Table 6 presents the composite National Risk Index score for the three jurisdictions and the three hazards with the highest Risk Index score for each jurisdiction.

**Table 6: Composite National Risk Index Score**

| Anchorage | Matanuska-Susitna | Kenai Peninsula |
|---|---|---|
| 16.84<br>(Relatively Moderate) | 9.55<br>(Relatively Low) | 14.15<br>(Relatively Moderate) |
| Avalanches | Avalanches | Avalanches |
| Earthquakes | Earthquakes | Volcanic Activity |
| Winter Weather | Riverine Flooding | Tsunamis |

Avalanche has the highest relative risk index for all three jurisdictions. It should be noted that the "no rating" is provided for coastal flooding, landslide, or wildfire across the boroughs due to lack of complete data needed for the NRI.

## Greatest Risk Hazards

Analysts identified the greatest risk hazards as those natural hazards profiled in the State of Alaska Hazard Mitigation Plan and identified in all of the jurisdictions' Hazard Mitigation Plans. Through these criteria, analysts chose and profiled **eight hazards**: Flooding, Wildfires, Severe Weather (Winter), Earthquakes, Tsunamis, Volcanoes, Cryosphere Hazards, and Landslides (Ground Failure). These include analysis of subhazards, including Erosion, Ice/Sleet and Snowstorms, and Avalanches.

**Table 7: Greatest Risk Hazards identified in Hazard Mitigation Plans**

| | State | Anchorage | Matanuska-Susitna | Kenai Peninsula |
|---|---|---|---|---|
| Floods | x | x | x | x |
| Erosion | | x | x | x |
| Wildfires | x | x | x | x |
| Severe Weather (Winter) | x | x | x | x |
| Earthquakes | x | x | x | x |
| Tsunamis | x | | | x |
| Volcanoes | x | x | x | x |
| Avalanches | | x | | x |
| Cryosphere Hazards | x | | x | |
| Landslides | x | x | | |

### *Floods*

A flood or flooding refers to the general or temporary conditions of partial or complete inundation of normally dry land areas from the overflow of inland, tidal, or surface water runoff from any source. Floodplains are defined as any land areas susceptible to being inundated by water from any flooding source.

Flooding is the most expensive natural disaster in the United States, costing more than $1 trillion in inflation-adjusted dollars since 1980 (First Street Foundation). Likewise, flooding is Alaska's greatest threat, causing extensive property damage and losses. According to FEMA, the Municipality of Anchorage can expect flood losses of $362 million, the Matanuska-Susitna Borough can expect $61 million in losses, and the Kenai Peninsula Borough can expect $5.8 million in flood losses.

Potential impacts of flooding include:

- Structure inundation, causing water damage to structural elements and contents.
- High water flow storm surge floods that erode coastal embankments, coastal protection barriers, and result in infrastructure and residential property losses.
- Damage to structures, roads, bridges, culverts, and other features from high-velocity flow and debris carried by floodwaters. Such debris also may accumulate on bridge piers and in culverts, decreasing water conveyance and increasing loads that may cause feature overtopping or backwater damages.
- Sewage, hazardous, or toxic materials release. Severed pipelines can be particularly catastrophic for remote, rural communities.

Erosion is another secondary impact related to flooding. Flooding and erosion of coastal and river areas affect more than 87% of the Alaska Native communities. Rates of erosion vary throughout the State, with the highest rates measured on the Arctic coastline at more than 59 feet per year (Reference 10). Some communities (e.g., Minto in 1969, Eagle in 2009) have independently begun relocating housing and other infrastructure due to flooding and associated erosion (Reference 10).

Many Alaskan communities that are not located on the coast are adjacent to large rivers, where riverine flooding and related erosion are serious problems. Most riverine flooding occurs in early spring and is the result of excessive rainfall and/or snowmelt. Ice jams also can cause flooding in winter and early spring. Ice jam flooding generally occurs when warm weather and rain break up frozen rivers. The broken ice floats downriver until it is blocked by an obstruction such as a bridge or shallow area, where an ice jam forms, blocking the channel and causing flooding upstream.

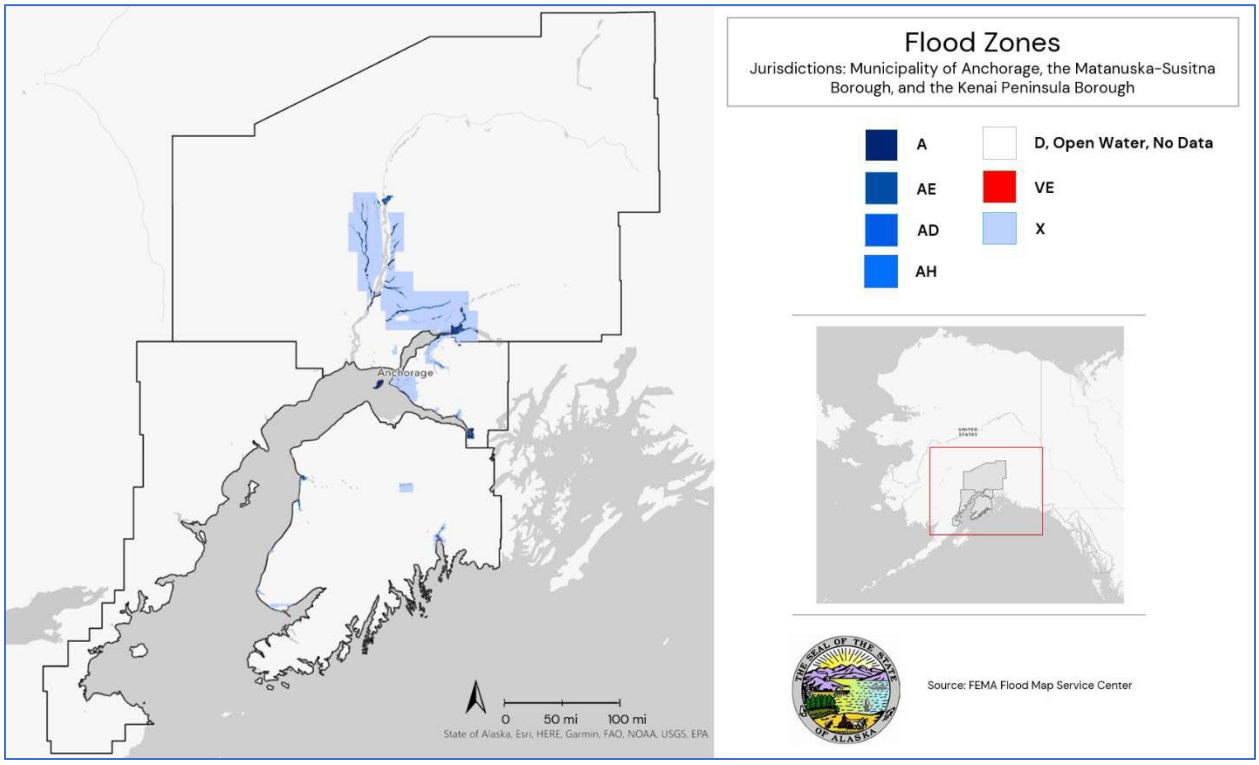
Alaska has historically experienced flooding and erosion events. However, many of these events are underreported or not measured. For this reason, recurrence probabilities are not easily computed for coastal flooding and erosion hazards. FEMA flood maps are the national standard for determining flood risk. FEMA has identified and mapped areas of flood risk on Flood Insurance Rate Maps (FIRMs), with the highest risk zones called Special Flood Hazard Areas. The 100-year floodplain is considered a high-risk area and is denoted as Zone A. The 500-year floodplain is denoted as Zone C or Zone X. The areas between the 100- and 500-year floodplains are denoted as Zone B and Zone X. This information is shown in Table 8.

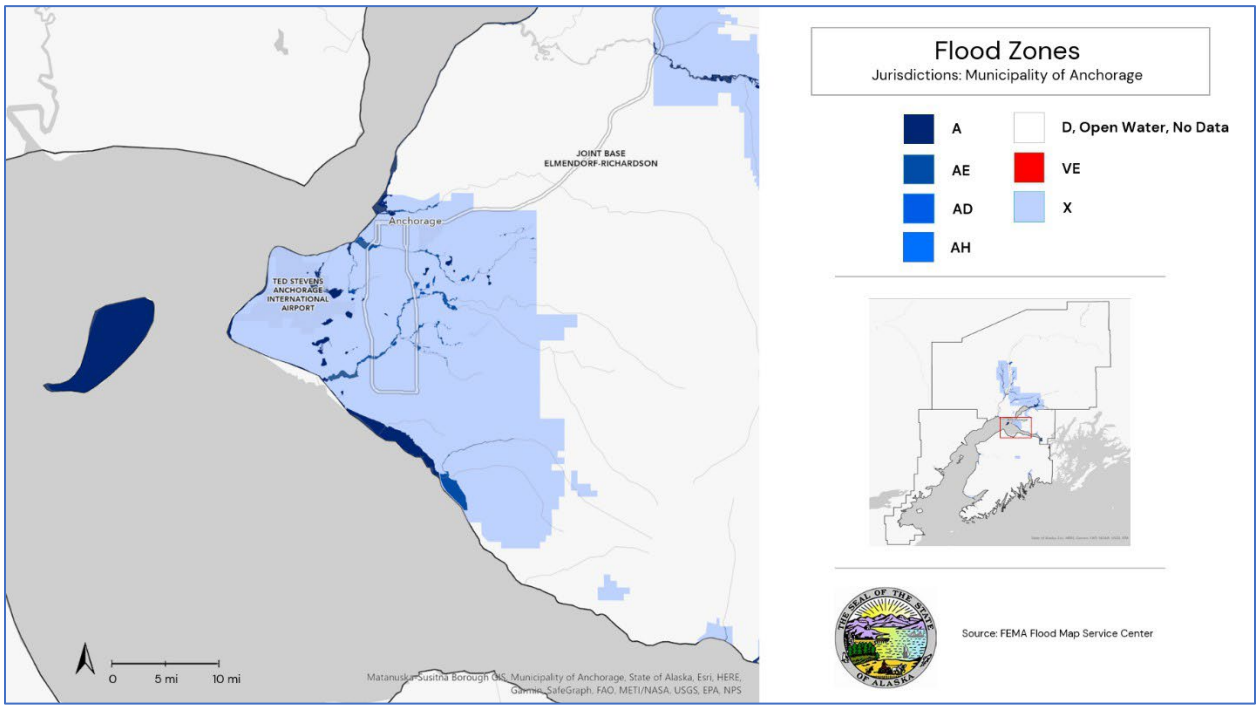
**Table 8. FEMA-Designated Flood Zones**

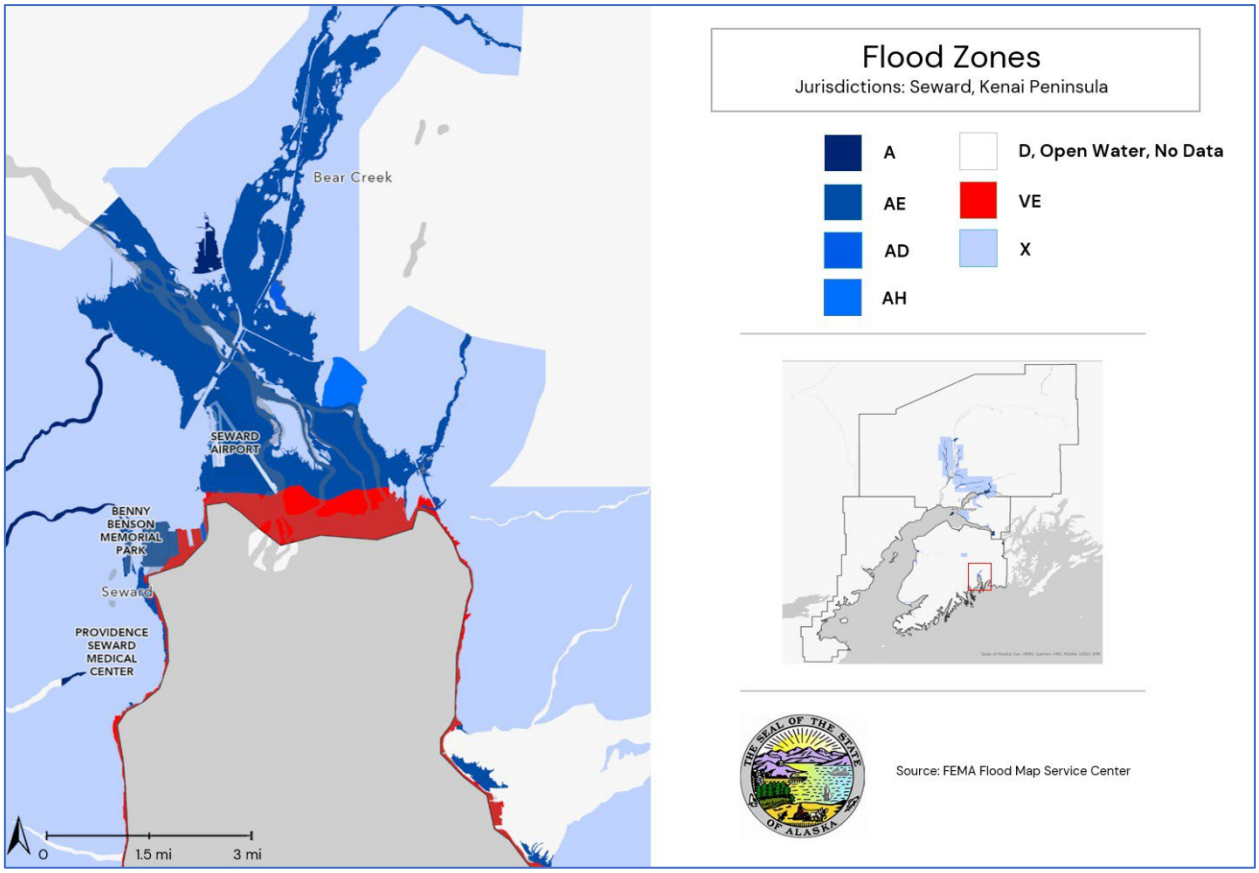
| Zone | Description |
|---|---|
| **Low- to Moderate-Risk Areas** | |
| C and X (Unshaded) | Areas with a minimal risk of flooding are usually depicted on FIRMs as being above the 500-year flood level. Zone C may have ponding and local drainage problems that do not warrant a detailed study or designation as a base floodplain. Zone X is the area determined to be outside of the 500-year flood level and is protected by a levee from the 100-year flood level. |
| B and X (Unshaded) | Areas with a moderate risk of flooding, usually the area between the limits of the 100-year and 500-year flood levels. Zone B also is used to designate base floodplains of lesser hazards, such as areas protected by levees from 100-year flood levels, or shallow flooding areas with average depths of less than 1 foot or drainage areas less than 1 square mile. |
| **High-Risk Areas** | |
| A | Areas with a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage. Because detailed analyses are not performed for such areas, no depths or base flood elevations are shown within these zones. |
| AE | The base floodplain where base flood elevations are provided. |
| AH | Areas with a 1% annual chance of shallow flooding, usually in the form of a pond, with an average depth ranging from 1 to 3 feet. These areas have a 26% chance of flooding over the life of a 30-year mortgage. Base flood elevations derived from detailed analyses are shown at selected intervals within these zones. |
| AO | River or stream flood hazard areas, and areas with a 1% or greater chance of shallow flooding each year, usually in the form of sheet flow, with an average depth ranging from 1 to 3 feet. These areas have a 26% chance of flooding over the life of a 30-year mortgage. |
| **High-Risk Coastal Areas** | |
| V | Coastal areas with a 1% or greater chance of flooding and an additional hazard associated with storm waves. These areas have a 26% chance of flooding over the life of a 30-year mortgage. No base flood elevations are shown within these zones. |
| **Undetermined Risk Areas** | |
| D | Areas with possible but undetermined flood risks. No flood hazard analysis has been conducted. Flood insurance rates are commensurate with the uncertainty of the flood risk. |

Notably, FEMA's flood mapping of the jurisdictions of interest is sparse. Vast areas are unmapped, likely due to a lack of population density. More comprehensive flood mapping could improve mitigation planning efforts. Maps of FEMA flood zones can be found in Figure 3.

**Figure 3: Maps of FEMA Flood Zones**



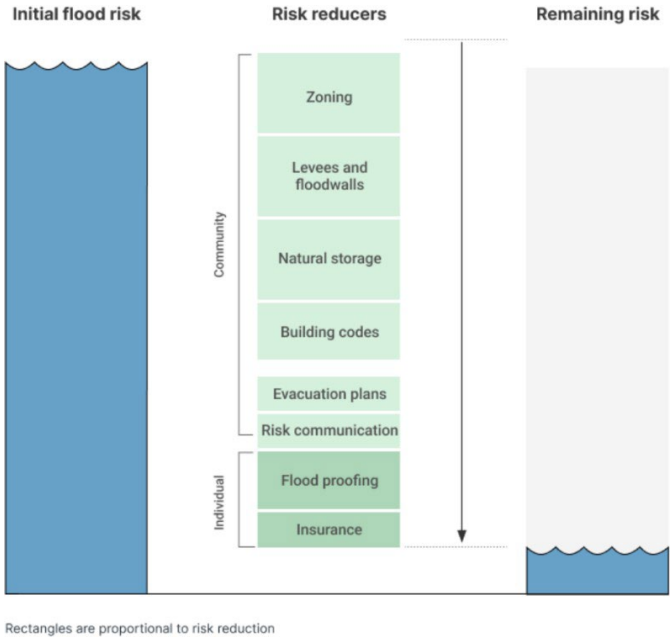






Available FEMA flood maps for the MID area, Anchorage and Seward, respectively.

Alternative sources were reviewed to offer a more robust understanding of flood risk in the areas of interest, including First Street Foundation's Flood Model. The tool calculates any home's probability of flooding from the four major flood types—pluvial (rain), fluvial (river), tidal events, and storm surge—and then incorporates high-precision elevation and building footprint data, along with local adaptation measures such as seawalls and levees, into its flood projections, validates against modeled historic floods, and then analyzes and maps the flood risk. According to First Street's analysis, there are 9,092 properties in the Municipality of Anchorage, 6,350 properties in Kenai Peninsula Borough, and 10,866 properties in Matanuska-Susitna Borough that have a greater than 26% chance of being severely affected by flooding over the next 30 years. This represents 3%, 4%, and 3% of all properties in each jurisdiction, respectively. Furthermore, First Street reports a significant flooding risk to critical facilities and infrastructure.

**Figure 4: Examples of hazard mitigation and risk reduction strategies**




Climate change is anticipated to exacerbate all flood-related hazards in Alaska. For example, rising temperatures are affecting sea ice and causing increased storm intensity. Furthermore, offshore and landfast sea ice is forming later in the season, which allows coastal storm waves to build while leaving beaches unprotected from wave action. Lowering the flood risk can start with higher planning standards. Some places plan to a higher standard (a "500 year" standard) that lowers the number of properties at severe risk. Protecting homes to this level would reduce the risk of severely affected properties. Examples of other hazard mitigation and risk reduction strategies are outlined in Figure 4 (Reference 11).

### *Wildfires*

A wildfire is an uncontrolled burning of grasslands, brush, or woodlands. Wildfire behavior is based on three primary factors: fuel, topography, and weather. Wildfires afflicting Alaska can be divided into two categories: wildland-urban interface and wildland. A wildland fire is a wildfire in an area in which development is essentially nonexistent, except for roads, railroads, power lines, and similar facilities. Wildland fires have been occurring in Alaska for thousands of years. Unfortunately, these fires began to threaten homes and communities, prompting the need to suppress wildfires and establish forest protection laws. A wildland-urban interface fire is a wildfire in a geographic area where structures and other human development meet or intermingle with wildland or vegetative fuels.

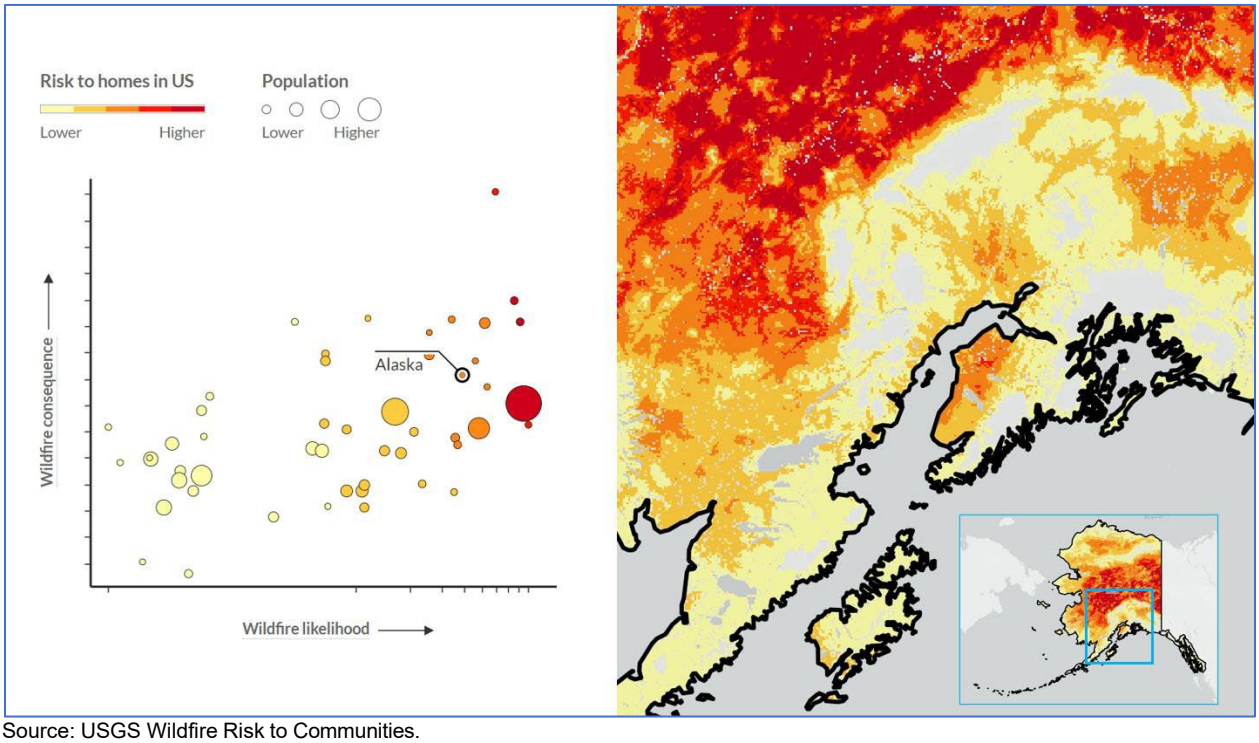
The annual area burned by wildfires in Alaska varies greatly from year to year; however, the frequency of "big fire" years (larger than 2 million acres) has been increasing. The drying of wetlands; increased frequency of warm, dry summers; and the associated thunderstorms have led to a greater number of large fires during the 2000s than in any previous decade since record keeping began in the 1940s. Since

1990, Alaska has experienced nearly twice the number of wildfires per decade compared with the period of 1950 through 1980.

Fires pose a great risk to human life and infrastructure. During the 5-year period spanning 2013 through 2018, the State has declared more than 3,077 fire-related emergencies or disasters. These fires caused more than 82 fire-related fatalities and caused an accumulated $293,351,444 in damage. Wildfires also have cascading environmental impacts. For example, wildfires have changed forest types from coniferous to deciduous in interior Alaska. The vegetation of forested interior Alaska now has less acreage of older spruce forest and more post-fire early successional vegetation, birch, and aspen than it did prior to 1990. This change favors shrub-adapted wildlife species, such as moose, but also destroys the slow-growing lichens and associated high-quality winter range that caribou prefer (Reference 10).

Figure 5 presents the study regions' USGS Wildfire Risk to Communities assessment. The tool's model uses U.S. Census data; weather data from the National Weather Service; topography from USGS; fire history information from the Rocky Mountain Research Station in Missoula, MT; and a base map of vegetation and fuels from LANDFIRE, an interagency partnership whose data sets are built by remote-sensing scientists at the U.S. Geological Survey's (USGS) Earth Resources Observation and Science (EROS) Center near Sioux Falls, SD. Using this tool, Kenai Peninsula Borough has the highest wildfire risk within the study area. Populated areas in Kenai Peninsula Borough have, on average, a greater risk than 85% of jurisdictions in Alaska. Matanuska-Susitna Borough also has a relatively higher risk of wildfire and a greater risk than 73% of Alaskan jurisdictions.

