

Native Village of Eyak

2026 TRIBAL HAZARD MITIGATION PLAN



**NATIVE VILLAGE OF EYAK
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EXECUTIVE SUMMARY

Hazard mitigation planning is a process that helps communities reduce the impacts of disasters on people and places before a disaster occurs. It involves identifying hazards, understanding vulnerabilities, and developing long-term risk-reduction strategies. For over 25 years, hazard mitigation planning has been driven by a federal law, known as the Disaster Mitigation Act of 2000 (DMA 2000), which emphasizes the need for state, tribal, and local entities to closely coordinate hazard mitigation planning and implementation efforts. It also provides the legal basis for the Federal Emergency Management Agency (FEMA) to require state, tribal, and local entities to develop hazard mitigation plans to receive certain types of federal disaster assistance. These requirements are defined in FEMA's State and Local Mitigation Planning Policy Guides and the Tribal Mitigation Plan Review Guide.

To meet the requirements of the DMA 2000, the Native Village of Eyak (NVE) has developed this 2026 Tribal Hazard Mitigation Plan (THMP). Hazards addressed in this plan include avalanche, climate change, drought, earthquake, ecological hazard, erosion, flood, hazardous material release, landslide, severe weather, tsunami, volcanic eruption, and wildfire.

The 2026 THMP includes 21 mitigation actions that will help Eyak mitigate the impacts from, and increase resilience to, natural, human-caused, and climate-related hazards. The actions and strategies identified in the plan were developed by members of the steering committee; were previously identified in other plans, programs, and studies; or have been highlighted as success stories and best management practices elsewhere. They include:

- Critical Facility Shelter-in-Place Supplies
- Create Incident Command Position
- Community Resilience Center
- Critical Access Route Protection and Monitoring
- Monitoring Baseline Conditions
- Feasibility Study of Water Retention Projects
- Watershed Planning
- Emergency Water Storage
- Engineering and Seismic Retrofit of Ilanka Health Clinic and NVE Main Offices
- Aquatic Invasive Species Detection and Eradication Program for Elodea
- Tribal Early Detection and Rapid Response Capacity Building for Green Crab
- New Transfer Facilities and Bear-Proof Waste Bins
- Armoring and Stabilizing Coastal Roads
- Elevation or Relocation of Critical Facilities
- Hazardous Material Release Training and Drills
- Home Heating Tank Inspections
- Contaminated Sites Assessments
- Inventory Critical Facilities for Compatibility with Mobile Generators
- Air Filtration Systems for Critical Facilities
- Ecological Monitoring for Wildfire Hazards
- Hazard Fuels Reduction Programs

To ensure that the mitigation actions are implemented, and that the overall 2026 THMP remains relevant, NVE will administer a system to track disasters that have occurred; community assets that have been damaged; public outreach that has been conducted; mitigation actions that have been implemented (and mitigation goals that each action addresses); new and/or updated studies, reports, and maps that have been published; and changes that have made and/or that need to be made to the current or future THMP. This process, along with a multi-department approach to planning integration and ongoing community engagement, will enable Eyak to effectively implement priority mitigation actions that will improve Eyak's health and wellness, community, and education and environment.

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LIST OF ACRONYMS AND ABBREVIATIONS

°F	degrees Fahrenheit
AECOM	AECOM Technical Services, Inc.
ANCSA	Alaska Native Claims Settlement Act
ANTHC	Alaska Native Tribal Health Consortium
BRIC	Building Resilient Infrastructure and Communities
CFR	Code of Federal Regulations
CTC	Cordova Telephone Coop
DGGS	Alaska Division of Geological & Geophysical Surveys
DMA 2000	Disaster Mitigation Act of 2000
DEC	Department of Environmental Conservation
EHS	Extremely Hazardous Substance
EMPG	Emergency Management Performance Grant
EPA	United States Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
GAP	General Assistance Program
HMGP	Hazard Mitigation Grant Program
HMA	Hazard Mitigation Assistance
M	magnitude
MMI	Modified Mercalli Intensity
mph	miles per hour
NASA	National Aeronautics and Space Administration
NCRF	National Coastal Resilience Fund
NOAA	National Oceanic and Atmospheric Administration
NVE	Native Village of Eyak
SCERP	Small Community Emergency Operations Plan
SFHA	Special Flood Hazard Area
THMP	Tribal Hazard Mitigation Plan
U.S.	United States
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WIFIA	Water Infrastructure Finance and Innovation Act of 2014

1.0 INTRODUCTION

1.1 HAZARD MITIGATION PLANNING

Hazard mitigation planning is a process that helps communities reduce the impacts of disasters on people and places before a disaster occurs. It involves identifying hazards, understanding vulnerabilities, and developing long-term risk-reduction strategies. For over 25 years, hazard mitigation planning has been driven by a federal law, known as the Disaster Mitigation Act of 2000 (DMA 2000), which emphasizes the need for state, tribal, and local entities to closely coordinate hazard mitigation planning and implementation efforts. It also provides the legal basis for the Federal Emergency Management Agency (FEMA) to require state, tribal, and local entities to develop hazard mitigation plans to receive certain types of federal disaster assistance. These requirements are defined in FEMA's State and Local Mitigation Planning Policy Guides and the Tribal Mitigation Plan Review Guide.

1.2 2026 TRIBAL HAZARD MITIGATION PLAN SYNOPSIS

To meet the requirements of the DMA 2000, Native Village of Eyak (NVE) developed this 2026 Tribal Hazard Mitigation Plan (THMP). Hazards addressed in this plan include avalanche, climate change, drought, earthquake, ecological hazard, erosion, flood, hazardous material release, landslide, severe weather, tsunami, volcanic eruption, and wildfire. The 2026 THMP is organized to follow FEMA's Tribal Mitigation Plan Review Tool (Appendix A), which demonstrates how hazard mitigation plans meet the DMA 2000 regulations. As such, specific planning elements of this review tool are in their appropriate plan sections.

The 2026 THMP structure includes the following sections:

- **Section 1 Introduction**, which includes an overview of Eyak and provides information on hazard mitigation planning.
- **Section 2 Planning Process**, which provides an overview of the planning process, starting with a timeline. It identifies planning team members and describes their involvement with the planning process. This section also details stakeholder outreach, public involvement, and continued public involvement. It provides an overview of the existing plans and reports, details how those documents were incorporated into the 2026 THMP, and provides a plan update method and schedule. Supporting planning process documentation is provided in Appendix A. A supporting table for the plan update is provided in Appendix B.
- **Section 3 Community Description**, which provides information about Eyak's location, geography, history, demographics, economy; and critical facilities.
- **Section 4 Risk Assessment**, which provides hazard identification information, including a description of each of the 13 hazards addressed in this plan. The section also provides hazard impact tables or descriptions for the analysis area (also referred to as the planning area), population centers, and critical facilities. An overall summary of vulnerability for each hazard is also provided.
- **Section 5 Mitigation Strategy**, which provides a description of Eyak's mitigation goals, potential mitigation actions and projects, and prioritization process. A capability assessment and prioritized action plan are also addressed, and a table of recommended mitigation actions is provided in Appendix C.

- **Section 6 Plan Adoption**, which includes information about the formal adoption for the NVE.
- **Section 7 Appendices**, which includes Appendix A (Planning Process), Appendix B (Plan Maintenance), Appendix C (Draft Mitigation Actions), and Appendix D (Adoption Resolution).

2.0 PLANNING PROCESS

This section addresses Element A of the Tribal Mitigation Plan Regulation Checklist.

Regulation Checklist – 44 CFR 201.7 Tribal Mitigation Plans
Element A: Planning Process
A1. Does the plan document the planning process, including how it was prepared and who was involved in the process? (Requirement 44 CFR § 201.7(c)(1))
A2. Does the plan document an opportunity for public comment during the drafting stage and prior to plan approval, including a description of how the tribal government defined “public”? (Requirement 44 CFR § 201.7(c)(1)(i))
A3. Does the plan document, as appropriate, an opportunity for neighboring communities, tribal and regional agencies involved in hazard mitigation activities, agencies that have the authority to regulate development as well as other interests to be involved in the planning process? (Requirement 44 CFR § 201.7(c)(1)(ii))
A4. Does the plan describe the review and incorporation of existing plans, studies, and reports? (Requirement 44 CFR § 201.7(c)(1)(iii))
A5. Does the plan include a discussion on how the planning process was integrated to the extent possible with other ongoing tribal planning efforts as well as other FEMA programs and initiatives? (Requirement 44 CFR § 201.7(c)(1)(iv))
A6. Does the plan include a description of the method and schedule for keeping the plan current (monitoring, evaluating and updating the mitigation plan within the plan update cycle)? (Requirement 44 CFR § 201.7(c)(4)(i))
A7. Does the plan include a discussion of how the tribal government will continue public participation in the plan maintenance process? (Requirement 44 CFR § 201.7(c)(4)(iv))

2.1 OVERVIEW OF THE 2026 THMP PLANNING PROCESS

The development of the 2026 THMP was a collaborative effort between the NVE and the consultant AECOM Technical Services, Inc. (AECOM). The planning process officially kicked off in March 2026 and ended in **Month Year**. A timeline of the major planning tasks and milestones by month, including when the planning team met, is provided in Table 2-1. A list of the planning team members and how they contributed to the development of the plan is provided in Table 2-2.

Table 2-1: THMP Timeline

Date	Tasks	People Involved
March 2026	First THMP planning team meeting to kick off the project, collect initial information regarding hazards to be profiled	THMP project manager, consultant, planning team
May 2026	Initial stakeholder engagement	Consultant
June 2026	Initial public involvement; hazard profiles drafted	THMP project manager, consultant, planning team

Date	Tasks	People Involved
July 2026	Second planning team meeting; draft mitigation actions developed; prioritization action plan discussed	THMP project manager, consultant, planning team
September 2026	Internal Draft THMP	THMP project manager, consultant, planning team
October 2026	Public Draft THMP Follow-up public outreach and stakeholder involvement	THMP project manager, consultant, public
Month 2026	Final Draft THMP	THMP project manager, consultant, Alaska Division of Homeland Security and Emergency Management, FEMA Region 10
Month 2026	Adoption of Final THMP	THMP project manager, NVE Village Council

Table 2-2: Planning Team

Name	Title and Affiliation	Contribution
Erin Shew	THMP Project Manager, Department of the Environment and Natural Resources	Served as the THMP project manager. Led planning team meetings; reviewed and commented on community maps, mitigation strategies, and the Internal Draft THMP. Provided photographs and coordinated with tribal newsletter for public outreach.
Brooke Mallory	THMP Planning Team Member, Executive Director	Participated in first planning team meeting and reviewed the Internal Draft THMP.
Raven Cunningham	THMP Planning Team Member, Cultural	Participated in first planning team meeting and reviewed community history and background information components of the Internal Draft THMP.
Sheldon Barnes	THMP Planning Team Member, Capital Projects	Participated in planning team meetings, reviewed and commented on mitigation strategies, and reviewed the Internal Draft THMP.
John Whissel	THMP Planning Team Member	Participated in planning team meetings, reviewed and commented on mitigation strategies, and reviewed the Internal Draft THMP.
Ivy Patton	THMP Planning Team Member	Participated in planning team meetings, reviewed and commented on mitigation strategies, and reviewed the Internal Draft THMP.
Nicole Piche	THMP Planning Team Member	Participated in first planning team meeting and reviewed the Internal Draft THMP.

Name	Title and Affiliation	Contribution
Reyna Newirth	THMP Planning Team Member	Participated in first planning team meeting, reviewed and commented on the Internal Draft THMP.
Danielle Lundli	THMP Planning Team Member	Participated in second planning team meeting, reviewed and commented on mitigation strategies, reviewed and commented on the Internal Draft THMP.
Kim Roeland	Planner, AECOM Technical Services	Consultant; prepared 2026 draft THMP.

2.2 OPPORTUNITIES FOR STAKEHOLDERS

On May 28, 2026, the consultant, on behalf of the THMP planning team, reached out to stakeholders via email about the 2026 THMP and invited them to participate in the planning process. Stakeholders included the City of Cordova, State of Alaska Department of Transportation and Public Facilities (DOT&PF), Cordova Electric Cooperative, Cordova Telecom, Copper River Watershed Project, Cordova School District, U.S. Forest Service, Cordova Avalanche Center, Prince William Sound Economic Development District, Prince William Sound College, U.S. Coast Guard, and the Eyak Corporation (Appendix A). No stakeholder input was received.

The consultant, on behalf of the THMP planning team, reached out to the stakeholders again via email on Month XX, 2026, inviting them to review and provide comments about the Public Draft THMP (Appendix A). [Insert stakeholder input]

2.3 PUBLIC INVOLVEMENT

The NVE defines the public as members of the Native Village of Eyak tribe. In June 2026, the THMP project manager included information about the 2026 THMP kickoff on the tribal newsletter Eyak Echo, which is sent by mail quarterly to tribal members (Appendix A). No public input was received.

Also, on Month 2026, XXX sent a copy of the Public Draft THMP and information on the comment period. [Insert public input]

2.4 REVIEW AND INCORPORATION OF EXISTING PLANS AND REPORTS

A list of the major relevant plans and reports reviewed and incorporated into the 2026 THMP is provided in Table 2-3.

Table 2-3: Existing Plans and Reports

Plans and Reports	Information to Be Incorporated into the 2026 THMP
Alaska Baseline Erosion Assessment, Erosion Information Paper – Cordova, Alaska (U.S. Army Corps of Engineers 2007)	Background erosion information is incorporated into the hazard profile and impacts section
Alaska State Hazard Mitigation Plan Update (2023)	Information for all natural hazards

Plans and Reports	Information to Be Incorporated into the 2026 THMP
Alaska's Changing Environment (Thoman and Walsh 2019; Thoman and McFarland 2024; Grabinski and McFarland 2025)	Information on statewide climate change observed trends used in the climate change hazard profile and impacts section
Alaska Department of Commerce, Community, and Economic Development (2024)	Information for community description
Alaska Department of Environmental Conservation's (DEC's) Statewide Oil and Hazardous Substance Spills Database	Information for the hazardous material release
Alaska Department of Fish and Game. Fishing in the Cordova Area	Information for community profile
Alaska Department of Natural Resources Division of Geological & Geophysical Surveys (DGGs). Quaternary faults and folds in Alaska (2013)	Information for the earthquake hazard profile
DGGs. Updated tsunami inundation maps for Cordova, Alaska (2022); Tsunami inundation maps of Cordova and Tatitlek, Alaska (2014)	Information for tsunami hazard profile and risk assessment
Alaska Department of Transportation (2013) June 2013 Update Copper River Highway Bridge 339, Cordova Alaska	Information for community profile and maps
Alaska Volcano Observatory	Information for volcanic eruption hazard profile
American Community Survey (2023)	Information for community profile
Early Detection and Rapid Response Plan for Invasive European Green Crab in Alaska 2023-2028 (2023)	Information for ecological hazard profile
National Park Service. Elodea: Alaska's first invasive aquatic plant continues to march across the state. (Larsen et al. 2020)	Information for ecological hazard profile
NVE Strategic Plan 2022-2026	Information for community description and Table 5 1: Human and Technical Resources for Hazard Mitigation
Rapid Response Plan for Elodea in Alaska. U.S. Fish and Wildlife Service (2020)	Information for ecological hazard profile
Statewide Threat Assessment: Identification of Threats from Erosion, Flooding, and Thawing Permafrost in Remote Alaska Communities (Denali Commission 2019)	Background information on erosion, flooding, and permafrost degradation is incorporated into the hazard profiles
Tectonics and Seismic Structure of Alaska and Northwestern Canada: Earthscope and Beyond. Chapter 10. An Alaska-Aleutian Subduction Zone Interface Earthquake	Information for earthquake hazard profile

Plans and Reports	Information to Be Incorporated into the 2026 THMP
Recurrence Model from Geology and Geodesy (2024)	
United States Department of Agriculture (USDA) Forest Service. Vulnerability of Alaska Native Tribes in the Chugach Region to Selected Climate and Nonclimate Stressors (2024)	Information for community description and for the climate change hazard profile
United States Geological Survey (USGS) Catalog of Intensities and Magnitudes for Earthquakes in Alaska in the Aleutian Islands 1786-1981 (1988)	Information for earthquake hazard profile
USGS Alaska Seismic Hazard Map (2023)	Information for earthquake hazard profile and risk assessment.
USGS Landslide inventories across the United States (2022)	Information for the ground failure – landslide hazard profile
University of Alaska Fairbanks Climate Adaptation Science Center	Information for climate change hazard profile
Western Regional Climate Center Station Viewer	Information for community description

2.5 OTHER ONGOING TRIBAL EFFORTS

Once the 2026 THMP is completed, the NVE intends to apply for available hazard mitigation grant program funding and will work closely with the FEMA Region 10 tribal liaison in doing so. In addition, on completion of the 2026 THMP, information will be incorporated into future planning efforts and the creation of local plans.

2.6 PLAN UPDATE METHOD AND SCHEDULE

The 2026 THMP will be monitored, evaluated, and updated by a subset of the planning team, specifically the project manager. Should the 2026 THMP project manager no longer be involved with the 2026 THMP, the executive director will select a new THMP project manager to oversee the annual reviews and plan update.

The THMP project manager will get input from specific planning team members as needed. The THMP project manager will complete the Annual Review Tracker (Appendix B) every January and after any major disaster to ensure that the 2026 THMP is relevant and effective in achieving the plan's goals. Annual review will be summarized in a table in this document (Table 2-4). FEMA-funded mitigation projects will continue to be tracked and reviewed using FEMA Mitigation Progress Report forms; progress summaries will be included in the Annual Review Tracker at the beginning of each year. The THMP project manager and the planning team will begin the plan update process in 2030, which is expected to take up to 6 months, for completion by 2031.

As described above, these are the main items to complete 4 years after the 2026 THMP's adoption:

- The project manager will complete the Annual Review Tracker (Appendix B).

- The project manager will reconvene the planning team and update membership, if necessary.
- The project manager will review Table 2-4, which provides annual summaries of the disasters that have occurred; new permanent information that becomes available; implementation measures; and public outreach and response to determine the hazards to be included in the next THMP.
- The project manager will develop a new work plan.
- The project manager and the planning team will begin the plan update process, which is expected to take up to 6 months.

Table 2-4: Annual Review Tracker

Year	Disasters that Occurred	Mitigation Actions Implemented	New Relevant Studies/Reports to Include in the 2026 THMP	Public Outreach Conducted	Changes Made to the 2026 THMP
2027					
2028					
2029					
2030					

2.7 CONTINUED PUBLIC PARTICIPATION

A copy of the 2026 THMP will remain available at the tribal office, as well as at the State of Alaska Division of Community and Regional Affairs online community planning library, along with contact information. The project manager will use the tribe's newsletter to notify the public of, and seek input on, any changes or updates to the 2026 THMP, including the prioritized action plan and the 2031 THMP kickoff.

3.0 COMMUNITY DESCRIPTION

“Residing in present-day Cordova, Alaska, we recognize these lands and waterways as the traditional territories of the dAXunhyuu (Eyak people) and the Chugachmiut (Prince William Sound Sugpiaq/Alutiiq). We give tribute to the original stewards of this region and the diverse cultural presence residing here today and since time immemorial. We honor their living culture and the land and sea that connects us all.” – NVE

This section describes the location, geography, and history; demographics; economy; and critical facilities of the NVE.

In this plan, The NVE refers to all tribal lands and people.

3.1 CULTURAL LANDSCAPE OF THE REGION

The traditional lands of the dAXunhyuu (Eyak People) stretched along the northern Gulf of Alaska from present-day Cordova to just southeast of Yakutat. Prior to external contact, this central location was a hub of trade routes where cultures met, exchanged knowledge and resources, and established enduring relationships. The Eyak maintained interwoven, unique relationships with their coastal neighbors including the Chugach Sugpiaq (Alutiiq) of Prince William Sound, the Yaakwdáat Lingít (Yakutat Tlingit), and the upper Copper River Ahtna Diné (Athabascan) communities. These exchanges were grounded in respect and reciprocity, with the Eyak often serving as translators, diplomats, and cultural intermediaries.

Like all Indigenous cultures, the Eyak people’s traditional use areas shifted over time, shaped by climate, neighboring relations, and later influence by imposed contact with foreign groups. These intrusions brought violence, epidemics, cultural suppression, attempted erasure, and systemic abuse. Despite these forces, the Eyak, Chugach Sugpiaq, and other neighboring cultures remain strong, proud, and deeply connected to their homelands. The lands and waterways that sustain the NVE today provided sustenance, medicine, and vital resources to their first stewards since time immemorial.

3.2 GEOGRAPHICAL SETTING

The NVE traditional lands follow the boundaries set under the Alaska Native Claims Settlement Act (ANCSA) in 1971 and stretch across the Copper River Delta and Prince William Sound to encompass Middleton Island. There are many traditional villages across the NVE planning area, and one of the last annexed to the City of Cordova in the early 1990s. For this THMP, the planning area of the NVE includes 650,127 acres (1,015.82 square miles) of land (Figure 1). The majority of the Eyak people as well as most of the infrastructure utilized by them is in the population center area of the NVE planning area (Figure 1) and includes 1,358 acres (2.12 square miles).

The NVE is located in the Gulf Coast maritime climate zone, characterized by high precipitation and relatively mild temperatures. Summers remain cool, while winters are generally moderate. Heavy rainfall and low mountain temperatures contribute to the presence of numerous glaciers in the surrounding region. Pacific weather systems are funneled into southcentral Alaska by the coastal mountains, producing frequent overcast skies and a humid climate. These conditions support robust salmon-bearing rivers and a diverse, thriving ecosystem.

According to the Western Regional Climate Center’s dashboard showing the National Weather Service Cordova Airport weather station, the mean maximum temperature from 1991–2020 was

61.6 degrees Fahrenheit (°F), the mean minimum temperature for the same time period was 19.7°F, and mean total annual precipitation was 86 inches.

The NVE is accessed by plane or boat through transportation centers in Cordova. It has year-round barge service and seasonal state ferry service which typically does not operate October through the winter. The State-owned Cordova Municipal Airport and Merle K. (Mudhole) Smith Airport have daily flights, and a State-maintained road across Copper River Delta provides access to the east, though it has been closed past mile 36 since 2011.

3.3 HISTORY

By the late 1800s and early 1900s, Eyak villages, along with dozens of fish camps, harvesting locations, burial grounds, and other sacred sites, were displaced and destroyed to make way for expanding cannery and railroad operations. Railroad contractor Michael Heney secured the right-of-way up the Copper River in 1904, and in 1906, the city of Cordova was officially established. Between 1911 and 1938, the Copper River & Northwestern Railroad transported \$200 million worth of copper ore over the 196 miles from Kennicott to Cordova. By the 1920s, Cordova was dubbed the "Razor Clam Capital of the World," and by the early 1940s, commercial fishing had become the town's primary economic base. The community continued to transform through major events, including the 1964 Great Alaska Earthquake, which reshaped shorelines and access points, and the 1989 *Exxon Valdez* Oil Spill, which caused long-lasting ecological and economic impacts. Collectively, these developments and defining events form the foundation of Cordova's contemporary character and remain integral to understanding its ongoing evolution.

3.4 DEMOGRAPHICS

The NVE is an Alaskan Native Village mostly composed of four distinct Alaska Native peoples (Eyak, Chugach Region People, Tlingit, and Athabaskan) who are organized together as a federally recognized tribe.

3.5 ECONOMY

The economy of the NVE is primarily based on tribal government employment and subsistence and cultural practices. Subsistence resources are not just food but part of a holistic world view that incorporates tribal sovereignty, culture, health, spirituality, and community connection surrounding the stewardship and seasonal harvest of wild foods.

The NVE is an important employer in the region. Other important industries for employment in the area include the local government, transportation and utilities, manufacturing (including seafood processing), the U.S. Coast Guard, and the U.S. Forest Service.

3.6 CRITICAL FACILITIES

Critical facilities are essential for life, safety, and economic viability in the NVE. In the NVE, critical facilities include public safety facilities; water, power, and sewer infrastructure; healthcare centers; and road, air, and marine transportation infrastructure (Table 3-1; Figures 2 through 4).

Table 3-1: Critical Facilities

Type	Description
Public Safety	Public Safety Building (Fire/Emergency Medical Services/Police/Alaska State Troopers), Station 2
Water	Orca Water Treatment Plant, Orca Catchment, Meals Water Treatment Plant, Henney Creek Catchment, Murchenson / Eyak Filter Water Treatment Plant. Murchenson Catchment, Eyak Filter Settling Pond, Eyak Lake Weir, Meals Reservoir / Lake Dam, Meals CT Water Tank, Murchenson CT Water Tank, Morpac Tank, 1.5 MG Tank and Booster Pump Station, Mews Tank and Booster Pump Station, Ski Hill Tank, Ski Hill Booster Pump Station, Alpine Booster Pump Station
Healthcare	Ilanka Community Health Center, Cordova Community Medical Center, Clinics-in-a-can
City and Tribe Infrastructure	Cordova Telephone Coop (CTC) Main Building, Tripod Hill Cell Towers, CTC Earth Station, CTC Heney Ridge Microwave Site, CTC Subsea Cable Landing (future), Refuse Transfer Station, Maintenance Shop, Native Village of Eyak Main Office, Public Works Streets Shop/Equipment Yard
Community	Cordova Center, Cordova Jr/Sr High School, District Office, Eagle Building, Food Sovereignty Storage, Ilanka Cultural Center, Innovative Learning Program, Mt. Eccles Elementary School, Baird Canyon Fishwheel Camp, Canyon Creek Fishwheel Camp
Utilities	Orca Power Generation Plant, Power Creek Power Plant, Humpback Creek Power Plant, Cordova Landfill (al)
Sewer	Wastewater Treatment Plant, Wastewater Treatment Plant Office Building, Wastewater Treatment Plan Shop Building, Wastewater Treatment Plan Dewatering and Auxiliary Treatment Building, Odiak Slough Lift Station, Whiskey Ridge Lift Station, Eyak Lake Lift Station, Murchenson Lift Station, Morpac Lift Station, Ferry Dock Lift Station, Science Center Lift Station
Road/Air/Marine Transportation	Prince William Marina, Harbor, Coast Guard Boat Station, Coast Guard Air Station, Ferry Terminal / Shoreside Petroleum, Ship Escort Response Vessel System (SERVS) Response Equipment (mini barges), SERVS Response Equipment (other equipment), Cordova Municipal Airport, Cordova Airport (Mudhole Smith), City T Dock, Ocean Dock

