SOUTHEAST ALASKA

TRANSPORTATION PLAN

RISK AND RESILIENCY ANALYSIS

May 2026

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ACRONYMS & ABBREVIATIONS

AAC	Alaska Administrative Code
AADT	Annual Average Daily Traffic
AAPMS	Agile Assets Pavement Management System
AEP	Airport Emergency Plan
AMHS	Alaska Marine Highway System
AMHS LRP	Alaska Marine Highway System Long-Range Plan
ARROW	Alaska Rural Remote Operations Work Plan
AWOS	Automated Weather Observing System
CBJ	City and Borough of Juneau
CFR	Code of Federal Regulations
CPV	Commercial Passenger Vessel
CTP	Community Transportation Program
DOT&PF	Alaska Department of Transportation and Public Facilities
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
GLOF	Glacier Lake Outburst Flood
HMP	Hazard Mitigation Plan
HSIP	Highway Safety Improvement Program
ICS	Incident Command System
IIJA	Infrastructure Investment and Jobs Act
LRP	Long-Range Plan
M&O	Maintenance and Operations
NAVAIDs	Navigational Aids
NPIAS	National Plan of Integrated Airport Systems
NRI	National Risk Index
RPO	Regional Planning Organization
ROW	Right-of-Way
RWIS	Road Weather Information System
SEATP	Southeast Alaska Transportation Plan
SHMP	State Hazard Mitigation Plan
SMART	Strengthening Mobility and Revolutionizing Transportation
SOAR	Scalable Operations and Advanced Remote Technologies
SS4A	Safe Streets for All
STIP	Statewide Transportation Improvement Program
TAMP	Transportation Asset Management Plan
TAP	Transportation Alternatives Program

TIA	Traffic Impact Analysis
UAS	Unmanned Aircraft System
U.S.	United States
USACE	U.S. Army Corps of Engineers
USDOT	United States Department of Transportation

1.0 INTRODUCTION

1.1 Purpose of the Technical Memorandum

The Southeast Alaska Transportation Plan (SEATP) Risk and Resiliency Technical Memorandum (technical memo) provides an overview of risk and resilience considerations for transportation infrastructure across Southeast Alaska (Southeast). The region's unique geography, climate, and community profiles present distinct challenges and opportunities for maintaining a reliable transportation system during hazardous events. Understanding these factors is important for the Alaska Department of Transportation and Public Facilities (DOT&PF) and its partners as they plan for long-term infrastructure resiliency.

This technical memo supports regional transportation planning by identifying potential hazards, assessing associated risks, and outlining strategies to enhance resiliency for infrastructure and operations to support community transportation systems.

1.2 SEATP Region

The planning area encompasses Southeast Alaska, a region defined by rugged terrain, dense forest, and a dispersed network of island and coastal communities. This unique environment requires a multi-modal transportation system made up of highways, bridges, ferry terminals, airports, and other connections that serve both local and regional travel needs. Limited transportation redundancy, harsh weather, geologic hazards, and the challenges of maintaining infrastructure in remote locations heighten the region's exposure to disruption and influence how transportation risk and resilience are evaluated and addressed.

The DOT&PF organizes operations into three regions: Northern, Central, and Southcoast. Southeast Alaska falls within the Southcoast region. The SEATP planning area (hereafter Southeast) is comprised of the following:

- Eight (8) boroughs: Haines, Juneau, Ketchikan Gateway, Petersburg, Skagway Municipality, Sitka, Wrangell, and Yakutat
- Two (2) U.S. Census Bureau areas (census areas): Hoonah-Angoon and Prince of Wales-Hyder

The SEATP planning boundaries are depicted in Figure 1.