**Figure 5: Relative Wildfire Risk to Alaskan Homes**




Source: USGS Wildfire Risk to Communities.

Much of this risk comes from spruce bark beetle (SBB) infestations that kill trees and make them more susceptible to fire. Damage from SBB on the Kenai Peninsula reached its peak in 1999, with more than 1.2 million acres affected, along with about 4 million acres total across southcentral Alaska (Reference 33). While much of the recent infestation occurring in 2014–2016 affected the Susitna River valley and

neighboring drainages, the Kenai Peninsula experienced more than 21,000 acres of new infestation in the northwestern corner and along the western edge of the Chugach Mountains.

The western half of the Kenai Peninsula, in particular, has experienced many large wildfires (more than 10,000 acres burned) over the past century, including the 1947 Skilak Lake Fire (310,000 acres), 1969 Swanson River Fire (79,000 acres), 1996 Crooked Creek Fire (17,500 acres), 2005 Fox Creek Fire (25,500 acres), 2005 King County Creek Fire (10,000 acres), 2007 Caribou Hills Fire (55,000 acres), 2009 Shanta Creek Fire (13,000 acres), and the 2014 Funny River Fire (196,000 acres). Recognizing the susceptibility of the Kenai Peninsula's forest fuels to produce one or more significant stand replacement fires, an interagency policy committee of federal, State, local, and Native land managers, called the Kenai Forest Wildland Fire and Fuels Management Coordinating Committee, was established in 2003. The Matanuska-Susitna Borough also has had multiple detrimental fires during the past century. The largest was the Millers Reach Fire, which began on June 2, 1996, near Houston, Alaska, and destroyed 344 structures and burned 37,366 acres (Reference 7). No declared wildfire disasters or wildfires greater than 1,000 acres have occurred in the Municipality of Anchorage (Reference 6).

Increased community development, fire fuel accumulation, and weather pattern uncertainties indicate that seasonal wildfires will continue into the future. Communities and individuals need to develop plans to address this ever-increasing threat. In 2020, the State of Alaska released a 2020–2025 Alaska Master Cooperative Wildland Fire Management and Stafford Act Response Agreement. The agreement documents that the State will "improve efficiency by facilitating the coordination and exchange of personnel, equipment, supplies, services, and funds among the Parties to this Agreement in sustaining wildland fire management activities, such as prevention, preparedness, communication and education, fuels treatment and hazard mitigation, fire planning, response strategies, tactics and alternatives, suppression and post-fire rehabilitation and restoration." The State also maintains an Alaska Wildland Fire Management Plan. These planning initiatives mark a progressive step toward statewide preparedness coordination as the risk of fire continues to accelerate.

### *Severe Weather (Winter)*

Severe weather is a broad category that includes heavy snow, extreme cold, ice storms (sleet), high wind, thunder and lightning, hail, costal storms, and storm surge. The rate of Alaska's temperature rise has been twice the average of the rest of the United States in recent decades. During the period from 1949 to 2014, the statewide average annual air temperature increased by 3°F and average winter temperature increased by 6°F (Reference 12). The statewide average annual precipitation during this same period has increased by about 10%, with recent decades showing amounts largely above normal throughout Alaska, but with substantial annual and regional variability (Reference 12).

The State's rapidly changing climate impacts are already pronounced and will intensify as the climate continues to change. The societal impacts of a changing climate are exacerbated as the frequency and magnitude of the physical processes that control climate-related natural hazards are amplified, threatening community resilience and increasing the natural hazard vulnerability of infrastructure and property.

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 gases, 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 Interagency Ecosystem Health Work Group is tasked with determining how

the changing ecosystems may impact human health and identifying, prioritizing, and educating Alaskans about the connection between their health and changing environmental patterns (Reference 5).

### *Heavy Snow*

Heavy snow is generally considered to be more than 6 inches of accumulation in less than 12 hours (Reference 6). Heavy snow can have a significant impact on an area. Until the snow can be removed, airports and roadways experience delays or are closed completely, stopping the flow of traffic and supplies and disrupting emergency and medical services. Heavy snow loads can damage light aircraft and sink small boats. It also can cause roofs to collapse and knock down trees and power lines. Heavy snowfalls can cause secondary hazards. In the mountains, heavy snow can lead to avalanches. A quick thaw can cause flooding, especially along small streams and in urban areas. The cost of snow removal, repairing damages, and the loss of business can have severe economic impacts.

### *Ice/Sleet and Snowstorms*

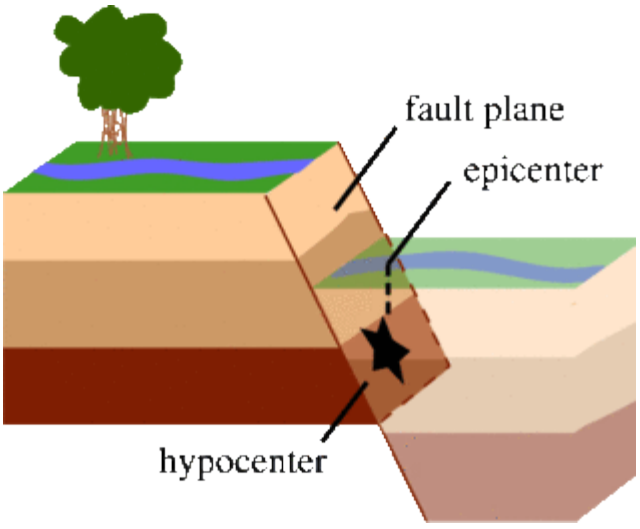
The term “ice storm” is used to describe occasions when damaging accumulations of ice are expected during freezing rain situations. Ice storms result from the accumulation of freezing rain (rain that becomes super cooled and freezes upon impact with cold surfaces). Freezing rain most commonly occurs in a narrow band within a winter storm that also is producing heavy amounts of snow and sleet in other locations. Ice storms can be devastating and often are the cause of automobile accidents, power outages, and personal injuries. Clear ice, also known as black ice, occurs when rain hits the cold ground and turns into ice. It is responsible for multiple traffic accidents every winter.

No significant historic ice storms have been identified. In November 2010, there were several days of freezing rain that made the roads slick and resulted in school closures. There also was an ice event in the mid-1990s that affected the State.

### *Earthquakes*

Alaska is considered to be one of the most “seismically active regions in the world” and is at risk of significant social and economic losses due to earthquake impacts. An earthquake is the shaking of the Earth’s surface. Most large earthquakes are caused by the sudden release of accumulated stresses as the Earth’s crustal plates move against one another. The surface where they slip is called the fault or fault plane. The location below the Earth’s surface where the earthquake starts is called the hypocenter, with the location directly above it on the surface being the epicenter. Other earthquakes occur along faults that lie within these plates. Earthquakes also can occur from sudden volcanic or magmatic activity. The danger associated with earthquakes include ground shaking, ground failure, and surface faulting, as well as secondary hazards such as avalanches, landslides, or tsunamis.

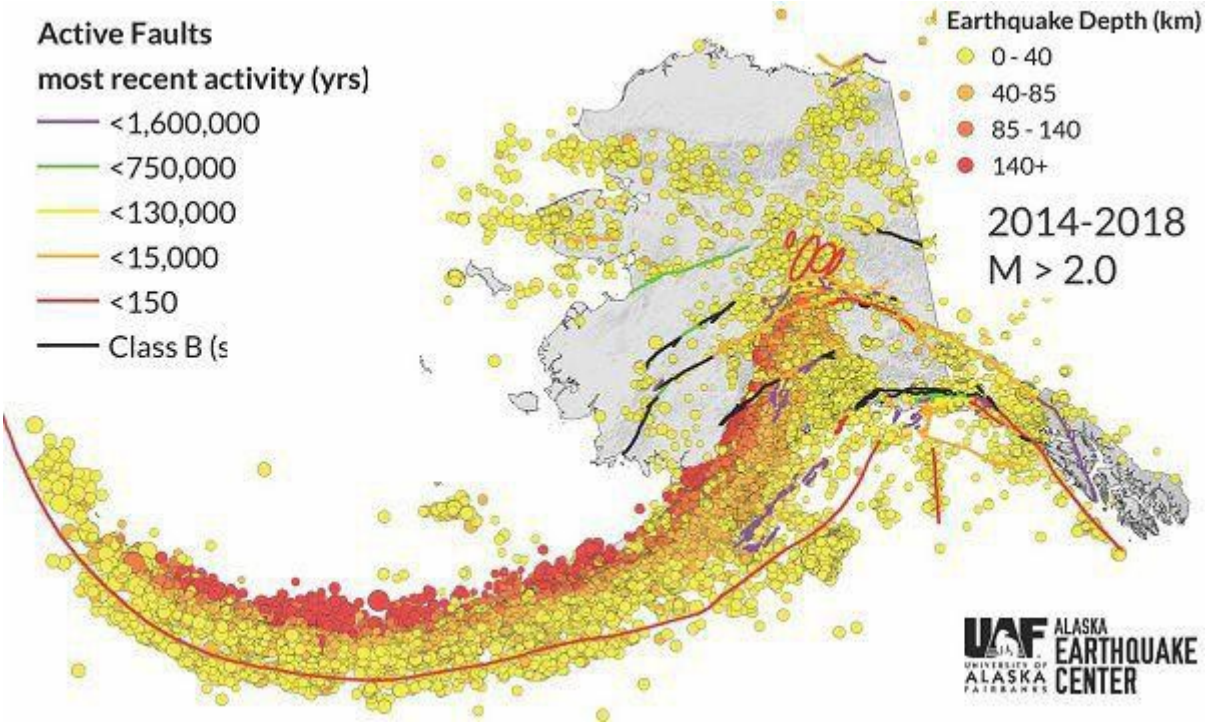
**Figure 6: Diagram of Earthquakes**



Earthquakes are typically measured in terms of their magnitude and intensity. USGS defines the strength and size, or magnitude, of an earthquake as a number based on maximum motion recorded by a seismograph. Earthquake magnitude is generally reported using the standardized Richer Scale (M) for small to moderate earthquakes. Larger earthquakes are reporting using the moment magnitude scale (Mw) because the Richter scale "does not adequately represent the energy released by these larger types of events" (Reference 5). Intensity usually refers to the effects on people and structures at a particular place. An earthquake will only have one magnitude but can have many intensities. Ground shaking is responsible for most of the damage caused by earthquakes. This shaking occurs because as the plates slip, energy is released in all directions in the form of seismic waves, similar to dropping a stone in a pond.

Alaska is located near a major tectonic plate boundary known as the Alaska-Aleutian subduction zone. In this zone, one tectonic plate (the Pacific plate) is forced beneath its neighbor (the North American plate). In addition to the major plate boundary, the subduction of one plate beneath the other causes distributed deformation on a network of faults extending more than 700 kilometers north into the interior of Alaska (Reference 13). According to the Alaska Earthquake Center and the State Department of Natural Resources, Division of Geological and Geophysical Surveys, Alaska averages one magnitude (M) 8+ earthquake every 13 years, one M7 or M8 earthquake every 2 years, and six M6 or M7 earthquakes per year. Because the production of earthquakes at Alaska's tectonic plate boundary is an ongoing process, it is imperative that Alaskans be prepared to protect their families and help their communities in the event of an emergency.

**Figure 7: Map of Alaskan Earthquakes greater than M-2.0 from 2014-2018**



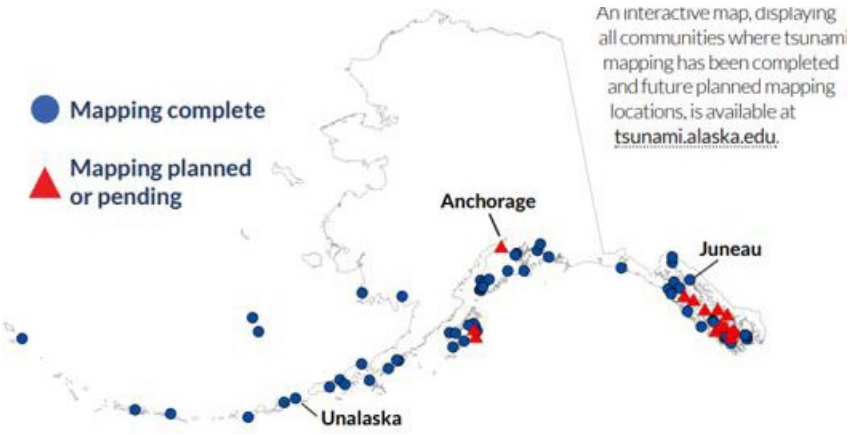

While it is not possible to predict exactly when earthquakes are going to occur, FEMA estimates that with the present infrastructure and policies, Alaska will have the "second highest average annualized earthquake loss ratio (ratio of average annual losses to infrastructure) in the country" (Reference 5).

Earthquakes have a higher potential for injuries and fatalities than many of the other hazards in Alaska. This is due to the frequency of plate activity and positionality of the State along the subduction zone. While everyone in the State could be affected by an earthquake, some populations, such as those living in poorly constructed housing or those lacking transportation, may be more vulnerable than other populations. People could be impacted by the loss of utilities and business closures. The State also is likely to experience a decrease in tourism. In order to mitigate these losses, it is important that the State put in place programs, measures, and plans that prepare communities to protect vulnerable populations and provide critical resources for all communities.

### *Tsunamis*

Tsunamis are sea waves (sometimes referred to as tidal waves) of local or distant origin that occur as a result of large-scale seafloor displacement. Any large movement of land in or near the ocean can generate a tsunami—earthquakes, landslides, or volcanic eruptions. A tsunami can be a series of waves that may last for hours, and the first wave may not be the largest. A tsunami can move hundreds of miles per hour in the open ocean and hit land with wave heights of 100 feet or more. The topography of the shoreline and the ocean floor influence the wave size of tsunamis. The National Tsunami Hazard Mitigation Program found that, historically, tsunamis have cost the State more than $731 million in overall damages (Reference 14).

**Figure 8: Inundation scenario modeling**




Source: Courtesy of the Alaska Earthquake Center.

Historical and geological evidence suggest that tsunamis are a significant threat to Alaska. Many southern coastal communities are located directly above tsunamigenic earthquake source and will have very little time to respond to any tsunami threat following an earthquake. Earthquakes in Alaska frequently occur off the coast. A subduction zone lies just offshore, where the Pacific plate scrapes under the continental plate of mainland Alaska, causing much of this earthquake activity. A tectonic tsunami is caused by an earthquake that shifts the ocean bottom, which displaces water. In addition to earthquakes, landslides and icefalls have historically caused tsunamis in Alaska (Reference 8).

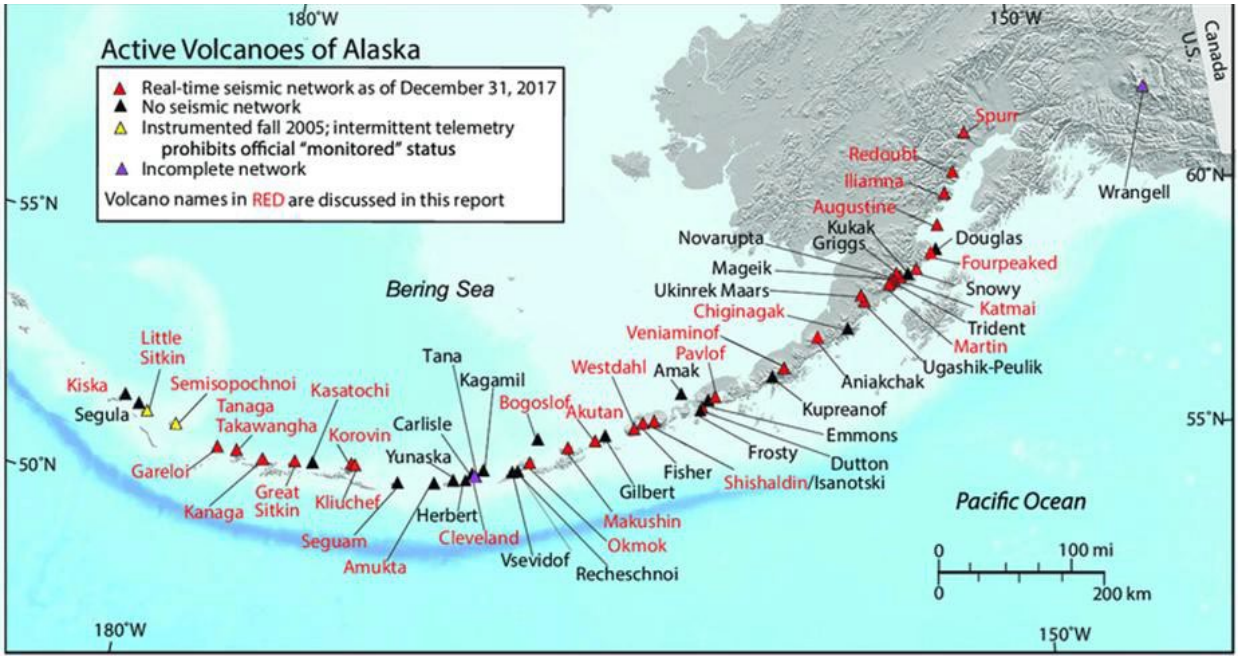
In 1964, an earthquake offshore of Seward, Kenai Peninsula, triggered a detrimental tsunami. About 25 minutes after the earthquake and local tsunami event, the tectonic tsunami event arrived in Seward, destroying most of the facilities near the former shore, including a fuel tank farm that started the first of many fires. Additionally, the local tsunami spread floating, burning oil, which ultimately engulfed another large fuel tank farm further inland. The main dock collapsed with the waterfront and sank 30 fishing boats and 40 pleasure craft in the small boat harbor. The local tsunami also heavily damaged the railroad yards and moved 120-ton locomotive 100 feet and 75-ton locomotive 300 feet. The waves carried flaming oil and debris into Seward and set fire to a large section of the town. Overall, Seward lost about 95% of its industrial base and 15% of its residential properties. There were 12 fatalities, 200 injuries, and approximately $14 million in damages.

Inundation mapping can be an extremely useful strategy to mitigate against tsunami damages and threats (Reference 14). The Alaska Department of Natural Resources, in partnership with the Alaska Earthquake Center and the Division of Homeland Security and Emergency Management, publishes maps of potential inundation. Figure 8 identifies the communities that have received inundation mapping from tsunamis. These maps represent various scenarios that a community may experience when affected by various levels of tsunami impacts. State and local Hazard Mitigation Plans identified that the southern and eastern zones of the Kenai Peninsula are particularly vulnerable to tsunami and seiche threats. However, only three communities in the borough have robust scenario modeling that has been captured in community planning to mitigate the hazard.

### *Volcanoes*

A volcano is “a vent in the surface of the Earth through which magma and associated gases and ash erupt; also, the form or structure (usually conical) that is produced by the ejected material”. Alaska is home to more than 130 volcanoes, with 90 of them being active within the past 10,000 years and more than 50 having been active since approximately 1760 Reference 15). These volcanoes range from the Wrangell Mountains to the Aleutian Islands. An average of one to two eruptions per year occur in Alaska. In 1912, the largest eruption of the 20th century occurred at Novarupta and Mount Katmai, located in Katmai National Park on the Alaskan Peninsula. Possible hazards from volcanic eruptions include volcanic ash, volcanic tsunamis, lahars and floods, volcanic gases, pyroclastic flows and surges, ballistics, lava flows and lava domes, rockfalls and landslides, debris avalanches, and directed blasts (Reference 15).

**Figure 9: Active volcanoes in Alaska**

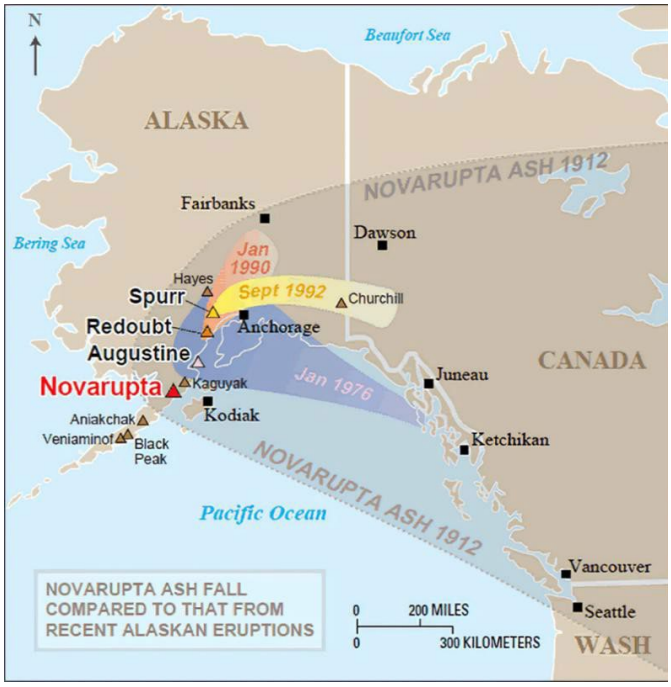



Source: Alaska Volcano Observatory Alert and Forecasting Timeliness: 1989–2017 - Scientific Figure on ResearchGate. Available from: https://www.researchgate.net/figure/Map-showing-location-of-active-volcanoes-in-Alaska-volcanoes-discussed-in-this-report_fig1_326635575

### *Volcanic Ash*

There are a number of hazards that are associated with volcanic eruptions. While direct eruption impacts will not affect much of Alaska's population, indirect effects such as volcanic ash will disrupt significant parts of the State. Volcanic ash consists of small, jagged pieces (less than 1/12 inch in diameter) of rocks, minerals, and volcanic glass sent into the air by a volcano (Reference 6). Volcanic ash is created during an explosive volcanic eruption. Alaska's volcanic activity is dominated by explosive volcanism. Volcanic ash can accumulate on rooftops, power lines, or other structures, causing them to collapse. Wet ash can conduct electricity and may cause a short circuit or the failure of electrical components. Ash fall may interfere with telephone and radio communications. Ash also can interfere with the operation of mechanical equipment, including aircraft. In Alaska, this is a major problem as many major flight routes are near historically active volcanoes.

**Figure 10: Novarupta ash fall**




However, during more recent eruptions, communities have not received significant amounts of ashfall. Although even the smallest amount of ashfall has resulted in infrastructure impacts (15). Ash falling or resuspended also can reduce visibility and make roads and runways slippery, making transportation difficult. Ash may be a health risk, especially to people with cardiac or respiratory conditions, children, and the elderly. Ash is abrasive and can injure eyes. Ashfall can disrupt power service. Power generation facilities may close to prevent equipment damage. As wet ash is conductive, equipment may need to be shut down to be properly cleaned or serviced (Reference 13). Ash can contaminate water supplies, making them unsafe to drink. Volcanic ash can cause changes in water quality (turbidity, acidity, and chemistry), increase wear on water delivery and treatment systems, and cause a high demand for water during cleanup activities. Building roofs may collapse under the weight of the ash.

### *Cryosphere Hazards*

The "cryosphere" is where water is in solid form. The largest part of the cryosphere is ice and snow on land. This includes the continental ice sheets found in Greenland and Antarctica, as well as ice caps, glaciers, and areas of snow and permafrost. The other part of the cryosphere is ice found in water. This includes frozen parts of the ocean, such as the water surrounding Antarctica and the Arctic. It also includes frozen rivers and lakes, which mainly occur in polar areas, such as Alaska.

The cryosphere is one of the first places where scientists can identify global climate changes. Increases in ice loss from the glaciers of the Arctic are contributing to sea level rise, while similarly dramatic changes are occurring in the sea-ice cover of the southern oceans. Alaska is particularly vulnerable to cryosphere hazards, as much of its social and economic activity is connected to the existence of snow, ice, and permafrost. Cryosphere hazards can be subdivided into four major groups: glaciers, permafrost and periglacial, sea ice, and avalanches.

### *Glaciers*

Glaciers are made of compressed snow, which has survived summer and transformed into ice. Over many years, layers of accumulated ice buildup into large, thickened ice masses. Hazards related to glaciers include ice collapse (e.g., glacial calving and ice fall avalanche), glacial lake outburst floods, and glacial surges.

Glaciers continue to melt in Alaska, with an estimated loss of 75 ± 11 gigatons (Gt) of ice volume per year from 1994 to 2013. Nearly 70% of glacial melt is coming from land-terminating glaciers; this rate is nearly double the 1962–2006 rate. Several new modeling studies suggest that the measured rates of Alaska ice loss are likely to increase in the coming decades, with the potential to alter streamflow along the Gulf of Alaska and change Gulf of Alaska nearshore food webs (Reference 10).