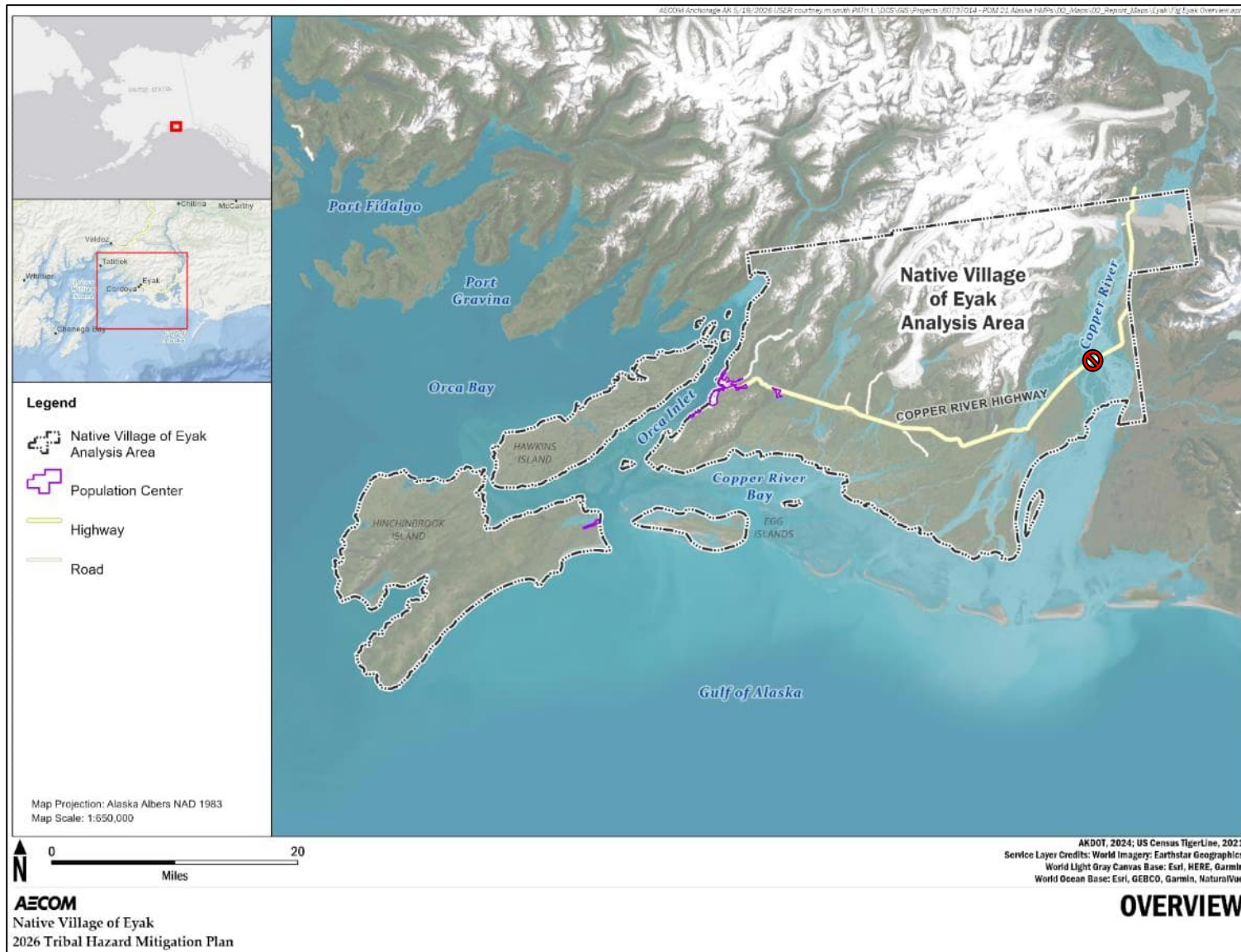


Figure 1: Overview Map

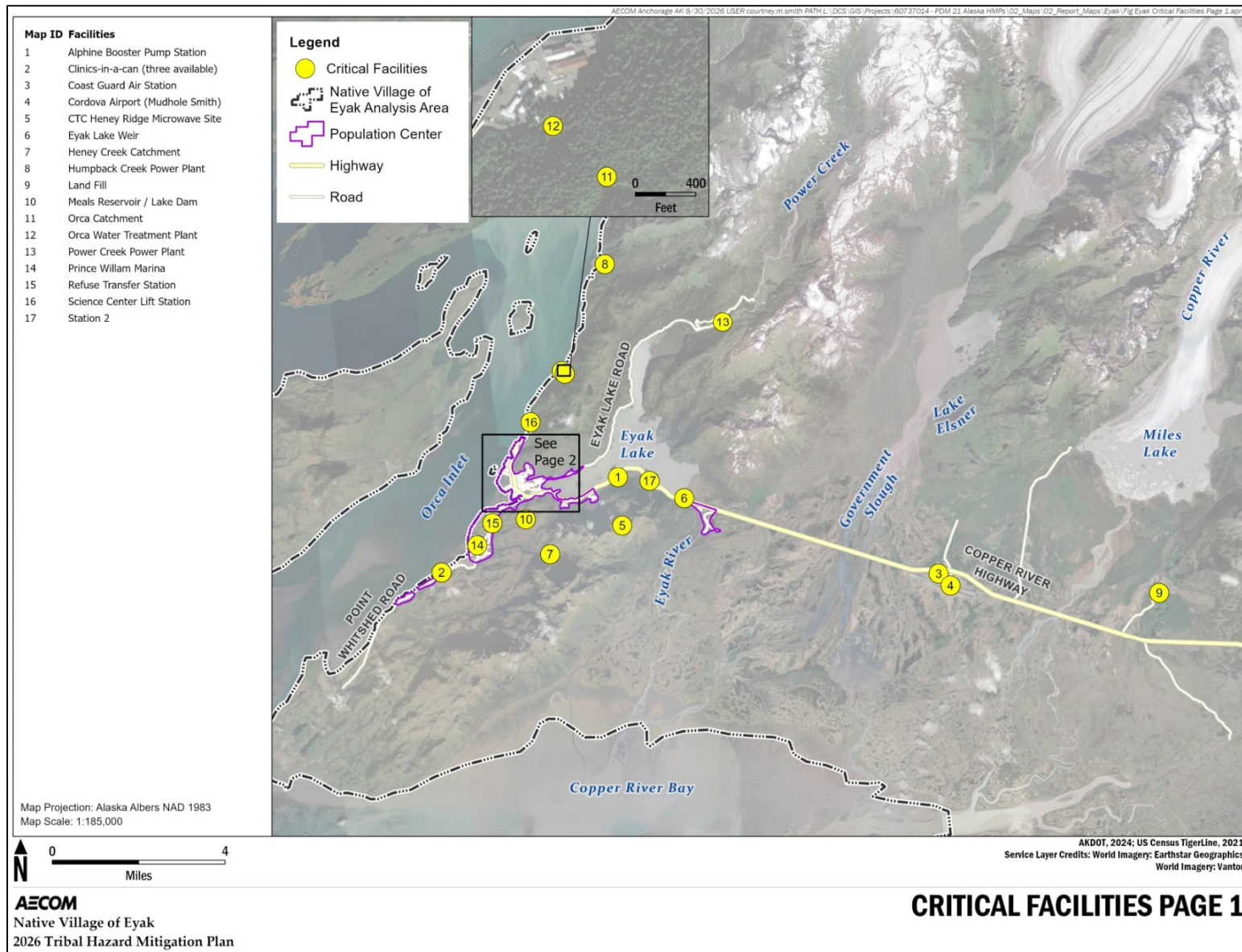


Figure 2: Critical Facilities Map 1 of 3

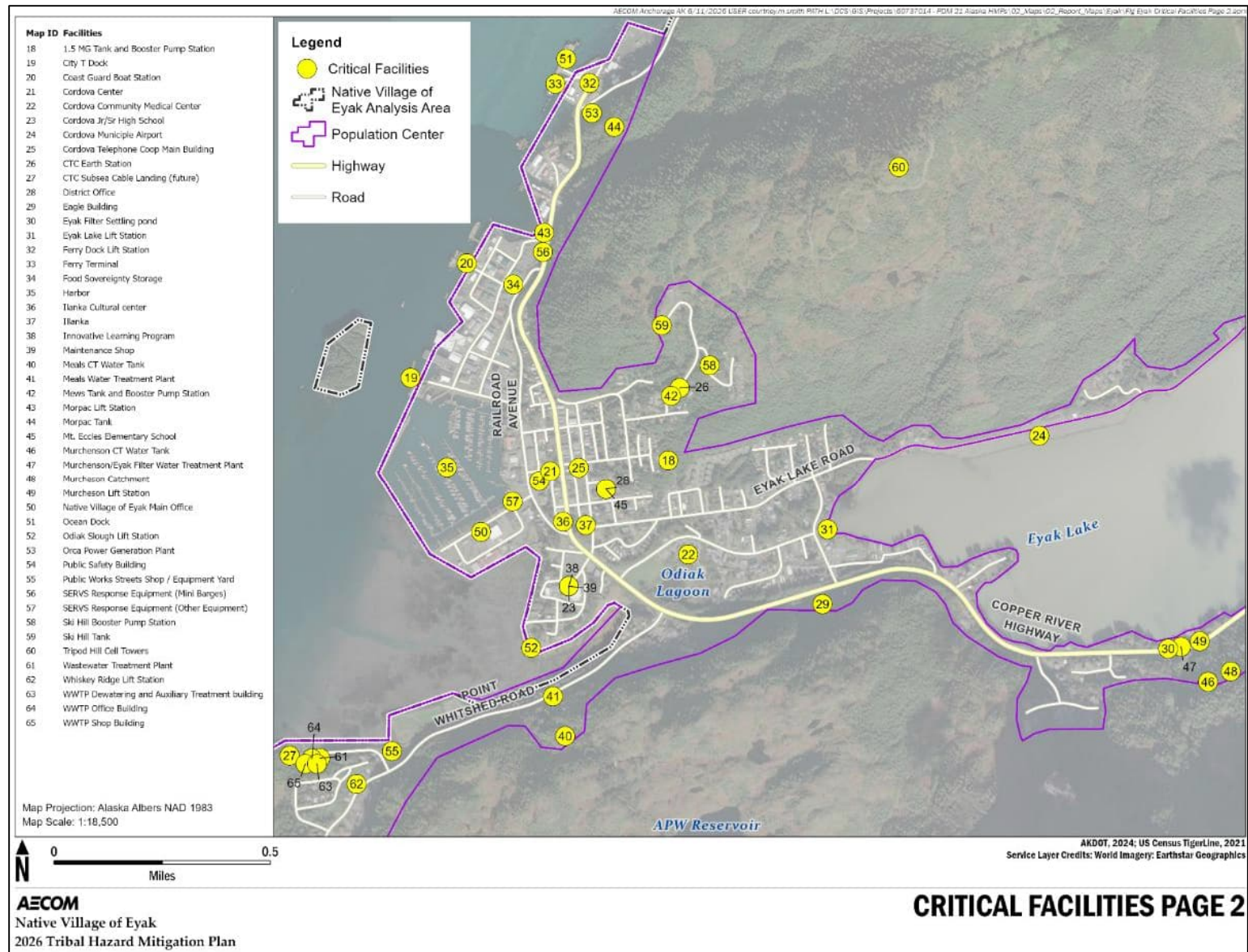


Figure 3: Critical Facilities Map 2 of 3

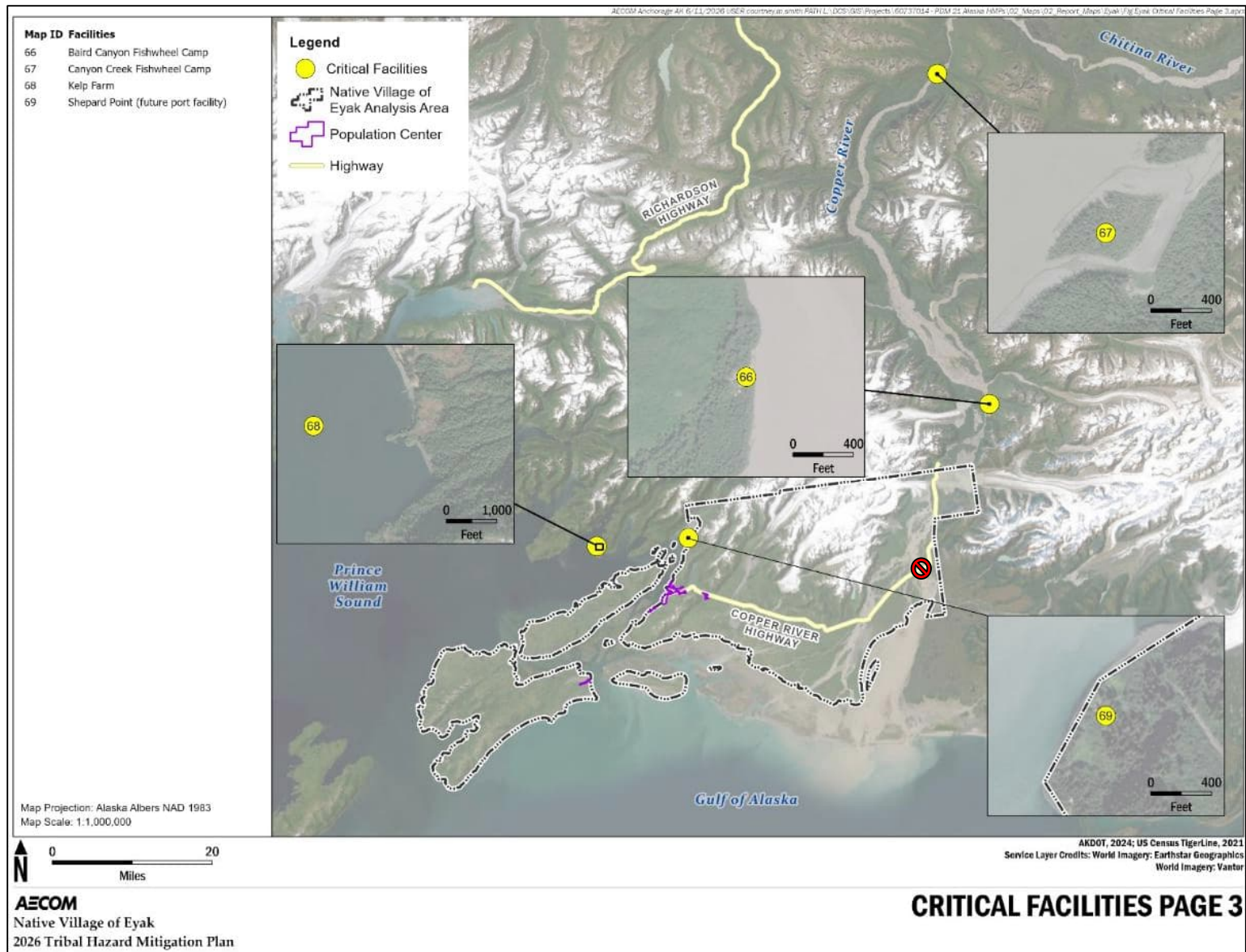


Figure 4: Critical Facilities Map 3 of 3

4.0 RISK ASSESSMENT

This section addresses Element B of the Tribal Mitigation Plan Regulation Checklist.

Regulation Checklist – 44 CFR 201.7 Tribal Mitigation Plans
Element B: Hazard Identification and Risk Assessment
B1. Does the plan include a description of the type, location, and extent of all natural hazards that can affect the tribal planning area? (Requirement 44 CFR § 201.7(c)(2)(i))
B2. Does the plan include information on previous occurrences of hazard events and on the probability of future hazard events for the tribal planning area? (Requirement 44 CFR § 201.7(c)(2)(i))

4.1 HAZARD IDENTIFICATION

Hazard identification consists of describing the nature of the hazard, disaster history, location, extent/severity, and probability of future events. Hazard identification profiles have been developed for each of the seven hazards addressed in Section 4.1.1 through Section 4.1.13 (Tables 4-1 through 4-13): avalanche, climate change, drought, earthquake, ecological hazard, erosion, flood, hazardous materials release, landslide, severe weather, tsunami, volcanic eruption, and wildfire. The hazards profiled for this THMP are discussed in alphabetical order and not hazard classification. The order does not signify level of risk.

4.1.1 Avalanche

Table 4-1: Avalanche

Profile	Description
Nature	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. Snow avalanche formation is influenced by precipitation type and intensity, wind direction and speed, sensible heat, and radiation heating or cooling of snow. Significant avalanche cycles (multiple avalanches naturally releasing across an entire region) are generally caused by long periods of heavy snow, but avalanche cycles can also be triggered by rain-on-snow events, rapid warming in the spring, and earthquakes. An avalanche releases when gravity-induced shear stress on or within the snowpack becomes larger than its shear strength. The shear strength is reduced by the presence of weak layers or interfaces in the snowpack, such as buried faceted snow crystals or density differences between snow layers. Triggers can be natural (e.g., rapid weight accumulation during or just after a snowstorm or rain event, warming temperatures, and seismic shaking) or artificial (e.g., human weight or avalanche-control artillery). There are four distinct avalanche types in Alaska that occur under varying snowpack and weather conditions. Each avalanche type is named based on its snow release characteristics and includes the following: • Cornice collapse occurs when an overhanging snow mass breaks, separates, or is released. Cornices form on ridge crests or shoulders adjacent to gullies due to wind blowing the snow. The cornice is an indicator of predominant wind directions, as the cornice is formed on the lee (i.e., downwind) side of topographic features. Over time, the cornice can develop weaknesses in its structure and its attachment to the slope may fail. A cornice collapse often triggers a loose snow or slab avalanche as it adds sudden and significant stress onto the snowpack below. • Loose snow avalanches, also known as point releases, initiate with a small amount of non-cohesive (loose) snow and quickly grow larger as they move downhill and entrain more snow. This type of avalanche typically carries relatively small amounts of powder snow and virtually no other debris. However, a loose snow avalanche may trigger a larger slab avalanche on the same slope. • A slab avalanche releases as a block of cohesive snow when snow particles have stuck together to form one or more resistant layers. There is a wide range of slab characteristics possible, from “soft” slab (weakly cohesive snow) to “hard” slab (very cohesive snow), and from “storm” slab (release of recently deposited storm snow) to “persistent” and “deep persistent” slab (release of a slab that failed on a weak layer deeper down in the snowpack). Due to their large release masses, and because more snow is picked up along the way (snow entrainment), slab avalanches are the most destructive avalanche type. Human encounters with even small-sized slab avalanches are often fatal. • Slush avalanches are fast-moving mixtures of snow and water. They release in isothermal snowpacks (snow temperature throughout the snowpack is 32°F) when liquid water permeates the snowpack and dramatically weakens the intergranular bond. Slush avalanches therefore typically occur in northern Alaska during the spring when warm temperatures and strong solar radiation quickly warm up the snowpack. Slush avalanches can release on slopes as gentle as 20 degrees. Their release is often slower than other avalanche types, but as the slushy snow runs downhill they can reach speeds over 40 miles per hour (mph).

Profile	Description
	Smaller, more fluid avalanches with higher water content are commonly referred to as slush flows. • A glide avalanche is preceded by a full-depth crack in the snowpack due to the entire snowpack sliding on the ground. A glide avalanche can consist of either moist/wet or almost entirely dry snow but typically develops after some moisture is introduced to the snowpack. The avalanche release can occur seconds to months after the crack appears, though many glide cracks do not result in an avalanche at all. Glide cracks typically develop on convex slopes and rollovers. They are very difficult to forecast, and their release is triggered naturally and catastrophically. An avalanche path comprises three main parts: starting zone, track, and run-out zone. Local topography determines the shape and size of each part. Steep gullies that contain a stream or creek in the summer often function as avalanche paths in the winter, but avalanches also release and run on simple and complex open slopes.
Location	DGGS's Climate and Cryosphere Hazards Program has developed regional-scale snow avalanche hazard indication maps that model extreme snow release scenarios and show potential avalanche runout extents across complex terrain. As shown on Figures 5–7, areas most prone to snow releases (avalanches) include Sheperd Point, Copper River, Point Whitshed, and the Mount Eyak ski area.
History	The following notable avalanches have occurred near the NVE or along roads used by the NVE residents since 1999: • April 1999: Avalanche resulted in fatality at Power Creek Road. • January 2000: Large avalanche near milepost 5.5 of Copper River Highway damaged five houses and two warehouses along with numerous outbuildings, cars, and boats, and resulted in one fatality and several injuries. The January 2000 avalanche resulted in a declaration of an avalanche disaster. • December 2001: Avalanche in a backcountry area that resulted in a fatality. • March 2008: Avalanche on Mount Eyak resulted in a fatality. • January and April 2012: Three separate avalanches closed the Copper River Highway with no reported damages or injuries.
Extent / Severity	Based on modeling conducted by DGGS, 17,286 acres (3%) of the NVE planning area are in a potential snow release area.
Recurrence Probability	The NVE planning area is a region with steep slopes and significant snowfall, making it prone to avalanches especially during periods of heavy snow, rapid temperature changes, or rain-on-snow events. Based on historical occurrence, avalanches with the potential to cause infrastructure damage, injury, or highway closures could occur about every 3 years. However, climate change is projected to increase average annual temperature, with winter temperatures transitioning to above freezing. Warmer snow conditions make the snowpack heavier and more unstable. It can be assumed that, at a minimum, the same areas that are currently vulnerable to avalanche will remain vulnerable to avalanche, and there is a potential of increased risk of more dangerous conditions from heavier and more unstable snowpack, which could increase the recurrence probability.

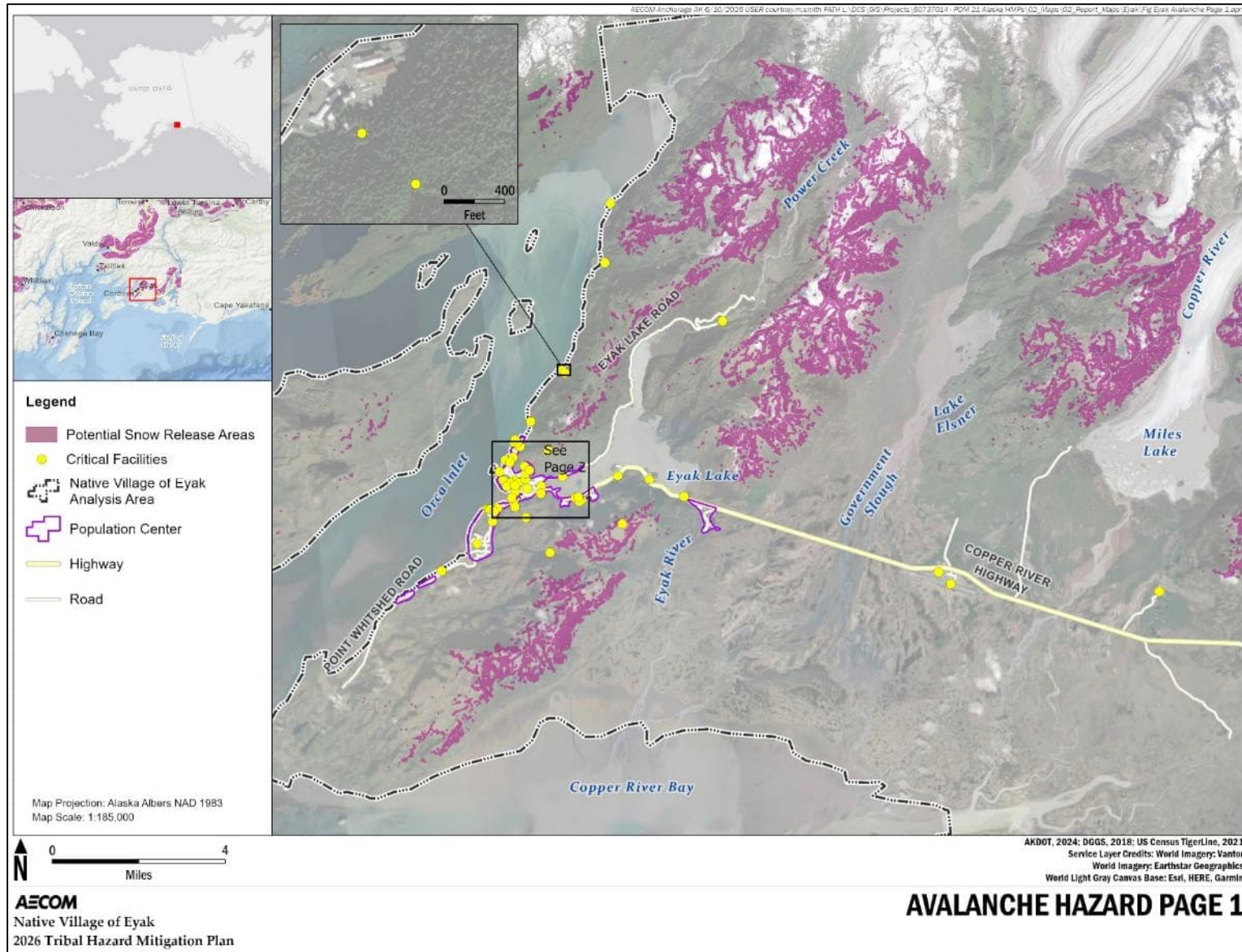


Figure 5: Avalanche Hazard Map 1 of 3

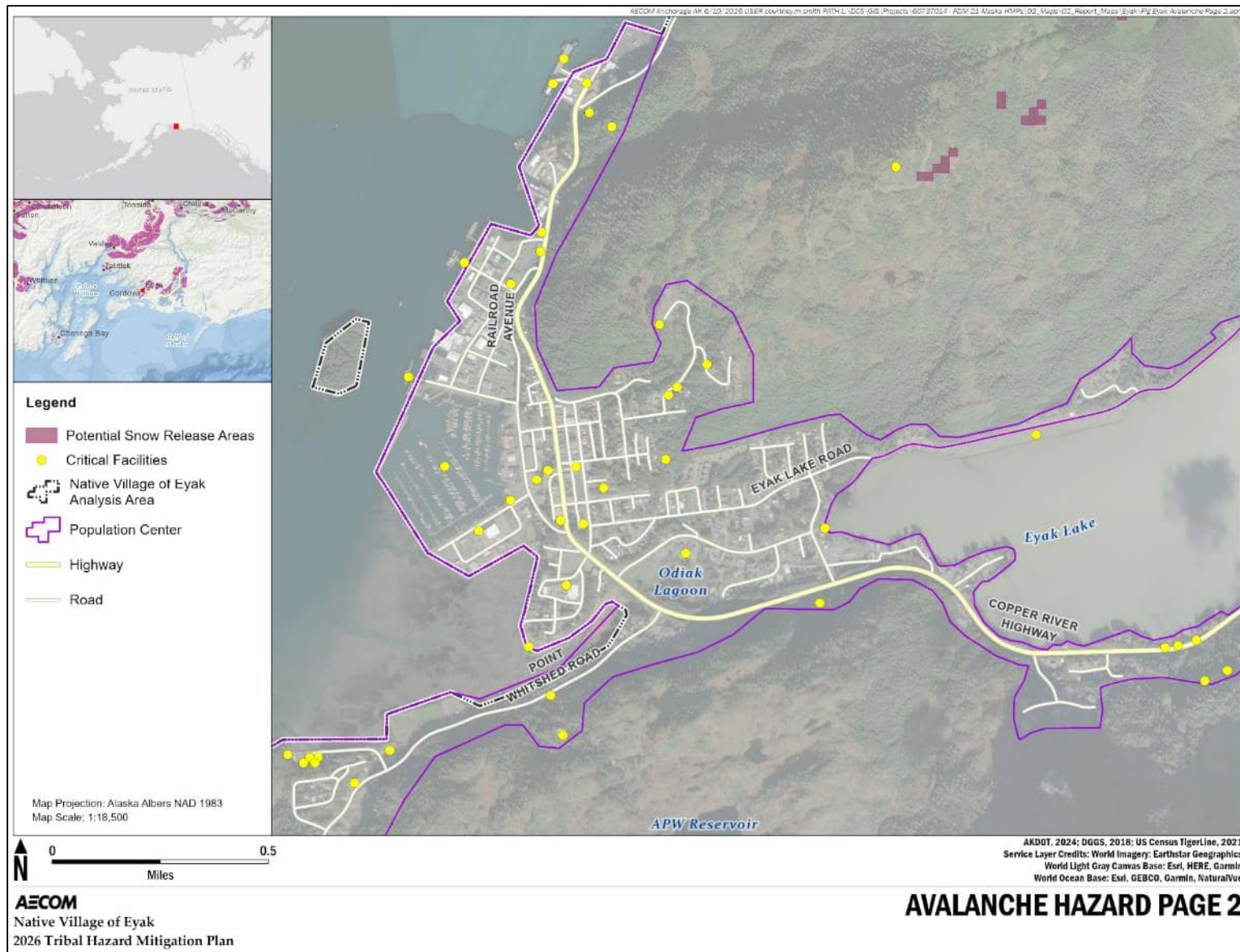


Figure 6: Avalanche Hazard Map 2 of 3

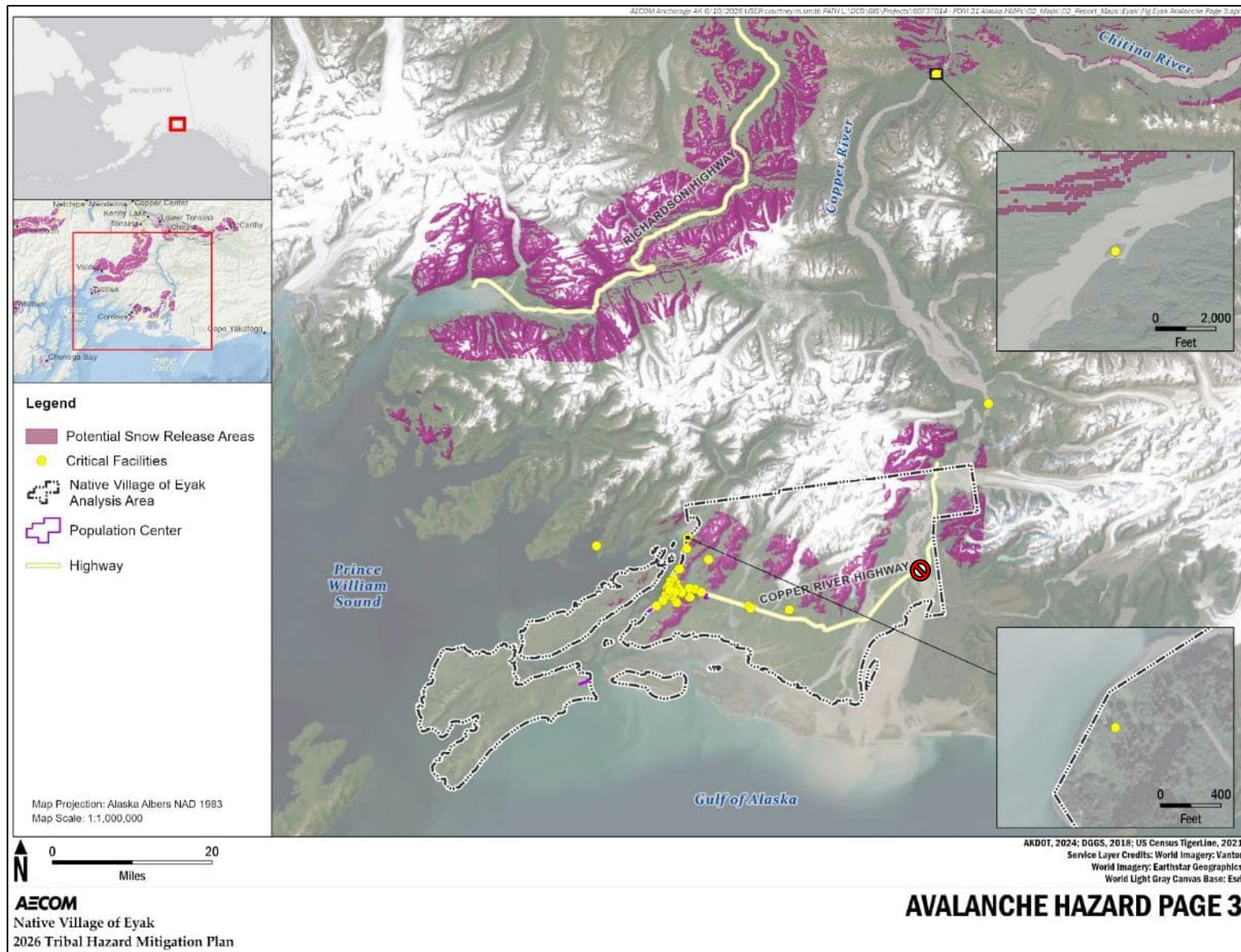


Figure 7: Avalanche Hazard Map 3 of 3

4.1.2 Climate Change

Table 4-2: Climate Change

Profile	Description
Nature	Climate change is defined as the average statistics of weather, which includes temperature, precipitation, and seasonal patterns in a particular region. Climate change refers to the long-term and irrevocable shift in these weather-related patterns, either regionally or globally. Earth and its natural ecosystem are very closely tied to the climate, and any permanent climate change will lead to an imbalance in the existing ecosystem, which impacts the way people live, the food they harvest, their health, the wildlife, the availability of water, and much more. Research indicates that much of this warming is due to human activities, primarily the burning of fossil fuels and the clearing of forests, that release carbon dioxide and other gases into the atmosphere, which trap heat that would otherwise escape into space. Once in the atmosphere, these heat-trapping emissions remain there for many years (for example, carbon dioxide lasts about 100 years). If left unchecked, by the end of the century carbon dioxide concentrations could reach levels three times higher than in pre-industrial times. Alaska has recently experienced profound environmental change related to extreme weather events and deviation from historical climate. Over the next century, increasing atmospheric greenhouse gas concentrations are expected to continue to cause a variety of changes to local climate conditions, including increases in average temperatures; changes to ice/thaw cycles on Alaska's major rivers impacting ice jam flooding; ground instability related to permafrost thaw; increased rapid snowmelt and associated flooding; variable precipitation patterns including both extreme precipitation and periods of drought; and more frequent and prolonged seasons for wildfires that decrease air quality. In addition, expected social and economic impacts because of climate change include ecosystem changes impacting subsistence food practices, failing infrastructure, and water insecurity, to name a few.
Location	The local effects from climate change for the NVE planning area include the following: • Rising Temperatures: No maps have been prepared; however, it can be inferred that all of Eyak would be impacted by rising temperatures in all seasons. • Glacial Retreat: No maps have been prepared for glacial retreat; however, this hazard is located at higher elevations and is impacting watersheds in the area. • Increased Precipitation and Flooding: Coastal and riverine flooding and erosion, as profiled in Sections 4.2.6 and 4.2.7 and shown on Figures 13 and 14, are influenced by a changing climate with more intense and extreme precipitation events such as atmospheric rivers and storms with large storm surges. • Extreme Heat Events and Marine Heat Waves: Extreme temperatures may increase the frequency and severity of associated hazards such as drought (profiled in Section 4.1.3 and shown on Figure 8) and wildfire (profiled in Section 4.1.4 and shown on Figures 24–26). Marine heat waves impact coastal ecosystems, fisheries, and other important marine resources.

Profile	Description
History	According to the Alaska's Changing Environment, National Aeronautics and Space Administration (NASA), and University of Alaska Fairbanks and Alaska Climate Adaptation Science Center's Northern Climate Reports, climate change is already underway in Alaska, including Eyak. Recent impacts from climate change affecting the NVE include but are not limited to the following: Rising temperatures: • An increase in annual average temperature statewide by 3°F in less than 50 years (Alaska's Changing Environment 2.0) • An increase of about 0.16°F in sea-surface temperature in central Prince William Sound per decade for the past four decades, although there is substantial year-to-year variability (USDA 2024) Glacial retreat: • Retreat of glaciers including the Saddlebag, Sheridan, Childs, and Miles Glaciers, consistent with trends for glaciers in the Prince William Sound (Marlado 2020) Increased precipitation and flooding: • An increase in summer rain in the Prince William Sound over the past 50 years (Alaska's Changing Environment 2.0) Extreme heat events and marine heat waves: • A record high temperature of 90°F in July 2019 in Anchorage (Alaska's Changing Environment) • A marine heat wave in 2014–2016 and 2019 in the Gulf of Alaska impacting marine ecosystems and disrupting fisheries (Alaska's Changing Environment)
Extent / Severity	Over the next century, weather patterns that are considered extreme today are expected to become standard. According to the University of Alaska Fairbanks Scenarios Network for Alaska + Arctic Planning Northern Climate Reports, the extent and severity of climate-change-related impacts observed now in the NVE are expected to worsen: • Rising temperatures: Modeling suggests that the average annual temperature may increase by about 11°F by the end of the century in Cordova. • Glacial retreat: Winter may transition from below freezing to above freezing in the future, which could exacerbate glacial retreat. • Increased precipitation and flooding: Precipitation models show a likely increase in spring precipitation by 28%, though modeling indicates a high degree of uncertainty. • Extreme heat events and marine heat waves: Modeling is not available specifically for extreme heat events; however, modeling indicating gradual increase in temperatures, as mentioned previously, raises the baseline for summer temperatures (including water temperatures), and heat thresholds that are currently rarely reached in the NVE, including the marine waters, may be exceeded more often.