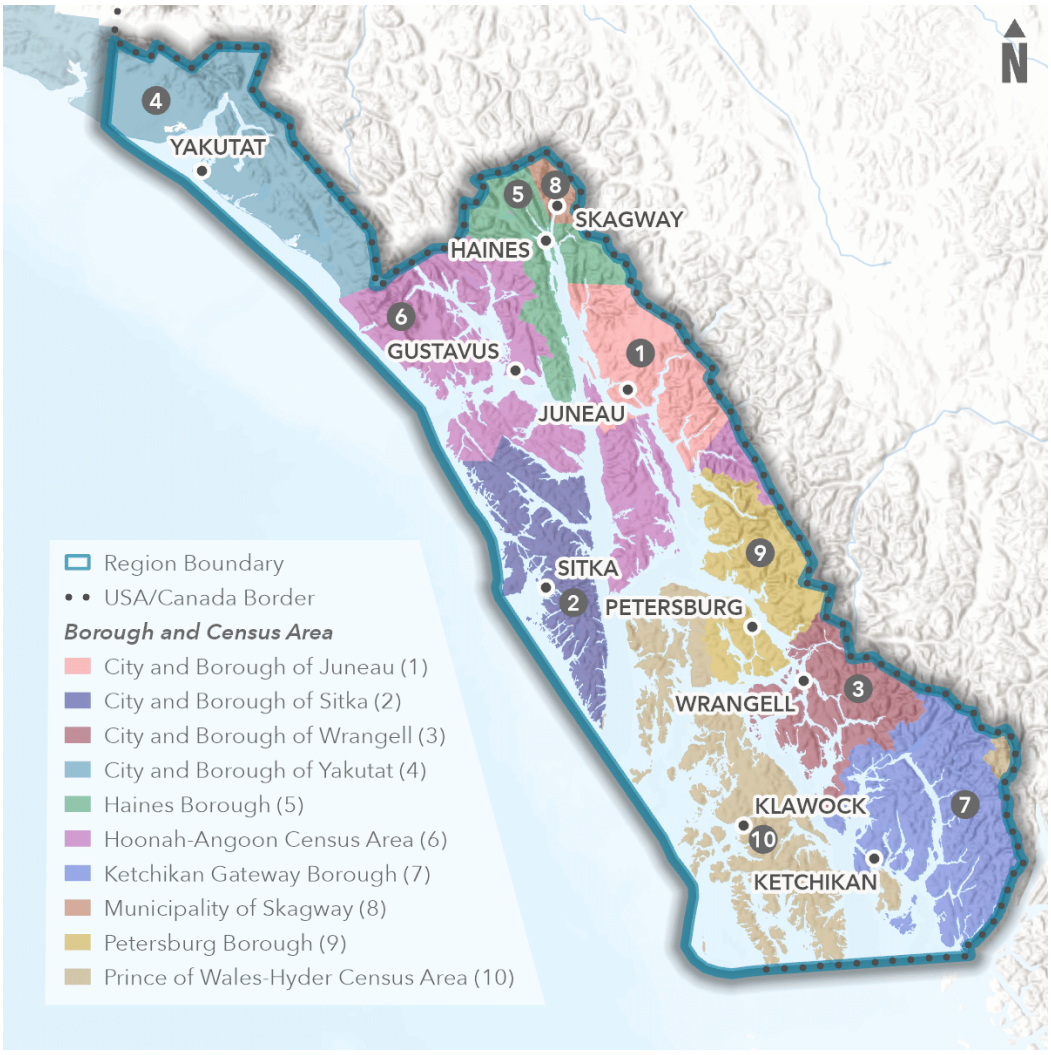

Figure 1: SEATP Planning Boundaries

1.3 Approach

Three primary risk areas have been identified as central to understanding and improving transportation resilience in Southeast: 1) natural hazards and weather events, 2) funding, and 3) population. These risk areas were selected for analysis based on the review of regional data, input from DOT&PF staff, and engagement with the public. Risks from natural hazards and weather events are identified as direct risks to infrastructure and are further assessed in Section 2.0, Infrastructure Risk and Resiliency. Risks related to funding and population are identified as non-infrastructure risks and are covered in Section 3.0 Non-Infrastructure Risk and Resiliency.

The approach used for this memorandum is a three-tiered process designed to assess long-term transportation risk. This process includes:

1. Using a Community Risk Assessment, included as Appendix 1, to identify locally recognized hazards and asset concerns.
2. Collaborating with the Southeast Conference to host a scenario planning workshop designed to evaluate how future uncertainties related to the three identified primary risk areas could alter those risks. The agenda, hand-outs, and a meeting summary are provided in Appendix 2.
3. Meeting with DOT&PF staff to host an internal workshop to assist in translating the information and insights from the community risk assessment and the Southeast Conference workshop into a technical review of asset exposure and sensitivity using Federal Highway Administration (FHWA) adapted criteria. The agenda, hand-outs, and a meeting summary are provided in Appendix 3.

These steps create an evidence chain linking community level observations, interested party generated scenarios, and engineering-based vulnerability assessment to support the identification of vulnerable assets and potential mitigation strategies for the SEATP Update.

1.3.1 Community Risk Assessment

The Community Risk Assessment includes the identification of potential hazards and risks to regional transportation infrastructure in Southeast. The identification of these hazards and risks includes the analysis of community profiles from the Federal Emergency Management Agency (FEMA) National Risk Index (NRI), the State of Alaska Hazards Mitigation Plan (SHMP), select community/tribal hazard mitigation plans (HMP), and airport emergency plans (AEP).

The SHMP assesses risks from various natural hazards. Hazards identified in the SHMP include earthquake, erosion, flood, ground failure, tsunami, and severe weather. An additional hazard identified for Southeast is snow avalanche. These hazards are further defined in Table 1.

Table 1: Identified Hazards

IDENTIFIED HAZARDS	
	Earthquake – Although Southeast has not experienced a major earthquake with catastrophic damage to the magnitude that other areas of the state have experienced in recent years, the risk remains. This hazard is often concurrent with events such as land/mud slides, sluffing, avalanches, etc.
	Erosion – The act of erosion is often overlooked, as it is a hazard that typically happens slowly and over an extended time period. It is often not spotted without the assistance of aerial viewing equipment and comparisons to be able to verify changes over time. It can be seen in such events as when a river encroaches upon transportation infrastructure that, when built, were not near the impending hazard.
	Flood – Most prevalent in late spring and summer due to melting snow and wet weather, flooding causes washouts to existing structures or other instances of extreme damage. If infrastructure is unharmed, surface transportation may still be affected due to excess water on roads. Traffic becomes delayed in many areas as there is a lack of redundancy in the transportation system.