### *Permafrost and Periglacial*

Permafrost and periglacial hazards are caused by the effects of changing perennially frozen soil, rock, or sediment (known as permafrost) and extreme seasonal freezing and thawing. Permafrost is considered soil that is at or below the freezing point of water (32°F) for 2 or more years. Permafrost is found in nearly 85% of the State.

The presence of widespread permafrost results in classes of geologic hazards, which are largely unique to Alaska. Permafrost is structurally important to the soils of Alaska, and thawing causes landslides, erosion, lake disappearances, new lake development, and saltwater encroachment into aquifers and surface waters. The greatest threat is that when permafrost thaws, the ground sinks (known as subsidence). This causes damage to buildings, roads, and other infrastructure. Relative to the State, the jurisdictions of interest have a low permafrost hazard risk.

Degradation of permafrost is expected to continue, with associated impacts to infrastructure, river and stream discharge, water quality, and fish and wildlife habitat. Spatial modeling projects indicate that near-surface permafrost will likely disappear on 16% to 24% of the landscape by the end of the 21$^{st}$ century (Reference 10).

### *Sea Ice*

Sea ice is frozen ocean water that forms, grows, and melts in the ocean. Sea ice grows during the winter and melts during the summer; however, some sea ice remains all year in certain regions. Hazards from sea ice include threats to shipping from running into ice, equipment or personnel breaking through ice when it is used as a seasonal platform for development activities, and slush ice build-up that can clog intake valves. A lack of sea ice during fall and winter increases the risk of coastal flooding and erosion from storms in northern and western Alaska because the ice is not there to protect the shore.

### *Avalanches*

Avalanches are the greatest cryosphere hazard for the jurisdictions of interest. A snow avalanche is a downhill mass movement of snow. Their size, run-out distance, and impact pressure vary. Large avalanches have the potential to kill people and wildlife, destroy infrastructure, level forests, and bury entire communities. Triggers can be natural (e.g., rapid weight accumulation during or just after a snowstorm or rain event, warming temperatures, seismic shaking) or artificial (e.g., human weight or avalanche control artillery). Significant avalanche cycles (multiple avalanches naturally releasing across an entire region) are generally caused by long periods of heavy snow. However, avalanche cycles also can be triggered by rain-on-snow events, rapid warming in the spring, and earthquakes.

Numerous snow avalanches occur in Alaska every year due to abundant avalanche-susceptible terrain and large amounts of snowfall. Many highways, railroads, and multiple communities are at risk of avalanche hazards every winter, some of which can be particularly costly. For example, a typical road closure with roughly 1,500 cubic feet of snow covering the road costs the Alaska Department of Transportation and Public Facilities approximately $10,000 to remove (Reference 7). In the winter of 1999/2000, unusually high snowfall from the Central Gulf Coast Storm fueled avalanches in Matanuska-Susitna Borough. Damages in these communities exceeded $11 million, resulting in the first presidentially declared avalanche disaster in U.S. history.

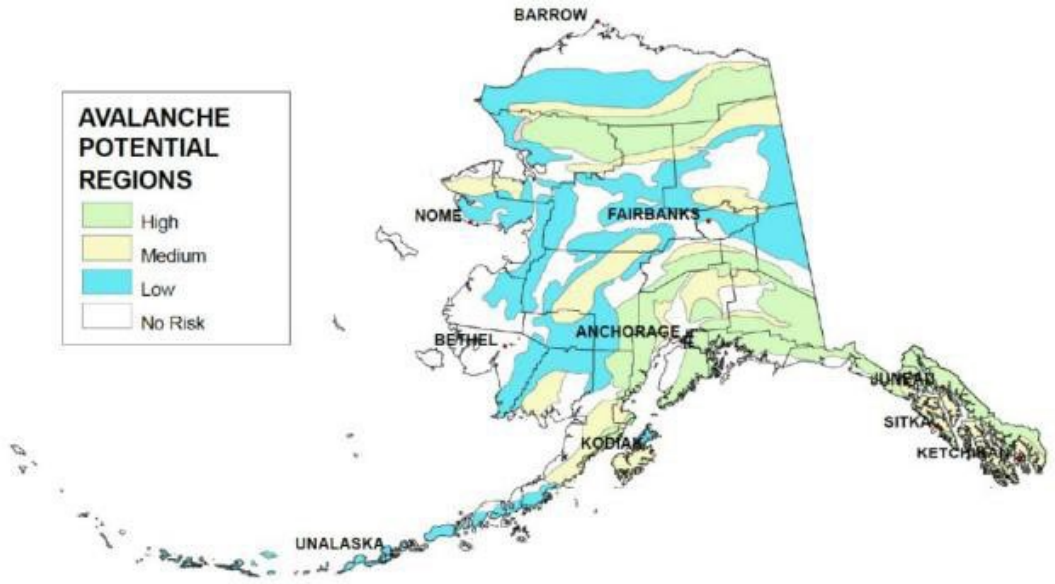
Snow avalanches cause more fatalities in Alaska than any other natural hazard (Reference 5). Furthermore, Alaska leads the nation in avalanche accidents per capita. This is because some of the most-traveled roads pass through avalanche-prone areas, and because there is a high frequency of backcountry avalanches triggered by the many hikers, skiers, and snowmachine users (MSB HMP). There is growing exposure to this hazard as development continues to occur in avalanche-prone areas, and participation in winter recreational activities increases.

Return periods for snow avalanches are typically categorized into 1, 5–10, 30, 50–100, and 200–300 years (Reference 17). Due to the incomplete historical record of avalanche occurrences in Alaska, longer return periods cannot be confidently stated. Some studies suggest that a warming climate is increasing the risk of avalanche due to changes in snow accumulation and loss of snowpack stability because of changing air temperatures.

Source: Hackett, S.W and Santeford, H. S.. 1980. Avalanche zoning in Alaska, U.S.A. J. Glaciol., 26(94), 377–392

is a generalized avalanche potential map of Alaska that was produced in 1980 by compiling and cross-correlating topographic relief, snow avalanche regions, climatic zones, snowpack characteristics, and known and suspected avalanche activity. The map includes regions that had little or no snow avalanche occurrence data and is therefore provisional until better data are available and new analysis methods and avalanche modeling can be applied. Alaska avalanche studies are currently being carried out by the State of Alaska Division of Geological and Geophysical Surveys and the University of Alaska, Fairbanks.

**Figure 11: Potential Avalanche Regions**




Source: Hackett, S.W and Santeford, H. S.. 1980. Avalanche zoning in Alaska, U.S.A. J. Glaciol., 26(94), 377–392

The potential for the largest avalanches within the Municipality of Anchorage is in the Girdwood/Crow Creek area. In the Matanuska-Susitna Borough, the slopes throughout the Hatcher Pass area and the slope of Pioneer Peak between Goose Creek and the Knik River Bridge are well-known avalanche areas. In the Kenai Peninsula, avalanches that can affect infrastructure are a hazard primarily in the East Zone of the borough. Because the Kenai Peninsula is connected to Anchorage and the rest of the State by a single highway and rail line, avalanches blocking either can effectively isolate the Peninsula.

Climate has a major effect on cryosphere hazards because these hazards are so closely linked to snow, ice, and permafrost. Changes in climate can modify natural processes and increase the magnitude and recurrence frequency of certain geologic hazards (e.g., avalanches, floods, erosion, slope instability, permafrost thaw, glacial lake outburst floods). The Intergovernmental Panel on Climate Change (IPCC) reports that communities will be exposed and challenged to adapt to changes in the ocean and cryosphere even if current and future efforts to reduce greenhouse gas emissions keeps global warming well below 2°C. During the past several decades, Alaska has warmed twice as fast as the rest of the United States. Alaska's glaciers are in steep decline and are among the fastest melting glaciers on Earth.

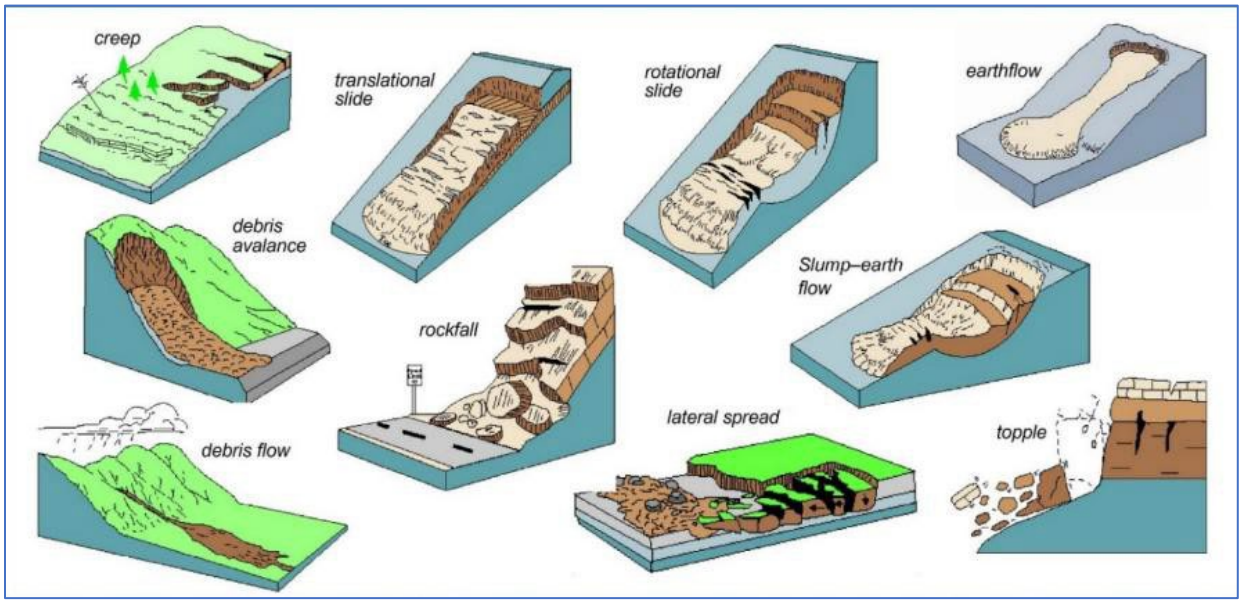
If not properly addressed, these changes could have a damaging effect on Alaska's communities, infrastructure, and livelihoods. The IPCC argues that while cryosphere-related mitigation measures have limited effectiveness to mitigate climate change and reduce its consequences on a global scale, they are useful for addressing local risks and often have co-benefits such as biodiversity conservation. Modeling and data sharing are critical to mitigating cryosphere-related threats to Alaskan communities and infrastructure. On-the-ground observations, in conjunction with remotely sensed data, provide the necessary information required to develop realistic models of the interacting environmental hazards and how to integrate their effects into a unified understanding of the threat.

### *Landslides*

A "landslide" is a general term for the downslope movement of rock, soil, or both under the influence of gravity. The style of movement and resulting landform or deposit are influenced by the rock and soil type,

slope location, and how fast the rock or soil moves. Landslides occur when the strength of rocks or soil is exceeded by the stress applied to those hillslope materials. Landslide triggering mechanisms work in conjunction with the causes. Triggers are the external stimuli that can initiate slides and include rainfall, earthquake shaking, volcanic eruptions, rapid groundwater change, and slope modification by humans. In Alaska, degrading permafrost, steep slopes, heavy rain, retreating glaciers, and ground shaking from earthquakes are some of the important natural mechanisms that can trigger devastating landslides. The most common landslide types can be categorized as displayed in Figure 12.

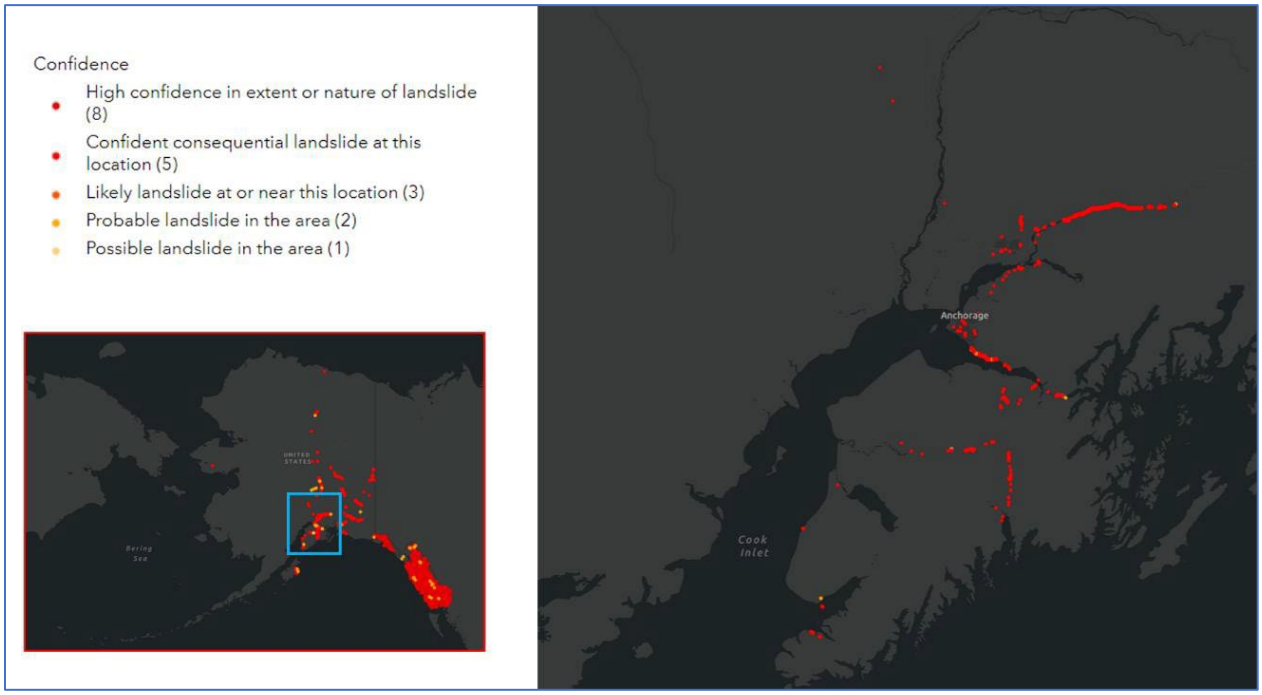
**Figure 12: Common Landslide Types**




Source: USGS.

No systematic catalog of landslide occurrence or impact is maintained in the United States. One complication is that landslides are often considered to be a secondary hazard associated with a primary extreme event, such as an earthquake. This makes compiling statistics on landslides and their impact difficult, and their impacts are likely underestimated. FEMA has developed a Landslide Risk Index score that represents a community's relative risk for landslides when compared with the rest of the United States. Notably, Alaska does not receive a score due to insufficient data. However, USGS does maintain a Landslide Inventory that presents historical landslides based on confidence intervals of accordance (Figure 13). The map shows that there is high confidence that landslides have occurred in all three of the jurisdictions of interest.

**Figure 13: USGS Landslide Inventory**




The Municipality of Anchorage does have seismic-induced landslide hazard data. In 2009, the United States Geological Survey (USGS) completed a report on seismic landslide hazards in the Anchorage Bowl. This study found the Bootlegger Cove Formation to be the most at risk area for a deep translational landslide as well as Turnagain Heights, Downtown, Government Hill, and along the western portion of Chester Creek and Ship Creek. Areas that have high and very high shallow landslide hazards include Government Hill, along Chester Creek, along the Turnagain and Knik Arms, and Campbell Lake. The Chugiak/Eagle River and Turnagain Arm areas were not included in this report. Based on an average Municipality of Anchorage household size of 2.65, there are approximately 5,955 people living in areas that are vulnerable to deep, translational landslides and an additional 3,729 living in the adjacent areas (Reference 6). Infrastructure, including buried pipes, also are vulnerable to ground failure. The Kenai Peninsula and Matanuska-Susitna Boroughs do not profile landslides in their Hazard Mitigation Plans.

Studies show that changing climate conditions can increase the frequency of fast-moving, catastrophic landslides. Alaska's warming surface temperatures and thawing permafrost are impacting slope stability and increasing a variety of ground failure risks. A warming climate has caused many areas to become unstable, and future warming will increase landslide risk throughout the State, especially in permafrost and glacial regions. Increases in tsunami-producing landslides in southeastern Alaska can be attributed to retreating glaciers and thawing permafrost. Rock-ice face collapse is most common in areas with glaciers and steep topography, frequently the same areas that attract tourists. At the same time, population growth and the expansion of settlements and lifelines over potentially hazardous areas are increasing the likelihood of landslide impacts.

## 2.5 Social Vulnerability and Affirmatively Furthering Fair Housing Mapping

In addition to environmental risks, a community's ability to respond and recover from disaster also is dependent upon socioeconomic and demographic factors. This analysis utilized the Centers for Disease Control and Prevention (CDC) and Agency for Toxic Substances and Disease Registry (ATSDR) 2018 Social Vulnerability Index (SVI), the American Community Survey (2020), and the Council on Environmental Quality Climate and Economic Justice Screening Tool to analyze social vulnerability in the Municipality of Anchorage, Matanuska-Susitna Borough, and the Kenai Peninsula Borough. These tools were chosen because they provide important information that align with Affirmatively Furthering Fair Housing, HUD's Advancing Equity in Disaster Recovery Consolidated Notice, and Justice40 Initiative aims. The goal of the Justice40 Initiative is to provide 40% of the overall benefits of certain federal investments in seven key areas to disadvantaged communities. These seven key areas are climate change, clean energy and energy efficiency, clean transit, affordable and sustainable housing, training and workforce development, the remediation and reduction of legacy pollution, and the development of critical clean water infrastructure. An examination of the data reveals that there are disadvantaged communities and socially vulnerable populations in the targeted Municipality of Anchorage, the Matanuska-Susitna Borough, and the Kenai Peninsula Borough.

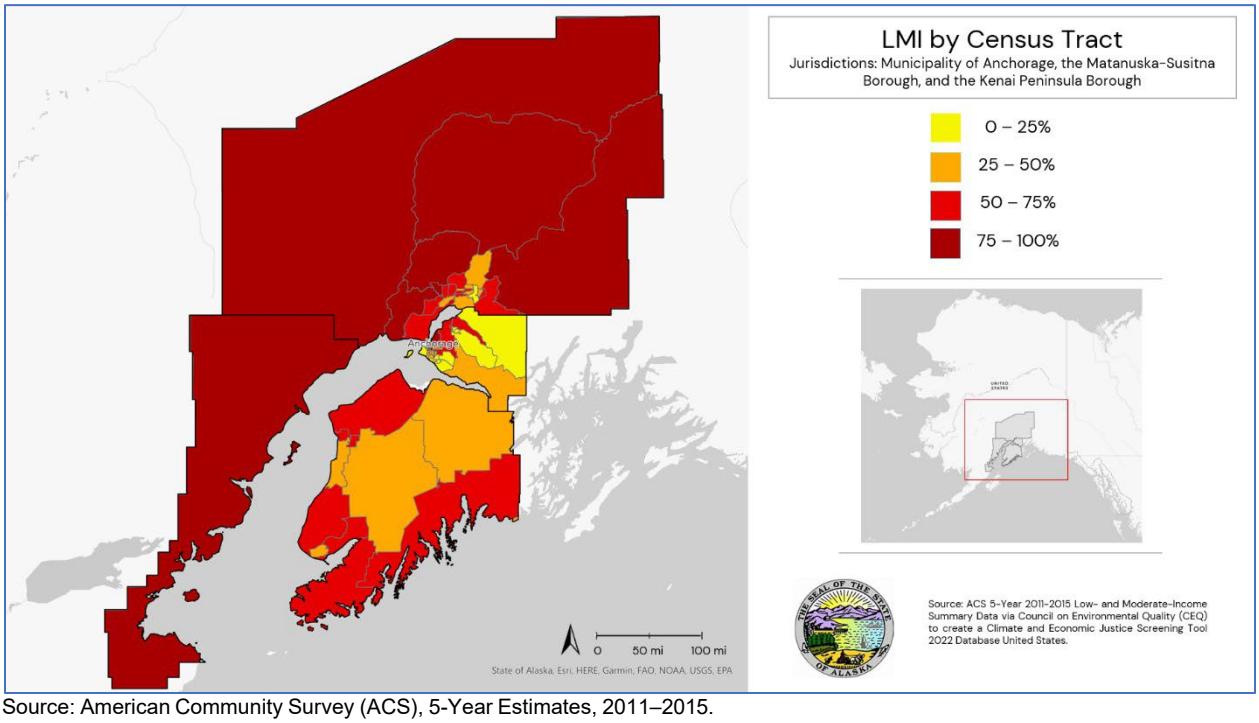
**Table 9: Social Vulnerability Indicators by Jurisdiction (rounded to the nearest percent)**

| Indicator | | Anchorage | Matanuska-Susitna | Kenai Peninsula | State |
|---|---|---|---|---|---|
| SVI | (CDC, 2018) | 0.46 | 0.32 | 0.41 | N/A |
| Percentage Minority (all persons except white, , non-Hispanic) | (American Community Survey [ACS], V2021) | 44% | 22% | 21% | 41% |
| Percentage American Indian and Alaska Native | (ACS, V2021) | 9% | 7% | 8% | 16% |
| Percentage with a Disability | (ACS, 2020) | 11% | 14% | 15% | 12% |
| Percentage Below the Poverty Line | (ACS, 2020) | 9% | 10% | 13% | 10% |
| Home Ownership Rate | (ACS, 2020) | 62% | 77% | 75% | 65% |
| Percentage of Low- to Moderate-Income Persons | (ACS, 5-Year Estimates, 2011–2015, HUD FY 2021) | 37% | 40% | 39% | N/A |

*Numbers in blue are boroughs where the indicator score is higher (or in some cases lower where relevant) than the state average noting higher than average social vulnerability.

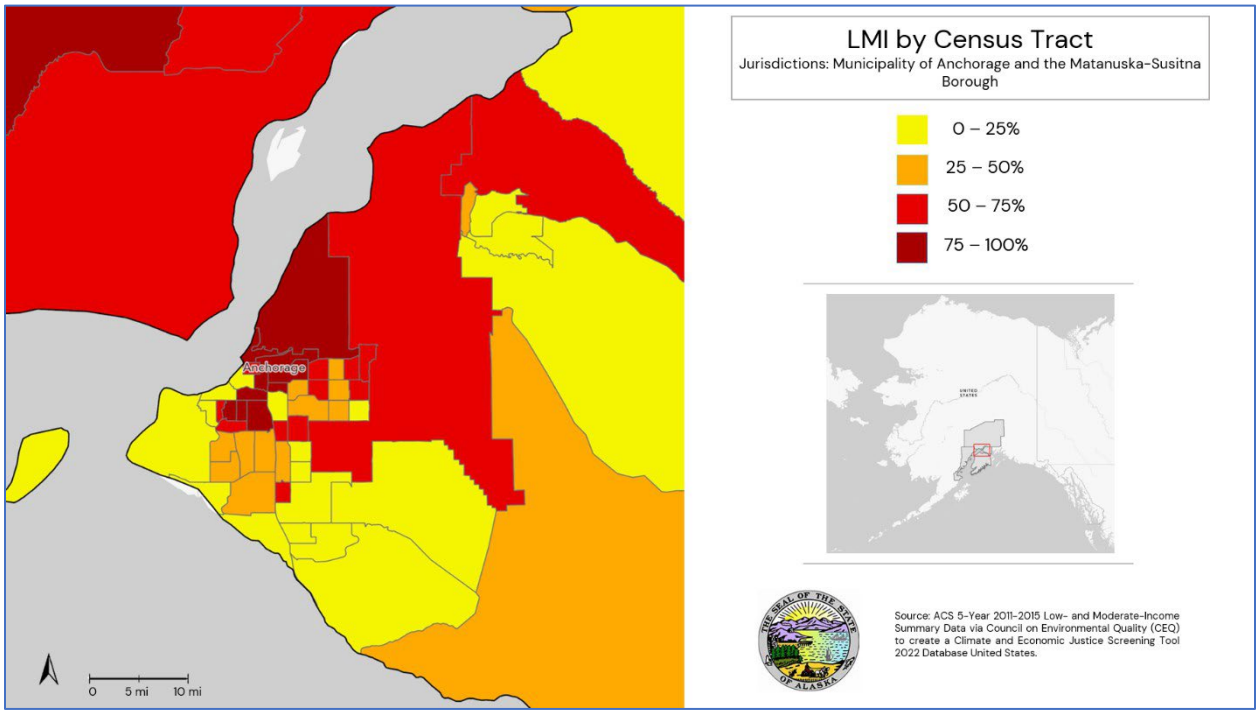
The CDBG Program requires that each CDBG-funded activity must either principally benefit low- to moderate-income (LMI) persons, aid in the prevention or elimination of slums or blight, or meet a community development need having a particular urgency. Most activities funded by the CDBG Program are designed to benefit LMI persons. The following maps show the LMI percentages by census tract in the jurisdictions of interest.