Profile	Description
Recurrence Probability	Climate change is a significant and lasting change in the statistical distribution of weather patterns over periods of time ranging from decades to millions of years. It may be a change in average weather conditions or in the distribution of weather around the average conditions (i.e., more or fewer extreme weather events). According to NASA, “the current warming trend is of particular significance because most of it is extremely likely (i.e., greater than 95% probability) to be the result of human activity since the mid-twentieth century and proceeding at a rate that is unprecedented over decades to millennia.” NASA also states that “scientists have high confidence that global temperatures will continue to rise for decades to come, largely due to greenhouse gases produced by human activities.”

4.1.3 Drought

Table 4-3: Drought

Profile	Description
Nature	Drought is a normal, recurrent feature of virtually all climatic zones, including areas of both high and low rainfall, though the characteristics of droughts vary significantly from one region to another. Drought differs from normal aridity, which is a permanent feature of the climate in areas of low rainfall. Drought is the result of a natural decline in the expected precipitation over an extended period, which, in areas that are typically rainy, could be weeks to months. Other climatic characteristics impact the severity of drought conditions, including high temperatures, high winds, and low relative humidities. Four common definitions for drought are as follows: • Meteorological drought is defined solely by the degree of dryness, expressed as a departure from actual precipitation from an expected average or normal amount based on monthly, seasonal, or annual time scales. • Hydrological drought is related to the effects of precipitation shortfalls on stream flows and reservoir, lake, and groundwater levels. • Agricultural drought is defined mainly in soil moisture deficiencies relative to the water demands of plant life, usually crops. • Socioeconomic drought associates the supply and demand of economic goods or services with elements of meteorological, hydrologic, and agricultural drought. Socioeconomic drought occurs when the demand for water exceeds the supply due to weather-related supply shortfall. It may also be called a water management drought. A drought's severity depends on numerous factors, including duration, intensity, geographic extent, and regional water supply demands by humans and vegetation.
Location	Drought occurrences are regional and impact large areas of Alaska. In the Northeast Gulf area, where the NVE is located, droughts occur when a prolonged period of below-normal precipitation, snowpack, streamflow, soil moisture, or groundwater availability results in community-wide ecological, hydrological, cultural, or socioeconomic impacts. Therefore, all of the NVE is vulnerable to drought.
History	Since 2000, the Northeast Gulf climate division, where the NVE is located, has recorded droughts in 2004, 2009, 2015, and 2019.
Extent / Severity	The National Drought Mitigation Center produces drought monitor maps for the U.S. It classifies droughts into five categories from least severe to most severe, as follows: • D0 (abnormally dry) • D1 (moderate drought) • D2 (severe drought) • D3 (extreme drought) • D4 (exceptional drought) The Northeast Gulf climate division where the NVE is located has experienced moderate droughts in 2004, 2009, 2015, and a severe drought in 2019 (Figure 8).
Recurrence Probability	Dry spells are not unusual in Alaska and will continue. While annual precipitation over the long term in Alaska is showing increases, year-to-year variability is expected to continue, influencing the recurrence probability of droughts. Of particular concern is the shift in the winter from snow to rain related to rising temperatures, indicating that snowmelt in spring and summer may be much reduced in the future, which may increase the recurrence probability of socioeconomic drought.

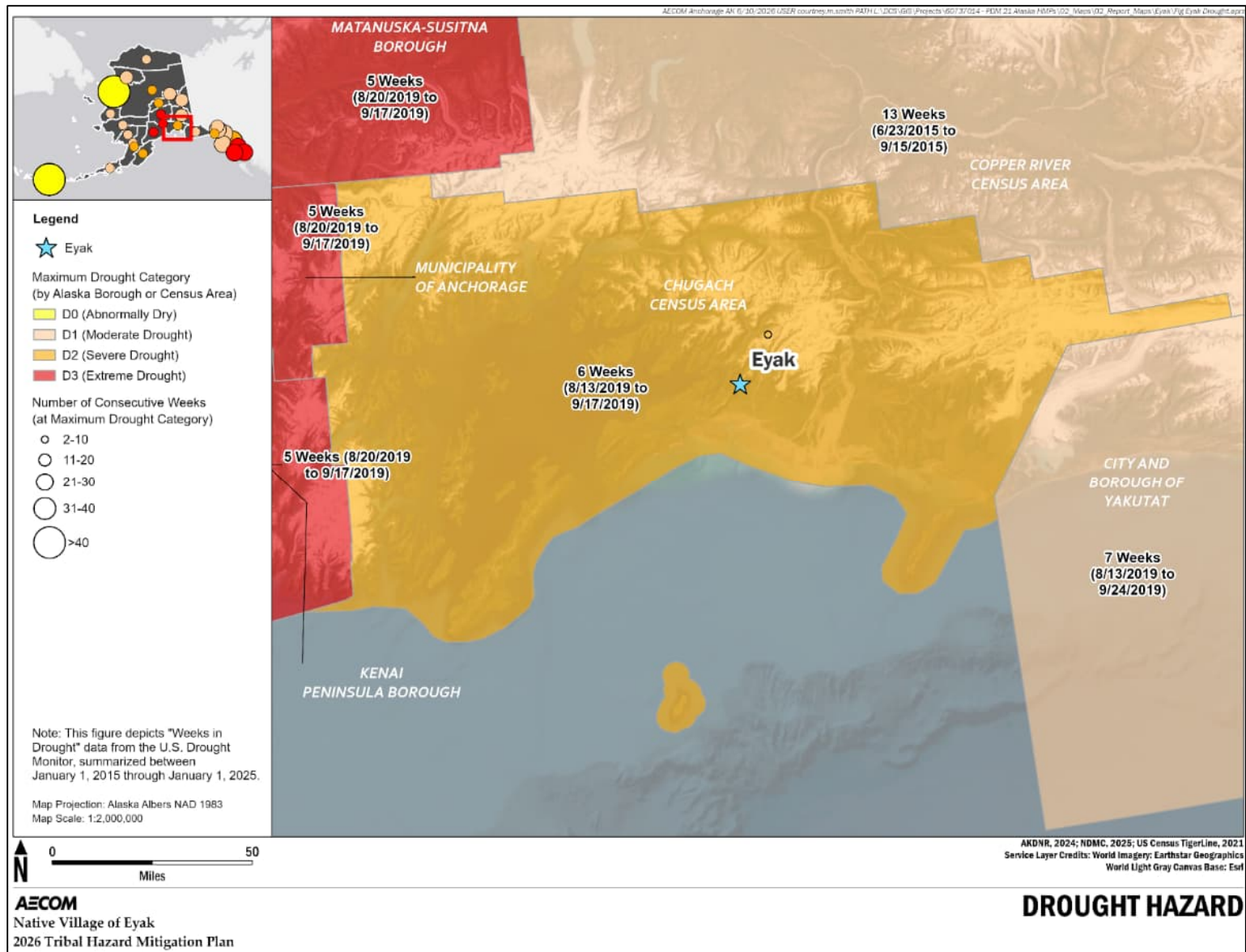


Figure 8: Drought Hazard Map

4.1.4 Earthquake

Table 4-4: Earthquake

Profile	Description
Nature	An earthquake is a sudden motion or trembling caused by a release of strain accumulated within or along the edge of Earth's tectonic plates. The effects of an earthquake can be felt far beyond the site of its occurrence. Earthquakes usually occur without warning and can cause massive damage and extensive casualties in a few seconds. Common effects of earthquakes are ground motion and shaking; surface fault ruptures; and ground failure. Ground motion is the vibration or shaking of the ground during an earthquake. When a fault ruptures, seismic waves radiate causing the ground to vibrate. The severity of the vibration increases with the amount of energy released and decreases with distance from the causative fault or epicenter. Soft soils can amplify ground motions. In addition to ground motion, several secondary hazards can occur from earthquakes, such as the following: • Surface faulting is the differential movement of two sides of a fault at the Earth's surface. Displacement along faults—in terms of both length and width—varies but can be significant (e.g., up to 20 feet), as can the length of the surface rupture (e.g., up to 200 miles). Surface faulting can cause severe damage to linear structures including railways, highways, pipelines, tunnels, and dams. • Liquefaction occurs when seismic waves pass through saturated granular soil, distorting its granular structure and causing some of the empty spaces between granules to collapse. Pore water pressure may also increase sufficiently to cause the soil to behave like a fluid for a brief period and cause deformations. Liquefaction causes lateral spreads (i.e., horizontal movements, typically 10 to 15 feet, but up to 100 feet), flow failures (i.e., massive flows of soil, typically hundreds of feet, but up to 12 miles), and loss of bearing strength (i.e., soil deformations causing structures to settle or tip). Liquefaction can cause severe damage to property. • Landslides/debris flows occur as a result of horizontal seismic inertia forces induced in the slopes by the ground shaking. The most common earthquake-induced landslides include shallow, disrupted landslides such as rock falls, rockslides, and soil slides. Debris flows are created when surface soil on steep slopes becomes totally saturated with water. Once the soil liquefies, it loses the ability to hold together and can flow downhill at very high speeds, taking vegetation and/or structures with it. Slide risks increase after an earthquake during a wet winter. The two most common measures of earthquakes are the Modified Mercalli Intensity (MMI) scale and magnitude (M). The MMI scale measures felt intensity, peak ground acceleration, and instrumental intensity by quantifying how hard the earth shakes in each location. The scale ranges from an intensity of I to X, with the lower numbers of the intensity scale generally dealing with the “manner in which the earthquake is felt by people” while the higher numbers on the scale are based on “observed structural damage.” Magnitude is a measure of the energy released during an earthquake. A scale of magnitude ranges from minor (M3.0–3.9), which may be felt by communities, to great (M8.0 or greater), associated with significant damage expected.

Profile	Description
Location	The Alaska-Aleutian Megathrust Fault, one of the largest and most seismically active regions in the world, is located approximately 90 miles south of the NVE. Nearby faults (within 50 miles) include the Cordova Fault, Eyak Fault, Heney Fault, Rude River Fault, Bagley Fault, Etches Fault, and the Ragged Mountain Fault, along with several unnamed faults. Eyak is located west of the Yakutat Block, a tectonic microplate located near Yakutat Bay. All of the NVE, including traditional use lands, would be impacted by an earthquake impacting the region (Figure 9).
History	Alaska is one of the most seismically active regions in the world. On average, Alaska has one “great” (i.e., M8 or higher) earthquake every 13 years, one M7 to M8 earthquake every year, and six M6 to M7 earthquakes every year. In addition, earthquakes that occur on tectonic plate boundary faults near the coast can generate tsunamis that impact coastal communities. Earthquake activity specific to the Yakutat Bay area includes two earthquakes in 1899 (M8.1 and M8.2). These two earthquakes rearranged landforms in the Yakutat Bay area, resulting in up to 40 feet of uplift and 6 feet of land subsidence. Another notable event in this region was the 1958 M7.7 Lituya Bay Earthquake, which ruptured from the head of Yakutat Bay along the entire length of the Fairweather Fault. This earthquake caused a massive landslide that crashed into Lituya Bay, creating a tsunami wave 1,720 feet high. Most recently, on December 6, 2025, a M3.0 earthquake occurred near Burwash Landing associated with this microplate. According to a 1988 report by the USGS, there were over 100 earthquakes that impacted the NVE (recorded as Cordova) and surrounding area (reported as Valdez) between 1781–1981. Below is a list of additional significant events that may have been felt in the NVE. Significant events are defined by the Alaska Earthquake Center as ones that impacted the Alaskan people and include large magnitude earthquakes, earthquake swarms, large landslides, large glacial-calving events, and tsunami-generating (tsunamigenic) events: • 1911: M6.9 earthquake • 1964: M9.2 Great Alaskan Earthquake • 2009: M5.4 Skwentna Earthquake • 2012: M5.8 Northern Cook Inlet Earthquake • 2012: M6.3 Gulf of Alaska Earthquake • 2014: M6.3 Skwentna Earthquake • 2014: M6.0 Seward Glacier Earthquake • 2014: M6.0 Palma Bay Earthquake • 2018: M7.1 Anchorage Earthquake • 2021: M8.2 Chignik Earthquake

Profile	Description
Extent / Severity	USGS has developed probabilistic seismic hazard maps for ground-shaking potential for Alaska. The 2023 maps refer to an estimate of the probability of exceeding a certain amount of ground shaking or ground motion in 50 years, which is the same as the level of ground shaking with about a 2,500-year average repeat time. The hazard depends on the magnitudes and locations of likely earthquakes, how often they occur, and the properties of the rocks and sediments that the earthquake waves travel through. Regions near major, active faults are shown in orange, red, and pink and experience stronger ground shaking more frequently. Regions that are distant from known, active faults are shown in blue, green, and yellow; these areas experience lower levels of ground shaking and do so less frequently. Figure 9 shows a probabilistic seismic hazard map depicting a 2% probability of exceedance in 50 years, which shows that all of the NVE is in a violent to extreme (MMI intensity value IX/X) ground-shaking-potential area.
Recurrence Probability	Research on the recurrence interval for the Alaska-Aleutian megathrust fault, and the portion of that fault that includes the NVE, the Prince William Sound segment, is ongoing. A researcher at USGS compared intervals based on geologic data (or long-term earthquake history) (594 years +/- 18 years) versus geodetic data (or current tectonic behavior) (133–266 years) for the Prince William Sound segment. This study notes that future work is necessary to explain the apparent mismatch between the geodetic and geologic records along the Prince William Sound section. Research on the Yakutat Block indicates the region has a high level of background seismicity, with hundreds of earthquakes recorded each year, the majority of which are shallow and located within the 50-mile-wide coastal zone.

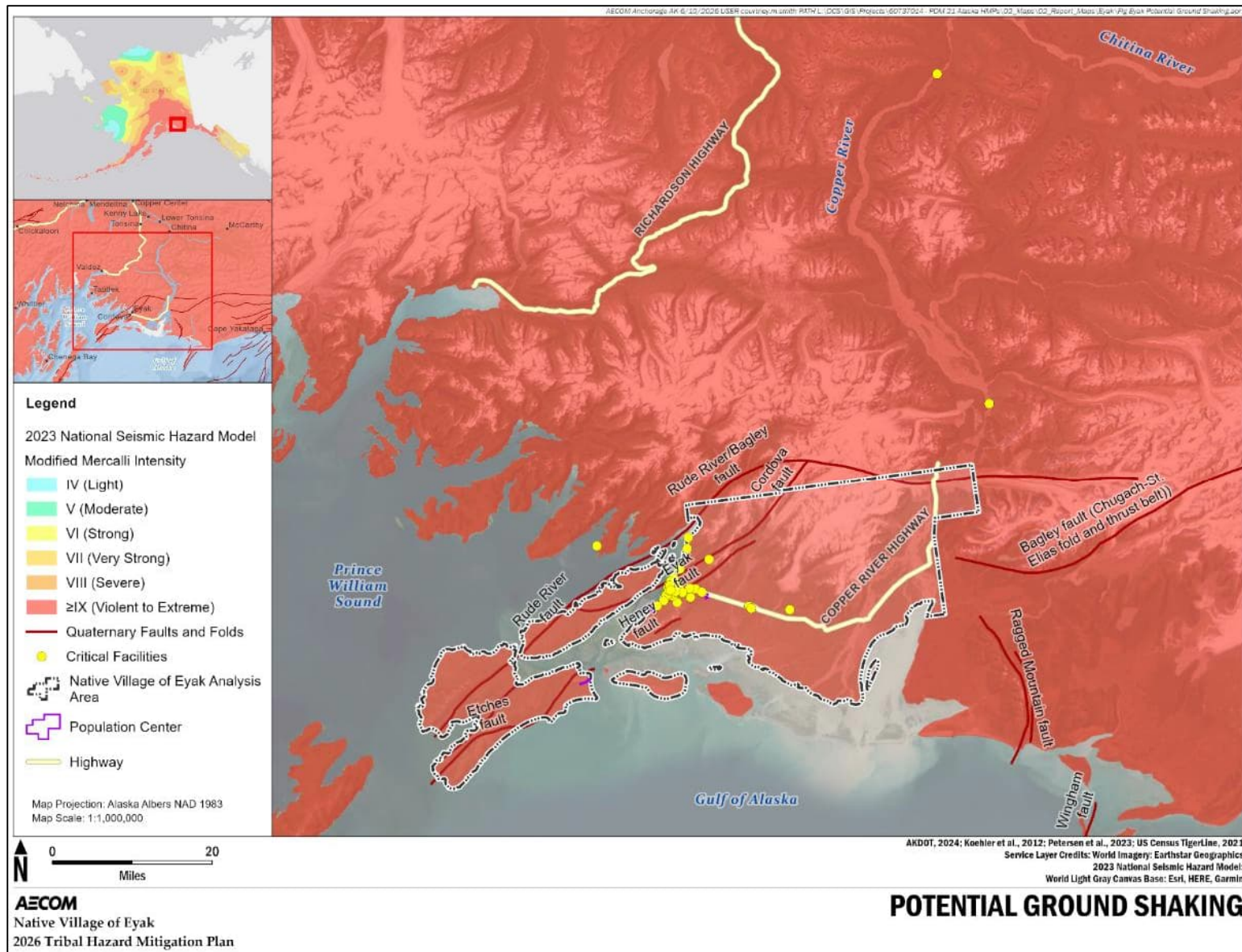


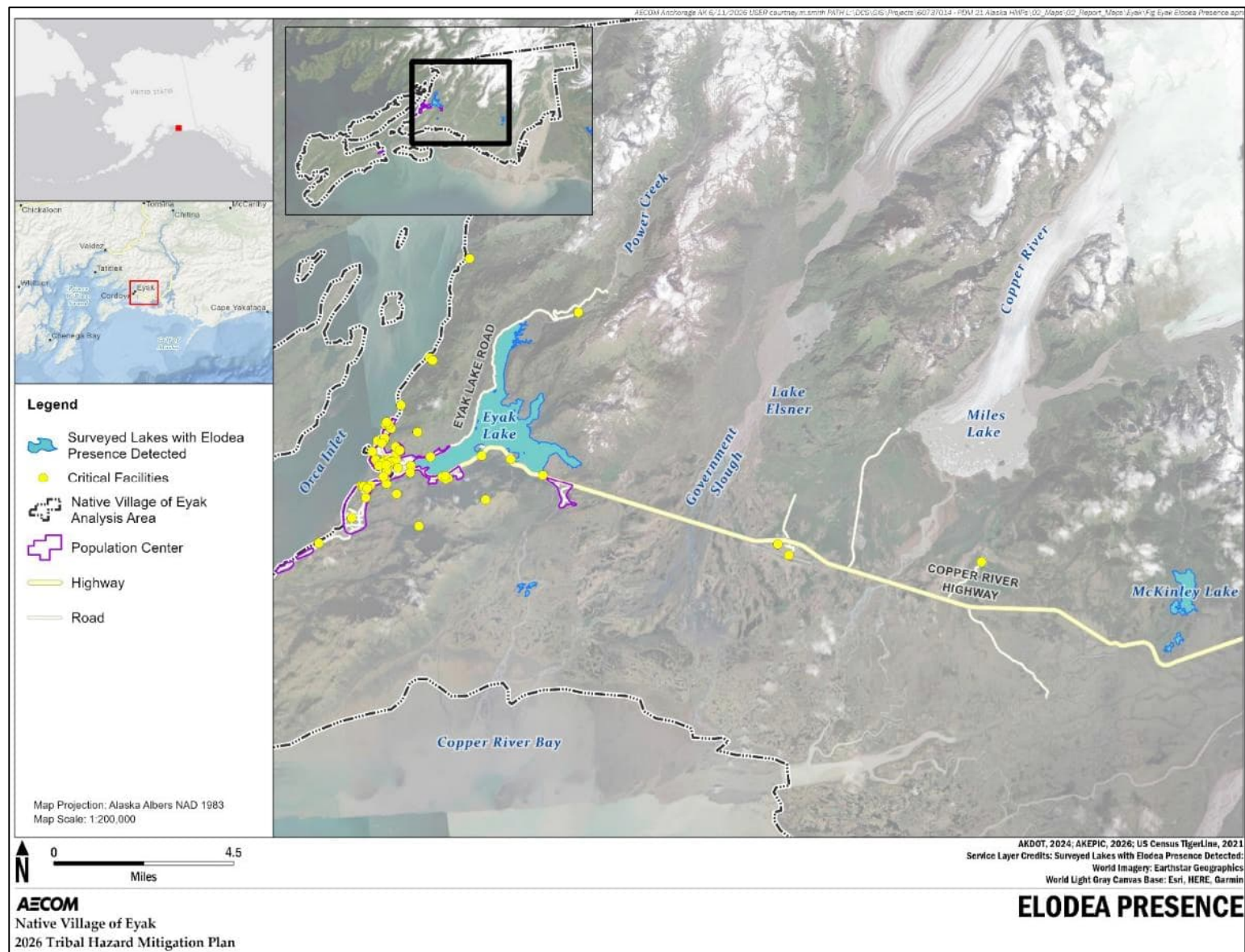
Figure 9: Potential Ground Shaking Map

4.1.5 Ecological Hazard

Table 4-5: Ecological Hazard

Profile	Description
Nature	Healthy ecosystems are vital to the NVE's economy and overall well-being. When ecosystems become off balance due to invasive species, diseases, shifts in food webs, and natural disasters such as wildfires and droughts, the cascading impacts to the community can undermine subsistence practices and long-standing cultural practices. Invasive species constitute an ecological hazard that can degrade native ecosystems and disrupt subsistence and fishery resources critical to Alaska communities. Non-native plants, animals, and pathogens can alter habitat conditions, displace native species, and reduce the reliability and productivity of traditional and commercial harvests. Many other plant species impact riparian areas and occur in disturbed areas near roadways and development. Disruptions to ecosystems can also alter wildlife behavior which can pose a risk to the community. Climate-driven disasters such as wildfire and drought, or longer-term trends in shifts in resource availability resulting in shortages of food such as salmon and berries, impact local bears, driving bears into developed areas in search of food. Bears attracted by food-storage areas and trash bins can create hazardous conditions for residents and strain local response capacity.
Location	In the NVE planning area, the primary invasive species that are known or recognized as potential future threats to the economy and subsistence resources include common waterweed (<i>Elodea</i> sp.) and European green crab (<i>Carcinus meanas</i>). <i>Elodea</i> sp. locations include Eyak Lake, Eyak River, McKinley Lake, and Alaganik Slough, as shown on Figure 10. Potential future risk areas for European green crab include low-intertidal to shallow subtidal zones of wave-sheltered bays and estuaries. These areas have not been mapped. Other invasive plant species have been known to occur along streams and wetlands, riparian areas, roads, trails, and on beaches. These areas have not been mapped. Wildlife hazard locations include the Cordova Landfill and residential areas where trash or food waste is collected.
History	Key initial invasive species detections relevant to the NVE are summarized below: 1982: <i>Elodea</i> sp. first found growing in Eyak Lake. This was the first detection of the invasive aquatic plant in Alaska. 2022: Shell of a dead European green crab found on Annette Islands Reserve (Metlakatla Indian Community). This species is not yet present in Prince William Sound. Initial detection dates are not available for other invasive species. No incident has occurred related to bears, but an article in the <i>Cordova Times</i> from 2025 describes a gradual increase in bear activity over the past 8 years.

Profile	Description
Extent / Severity	Early detection and rapid response are essential to eradicate invasive species and prevent widespread ecosystem damage. In the absence of monitoring and management, the extent and severity would be much greater. For example, <i>Elodea</i> sp. alters freshwater ecosystems by growing rapidly, blocking light, and absorbing nutrients that are needed for native aquatic species, slowing stream flow and impacting spawning habitat. Additionally, when the rapid growth eventually stops, the decomposition of dead organic matter alters oxygen balances in the water (Larsen et al. 2020; U.S. Fish and Wildlife Service 2020). Active management and monitoring have been used to contain the spread of <i>Elodea</i> sp., though, as of 2026, it has not been eradicated from the local watershed. European green crabs have not been detected in Prince William Sound. The European green crab is a global invader that causes significant detrimental environmental, economic, and social effects upon establishment. According to the Copper River Watershed Project, since 2014, a total of 1,200 acres have been treated for invasive plant species. According to an article in the <i>Cordova Times</i>, bears present at the Cordova Landfill represent a potentially dangerous situation, with one person reported seeing 25 bears at a time at the city's landfill. The severity of the situation is exacerbated by elevated human presence from unauthorized access to the landfill.
Recurrence Probability	The risk posed by invasive species is increasing as climate change, transportation, and regional development alter ecological conditions in Alaska, making it easier for non-native species to establish and spread. Monitoring and enacting early detection response protocols are critical because once established in the region, invasive species are difficult to treat. Similarly, the risk posed by wildlife is also increasing as climate change, regional development, and natural disasters alter the availability of resources shared by the community and wildlife. As the pressures continue, human and wildlife encounters may become more frequent in the future.



4.1.6 Erosion

Table 4-6: Erosion

Profile	Description
Nature	Erosion is the wearing and transportation of land. Erosion is typically gradual land loss through wind or water scour. In developed regions, erosion undermines buildings and infrastructure. Erosion can be experienced from coastal, riverine, or wind sources. Riverine erosion is the natural process by which flowing water removes, transports, and redeposits soil, sediment, and rock from riverbanks, floodplains, and streambeds, causing channel migration, bank retreat, and loss of adjacent land or infrastructure. According to the U.S. Army Corps of Engineers, persistent flooding and erosion in the NVE is caused by recent inflows of Scott River into Eyak River. Riverine erosion at Eyak Lake is primarily driven by hydrologic changes associated with periodic channel shifts of the glacial Scott River into the Eyak River system, which increase water levels, alter sediment transport, and accelerate erosion of the lake shoreline. Riverine erosion at Eyak Lake is closely linked to the hydrology of the Eyak River, which drains the lake and flows to Prince William Sound along the margin of the Scott River delta. The Scott River is a sediment-rich, braided glacial outwash river whose channels naturally shift across the delta over time. When Scott River channels breach into the Eyak River, additional water and sediment are diverted into the Eyak watershed, increasing flows, raising water levels in both the Eyak River and Eyak Lake, and promoting flooding, bank erosion, and shoreline retreat. Coastal erosion is a common term used to describe the retreat of the shoreline along the ocean. It describes the attrition of land resulting in loss of beach, shoreline, or dune material from natural activity or human influences and rarely causes death or injury. Erosion can cause property destruction, prohibit development, and impact community infrastructure. Erosion can occur rapidly as the result of floods, storms, or other events; or slowly as the result of long-term environmental changes such as melting permafrost. Erosion is a natural process, but its effects can be easily exacerbated by human activity.
Location	Based on community-reported observations, the erosion hazard area is estimated as land within approximately 100 feet of the shoreline where erosion is currently occurring. As shown on Figure 11, areas most vulnerable to riverine erosion include the Copper River, Sheridan River (at mile post 13.5), and Eyak Lake and River. As shown on Figures 11 and 12, areas most vulnerable to coastal erosion include Hinchinbrook Island (near Boswell Bay Beaches State Park and Orca Road).
History	The 2007 Alaska Baseline Erosion Assessment documented riverine erosion at Eyak Lake three times between 1995 and 2007. Since the assessment, in 2011, riverine erosion was documented at Bridge 339 on the Copper River Highway due to flooding, shifting braided Copper River channels, and associated scour eroding riverbanks and bridge approaches. Also, according to the planning team, riverine erosion has also been occurring on the Sheridan River near the Copper River Highway bridge, though this erosion is not linked to a specific event. According to the planning team, in recent years, coastal erosion was associated with two storm events documented along the Copper River Highway in 2006. In January 2022, riverine erosion caused by king tides and storm surge associated with a winter storm event caused the destabilization of bank of the road along Orca Inlet. The planning team also reports that coastal erosion near the Bowell Bay State Marine Park has also been an ongoing issue over the past 10–15 years.

Profile	Description
Extent / Severity	Based on community-reported observations, the erosion hazard area for the NVE is estimated as land within approximately 100 feet of the shoreline where erosion is currently occurring and includes 126 acres (<1%) of the NVE planning area.
Recurrence Probability	The NVE planning area is likely to continue to experience both riverine and coastal erosion at a recurrence probability similar to what it has experienced in the past. Erosion is a gradual, ongoing process that occurs continually along vulnerable shorelines. While erosion typically progresses incrementally over time, the rate and severity of shoreline retreat can increase during periods of elevated streamflow, flooding, storm surge, high tides, wave action, and severe storm events. These conditions can accelerate bank and shoreline instability, resulting in episodic erosion losses that exceed normal background rates. Because the underlying processes that drive erosion are persistent and recurring, erosion impacts are expected to continue throughout the planning period. Although major erosion-related damages may occur sporadically, the hazard is present annually, with storms and flood events serving as triggers that can significantly worsen erosion and increase the likelihood of impacts to transportation routes, infrastructure, and access to subsistence-use areas. With climate change and increasing variability in storms and potential for more precipitation falling as rain rather than snow, the recurrence probability for erosion in the NVE planning area may increase into the future.