IDENTIFIED HAZARDS	
	Ground failure – Ground failure happens when rock and soil lose stability, causing collapse or movement. Landslides are the downward movement of materials like rock, soil, or fill. Avalanches linked to ground failure include debris avalanches—fast-moving flows from slope collapse or bedrock breakdown. Causes include natural events (earthquakes, wildfires), human activities (construction), or both. In Southeast, steep slopes and heavy rain often trigger landslides and avalanches.
	Tsunami – A tsunami is caused by underwater ocean wave disturbances that are triggered by earthquakes, landslides, or volcanic eruptions. While there are monitorable warning signs, it initially appears as individual, increasingly large waves over several hours. Tsunamis can cause massive damage, flooding, and destroy communities with debris-filled waters and possibly extreme land erosion. Outer Southeast coastal communities are at particularly high risk.
	Volcano - Volcano-generated ash periodically impacts Alaska communities, with impacts that are most severe for communities closer to volcanoes. Volcanic ash can create severe air quality, water quality, marine, and road transportation impacts, disrupt utility operations, etc.
	Severe Weather – Alaska often faces severe weather due to its location and changing climate. Natural weather events can trigger winter storms, heavy rain, freezing rain, thunderstorms, and typhoons. These can lead to secondary hazards such as floods, landslides, snow, and strong winds. In Southeast, extremely heavy rainfall from atmospheric rivers, is becoming more common and can cause ground failure, putting communities and resources at risk.
	Snow Avalanche – Southeast is prone to snow avalanches, which can vary in destructive power from harmless to large enough to destroy mature forests and buildings. The frequency, extent, and severity of avalanches depend on the weather, terrain, and snowpack. New snowfall, melting snow, or even minor disturbances can cause a mass of snow to slide down the slope. Roadways can become blocked or destroyed, causing closures.
	Wildfire – Happens in the warmer months when the weather is dry for extended periods of time, uncommon in Southeast. Even when fires occur outside the region, intense smoke and haze can cause significant visibility issues for travelers and disrupt transportation operations.

1.3.2 Southeast Conference Workshop

The DOT&PF, in collaboration with the Southeast Conference, a regional planning organization (RPO), hosted a scenario-planning workshop at the Southeast Conference's Mid-Session Summit and Transportation Symposium. The purpose of the workshop was to brainstorm and collaborate on scenario-planning considerations that may affect long-term transportation planning in Southeast.

Participants were presented with an overview of the SEATP Update and of the three identified primary risk area categories (natural hazards and weather events, funding, and population). A working group table for each risk area category was established throughout the room. With the time provided, each participant interacted with two of the three scenario categories. Interactions for each risk area category included a guided discussion and a report out to the larger group.

Question prompts guided discussion on the following topics:

- **Uncertainty:** Discuss how changing and unpredictable conditions influence transportation infrastructure and services (roads, ferries, airports) and affect planning and decision-making.
- **Variability:** Discuss how variability in external influences/factors such as weather events, funding, or demographic trends affect transportation performance and operations.
- **Threats:** Identify transportation facilities, corridors, or communities that face the greatest risks.
- **Opportunities:** Identify helpful outcomes, practical ideas, or partnership opportunities that can improve how communities handle hazards related to environmental conditions, funding challenges, and population change.
- **Solutions/Priorities:** Identify actions DOT&PF and partners can take to reduce risk and maintain system reliability.

1.3.3 DOT&PF Risk-Resiliency Workshop

The planning team identified potential hazards and at-risk state-owned infrastructure using the Community Risk Assessment and the information gathered during the Southeast Conference Workshop and presented the list to DOT&PF staff. The activity conducted with DOT&PF staff evaluated each asset's exposure, sensitivity, and potential mitigation strategies, drawing on technical analysis, community-identified hazards, and input gathered through structured workshop activities. The workshop held with DOT&PF staff evaluated the at-risk infrastructure's exposure and sensitivity to potential hazards and potential mitigation options.

Staff ranked regionally important assets using exposure and sensitivity criteria adapted from FHWA's Vulnerability Assessment and Adaptation Framework and identified mitigation needs such as addressing deteriorating culverts, limited road redundancy, aging airport systems, and state-of-good-repair issues at marine facilities.

With robust participation in this activity the time allotted quickly passed and additional time was sought for reflection and further input. Following completion of the activity, the materials were reformatted and shared with participants for additional input. These rankings informed development of feasible and mode-specific mitigation actions. The final hazard-infrastructure assessment is provided in Appendix 4.

2.0 INFRASTRUCTURE RISK AND RESILIENCY

The region faces threats from landslides, avalanches, flooding, severe weather, tsunamis, and seismic activity, all of which directly threaten transportation networks, infrastructure, and community safety. Remoteness, limited redundancy, and dispersed populations increase vulnerability and complicate emergency response.