**Figure 14: LMI by Census Tract**




Source: American Community Survey (ACS), 5-Year Estimates, 2011–2015.

**Figure 15: LMI by Census Tract in the Municipality of Anchorage**

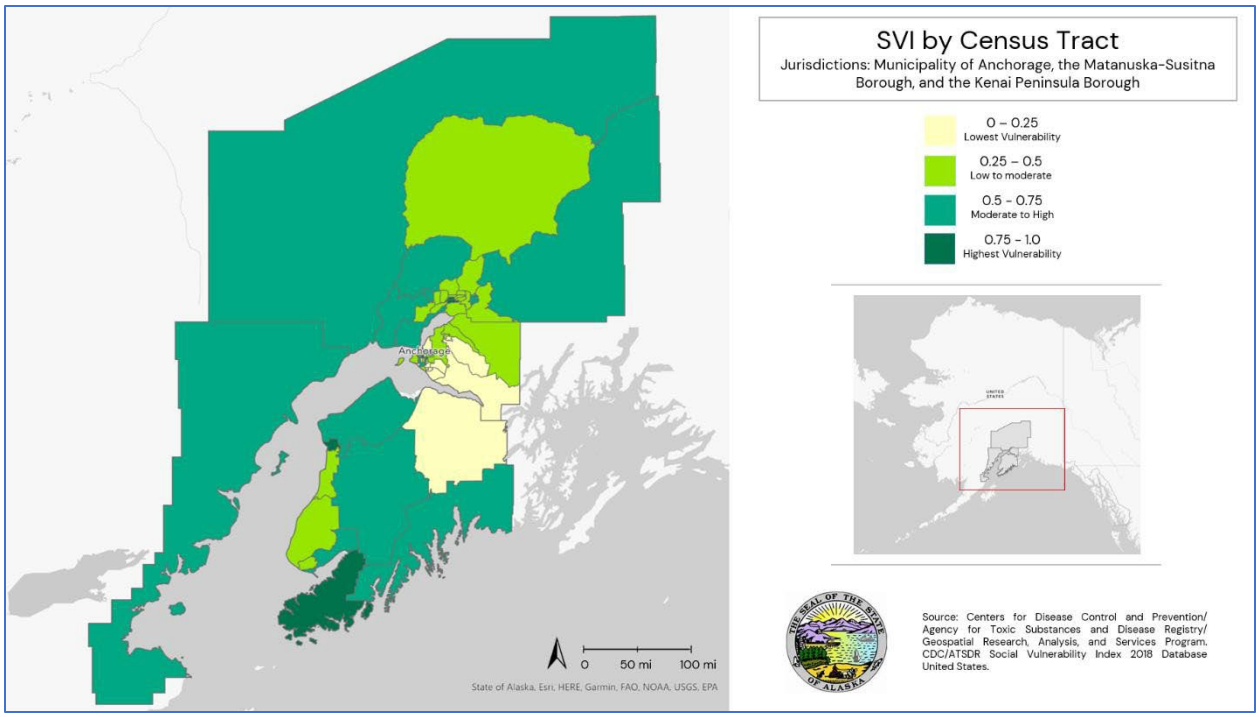



Source: ACS, 5-Year Estimates, 2011–2015.

### *Social Vulnerability Index*

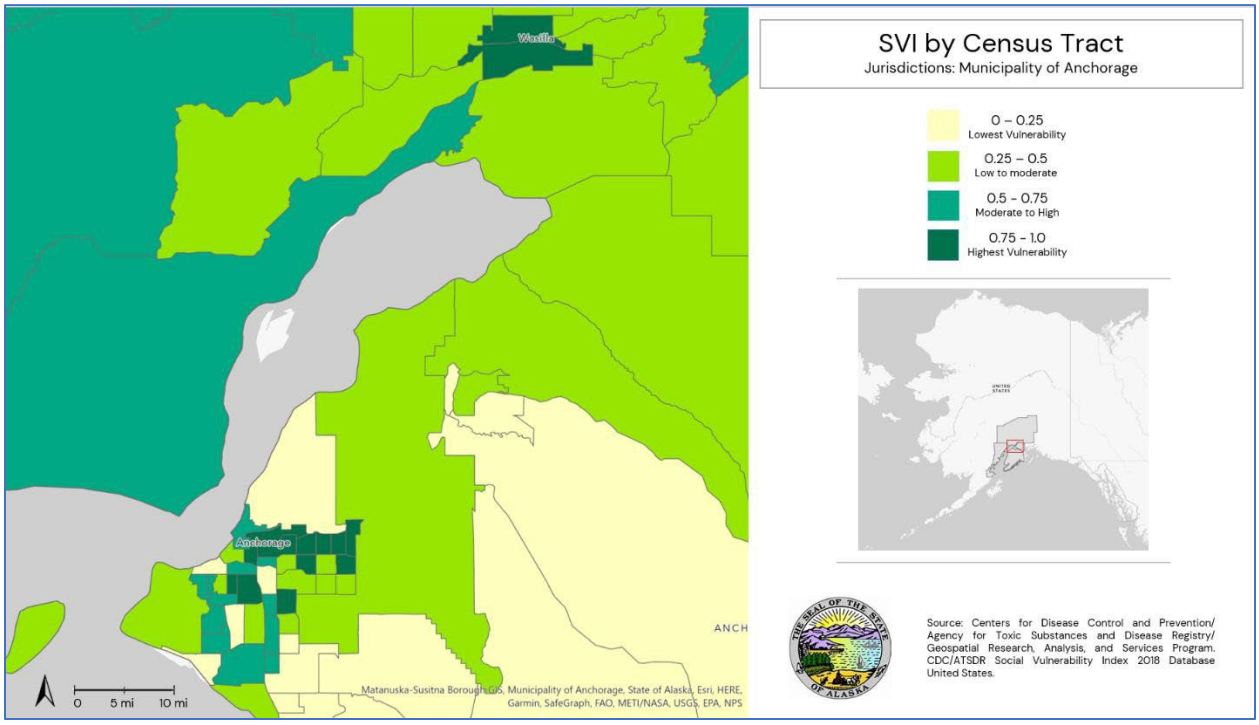
According to the CDC/ATSDR's Social Vulnerability Index (SVI), there are several areas of the impacted regions that are socially vulnerable or have a high concentration of residents who are living below the poverty line, have one or more disabilities, or are a minority. The SVI ranks counties and tracts on 15 social factors, including unemployment, minority status, and disability, and further groups them into four related themes. The CDC/ATSDR's SVI ranking variables for the four themes are Socioeconomic Status, Household Composition and Disability, Minority Status and Language, and Housing Type and Transportation. These indicators help support analysis on the relative vulnerability of a given census tract and help identify communities that will need continued support to recover following an emergency or natural disaster. The overall ranking is a percentile ranking calculation that represents the proportion of tracts that are equal to or lower than a tract of interest in terms of social vulnerability. For example, a CDC/ATSDR SVI ranking of 0.60 signifies that 60% of tracts in the nation are less vulnerable than the tract of interest and 40% of tracts in the nation are more vulnerable (see Figures 16 and 17 for SVI maps).

**Figure 16: SVI Index by Census Tract, Target Jurisdictions**




Source: CDC, 2018.

**Figure 17: SVI Index by Census Tract, Municipality of Anchorage**

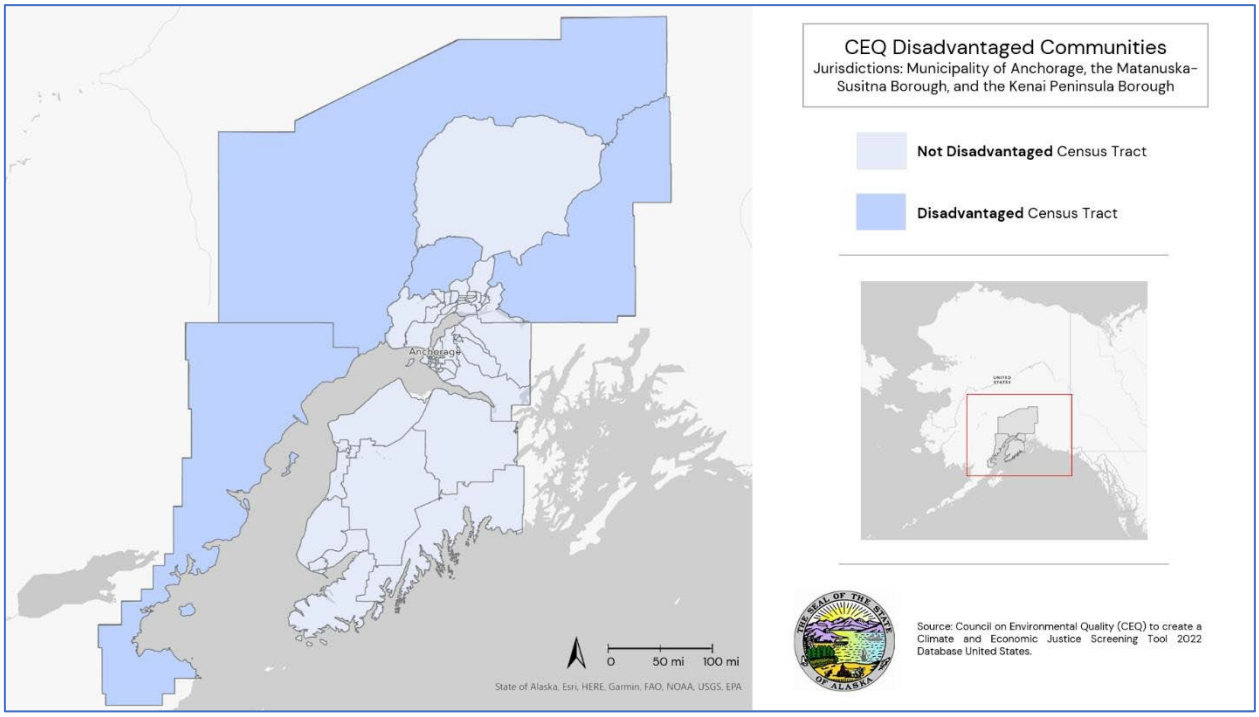



Source: CDC, 2018.

### *Council on Environmental Quality Climate and Economic Justice Screening Tool*

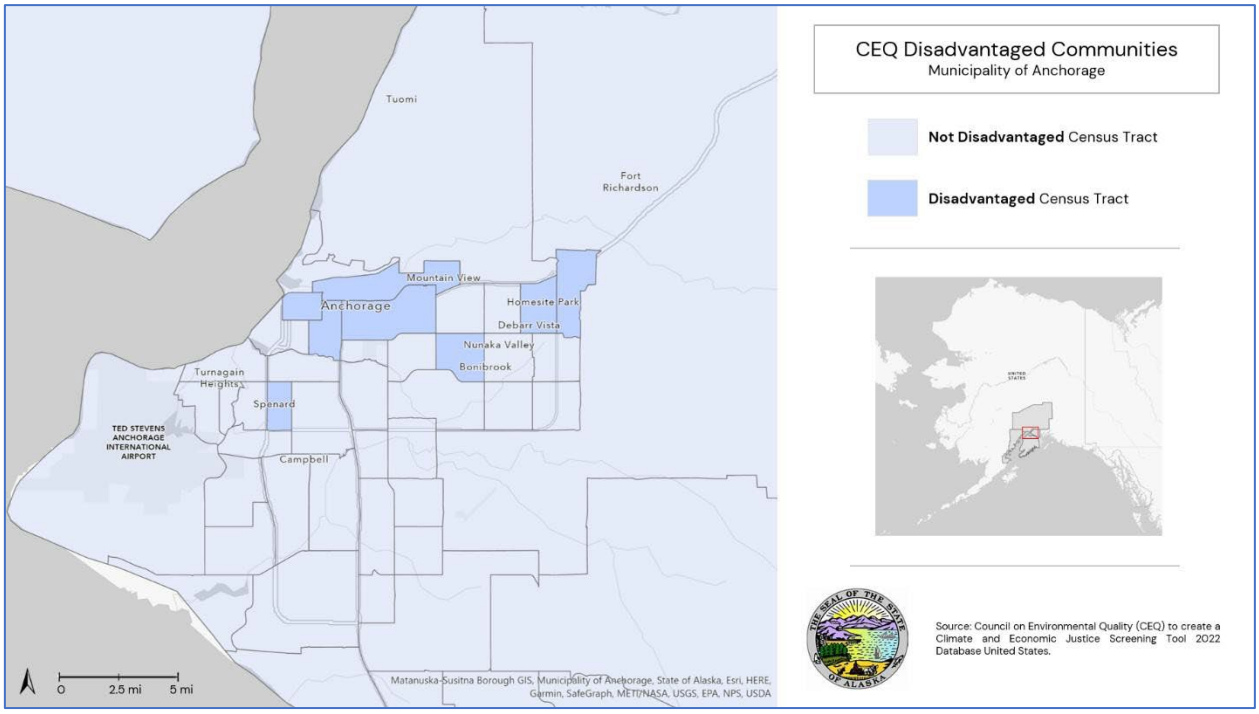
The Council on Environmental Quality (CEQ) Climate and Economic Justice Screening Tool also identified socially vulnerable residents in the jurisdictions of interest. The CEQ defines “disadvantaged communities” as those that are, based on census tract-level data, (1) above the 65$^{th}$ percentile for low income, (2) at or below 20% for higher education enrollment rate, and (3) above the threshold for one or more environmental or climate burdens related to underinvestment. Environmental and climate burden indicators are grouped into eight categories: climate change, clean energy and energy efficiency, clean transit, affordable and sustainable housing, reduction and remediation of legacy pollution, critical clean water and wastewater infrastructure, health burdens, and training and workforce development. See Figures 18 and 19 for CEQ indicators and maps.

**Figure 18: Council on Environmental Quality Disadvantaged Communities**




While the majority of the study area is shown as "Not Disadvantaged," there are disadvantaged communities in all three jurisdictions of interest. The Municipality of Anchorage, the Matanuska-Susitna Borough, and the Kenai Peninsula Borough have communities that are predominantly deemed to be disadvantaged because they are above the climate change indicator threshold. Critically, in the Matanuska-Susitna Borough and Kenai Peninsula Borough, all census tracts that are deemed to be disadvantaged rank in the 99$^{th}$ percentile for the rate of fatalities and injuries resulting from natural hazards annually. There are multiple census tracts in Anchorage that exceed at least one threshold, deeming it to be disadvantaged (Figure 19).

**Figure 19: Council on Environmental Quality Disadvantaged Communities**




Many census tracts in Anchorage are identified as disadvantaged in three or four out the total of eight categories. Notably, parts of downtown Anchorage rank between the 95th and 98th percentiles for the rate of fatalities and injuries resulting from natural hazards annually. Communities also are flagged as disadvantaged due to high rates of low life expectancy, linguistic isolation, proximity to legacy pollution, and housing cost burdens.

## 2.6 Community Lifelines/Critical Facilities/Indispensable Services

Lifelines serve as fundamental services, resources, and assets in a community that, when stabilized, enable all other aspects of society to function. If these services are placed in jeopardy or are completely removed, decisive intervention to re-establish these services is required. FEMA's community lifelines create a national standard for disaster response, recovery, and preparedness, including mitigation. The lifelines recognize that communities depend on a network of interdependent systems that involve public and private entities, including everything from utilities and hospitals to grocery stores.

Indispensable services are those that enable continuous operation of critical business and government functions and/or are critical to human health and safety and economic security. As part of the State's Hazard Mitigation Plan, the State defined and quantified "critical facilities" to include buildings that function as airports, communications, emergency operations, fire stations, hospitals or health clinics, military facilities, police stations, schools, detention centers, or miscellaneous facilities that would be needed during or immediately after a natural disaster.

Table 10 lists the various critical facilities and assets held by vulnerable municipalities/boroughs.

**Table 10: Critical facilities and assets held by HUD and State MIDs**

| Municipality/ Borough | No. of Critical Facilities | Land Appraisal | Building Appraisal | Total Land and Building Appraisal |
|---|---|---|---|---|
| Anchorage | 112 | $14,207,624,500 | $25,767,215,100 | $39,974,839,600 |
| Kenai Peninsula | 60 | N/A | $567,215,800 | $567,215,800 |
| Matanuska-Susitna | 188 | $50,845,900 | $1,217,196,766 | $1,268,042,666 |

It is important for Alaska to consider critical facilities in the context of FEMA's community lifelines because it ensures that the State and its communities have allocated resources efficiently and equitably. These lifelines also ensure that health care, medical, public health, and critical facilities can remain operational if impacted by any natural hazard. It is important to ensure that these facilities have the proper plans and workflows so that they are able to serve citizens when they are in need. If the State does not have plans to address these lifelines, additional undue harm can fall upon citizens and hinder recovery efforts. FEMA identifies the following seven lifelines:

1. Safety and Security
2. Food, Water, and Shelter
3. Health and Medical
4. Energy
5. Communications
6. Transportation
7. Hazardous Materials

Each municipality/borough Hazard Mitigation Plan considers the severity and likelihood of various disasters that would threaten the integrity of services/resources that are critical for the community. The Anchorage, Matanuska-Susitna, and Kenai Peninsula plans adequately analyze each disaster and critical facilities that might be under threat from probable hazards. The plans also include the importance of critical facilities in surveys to gain insight on what critical facilities their communities deem to be important. While all of the Hazard Mitigation Plans evaluate critical facilities' susceptibility to natural hazards with a different methodology, they all generally prioritize certain facilities and their likelihood of failure.

Table 11 features a matrix capturing each Hazard Mitigation Plan's reference to FEMA's community lifelines. Listed on the left are the seven community lifelines created by FEMA. For this methodology, the State evaluated each plan's reference to and goals centered around each lifeline. Plans that referenced certain lifelines were given an "x". This noted that a hazard mitigation plan did reference In order to consider each plan's consideration of critical facilities in the context of community lifelines, the State analyzed each Hazard Mitigation Plan's goals, hazard analysis, vulnerability assessment, and public comments. For each borough/municipality to obtain an "x" for a lifeline, the Hazard Mitigation Plan needed to reference the lifeline as a hazard and identify critical facilities that may be under threat from such a hazard. Goals and/or possible mitigation strategies that responded to the threats to critical facilities also were considered.

## Lifeline Priorities in Hazard Mitigation Plans

Below are highlights of several lifelines that each municipality extensively detailed and prioritized in their Hazard Mitigation Plans.

**Table 11: Lifeline priorities detailed in Hazard Mitigation Plans**

| Community Lifeline | State | Anchorage | Matanuska-Susitna | Kenai Peninsula |
|---|---|---|---|---|
| Safety and Security | x | x | x | x |
| Food, Water, and Shelter | x | x | x | x |
| Health and Medical | x | x | x | x |
| Energy | x | x | x | x |
| Communications | x | x | x | x |
| Transportation | x | x | x | x |
| Hazardous Materials | x | x | | x |

Transportation is an important lifeline identified in all Hazard Mitigation Plans. Roads and infrastructure-related facilities such as ports and railroads have been identified as vulnerable by local and State Hazard Mitigation Plans, especially with regard to hazards such as flooding, earthquakes, and tsunamis. It is important to protect these assets because they serve as a way for Alaskan communities to connect with the rest of the nation and with one another. These facilities also are limited in number, meaning that harm to any asset will significantly hamper a community's ability to recover.

Schools also are an important lifeline mentioned in all Hazard Mitigation Plans, as well as in public comments. Schools are a symbolic part of communities and serve as a place for families and leaders to gather. During disasters, they often serve as shelters or places where families can reunite with one another. They also serve as places where people can receive information about assistance and aid in the aftermath of disasters. It is important for these facilities to have adequate plans and resources to evacuate students and operate as community facilities/shelters during times of disaster. Schools also can serve as areas of outreach, where education for disaster response can occur (e.g., stop, drop, and roll).

## Municipality of Anchorage

The Municipality of Anchorage All-Hazards Mitigation Plan analyzes the impact that each natural hazard will have on critical facilities under each hazard profile. The plan also created a matrix analyzing the probability of each hazard and the impact that each hazard will have on the municipality's population. This is matrixed to identify the most vulnerable critical facilities. As shown in Table 12, earthquakes, wildfires, and communications failures pose the greatest threats to the municipality. For each disaster, potential property damage was estimated using geographic information system analysis.

**Table 12: Hazard Rating Matrix**

**B. Table 1.2 Hazard Rating Matrix**

| | Frequency | | | |
|---|---|---|---|---|
| | **Has not occurred yet** | **Low (11-100 years)** | **Medium (5-10 years)** | **High (1-4 years)** |
| **Catastrophic (Deaths or Injuries: 50 or more)** | | Severe Earthquake | | |
| **Critical** | | | Wildfire | Communications Failure |
| **Limited** | Energy Emergency | Civil Disturbance | Ground Failure/Landslide | Avalanche<br>Extreme Weather<br>Urban Fire<br>Transportation Accident |
| **Negligible** | Dam Failure<br>Severe Erosion | | Volcano Ash Fall | Minor Earthquake<br>Flooding |

***Catastrophic:*** More than 50 deaths/injuries; complete shutdown of critical facilities for 20 days or more; more than 50% property damage; severe long-term effects on economy; severely affects state/local/private sectors' capabilities to begin or sustain recovery activities; overwhelms local and state response resources.

***Critical:*** 10-50 deaths/injuries; shutdown of critical facilities for 8-30 days; 25-50% property damage; short-term effect on economy; temporarily (24-48 hours) overwhelms response resources.

***Limited***: Fewer than 10 deaths/injuries; shutdown of critical facilities for 3-7 days; 10-25% property damage; temporary effect on economy; no effect on response system.

***Negligible:*** Minor injuries; no deaths; shutdown of critical facilities for fewer than 3 days; less than 10% property damage; no effect on economy; no effect on response system.

*Source: 2015 EOP*

## Kenai Peninsula Borough

The Kenai Peninsula Borough All-Hazard Mitigation Plan identifies each community that is at risk of the highest probability of natural hazards. With this methodology, the All-Hazard Mitigation Plan lists the value of all at-risk essential facilities and structures. They note that the South Zone does not have the largest population of highest structural value, but it has the largest number of critical facilities and highest hazard probabilities. The borough has made sure that proper building codes and backups are in place. These facilities are designated as Risk Category IV, ensuring that they remain functional.

## Matanuska-Susitna Borough

The Matanuska-Susitna Borough Hazard Mitigation Plan finds that earthquakes and wildfires pose the greatest threat to supporting critical facilities and resources (Reference 7). The borough has guidelines which ensure that all critical facilities are built above the 500-year floodplain. The borough also has ensured that critical facilities have proper protection (placing emergency generators in hospitals) and that critical facilities have proper evacuation training and planning.

All of these Hazard Mitigation Plans adequately acknowledge their critical facilities and have robust methodologies to address the vulnerability of these facilities to natural hazards. However, to adequately respond to these identified vulnerabilities, these municipalities will need resources to plan for and implement strategies to mitigate the effects of these hazards.

# 3. Coordination and Consultation

In the development of a CDBG-MIT Action Plan, HUD requires grantees to consult with various governmental and nongovernmental stakeholders. This is to ensure that the needs and perspectives of a range of stakeholders factor into the CDBG-MIT allocation plan and ensure that CDBG-MIT funding is coordinated with other active or planned mitigation projects.

For this CDBG-MIT Action Plan, the Division has worked to leverage the State's existing coordination structure to engage the relevant stakeholders in the planning and coordination process for its funded activities. A component of this Action Plan process has been to adopt a stakeholder consultation plan that includes a list of stakeholders with whom the Division has conducted consultations, in-person and virtual meetings and presentations, solicited feedback through notification of proposed budgets, and an electronic survey used to collect opinions about the impacts of the disaster and highest priority mitigation needs. Beginning in July 2021, the Division has engaged in consultations across the three affected jurisdictions with the following entities:

- State Hazard Mitigation Officials
- Local Government Leadership and Hazard Mitigation Officials
- Federal Partners
- Public Housing Authorities
- Tribal Governments
- Private Sector
- Nongovernmental Entities
- Utilities and Public Works
- School Districts

The State of Alaska also has developed its FEMA-approved Hazard Mitigation Plan, which creates a coordinated effort to reduce Alaska's vulnerability to disasters. Along with the State, the three jurisdictions in the hazard area all have their own Hazard Mitigation Plans that detail coordination within their jurisdictions, cross-jurisdictionally, and with the State. The State understands that hazard mitigation planning before a disaster strikes is essential because hazards in Alaska cannot be eliminated. Through the development and implementation of this statewide Hazard Mitigation Plan, the State has an established method to pursue and engage Alaska agencies and jurisdictions in order to develop strong mitigation programs. Through this Action Plan, the Division is supporting long-term plans put in place by local and regional jurisdictions that promote sound, sustainable, long-term recovery planning informed by a post-disaster evaluation of hazard risks.