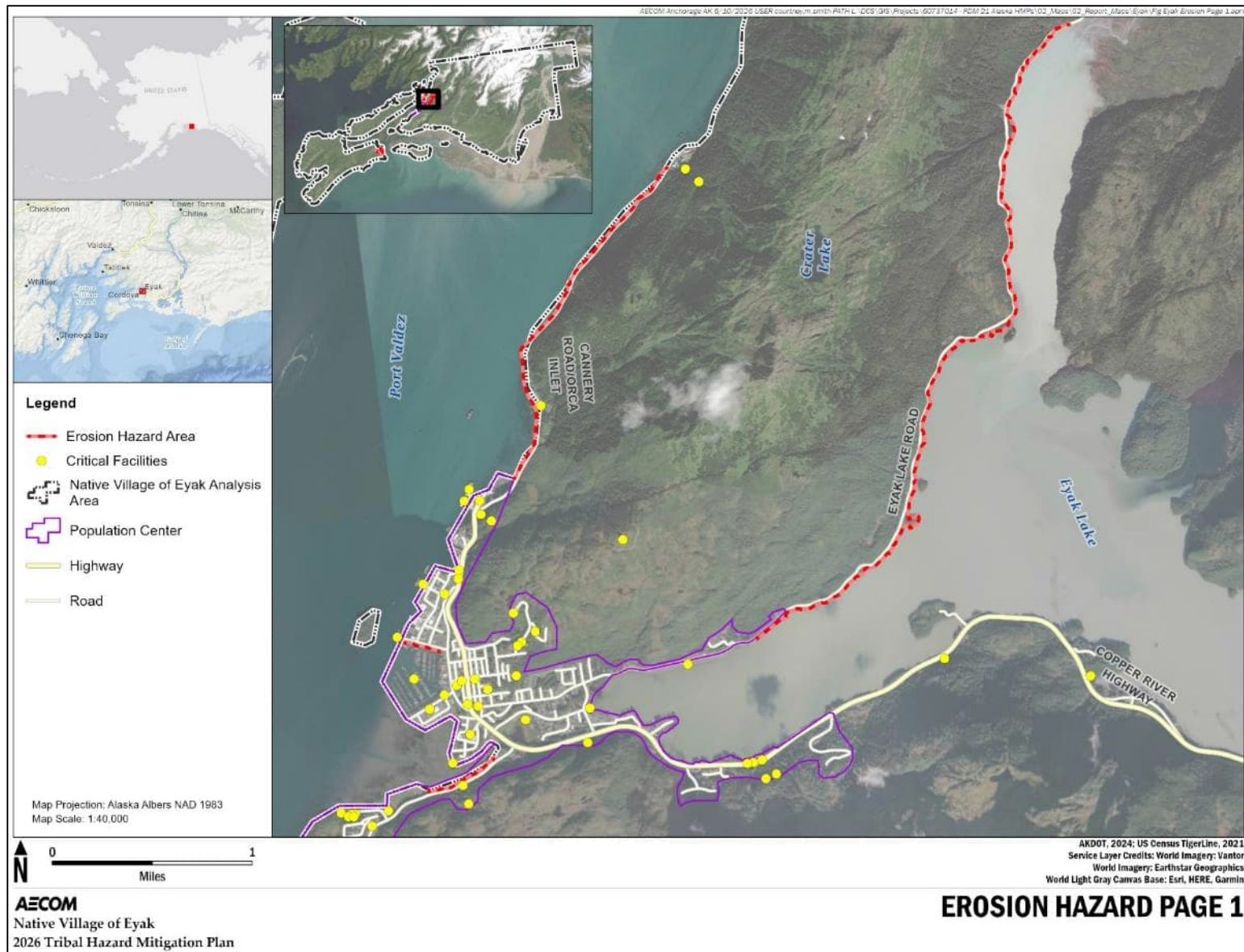


Figure 11: Erosion Hazard Map 1 of 2

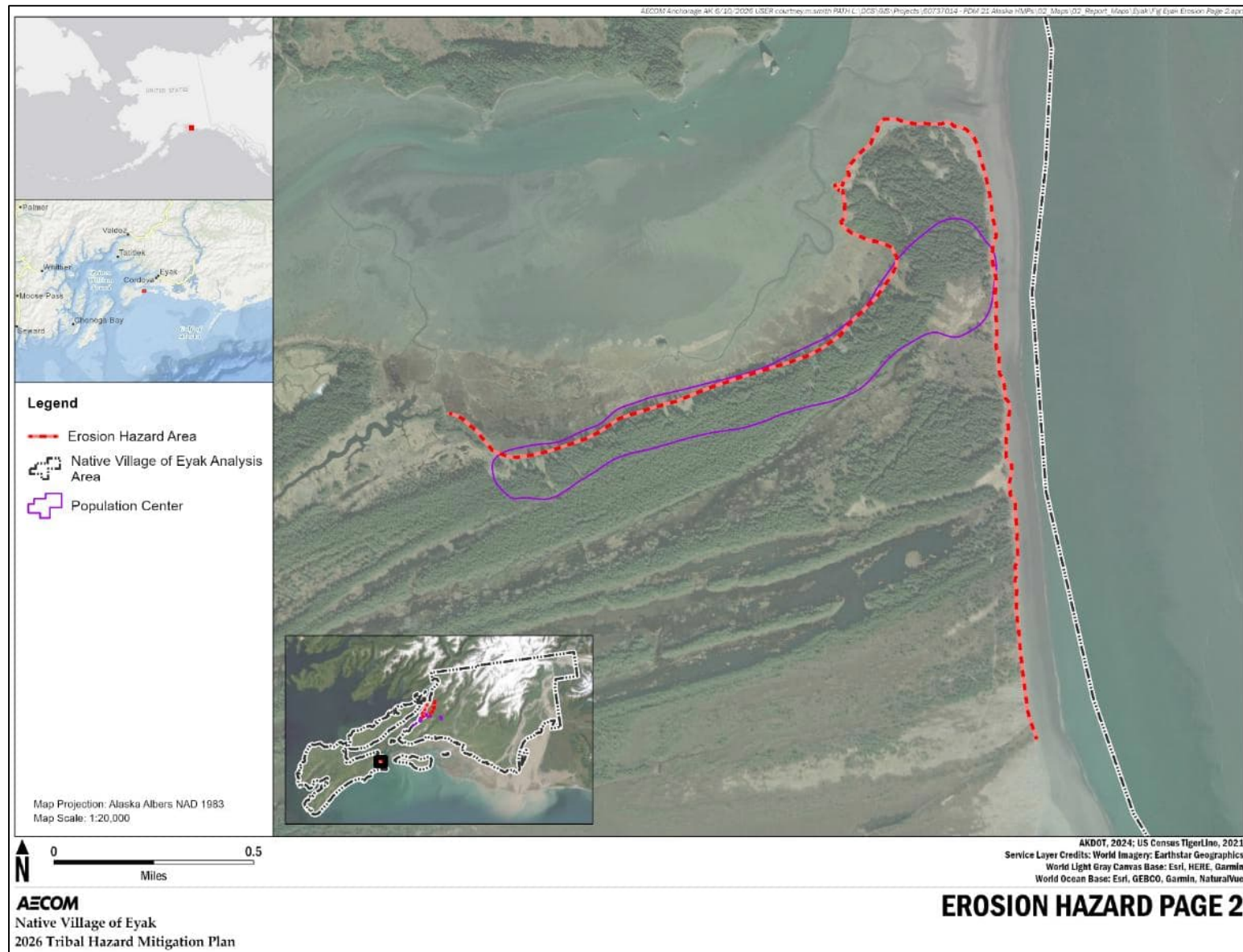


Figure 12: Erosion Hazard Map 2 of 2

4.1.7 Flood

Table 4-7: Flood

Profile	Description
Nature	A flood occurs when the existing channel of a stream, river, or other water body cannot contain excess runoff from rainfall, snowmelt, glacier melt, or a combination of these inputs, resulting in overflow onto adjacent lands that are not normally submerged. Flooding is also associated with storms such as those originating in the Gulf of Alaska, or from long and narrow regions of intense water vapor transport originating in the mid-Pacific Ocean, known as atmospheric rivers. Both types of storms deliver large amounts of rainfall (or snow) in a short period of time. In Alaska, both the El Niño Southern Oscillation and the Pacific Decadal Oscillation are important climate drivers influencing storm tracks as well as temperature and precipitation patterns which influence flooding. The most common types of storm related flooding include the following: • Riverine flood: a flood that occurs when rivers and creeks overflow their banks due to excessive rain or snow and glacier melt over the same area for an extended period, and flow into surrounding areas. Localized flooding can occur because of riverine flooding when logjams divert high-velocity flows. • Coastal flood: a flood that inundates areas along the coast with seawater. There are several causes of coastal flooding, including high tide, storm surge, localized wave action (wave runup and wave overtopping), rising sea levels, and tsunami. Coastal flooding can cause extreme damage to coastlines, including the built environment along the coast, due to the direct force of storm surge waves.
Location	In the NVE planning area, the areas most vulnerable to riverine flooding include the Eyak Lake and Eyak River, as shown on Figure 13. Also, according to the community (but not mapped), Heney Creek and the Meals Reservoir are areas of concern for riverine flooding during periods of heavy rain. And finally, according to the community, there are portions of the Copper River Highway that are inundated from watersheds crossing under it at certain locations, which have not been mapped. Areas most vulnerable to coastal flooding include Power Creek Road, New England Cannery Road, Breakwater Avenue, Cordova Boat Harbor, and Odiak Lagoon, as shown on Figures 13 and 14.
History	According to National Oceanic and Atmospheric Administration's (NOAA's) Storm Events Database, flood events since 2000 for the southeastern Prince William Sound area occurred in July 2001, August and October 2006, September 2012, September 2014, and September 2022. Additionally, the planning team described one coastal flood event that occurred in January 2022.
Extent / Severity	The magnitude of flooding that is used as the standard for floodplain management in the United States is a flood with a probability of occurrence of 1% in any given year. This flood is also known as the 100-year flood (i.e., the base flood). The 100-year flood (1 percent annual chance flood) is identified on FEMA's Flood Insurance Rate Maps (FIRMs) as the Special Flood Hazard Area (SFHA), specifically flood zones A and V. As shown on Figures 13 and 14, the 2015 FIRM for the NVE identifies 880.8 acres (less than 1%) within the SFHA. Floods in these areas are generally considered riverine floods and are typically caused by prolonged and/or excessive rainfall from storm events, or are coastal floods due to extreme tides, storm surge, and overland wave effects due to a storm event. It is important to note that FIRMs do not factor in future impacts such as increased precipitation or sea level rise caused by climate change.

Profile	Description
	The Denali Commission (2019) did not assess Eyak independently from Cordova and placed Cordova in Flood Group 2. Flood Group 2 is defined by the threat of flood not being expected to detrimentally impact critical infrastructure in the near term, but the community still being vulnerable to the threat. Damages from flood could impact operability for a limited period but would not impact the community's sustainability.
Recurrence Probability	Flooding can occur at any time. According to NOAA, in southcentral Alaska, storm events that can cause riverine or coastal flooding are more frequent and more severe during El Niño years, which currently occur irregularly, but approximately every 2–7 years. Climate modeling shows that these storm events will continue to become more potent in a warming climate and lead to more extreme precipitation events.

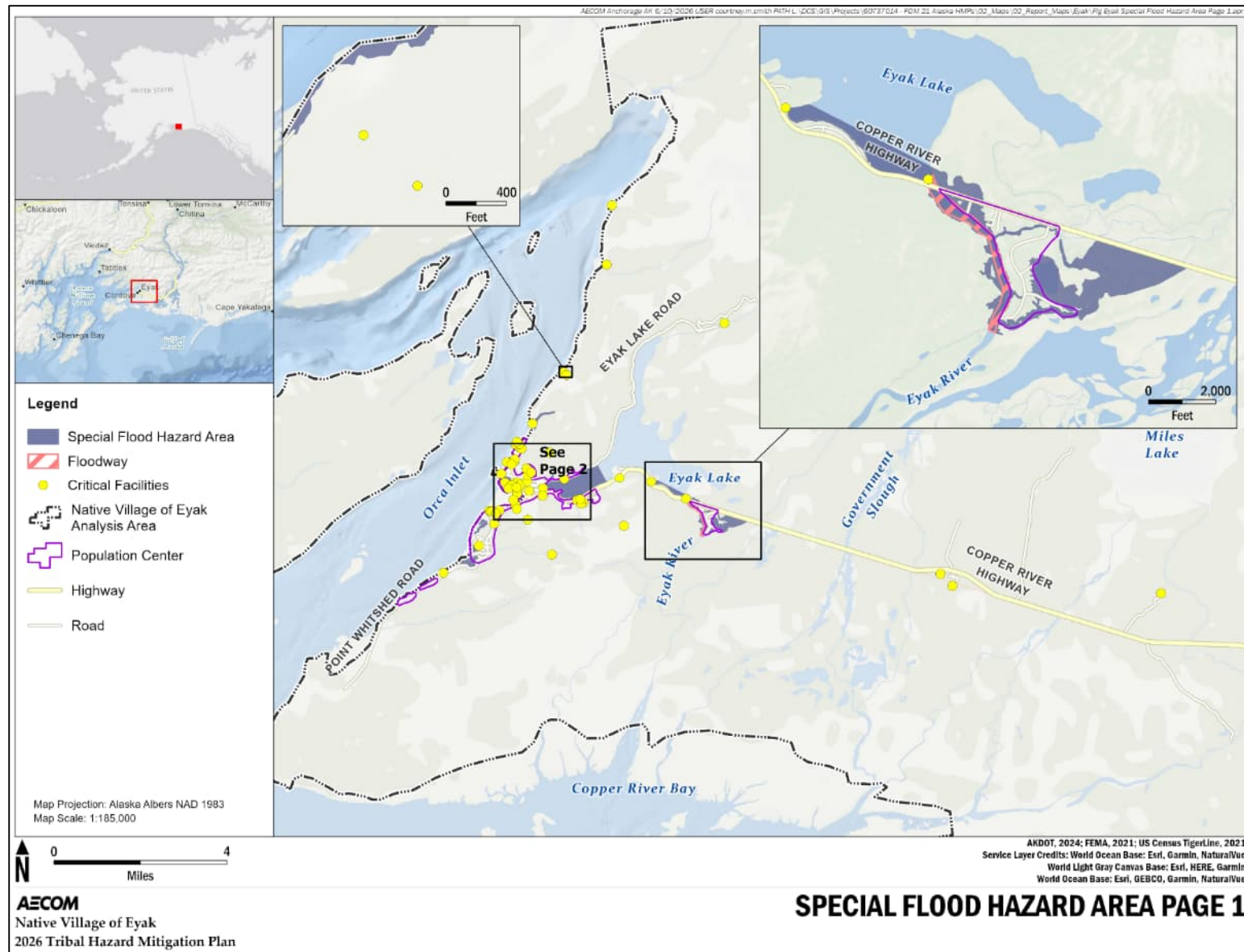


Figure 13: Special Flood Hazard Area Map 1 of 2

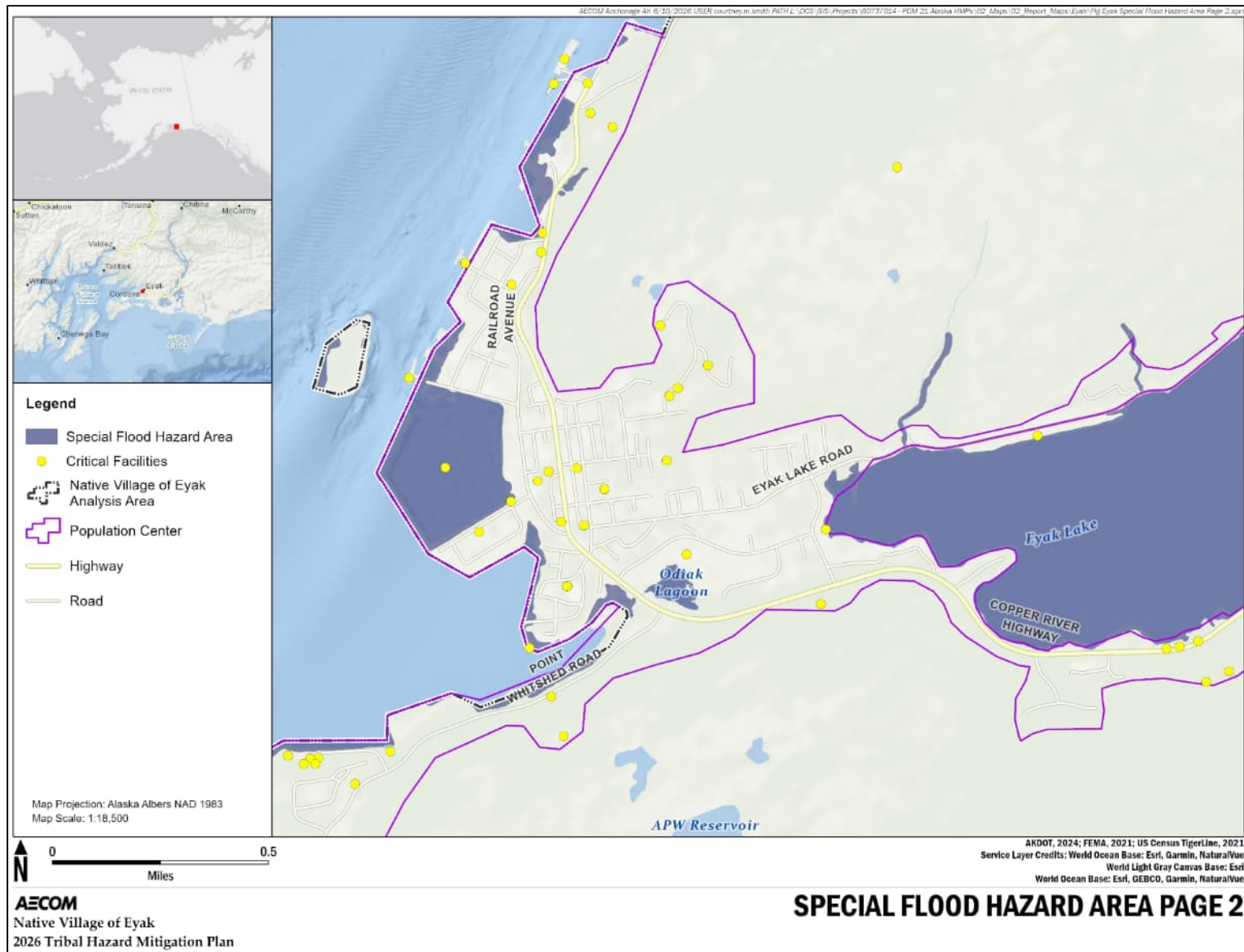


Figure 14: Special Flood Hazard Area Map 2 of 2

4.1.8 Hazardous Material Release

Table 4-8: Hazardous Material Release

Profile	Description
Nature	Hazardous materials are substances that may have negative effects on health or the environment. A hazardous material release is a sudden, uncontrolled spill or discharge of chemicals, gases, or radioactive materials that can harm human health and the environment. Exposure to a hazardous material release may cause injury, illness, or death. Effects may be felt over seconds, minutes, or hours (short term); or not emerge until days, weeks, or even years after exposure (long term). In addition, some substances are harmful after single exposures of short duration, while others require long episodes of exposure or repeated exposure over time to create harm. In addition to accidental, human-caused hazardous material releases, natural phenomena may cause the release of hazardous materials and complicate response activities. Earthquakes pose a particular risk because they can damage or destroy facilities containing hazardous substances. The threat of any hazardous material event may be amplified by restricted access; reduced fire suppression and spill containment capability; and even complete cutoff of response personnel and equipment. Hazardous materials events or releases can also cause a host of secondary effects, depending on the nature and size of the incident. Hazardous materials that pose the greatest risk for causing catastrophic emergencies, as identified by the U.S. Environmental Protection Agency (EPA), are classified as Extremely Hazardous Substances (EHSs). Releases of EHSs, such as ammonia, and other hazardous substances, such as non-crude oil, can occur at facilities or during transport.
Location	As shown on Figure 15 and according to the history of ammonia spills listed in the Alaska DEC's Statewide Oil and Hazardous Substance Spills Database, Ocean Beauty Seafoods and Trident Seafoods South and North Plants, located near the Cordova harbor, are areas of concern for ammonia releases (Figure 15). Copper River Seafoods (not mapped) is also located in Cordova on the Orca Inlet has no record in the database of ammonia spills. In addition to the areas of concern for potential EHS releases, the Alaska DEC has identified 50 contaminated sites in the NVE planning area where a hazardous substance or EHS is present (Figure 16). Many of these sites are associated with historical land uses and result from failed containment equipment and improper storage measures or disposal methods considered standard practices before environmental organizations became aware of the problems or hazards they can cause. Contaminated sites often threaten public health or the environment and can cause economic hardship to people and communities. As shown on Figure 16, these sites are located in Boswell Bay / Strawberry Point, Cape Hinchinbrook, Johnstone Point, Point Whitshed, Orca Inlet, Cordova (near the Harbor), Eyak Lake, Cordova Municipal Airport, Mountain Slough, and Copper River Highway / Mudhole Smith Airport. In addition to EHS facilities and other contaminated sites, the NVE planning area is also vulnerable to oil spills. Oil spills are most likely to occur in coastal waters with shorelines and coastal infrastructure at risk.
History	According to the Alaska DEC, the following EHS releases have been recorded from 1995 to 2025 in the NVE planning area: • June 2008: Ammonia spill at Trident Seafoods Cordova North • October 2009: Ammonia spill at Trident Seafoods Cordova South • June 2014: Ammonia spill at Ocean Beauty Seafoods

Profile	Description
	• July 2014: Ammonia spill at Trident Seafoods North • August 2015: Ammonia spill at Trident Seafoods North • February 2018: Ammonia spill at Trident Seafoods South • October 2018: Ammonia spill at Trident Seafoods South • July 2020: Ammonia spill at Trident Seafoods South • July 2021: Three ammonia spills at Trident Seafoods South • July 2023: Ammonia spill at Trident Seafoods Corporation • August 2023: Ammonia leak at Ocean Beauty Seafoods • August 2025: Ammonia spill at Trident Seafoods Corporation Alaska DEC records also show that contaminated sites in the NVE planning area date back to over 100 years, with the oldest contaminated site at Point Whitt built in 1917, to U.S. military use during World War II in the 1930s, and to Federal Aviation Administration use in the 1940s. In addition to EHS releases, there have been 183 non-crude-oil spills from 1995 to 2025 in the NVE planning area. The largest oil spill to affect the NVE planning area also happens to be the worst human-caused disaster in recorded Alaska history, known as the <i>Exxon Valdez</i> Oil Spill in 1989. While the location of the site where the <i>Exxon Valdez</i> struck rock was dozens of miles away, ocean currents and winds carried oil into the NVE planning area and beyond, with reports of contamination throughout the Prince William Sound.
Extent / Severity	As shown on Figure 15, there are 226 acres (less than 1%) of the NVE planning area that are in an EHS evacuation area, but these evacuation areas encompass highly populated downtown areas. EHS immediate isolation and evacuation areas were determined by placing a 200-foot and one-third-mile radius around each of the three seafood processing plants, respectively, in the NVE planning area. A one-third-mile radius around each facility was used for the evacuation area to be consistent with guidelines from CAMEO Chemicals, a hazardous materials database and emergency response tool that is jointly maintained by NOAA and the EPA. The assumptions used for this evacuation area include a large spill from a tank occurring in the day. The severity classification of contaminated sites is defined by DEC. As such, within the NVE planning area (shown on Figure 16), there are: • Eleven active contaminated sites which have confirmed contamination above action levels and require additional characterization, monitoring, or cleanup before a closure decision can be made; • Thirty-one cleanup complete contaminated sites where remediation efforts are complete and any remaining contamination is below the levels that would pose a threat to human health or the environment; • Six cleanup complete contaminated sites—institutional controls for sites where no further remediation is planned and the potential for future exposure to residual contamination warrants the use of institutional controls; and • Two informational contaminated sites, which are sites where records are entered to track area-wide, site-wide, or facility-wide information that does not represent a distinct site; a site that has received EPA or DEC Brownfields services and cannot be classified as “active”; or a property that has an Environmental Covenant or Notice of Activity and Use Limitation and is not considered a source contributor. The severity of an oil spill is often dependent on the size of the spill as well as the response effort. Based on previous events in the NVE planning area, the range of spills was less than 1 gallon to nearly 3,000 gallons. To illustrate a more catastrophic spill, the <i>Exxon Valdez</i> spilled roughly 11 million gallons of oil into Prince William Sound.

Profile	Description
Recurrence Probability	In the absence of major changes to operations, the NVE may continue to experience a similar number of releases annually to recent patterns (e.g., 0 to 2 ammonia releases and 6 to 16 non-crude oil spills occur annually, based on records from 2008 to 2023). Because contaminated sites are largely the result of historical activities, the number of sites is not expected to increase significantly in the future. However, the risk of contaminant exposure or release may increase as erosion, flooding, severe storms, coastal change, development, and other environmental stressors disturb contaminated soils, sediments, or infrastructure and mobilize hazardous materials into the surrounding environment.



Figure 15: Hazardous Materials Hazard Map

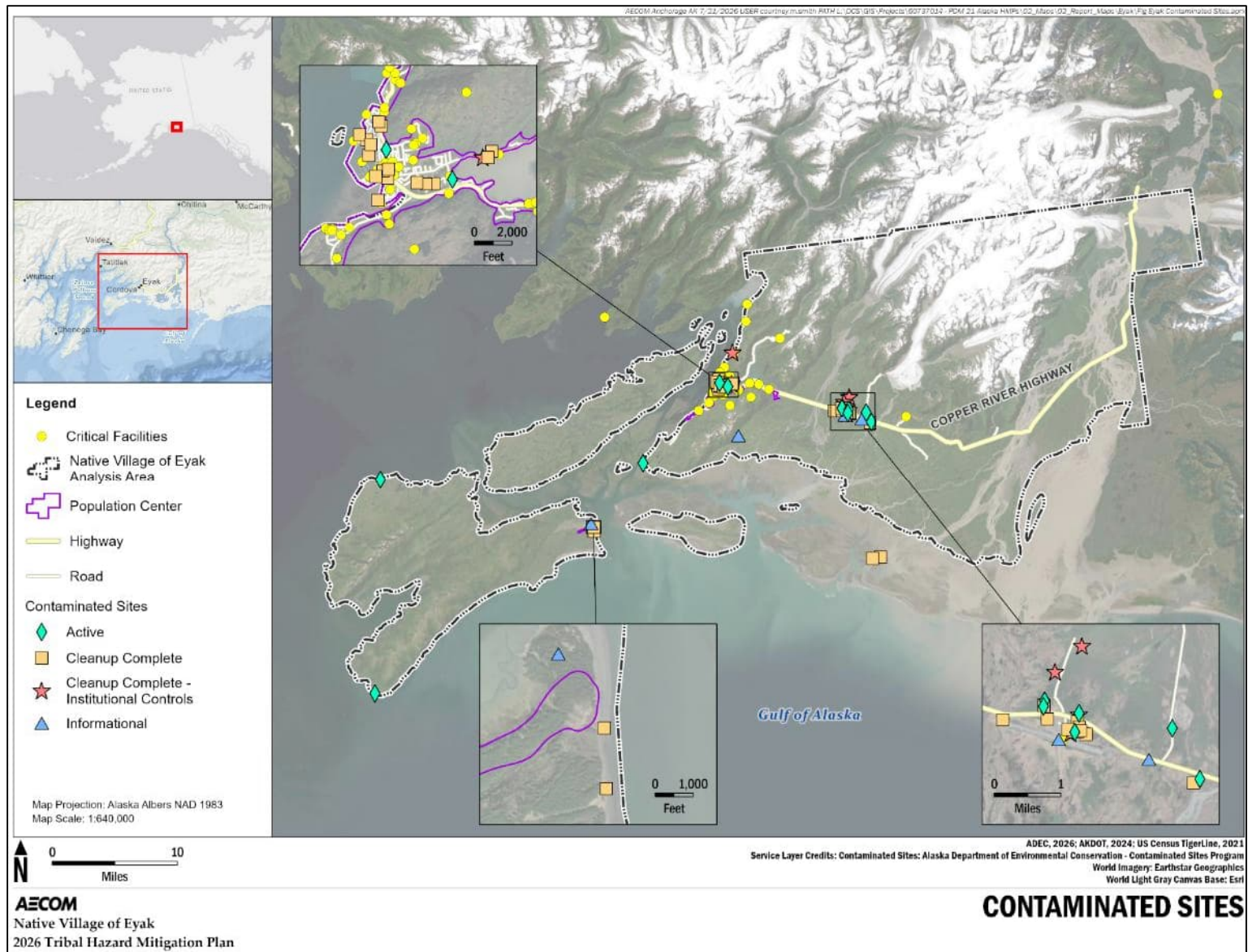


Figure 16: Contaminated Sites Map

4.1.9 Landslide

Table 4-9: Landslide

Profile	Description
Nature	Landslide is a general term for the dislodging and fall of a mass of soil or rocks along a sloped surface or for the dislodged mass itself. The term is used for varying phenomena, including mudflows, mudslides, debris flows, rockfalls, rockslides, debris avalanches, debris slides, and slump-earth flows. Landslides may result from a wide range of combinations of natural rock, soil, or artificial fill. The susceptibility of hilly areas to landslides depends on variations in geology, topography, vegetation, and weather. Landslides may also occur because of indiscriminate development of sloping ground or the creation of cut-and-fill slopes in areas of unstable or inadequately stabilized geologic conditions. In southcentral Alaska, landslides range from small, shallow landslides that may mobilize into rapidly moving deadly debris flows to larger, deep-seated landslides that can move entire houses and infrastructure downslope. Cliff collapses and cliff erosion are also concerns along the coast and, more recently, debris flows from burned areas after wildfires.
Location	In 2022, the USGS prepared a landslide inventory to show documented landslides that have occurred in the NVE planning area. The Landslide Inventory documents historical (greater than 150 years old) and recent (predominately from the early 2000s to 2025) landslides across Alaska and includes mapped landslide occurrences in the NVE planning area. As shown on Figures 17 and 18, these areas include Point Whitshed Road, New England Cannery Road, along the shore of Eyak Lake, near Power Creek, and along the Copper River Highway. In 2024, USGS prepared a new model to show potential landslide-prone areas. This model is discussed below in “extent/severity” but includes include Shepherd Point, Copper River, Point Whitshed, and land surrounding the ski area. According to the planning team, but not mapped, there is a concern over landslide below the Sheridan Glacier, associated with retreat of the glacier and the exposed unstable terrain.
History	While numerous landslides have occurred in the NVE planning area, some notable landslides (causing damage or fatalities) include the following: • 1985: A landslide destroyed water lines between Heney Creek catchment basin and the city. • 2000: A series of landslides accompanied by severe winter storms and avalanches caused widespread damage. • 2001: A landslide in Cordova resulted in one fatality and property damage.
Extent / Severity	In 2024, the USGS prepared a Slope-Relief Threshold Landslide Susceptibility Model to show landslide-prone areas by analyzing large landslide inventories and digital elevation models to identify susceptible terrain. Specifically, the USGS used 1/3 arc-second digital elevation model to calculate slope and 100-meter relief and landslides from the national landslide inventory compilation to compute aggregated susceptibility information. The nonlinear model shows the values of susceptibility from the number of susceptible 10-meter cells within each 90-meter cell after down-sampling from 0 (very low) to 81 (very high). As shown on Figures 19 through 21, 236,350 acres (36%) of high and very high susceptibility for landslide hazard occur throughout the NVE planning area.

Profile	Description
Recurrence Probability	Shallow landslides can occur at any time but are more likely to happen when the ground is nearly saturated, which typically occurs after the first few storms of the season. However, deep-seated landslides are generally triggered by deep infiltration of rainfall (which can take weeks or months to occur) and therefore tend to occur toward the end of the winter. Because shallow landslides, which are most frequent in the NVE planning area, generally follow rain events, it is assumed that the probability of a future landslide event will be highly tied to these events. Climate modeling shows that storm events will continue to become more potent in a warming climate and lead to more extreme precipitation events. NASA researchers have found that landslides move on average faster and farther downhill during these rainy periods compared to drought years. It can be assumed that, at minimum, the same areas that are vulnerable to landslides will likely remain vulnerable to landslides and potentially vulnerable to increased risk from faster and larger deep-seated landslide events. However, as climate change continues to accelerate glacial retreat, there may be more new exposed areas of unstable slopes that may be vulnerable to landslides where they haven't been vulnerable previously, thus increasing the recurrence probability for landslides in the region. Landslides triggered by earthquakes are tied to the probability of the faults located in the vicinity of the NVE planning area, as detailed in Section 4.1.4.