This section provides an assessment and recommendations that are directly relevant to transportation infrastructure.

2.1 Southeast Context

Recent weather events including increasing frequency and intensity of heavy rainfall events illustrate the vulnerability of the transportation system in Southeast. Table 2 provides an overview of recent events with additional detail provided in Appendix 1.

Table 2: Recent weather events affecting transportation infrastructure

LOCATION	YEAR	HAZARD-TYPE	BRIEF EVENT SUMMARY	TRANSPORTATION FACILITIES AFFECTED
Sitka	2015	Rain-triggered landslides	Intense rainfall triggered dozens of landslides, including the Kramer Avenue slide, which destroyed a home and resulted in three fatalities, damaged roads and disrupted access routes.	Local roads; utilities; access routes near Kramer Ave
Haines	2020	Flooding, landslide, avalanche	An atmospheric river event caused widespread flooding and slope failures, including a fatal landslide (two fatalities) and avalanche activity that damaged roads and waterfront infrastructure.	Haines Highway; Lutak Road; docks and local roads
Wrangell	2023	Landslide	Heavy rainfall triggered a large landslide at Mile 11.2 of Zimovia Highway, which destroyed homes, buried the road under debris and caused six fatalities.[1] A second major landslide occurred the same night, inundating Middle Ridge Road, a forest service route; no fatalities were reported.[2]	Zimovia Highway (Mile 11.2), Middle Ridge Road
Prince of Wales Island	2023	Landslides	Storm-related rainfall triggered multiple landslides across the island, blocking roads and limiting travel; no fatalities were reported.[3]	Multiple roads

[1] Czarnecki, C. (2024, March 5). Final report filed on cause of Wrangell's deadly landslide. Alaska Public Media. https://alaskapublic.org/news/2024-03-05/final-report-filed-on-cause-of-wrangells-deadly-landslide

[2] Persily, L. (2024, January 9). Middle Ridge Road closed "for the foreseeable future." Wrangell Sentinel. https://www.wrangellsentinel.com/stories/middle-ridge-road-closed-for-the-foreseeable-future,20080

[3] Persily, L. (2024, January 9). Middle Ridge Road closed "for the foreseeable future." Wrangell Sentinel. https://www.wrangellsentinel.com/stories/middle-ridge-road-closed-for-the-foreseeable-future,20080

LOCATION	YEAR	HAZARD-TYPE	BRIEF EVENT SUMMARY	TRANSPORTATION FACILITIES AFFECTED
Ketchikan	2024	Landslide	Heavy rainfall triggered a landslide which buried Third Avenue Bypass and adjacent streets, destroyed homes, and resulted in one fatality.[4]	Third Avenue Bypass; local streets
Ketchikan	2024	Landslide	A sudden heavy rainstorm triggered a landslide onto Revilla Road, stranding eight people until rescue crew arrived. No fatalities or injuries were reported.[5]	Revilla Road past Ward Lake
Ketchikan (Wolfe Point)	2025	Rockslide	A large rockslide completely blocked North Tongass Highway, isolating residents north of the slide area until a water shuttle was put in place; no fatalities were reported.[6]	North Tongass Highway
Juneau	2023 to 2025	Glacier Lake Outburst Flood (GLOF)	Since 2023, Juneau has experienced annual GLOF events. Flooding has resulted in erosion near and damage to Mendenhall River Bridge, debris accumulation at Brotherhood Bridge, severe flooding of local roads, and homes, including significant property damage to homes.[7] No fatalities were reported.[8]	Mendenhall River Bridge No. 0217; Brotherhood Bridge No. 0737; local roads
Southeast Region	2025–2026	Winter storms	A series of severe winter storms caused widespread travel disruptions. No fatalities were reported, however an avalanche on Haines Highway caught three vehicles.[9] A state disaster declaration was issued in January 2026.[10]	Local and state snow management resources were overwhelmed, and travel was impacted for facilities throughout the region.

[4] Alaska's News Source. (2024, August 26). Mandatory evacuations issued for areas of Ketchikan after landslide. https://www.alaskasnewssource.com/2024/08/26/mandatory-evacuations-issued-areas-ketchikan-after-landslide/

[5] Darrell, Jack. (2024, October). Ketchikan-area landslide strands multiple people along remote road. Alaska Public Media. https://alaskapublic.org/news/2024-10-07/ketchikan-area-landslide-strands-multiple-people-along-remote-road

[6] Rosen, Y. (2025, March 25). Ketchikan residents lean on water shuttles, bypass as landslide cuts off road access for days. Anchorage Daily News. https://www.adn.com/alaska-news/2025/03/25/ketchikan-residents-lean-on-water-shuttles-bypass-as-landslide-cuts-off-road-access-for-days/

[7] U.S. Department of Commerce. (2024, August 16). Juneau/Mendenhall River Flooding Suicide Basin Glacier Dammed Lake Release. https://www.weather.gov/media/ajk/suicideBasin/08_2024%20-%20Mendenhall%20River%20Flooding.pdf