In the implementation of this plan, the Division will continue to coordinate with local and regional planning efforts to ensure consistency, promote community-level and/or regional jurisdictions' post-disaster recovery and mitigation efforts, and strive to leverage those efforts as programs funded through CDBG-MIT are implemented.

All mitigation projects listed in the Action Plan have been developed in a manner that considers an integrated approach to address the long-term sustainability and resilience of housing, public infrastructure, and economic revitalization in the MID area.

## 3.1 Local Government Leadership and Agencies

The Division has coordinated closely with the impacted jurisdictions through its Division of Community and Regional Affairs, which has administered CDBG-DR funding on behalf of the State of Alaska. In the implementation of this CDBG-MIT Action Plan, all impacted jurisdictions—the Municipality of Anchorage, Kenai Peninsula Borough, and Matanuska-Susitna Borough—participated in public outreach and coordinated planning efforts, including formal and informal meetings, discussions, email exchanges, and an electronic survey, beginning in July 2021.

### Mitigation Needs Presentation

Following the development of a risk-based Mitigation Needs Assessment in June 2022, the Division facilitated a presentation of the assessment to borough mitigation partners. The presentation included summaries of local hazard profiles, social vulnerability, threats to critical facilities, and the highest priority mitigation needs drawn from the assessment. More details are available in Section 2.

### Survey of MID Area Mitigation Partners

In August 2022, the Division sent a survey to more than 60 State and MID area mitigation partners, including local and State government officials, public agencies, private sector utilities and communications entities, tribal entities and organizations, and federal partners. The survey solicited opinions regarding impacts on the region's critical lifelines, priority mitigation activities, the need for coordination of mitigation, and types of mitigation activities that they would like to see implemented with the CDBG-MIT funds in their areas. A description of the survey and summary results can be found in Section 8.4, Appendix D.

## 3.2 Private Sector

The Municipality of Anchorage—the HUD MID—is the focal point of the State's economic activities and has a strong economic base that is continuously growing and supports the large State economy. The community is firmly established as the statewide trade, finance, service, transportation, and administrative center and is the distribution gateway for central, western, and northern Alaska. In addition to this, many workers commute daily into Anchorage from the surrounding area, with about 16,000 (Reference 20) trips being made daily from the Matanuska-Susitna Borough. The Division has worked to solicit input from representatives of the business community through the electronic survey and targeted solicitation following publication of a draft CDBG-MIT Action Plan. Additionally, in August 2022, the Division consulted with the Alaska Partnership for Infrastructure Protection as a component of its outreach process. This partnership works to integrate the private and public sector critical infrastructure owners into the municipal, State, and federal emergency framework, participating in all stages of the disaster cycle, from preparedness and mitigation through response and recovery.

## 3.3 Native American Tribes

The State of Alaska has many federally recognized Alaskan Native Tribes/Villages within the State. The State of Alaska has utilized HUD's searchable directory for tribes at https://egis.hud.gov/TDAT, with confirmation from the State Historic Preservation Officer, as well as local knowledge, in order to obtain contacts for the following tribes that still hold interest in the affected area. Each of the tribes were provided with a draft of the Action Plan and the survey for their comments. Several Alaska Native Tribes/Villages have FEMA-approved and community-adopted Hazard Mitigation Plans that were referenced in the creation of this Action Plan.

- **Chickaloon Native Village:** The Native Village of Chickaloon is a federally recognized tribe providing services to an estimated 2,373 Alaska Natives living in their Alaska Native Village Service Area, as well as the non-Native community members living in Glacier View, Chickaloon, Sutton, Palmer, and Butte.
- **Eklutna Native Village:** The Native Village of Eklutna has a population of 70 but serves many more members in the Municipality of Anchorage and the Kenai Peninsula Borough (KPB) and is located within the Municipality of Anchorage. The Eklutna Native Corporation (Eklutna, Inc.) has significant land holdings in the Municipality of Anchorage and KPB, with approximately 67,000 additional acres due to be conveyed from the Bureau of Land Management to the KPB.
- **Kenaitze Indian Tribe:** The Kenaitze Indian Tribe is a federally recognized tribe with more than 1,800 members who live across the Kenai Peninsula.
- **Knik Tribe:** The Knik Tribe is a federally recognized tribe providing State and federally contracted social, educational, and economic development services to members in the Upper Cook Inlet region of Alaska. Located in southcentral Alaska, the tribe has the largest Alaska Native Village Service Area for a single tribal government, covering 25,000 square miles. There are more than 10,000 Alaska Native residents within the Knik Tribal Service Area. The Knik Tribal Council has an old village site with historical significance; however, no people live there. Knikatnu, Inc. is the Native corporation landowner of the Knik Tribal Council's lands within the Kenai Peninsula Borough. The Knik Tribe coordinated with the Chickaloon Native Village in the development of their Hazard Mitigation Plan (Reference 21).
- **Native Village of Tyonek:** The Native Village of Tyonek is a federally recognized tribe based in Tyonek, located on the West Cook Inlet. This village is 40 miles south of Anchorage on the west side of the Cook Inlet and is only accessible by small plane or boat.
- **Ninilchik Village:** Ninilchik Village is an Alaska Native Tribe located in the southern part of the Kenai Peninsula. Ninilchik Village has a Hazard Mitigation Plan that was adopted in 2022 (Reference 22).
- **Native Village of Port Graham (Sugpiaq):** The Village of Port Graham is an isolated community at the southern end of the Kenai Peninsula on the south shore of Port Graham Bay.
- **Seldovia Village Tribe:** The Seldovia Village Tribe is a federally recognized tribe located on the southern Kenai Peninsula. The Seldovia Village Tribe has a tribal Hazard Mitigation Plan that they updated in 2019 (Reference 23).
- **Village of Salamatoff:** The Village of Salamatoff is located on the Kenai Peninsula.

## 3.4 Other Government Agencies (including State and Local Emergency Management)

Beginning in July 2021, the Division continuously coordinated allocation decisions with the State Hazard Mitigation Office and leadership from the three impacted boroughs who work directly with the development of their respective borough Hazard Mitigation Plans. All serve on the State Hazard Mitigation Advisory Committee. They were able to provide input directly through partner meetings, survey responses, and email exchanges facilitated by the Division. Due to the broad spectrum of functions that the Advisory Committee undertakes as a component of their mission, coordination, planning, and implementation of CDBG-MIT activities are a natural fit, guaranteeing broad stakeholder input and CDBG-MIT activity support in the affected MID areas. This State's CDBG-MIT activity allocation was finalized with direct input from State- and borough-level hazard mitigation leadership.

## 3.5 CDBG-MIT Alignment with Other Federal, State, or Local Mitigation and Planning

The Municipality of Anchorage, Matanuska-Susitna Borough, and Kenai Peninsula Borough all recently developed updated Hazard Mitigation Plans. In the development of these plans, a framework has been established for coordination with organizations operating within their jurisdictions. The State of Alaska Hazard Mitigation Plan provides an additional framework that includes a methodology for coordinating all jurisdictions' plans and the agencies operating within those jurisdictions. All planning documents are submitted to the State Emergency Response Commission's All-Hazards Plan Review Committee for multi-agency and peer review of the plan. The State Hazard Mitigation Advisory Committee is engaged as the primary planning team for updates to the State Hazard Mitigation Plan and includes consultation with federal, tribal, State, relevant academia, and nonprofit organizations on a regular basis. These same contacts were included in consultation and outreach for the development of this plan. These planning documents all follow FEMA's requirements for regularly occurring updates. This coordination with the State Hazard Mitigation Advisory Committee has been especially important because regional hazard planning committees deal with infrastructural issues, such as public water supply; sanitary sewage collection and treatment; and planning for various modes of transportation, including local streets and highways, airports, port development as appropriate, mass transit, and, in some instances, rail. This regional aspect across the State of Alaska provides an effective way for local governments to work together to address common problems and share technical staff for problems that cross borderlines or boundaries and need an area-wide approach as CDBG-MIT activities generally require. They also would be available to assist their member entities in coordinating the needs of the area with State and federal agencies or with private companies or other public bodies. The Division has taken the following actions to align the CDBG-MIT Action Plan with local mitigation and planning processes.

### Alaska State Hazard Mitigation Plan (2018) (Reference 5)

In writing and creating this document, the Division has drawn heavily from the Alaska State Hazard Mitigation Plan in order to ensure close alignment with its identified risks and recommendations. The goal of this plan is to minimize or eliminate long-term risks to human life and property from known hazards by identifying and implementing cost-effective hazard mitigation actions. In addition to coordination with the participating agencies described above, the Division utilized the analysis of local plans presented in the State Hazard Mitigation Plan to further understand the most pressing risks in the State and HUD MID jurisdictions. All of the plans listed below are part of this statewide multi-jurisdictional Hazard Mitigation Plan, available on the State of Alaska's Department of Military and Veterans Affairs, Division of Homeland Security and Emergency Management (DHS&EM | Planning Section Documents (alaska.gov))

### Municipality of Anchorage All-Hazards Mitigation Plan (2022) (Reference 6)

The Municipality of Anchorage went through a 2022 update to the Municipality of Anchorage All-Hazards Mitigation Plan, which was used in the development of this Action Plan in order to gather information specific to the Municipality of Anchorage. This All-Hazards Mitigation Plan was developed in consultation with local agencies, such as the Anchorage Health Department, Anchorage Fire Department, Anchorage Police Department, State of Alaska DHS&EM, FEMA, CDC, American Red Cross – Alaska Division, and the Salvation Army – Alaska Division. This plan's main purpose is to identify hazards that may impact the Anchorage Vulnerability Assessment, an assessment of the Municipality of Anchorage's capacity to mitigate hazards, hazard mitigation goals, objectives, actions and/or projects, and an implementation and plan maintenance strategy. Information in this plan and the strategy for consultation in the update of this plan were built on in developing this Action Plan.

## Matanuska-Susitna Borough Hazard Mitigation Plan (2021) (Reference 7)

This plan was referenced and consulted in order to gather localized information for the Matanuska-Susitna Borough. This plan also contains references to the City of Houston's FEMA-approved and community-adopted Hazard Mitigation Plan dated April 23, 2018, the City of Wasilla's FEMA-approved and community-adopted Hazard Mitigation Plan dated October 14, 2018, and the Native Village of Chickaloon's FEMA-approved and community-adopted Hazard Mitigation Plan. This plan also was developed through a knowledgeable hazard mitigation team that has developed a localized mitigation strategy and a plan for monitoring, evaluating, and updating the Hazard Mitigation Plan.

Finally, this plan will incorporate much of the information that was gathered in the CDBG-DR Action Plan. This plan will build on the Needs Assessment component of that plan, which evaluated the three core areas of recovery housing, infrastructure, and economic revitalization and plan recoveries, and establish plans and programs for mitigation that support those areas of recovery.

## Kenai Peninsula Borough All-Hazard Mitigation Plan (2019) (Reference 8)

The Division drew from this plan to get specific information for the Kenai Peninsula Borough, including a localized risk assessment, critical and essential facilities, and population and demographic information for the borough. It also details the key hazards that are of concern to the borough: earthquakes, floods/coastal erosion, wildfires, severe weather, volcanic activity/ash fallout, avalanches, tsunamis and seiches, and human-caused hazards such as levee failure and accidental chemical releases. The Kenai Peninsula Borough All-Hazard Mitigation Plan also contains references to the following jurisdictions and their Hazard Mitigation Plans: City of Homer (Reference 26), City of Kachemak (Reference 27), City of Kenai (Reference 28), City of Seldovia (Reference 29), City of Seward (Reference 30), City of Soldotna (Reference 31), Port Graham Village (Reference 32), Kenai Peninsula All Lands All Hands Action Plan (Reference 33), and the Seward/Bear Creek Flood Service Area Hazard Mitigation Plan (Reference 34).

# 4. CDBG-MIT Program Design

## 4.1 CDBG-MIT Program Budget Overview

The State intends to utilize CDBG-MIT funding to implement multiple hazard mitigation activities that complement existing efforts and lead to greater community-wide resilience across the MID area. The State will utilize CDBG-MIT funding on initial planning, acquisitions, construction, and implementation.

**Table 13: CDBG-MIT Budget**

| Programs | HUD MID Area (50%) Municipality of Anchorage | State MID Areas (50%) Matanuska-Susitna and Kenai Peninsula Boroughs | Total | Percentage of Total Allocation by Program |
|---|---|---|---|---|
| National Spatial Reference System Conversion for FEMA Remapping of Special Flood Hazard Areas | $1,086,800 | $0 | $1,086,800 | 47.5% |
| Kenai Peninsula Borough Tsunami Hazard Siren System | $0 | $170,000 | $170,000 | 7.4 % |
| Installation of Building Automation System at Nanwalek K-12 School | $0 | $373,400 | $373,400 | 16.3% |
| Matanuska-Susitna Borough Home Flood Mitigation Program | $0 | $543,400 | $543,400 | 23.8% |
| State Planning | $0 | $0 | $0 | 0.0% |
| State Administration | $57,200 | $57,200 | $114,400 | 5.0% |
| **GRAND TOTAL** | **$1,144,000** | **$1,144,000** | **$2,288,000** | **100%** |

### CDBG-MIT Criteria

Through consultation and a risk-based Mitigation Needs Assessment, the State has identified numerous strategic actions to reduce hazard risks across the eligible MID area. However, the amount of the CDBG-MIT grant allocated to the State by HUD is limited in terms of its ability to cover these major investments. With these limitations in mind, the State is prioritizing specific programs that can enable future capital investments, provide broad preparedness capabilities to the communities most in need, and address critical mitigation needs that do not have other identified funding sources.

All programs are tied to the hazard risks and mitigation actions in Hazard Mitigation Plans. Specifically, each activity chosen corresponds to hazards identified in both the State and borough Hazard Mitigation Plans and the types of actions proposed to mitigate these risks. Ultimately, the State decided on allocations based on the criteria below.

### Urgency of the hazard and the scope of the disaster impact

Selected activities correspond to the greatest risk hazards profiled in the State of Alaska Hazard Mitigation Plan and each jurisdiction's Hazard Mitigation Plans: flood risk in the Municipality of Anchorage and Matanuska-Susitna Borough, and tsunami risk in Kenai Peninsula Borough. These hazards have the greatest potential for impact on the respective boroughs.

## Potential for leverage with existing mitigation efforts

Selected activities were chosen due to the potential for leverage with existing mitigation efforts. In the Municipality of Anchorage, an effort to update existing flood risk maps is made possible through CDBG-MIT funding for the conversion of local geographic benchmarks to the National Spatial Reference System and will enable FEMA to update FIRMs. In Kenai Peninsula, the borough is cooperating with FEMA and the Alaska Division of Homeland Security and Emergency Management to complete a network of hazard warning sirens and will use CDBG-MIT funds for the completion of a tower in a remote and vulnerable village.

## Coordination with the MID area hazard mitigation leadership and Hazard Mitigation Plans

Selected activities were chosen by borough leadership from a range of potential eligible activities identified within each of the Hazard Mitigation Plans. The selection followed extensive consultation with the State CDBG-MIT administrator, which included a discussion of mitigation needs, CDBG-MIT requirements, and administrative responsibilities that would result from the suballocation of these funds.

## Benefits to areas or individuals most in need

Through the selected activities, each borough will fund activities that benefit either the broadest scope of households or those areas or households most in need. In the Municipality of Anchorage, updates to flood maps will enable the most current flood risk data to inform development, planning, and energy response strategies. In both the Kenai Peninsula and Matanuska-Susitna Boroughs, activities will be focused on areas or households that are most vulnerable to hazard risks, currently lacking protective measures, and that are low or moderate income.

## HUD's requirements for eligibility, National Objective, and overall benefit to LMI

HUD CDBG-MIT guidelines also factored into decisions on activities. Each activity meets HUD requirements for eligible activities under the Housing and Community Development Act for planning, public facilities and improvements, and housing rehabilitation and acquisition. Furthermore, while planning activity in the Municipality of Anchorage will benefit the jurisdiction as a whole and is not required to meet a National Objective, activities in Kenai Peninsula and Matanuska-Susitna Boroughs will benefit areas that are majority LMI households and individual LMI households, respectively. Together, allocations to these boroughs will enable the State to meet its obligation to provide benefits to LMI persons.

## Consideration of alternative funding sources

Finally, consideration of alternative funding sources also factored into the State's decision to fund these activities. For each activity, CDBG-MIT funding was identified as the best source of funding above other potential sources due to its flexibility and timeliness. As documented, mitigation needs across the region are great, and other federal- and State-level mitigation funds were either insufficient, not timely, or too inflexible to be leveraged for the activities here. In particular, home flood mitigation activities in Matanuska-Susitna Borough do not tie back to the disaster for which Disaster Recovery was awarded and are not an eligible use of CDBG-DR funds. CDBG-MIT provided an opportunity to the State to provide urgent mitigation to LMI households located in areas at imminent risk of flooding, for which there was no other source of funding readily available.

## 4.2 National Objectives

Federal legislation authorizing CDBG funding requires that a National Objective is addressed for a CDBG program or activity to be eligible for funding. The State of Alaska will not be funding activities under the Prevention or Elimination of Slum or Blight National Objective. The following National Objectives will be addressed for activities that the State of Alaska will be funding with this CDBG-MIT award. Additional clarification is provided below for the CDBG-MIT Program:

- Low- to Moderate-Income (LMI) Benefits
  - At least 50% of program expenditures must benefit LMI persons in the area.
  - Low- to moderate-income area objectives are to provide a benefit to all area residents (geographic area must be primarily residential and be at least 51% LMI persons).
  - With regard to low- to moderate-income clientele objective activities, at least 51% of beneficiaries of an activity must be LMI persons.

For implementation of the activities defined in the Action Plan, the State intends to meet the National Objectives of Low- to Moderate-Income Area (LMA) Benefit and Low- to Moderate-Income Housing (LMH) through the Kenai Peninsula Borough Tsunami Hazard Siren System and Matanuska-Susitna Borough Home Flood Mitigation programs. The CDBG-MIT Program also allows up to 5% of the funding allocation for administration and up to 15% to be used for planning-related activities. The State intends to use 47.5% of its CDBG-MIT allocation to fund a planning effort to inventory and update elevation data monuments, which will enable the Municipality of Anchorage to updates to be made to the floodplain hazard maps. The State is anticipating a waiver of the 15% cap on planning costs to 47.5% in order to permit this critical planning activity. Administration and Planning expenses do not meet a National Objective, therefore, 45% of the CDBG-MIT funding will be used to address a National Objective, and 100% of grant funds allocated to eligible direct activities will be spent on projects that meet the LMI National Objective.

## 4.3 Program/Projects Description Eligibility and Addressing Hazard Risks

The State of Alaska has determined that all proposed mitigation activities are informed by a risk-based Needs Assessment and meet the HUD requirements for mitigation activities, including:

1. Meets the definition of a “mitigation activity” by increasing resilience to disasters and will reduce or eliminate the long-term risk of loss of life, injury, damage to and loss of property, and suffering and hardship by lessening the impact of future disasters.
2. Each proposed mitigation activity addresses the current and future risks identified in the Risk-Based Needs Assessment discussed in Section 2 of this Action Plan.
3. Is a CDBG-eligible activity under Title 1 of the Housing and Community Development Act of 1974 (HCDA) or otherwise eligible pursuant to a waiver.
4. Meets a National Objective, including additional criteria for mitigation activities.

**Table 14: Eligibility Criteria for CDBG-MIT funded activities**

| Mitigation Activity and Geography | Meets Mitigation Definition | Current and Future Risk Addressed | CDBG Eligible Activity | National Objective |
|---|---|---|---|---|
| Mitigation Planning: National Spatial Reference System Conversions - Land surveying GPS coordinates for 250 benchmarks to convert to the National Spatial Reference System to better inform FEMA National Flood Insurance Rate Maps.<br><br>Municipality of Anchorage, Special Flood Hazard Areas | Creates resiliency by providing better data sets in order to inform elevation and other mitigation measures, as well as to inform future development in order to reduce or eliminate damages and loss of life and property. | Develops plans to address flooding. Creates resiliency by implementing modernized vertical datum, which can provide accurate elevation data to benefit scientists; engineers; and those who manage construction, infrastructure, and emergency response projects to mitigate against flood hazards. | Planning: HCDA 105(a)(12)(A)<br><br>24 Code of Federal Regulations (CFR) 570.205 | Planning and Administration: 24 CFR 483(f) |
| Warning Systems: Warning systems to alert communities when tsunamis, severe weather, or flooding is imminent.<br><br>Kenai Peninsula, Happy Valley Disaster Recovery Area | Warning systems increase a community's ability to seek shelter and protect property in advance of severe weather, specifically tsunamis, thus increasing safety and preventing loss of life. | Having an updated tsunami alarm system in an LMI area provides increased capacity for LMI individuals and households to seek safety in the event of an impending tsunami. | Public Facilities and Improvements:<br><br>HCDA 105(a)(2)<br><br>24 CFR 570.201(c) | LMA Benefit: 24 CFR 570.483(b)(1)(i) |
| Installation of Building Automation System at Nanwalek K-12 School | Improves the school's resiliency as an area-wide evacuation center by ensuring critical systems remain operational during extreme weather and disasters, reducing long-term risks to life, property, and infrastructure. | Optimizing energy usage by reducing unnecessary heating, lighting and other systems when the building is not in use. Project benefit includes reducing high energy costs as well as on-site maintenance services realized. | Public Facilities and Improvements:<br><br>HCDA 105(a)(2)<br><br>24 CFR 570.201(c) | LMA Benefit: 24 CFR 570.483(b)(1)(i) |
| Home Flood Mitigation: Competitive program funding home flood mitigation activities that reduce the risk of flood hazards.<br><br>Matanuska-Susitna Borough, City of Houston Special Flood Hazard Areas | Housing elevation, flood-proofing, and buyouts to increase homeowners' ability to live in safe and sanitary housing, with minimal risk of danger and health hazards associated with flooding. | LMI households who have suffered repeated flood events may not have the capital to make the improvements necessary nor the resources to move to another location. Flood mitigation or buyout opportunities can reduce the risk to people and property. | Housing Rehabilitation and Acquisition:<br><br>HCDA 105(a)(1); 105(a)(4)<br><br>24 CFR 570.201(a); 570.202(a)(1) | LMH Benefit: 24 CFR 570.483(b)(3)<br><br>LMB Benefit for Buyout Activity |

## National Spatial Reference System Transition in Support of FEMA Remapping of Special Flood Hazard Areas

**Implementing Agency**: Municipality of Anchorage Office of Economic and Community Development/Geographic Data and Information Center

**Project Description:**

The National Spatial Reference System (NSRS) is a consistent coordinate system that defines latitude, longitude, height, scale, gravity, and orientation throughout the United States. NSRS modernization is underway by the National Geodetic Survey to improve access to and use of accurate elevation data for the benefit of scientists and engineers who manage construction, infrastructure, and emergency response projects. The existing network of vertical datum monuments (benchmarks) across Anchorage references a superseded local mean sea level, is not tied to the NSRS, has minimal compatibility with modern survey techniques that rely heavily on the use of GPS equipment, and is in poor condition. This network must be rehabilitated; tied to the NSRS in preparation for modernization; and new benchmarks established so that accurate, reliable monumentation is in place across Anchorage.

FEMA has adopted the NSRS as the official datum of the National Flood Insurance Program and is moving to transition all Flood Insurance Studies and Flood Insurance Rate Maps to the NSRS as modernization expands access, consistency, and accuracy in places like Alaska. The Municipality of Anchorage is a participant in the National Flood Insurance Program and a Cooperating Technical Partner and concurs with the transition to the NSRS. The new, modernized NSRS will make it more efficient for public and private development groups to design projects in Anchorage. Adopting the NSRS will conform to FEMA standards; increase the alignment of federally funded geospatial data sets with local projects; enable the use of GPS technology in local surveying; and provide specifications for updating flood mapping, tsunami warning systems, and earthquake and disaster assistance.

For the Municipality of Anchorage to adopt the proposed NSRS datum, the following needs to occur:

- Create an inventory of existing benchmarks.
- Identify existing benchmarks that may be used in conjunction with the NSRS.
- Establish new benchmarks in areas where few monuments exist.
- Conduct a project to establish NSRS positions on new and existing benchmarks referencing the Municipality of Anchorage datum.