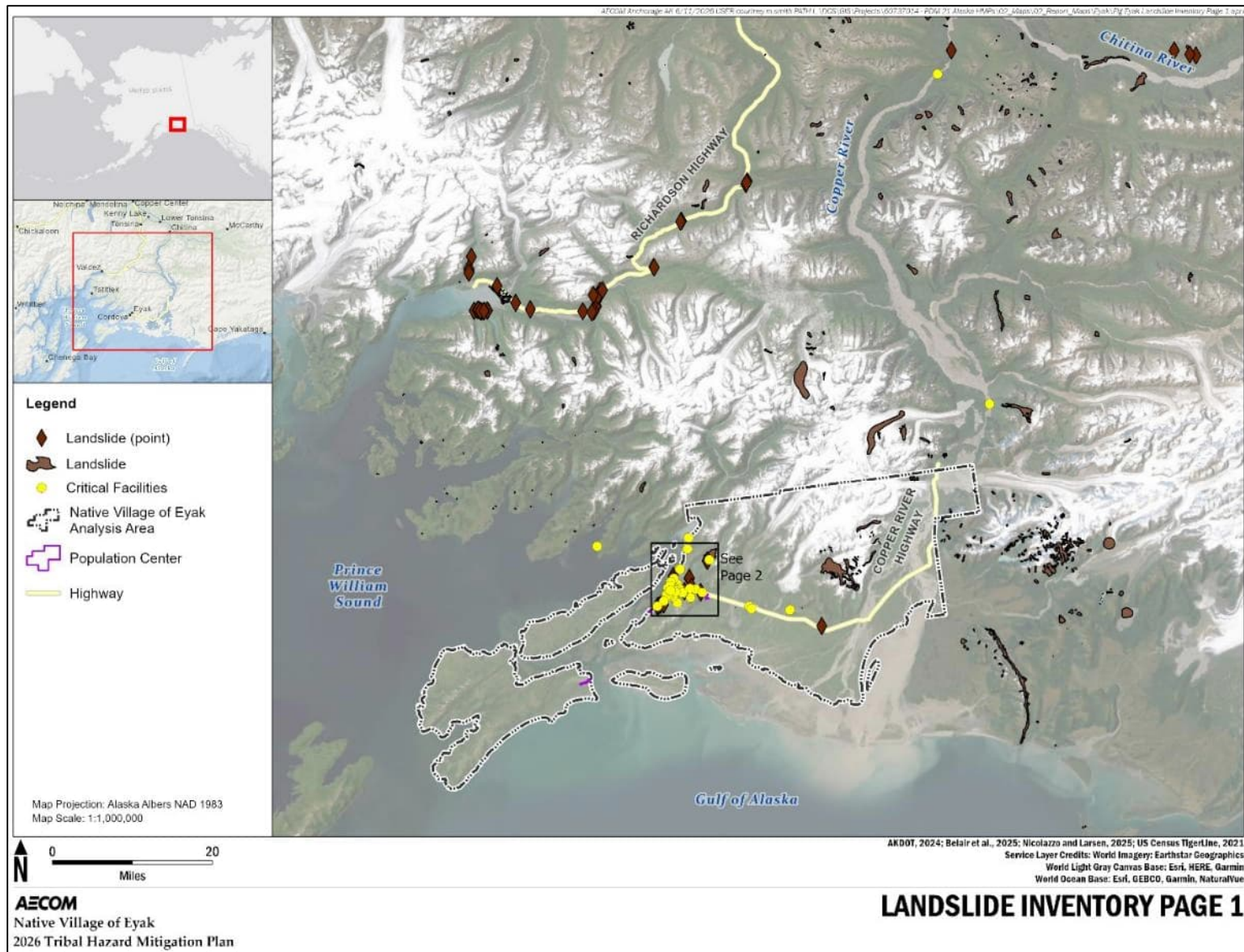


Figure 17: Landslide Inventory 1 of 2

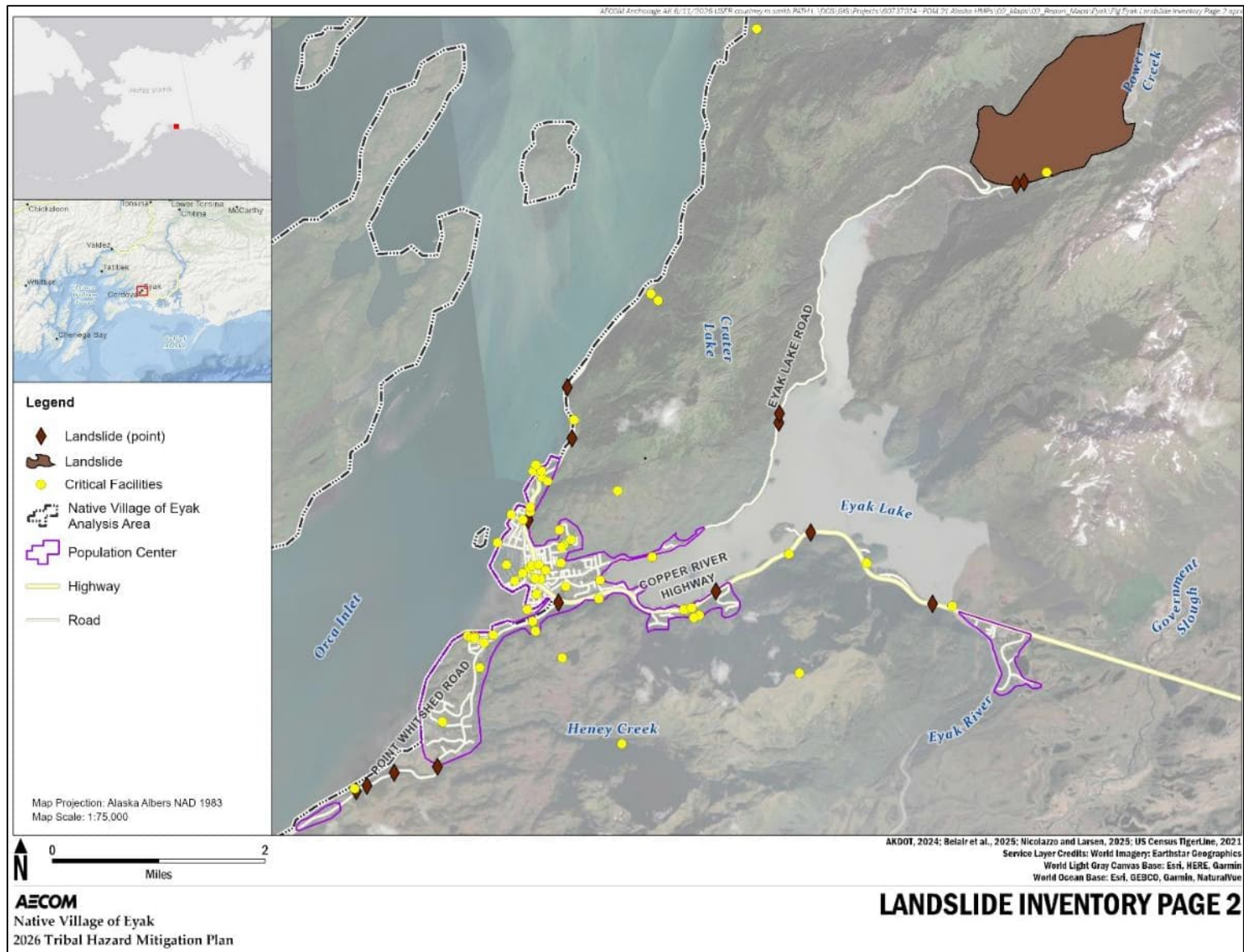


Figure 18: Landslide Inventory 2 of 2

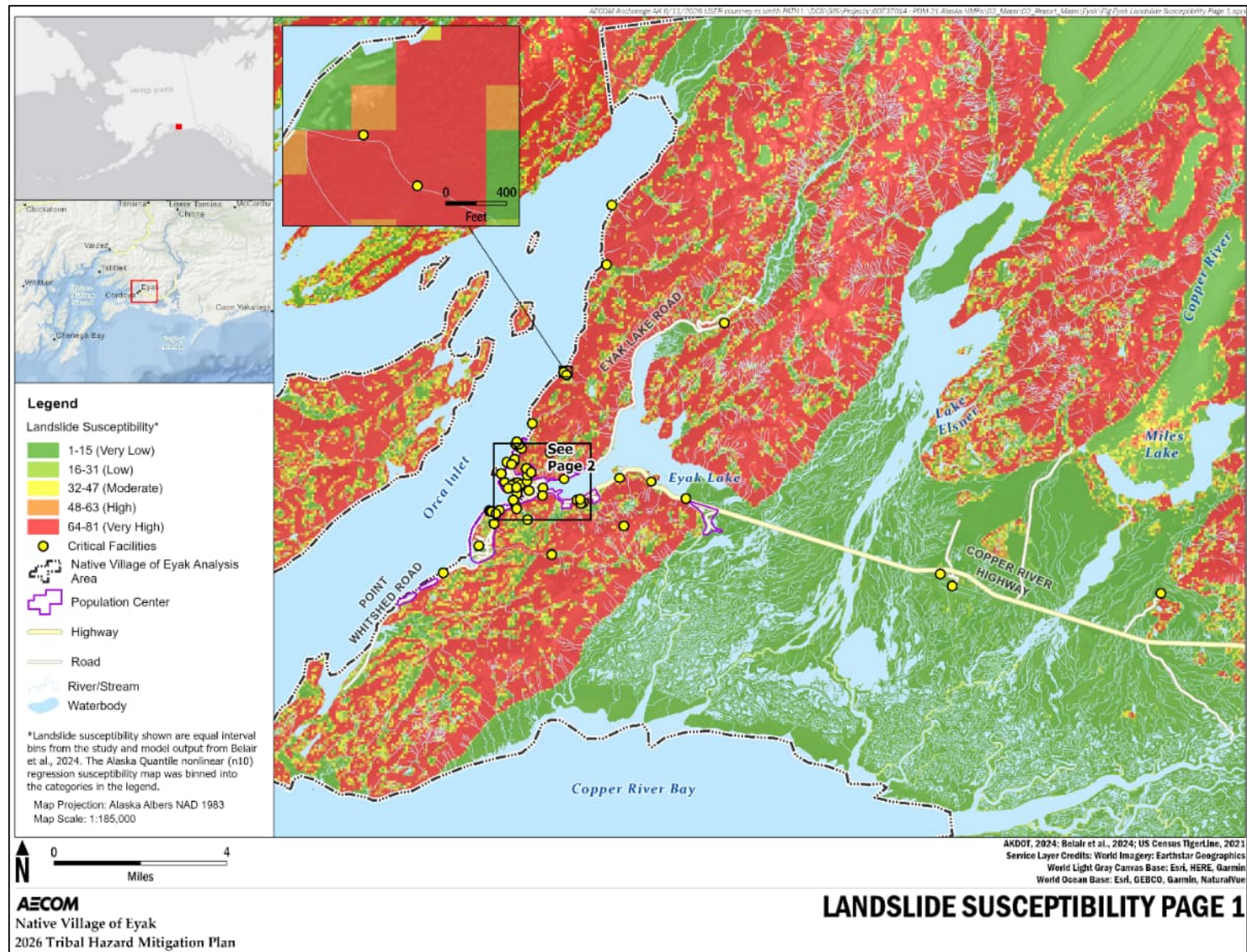


Figure 19: Landslide Susceptibility 1 of 3

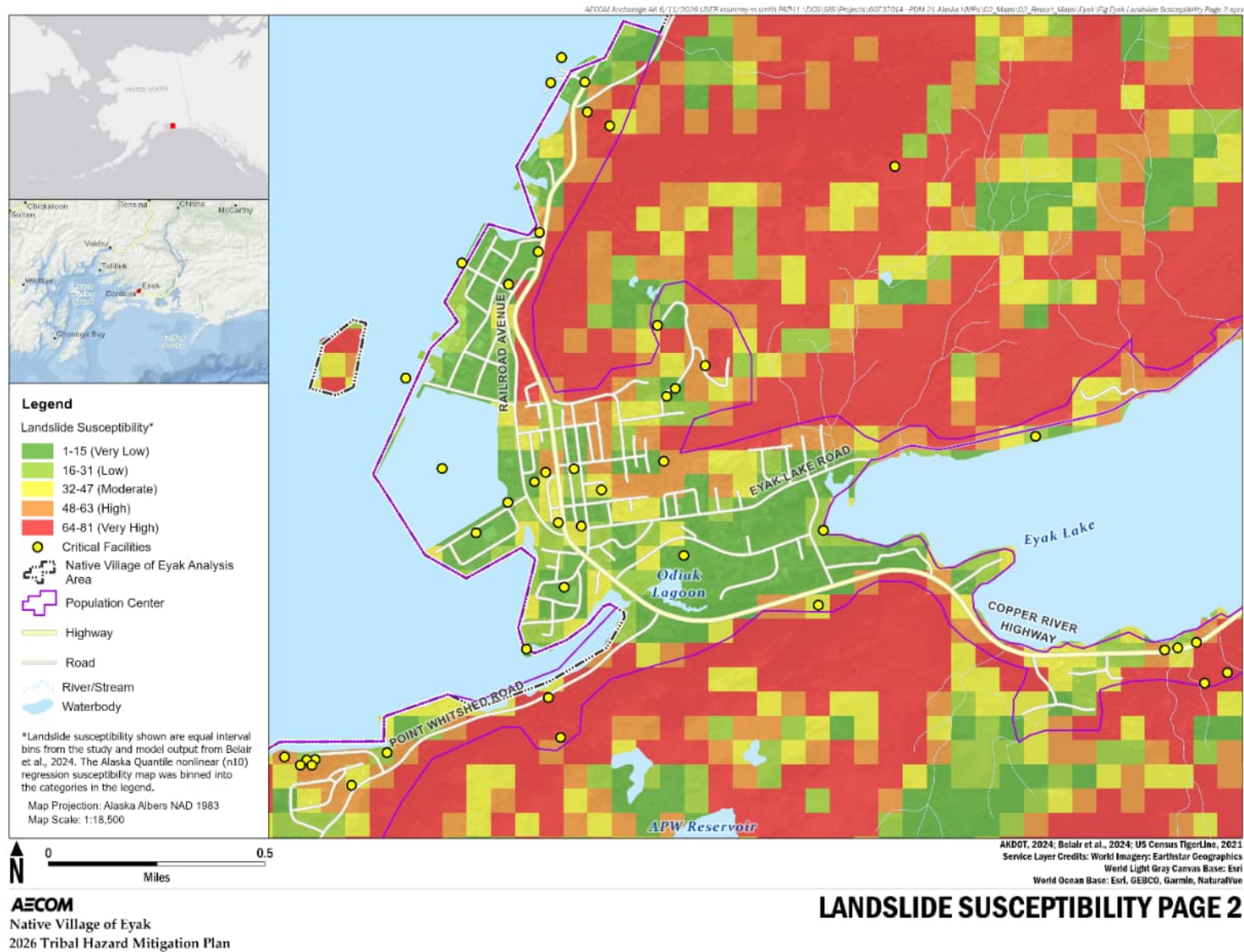


Figure 20: Landslide Susceptibility 2 of 3

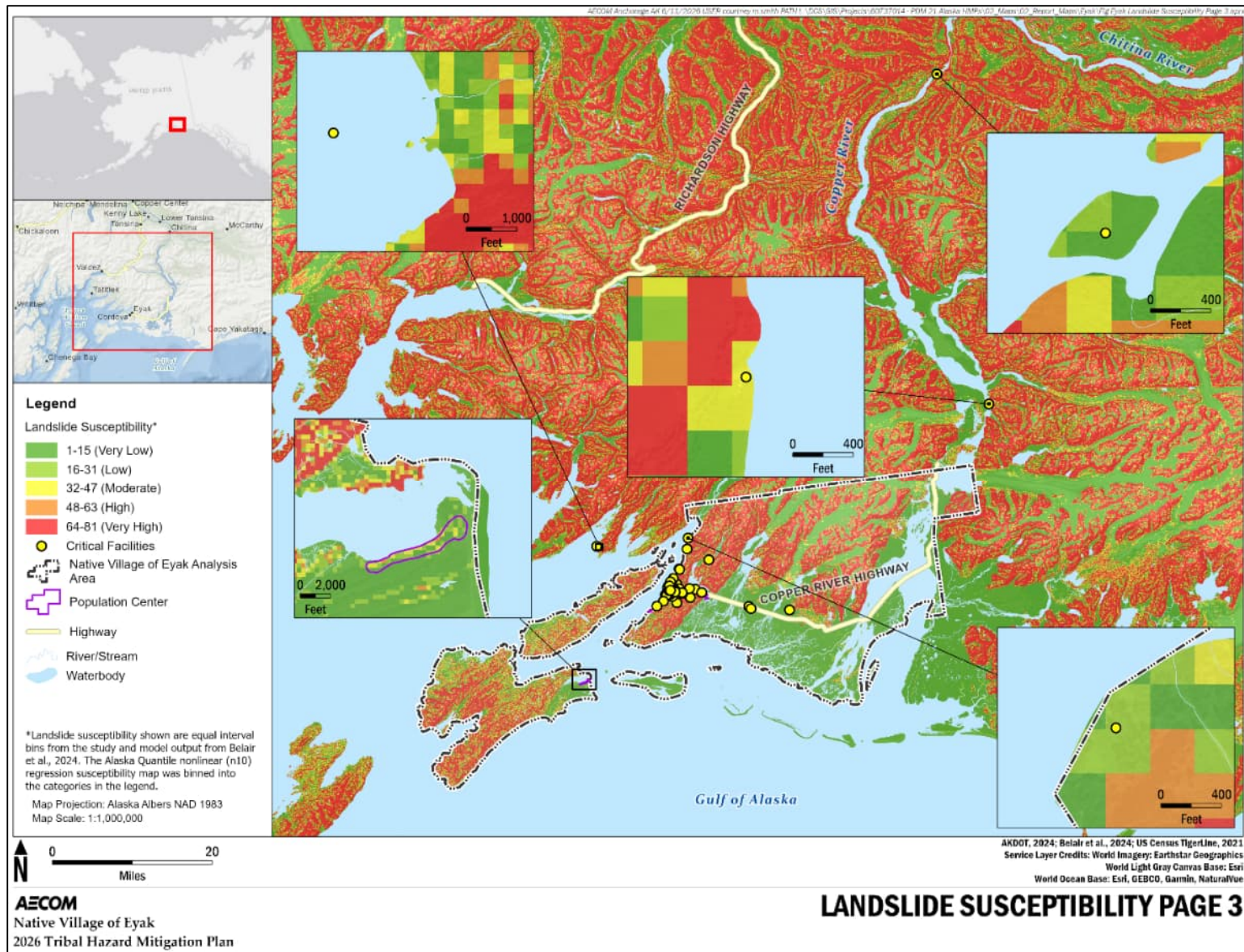


Figure 21: Landslide Susceptibility 3 of 3

4.1.10 Severe Weather

Table 4-10: Severe Weather

Profile	Description
Nature	NOAA defines severe or hazardous weather as “conditions produced by thunderstorms, including damaging winds, tornadoes, large hail, flooding and flash flooding, and winter storms associated with freezing rain, sleet, snow and strong winds.” Specifically, according to NOAA: • Thunderstorms become severe when they include hail 1 inch or greater, winds gusting in excess of 57.5 mph, and/or a tornado. • Damaging winds are classified as those exceeding 50–60 mph. • Flash floods occur within 6 hours, and often within 3 hours, of the heavy rainfall. • Severe winter storms, also referred to as blizzards, contain large amounts of snow from snowfall or blowing snow, have winds in excess of 35 mph, and have visibilities of less than one-quarter mile for at least 3 hours. Atmospheric rivers are not included in NOAA’s definition of severe weather, but are long and narrow regions of intense water vapor transport.
Location	Severe weather can affect all of the NVE. The low-lying and exposed shoreline is most vulnerable to storm surge caused by coastal storms.
History	According to NOAA’s Storm Events Database, from January 1, 2000, to December 31, 2024, the following days of severe weather have been recorded in the southeastern Prince William Sound: • Winter storms, blizzards, and high winds occurred in January, February, October and December 2000; January, February, August and November 2001; January 2005; February, August and September 2006; September 2009; November 2011; November 2021. • Flood caused by heavy rain related to atmospheric river event occurred in September 2012.
Extent / Severity	Most severe weather events impacting the NVE are winter storms, blizzards, or high winds. NOAA documentation shows that coastal Alaska storms affecting the Cordova area have produced hurricane-force winds exceeding 100 knots (about 115 mph) in nearby Prince William Sound forecast zones, while high-wind events have recorded sustained winds and gusts well above 70 knots (80 mph). Winter storms are capable of producing more than 1 to 2 feet of snowfall within a few days. Rain on top of snow or ice can create extremely icy, wet conditions.
Recurrence Probability	Based on historical occurrences, the NVE can expect to experience several winter storm events each year. Although the exact number varies annually, approximately 15 to 25 winter storms capable of producing accumulating snow, freezing precipitation, strong winds, or hazardous travel conditions are expected during a typical winter season. According to Thoman and McFarland (2024), there have been no clear long-term trends in storminess related to climate change since 1979; however, climate change may shift the timing, magnitude, and types of severe weather events, while also increasing variability year-to-year.

4.1.11 Tsunami

Table 4-11: Tsunami

Profile	Description
Nature	A tsunami is a series of traveling ocean waves of extremely long length, generated by disturbances associated primarily with earthquakes occurring below or near the ocean floor. Subduction zone earthquakes at plate boundaries often cause tsunamis. However, tsunamis can also be generated by underwater landslides or volcanic eruptions, the collapse of volcanic edifices, and—in very rare instances—large meteorite impacts in the ocean. In the deep ocean, a tsunami may have a length from wave crest to wave crest of 100 miles or more, but a wave height of only a few feet or less. Therefore, the wave period can be up to several hours and wavelengths can exceed several hundred miles. Tsunamis are unlike typical wind-generated swells on the ocean, which might have a wave period of about 10 seconds and a wavelength of up to 300 feet. Tsunamis cannot be felt aboard ships, and they cannot be seen from the air or the open ocean. In deep water, the waves may reach speeds exceeding 700 mph. Tsunamis arrive as a series of successive crests (high water levels) and troughs (low water levels). These successive crests and troughs can occur anywhere from 5 to 90 minutes apart; however, they usually occur 10 to 45 minutes apart. Tsunamis not only affect beaches that are open to the ocean, but also bay mouths, tidal flats, and the shores of large coastal rivers. Tsunami waves can also diffract around land masses. Because tsunamis are asymmetrical, the waves may be much stronger in one direction than another, depending on the nature of the source and the surrounding geography. However, tsunamis propagate outward from their source, so coasts in the shadow of affected land masses are safer. In Alaska, tsunami waves are usually generated by nearby landslides or tectonic events, but can also be generated from distant sources. Most tsunami damage and destruction are caused by flooding, wave impacts, erosion, strong currents, and floating debris.
Location	The DGGs prepared a tsunami inundation map for Cordova in 2014 which was updated in 2022. As shown on Figures 22 through 24, the tsunami inundation zone for all tectonic and landslide scenarios indicates locations of potential exposure along Orca Inlet including Shephard Point, Eyak Lake close to the Copper River Highway, and near Boswell Bay / Strawberry Point. According to the DGGs (2014), the closest possible submarine landslide source to the NVE is the delta of the Rude River at the head of Nelson Bay; however, little is known about its potential volume and geometry. The water body connecting Nelson Bay to the City of Cordova is rather shallow, from which researchers at DGGs speculated that most of the wave energy would be directed through the deep channel (the Narrows) toward Orca Bay. However, some dissipated waves might reach Cordova. Modeling of tsunamis generated by rockfall, avalanche, and/or landslides has not been completed in the NVE due to insufficient data on the locations and volumes of these potential hazards (DGGs 2014). In Prince William Sound, a tsunami simulation of the possible Barry Arm landslide simulating the propagation of energy throughout Prince William Sound indicates most of the energy dissipating out of the Wells Passage with the potential for dangerous currents in the NVE (Dai et al. 2020).
History	The Global Historical Tsunami Database shows that from 1800–2025 there have been 85 tsunami events in Alaska. The largest tsunami event originating in Alaska occurred on

Profile	Description
	March 28, 1964. This event was caused by a M9.2 earthquake and landslide with an unknown maximum water height. More locally, the Global Historically Tsunami Database (1800–2025) notes one event that originated in southcentral Alaska, where the NVE is located: • A February 23, 1925, event was caused by a M6 earthquake with a tsunami runup recorded at Valdez attributed to a quake-induced landslide.
Extent / Severity	According to DGGs (2022), modeled scenarios from tectonic and landslide tsunami areas are most concentrated around the harbor breakwaters, and more widespread inundation across the low-lying areas of the Copper River Delta. A total of 34,233 acres (5%) of the NVE is in a maximum tsunami inundation area.
Recurrence Probability	While the likelihood of a large tsunami to occur in and/or strike southcentral Alaska, including the NVE, would be hard to predict, recent geological studies led by a USGS scientist indicate that the recurrence interval for large tsunamis generated in the eastern Aleutians ranges from 164 to 257 years. The earthquakes originating in this area are generated by megathrust earthquakes and have historically had devastating consequences for coastal communities around the Pacific Ocean, including the NVE.