[8] Larson, C. (2025, August 18). Back Loop Bridge remains closed, recovery effort ongoing after record-breaking flooding. KTOO. https://www.ktoo.org/2025/08/18/back-loop-bridge-remains-closed-recovery-effort-ongoing-after-record-breaking-flooding/

[9] McChesney, R. (2026, January 9). Haines Highway cleared of avalanche that caught three vehicles. Chilkat Valley News. https://www.chilkatvalleynews.com/2026/01/09/haines-highway-cleared-of-avalanche-that-caught-three-vehicles/

[10] Zidek, J. (2026, January 10). Governor Dunleavy declares 2026 Jan Southeast Winter Storm a disaster [Press release]. Alaska Division of Homeland Security and Emergency Management

The DOT&PF has played a central role in emergency response and recovery for many of these events, including debris and snow removal, road closures and reopenings, bridge repairs, procurement of critical supplies and materials, and coordination with local governments and agencies. The DOT&PF has also performed post-landslide slope stability evaluations to support emergency response operations and efforts. Drones and other technology is increasingly being used for emergency response efforts.

2.2 Hazard-Infrastructure Risk Assessment

Identifying assets at greatest risk is an essential step in preparing for hazards and improving infrastructure resilience. This section assesses resiliency, outlining mitigation strategies and potential actions to strengthen it, based on workshops with DOT&PF staff and Southeast Conference participants, as well as a data-driven community risk assessment.

Resiliency describes how well infrastructure and communities can withstand, adapt to, and recover from disruptions. When systems are not resilient, Alaskan communities are more vulnerable to service outages and the loss of safe, reliable connections. Because the region is remote, it is important to have alternative routes and design infrastructure that can withstand disruptions to keep communities connected and support rapid recovery after major events.

2.2.1 Vulnerability Assessment

The FHWA Vulnerability Assessment and Adaptation Framework provides a process for evaluating climate-related risks and identifying appropriate mitigation strategies.[11] The Framework outlines seven key steps:

1. Set objectives and define the study scope.
2. Gather asset data.
3. Obtain climate data.
4. Assess vulnerability.
5. Identify and prioritize adaptation options.
6. Integrate results into decision-making.
7. Monitor and revisit the process.

The DOT&PF Risk-Resiliency Workshop evaluated assets using the methodology recommended for the ‘assess vulnerability’ step. This adapted assessment considers three indicators: exposure, sensitivity, and adaptive capacity as defined in Figure 2.

[11] *Federal Highway Administration. (2017, December). Vulnerability Assessment and Adaptation Framework (3rd ed.). Retrieved March 5, 2026, from https://rosap.ntl.bts.gov/view/dot/36188*

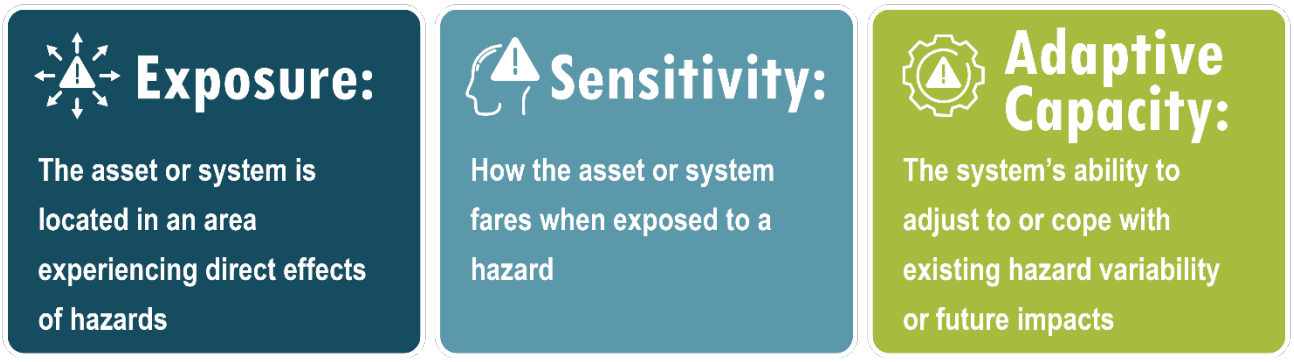

Figure 2: Three risk indicators from the FHWA Vulnerability Assessment and Adaptation Framework

DOT&PF staff ranked each of these indicators for major road corridors, bridges, and airports. The ranking criteria are shown in Table 3. The results are discussed in the following sections. Ferry terminals, active transportation facilities, and transit systems were discussed as a group, and key risks are presented in summary.