Creation of an inventory of existing benchmarks is in process and will be completed in fall 2022. At that time, a scope of work will be developed that identifies new marks to be established and an estimated timeline for conducting a project to establish NSRS positions in the National Geodetic Survey Integrated Database on existing and new marks. A request for proposal will be advertised to solicit interest from land surveying firms. Field work will commence in 2023 with project completion anticipated in 2024.

Use of funding provided by CDBG-MIT will provide Anchorage with the opportunity to upgrade the existing vertical datum used for mapping land use and infrastructure projects. This effort will support the development of programs that reduce or eliminate damage to or loss of property and the mitigation of disasters, such as earthquakes and flooding, and will reduce the risk to economic security within the community. Adoption of the NSRS aligns with the goals of the CDBG-MIT Program, which supports data-informed investments related to property and critical infrastructure, analysis of disaster risks and Hazard Mitigation Plans, adoption of policies that impact risk reduction and decrease future disaster costs and maximize the use of funding by leveraging private and public partnerships.

**Project Type**: Planning/Study

**Program Start Date**: 2025

**Total Budget**: $1,086,800

**Service Area**: Municipality of Anchorage

**Program Completion Date**: 2027

**National Objective**: Planning/Administrative

**Hazards Addressed**: Climate change/sea level rise, flood, high surf/storm, surge/coastal flooding, tsunami

**FEMA Community Lifelines**: Safety and security, food/water/shelter, health and medical, energy, communications, transportation, hazardous materials

**Benefit to Hazard Risk Reduction, Incident Response, and/or Post-Disaster Recovery**: By having updated data sets, flood hazard mitigation can be strategically used to minimize public and private losses, promoting the protection of human life and health, reducing the expenditure of public money, and preventing the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the public. This data conversion will allow for updated information on flood-prone areas and will inform a framework for future development in high-hazard areas that are vulnerable to flooding. FEMA's flood mapping of the MOA is outdated and sparse in some locations. Updating this data set will provide a benchmark for FEMA's flood mapping to be updated and cover any portions of the MOA which have sparce mapping coverage.

**Impacts on Protected Classes and Vulnerable Populations**: This program will benefit all residents in the Municipality of Anchorage, particularly residents in the service area. Table 15 provides demographics on vulnerable populations and protected classes in the service area.

**Table 15: Protected Classes and Vulnerable Populations in the NSRS Datum Implementation Service Area**

| Protected Class or Vulnerable Population Category | Percentage of Individuals (or Households if Indicated) Living in the Service Area |
|---|---|
| Total Population | 291,247 |
| Below Poverty | 8.8% |
| Low to Moderate Income | 37.9% |
| **Age** | |
| • 65+ | 11.1% |
| • Under Age 18 | 24.3% |
| Limited English Proficiency | 6.2% |
| Disabled | 8.2% |
| **Race** | |
| • White | 61.2% |
| • African American | 5.3% |
| • American Indian and Alaska Native | 7.5% |
| • Asian | 9.8% |

| Protected Class or Vulnerable Population Category | Percentage of Individuals (or Households if Indicated) Living in the Service Area |
|---|---|
| • Native Hawaiian and Other Pacific Islander | 2.9% |
| • Two or More Races | 11.0% |
| **Gender** | |
| • Male | 51% |
| • Female | 49% |
| National Origin (% Foreign Born) | 10.8% |
| Familial Status (Households with Children Under Age 18) | 24.3% |

Sources: American Community Survey; U.S. Census Bureau QuickFacts: United States; 2015 Limited English Proficiency (www.lep.gov); CDBG Disability Data – Summarized by Grantee, Based on 2008–2012 American Community Survey – HUD Exchange.

**Promotion of Resilient, Affordable Housing:** Updating and modernizing data sets provides the most up-to-date information in order to better inform FEMA flood maps. Having these updated flood maps provides information to developers and city officials on areas for future development that will not be adversely affected by flooding.

**Promotion of Hazard Insurance:** FEMA has adopted the NSRS as the official datum of the National Flood Insurance Program and is moving to transition its flood hazard maps to the new datum. This activity will enable FEMA to update local Flood Insurance Rate Maps (FIRMs) within the Municipality of Anchorage, increasing local awareness of flood risk, helping align flood insurance markets with actual hazard risks, and promoting the adoption of flood insurance policies.

**Leveraging Funds**: Once the vertical datum is converted and FEMA updates the FIRMs, the Municipality of Anchorage may be eligible for FEMA Flood Mitigation Assistance grants and Building Resilient Infrastructure and Communities grants. The State will work with the Municipality of Anchorage to identify and apply for any funding which can be leveraged for this activity.

**Cost Reasonableness and Cost Analysis**: Upon commencement of this activity, the Municipality of Anchorage intends to solicit and award up to four contracts for land surveying services. The Municipality of Anchorage will compare the new proposals with recent past proposals and will verify costs and determine cost reasonableness in order to ensure that the costs to carry out this project are reasonable and consistent with current market costs at the time and place of project implementation.

**Operations and Maintenance**: Once the data are submitted to NOAA/National Geodetic Survey, they are responsible for maintaining the National Spatial Reference System.

## Kenai Peninsula Tsunami Alert System

**Implementing Agency**: Kenai Office of Emergency Management

**Project Description:**

The Kenai Peninsula Borough, in cooperation with FEMA and the Alaska Division of Homeland Security and Emergency Management, installed new All Hazard Alert Broadcast System (Sirens) in Homer, Seward, Nanwalek, Port Graham, and Seldovia; project was completed in fall 2023. The new sirens are intended primarily for coastal tsunami warnings but can provide warnings for other hazards, including floods, windstorms, and volcanic activity. Under the State of Alaska CDBG-MIT for the 2018 Cook Inlet Earthquake, the Kenai Peninsula Borough intends to expand the existing sirens to Happy Valley as a

result of the updated 2019 Tsunami Inundation Maps. The maps indicate that these areas are in the impact zone and should have sirens.

The project will add a tsunami alert tower in the Happy Valley area of the Kenai Peninsula Borough. This tower will provide much-needed alert and warning systems for the residents of this area. The total cost is estimated at $170000 of which CDBG-MIT will fund. The coastal community of Happy Valley is included in the tsunami inundation zone of Kachemak Bay. In 2023 the borough replaced the outdoor warning sirens in the coastal communities of Kachemak and Resurrection bay. This project is supported in the 2024 Multi-Jurisdictional Hazard Mitigation Plan: Section 2, Pages 25-26.

**Project Type**: Public Facilities

**Total Budget**: $170,000 **Program Start Date**: 2025

**Service Area**: Happy Valley **Program Completion Date**: 2027

**National Objective**: LMI Area Benefit (54.69 %)(Reference 37)

**Hazards Addressed**: Tsunami, flooding, high surf/storm surge/coastal flooding, high winds, sea level rise

**FEMA Community Lifelines**: Safety and security, communications

**Benefit to Hazard Risk Reduction, Incident Response, and/or Post-Disaster Recovery**: Improving emergency warning systems is a critical mitigation strategy that will reduce tsunami-associated loss of life and property while simultaneously fulfilling the overall Hazard Mitigation Plan goals of protection, prevention, and education.

**Impacts on Protected Classes and Vulnerable Populations**: Having a tsunami warning system located in the Happy Valley area will allow rapid transmission of information, which is vital in order to lessen the damage caused by tsunamis. Having an active tsunami alert system will provide a necessary warning for people living in or visiting the area, who are then able to evacuate immediately to higher ground. This system also will mitigate the associated events of a tsunami, which include industrial emergencies (resulting from fire, explosions, and hazardous materials incidents), disruption of vital services (such as water, sewer, power, gas, and transportation), and damage and disturbance to emergency response facilities and resources.

**Promotion of Resilient, Affordable Housing**: Active tsunami alert systems, particularly in remote areas, provide faster public notification and response, thus increasing the protection of persons and property. As an area-wide benefit, no persons or property will be excluded from the benefits of this program. All housing, including affordable units, are among the properties that will benefit from increased protection due to the tsunami alert system.

**Leveraging Funds**: Kenai Peninsula Borough will utilize any resources, including resources available from the State of Alaska's Hazard Mitigation Office, in order to leverage funds for this activity and will undergo a duplication of benefits analysis to ensure there is no duplication of benefits for this project. The State Hazard Mitigation Office has HMGP funds remaining which can be dedicated to this activity, and NOAA has matching funds available as well. there are existing operations and maintenance funds. The State's Property Tax generates an Operating and Maintenance Budget. The State has a Homeland Security Grant Program which is also a possibility for match.

**Cost Reasonableness and Cost Analysis**: Prior to procuring construction, Kenai Peninsula Borough will conduct a thorough cost verification and analysis to ensure that construction costs are reasonable and consistent with market costs at the time and place of construction. If applicable, an independent, qualified third-party professional will verify the planned project costs and any change orders that may arise during implementation to ensure that they are reasonable.

**Elevation and Construction Standards**: Kenai Peninsula Borough will describe the methodology they will use to ensure that any new towers or infrastructure put in place as a component of the tsunami alarm system will be resilient to flooding. In its implementation, the borough will determine the structural or nonstructural methods they will use to reduce or prevent damage, or in designing the structure, it will be designed to withstand and rapidly recover from a flood event. The evaluation process will include consideration of flood depth, velocity, rate of rise of floodwater, duration of floodwater, erosion, subsidence, and the type of facility to be installed, as well as the location of the installation.

All applicable State, local, and tribal codes and standards for floodplain management that exceed the requirements listed in Federal Register Notice Docket No. FR-6109-N-02, including elevation setbacks and cumulative substantial damage requirements, will be followed.

**Operations and Maintenance**: Kenai Peninsula Borough requires operating vendors to include short- and long-term maintenance plans to ensure the operational viability and functionality of systems and hardware. Additionally, the borough includes an annual maintenance cost in the fiscal budget to address the operations and maintenance of all facilities constructed using CDBG-MIT funds.

## Kenai Peninsula Borough Building Automation System (BAS)

**Implementing Agency:** Kenai Office of Emergency Management

**Project Description:**

The Nanwalek public school serves students kindergarten through twelfth grade in the remote community of Nanwalek, which is only accessible by boat or airplane. This facility also supports community functions and is an alternate emergency mustering location for areawide emergencies, extreme weather events, and other disasters. This project will install a Building Automation System (BAS) to remotely manage the building controls by providing real-time monitoring, automated control, and early failure detection of critical infrastructure, ensuring the facility remains operational during emergencies. Project intent includes optimizing energy usage by reducing unnecessary heating, lighting and other systems when the building is not in use. Project benefit includes reducing high energy costs as well as on-site maintenance services realized. This project is supported in the 2024 Multi-Jurisdictional Hazard Mitigation Plan: Section 2, Pages 16, 21. This project ensures that the community's only safe emergency shelter remains fully operation during extreme weather events and other disasters, directly reducing the long-term risk of loss of life, injury, property damage, and community hardship.

**Project Type:** Public Facilities

**Program Start Date**: 2025

**Total Budget:** $373,400

**Service Area:** Nanwalek

**Program Completion Date:** 2027

**National Objective:** LMI Area Benefit (74.4%)

Table 17 provides demographics on key vulnerable populations and protected classes who live within the service area.

**Table 17: Protected Classes and Vulnerable Populations in Nanwalek**

| Protected Class or Vulnerable Population Category | Percentage of Individuals (or Households if Indicated) Living in the Service Area |
|---|---|
| Total Population | 233 |
| Below Poverty | 29 |
| Low to Moderate Income | 85.42% |
| Age 65+ | 9.62% |
| Under Age 18 | 57.22% |
| Minority | Data not available |
| Limited English Proficiency | Data not available |
| Disabled | Data not available |
| **Race** | |
| • White | 2.4% |
| • African American | |
| • American Indian and Alaska Native | 64.9% |
| • Asian | 0.0% |
| • Native Hawaiian and Other Pacific Islander | 0.0% |
| • Other | |
| • Two or More Races | 32.69% |
| National Origin (% Foreign Born) | Data not available |
| Familial Status (Households with Children Under Age 18) | Data not available |

Sources: (Census Tract 12 ; Census Block Group ), ACS Median Household Income Variables (2016–2020); 2020 American Community Survey 5-Year Estimates; Limited English Proficiency (www.lep.gov); CDBG Disability Data – Summarized by Grantee, Based on 2008–2012 American Community Survey – HUD Exchange.

## Matanuska-Susitna Borough Home Flood Mitigation Program

**Implementing Agency**: Matanuska-Susitna Borough (MSB)

**Program Type**: Housing

**Total Budget**: $543,400

**Program Start Date**: Spring 2025 **Program Completion Date**: Fall 2027

**Service Area**: Homeowners will income qualify in order to participate in this program. This program does not provide a service area benefit.

**National Objective**: For home elevation and floodproofing (570.202(a)(1)) – Low-Mod Housing (LMH); For home buyout (24 CFR 570.201(a)) – Low-Mod Buyout (LMB).

**Hazards Addressed**: Flooding, ice jams, high winds

**FEMA Community Lifelines**: Food/Water/Shelter, Transportation, Safety/Security

**Program Description**:

The Matanuska-Susitna Borough (MSB) Home Flood Mitigation Program is a program to identify, inventory at-risk properties, evaluate, and formulate the best mitigation activity for the flood or erosion at-risk home that primary homeowners occupy.

This program compliments and supports part of the cost share to the Pre-Disaster Mitigation-Congressionally Designated Spending (PDM-CDS) secured by Senator Murkowski for the Mat-Su Borough to inventory flood and erosion-prone properties. It will identify the best mitigation option for each property. Each property owner willing to participate in the program will have the best viable activity developed into an application for construction funding through the FEMA Hazard Mitigation Grant Program or other programs eligible to do this work. The three separate eligible activities. The program will provide funding opportunities for critical mitigation measures to primary homeowner-occupied housing units or vacant structures located within the Matanuska-Susitna Borough (MSB) and including properties within the City of Houston. The City of Houston is predominantly low-income and has a high risk of flooding. Parts of the city flood repeatedly. Due to the high need, the Borough has decided to focus CDBG-MIT funding to households in this city following the inventory and project development. The mitigation measures may include housing elevation, floodproofing, or buyout activities which are described below. All properties will have experienced damage due to repetitive flood events.

MSB will assist in securing funding for the select projects that satisfy the mitigation objective with a willing property owner. All project options for mitigation, as identified below, will require a per-property evaluation with documentation of how the Borough determined the best mitigation option selected for the property and will be in compliance with MSB 17.29: Flood Damage Prevention (Chapter 17.29 FLOOD DAMAGE PREVENTION</h2> (codepublishing.com)). This will include a cost assessment (benefit-cost analysis) comparing all the alternatives; such as the demolition of substantially damaged structures compared with the reconstruction of an elevated structure on the same site, property buyout, or infrastructure improvements to reduce the risk of loss of life and property. Eligible applicants will include government entities, non-profit organizations who apply in collaboration with the local jurisdiction. Individual homeowners will reach out to the Matanuska-Susitna Borough to confirm their eligibility.

The Matanuska-Susitna Borough maintains the right, based on a cost efficacy analysis, needs assessment, and local capacity, to make final decisions regarding projects that meet the criteria of the program.

**Home Elevation:** Funding will provide housing elevation to income-qualified homeowners whose primary housing units have experienced repetitive flood loss through multiple flood events. This program will provide elevation measures to mitigate against future flood-related damage or develop an application to seek funding. Providing these elevation measures will serve two functions:

1. Provide high-quality, durable, sustainable measures to abate future damage which can result from repetitive flood events; and
2. Demonstrate cost-effectiveness through enhanced resilient features in residential housing on a smaller scale in order to protect against the inevitable next storm or flood event.

By elevating homes, the State and MSB will be promoting resilient building practices within the communities to become more cost-competitive.

The State in coordination with the MSB will develop Policies and Procedures for implementation of this program that promote quality, durability, energy efficiency, sustainability, resiliency, and mold resistance. When applicable, the program will encourage compliance with guidelines specified in the HUD CPD Green Building Retrofit Checklist or better for Alaska's conditions. Green building and construction standards will be encouraged when changing structural elements such as flooring systems, columns, or load-bearing interior or exterior walls. The program guidelines will describe specifically how projects will meet green building standards to ensure compliance with HUD rules.

In general, the State will apply the following elevation standards to any repair of substantial damage, or substantial improvement of structures located in an area delineated as a flood hazard area or equivalent in FEMA's data source identified in 24 CFR 55.2(b)(1). All structures, as defined under 44 CFR 59.1, designed principally for residential use and located in the 100-year (or 1 percent annual chance) floodplain that receive assistance for repair of substantial damage, or substantial improvement, as defined under 24 CFR 55.2(b)(10), must be elevated with the lowest floor, including the basement, at least 2 feet above the base flood elevation. The State will not be elevating any mixed-use structures with no dwelling units.

All applicable State, local, and tribal codes and standards for floodplain management that exceed these requirements, including elevation, setbacks, and cumulative substantial damage requirements, will be followed. The State will follow all accessibility requirements detailed in Section V.A.31 of Federal Register Notice Docket No. FR-6109-N-02.

The maximum assistance applicants are eligible to receive will be determined based on the necessary and reasonable scope of work and cost of materials using industry-standard cost estimating software, comparative and market analysis of price per square foot, and/or a review of construction bids. MSB will contract out all work on behalf of the homeowner. Additionally, in awarding funds, the borough will consider an applicant's method for comparing alternative flood mitigation approaches to determine the most cost-effective strategy as part of its cost verification methods. The Borough, through its implementing agency, will review, per project, the costs to elevate versus the costs to rebuild and the costs to conduct a buyout. On a project-by-project basis, the lowest cost option will be selected unless there is an exception policy, which will be defined in the Policies and Procedures. Buyouts will not be mandatory, and the Uniform Relocation Act will assist those required to move as a result of the buyout.

**Home Flood-Proofing:** This is a method by which the property can be retrofitted to reduce the damage from any future flooding. Awards will fund flood retrofitting and flood-proofing measures made to income-qualified homeowners. Specific activities include, but are not limited to, all interior modification and retrofit measures that will qualify to reduce the flood risk and be in compliance with MSB 17.29. A cost-benefit analysis will be conducted on a per project basis once a scope of work is developed.

**Home Buyout:** MSB, as the sub-recipient and implementing agency, will administer a voluntary buyout program that could acquire residential structures which are occupied or have been left vacant after repetitive flooding events. The acquired floodplain properties will be re-vegetated and converted into green space, reverting back to a natural flood plain.

Buyout programs support the MSB hazard mitigation, floodplain management goals, and resiliency by removing homeowners and damaged vacant properties from the floodplain. Thus, vacant, damaged properties are eliminated from the floodplain, eliminating vulnerability to future flooding situations and public safety hazards. The buyout option services multiple objectives and provides a resiliency option versus rebuilding within a floodplain, which helps to prevent repetitive loss and extreme risk to human health and safety.

The State will develop guidelines in accordance with CDBG-MIT requirements and regulations including with respect to the buyout of properties, an 'intended, planned, or designated project area,' as referenced at 49 CFR 24.101(b)(1)(ii), shall be an area for which a clearly defined end use has been determined at the time that the property is acquired, in which all or substantially all of the properties within the area must be acquired within an established time period as determined by the State for the project to move forward. After the homes are purchased, all structures are demolished. The land reverts to a natural flood plain, converts to retention area, is retained as a green space for recreational purposes, or becomes a component of ecosystem restoration or wetlands management practices.

**Benefit to Hazard Risk Reduction, Incident Response, and/or Post-Disaster Recovery**: Elevating, flood-proofing, or buying out homes in high-risk areas provides a significant hazard risk reduction through the most cost-effective strategy. This will allow the home and the residents to be protected from flood damage. The number of homes will lessen post-disaster recovery since it is anticipated that the home would not suffer damage as a result of the flooding event.

In the case of buyouts, programs support hazard mitigation, floodplain management goals, and resiliency by removing damaged and/or vacant properties from the floodplain, thus eliminating vulnerability to future flooding situations as well as public safety hazards from vacant and/or damaged property.

**Operations and Maintenance**: This will be addressed on a project-by-project basis.

**Program Exceptions**: This activity will be a competitive process that will follow criteria developed by the Matanuska-Susitna Borough and provided to applicants in the policies and procedures manual. This manual will contain per-project limits, and any exceptions to the per-project limit that may be allowed, when necessary, in order to comply with federal accessibility standards, or to reasonably accommodate a person with disabilities. An exception is applicable to a situation where the strict implementation of the program requirements may not be appropriate due to unique or extenuating circumstances. The policy guidelines will describe how the Borough will accept any exception requests and supportive documentation required in the request.

**Impacts on Protected Classes and Vulnerable Populations**: This program will benefit all low/moderate income homeowners who are eligible for the program.

**Leveraging Funds**: Resources for leveraging will be evaluated on a project-by-project basis. When additional funds are brought into a project, a duplication of benefits analysis will be conducted.

**Table 18: Protected Classes and Vulnerable Populations in the Matanuska-Susitna Borough**

| Protected Class or Vulnerable Population Category | Percentage of Individuals (or Households if Indicated) Living in the Service Area |
|---|---|
| Total Population | 107,081 |
| Below Poverty | 8.7% |
| **Age** | |
| • 65+ | 13.2% |
| • Under 18 | 27.11% |
| Limited English Proficiency | 3.3% |
| Disabled | 13.0% |
| **Race** | |
| • White | 81.9% |
| • African American | 1.4% |
| • American Indian and Alaska Native | 7.0%% |
| • Asian | 1.7%% |
| • Native Hawaiian and Other Pacific Islander | 0.5% |
| • Other | 1.6%% |

| Protected Class or Vulnerable Population Category | Percentage of Individuals (or Households if Indicated) Living in the Service Area |
|---|---|
| • Two or More Races | 7.7%% |
| **Gender** | |
| • Male | 52.0% |
| • Female | 48.0%% |
| National Origin (% Foreign Born) | 3.4%% |
| Familial Status (Households with Children Under 18) | 45.9%\% |

Sources: 2021 American Community Survey 5-Year Estimates, Census Bureau Data, Limited English Proficiency (www.lep.gov), CDBG Disability Data – Summarized by Grantee, Based on 2008–2012 American Community Survey – HUD Exchange.

**Promotion of Resilient, Affordable Housing**: Housing elevation will allow residents who are low and moderate income to stay in their homes and have a safe structure to live in when flooding events happen. This will also decrease the exposure to health hazards such as mold, and the additional costs required to make repairs or improvements to the home each time a flood event occurs.

### *Matanuska-Susitna Borough Housing Flood Mitigation Program Eligibility Criteria*

To be eligible for funding, an application must:

Be in conformance with the State Hazard Mitigation Plan and the Matanuska-Susitna Borough Hazard Mitigation Plan, or for Native tribal governments acting as grantees, be in conformance with the tribal Hazard Mitigation Plan approved under 44 CFR 201.7.

1. Have a beneficial impact in the State designated MID.
2. Consider the following for any flood mitigation or housing elevation project: high wind and ensuring responsible floodplain and wetland management.
3. Be cost-effective and substantially reduce the risk of future damage, hardship, loss, or suffering resulting from a major disaster. The grantee must demonstrate this by documenting that the project:

   a. Addresses a problem that has been repetitive or a problem that poses a significant risk to public health or safety if left unsolved.

   b. Will not cost more than the anticipated value of the reduction in both direct damage and subsequent negative impacts to the area if future disasters were to occur.

   c. Has been determined to be the most practical, effective, and environmentally sound alternative after consideration of a range of options.

   d. Contributes, to the extent practicable, to a long-term solution to the problem it is intended to address.

   e. Considers long-term changes to the areas and entities it protects.

### *Maximum Assistance and Reasonable Cost Assurance*

Home Elevation: $10,000 – $75,000

Home Flood-Proofing: $5,000 – $25,000

Home Buyout: Up to $250,000

To ensure consistency, as well as necessary and reasonable cost assurance, the Division may require HUD 203(k) inspections on all housing units. The Division may require peer reviews by licensed registered engineering firms for all housing projects. The Division may require the use of RS Means data and the FEMA Benefit-Cost Analysis Process (Reference 26) used by the State of Alaska for the FEMA Hazard Mitigation Grant Program to determine whether a project is cost-effective, this analysis will compare alternative approaches to mitigating flood risks to determine the most reasonable use of funds.

Matanuska-Susitna Borough will assess the cost-effectiveness for this housing mitigation program on a project-by-project basis. MSB will utilize cost controls in order to assure construction costs are consistent with market costs at the time and place of construction. Costs will not exceed the maximum allowable assistance detailed above.