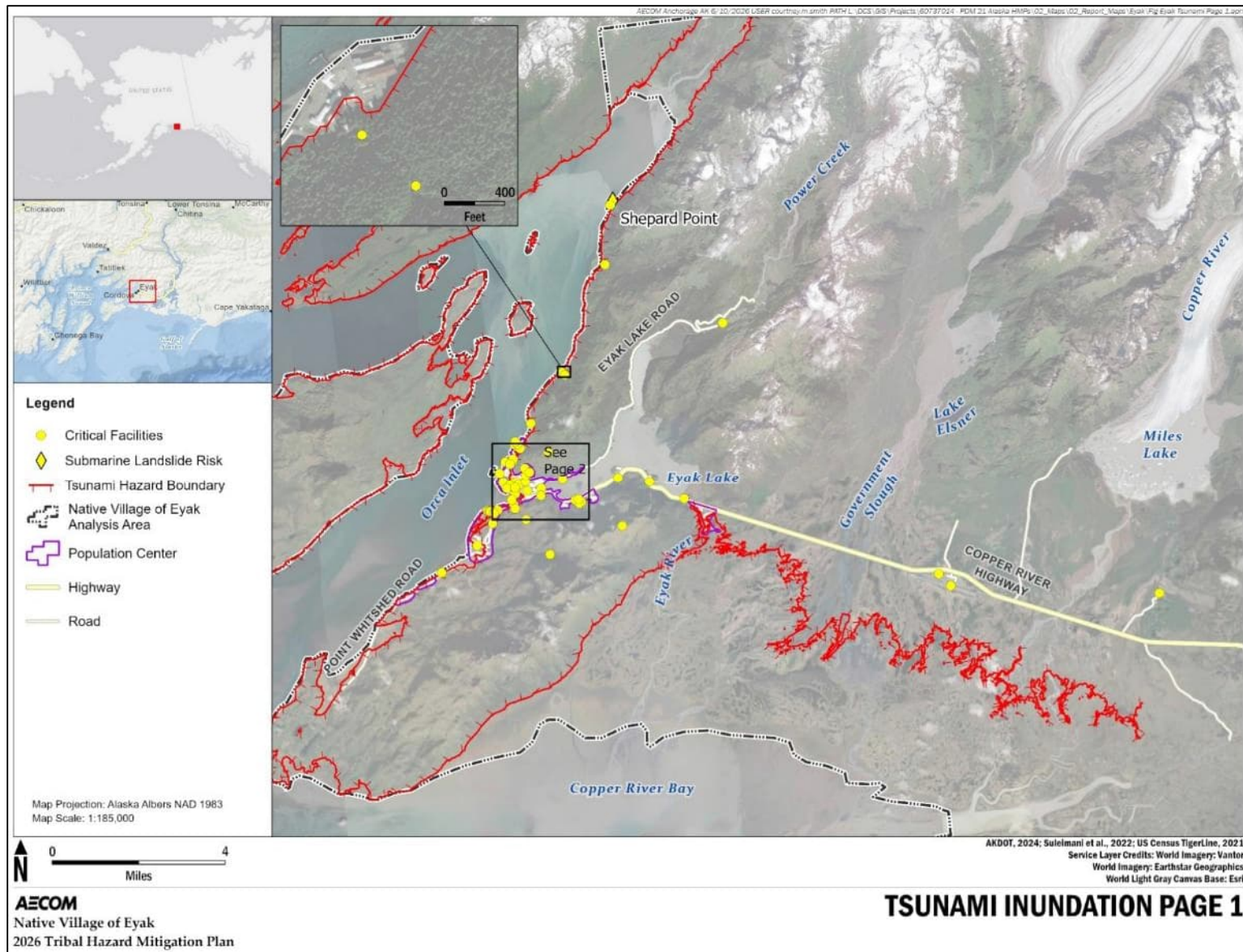


Figure 22: Tsunami Inundation Map 1 of 3

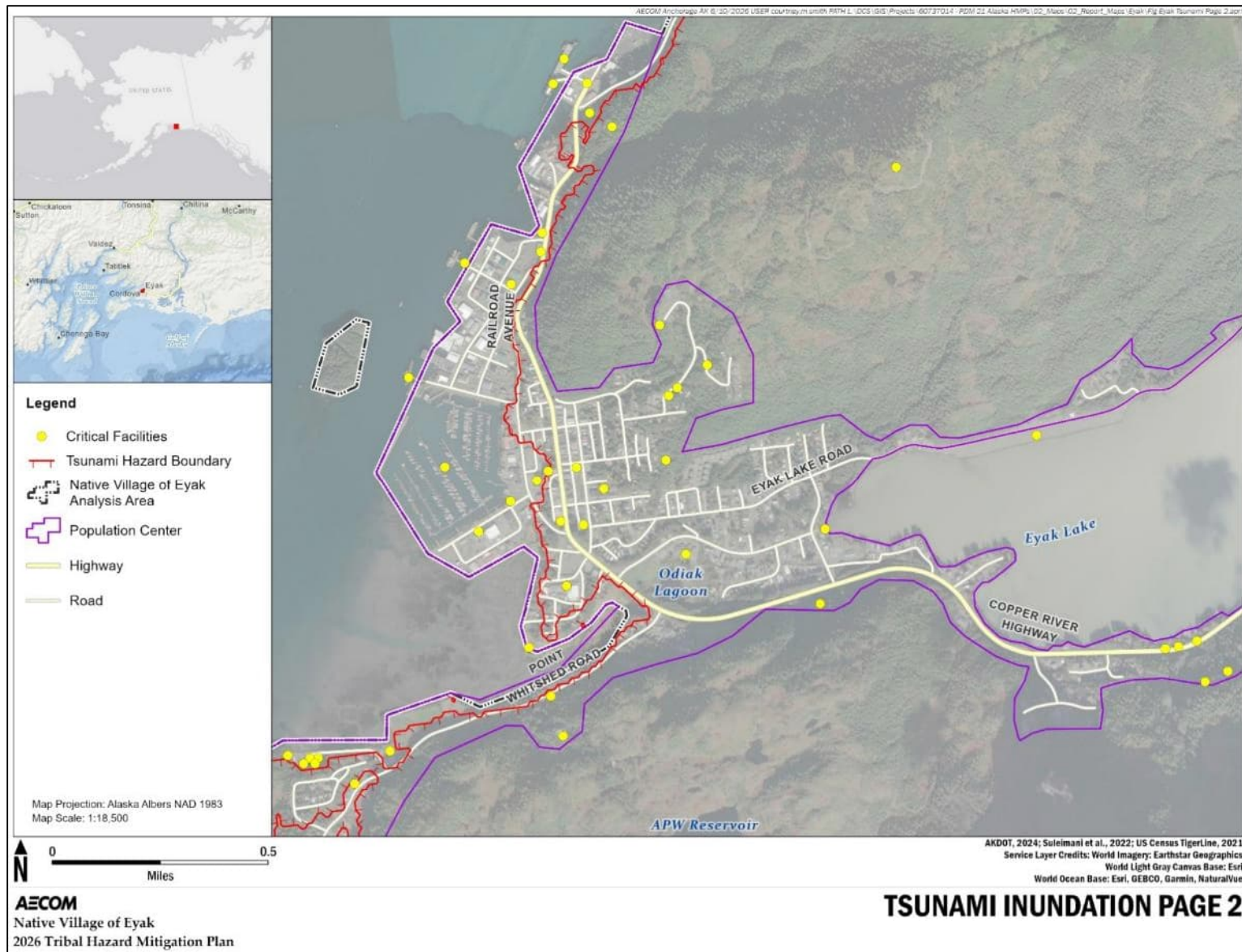


Figure 23: Tsunami Inundation Map 2 of 3

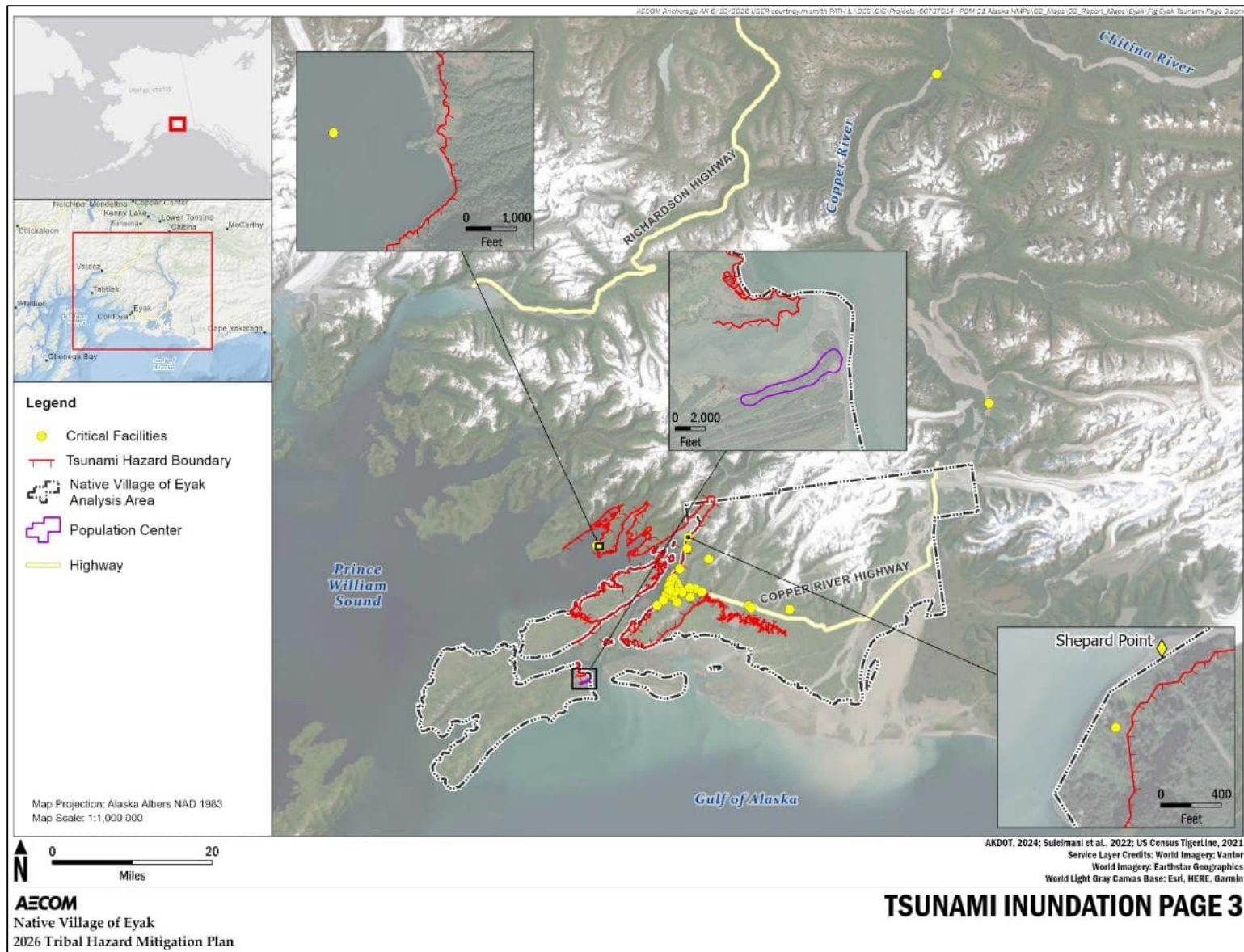


Figure 24: Tsunami Inundation Map 3 of 3

4.1.12 Volcanic Eruption

Table 4-12: Volcanic Eruption

Profile	Description
Nature	A volcano is a vent or opening in the earth's crust from which molten lava (magma), pyroclastic materials, and volcanic gases are expelled onto the surface. The vent may be visible as a small bowl-shaped depression at the summit of a cone or shield-shaped mountain. Through a series of cracks within and beneath the volcano, the vent connects to one or more linked storage areas of molten or partially molten rock. There are four general volcano types: • Lava domes, which are formed when lava erupts and accumulates near the vent • Cinder cones, which are shaped and formed by cinders, ash, and other fragmented material accumulations that originate from an eruption • Shield volcanoes, which are broad, gently sloping volcanic cones with a flat dome shape that usually encompass several tens or hundreds of square miles, built from overlapping and inter-fingering basaltic lava flows • Composite or stratovolcanoes, which are typically steep-sided large dimensional symmetrical cones built from alternating lava, volcanic ash, cinder, and block layers; most composite volcanoes have a crater at the summit containing a central vent or a clustered group of vents There are three types of volcanic eruptions, described below. Some volcanoes may exhibit only one type of eruption during an event, while others may display an entire sequence of all three types in one event. • Magmatic eruptions are the most well-observed eruptions. Magmatic eruptions produce juvenile clasts (composed fragments) during explosive decompression from gas releases. Magnetic eruption subtypes include: Hawaiian, Strombolian, Vulcanian, Peléan, and Plinian. • Phreatomagmatic eruptions are volcanic eruptions resulting from the interaction between magma and water. Grain deposits from phreatomagmatic explosion involving high water-to-magma ratios are extremely fine-grained and distinctly poorly sorted, while deposits resulting from low water-to-magma ratios are commonly coarse and relatively well-sorted. Phreatomagmatic eruption subtypes include: Surtseyan, Submarine, and Subglacial. • Phreatic eruptions are steam-blast eruptions. These eruptions occur when cold ground or surface water encounters hot rock or magma. Phreatic eruptions blast out steam, water, ash, volcanic bombs, and volcanic blocks, but no new magma. The term tephra defines all pieces of all fragments of rock ejected into the air by an erupting volcano. Most tephra falls back onto the slopes of the volcano, enlarging it. Smaller and lighter pieces less than 2-millimeter diameter (less than one-tenth of an inch), termed ash, are carried by winds for thousands of miles. Other hazards potentially caused by a volcanic eruption include volcanic ashfall, lava flows, lahars (debris flows), volcanic gas, pyroclastic surges or flows, and volcanic landslides.
Location	According to the Alaska Volcano Observatory, the closest active volcanoes to the NVE include the following: • Mount Wrangell, 116 miles north and east of the NVE. • Mount Spurr, 225 miles west and north of the NVE. Mount Spurr is the northernmost volcano in the Aleutian Arc, with a 200-mile region of no active

Profile	Description
	volcanos known as the Denali Volcanic Gap between it and volcanic features near Buzzard Creek. This region lies over the subduction zone between the Pacific and North American plates. • Mount Redoubt, 238 miles west of the NVE. • Novarupta, 367 miles south and east of the NVE. • Mount Edgecumbe, 432 miles south and east of the NVE.
History	Alaska Volcano Observatory lists the most recent volcanic eruptions or activity for the closest volcanoes to the NVE: • 1912: Novarupta (eruption), followed by remobilized ash from strong winds in 1949, 2014, 2015, 2017, 2020, and 2021 • 2009: Mount Redoubt (eruption), followed by remobilized ash in 2019 • 1930: Mount Wrangell (eruption) • 1992: Mount Spurr (eruption) • 2022: Mount Edgecumbe (earthquake swarm)
Extent / Severity	Volcanic eruptions vary in extent and severity based on the location, duration, and strength of the volcanic activity. The 1912 eruption of Novarupta lasted 60 hours and nearby communities experienced darkness and suffocating conditions, while ash was carried by winds eastward across the continent. In 1992, the Mount Spurr eruptions released pyroclastic flow which mixed with snow and ice to become debris flows that temporarily dammed the Chakachatna River. Ash plume from this eruption fell in neighboring communities. Volcanic eruptions in Alaska have created fragmented rock flows, lava flows, landslides, and mudflows; falling ash and drifting clouds of fine volcanic ash that have caused severe damage to both the built and natural environment hundreds of miles from the eruption location; and volcanic deposits which have created new landforms. Eruptions can last weeks or longer. The NVE lies in a low-moderate volcanic ash hazard area (Figure 25).
Recurrence Probability	The probability of trace amounts of ashfall (1/32 inch) coming from a distant eruption that could impact the NVE either directly (from damages and health issues of the ash) or indirectly (from disruptions in air travel and supply delivery) is approximately once per year (or, equal to the overall probability of a volcanic eruption occurring in Alaska).

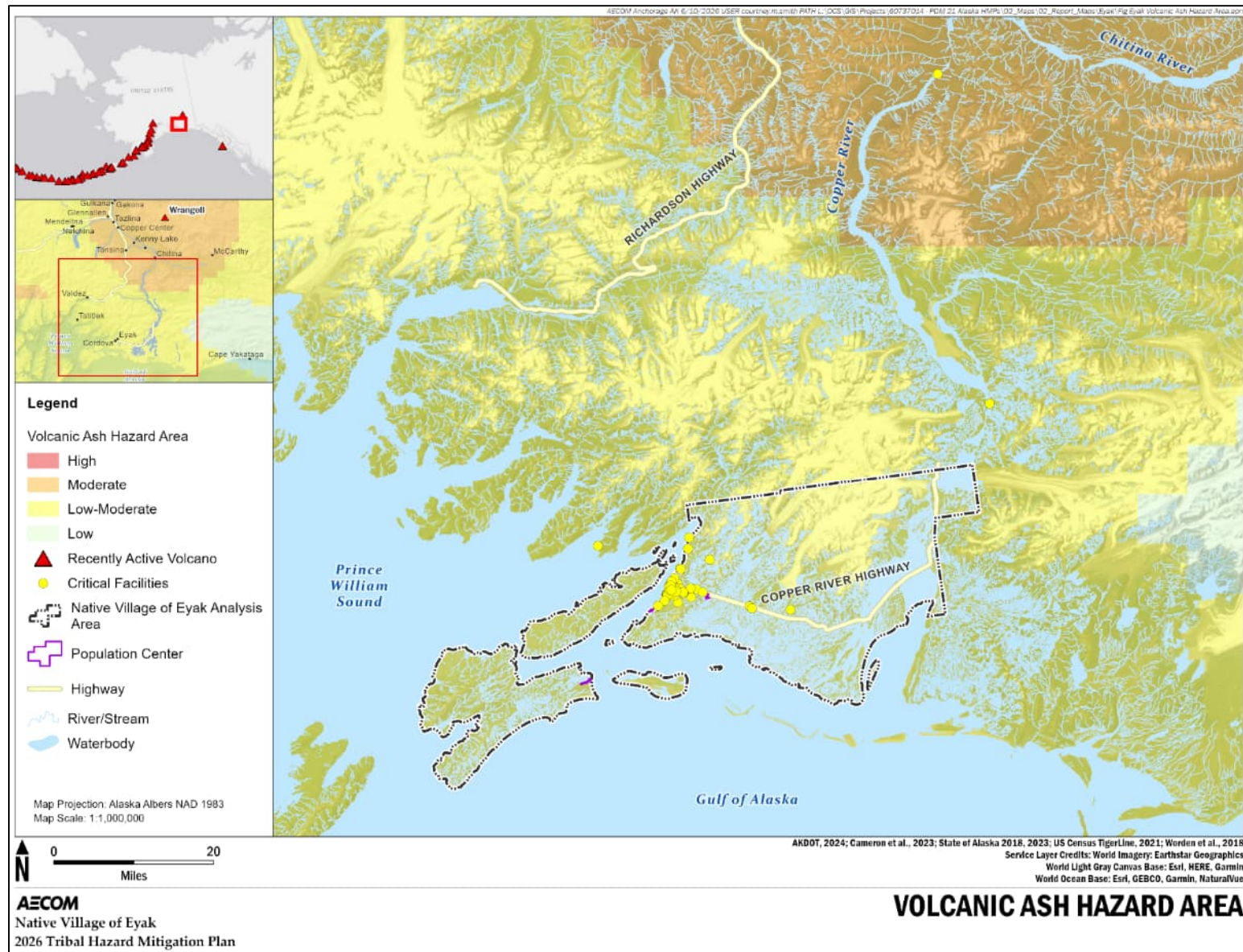


Figure 25: Volcanic Ash Hazard Area

4.1.13 Wildfire

Table 4-13: Wildfire

Profile	Description
Nature	A wildfire, forest fire, wildland fire, or bushfire is an unplanned and uncontrolled fire in an area of flammable vegetation. This type of fire often begins unnoticed, spreads quickly, and is usually signaled by dense smoke that may be visible from miles away. Wildfires can be caused by human activities (e.g., unattended burns, campfires, or off-road vehicles without spark-arresting mufflers) or by natural events such as lightning. Wildfires often occur in forests or other highly vegetated areas. In addition, wildfires can be classified as forest, urban, interface or intermix, and prescribed burns. Topography, fuel, and weather contribute significantly to wildfire behavior and can be used to identify wildfire hazard areas: • Topography describes slope increases, which influence wildfire spread rate increases. South-facing slopes are subject to more solar radiation than slopes facing other directions, so south-facing slopes tend to be drier and thereby intensify wildfire behavior. However, ridge tops may mark the end of wildfire spread because fire spreads more slowly (or may even be unable to spread) downhill. • Fuel refers to the type and condition of vegetation; fuel plays a significant role in wildfire spread. Certain plant types are more susceptible to burning or will burn with greater intensity. Dense or overgrown vegetation increases the amount of combustible material available as fire fuel (referred to as the “fuel load”). The living-to-dead plant matter ratio is also important. Certain climate changes may increase wildfire risk significantly during prolonged drought periods because the moisture content of both living and dead plant matter decreases. Both the horizontal and vertical fuel load continuity are also important factors. • Weather is the most variable factor affecting wildfire behavior. Temperature, humidity, wind, and lightning can affect ignition opportunities and fire spread rate. Extreme weather (such as high temperatures, offshore “Diablo wind” events, and low humidity) can lead to extreme wildfire activity. Climate change increases the susceptibility of vegetation to ignition due to longer dry seasons. By contrast, cooling temperatures and higher humidities often signal reduced wildfire occurrence and easier containment. Wildfire frequency and severity sometimes result from other hazard impacts such as drought and infestations. If not promptly controlled, wildfires may grow into an emergency or disaster. Even small fires can threaten lives and resources and destroy improved properties. In addition to affecting people, wildfires may severely affect livestock and pets. Such events may require emergency water/food, evacuation, and shelter. Indirect wildfire effects can be catastrophic. In addition to stripping the land of vegetation and destroying forest resources, large, intense fires can harm the soil, waterways, and the land itself. Soil exposed to intense heat may lose its capability to absorb moisture and support life. Exposed soils erode quickly and exacerbate river and stream siltation, thereby increasing flood potential, harming aquatic life, and degrading water quality. Vegetation-stripped lands are also more susceptible to increased debris flow hazards.
Location	A Wildfire Exposure Assessment tool was created by the University of Alberta and in 2024 was modified by the University of Alaska for Alaska. This tool identifies the likelihood for potential wildfire activity to get to and impact a particular location. The tool

Profile	Description
	calculates wildfire exposure through a flammability hazard rating and focal statistics (structure buffer) based on a scale of 0–100. Figures 26 through 28 show the wildfire exposure area in Cordova ranging from low and very low to high and extreme near the airport.
History	According to the Alaska Wildland Fire Information Map, the following fires occurred within 100 miles of the NVE: • 1948: near the Crystalline Hills, approximately 100 miles east of the NVE • 1999: near Valdez, approximately 45 miles northwest of the NVE • 2009: approximately 100 miles east of the NVE • 2016: approximately 100 miles east of the NVE • 2016: near Copper River, approximately 50 miles north of the NVE
Extent / Severity	According to the Wildfire Exposure Assessment tool, 4,731 acres (less than 1%) of the NVE is at risk to high/extreme wildfire exposure. The U.S. Forest Service notes that the majority of the fires in the NVE are low-intensity ground fires that, while severe, are typically small. However, according to Grabinski and McFarland (2025), an escalating pattern of fire has emerged as rapidly increasing temperatures and a longer growing season alter the state's environment, with boreal forest regions seeing larger and more frequent fires.
Recurrence Probability	As noted in the U.S. Forest Service's 2017 Fire Regime Synthesis, "fire regimes in coastal Alaska are strongly climate-driven and are therefore potentially susceptible to climate changes" including increasing temperatures, changing moisture relationships, and changing storm patterns. The synthesis goes on to state that Canadian wildfire modeling forecasts the number of days with active fire spread to likely increase by 35% to 400% by 2050, with the largest proportional increase occurring in coastal and temperate forests, such as those that exists in southcentral Alaska.

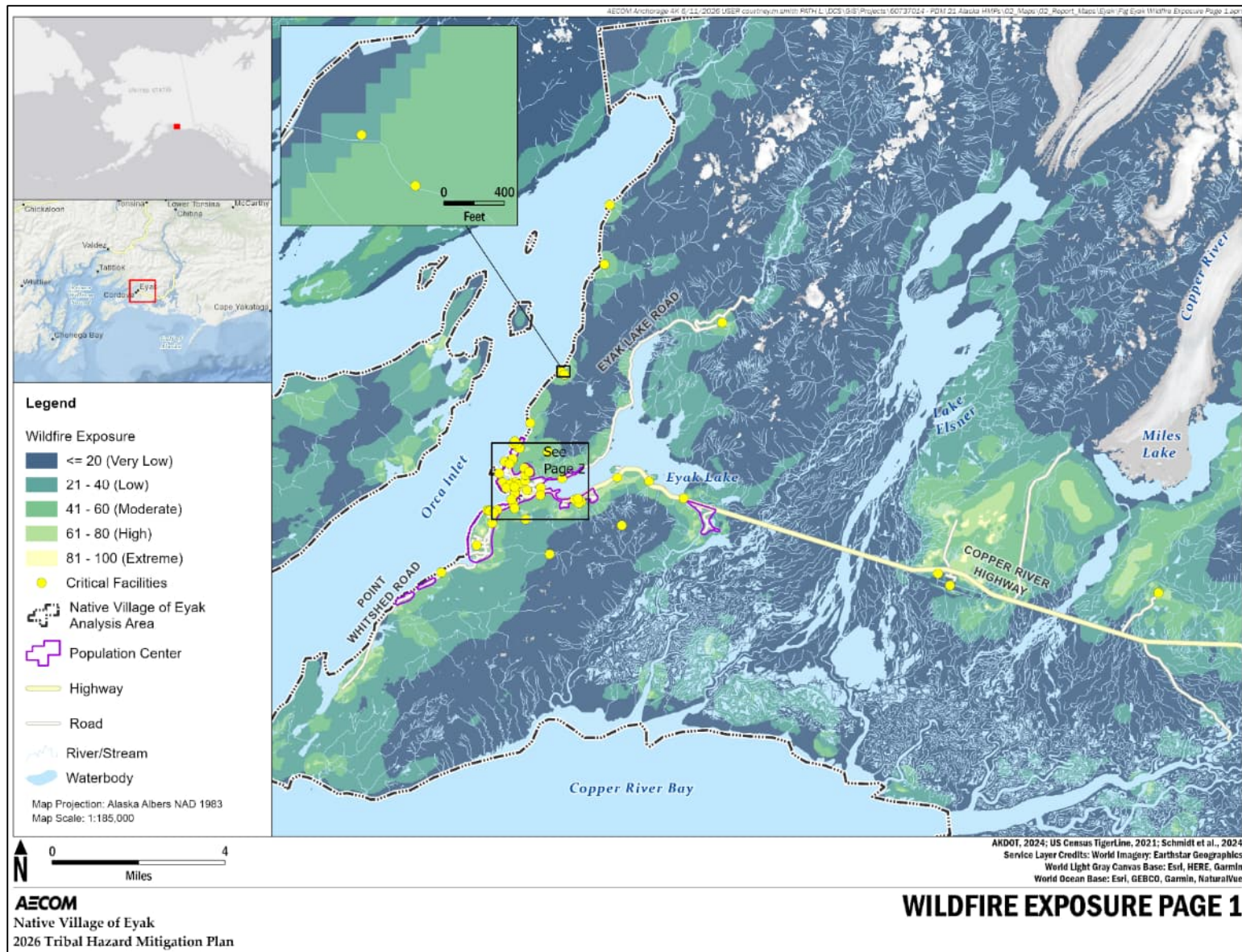


Figure 26: Wildfire Exposure Map 1 of 3

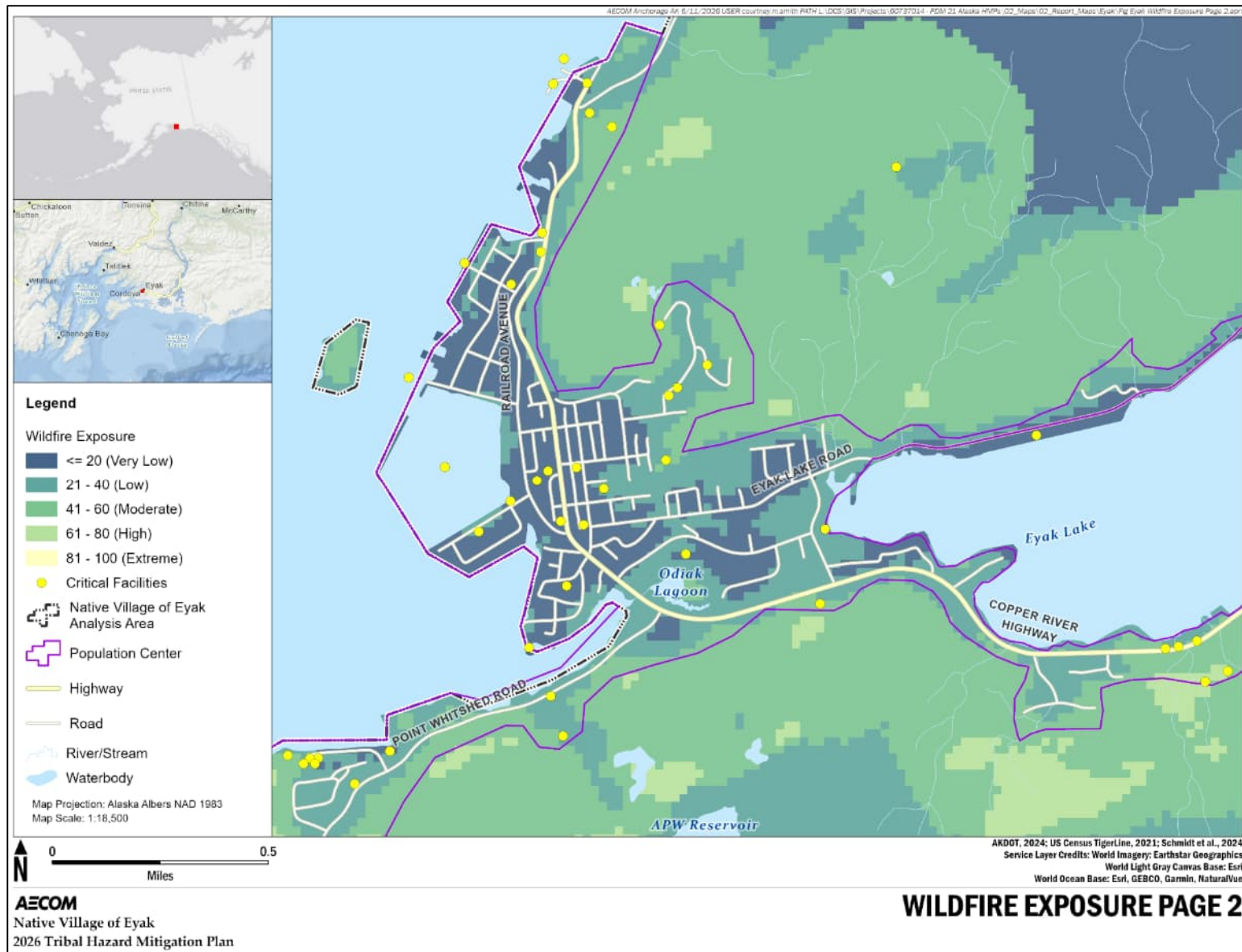
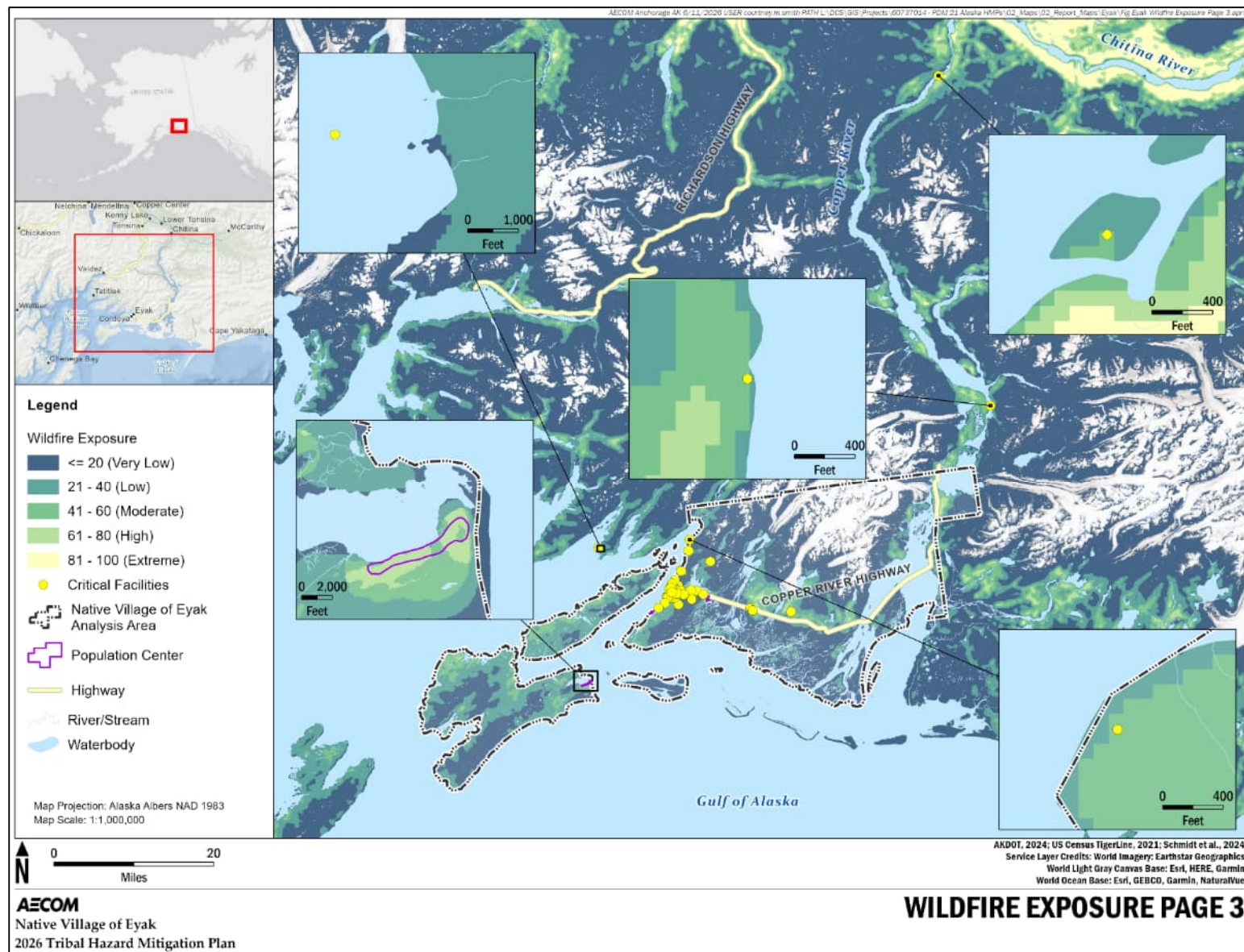


Figure 27: Wildfire Exposure Map 2 of 3



4.2 OVERALL SUMMARY OF VULNERABILITY

This section addresses Element B of the Tribal Mitigation Plan Regulation Checklist.

Regulation Checklist – 44 CFR 201.7 Tribal Mitigation Plans
Element B: Hazard Identification and Risk Assessment
B3. Does the plan include a description of each identified hazard’s impact as well as an overall summary of the vulnerability of the tribal planning area? (Requirement 44 CFR § 201.7(c)(2)(ii))

A vulnerability analysis evaluates the potential vulnerability of person or a “place” against a broad range of identified hazards, helping identify what is at risk and why. For the 2026 THMP, a hazard overlay analysis in geographic information systems (when applicable) was conducted to show people and places within a hazard area. Hazards included in this analysis are identified in Section 4.1 and include the highest hazard areas in the NVE planning area for each of these hazards, as follows in Table 4-14. The overall results of this vulnerability analysis are shown in Table 4-15 through Table 4-18.