Table 3: Ranking Criteria for Exposure, Sensitivity, and Adaptive Capacity as used for the SEATP Update

EXPOSURE Exposure refers to whether the asset or system is in an area experiencing direct effects of hazards.		SENSITIVITY Sensitivity refers to how the asset or system fares when exposed to a hazard.	ADAPTIVE CAPACITY Adaptive capacity refers to the system's ability to adjust to or cope with existing hazard variability or future impacts.	
Low	**To be rated as low exposure the following conditions may apply:** • The hazard is somewhat likely to happen near the location of the asset, typically seen as events that happen at intervals greater than every 50 years or have a probability of happening 0-50 percent.	**To be rated as low sensitivity the following conditions may apply:** • The loss or damage caused by this hazard would have a minor impact on the economic, transportation, and social infrastructure of a community. • The infrastructure has never experienced prior damage.	**High**	**To be rated as high adaptive capacity the following conditions may apply:** • There are already mitigation efforts in effect or planned mitigation efforts for the infrastructure. • There are redundant facilities and/or detours in place.
Medium	**To be rated as medium exposure the following conditions may apply:** • The hazard is likely to happen near the location of the asset, typically seen as events that happen at intervals of every 10 to 50 years or have a probability of happening 50-75 percent.	**To be rated as medium sensitivity the following conditions may apply:** • The loss or damage caused by the hazard would have considerable impacts on the economic, transportation, and social infrastructure of a community. • The infrastructure has experienced documented damage once.	**Medium**	**To be rated as medium adaptive capacity the following conditions may apply:** • There are minimal mitigation efforts in effect or planned mitigation efforts for the infrastructure. • There are sub-optimal redundant facilities and/or long length detours in place.
High	**To be rated as high exposure the following conditions may apply:** • The hazard is highly likely to happen near the location of the asset, typically seen as events that happen at intervals of every 1 to 10 years or have a probability of happening 75-100 percent.	**To be rated as high sensitivity the following conditions may apply:** • The loss or damage caused by this hazard would have significant impacts on the economic, transportation, and social infrastructure of a community, or may have impacts on the region at large. • The infrastructure has experienced documented damage two or more times. • It has been identified in DOT&PF twice damaged report.	**Low**	**To be rated as low adaptive capacity the following conditions may apply:** • There are no mitigation efforts in effect or planned mitigation efforts for the infrastructure. • There are no redundant facilities and/or detours in place.

2.2.2 Mitigation Strategies

Three hazard mitigation strategies were presented for DOT&PF staff's consideration (Table 4). These strategies are based in planning practices and focus on community education and preparedness, infrastructure inspections and repairs, and, as a last resort, community or infrastructure relocation. The first strategy is to protect infrastructure in place by using planning, engineering, or natural environment solutions to keep hazards at a manageable level, often supported by outreach and coordination with emergency management partners. The second strategy is to accommodate hazards by strengthening or stabilizing infrastructure so it can continue functioning during disruptions. The third strategy, used only when other strategies are no longer feasible, is managed retreat, which involves moving infrastructure away from high-risk areas and requires significant community support and resources.

Table 4: Mitigation Strategies

MITIGATION STRATEGIES	
Protect in Place	• Based in engineering or planning solutions or practices that keep the threat/hazard at a manageable level. These practices can be person-made or based in the natural environment. • Often seen as working in community outreach and education, environmental restoration, safety committees and policy boards, and implementation of management plans. • Requires identification of hazards and at-risk locations, collaboration with federal and non-profit emergency management organizations, and community outreach.
Accommodate	• Methods to enhance the infrastructure and community in a way that allows the threat to continue but keeps extreme damage from happening. • Often seen as implementing engineering practices to stabilize, maintain, and prepare for what could happen. • Requires funding for robust inspections of infrastructure, staff to perform inspection, engineering staff to design and implement safe and effective designs, staff for construction, and collaboration with federal and non-profit emergency management organizations.
Managed Retreat	• Works to permanently move infrastructure away from the threat completely, often after exhausting all other efforts. • Often seen as a whole community moving at once, not single pieces of infrastructure moving. It is an emotionally tolling choice for a community to make as it forever changes the community. • Requires community cooperation, collaboration, funding, and available resources.

2.2.3 Risk and Resiliency Assessment Outcomes

The risk and resiliency assessment identified strengths and weaknesses for Southeast's multi-modal transportation network. With all but three communities located on the coast, marine transportation plays a critical lifeline when other modes are disrupted, representing a strength overall. Still, a lack of redundancy for each mode is identified as a vulnerability. In many communities, a single road serves as the only access to important destinations such as ports, airports, medical facilities, or fuel storage. Many communities in Southeast also rely on a single airport. Disruptions to a single asset or corridor can significantly reduce regional and local mobility and emergency response capability.

This section summarizes the outcomes from the community risk assessment, Southeast Conference scenario planning workshop, and the DOT&PF Risk-Resiliency Workshop. All potential mitigation strategies discussed are described in summary in this section while actions recommended for advancement are summarized in Section 2.3 Recommendations.

2.2.3.1 Roads

The risk and resiliency assessment found that roads are vulnerable to hazards and weather events, with some corridors at greater risk than others. For many communities, there is a limited or no redundancy in the road network, meaning that a road may serve as the only access to or from the community, or to a destination within a community. As a result, an event that damages a road or a crash that causes a road closure can significantly impede movement of traffic to or from and within communities. Constrained right-of-way along many corridors further limits opportunities to provide redundant routes or expand existing infrastructure.