If a scope of work has been approved by both MSB and DCCED, and a change order is required, all changes to the original scope of work must be addressed through a change order process. This process requires that any change orders must be submitted to Matanuska-Susitna Borough and DCCED with the justification for making the change. The Change Order must be necessary and reasonable for reimbursement from CDBG-MIT funds. DCCED through the methods listed above will require Matanuska-Susitna Borough and all hired contractors to implement cost control measures or verify that reimbursable costs are correctly controlled during the project. All CDBG-MIT expenditures for this program remain subject to cost principles in 2 CFR part 200, subpart E-Cost Principles, including the requirement that costs be necessary and reasonable.

### *Matanuska-Susitna Borough Home Flood Mitigation Program Application Process*

Eligible applicants will be invited to submit an application after the MSB's consultant, chosen through a competitive process which follows 2 CFR 200, has identified which properties are eligible for housing mitigation through the CDBG-MIT Program.

Properties will be evaluated to ensure the proposed projects meet the minimum criteria as outlined in the program guidelines and application materials. Responses that meet minimum threshold requirements will then be evaluated according to the scoring criteria outline below. The MSB will describe the activity to be undertaken and address how and why this action needs to be taken in order to mitigate risks attributable to threats identified in the State of Alaska MIT Action Plan Risk-Based Mitigation Needs Assessment, as well as the State and Matanuska-Susitna Borough's Hazard Mitigation Plans. Proposed projects must also include a proposed budget with a detailed description of anticipated costs by category, including (if applicable), any program management and administration.

### *Matanuska-Susitna Borough Housing Flood Mitigation Program Scoring Criteria*

Applications will be evaluated to determine the mitigation value and cost-effectiveness of the proposed project. An applicant's planning strategy and management capacity must be evident. Applications must meet all of the eligibility criteria, and applicants who do not meet the eligibility requirements will not progress to the scoring stage.

Table 19 Matanuska-Susitna Program Scoring Criteria

| Scoring Criteria |
|---|
| LMI Benefit |
| Value to Community (resilience, enhancement and lifelines served) |

| |
|---|
| Detailed Project Description (purpose, mitigation value, staff, anticipated outcomes, and budget) |
| Budget (including cost -effectiveness analysis that compares alternative approaches to mitigating flood risks to determine the most reasonable use of funds) |
| Capacity Plan (ability of applicant to complete project: Applicant defines clear goals and objectives, identifies stakeholders, establishes quality control protocols, and describes plan for staffing and procurement of contractors) |
| Leveraged Dollars |

# 5. Additional Requirements and Considerations

## 5.1 Leveraging of Funds

The State has prioritized hazard mitigation actions that have the ability to leverage other State, federal, or local resources. When leveraged resources become available, the State or borough entity implementing the activity will conduct a duplication of benefits evaluation.

## 5.2 Green Building Standards

Green Building Standards will be promoted and encouraged for any replacement of substantially damaged residential housing, or any changes to structural elements in carrying out the home elevation or flood-proofing activities. When replacing residential buildings, this also will include reconstruction (demolishing and rebuilding a housing unit on the same lot in substantially the same manner). The State is committed to enforcing modern building codes and all other applicable codes, standards, and ordinances for all CDBG-MIT programs and activities. When applicable, the State will encourage compliance with guidelines specified in the HUD CPD Green Building Retrofit Checklist. For all construction activities, verification prior to construction will take place to ensure that quality materials and standards are being utilized, all necessary permits/approvals/inspections are in place, national flood insurance/elevation standards are followed, resilience features are incorporated into projects such as natural or green infrastructure, and Green Building Standards are being incorporated when possible and cost-effective.

## 5.3 Cost Verification Procedures

The State will review all program and project costs to ensure that they are necessary and reasonable costs. This helps ensure that funds are efficiently and effectively utilized. The determination of necessary and reasonable costs will apply to any project or program receiving funding, including grant awards to individual property owners, as well as administrative and planning funds. The State will utilize the cost principles described in 2 CFR Part 225 to determine necessity and reasonableness. According to 2 CFR Part 225, “A cost is reasonable if, in its nature and amount, it does not exceed that which would be incurred by a prudent person under the circumstances prevailing at the time the decision was made.”

The State and all subrecipients of CDBG-MIT funding will establish controls to ensure that construction costs are reasonable and consistent with market costs at the time and place of construction. When applicable, an independent, qualified third-party cost estimator will verify planned project costs and will evaluate any change orders that may arise during implementation.

## 5.4 Operations and Maintenance

The State and boroughs will create operations and maintenance plans for any activity funded with CDBG-MIT funds. This plan will include a description of the funding source available to fund operations and maintenance.

# 6. Administration and Substantial and Non-Substantial Amendments

## 6.1 Implementation Plan and Capacity Assessment

The State of Alaska Department of Commerce, Community, and Economic Development has an implementation plan that discusses the organizational capacity and ability to manage CDBG-MIT, CDBG-DR, and other State and local funding. This plan also assesses the capacity of subrecipients to implement the activities described within this Action Plan, including a plan to address capacity gaps.

## 6.2 Method of Distribution

The CDBG-MIT programs were selected in coordination with the leadership of the three boroughs eligible for CDBG-MIT funding. Funds will be awarded directly to the implementing agency within each borough as follows:

**Table 20: Method of Distribution of funds**

| Jurisdiction | Agency | Division | Activity | Funding |
|---|---|---|---|---|
| Municipality of Anchorage | Office of Economic and Community Development | Geographic Data and Information Center | National Spatial Reference System for FEMA Remapping of Special Flood Hazard Areas | $1,086,800 |
| Kenai Peninsula Borough | Kenai Office of Emergency Management | | Kenai Peninsula Tsunami Alert System | $170,000 |
| Kenai Peninsula Borough | Kenai Office of Emergency Management | | Building Automation System | $373,400 |
| Matanuska-Susitna Borough | Matanuska-Susitna Borough | Planning Department | Matanuska-Susitna Borough Home Flood Mitigation Program | $543,400 |

### Mitigation Action Coordination

The Division will fulfill a coordination and control function for the CDBG-MIT Program with the borough departments and agencies implementing funded projects. It will ensure that project implementation and CDBG-MIT reporting requirements are fulfilled, while the actual mitigation actions are carried out within and by the various departments. Additional support for financial management and grant compliance will be provided by the DCCED Division of Community and Regional Affairs.

## 6.3 Administrative Funds

The Division can use up to 5% of the total grant award (plus 5% of program income generated by the grant) for grant administration and no more than 15% of its total grant amount on planning costs. Fifty percent of expenditures for grant administration may be counted toward the requirement to spend 50% of grant funds in HUD-identified MID areas.

## 6.4 Application Status

The Divisions grant administrators, and the operations and program managers will conduct a meeting with all subrecipients to discuss the status of their programs and projects and provide any guidance when appropriate. Since the Division responsible for implementing the CDBG-MIT grant has experience managing several grants simultaneously, there is a need for additional support. Additional staffing support is needed at both the State and subrecipient levels. With the additional grant funding, the Division does not have the bandwidth to manage the funding, does not have the capacity to hire and manage the level of staffing that is needed, and currently is lacking in the number of staff with in-house expertise. As a result, the Division has determined that non-essential government functions will need to be filled by contractors.

Subrecipients will be performing a large portion of the work and will require support from the Division. The State has indicated in its implementation plan that it will likely procure a vendor in order to allow the Division to be able to provide ongoing technical assistance, provide staff augmentation to subrecipients, and lower the administrative burden of implementing the grant programs.

Another key area that is currently lacking is an application portal for subrecipients to submit program applications. The Division will look to procure a vendor that can build an application that guides staff and subrecipients through the process of accepting and reviewing applications, verifying eligibility, verifying duplication of benefits, estimating costs for applicants and contractors, and assisting with closeout. This would provide an added benefit of simplifying and automating workflows and reducing the number of staff needed to manage the grants simultaneously.

## 6.5 Program Income

“Program income” is defined as gross income generated from the use of CDBG-MIT funds received by a State, local government, or a subrecipient. When income is generated by an activity that is only partially assisted with CDBG-MIT funds, the income shall be prorated to reflect the percentage of CDBG-MIT funds used. Program income includes, but is not limited to, the following:

1. Proceeds from the disposition by sale or long-term lease of real property purchased or improved with CDBG-MIT funds
2. Proceeds from the disposition of equipment purchased with CDBG-MIT funds
3. Gross income from the use or rental of real or personal property acquired by a State, local government, or subrecipient thereof with CDBG-MIT funds, less costs incidental to generation of the income (i.e., net income)
4. Net income from the use or rental of real property owned by a State, local government, or subrecipient thereof, which was constructed or improved with CDBG-MIT funds
5. Payments of principal and interest on loans made using CDBG-MIT funds
6. Proceeds from the sale of loans made with CDBG-MIT funds
7. Proceeds from the sale of obligations secured by loans made with CDBG-MIT funds
8. Interest earned on program income pending disposition of the income, including interest earned on funds held in a revolving fund account
9. Funds collected through special assessments made against nonresidential properties and properties owned and occupied by households that are not low to moderate income, where the special assessments are used to recover all or part of the CDBG-MIT portion of a public improvement

10. Gross income paid to a State, local government, or a subrecipient thereof from the ownership interest in a for-profit entity in which the income is in return for the provision of CDBG-MIT assistance

Program income does not include the following:

1. The total amount of funds that are less than $35,000 received in a single year and retained by a State, local government, or a subrecipient thereof
2. Amounts generated by activities eligible under Section 105(a)(15) of the HCDA and carried out by an entity under the authority of Section 105(a)(15) of the HCDA

To assist grantees with the management of program income, HUD has issued a waiver that will allow the limited use of CDBG-MIT Program income to be used by CDBG-MIT grantees who are units of local government for the operations and maintenance (O&M) of CDBG-MIT projects. Funding O&M secures the sustainability of innovative projects financed with CDBG-MIT funds and encourages new operating partnerships.

The Division and all subrecipients do not anticipate deriving any program income from any of these activities.

## 6.6 Timely Expenditures

The State of Alaska needs to expend 50% of its CDBG-MIT funds for 2018 disasters on eligible activities within 6 years of HUD's execution of the grant agreement and 100% of its CDBG-MIT funds for 2018 disasters within 12 years of HUD's execution of the grant agreement.

The Division will comply with this timeframe by implementing the following means:

- Effective budgeting and maintenance of expenditure projections and enforcing prompt payment as part of the general financial management process.
- All grant awards will be tracked through the Division's grants management system for monthly expenditures.
- Subrecipients will report quarterly on the program performance of CDBG-MIT activities.
- If a subrecipient appears to be falling behind the expenditure schedule, the Division will meet with the subrecipient to determine why the project is not moving forward and corrective action will be determined as necessary.

Subrecipients will be required to show that the invoices and bills submitted were paid in a timely manner and only eligible costs that were included in the scope of work were reimbursed before the Division will expend CDBG-MIT funds to reimburse its subrecipients.

The Division will report CDBG-MIT performance in the HUD Disaster Recovery Grant Reporting System and will ensure that actual and projected expenditures of funds are accurately reported in the Quarterly Performance Reports (QPRs). QPRs will be posted on the CDBG-MIT website within 3 days of being submitted to HUD each quarter. Reports will include data from the monthly and quarterly performance reports submitted by the subrecipients to the Division.

## 6.7 Table 10: Timely Expenditure Projections for Expenditures and Performance Outcomes

The State of Alaska projects the following expenditures and performance outcomes. As funds become available and applications for mitigation projects have been approved, the Division will adjust projections to align with awarded projects.

**Table 22: Projections for Expenditures and Performance Outcomes**

| Program | Allocation | Percentage of Total Funds | Expended by 2026 | Expended by 2028 | Maximum Award | Performance Outcomes |
|---|---|---|---|---|---|---|
| National Spatial Reference System Conversion for FEMA Remapping of Special Flood Hazard Area | $1,086,800 | 47.5% | $1,086,800 | $1,086,800 | $1,086,800 | Accurate information in the National Geodectic Survey Integrated Database |
| Kenai Tsunami Warning System | $170,000 | 7.4 % | $362,268 | $543,400 | $543,400 | One warning system in Happy Valley |
| Building Automation System | $373,400 | 16.3% | | | | Improved Community Resiliency and Energy Building Improvements in Nanwalek |
| Matanuska-Susitna Borough Home Flood Mitigation Program | $543,400 | 23.8% | $362,268 | $543,400 | $543,400 | 1–5 homes elevated, 1–5 homes flood-proofed, and 1–2 homes bought out |
| Administration | $114,400 | 5.0% | $76,266 | $114,400 | $114,400 | |

## 6.8 Pre-Agreement Costs

Per the Federal Register Notice governing these funds, the State of Alaska is permitted to charge to the grant eligible pre-award costs incurred by itself, its recipients, or subrecipients (including public housing authorities) that are associated with CDBG-MIT funds and comply with grant requirements (24 CFR 570.489(b)). A local government grantee also may reimburse itself or its subrecipients for eligible pre-award costs that are associated with CDBG-MIT funds and must comply with grant requirements (24 CFR 570.200(h)). A common pre-award cost would include staff time required to develop the Action Plan before the grant is authorized.

## 6.9 Substantial and Non-Substantial Action Plan Amendments

### Substantial Amendment

The following actions, at minimum, would trigger a substantial amendment of this Action Plan:

1. Addition of a CDBG-MIT covered project,
2. A change in program benefit or eligibility criteria,
3. Addition or deletion of an activity, or
4. Allocation or reallocation of $5,000,000 from one program to another.

Substantial amendments are subject to a 30-day public comment period, including posting to the Division's CDBG-MIT website, followed by a 60-day review period by HUD. The Division also will amend and submit its projection of CDBG-MIT expenditures and performance outcomes with every substantial amendment.

### Non-Substantial Amendment

The State of Alaska will notify HUD, but is not required to seek public comment, when it makes any plan amendment that is not substantial. HUD will be notified at least 5 business days before the amendment becomes effective. Once received, HUD will acknowledge receipt of the notification of non-substantial amendments via email within 5 business days. Every amendment to the Action Plan (substantial and non-substantial) must be numbered sequentially and will be posted on the CDBG-MIT website.

# 7. Citizen Participation

## 7.1 Goals

The State of Alaska Department of Commerce, Community, and Economic Development (the Division) has adopted a Citizen Participation Plan (CPP) that sets forth the State's procedures for citizen participation in the development and implementation of the HUD CDBG-MIT activities and programs. The overall purpose of the CPP is to provide for and encourage citizens to participate in an advisory role in the planning, implementing, and assessing of Alaska's CDBG-MIT funded programs. The CPP has been developed to comply with the requirements outlined in 24 CFR Part 91.115 (Citizen Participation Plan for States) and HUD's Federal Register Notice Docket No. FR-6182-N-02 requirements for allocating funds for mitigation.

Citizens, public agencies, and other interested parties were given reasonable and timely access to the information and records related to the State's CDBG-MIT Action Plan and the State's use of assistance under the programs covered by the plan. Presentation materials, resources used to compile the information in the plan, comments compiled at public hearings, and all other related materials were made available to the public upon request.

## 7.2 Procedures to Maintain a Comprehensive Website

The Division will maintain a public website that provides information accounting for how all grant funds are used, managed, and administered, including links to all disaster recovery Action Plans, Action Plan amendments, program policies and procedures, performance reports, citizen participation requirements, activity and program information described in this plan, and the details of all contracts and ongoing procurement processes.

To notify the public about the availability of the CDBG-MIT Action Plan, the Division will post the CDBG-MIT Action Plan and substantial amendments on the CDBG-MIT website at www.commerce.alaska.gov/web/dcra/GrantsSection/CDBG-MIT.aspx, which is linked to the State's main website at www.alaska.gov.

To ensure that the public knows how all funds are used and administered, the Division also will post all performance reports, CPPs, procurement policies, contracts that will be paid with CDBG-MIT funds, and a description of goods or services currently being procured on the CDBG-MIT website.

In addition, the Division will maintain a comprehensive website regarding all disaster recovery activities assisted with these funds.

The Division shall make these documents available in a form accessible to persons with disabilities and those with limited English proficiency (LEP) and shall take reasonable steps to ensure meaningful access to their programs and activities by LEP persons, including individuals from underserved communities, and in a form accessible to persons with disabilities.

The website will be updated in a timely manner to reflect the most up-to-date information about the use of funds and any changes in policies and procedures, as necessary. At a minimum, updates will be made monthly.

## 7.3 Public Meetings

As part of its initial Public Action Plan development process, the Division is required to hold at least one public hearing during the 45-day comment period in order to obtain residents' views and to respond to proposals and questions.

The Division hosted and presented at public hearings in the following locations on August 21, 2025:

- Virtual public hearing: https://us06web.zoom.us/webinar/register/WN_p5sAMkEfTwqeQM2fbA4GEA

The virtual public hearings were supplemented with key information and recorded presentations on the project website, along with multiple methods for making virtual public comments. Archival recordings made during one or more of the hearings were posted on the Division's CDBG-MIT website at www.commerce.alaska.gov/web/dcra/GrantsSection/CDBG-MIT.aspx.

## 7.4 Submitting Comments

In addition to the activities above, the Division has published this Action Plan on the CDBG-MIT website at www.commerce.alaska.gov/web/dcra/GrantsSection/CDBG-MIT.aspx and the State's main website at www.alaska.gov from August 6, 2025 through September 12, for a 45-day public comment period. Residents were notified through the following methods:

- Direct email notices to individuals who had signed up for updates on CDBG-DR plan development
- Email notices to local and tribal governments and nonprofit/community-based organizations that have been active in supporting survivors in disaster recovery (e.g., long-term recovery groups, AARP, disability service advocates, culturally specific organizations)
- Press releases to all major news outlets statewide
- Announcements on agency-managed social media accounts
- Formal notices on www.alaska.gov

Written public comments were accepted by the Division via email at ced.cra.cdbgmit@alaska.gov and by U.S. mail at State of Alaska, Department of Commerce, Community, and Economic Development, 550 West 7th Avenue, Suite 1650, Anchorage, AK 99501. The Division has ensured that all residents had equal access to information, including persons with disabilities (vision and hearing impaired) and limited English proficiency.

## 7.5 Citizen Advisory Committee

Following acceptance of the Action Plan, the State and borough leadership will form three Citizen Advisory Committees, one for each borough eligible for CDBG-MIT funds, which will meet in an open forum at least biannually, either virtually or in-person. The goal of the Citizen Advisory Committees is to serve as an ongoing public forum to inform CDBG-MIT projects and programs, leading to transparency.

## 7.6 Low- to Moderate-Income Persons

The Division provided special outreach to senior citizens, LMI households, and ethnic minorities within the jurisdiction. One organization that provided this outreach is Catholic Social Services (Reference 38) whose programs, which include Refugee Assistance and Immigration Services (RAIS) (Reference 39),

help more than 10,000 individuals annually regardless of religious affiliation and/or faith. RAIS services focus on community integration while maintaining a respect for unique cultures. Their website can be translated into 23 languages, including Hmong, Urdu, and Pashto. The dedicated leadership and staff of RAIS stand ready to assist the Alaskan LMI population.

## 7.7 Language Access

The State of Alaska Department of Commerce, Community, and Economic Development (the Division) completed a Language Access Plan (LAP) as a grantee to HUD's CDBG-DR and CDBG-MIT funding in compliance with HUD's language access requirements as outlined in Federal Register Docket No. FR-4878-N-02 (Reference 40). The purpose of this LAP was to ensure that the Division provided appropriate language assistance so that individuals with limited English proficiency (LEP) receive meaningful access to the Division's CDBG-DR and CDBG-MIT programs.

By completing a LAP, the Division described the reasonable steps the agency took to provide meaningful access for LEP individuals to the Division's CDBG-DR and CDBG-MIT funded activities, programs, and services. Completing a LAP and incorporating language assistance measures into the Division's operations achieve the following goals:

1. LEP individuals receive the language access services they need to access CDBG-DR and CDBG-MIT funded activities and programs in the State.
2. LEP individuals receive outreach in their native languages and are informed about CDBG-DR and CDBG-MIT programs and language assistance.
3. Division staff receive ongoing training on the LAP and language assistance measures.
4. The Division continuously monitors and evaluates LAP implementation.

The State of Alaska CDBG-DR and CDBG-MIT service area includes the following three jurisdictions that were impacted by the Southcentral Alaska 2018 Cook Inlet Earthquake—the Municipality of Anchorage, Kenai Peninsula Borough, and Matanuska-Susitna Borough.

As such, the Division completed a four-factor analysis for three jurisdictions to determine the appropriate level of language access for each of its CDBG-DR and CDBG-MIT programs and ensure meaningful access by LEP individuals to critical services without imposing undue burdens on small businesses, small local governments, or small nonprofit entities.

Although none of the LEP populations analyzed exceeded the 5% safe harbor threshold, the Division translated vital document into Spanish as strong evidence of compliance because the LEP Spanish population is relatively large. Eight languages (i.e., Tagalog, Other Native North American, Other Pacific Islander, Hmong, Russian, Korean, German, and French) exceed the 1,000-person safe harbor threshold but were well below the 5% threshold; therefore, the Division did not translate vital documents for these languages but did provide "I Speak" cards and On-Demand Video Remote Interpreting and document translation to facilitate the request of services in all the languages listed above.

The division prioritized language access services for programs, activities, and services with the greatest impact on LEP individuals. All LEP outreach focused on CDBG-DR and CDBG-MIT funded activities that provide substantial direct benefits to participants, including homeowners and renters. In all cases, the Division sought to provide high-quality, accurate, and professional language services to LEP individuals.

## 7.8 Individuals with Disabilities

To ensure that LEP individuals and persons with disabilities have prior notice and access to the public hearings, the Division took the following actions:

- Announced public hearings to organizations that represent minorities and persons with disabilities at least 10 business days prior to the public hearing date(s).
- Included a statement in public hearing notices indicating that participants may request language interpretation to assist in their participation, via email or phone.
- Included a statement in notices of public hearings that the location of the meetings is accessible to person with physical disabilities.
- Included a statement in public hearing notices that attendees can request reasonable accommodations in order to participate in the public meetings.
- The Division made a reasonable effort to translate significant documents to accommodate LEP communities, and the Municipality of Anchorage's Office of Emergency Management website will include a language translation feature.

The Division provided the Action Plan, substantial amendments, all performance reports, citizen participation plans, procurement policies, contracts that will be paid with CDBG-MIT funds, and a description of goods or services currently being procured to the public, including materials in a form accessible to persons with disabilities and LEP individuals. These documents were made available to the public on the CDBG-MIT website at www.commerce.alaska.gov/web/dcra/GrantsSection/CDBG-MIT.aspx to ensure that the public had access to details about how all funds are used and administered.

# 8. APPENDICES

## 8.1 Appendix A: Definitions, Acronyms, and Abbreviations

**CDBG (State)** The annual allocation of Community Development Block Grant funds from the U.S. Department of Housing and Urban Development.

**CDBG-DR** Community Development Block Grant – Disaster Recovery funds are issued through a Federal Register Notice from the U.S. Department of Housing and Urban Development for long-term recovery of specific disaster events.

**CDBG-MIT** Community Development Block Grant – Mitigation funds are issued through a Federal Register Notice from the U.S. Department of Housing and Urban Development for mitigation projects based on the determination of a risk-based Needs Assessment.

**DOB** Duplication of benefits is any assistance provided to subrecipients for the same purpose (i.e., for repair, replacement, or reconstruction) as any previous financial or in-kind assistance already provided for the same. This prohibition comes from the Robert T. Stafford Disaster Assistance and Emergency Relief Act and, therefore, these duplicated sources of funds must be deducted from any potential award.

**FEMA** The Federal Emergency Management Agency provides immediate response to disasters and issues Individual Assistance, Public Assistance, and Hazard Mitigation Assistance.

**HMGP** The Hazard Mitigation Grant Program provides FEMA funds for projects that mitigate against the impacts from future disasters.

**HUD** The U.S. Department of Housing and Urban Development is the lead federal agency for CDBG, CDBG-DR, and CDBG-MIT.

**LMA** A low- to moderate-income area benefit is an activity where the area served includes 51% or more low- to moderate-income households.

**LMH** A low- to moderate-income household has an income of less than 80% of the local area median income.

**LMI** A low to moderate income is less than 80% of the local area median income.

**Local HMP** This is the Hazard Mitigation Plan for the local community.

**Mitigation Activity** As defined by HUD in CDBG-MIT Federal Register Notice 84 FR 45838, a “mitigation activity” is defined as an activity that increases resilience to disasters and reduces or eliminates the long-term risk of loss of life, injury, damage to and loss of property, and suffering and hardship by lessening the impact of future disasters.