Table 4-14: Highest Hazard Areas

Hazard	Hazard Area
Avalanche	Areas that are near potential snow release areas
Climate Change	Areas that may experience climate change
Drought	Areas that may experience severe / extreme drought
Earthquake	Areas that may experience severe / violent shaking
Ecological Hazard	Areas that may experience impacts from ecological hazards
Erosion	Areas within 100 feet of shoreline where erosion currently occurs
Flood	Areas within the FEMA SFHA
Hazardous Materials Release	Areas within 0.3 mile of EHS site
Landslide	Areas in high / very high landslide susceptibility
Severe Weather	Areas that may experience severe weather
Tsunami	Areas within the tsunami inundation boundary
Volcanic Eruption	Areas that may be impacted by low / moderate volcanic ash
Wildfire	Areas within high / extreme wildfire exposure

Table 4-15: Total Analysis Area, Population Center, and Critical Facilities

Category	Number
Planning Area	650,127 acres
Population Center	1,358 acres
Critical Facilities	69 facilities

Table 4-16: Total Planning Area Acres in a Hazard Area

Hazard Area	Highest Hazard Areas	Total Planning Acres in Highest Hazard Areas	Percent of Total Planning Acres in Highest Hazard Areas
Avalanche	Areas that are near potential snow release areas	17,286	3
Climate Change	Areas that may experience climate change	650,127	100
Drought	Areas that may experience severe / extreme drought	650,127	100
Earthquake	Areas that may experience severe / violent shaking	650,127	100
Ecological Hazard	Areas that may experience impacts from ecological hazards	650,127	100
Erosion	Areas within 100 feet of shoreline where erosion currently occurs	126	<1
Flood	Areas within the FEMA SFHA	881	<1
Hazardous Material Release	Evacuation area—areas within 0.3 mile of EHS site	226	<1
Landslide	Areas in high / very high landslide susceptibility	236,350	36
Severe Weather	Areas that may experience severe weather	650,127	100
Tsunami	Areas within the tsunami inundation boundary	34,233	5
Volcanic Eruption	Areas that may be impacted by low / moderate volcanic ash and tephra fall	650,127	100
Wildfire	Areas within high / extreme wildfire exposure	4,731	<1

Table 4-17: Total Number of Acres of Population Center in a Hazard Area

Hazard Area	Highest Hazard Areas	Total Acres of the Population Center in Highest Hazard Area	Percent of Total Acres of the Population Center in Highest Hazard Area
Avalanche	Areas that are near potential snow release areas	0	0
Climate Change	Areas that may experience climate change	1,358	100
Drought	Areas that may experience severe / extreme drought	1,358	100

Hazard Area	Highest Hazard Areas	Total Acres of the Population Center in Highest Hazard Area	Percent of Total Acres of the Population Center in Highest Hazard Area
Earthquake	Areas that may experience severe / violent shaking	1,358	100
Ecological Hazard	Areas that may experience impacts from ecological hazards	1,358	100
Erosion	Areas within 100 feet of shoreline where erosion currently occurs	25	2
Flood	Areas within the FEMA SFHA	183	14
Hazardous Materials Release	Evacuation area—areas within 0.3 mile of EHS site	196	14
Landslide	Areas in high / very high landslide susceptibility	434	32
Severe Weather	Areas that may experience severe weather	1,358	100
Tsunami	Areas within the tsunami inundation boundary	360	27
Volcanic Eruption	Areas that may be impacted by low / moderate volcanic ash and tephra fall	1,358	100
Wildfire	Areas within high / extreme wildfire exposure	176	13

Table 4-18: Total Number of Critical Facilities in a Hazard Area

Hazard Area	Highest Hazard Areas	Total Number of Critical Facilities in Highest Hazard Area	Percent of Total Critical Facilities in Highest Hazard Area
Avalanche	Areas that are near potential snow release areas	0	0
Climate Change	Areas that may experience climate change	69	100
Drought	Areas that may experience severe / extreme drought	68	99
Earthquake	Areas that may experience severe / violent shaking	69	100
Ecological Hazard	Areas that may experience impacts from ecological hazards	69	100
Erosion	Areas within 100 feet of shoreline where erosion currently occurs	2	3
Flood	Areas within the FEMA SFHA	8	12

Hazard Area	Highest Hazard Areas	Total Number of Critical Facilities in Highest Hazard Area	Percent of Total Critical Facilities in Highest Hazard Area
Hazardous Materials Release	Evacuation area—areas within 0.3 mile of EHS site	17	25
Landslide	Areas in high / very high landslide susceptibility	24	35
Severe Weather	Areas that may experience severe weather	69	100
Tsunami	Areas within the tsunami inundation boundary	27	39
Volcanic Eruption	Areas that may be impacted by low / moderate volcanic ash and tephra fall	69	100
Wildfire	Areas within high / extreme wildfire exposure	50	72

4.3 HAZARD IMPACT

A list of the key issues, or overall summary of hazard impact, for each hazard profiled in the 2026 THMP is provided in Table 4-19.

Table 4-19: Overall Summary of Hazard Impact

Hazard	Assets	Impact Summary
Avalanche	Planning Area	Avalanches are a serious threat in the NVE localized in certain areas of steep slopes outside the main population center, about 3% of the total planning area. Avalanches in the broader planning area can impact important transportation routes across the landscape. Avalanches can significantly alter the landscape by removing vegetation, transporting large volumes of snow, soil, rock, and woody debris downslope, and reshaping hillsides, stream channels, and valley floors. Repeated avalanche activity can create persistent avalanche paths and debris deposits that affect forest growth, drainage patterns, transportation corridors, and other developed areas over time.
	Population Center	Avalanches can have significant impacts, including human fatalities, property damage, and disruption of transportation, utilities, and communication. While the main population center is not at risk from avalanches, the impacts to the population center are associated with blocked transportation routes, including access to and from critical facilities, or damages to communications facilities that are in areas of steep slopes. Avalanches can block the Copper River Highway, the only road to the airport. In 2000, large avalanches resulted in one fatality, \$1 million in damage, and declaration of a disaster emergency.

Hazard	Assets	Impact Summary
	Critical Facilities	Avalanches may damage critical facilities related to communications facilities and access to and from critical facilities such as the Humpback Creek Power Plant or Power Creek Power Plant. One area of concern is Shepard Point, the future location of an oil spill response center, where there are six known avalanche chutes.
Climate Change	Planning Area	All of the NVE is likely to be impacted by climate change. • Rising Temperatures: Rising temperatures may impact the intensity and recurrence probability of avalanches. Rising temperatures may also impact ecological hazards, enabling invasive species to expand distributions. Changes in surface water temperatures could impact shifts in species abundance and distribution, impacting subsistence food gathering and human/wildlife interactions. Wildlife such as bears are similarly impacted by food supply changes and may change behaviors to search for food in closer proximity to populated areas. • Glacial Retreat: Unstable slopes exposed from glacial retreat are at higher risk of landslides. • Increased Precipitation and Flooding: Impacts resulting from extreme precipitation events related to climate change such as atmospheric rivers and storms with large storm surges can impact the land through erosion and flooding damages. • Extreme Heat Events and Marine Heat Waves: Extreme temperatures may increase the frequency and severity of associated hazards such as drought and wildfire. Marine heat waves impact coastal ecosystems, fisheries, and other important marine resources.
	Population Center	The population is expected to be impacted by climate change through impacts to the economy, including fishing and tourism industries, as well as through reliability of services such as water and utilities.
	Critical Facilities	All of the NVE's critical facilities are vulnerable to the effects of climate change. Climate change can affect critical facilities in multiple ways—both directly and by interacting with other hazards that, in turn, impact the facility.
Drought	Planning Area	All of the NVE is vulnerable to drought. Even very short periods without rain may result in impacts since the region is known for wet and rainy conditions. Droughts can have significant impacts including forest health impacts and associated wildfire risk and reduction in subsistence food items, reduction in tourism and recreation, and fish kills from low flow and high temperatures. According to the U.S. Drought Monitor, in 2019 the drought impacted salmon abundance and mushroom collecting near the NVE, including cancellation of some events of the 2019 Fungus Festival. Drought conditions may coincide with warmer temperatures, creating conditions of both lower humidity and high temperatures which increase the risk of wildfires. Long-term drought impacts forest and ecosystem health and may make them more vulnerable to invasive plant species and forest pest species.

Hazard	Assets	Impact Summary
	Population Center	Of particular concern to the population center are the impacts of drought to the water supply (e.g Heney Creek, Meals Lake, Murcheson Creek, Eyak Lake, and the Orca reservoir) and hydroelectric power generation. The population center may experience outages or water use restrictions, as well as increased air quality concerns from use of generators as back-up power sources. A socioeconomic drought, particularly related to snowpack reductions and associated reductions in snowmelt which impact summer water demand and industrial use of water for fish processing.
	Critical Facilities	All current and future critical facilities and infrastructure are vulnerable to drought. During periods of drought, the NVE may have to prioritize water usage for critical facilities over commerce and parks and recreation. Also, critical facilities linked to the water systems and hydroelectric power generation may not be operational during periods of low water levels.
Ecological Hazard	Planning Area	Non-native plants, animals, and pathogens can alter habitat conditions, displace native species, and reduce the reliability and productivity of traditional and commercial harvests. In particular, <i>Elodea</i> sp. can form dense underwater mats that outcompete native aquatic vegetation, alter freshwater habitats, reduce biodiversity, and degrade lakes, rivers, and wetlands. Wildlife hazards and, in particular, bears, can impact the safe use of recreational, subsistence, and other community lands.
	Population Center	<i>Elodea</i> sp. threatens subsistence and commercial fisheries by degrading salmon habitat and reducing fish growth and survival, which can affect food security, cultural practices, and local economies that depend on healthy fisheries. Treatment of <i>Elodea</i> sp. can be very expensive, requiring use of herbicides and lots of effort to remove and manage. Recreational floatplanes may avoid areas with known <i>Elodea</i> sp. Bears that gain access to garbage can become food-conditioned and more aggressive, increasing the risk of dangerous encounters, injuries, and public safety concerns for community residents.
	Critical Facilities	<i>Elodea</i> sp. can clog waterways and water access areas, impairing transportation routes used by boats and floatplanes and potentially affecting critical facilities that rely on navigable waterways and healthy freshwater systems. Bears attracted to trash at landfills and other critical facilities can disrupt operations, damage property, and require costly wildlife management actions to protect people and infrastructure.
Earthquake	Planning Area	All of the NVE is vulnerable to ground shaking from an earthquake, and the entire community is in severe to violent perceived ground-shaking hazard areas. Very strong ground shaking causes ground movement and ground displacement, changes to water courses, damage, and additional impacts from secondary hazards including ground rupture, liquefaction, and fire.

Hazard	Assets	Impact Summary
	Population Center	All of the population center of the NVE is vulnerable to severe to violent ground shaking, particularly older buildings and those of lower physical quality. According to the USGS, this could mean potentially moderate damage to modern structures. Earthquake impacts may include some unstable objects broken or overturned and the disturbance of trees, poles, and other tall objects. In addition to property damage and loss, reduced property values, loss of access/disrupted transportation, and displacement from ground shaking, the population center may also be impacted by secondary hazards such as landslides, chemical spills and hazardous material releases, and fires.
	Critical Facilities	All critical facilities are vulnerable to strong to violent perceived shaking. One critical facility of particular concern is the Ilanka Community Health Clinic due to the age of the building.
Erosion	Planning Area	Riverine erosion and coastal erosion are both concerns for the NVE, covering approximately 126 acres (less than 1%) in the planning area. Increased sedimentation into the river could affect channel navigation and water quality and lead to a loss of native aquatic habitats important for subsistence. These impacts can result in short-term and long-term closure of lands. Another concern is the risk associated with eroded salmon habitat, though the potential impact has not been quantified. Erosion may impact the fishing and subsistence activities, through direct habitat impacts and disruption of access to important subsistence and recreational areas.
	Population Center	Approximately 25 acres (2%) of the population center is vulnerable to erosion. Major erosion from storm events can occur with the potential to undermine structural supports, resulting in property damage and losses and impacts to transportation. Impacts from the 2006 storm events in the NVE represent the potential impacts of a major storm event with erosion damage. According to the U.S. Army Corps of Engineers, estimated damage from the 2006 events totaled \$100,000 for water lines, \$100,000 for city roads, and \$10 million for hydroelectric facilities. Erosion may also impact economic industries with damages to the boat harbor and other coastal facilities. Erosion on the Sheridan River at the Copper River Highway has the potential to cut off access to the landfill.
	Critical Facilities	There are two critical facilities located in erosion hazard area, including the Science Center Lift Station and the Meals Water Treatment Plant. Erosion can undermine structural supports, resulting in facility damage and losses. Other impacts may occur from restricted access to critical facilities.
Flood	Planning Area	Approximately 881 acres (less than 1%) in the planning area are in the SFHA. Riverine flooding and storm surge flooding are a concern particularly near the Eyak River and Lake and along the shoreline. Flooding can cause habitat loss, habitat fragmentation, landscape and watercourse alteration, soil erosion, and sediment deposition. All of these effects can result in reduction or alteration of subsistence activities.

Hazard	Assets	Impact Summary
	Population Center	Approximately 183 acres (14%) of the population center are in the SFHA. Additional locations that have not been mapped but are reported by the community include the Heney Creek watershed and watersheds crossing under the Copper River Highway. Riverine and coastal flooding can block roadways and cause erosion, mudflows, debris flows, and water damage to structures and result in road closures, impacts to public safety (access and response capabilities), and limited availability of perishable commodities. Additional impacts related to lakes and reservoirs include stress and damage to dams, hydroelectric equipment, and other infrastructure. These impacts may also include utility disruption; property damage and property loss; reduced property values; reduced recreational areas and open space; loss of access/disrupted transportation; displacement; secondary hazards such as landslides, mudslides, and chemical spills; and water-related health impacts. Floods can result in trauma, injuries, or even death.
	Critical Facilities	Critical facilities in the SFHA include the Eyak Lake weir, the Harbor, the Coast Guard Boat Station, the Ferry Terminal / Shoreside Petroleum, SERVVS Response Equipment, two docks, and one lift station. Floods may cause loss of utilities, overwhelm wastewater systems and damage water equipment and structures, cause significant erosion and wash out roads, and lead to secondary hazards including landslides and mudslides. In addition, damage or limited access from floods to and from these facilities and infrastructure as well as throughout the NVE may impede public services and public safety.
Hazardous Material Release	Planning Area	Oil spills are a concern around the NVE's shoreline and in the Prince William Sound. Large spills could affect marine waters, shorelines, fisheries, subsistence resources, and port operations, while a major or catastrophic spill could result in widespread environmental, economic, and public health consequences requiring a coordinated local, state, and federal response. Contaminated sites in the NVE planning area can degrade soil, groundwater, wetlands, and other natural resources, creating long-term environmental concerns that may extend beyond the original contamination source.

Hazard	Assets	Impact Summary
	Population Center	Exposure to hazardous material releases may cause injury, illness, or death. Effects may be felt over seconds, minutes, or hours (short term); or not emerge until days, weeks, or even years after exposure (long term). In addition, some substances are harmful after single exposures of short duration, while others require long episodes of exposure or repeated exposure over time to create harm. A hazardous material release of ammonia is a higher risk in localized areas around seafood processing centers and including people who work at those locations. While historical releases have been relatively small, there remains the potential for larger releases that could require activation of emergency response procedures, evacuations, or shelter-in-place actions. In a worst-case scenario, a catastrophic release involving a major uncontrolled discharge of ammonia due to significant equipment, piping, or storage vessel failure could result in substantially more severe consequences for workers, the public, and nearby facilities. The impacts of oil spills on the population center include disruption of operations, evacuations, and possible injury or illness. Larger spills would have more severe and damaging impacts for the population center.
	Critical Facilities	Evacuation orders resulting from a large spill of ammonia may impact critical facilities located within a 0.3-mile radius, including the NVE Main Office, Harbor, Ilanka Cultural Center, Ilanka Community Health Center, Cordova Center, public safety building, Coast Guard station, Cordova Jr/Sr High School, Mt. Eccles Elementary School, SERVS response equipment (both locations), Innovative Learning Program, District Office, Food Sovereignty Storage, and one of the City Docks. In a worst-case scenario, a catastrophic release would have widespread impacts, disruptions, damages, and risk of illness and death. Critical facilities may be impacted from oil spills through contamination, elevated cleaning and maintenance requirements, and other potential damages, as well as disruption of operations. Contamination affecting public water systems, utility corridors, ports, airports, or other developed areas can increase maintenance and remediation costs and may disrupt facility operations or future development.
Landslide	Planning Area	Approximately 236,350 (36%) of the planning area is in an area mapped as high or very high landslide susceptibility. Landslide risk is a major concern for the NVE, affecting 36% of the total planning area. Landslide impacts may include reduced recreational areas and open space and loss of access/disrupted transportation.
	Population Center	Landslide impacts may include utility disruption, property damage and property loss, reduced property values, reduced recreational areas and open space, loss of access/disrupted transportation, displacement, and secondary hazards including mudslides and chemical spills. Landslides can result in trauma, injuries, or even death.

Hazard	Assets	Impact Summary
	Critical Facilities	There are 24 critical facilities in high or very high landslide susceptibility areas (Alphine Booster Pump Station, Clinics-in-a-can, CTC Heney Ridge Microwave Site, Heney Creek Catchment, Humpback Creek Power Plant, Orca Catchment, Orca Water Treatment Plant, Power Creek Power Plant, 1.5 MG Tank and Booster Pump Station, Cordova Center, CTC Subsea Cable Landing (future), Eyak Filter Settling Pond, Meals CT Water Treatment Plant, Morpac Lift Station, Morpac Tank, Murcheson CT Water Tank, Murcheson Catchment, Murcheson Lift Station, Odiak Slough Lift Station, Orca Power Generation Plant, Ski Hill Booster Pump Station, Tripod Hill Cell Towers, WWTP Dewatering and Auxiliary Treatment Building, WWTP Shop Building). Landslide impacts may include utility disruption, property damage and property loss, reduced property values, reduced recreational areas and open space, loss of access/disrupted transportation, displacement, and secondary hazards including mudslides and chemical spills. Landslides can result in trauma, injuries, or even death.
Severe Weather	Planning Area	Most severe weather events impacting the NVE planning area are winter storms, blizzards, or high winds. All of the NVE is vulnerable to this hazard. Winter storms may impact the natural environment through damage to trees and vegetation from accumulation of snow or damage caused by strong winds.
	Population Center	All of the NVE's population center is vulnerable to severe weather and particularly to winter storms with heavy snow and wind. Impacts on the built environment may include utility disruption, property damage and property loss (specifically roof damage due to heavy accumulation of snow or wind-blown debris), loss of access/disrupted transportation, and displacement. People in winter storms may be more vulnerable to slips, vehicle accidents on icy roads, power outages, hypothermia, frostbite, carbon monoxide poisoning, and heart attacks from overexertion. Emergency response vehicles may be inaccessible.
	Critical Facilities	All of the NVE's critical facilities are vulnerable to severe weather. As noted above, the greatest severe weather events are winter storms, blizzards, and high winds. Impacts to critical facilities include damage and loss (specifically roof damage due to heavy snow accumulation and wind-blown debris and/or downed trees) or disruption of access to and from critical facilities from impacts such as snow, slides, or debris on the roads.
Tsunami	Planning Area	Approximately 34,233 acres (5%) of the NVE is in a maximum tsunami inundation extent. Tsunami inundation may cause land loss, landscape and watercourse alteration, soil erosion and sediment deposition, saltwater intrusion, and contamination of land use designations. These impacts can also result in short-term and long-term closure of public lands.

Hazard	Assets	Impact Summary
	Population Center	In the NVE, less than a third of the population center is in a maximum tsunami inundation extent. Tsunami impacts may include utility disruption, property damage and property loss, reduced property values, reduced recreational areas and open space, loss of access/disrupted transportation, and displacement. Tsunamis can also cause water-related health issues and result in trauma, injuries, or even death.
	Critical Facilities	There are 27 critical facilities in the NVE that are in the maximum tsunami inundation extent, including the Harbor, the NVE Main Office, Clinics-in-a-can, Prince William Marina, Ferry Terminal / Shoreside Petroleum, Food Sovereignty Storage, Coast Guard Boat Station, Cordova Center, Shepherd Point, CTC Subsea Cable Landing (future), WWTP Dewatering and Auxiliary Treatment building, WWTP Shop Building, Public Works Streets Shop / Equipment Yard, Wastewater Treatment Plant, WWTP Office Building, WWTP Dewatering and Auxiliary Treatment building, Whiskey Ridge Lift Station, Morpac Lift Station, Ferry Dock Lift Station, Odiak Slough Lift Station, Orca Power Generation Plant, Public Safety Building (Fire / EMS / Police / AST), Science Center Lift Station, SERVS Response Equipment (Mini Barges), SERVS Response Equipment (Other Equipment), City T Dock, and Ocean Dock. While the kelp farm may experience less wave breaking than nearshore facilities, tsunamis can still cause significant damage through high-velocity currents, debris, and mooring failures, resulting in economic losses and disruption of aquaculture operations. Tsunamis may cause loss of access to the critical facilities, loss of critical facilities or compromised critical facility performance, structural damage, and economic loss. In addition, damage or limited access to and from these facilities and infrastructure may impede public services and public safety. Damage to facilities that are essential for food storage or facilities used for receiving goods and services, such as docks and other shipping-related infrastructure, would result in food shortages and other hardships. Additionally, and of particular concern, is the location of privately owned structures that have not been mapped as critical facilities that contain hazardous materials, such as seafood processing plants and tank farms. Damage to one of more of these facilities from a tsunami could result in potentially catastrophic amounts of chemicals released into the community.
Volcanic Eruption	Planning Area	While volcanoes that are being tracked by scientists as active are generally located a considerable distance away (over 100 miles), impacts to the NVE could still be significant due to even low-moderate/moderate ashfall from a distant volcanic event. The area may experience transportation interruptions, impacts to commercial fishing and tourism, mass casualties of fish and sea birds, water supply contamination, and photovoltaic energy production disruptions.

Hazard	Assets	Impact Summary
	Population Center	In the population center, ashfall can cause respiratory problems, eye problems, and skin irritation. The population center could experience transportation interruptions, impacts to commercial fishing and tourism, mass casualties of fish and sea birds, water supply contamination, and photovoltaic energy production disruptions.
	Critical Facilities	Critical facilities of particular concern include those associated with road, air, and maritime travel. Previous eruptions of volcanoes in Alaska, such as the 1992 eruption of Mount Spurr, resulted in flight cancellations. Ash can severely damage a vehicle's engine and exterior and can create hazardous conditions on roads. Another major concern is the impact of ash on the critical facilities associated with the city's water supply and water treatment operations with increased contamination and stress on treatment systems.
Wildfire	Planning Area	Approximately 4,731 acres (less than 1%) of the total planning area is located within an area of high or extreme wildfire exposure. Without mitigation or preparation efforts, the impacts of a wildfire in the area could grow into an emergency or disaster in certain conditions. Wildfire can cause subsistence food losses, alter habitat, transform landscapes, compromise water quality, introduce invasive species, and damage ecosystems. Secondary hazards can include erosion, flooding, and landslides. All of these impacts can result in short-term and long-term closure of public lands.
	Population Center	Approximately 176 acres (13%) of the population center is in an area of high or extreme wildfire exposure. This suggests that while wildfires may not directly impact people's homes, the population center may be impacted by utility disruption, property damage and property loss, reduced property values, reduced recreational areas and open space, loss of access/disrupted transportation, displacement, and secondary hazards including landslides and mudslides. Wildfires can cause smoke-related health issues and result in trauma, injuries, or even death.
	Critical Facilities	There are 50 critical facilities (72%) in those high and extreme wildfire exposure areas. Wildfires may cause loss of access, loss of utilities or compromised utility performance, structural damage, economic loss, and secondary hazards including landslides and mudslides. In addition, damage or limited access from wildfires to and from these facilities and infrastructure as well as throughout the NVE may impede public services and public safety. Wildfire ash and contaminants can threaten drinking water.

5.0 MITIGATION STRATEGY

This section addresses Element C of the Tribal Mitigation Plan Regulation Checklist.

Regulation Checklist – 44 CFR 201.7 Tribal Mitigation Plans
Element C: Mitigation Strategy
C1. Does the plan include a discussion of the tribal government's pre and post-disaster hazard management policies, programs, and capabilities to mitigate the hazards in the area, including an evaluation of tribal laws and regulations related to hazard mitigation as well as to development in hazard-prone areas? (Requirement 44 CFR §§ 201.7(c)(3) and 201.7(c)(3)(iv)) C2. Does the plan include a discussion of tribal funding sources for hazard mitigation projects and identify current and potential sources of Federal, tribal, or private funding to implement mitigation activities? (Requirement 44 CFR §§ 201.7(c)(3)(iv) and 201.7(c)(3)(v)) C3. Does the Mitigation Strategy include goals to reduce or avoid long-term vulnerabilities to the identified hazards? (Requirement 44 CFR § 201.7(c)(3)(i)) C4. Does the plan identify and analyze a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with emphasis on new and existing buildings and infrastructure? (Requirement 44 CFR § 201.7(c)(3)(ii)) C5. Does the plan contain an action plan that describes how the actions identified will be prioritized, implemented, and administered by the tribal government? (Requirement 44 CFR § 201.7(c)(3)(iii)) C6. Does the plan describe a process by which the tribal government will incorporate the requirements of the mitigation plan into other planning mechanisms, when appropriate? (Requirement 44 CFR § 201.7(c)(4)(iii)) C7. Does the plan describe a system for reviewing progress on achieving goals as well as activities and projects identified in the mitigation strategy, including monitoring implementation of mitigation measures and project closeouts? (Requirement 44 CFR §§ 201.7(c)(4)(ii) and 201.7(c)(4)(v))

5.1.1 Pre- and Post-Disaster Hazard Mitigation Policies, Programs, and Capabilities

Eyak's pre- and post-disaster hazard mitigation policies, programs, and capabilities available for hazard mitigation are provided in Table 5-1 (human and technical resources), Table 5-2 (financial resources), and Table 5-3 (planning and policy resources).

Table 5-1: Human and Technical Resources for Hazard Mitigation

Entity	Resource Type	Principal Activities Related to Hazard Mitigation
NVE, Administration	Administrative	The Administration Department's purpose is to communicate and coordinate Tribal Council priorities and ensure that community-operated tribal programs operationalize the NVE mission and strategic plans. This includes ensuring that departments have the direction, resources, and support needed to provide effective services to enrich the lives of tribal members and promote self-determination. The Administration's roles include creating a positive working environment, providing oversight to department operations, ensuring consistent policy implementation and coordination with all partners, agencies and other external stakeholders. Additionally, the Administration Department prepares and presents the yearly budget to Tribal Council for approval.
Office of Tribal Self Governance	Public Information	The Tribal Self Governance has a "Communications Specialist" position which serves as the primary communications and external relations office of the NVE.
Cultural and Ilanka Cultural Center Shop	Cultural	The Cultural Department promotes the diverse Indigenous presence in the community and educates the community and visitors while perpetuating the traditions, skills, and cultures in the community. The Ilanka Cultural Center opened in 2004 to foster the wellbeing of Alaska Native cultures in the face of modern times and encourage people from all ethnic backgrounds to explore the traditions of the community.
Capital Projects and Prince William Sound Marina	Capital Projects and Harbor	Capital Projects oversees the planning, development, and management of infrastructure and facilitates projects within the tribal community. This department is responsible for ensuring the successful execution of capital projects, including construction, maintenance, and logistics, while supporting cultural and operational needs of the community. This department has also managed the Prince William Sound Marina since in 2016, and is in negotiations to purchase it from the State of Alaska, to help provide additional storage services for the community.

Entity	Resource Type	Principal Activities Related to Hazard Mitigation
Department of the Environment and Natural Resources	Natural Resources	The Department of the Environment and Natural Resources works to protect the NVE's traditional lands, manage natural resources for the tribe, prevent or mitigate environmental damage, and preserve our traditional subsistence way of life. As stewards of this land for over 10,000 years, the Department of the Environment and Natural Resources continues that tradition.
Food Sovereignty Department	Food	The NVE's Food Sovereignty Department strengthens access to traditional, healthy, and culturally relevant foods for the community. Grounded in the values of self-determination, respect, and connection to the land and sea, this department brings together two key programs, the Tribal Marketplace and the People's Pantry, forming a unified, community-driven food system that connects harvesters, families, and culture. Through these efforts, the department builds a stronger, more resilient food network that supports both traditional harvesting and modern food access for the community.

Table 5-2: Financial Resources for Hazard Mitigation

Tribal Department / Agency	Resource Type	Principal Activities Related to Hazard Mitigation
Administration Department / NVE	Tribal 8(a) Funds	The Tribal 8(a) funds are revenues generated through federally contracted tribal-owned businesses participating in the Small Business Administration 8(a) Program, with profits typically reinvested to support tribal government operations, economic development, infrastructure, education, healthcare, and other services for tribal members.
Alaska Native Tribal Health Consortium (ANTHC)	Community Environment and Health	ANTHC works with tribal partners to build local capacity and to encourage air, water, solid waste, and other systems that are healthy and sustainable. They provide surveys of homes and critical infrastructure, environmental assessments, training, and technical assistance. Services and programs include the following: - Environmental Health Services. This includes two programs: the Anchorage Service Unit Environmental Health program and the Tribal Water Center. Anchorage Service Unit Environmental Health provides broad environmental health services. The Tribal Water Center provides assistance and training to water/wastewater utilities statewide. - Emergency Preparedness. The program assists tribes and tribal health organizations to prepare for, respond to, and recover from disasters and public health emergencies. It can assist with the

Tribal Department / Agency	Resource Type	Principal Activities Related to Hazard Mitigation
		development of emergency plans and provide training and exercises to support the readiness of the Alaska Tribal Health System. When a disaster does occur, they help facilitate a response with tribal, federal, and state partners. - Contaminated Sites. This program assists Alaska Native communities to address environmental contamination on tribal and ANCSA-conveyed lands through technical assistance, site assessments, cleanup planning, and training support. - Tribal Capacity. ANTHC's Tribal Capacity and Training program provides technical assistance and training to tribal governments to build capacity and enhance local environmental program management.
Alaska Energy Authority	Renewable Energy Fund	The Renewable Energy Fund provides funding for the development of qualifying and competitively selected renewable energy projects in Alaska. The program is designed to produce cost-effective renewable energy for both heat and power. For Fiscal Year 2026, the Alaska Energy Authority has recommended 18 projects for \$21.2 million in total funding.
Denali Commission	Funding programs and match assistance	The Denali Commission partners with tribal, federal, state, and local governments and collaborates with all Alaskans to improve the effectiveness and efficiency of government services, to develop a well-trained labor force employed in a diversified and sustainable economy, and to build and ensure the operation and maintenance of Alaska's basic infrastructure. Through these partnerships, the Commission has invested more than \$1.2 billion and leveraged over \$900 million from other sources to fund vital rural infrastructure, workforce and economic development, and community resilience projects in over 300 communities across the state.
FEMA	Emergency Management Performance Grant (EMPG)	The EMPG provides financial assistance for local, tribal, and state entities to develop and strengthen their emergency management capabilities and all-hazards preparedness activities. In 2024, national priorities for EMPG included equity, climate resilience, and readiness.
FEMA	Hazard Mitigation Assistance (HMA) Grants	The HMA grant program provides technical and financial assistance to help mitigate hazards through the following grants: Building Resilient Infrastructure and Communities (BRIC): BRIC is an annual competitive pass-through grant program that focuses on reducing the nation's risk by funding public infrastructure projects that increase a community's resilience before a disaster affects an area. BRIC was created in 2020 as part of the Disaster Recovery Reform Act of 2018 and replaces FEMA's legacy Pre-Disaster Mitigation grant program. BRIC funds a wide variety of mitigation activities, including microgrids, flood control, wetland restoration, community relocation/buyouts, seismic

Tribal Department / Agency	Resource Type	Principal Activities Related to Hazard Mitigation
		retrofits, and nature-based solutions. BRIC Direct Technical Assistance is a non-financial-assistance grant program for hazard mitigation plan development initial support, identifying solutions for specific hazards, assisting with hazard mitigation project planning, requesting application development support, demonstrating cost-effectiveness of a BRIC sub-application submission, and understanding hazard mitigation grant management. • Hazard Mitigation Grant Program (HMGP): HMGP is a pass-through grant program that supports pre- and post-disaster mitigation plans and projects for state and local agencies and federally recognized tribal governments. HMGP funding is authorized with a Presidential Major Disaster Declaration. A governor or tribal chief executive may request HMGP funding when submitting a disaster declaration. The amount of funding made available to the applicant is generally 15% of the total federal assistance amount provided for recovery from the Presidential Major Disaster Declaration. • HMGP Post Fire: HMGP Post Fire is a pass-through grant program that provides funding for state and local agencies and federally recognized tribal governments to reduce wildfire risks. Funded projects include (but are not limited to) defensible space initiatives, ignition-resistant construction, hazardous fuels reduction, erosion control measures, slope failure prevention measures, and flash flooding prevention. HMGP Post Fire grants are available to eligible states and territories that receive Fire Management Assistance declarations and to federally recognized tribal governments that have land burned within a designated area. A Post Fire Presidential Disaster Declaration is not required to activate funding. Funding amounts are determined by FEMA and are based on a national aggregate calculation of historical Fire Management Assistance Grant declarations over the past 10 years.
National Park Service	Inflation Reduction Act Climate Resilience and Subsistence Support	The National Park Service funds projects that increase subsistence food security, improve harvest monitoring, and help communities adapt to declining wildlife/fish populations caused by climate change.
NOAA	Climate Resilience Regional Challenge	NOAA's Climate Resilience Regional Challenge is a competitive grant program focused on collaborative projects that "increase the resilience of coastal communities to extreme weather and other climate change impacts, including sea level rise and drought." Projects must consider risk reduction, regional collaboration, equity and inclusion, and enduring capacity.