One factor that provides for resilience in Southeast is the multi-modal nature of the transportation system, which allows for potential travel and goods movement via marine and aviation services when disruptions occur in the road network. While this provides regional flexibility, communities remain constrained by the lack of redundancy within the road system. Egan Drive in Juneau was identified as a single route corridor particularly at risk as a high trafficked corridor providing the only connection between the downtown core, residential areas, ports, the airport, and ferry terminals. Haines Highway, Klondike Highway (Skagway), and Salmon River Road (Hyder) were identified as single route corridors that provide surface access to Southeast from outside the region.

Multiple Southeast roads have experienced damage, primarily from landslide and rockfall events, including:

- Haines Highway (Haines)
- Klondike Highway (Skagway)
- North Douglas Highway (Juneau)
- North Tongass Highway (Ketchikan)
- Sawmill Creek Road (Sitka)
- Zimovia Highway (Wrangell)
- Multiple corridors on Prince of Wales Island

Additionally, Lutak Road in Haines is an example of an asset that as experienced repeated hazard exposure.[12] The TAMP's Twice Damaged Asset Report documents major landslide-related damage in 1998 and 2005, followed by multiple landslides in 2020[13] that closed the road and required debris removal and repairs. Because of this repeated damage, federal regulations require an evaluation of mitigation strategies to prevent future losses.[14] Along with identifying roads at greatest risk from landslide and rockfall events, DOT&PF staff identified additional roads less at risk in the region, including Garteeni Highway (Hoonah), Kootznahoo Highway (Angoon), Airport Road (Yakutat) and Halibut Point Road (Sitka). Appendix 4 provides a detailed assessment of select roads, including mitigation strategies and potential actions.

Severe winter weather is a significant risk to road reliability and resiliency in Southeast. DOT&PF staff noted severe winter weather impacts vary widely depending on the availability of maintenance equipment and staffing, which strongly influences a corridor's adaptive capacity during storm events. Limited snow management equipment and snow storage capacity were identified as ongoing constraints, particularly during prolonged or intense winter storms. More frequent icy conditions are contributing to the operational challenges of the transportation system. Additionally, avalanche risk is a concern for several corridors including:

- Thane Road (Juneau)
- Klondike Highway (Skagway)
- Haines Highway (Haines)
- Salmon River Road (Hyder)
- Dyea Road (Skagway)

While identified as lower exposure for a snow avalanche, Glacier Highway and Egan Drive, both located in Juneau, are in avalanche paths.

In addition to hazard-specific vulnerabilities, difficulty maintaining a state of good repair was cited frequently as a threat to the road network. DOT&PF staff identified that many culverts are undersized or nearing the end of their service life. Preventive road maintenance is limited due to these failing subsurface assets. Under-sized or deteriorating culverts also reduce system resilience to weather-related stressors because they are less able to accommodate routine rainfall and snowmelt and increasingly more frequent extreme precipitation events.

A range of additional system level concerns were also identified:

- Concern about the integrity and reliability of the region's aging traffic signal system, noting that while a future Highway Safety Improvement Program (HSIP) project is under consideration, deferred upgrades pose ongoing operational and safety risks.
- Traffic impacts associated with development have not always been accurately anticipated, and the current wording of Traffic Impact Analysis (TIA) regulations can place DOT&PF in the position of implementing required improvements rather than developers.

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[12] Alaska Department of Transportation & Public Facilities. (2025, February). Twice Damaged Assets Report. https://dot.alaska.gov/stwddes/asset_mgmt/

[13] KTOO. (2020, December 2). Mudslides, washouts close many roads in Haines.

[14] 23 CFR Part 667

- Concerns were raised regarding limited snow-management equipment and snow-storage capacity.
- Some DOT&PF roads serve predominantly local needs, raising the question of whether local ownership might be more suitable under certain conditions.
- Although sea level rise has historically been offset by isostatic rebound in parts of the region, it remains a long-term consideration for coastal transportation infrastructure.

2.2.3.1.1 Potential Mitigation Strategies

For the road network, several mitigation strategies were discussed including strategies focused on protect-in-place and accommodate. Managed retreat was not discussed as a viable mitigation strategy.

Protect in Place Mitigation Strategies

Potential protect-in-place strategies include:

- Continue routine maintenance and emergency response to address closures and localized damage.
- Advance programmed capital projects where improvements are already underway, particularly in corridors with limited redundancy.
- Coordinate with local jurisdictions and emergency response partners to maintain road access during hazard events.

Accommodate Mitigation Strategies

Potential accommodate strategies include:

- Implementation of slope-related measures such as debris flow management, rock slope stabilization, and landslide mitigation.
- Landslide susceptibility mapping to identify hazards originating outside the right-of-way for roads identified in Table 5.
- Implementation of remote avalanche control and detection systems to improve forecasting and mitigation for roads identified in Table 5.
- Drainage improvements, including culvert replacement projects to address existing hydrological capacity constraints.
- Completion of the culvert inventory (location and condition) to prioritize culvert replacement projects.