**Subrecipient** A municipality or borough or other eligible applicant that has applied for and been awarded a grant by the Alaska Department of Commerce, Community, and Economic Development.

## 8.2 Appendix B: References


1. Allocations, Common Application Waivers, and Alternative Requirements for Disaster Community Development Block Grant Disaster Recovery Grantees [Docket No. FR-6182-N-01], Vol 85, No. 17. 2020-01204.pdf (govinfo.gov)
2. Allocations, Common Application, Waivers, and Alternative Requirements for Community Development Block Grant Disaster Recovery Grantees (CDBG Mitigation) [Docket No. FR–239–N–01]", Vol. 86, Federal Register Notice, No. 3, January 6, 2021, pages 561-569, National Archives and Records Administration, Available: 2020-29262.pdf (govinfo.gov)
3. Allocations, Common Application, Waivers, and Alternative Requirements for Community Development Block Grant Mitigation Grantees [Docket No. FR-6109-N-02], Vol 84, No. 169 2019-18607.pdf (govinfo.gov)
4. Allocations, Common Application, Waivers, and Alternative Requirements for Community Development Block Grant Disasters Recovery Grantees (CDBG Mitigation) [Docket No. FR-6239-N-01], Vol. 86 Federal Register Notice No. 3, January 6, 2021 2020-29261.pdf (govinfo.gov)
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7. State of Alaska, Division of Homeland Security and Emergency Management. 2020. Matanuska-Susitna Borough Hazard Mitigation Plan Update. https://matsugov.us/docs/general/18803/210301-MSB-HMP-Update.pdf
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14. National Tsunami Hazard Mitigation Program, NTHMP Tsunami Information Guide, NTHMP Tsunami Information Guide (weather.gov), accessed July 15 2022.
15. Alaska Volcano Observatory, Alaska Volcano Observatory - About Alaska's Volcanoes, accessed July 15, 2022
16. United States Geological Survey-Volcanic Ashfall Impacts Working Group, Impacts & Mitigation - Computers & Electronics (usgs.gov), accessed July 15, 2022.
17. McClung, D., & Schaerer, P.A. (2006). *The avalanche handbook,* The Mountaineers Books.
18. Allocations, Common Application, Waivers, and Alternative Requirements for Community Development Block Grant *Final Guidance to Federal Financial Assistance Recipients Regarding Title VI Prohibition Against National Origin Discrimination Affecting Limited English Proficient Persons* 07-217.pdf (govinfo.gov)
19. 2018 Kenai Peninsula All Lands All Hands Action Plan https://www.kpb.us/images/KPB/OEM/AHMP/Annexes/Annex_H_All_Lands_All_Hands_Action_Plan.pdf
20. Alaska Department of Transportation and Public Facilities. Annual Average Daily Trips, Traffic Data – Transportation Data Programs Traffic Data - Transportation Data Programs, Department of Transportation & Public Facilities - State of Alaska

21. Knik Tribal Council. Hazard Mitigation Plan for the Federal Emergency Management Agency (FEMA) (kniktribe.org).
22. Ninilchik Village Tribe. 2022 Tribal Hazard Mitigation Plan. Ninilchik_THMP_20220524.pdf (netdna-ssl.com).
23. Seldovia Village Tribe. Tribal Hazard Mitigation Plan. 190813 Draft SVT Hazard Mitigation Plan.
24. Alaska Division of Homeland Security and Emergency Management, Hazard Mitigation Section. State Hazard Mitigation Plan
25. State of Alaska, Division of Homeland Security and Emergency Management. 2019. Kenai Peninsula Borough Hazard Mitigation Plan. https://www.kpb.us/images/KPB/PLN/PlansReports/2019_Kenai_Peninsula_Borough_Hazard_Mitigation_Plan.pdf
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35. Matanuska-Susitna Borough. Hazard Mitigation Plan Update 2021 201118 MSB HMP Update
36. Municipality of Anchorage. All Hazards Mitigation Plan Emergency Management Plans & Policies
37. HUD Exchange. Low-Moderate Income Block Groups LMISD – All Block Groups, Based on 2011-2015 ACS
38. Catholic Social Services. About Us. https://www.cssalaska.org
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## 8.3 Appendix C: CDBG-MIT Certifications

The State of Alaska Department of Commerce, Community, and Economic Development (DCCED) makes the following certifications with this Action Plan:

a. The State of Alaska DCCED certifies that it has in effect and is following a residential anti-displacement and relocation assistance plan in connection with any activity assisted with funding under the CDBG program.

b. The State of Alaska DCCED certifies its compliance with the restrictions on lobbying required by 24 CFR Part 87, together with disclosure forms, if required by Part 87.

c. The State of Alaska DCCED certifies that the Action Plan is authorized under State and local law (as applicable) and that the State of Alaska DCCED, and any entity or entities designated by the State of Alaska DCCED, and any contractor, subrecipient, or designated public agency carrying out an activity with CDBG-MIT funds, possess(es) the legal authority to carry out the program for which it is seeking funding, in accordance with applicable HUD regulations and this Notice. The State of Alaska DCCED certifies that activities to be administered with CDBG-MIT funds under this Notice are consistent with its Action Plan.

d. The State of Alaska DCCED certifies that it will comply with the acquisition and relocation requirements of the URA, as amended, and implementing regulations at 49 CFR Part 24, except where waivers or alternative requirements are provided for in this Notice.

e. The State of Alaska DCCED certifies that it will comply with Section 3 of the Housing and Urban Development Act of 1968 (12 United States Code [U.S.C.] 1701u) and implementing regulations at 24 CFR Part 135.

f. The State of Alaska DCCED certifies that it is following a detailed citizen participation plan that satisfies the requirements of 24 CFR 91.105 or 91.115, as applicable (except as provided for in notices providing waivers and alternative requirements for this grant). Also, each local government receiving assistance from a State must follow a detailed citizen participation plan that satisfies the requirements of 24 CFR 570.486 (except as provided for in notices providing waivers and alternative requirements for this grant).

g. The State of Alaska DCCED receiving a direct award under this Notice certifies that it has consulted with affected local governments in counties designated in covered major disaster declarations in the non-entitlement, entitlement, and tribal areas of the State in determining the uses of funds, including the method of distribution of funding or activities carried out directly by the State.

h. The State of Alaska DCCED certifies that it is complying with each of the following criteria:

   i) Funds will be used solely for necessary expenses related to disaster relief, long-term recovery, restoration of infrastructure and housing, and economic revitalization in the most impacted and distressed areas for which the President declared a major disaster in 2017 pursuant to the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1974 (42 U.S.C. 5121 et seq.).

   ii) With respect to activities expected to be assisted with CDBG-DR funds, the Action Plan has been developed to give the maximum feasible priority to activities that will benefit LMI families.

   iii) The aggregate use of CDBG-DR funds shall principally benefit LMI families in a manner which ensures that at least 70% of the grant amount is expended for activities that benefit such persons.

   iv) The State of Alaska DCCED will not attempt to recover any capital costs of public improvements assisted with CDBG-DR funds by assessing any amount against properties owned and occupied by persons of low and moderate income, including any fee charged or assessment made as a condition of obtaining access to such public improvements, unless (a) disaster mitigation grant funds are used to pay the proportion of such fee or assessment that relates to the capital costs of such public improvements that are financed from revenue sources other than under this title, or (b) for the purposes of assessing any amount against properties owned and occupied by persons of moderate income, the State of Alaska DCCED certifies to the Secretary that it lacks sufficient CDBG funds (in any form) to comply with the requirements of clause (a).

i. The State of Alaska DCCED certifies that it will conduct and administer in conformity with Title VI of the Civil Rights Act of 1964 (42 U.S.C. 2000d) and the Fair Housing Act (42 U.S.C. 3601–3619) and implementing regulations, and that it will affirmatively further fair housing.

j. The State of Alaska DCCED certifies that it has adopted and is enforcing the following policies. In addition, States receiving a direct award must certify that they will require units of general local government that receive grant funds to certify that they have adopted and are enforcing:

   i) A policy prohibiting the use of excessive force by law enforcement agencies within its jurisdiction against any individuals engaged in nonviolent civil rights demonstrations; and

   ii) A policy of enforcing applicable State and local laws against physically barring entrance to or exit from a facility or location that is the subject of such nonviolent civil rights demonstrations within its jurisdiction.

k. The State of Alaska DCCED certifies that it (and any subrecipient or administering entity) currently has or will develop and maintain the capacity to carry out disaster mitigation activities in a timely manner and that the State of Alaska DCCED has reviewed the requirements of this Notice. The State of Alaska DCCED certifies to the accuracy of its Mitigation Financial Management and Grant Compliance certification checklist (Public Laws 115-123 or 116-20 and 115-254 Financial Management and Grant Compliance certification checklist), or other recent certification submission, if approved by HUD, and related supporting documentation referenced at A.1.a under Section V and its Implementation Plan and Capacity Assessment and related submission to HUD referenced at A.1.b under Section V (84 FR 45838) and its Implementation Plan and Capacity Assessment and related submission to HUD referenced at 86 FR 561.

l. The State of Alaska DCCED certifies that it considered the following resources in the preparation of its Action Plan, as appropriate:

   - FEMA Local Mitigation Planning Handbook: Hazard Mitigation Planning | FEMA.gov;
   - DHS Office of Infrastructure Protection: Infrastructure Protection | Homeland Security (dhs.gov);
   - National Association of Counties, Improving Lifelines (2014): Improving Lifelines: Protecting Critical Infrastructure for Resilient Counties (naco.org)
   - The National Interagency Coordination Center (NICC) for coordinating the mobilization of resources for wildland fire: GACC >Administrative (nifc.gov) ;
   - The U.S. Forest Service's resources around wildland fire: National Interagency Coordination Center (NICC) (nifc.gov) ; and
   - HUD's CPD Mapping tool: CPD Maps (hud.gov)

m. The State of Alaska DCCED certifies that it will not use grant funds for any activity in an area identified as flood prone for land use or hazard mitigation planning purposes by the State, local, or native government or delineated as a Special Flood Hazard Area (or 100-year floodplain) in FEMA's most current flood advisory maps, unless it also ensures that the action is designed or modified to minimize harm to or within the floodplain, in accordance with Executive Order 11988 and 24 CFR Part 55. The relevant data source for this provision is the State, local, and native government land use regulations and Hazard Mitigation Plans and the latest issued FEMA data or guidance, which includes advisory data (such as Advisory Base Flood Elevations) or preliminary and final Flood Insurance Rate Maps.

n. The State of Alaska DCCED certifies that its activities concerning lead-based paint will comply with the requirements of 24 CFR Part 35, subparts A, B, J, K, and R.

o. The State of Alaska DCCED certifies that it will comply with environmental requirements at 24 CFR Part 58.

p. The State of Alaska DCCED certifies that it will comply with applicable laws.

Brandon McNaughton — Signature of Authorized Official

12/16/2025 — Date

## 8.4 Appendix D: Consultation Survey

### 2022 Survey of Alaska MID Area Mitigation Partners

In August 2022, the State of Alaska Department of Commerce, Community, and Economic Development sent a survey to more than 60 State and MID area mitigation partners, including local and State government officials, public agencies, private sector utilities and communications entities, tribal entities and organizations, and federal partners. The survey solicited opinions regarding the impacts on the region's critical lifelines, priority mitigation activities, need for coordination of mitigation, and types of mitigation activities that they would like to see implemented with CDBG-MIT funds in their areas. The survey was implemented via secure Microsoft® Forms and the link was sent via email to potential participants. It also was posted on the Division's website.

An invitation to respond to the survey was sent to the following types of MID area mitigation partners:

- Federal Partner
- Local Government Agency
- Local Government Leadership
- Local Hazard Mitigation Official
- Non-governmental
- Private Sector
- Public Housing Authority
- School Districts
- State Hazard Mitigation Official
- Tribal Entity, Organization
- Utilities and Public Works

The survey received five responses from the following organizations:

- Kenai Peninsula Borough
- Municipality of Anchorage
- Place of Worship, Municipality of Anchorage
- State Agency – Alaska Division of Geological and Geophysical Surveys
- State Agency – State Historic Preservation Office

Below we provide the results of four key survey questions (two quantitative questions and two open questions for which we quantified key topics and combined responses) and analyzed the responses using simple descriptive statistics.

**Exhibit 1**. Question 3. Please select all of the seven Critical Community Lifeline areas that were impacted during the Cook Inlet/Port Mackenzie Earthquake of 2018, within the three CDBG-MIT eligible affected jurisdiction—the Municipality of Anchorage, Matanuska-Susitna Borough, and Kenai Peninsula Borough.

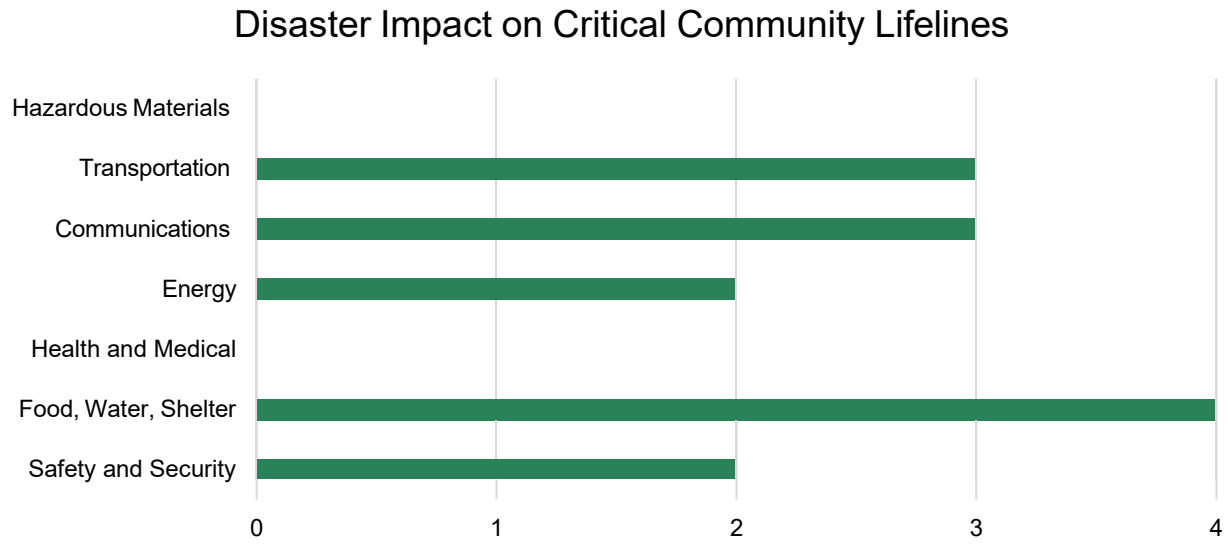



**Exhibit 2**. Question 9. Please indicate the type of mitigation activity potentially requiring coordination.

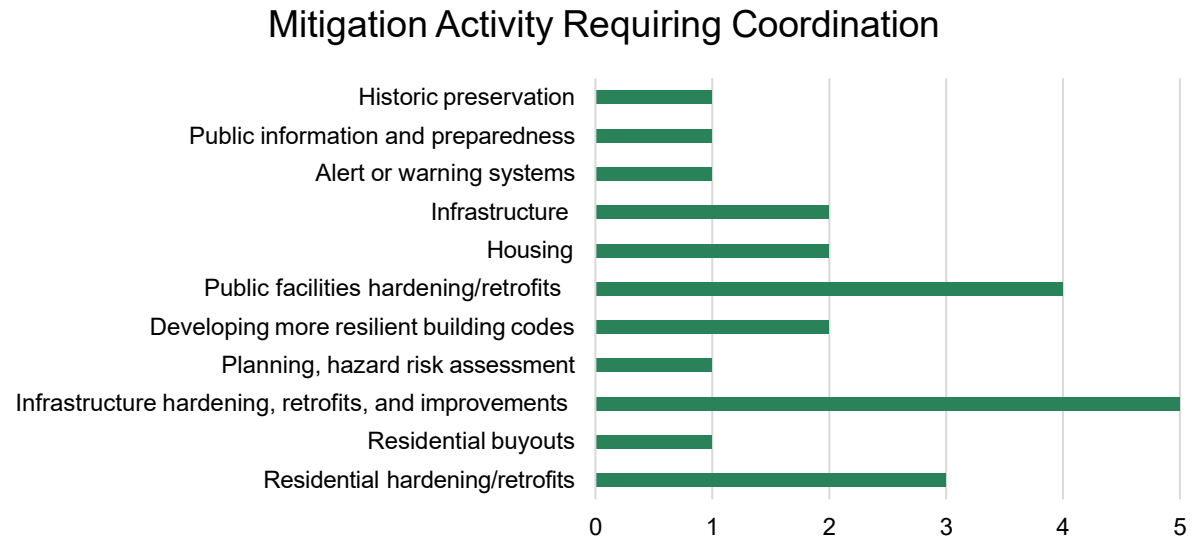
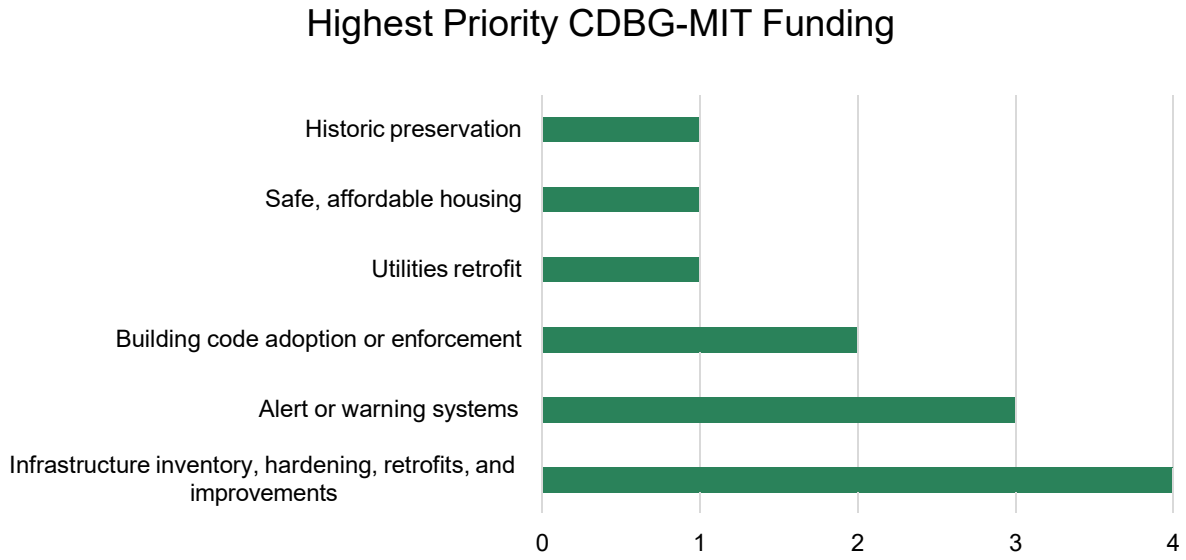


**Exhibit 3**. Question 9. What is the borough/region's greatest needs with respect to mitigation funding projects?




Question 11. The State of Alaska was allocated $2,288,000 in CDBG-Mitigation (CDBG-MIT) funding to support long-term mitigation efforts. For what purpose would you most like to see the funding used?

[These two questions provided an opportunity for respondents to give their answers in writing. The responses for both questions were reviewed for key topics that were then quantified. The tallies were combined to produce the figure.]

## 8.5 Appendix E: Public Comments and Responses

**Responses to Public Comment**

This document describes the comments received from the public following the release of the initial Community Development Block Grant – Mitigation (CDBG-MIT) draft State Action Plan. Each section addresses comments and questions that correspond to specific topics mentioned in the draft Action Plan.

• Release Date: August 10, 2025

• Comment Period: August 10, 2025 – September 9, 2025

• Approved by HUD: TBA

Comments were received via email. The duration of the public comment period as well as instructions for how to submit public comments were posted to the webpage. More information can be found on the CDBG-MIT official webpage at CDBG-MIT, Grants Section, Division of Community and Regional Affairs (alaska.gov).

DCCED staff carefully reviewed and considered all comments. Minor corrections (such as typographical errors) have been made and are not included in the summary below. DCCED solicited and received commentary on the State MIT Action Plan from many entities, including, but not limited to, State Agency partners, Borough, Tribal, and City government entities, nonprofit organizations, healthcare facilities and private citizens.

**Comment and Response Summary**

1. **Public Comment:** The Matanuska-Susitna Borough would like to inquire about adding an additional program to the CDBG-MIT Action Plan. This program would be a community cleanup program.

   **DCCED Response:** In the first draft of the Action Plan, the State is focusing the allocation of funds for the purpose of implementing high-priority hazard mitigation activities which were selected in coordination with the leadership of the three boroughs eligible for CDBG-MIT funding. The Matanuska-Susitna Borough (MSB) concluded that the Home Flood Mitigation Program, which is outlined in the draft Action Plan, will best maximize the impact of funding and reduce losses from future disasters. Funding for this program will help Matanuska-Susitna Borough recover from the 2018 earthquake and become more resilient to current and future natural hazards. Further, activities funded through this grant program must meet HUD's definition of mitigation which are "activities that increase resilience to disasters and reduce or eliminate the long-term risk of loss of life, injury, damage to and loss of property, and suffering and hardship, by lessening the impact of future disasters." A clean-up program responding to a previous disaster or a need for general community improvement is not, by itself, a mitigation activity and is therefore not eligible to be funded through this grant.

   Additional program guidelines and details will be available and regularly updated on the State's CDBG-MIT site found here: CDBG-MIT, Grants Section, Division of Community and Regional Affairs (alaska.gov)

2. **Public Comment:** There are many non-compliant buildings in and surrounding the Municipality of Anchorage. The commenter expressed the need for a retrofit program, and code compliance in the Chugiak/Eagle River Community. There is a lack of seismic design for brand new homes. What can be done to get code compliance in the area? Commenter is interested in learning about setting up an activity to conduct code enforcement.

**DCCED Response:** The State is committed to enforcing modern building codes and all other applicable codes, standards, and ordinances for all CDBG-MIT programs and activities. For all construction activities, verification prior to construction will take place to ensure that quality materials and standards are being utilized, all necessary permits/approvals/inspections are in place, national flood insurance/elevation standards are followed, resilience features are incorporated into projects such as natural or green infrastructure, and Green Building Standards are being incorporated when possible and cost-effective.

As Chugiak/Eagle River community is within the HUD-identified “most impacted and distressed” areas of the Municipality of Anchorage, the National Spatial Reference System Transition in support of FEMA Remapping of Special Flood Hazard Areas program will support the community. Funding from this project will provide Anchorage with the opportunity to upgrade the existing datum used for mapping land use and infrastructure projects and will support the development of programs that reduce or eliminate damage to or loss of property and the mitigation of disasters. Having updated data sets, can be strategically used to minimize public and private losses and promote the projection of human life and health, and could be used to promote new and to better enforce current building codes across the municipality.

Additional program details will be available and regularly updated on the State’s CDBG-MIT website found here: CDBG-MIT, Grants Section, Division of Community and Regional Affairs (alaska.gov)

## 8.6 Appendix F: Timely Expenditure Schedules

The State of Alaska projects that they will be able to expend 50% of CDBG-MIT funds within 6 years of award date and 100% well before the 12 years from HUD's execution of the grant agreement.

**Table 23: CDBG-MIT Program Budget Summary Expenditure Schedules**

| Activity | Budget | 2026 | | | | 2027 | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |
| | | | | | | | | | |
| National Spatial Reference System Conversion | $1,086,800 | $135,850 | $135,850 | $135,850 | $135,850 | $135,850 | $135,850 | $135,850 | $135,850 |
| **Infrastructure** | | | | | | | | | |
| Kenai Tsunami Warning System | $170,000 | $21,250 | $21,250 | $21,250 | $21,250 | $21,250 | $21,250 | $21,250 | $21,250 |
| Installation of Building Automation System at Nanwalek K-12 School | $373,000 | $46,675 | $46,675 | $46,675 | $46,675 | $46,675 | $46,675 | $46,675 | $46,675 |
| **Housing** | | | | | | | | | |
| Matanuska-Susitna Borough Home Flood Mitigation Program | $543,400 | $67,925 | $67,925 | $67,925 | $67,925 | $67,925 | $67,925 | $67,925 | $67,925 |
| Administration | $114,400 | $14,300 | $14,300 | $14,300 | $14,300 | $14,300 | $14,300 | $14,300 | $14,300 |
| TOTAL | $2,288,000 | $286,000 | $286,000 | $286,000 | $286,000 | $286,000 | $286,000 | $286,0000 | $286,000 |