Tribal Department / Agency	Resource Type	Principal Activities Related to Hazard Mitigation
NOAA	National Coastal Resilience Fund (NCRF)	The NCRF is a direct annual competitive grant program that supports the implementation of nature-based solutions to enhance the resilience of coastal communities and ecosystems by reducing the “threats from coastal hazards (such as rising sea- and lake-levels, more intense storms, increasing flooding and erosion, and melting permafrost) to property and key assets, such as hospitals and evacuation routes.” The NCRF funds nature-based solutions including restoring coastal marshes, reconnecting floodplains, rebuilding dunes or other natural buffers, and installing living shorelines. NCRF grants are available to state and local agencies and federally recognized tribal governments within the coastal areas of the U.S.
U.S. Department of Agriculture Rural Development	Community Facilities Direct Loan & Grant Program	This program provides affordable funding to develop essential community facilities in rural areas. An essential community facility is defined as a facility that provides an essential service to the local community for the orderly development of the community in a primarily rural area, and does not include private, commercial, or business undertakings. Funds can be used to purchase, construct, and/or improve essential community facilities, purchase equipment, and pay related project expenses. Examples of essential community facilities include the following: • Health care facilities such as hospitals, medical clinics, dental clinics, nursing homes, or assisted living facilities • Public facilities such as town halls, courthouses, airport hangars, or street improvements • Community support services such as childcare centers, community centers, fairgrounds, or transitional housing • Public safety services such as fire departments, police stations, prisons, police vehicles, fire trucks, public works vehicles or equipment • Educational services such as museums, libraries, or private schools • Utility services such as telemedicine or distance learning equipment • Local food systems such as community gardens, food pantries, community kitchens, food banks, food hubs or greenhouses.
U.S. Department of Agriculture, Forest Service	Community Wildfire Defense Grant Program	This program focuses on developing or updating Community Wildfire Protection Plans. It also includes implementation of fuel reduction and wildfire resilience projects and prioritizes high-risk and underserved communities.
EPA	Indian Environmental	The EPA GAP supports solid waste, environmental monitoring, community outreach, and environmental capacity building.

Tribal Department / Agency	Resource Type	Principal Activities Related to Hazard Mitigation
	General Assistance Program (GAP)	
EPA	Brownfields Assessment Grants Program and Contaminated ANCSA Lands Assistance Program	The Brownfields Assessment Grants Program funds Phase I/II environmental site assessments, including soil, groundwater, and contaminant characterization at sites impacted by industrial/mining activities. The Contaminated ANCSA Lands Assistance Program funds site characterization, soil sampling, and contamination assessment to lands impacted by past activities.
EPA	Water Infrastructure Finance and Innovation Act of 2014 (WIFIA) Loans	WIFIA established a federal credit program administered by the EPA for eligible water and wastewater infrastructure projects. Eligible projects include aquifer recharge; alternative water supply; and drought prevention, reduction, or mitigation, among others. Eligible borrowers include local, state, and tribal government entities; projects must be creditworthy and have a dedicated source of revenue; and the maximum portion of project costs that WIFIA can fund is 49%.
U.S. Fish and Wildlife Service	National Coastal Wetlands Conservation Grants Program	The National Coastal Wetlands Conservation Grants Program is an annual grant program that provides up to \$1 million per project in coastal and Great Lakes states, as well as U.S. territories to “protect, restore and enhance coastal wetland ecosystems and associated uplands.” Eligible projects include the acquisition of real property interest in coastal lands or waters and the restoration, enhancement, or management of coastal wetlands ecosystems.
U.S. Fish and Wildlife Service	Co-Stewardship Conservation Programs	The Co-Stewardship Conservation Programs fund land stewardship, subsistence support, and ecosystem restoration.

Table 5-3: Planning, Policy, Program, and Public Outreach for Hazard Mitigation

Name ¹	Description	Hazards Addressed	Emergency Management
Small Community Emergency Response Plan (SCERP) (under development)	The SCERP is a regional plan that describes Eyak and nearby village organizational structures, roles, and responsibilities; protocols for providing emergency response and short-term recovery; the purpose, situation, and assumptions; concept of operations, organization, assignment of responsibilities, and plan development and maintenance; authorities; and references.	Earthquake, Flooding, Severe Weather, Wildfire	Response, Recovery
Public Outreach	The NVE uses the Eyak Echo newsletter to provide outreach to the community on relevant events, activities, and planning processes happening in the village.	All	All Phases

Note:

¹ The NVE does not have policies that pertain to hazard mitigation planning or development in hazard prone areas. The tribe does take hazards into consideration when developing, but there are no official tribal policies.

5.2 MITIGATION GOALS

Mitigation goals are defined as general guidelines that explain what an agency wants to achieve in terms of hazard and loss prevention. Goal statements are typically long-range, policy-oriented statements representing a community-wide vision. FEMA's 2022 BRIC priorities are the basis for the five goals for the 2026 THMP.

1. Safety. Create a healthy and safe community.
2. Adaptation. Reduce the vulnerability of structures, critical infrastructure, and other values at risk to minimize losses and damage from hazard events and disasters
3. Resilience. Increase the resilience of the environment to environmental shifts through innovative and long-term actions.
4. Collaboration. Provide an effective framework for partners and agencies to collaborate, leverage expertise, and prioritize projects on a regularly established schedule.
5. Action. Implement and track the 2026 THMP to leverage successes for funding opportunities and resources.

5.3 DRAFT MITIGATION ACTIONS

Mitigation actions—also known as mitigation projects—are strategies that help achieve the goals of a THMP. Mitigation actions can include structure and infrastructure projects, nature-based solutions, and community resiliency projects and programs. Table 5-4 lists the potential mitigation actions developed for the 2026 THMP, which were developed using FEMA success stories and best management practices; FEMA job aids; local and regional plans and reports; and input from planning team members and sustainability practitioners.

As shown in Table 5-4, at least one mitigation action has been developed to address each hazard profiled in this plan. The actions are not listed in any order. Detailed information about each action, including an overview of the project, the hazards and goals it addresses, the type of asset it protects, the associated benefits and costs, and project source(s) are provided in Appendix C.

Table 5-4: Summary of Draft Mitigation Actions

No.	Project Name	Hazard(s)
1	Critical Facility Shelter-in-place Supplies	All
2	Create Incident Command Position	All
3	Community Resilience Center	All
4	Critical Access Route Protection and Monitoring	Avalanche, Landslide
5	Monitoring Baseline Conditions	Climate Change
6	Feasibility Study of Water Retention Projects	Drought, Flood
7	Watershed Planning	Drought, Flood, Erosion, Climate Change
8	Emergency Water Storage	Drought, Volcanic Eruption, Wildfire
9	Engineering and Seismic Retrofit of Ilanka Health Clinic and NVE Main Offices	Earthquake, Severe Weather

No.	Project Name	Hazard(s)
10	Aquatic Invasive Species Detection and Eradication Program for Elodea	Ecological Hazard
11	Tribal Early Detection and Rapid Response Capacity Building for Green Crab	Ecological Hazard
12	New Transfer Facilities and Bear-proof Waste Bins	Ecological Hazard
13	Armoring and Stabilizing Coastal Roads	Erosion, Flood, Severe Weather, Tsunami
14	Elevation or Relocation of Critical Facilities	Flood, Tsunami
15	Hazardous Material Release Trainings and Drills	Hazardous Material Release
16	Home Heating Tank Inspections	Hazardous Material Release, Wildfire
17	Contaminated Sites Assessments	Hazardous Material Release
18	Inventory Critical Facilities for Compatibility with Mobile Generators	Severe Weather
19	Air Filters for Critical Facilities	Volcanic Eruption, Wildfire
20	Complete Ecological Monitoring for Wildfire Hazards	Wildfire
21	Hazard Fuels Reduction Programs	Wildfire

5.4 FINAL ACTION PLAN

A final action plan is an itemized list of recommended mitigation actions that a community/agency hopes to put into practice to reduce its risks and vulnerabilities.

For the 2026 THMP, the planning team created a two-tier prioritization process based on the following:

- High-priority mitigation actions are those that address hazards of immediate concern and are also cost-effective (positive cost-benefit ratio) and have an identified funding source.
- Medium mitigation actions are those that address hazards that are not of immediate concern and/or those that are of immediate concern but are not cost effective or do not have an identified funding source.

The results of the above prioritization process are provided in Table 5-5. For each mitigation action listed, potential funding sources, responsible departments or agencies, and implementation timelines have been identified.

Table 5-5: Final Action Plan

No.	Project Name	Priority	Potential Funding Source	Responsibility	Timing
1	Critical Facility Shelter-in-place Supplies	High	FEMA EMPG, HMA; ANTHC	NVE	0–2 years
2	Create Incident Command Position	High	FEMA EMPG, HMA	NVE	0–2 years
3	Community Resilience Center	Medium	FEMA HMA; USDA Rural Development	NVE	2–5 years
4	Critical Access Route Protection and Monitoring	High	FEMA HMA; Federal Highway Administration (FHWA) Tribal Transportation Program; NOAA Coastal Resilience	NVE	2–5 years
5	Monitoring Baseline Conditions	Medium	FEMA HMA Planning; EPA GAP; NOAA Coastal Resilience; U.S. Fish and Wildlife Service (USFWS) Co-Stewardship Conservation Programs; ANTHC	NVE	1–4 years
6	Feasibility Study of Water Retention Projects	Medium	FEMA HMA; NOAA Coastal Resilience; EPA GAP; USFWS National Coastal Wetlands Conservation Grant	NVE	2–5 years
7	Watershed Planning	High	FEMA HMA; NOAA Coastal Resilience; EPA GAP; USFWS Co-Stewardship Conservation Programs; USFWS National Coastal Wetlands Conservation Grant	NVE	2–5 years
8	Emergency Water Storage	High	FEMA HMA; USDA Rural Community Facilities; EPA Alaska Native Villages and Rural Communities Water Grant Program; ANTHC	NVE	0–2 years
9	Engineering and Seismic Retrofit of Ilanka Health	High	FEMA HMA; USDA Rural Community	NVE	0–2 years

No.	Project Name	Priority	Potential Funding Source	Responsibility	Timing
	Clinic and NVE Main Offices		Facilities Direct Loan & Grant Program		
10	Aquatic Invasive Species Detection and Eradication Program for Elodea	High	USFWS Co-Stewardship Conservation Programs; NOAA Coastal Resilience; EPA GAP; ANTHC	NVE	0–2 years
11	Tribal Early Detection and Rapid Response Capacity Building for Green Crab	High	USFWS Co-Stewardship Conservation Programs; NOAA Coastal Resilience; EPA GAP; FEMA HMA	NVE	0–2 years
12	New Transfer Facilities and Bear-proof Waste Bins	Medium	USDA Rural Community Facilities; EPA GAP; ANTHC	NVE	1–3 years
13	Armoring and Stabilizing Coastal Roads	High	FEMA HMA; FHWA Tribal Transportation Program; NOAA Coastal Resilience	NVE / City	0–2 years
14	Elevation or Relocation of Critical Facilities	Medium	FEMA HMA; NOAA Coastal Resilience; FHWA Tribal Transportation Program	NVE	3–5 years
15	Hazardous Material Release Trainings and Drills	Medium	FEMA EMPG; EPA GAP; ANTHC	NVE	3–5 years
16	Home Heating Tank Inspections	High	EPA GAP; ANTHC	NVE	0–2 years
17	Contaminated Sites Assessments	High	EPA Brownfields/GAP/ Alaska Native Villages and Rural Communities Water Grant Program; ANTHC	NVE	0–2 years
18	Inventory Critical Facilities for Compatibility with Mobile Generators	Medium	FEMA EMPG, HMA	NVE	1–3 years
19	Air Filters for Critical Facilities	Medium	FEMA HMA; FEMA HMGP; USDA Rural Community Facilities; ANTHC	NVE	1–3 years

No.	Project Name	Priority	Potential Funding Source	Responsibility	Timing
20	Complete Ecological Monitoring for Wildfire Hazards	Medium	USDA Community Wildfire Defense Grant Program; FEMA HMGP Post Fire; USFWS Co-Stewardship Conservation Programs; NOAA Coastal Resilience	NVE	1–3 years
21	Hazard Fuels Reduction Programs	Medium	USDA Community Wildfire Defense Grant Program; FEMA HMGP Post Fire; FEMA HMA; USFWS Co-Stewardship Conservation Programs	NVE	0–2 years

5.5 PLAN INTEGRATION

Information about how the 2026 THMP will be integrated into Eyak’s relevant existing or future plans and programs moving forward is provided in Table 5-6.

Table 5-6: Integration of 2026 THMP

THMP Section	Existing or Future Plan/Policy/Program	Process / Timeframe
Section 3 – Hazard Identification	NVE General Plan	Using the hazard profiles section of the THMP, develop a General Plan.

5.6 MONITORING MITIGATION GOALS AND ACTIONS

Mitigation goals and actions identified in this THMP will be monitored during the annual review. This process is described in detail in Section 2.6.

In general, during each annual review, each department or agency currently administering a mitigation project will need to submit required documentation to the THMP project manager for review. FEMA-provided quarterly reports are most used as they provide information on the status of the mitigation project, detail any changes made to the project, and describe implementation problems and appropriate strategies to overcome them. The THMP project manager will follow the FEMA Grants Management Final Closeout Checklist to ensure all program-specific closeout requirements are met. Other reporting forms that may be used include administration plans or agency-specific reporting tools.

6.0 PLAN ADOPTION

This section addresses Element E of the Tribal Mitigation Plan Regulation Checklist.

Regulation Checklist – 44 CFR 201.7 Tribal Mitigation Plans
Element E: Plan Adoption
E1. Does the plan include assurances that the tribal government will comply with all applicable Federal statutes and regulations in effect with respect to the periods for which it receives grant funding, including 2 CFR Parts 200 and 3002, and will amend its plan whenever necessary to reflect changes in tribal or Federal laws and statutes? (Requirement 44 CFR § 201.7(c)(6)) E2. Does the plan include documentation that it has been formally adopted by the governing body of the tribal government requesting approval? (Requirement 44 CFR § 201.7(c)(5))

6.1 ASSURANCES AND FORMAL ADOPTION

The 2026 THMP's adoption resolution includes assurances that the NVE will comply with applicable federal statutes and regulations in effect with respect to the periods for which it receives grant funding (including 2 CFR Parts 200 and 3002) and will amend its plan whenever necessary to reflect changes in tribal or federal laws and statutes.

6.2 ADOPTION RESOLUTION

The 2026 THMP was formally adopted on Month, XX, 2026, by the Native Village of Eyak. A copy of the adoption resolution will be kept on file with the community and the Alaska Division of Homeland Security and Emergency Management.

7.0 APPENDICES

APPENDIX A—PLANNING PROCESS

APPENDIX B—PLAN MAINTENANCE

Task	Description
Disasters / hazards that occurred over the past year	
Critical facilities and infrastructure as well as other major assets damaged from disasters / hazards that occurred over the past year	
Mitigation-focused public outreach that was conducted over the past year	
Mitigation actions (measures and projects) that were implemented over the past year	
New and/or updated studies, reports, and maps that were published over the past year	
Changes made to 2026 THMP over the past year or needed to be made to the future THMP	
Additional information	

APPENDIX C—DRAFT MITIGATION ACTIONS

Table C-1: Summary of Draft Mitigation Actions

No.	Project Name	Hazard(s) Mitigated
1	Critical Facility Shelter-in-place Supplies	All
2	Create Incident Command Position	All
3	Community Resilience Center	All
3	Critical Access Route Protection and Monitoring	Avalanche, Landslide
5	Monitoring Baseline Conditions	Climate Change
6	Feasibility Study of Water Retention Projects	Drought, Flood
7	Watershed Planning	Drought, Flood, Erosion, Climate Change
8	Emergency Water Storage	Drought, Volcanic Eruption, Wildfire
9	Engineering and Seismic Retrofit of Ilanka Health Clinic and NVE Main Offices	Earthquake, Severe Weather
10	Aquatic Invasive Species Detection and Eradication Program for Elodea	Ecological Hazard
11	Tribal Early Detection and Rapid Response Capacity Building for Green Crab	Ecological Hazard
12	New Transfer Facilities and Bear-proof Waste Bins	Ecological Hazard
13	Armoring and Stabilizing Coastal Roads	Erosion, Flood, Severe Weather, Tsunami
14	Elevation or Relocation of Critical Facilities	Flood, Tsunami
15	Hazardous Material Release Trainings and Drills	Hazardous Material Release
16	Home Heating Tank Inspections	Hazardous Material Release, Wildfire
17	Contaminated Sites Assessments	Hazardous Material Release
18	Inventory Critical Facilities for Compatibility with Mobile Generators	Severe Weather
19	Air Filters for Critical Facilities	Volcanic Eruption, Wildfire
20	Complete Ecological Monitoring for Wildfire Hazards	Wildfire
21	Hazard Fuels Reduction Programs	Wildfire

Table C-2: Draft Mitigation Actions

1. Critical Facility Shelter-in-place Supplies	
Overview	Maintain emergency supplies such as food, water, medical supplies, sanitation materials, backup communications, and personal protective equipment at critical facilities to support staff and occupants during severe weather, tsunami warnings, hazardous material release, wildfire smoke events, or transportation disruptions. These supplies help ensure continuity of essential services when evacuation is not possible or advisable.
Hazards	All
Goals	1, 2, 5
Asset Type	Critical facilities with offices or buildings on site
Benefits and Costs	Costs are associated with staff time to inventory existing supplies and purchase additional supplies, equipment, and materials for storage. Benefits include creating a safer community, speeding up recovery, lessening the financial impact of hazards, increasing public awareness, strengthening community partnerships, and addressing multiple hazards.
2. Create Incident Command Position	
Overview	Establish a dedicated emergency management or incident command position that is not associated with the medical centers to coordinate preparedness, response, recovery, and mitigation activities across tribal, local, state, and federal partners. This position would improve community readiness for floods, landslides, tsunamis, wildfires, hazardous material release, and other hazards, and would have the capacity to perform these duties without disrupting medical services.
Hazards	All
Goals	1, 4, 5
Asset Type	Staff
Benefits and Costs	Costs are associated with the effort required to draft and post the job description, plus the salary and associated benefits for the position. Benefits include creating a safer community, speeding up recovery, lessening the financial impact of hazards, increasing public awareness, strengthening community partnerships, and addressing multiple hazards.
3. Community Resilience Center	
Overview	Community resilience centers are designed to support local communities in preparing for, responding to, and recovering from various challenges, including natural disasters, climate change, public health emergencies, and economic disruptions. In Cordova, Mt. Eccles Elementary School is identified as an evacuation shelter and may be considered for this project. Another potential location is the high school. This project identifies resources necessary to improve or construct multifunctional facilities for shelter, emergency medical care, Point of Dispensing locations for

	vaccinations, food distribution, backup power generators, storage of emergency supplies, and renewable energy to support the local energy grid to supplement or expand existing facilities. This project also includes appropriate trainings to ensure effective operation of such locations during and after emergencies.
Hazards	All
Goals	1, 2, 3, 4, 5
Asset Type	Community resilience centers
Benefits and Costs	Costs are associated with staff time for research and securing funding, coordination with state and other relevant entities, and costs of equipment and materials, if necessary. Benefits include creating a safer community, speeding up recovery, lessening the financial impact of hazards, increasing public awareness, strengthening community partnerships, and addressing multiple hazards.
4. Critical Access Route Protection and Monitoring	
Overview	Identify, assess, and monitor avalanche- and landslide-prone areas that could impact critical transportation and emergency access routes. Implement protective measures such as slope stabilization, drainage improvements, avalanche defense structures, debris barriers, and vegetation management where appropriate. Identify resources or funding needed for routine inspection programs, real-time monitoring systems, and hazard-trigger thresholds to support timely road closures, maintenance activities, and emergency response.
Hazards	Avalanche, Landslide
Goals	1, 2, 3, 4, 5
Asset Type	Transportation
Benefits and Costs	Costs are associated with staff time for research and securing funding, coordination with state and other relevant entities, and costs of equipment and materials, if necessary. Benefits include creating a safer community, speeding up recovery, lessening the financial impact of hazards, increasing public awareness, strengthening community partnerships, and addressing multiple hazards.
5. Monitoring Baseline Conditions	
Overview	Establish long-term monitoring of environmental, hydrologic, and ecological conditions of local streams and water bodies to identify changing hazard risks associated with climate change. Monitoring data such as water temperature and water quality can support early detection of ecosystem changes and salmon population changes which may result from climate change.
Hazards	Climate Change
Goals	1, 3, 5

Asset Type	Streams / Rivers, Open Space
Benefits and Costs	Costs are associated with staff time for research and securing funding, coordination with other relevant entities, and costs of monitoring equipment and materials, if necessary. Benefits include increasing public awareness and strengthening community partnerships.
6. Feasibility Study of Water Retention Projects	
Overview	Evaluate potential water retention, storage, and groundwater recharge projects, including but not limited to snow fences and beaver dam analogs, that could reduce drought impacts, improve water security, and moderate flood flows. The study would identify the most effective and environmentally appropriate options for future implementation.
Hazards	Drought, Flood
Goals	1, 3, 4, 5
Asset Type	Streams / Rivers, Open Space
Benefits and Costs	Costs are associated with staff time for research and securing funding, coordination with other relevant entities, and costs of monitoring equipment and materials, if necessary. Benefits include increasing public awareness and strengthening community partnerships.
7. Watershed Planning	
Overview	Develop a comprehensive watershed management plan to address flooding, erosion, drought, water quality, habitat protection, and climate resilience. Watershed-scale planning helps identify nature-based and infrastructure solutions that reduce hazard risk while supporting community and ecological health.
Hazards	Drought, Flood, Erosion, Climate Change
Goals	1, 3, 4, 5
Asset Type	Streams / Rivers, Open Space
Benefits and Costs	Costs are associated with staff time for research and securing funding and coordination with other relevant entities. Benefits include increasing public awareness and strengthening community partnerships.
8. Emergency Water Storage	
Overview	Construct or expand emergency water storage capacity to ensure access to drinking water during droughts, or regional volcano or wildfires (when smoke and/or ash may clog filtration of water treatment facilities), or other disruptions. Additional storage can reduce the demand for water needed during prolonged emergencies.
Hazards	Drought, Volcanic Eruption, Wildfire
Goals	1, 2, 5

Asset Type	Water Tanks
Benefits and Costs	Costs are associated with staff time for research and securing funding, coordination with other relevant entities, and costs of equipment and materials, if necessary. Benefits include creating a safer community, speeding up recovery, and lessening the financial impact of hazards.
9. Engineering and Seismic Retrofit of Ilanka Health Clinic and NVE Main Offices	
Overview	The NVE has identified two critical facilities that are aging and in need of engineering evaluations and structural retrofits. The Ilanka Health Clinic and NVE Main Offices would benefit from retrofits to improve the ability of critical facilities to withstand earthquakes, severe weather, heavy snow loads, volcanic ashfall, and other hazards. Strengthening these facilities helps ensure continued delivery of essential services during and after disasters.
Hazards	Earthquake, Severe Weather
Goals	1, 3, 4, 5
Asset Type	Health and Administrative
Benefits and Costs	Costs are associated with staff time for hiring consulting firm to complete the design and contractors to complete necessary structural retrofits. Benefits include creating a safer community, speeding up recovery, and lessening the financial impact of hazards.
10. Aquatic Invasive Species Detection and Eradication Program for Elodea	
Overview	Implement monitoring, early detection, and eradication efforts to prevent the spread of Elodea and protect local lakes, rivers, salmon habitat, and subsistence resources. Early intervention can reduce ecological impacts and avoid higher long-term management costs.
Hazards	Ecological Hazard
Goals	1, 3, 4, 5
Asset Type	Lakes / Streams / Rivers, Open Space
Benefits and Costs	Costs are associated with staff time for research and securing funding, coordination with other relevant entities, and costs of monitoring equipment and materials, if necessary. Benefits include increasing public awareness and strengthening community partnerships.
Project Example	Aquatic Invasives - Copper River Watershed Project Eradication of the Invasive Aquatic Plant Elodea in the Yukon River Basin U.S. Fish & Wildlife Service

11. Tribal Early Detection and Rapid Response Capacity Building for Green Crab	
Overview	Develop monitoring programs, training, equipment, and response protocols for invasive European green crab detection and control. Enhanced response capacity can help protect nearshore habitats, shellfish resources, and culturally important species from ecological damage.
Hazards	Ecological Hazard
Goals	1, 3, 4, 5
Asset Type	Coastal Wetland / Open Space
Benefits and Costs	Costs are associated with staff time for research and securing funding, coordination with other relevant entities, and costs of monitoring equipment and materials, if necessary. Benefits include increasing public awareness and strengthening community partnerships.
Project Example	FINAL-AK-EGC-CB Early-Detection-Protocol-Manual 2025.pdf
12. New Transfer Facility and Bear-Proof Waste Bins	
Overview	Construct improved waste transfer facilities and install bear-resistant garbage containers to reduce human-wildlife conflicts and prevent bears from becoming food-conditioned. Improved waste management also supports public health, environmental protection, and community safety.
Hazards	Ecological Hazard
Goals	1, 3, 5
Asset Type	Multiple
Benefits and Costs	Costs are associated with staff time for planning, equipment and installation costs, and any associated maintenance and monitoring. Benefits include creating a safer community.
13. Armoring and Stabilizing Coastal Roads	
Overview	Stabilize and protect vulnerable portions of roads, such as Breakwater Avenue and Orca Inlet Road, from coastal erosion and flooding. Improvements may include shoreline protection, drainage enhancements, and slope stabilization measures.
Hazards	Erosion, Flood, Severe Weather, Tsunami
Goals	1, 2, 3, 4
Asset Type	Transportation

Benefits and Costs	Costs are associated with staff time for planning, design, and engineering and also include maintenance costs for the project life expectancy (depending on materials used can be 30–50 years). Benefits include creating safer communities and lessening the financial impacts of hazards. The project addresses multiple hazards.
14. Elevation or Relocation of Critical Facilities	
Overview	Elevate or relocate critical infrastructure, such as the NVE Offices, in areas vulnerable to flooding and tsunami inundation. Relocation or elevation can significantly reduce future damages and improve long-term community resilience.
Hazards	Flood, Tsunami
Goals	1, 2, 5
Asset Type	Multiple
Benefits and Costs	Costs are associated with staff time for planning, design, and engineering and also include maintenance costs for the project life expectancy. Benefits include creating safer communities and lessening the financial impacts of hazards.
15. Hazardous Material Release Trainings and Drills	
Overview	The project is to encourage training, education, planning, and safety in the production, use, and transportation of oil and hazardous substances. The project also encourages training, education, planning, and proactive measures to reduce the threat of cyber attacks on critical facilities that rely on computer systems and technology. This project may be a collaborative effort with the City and NVE.
Hazards	Hazardous Material Release
Goals	1, 2, 4, 5
Asset Type	Multiple
Benefits and Costs	Costs are associated with staff time to complete the trainings and updates as needed (e.g., annually). Potential cost sharing between the City and NVE could reduce costs. Benefits include creating a safer community, speeding up recovery, lessening the financial impact of hazards, increasing public awareness, and strengthening community partnerships.
Project Example	SEAPRO - Training ASTI Website
16. Home Heating Tank Inspections	
Overview	Implement a systematic inspection program for residential heating fuel tanks to identify leaks, corrosion, and structural deficiencies before failures occur. Preventative inspections can reduce environmental contamination, property damage, and cleanup costs.

Hazards	Hazardous Material, Wildfire
Goals	1, 2, 5
Asset Type	Multiple
Benefits and Costs	Costs are associated with staff time for inspections training and/or coordination with other relevant entities, and costs of equipment and materials, if necessary. Benefits include creating a safer community, speeding up recovery, lessening the financial impact of hazards, increasing public awareness, and strengthening community partnerships.
17. Contaminated Sites Assessments	
Overview	Assess known and potential contaminated sites to identify environmental risks associated with past industrial activities, fuel storage, and waste disposal practices. Site investigations can support cleanup prioritization and reduce future exposure risks.
Hazards	Hazardous Material
Goals	1, 2, 5
Asset Type	Multiple
Benefits and Costs	Costs are associated with staff time for research and securing funding, coordination with other relevant entities, and costs of monitoring equipment and materials, if necessary. Benefits include creating a safer community, speeding up recovery, lessening the financial impact of hazards, increasing public awareness, and strengthening community partnerships.
18. Inventory Critical Facilities for Compatibility with Mobile Generators	
Overview	Evaluate critical facilities to determine electrical, fuel, and connection requirements needed to utilize portable emergency generators. Completing an inventory will support filling of critical gaps in redundant power supply, faster power restoration, and continuity of essential services during outages.
Hazards	Severe Weather
Goals	1, 2, 4, 5
Asset Type	Multiple
Benefits and Costs	Costs are associated with staff time to complete the inventory. Benefits include creating a safer community, speeding up recovery, lessening the financial impact of hazards, increasing public awareness, and strengthening community partnerships.

19. Air Filters for Critical Facilities	
Overview	Install high-efficiency air filtration systems in critical facilities to reduce exposure to wildfire smoke and/or volcanic ash. Improved filtration helps protect vulnerable populations and maintain facility operations during emergencies.
Hazards	Volcanic Eruption, Wildfire
Goals	1, 2, 4, 5
Asset Type	Multiple
Benefits and Costs	Costs are associated with staff time for research and securing funding, coordination with other relevant entities, and costs of monitoring equipment and materials, if necessary. Benefits include creating a safer community, speeding up recovery, and lessening the financial impact of hazards.
20. Complete Ecological Monitoring for Wildfire Hazards	
Overview	Establish ecological monitoring programs to evaluate vegetation conditions, fuel accumulation, drought stress, and wildfire risk across community lands. Monitoring can support early mitigation actions and improve understanding of changing wildfire conditions under a warming climate.
Hazards	Wildfire
Goals	1, 3, 4, 5
Asset Type	Open Space
Benefits and Costs	Costs are associated with staff time for research and securing funding, coordination with other relevant entities, and costs of monitoring equipment and materials, if necessary. Benefits include creating a safer community, speeding up recovery, and lessening the financial impact of hazards.
21. Hazard Fuels Reduction Programs	
Overview	Implement vegetation management projects such as thinning, pruning, defensible space creation, and removal of hazardous fuels near homes, critical facilities, and transportation corridors, and implement associated trainings for private landowners to complete these projects on their properties. Reducing fuel loads can decrease wildfire intensity, improve firefighter access, and protect community assets.
Hazards	Volcanic Eruption, Wildfire
Goals	1, 2, 4, 5
Asset Type	Multiple

Benefits and Costs	Costs are associated with staff time for research and securing funding, coordination with other relevant entities, and costs of monitoring equipment and materials, if necessary. Benefits include creating a safer community, speeding up recovery, and lessening the financial impact of hazards.
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APPENDIX D—ADOPTION RESOLUTION