Table 5: Roads identified for landslide susceptibility mapping and avalanche control and detection systems

BOROUGH/CENSUS AREA	LANDSLIDE SUSCEPTIBILITY MAPPING	AVALANCHE CONTROL AND DETECTION SYSTEMS
Haines Borough	Haines Highway MP 13 to the Canadian Border	Haines Highway
Juneau, City and Borough of	Thane Road, Glacier Highway, North Douglas Highway	Thane Road
Ketchikan Gateway Borough	North Tongass Highway South Tongass Highway	None identified
Petersburg Borough	Mitkof Highway	None identified
Prince of Wales-Hyder Census Area	Craig/Klawock/Hollis Highway Big Salt Lake Road Hydaburg Road	Salmon River Road
Sitka, City and Borough of	Sawmill Creek Road	None identified
Skagway, Municipality Borough	Klondike Highway, Dyea Road	Klondike Highway Dyea Road
Wrangell Borough	Zimovia Highway	None identified

While opportunities to increase network redundancy are limited, potential improvements do exist in some communities. The assessment identified mitigating risk through the construction of an additional crossing between Juneau and Douglas as a high priority. This project would not only provide critical redundancy for residents of Douglas Island but also provide an alternative route if Egan Drive is closed due to a landslide, avalanche, or dam-release incident. In other communities with existing local road networks that can function as alternate routes, formally designating emergency routes can further strengthen emergency response and resilience.

2.2.3.2 Bridges

Aging infrastructure and deferred maintenance make bridges vulnerable to hazards such as earthquakes, tsunami, severe weather, and flooding. Limited redundancy is a significant concern as closures can result in long detours or loss of access. Traffic and vessel collisions were identified as important risk considerations, particularly for bridges located in navigable waterways or constrained corridors. The presence of flammable materials, such as those produced by homeless encampments, is also a hazard under bridges; fires started in homeless encampments have damaged bridges in the state. In addition, tunnels were identified as a component of the regional bridge inventory, with Southeast containing two of the state's four tunnels.

Several bridges were discussed that would result in significant disruption should the bridge close, including:

- Juneau-Douglas Bridge (No. 0740, Juneau)
- Tongass Ave and Water Street Viaducts (No. 0997 and 0797, Ketchikan)
- Ward Creek Bridge (No. 0747 Ketchikan)
- Sitka Harbor Bridge (No 0245, Sitka)
- Bridges along the Klondike and Haines Highways

Additionally, the City of Klawock's Local HMP identified the Klawock River Bridge and Causeway as at risk of damage from a tsunami, posing considerable concern because damage would cut off many Klawock residents from medical and other critical services.

Some bridges are at greater risk due to existing damage or deterioration. The Tongass Ave and Water Street Viaducts are two adjacent viaduct structures in Ketchikan that are in poor condition, requiring immediate repairs and long-term replacement. While there is an available detour using city routes, these routes do not have sufficient capacity. Additionally, these viaducts are centrally located in the tourism district, meaning disruption would result in both significant traffic and economic impacts. In Juneau, the Mendenhall River Bridge (No. 0217) sustained damage in the 2024 and 2025 GLOF events, eroding the river riprap at the bridge abutment and requiring an emergency repair. The bridge is expected to need full replacement with a more robust structure to withstand continued GLOF events. Appendix 4 provides a detailed assessment of select bridges, including mitigation strategies and potential actions.

Other specific concerns raised included:

- Damage to the Lewis Reef Tunnel, located below the Ketchikan International Airport, would have an impact on the airport runway, disrupting regional connectivity.
- Several bridges in Southeast intersect active marine transportation corridors where large vessels operate in constrained conditions, creating a risk of bridge strikes. The Juneau–Douglas Bridge (Juneau) has experienced vessel strikes in the past, and additional strikes remain plausible. The John O'Connell Bridge (No. 0245, Sitka) spans a similar high activity corridor used by large commercial vessels. While no documented strikes have been witnessed or reported to date, damage on the underside of the bridge was likely caused by tall vessels.

The assessment highlighted the importance of bridges for regional and intermodal connectivity. Changing climate conditions, including more intense storms and shifts toward ice-related winter events, may further stress aging structures and reinforce the need for bridge preservation and incorporating resilience into design. Even in the absence of impactful events, deterioration over time is a significant risk given the region's reliance on bridge connections and the impacts of disruption.

2.2.3.2.1 Potential Mitigation Strategies

Several mitigation strategies were discussed for bridges including strategies focused on protect-in-place and accommodate. Managed retreat was not discussed as a viable mitigation strategy.

Protect in Place Mitigation Strategies

Potential protect-in-place strategies include:

- Continued routine maintenance, inspection, emergency response, scour protection.
- Maintaining tunnel systems and associated electrical and fire protection infrastructure.
- Advancing studies to identify alternate routes or crossings where there are long or no detours.
- Assess collision risk from vehicles or vessels, including identification of appropriate mitigation measures.
- Exploring funding or organizational approaches for a dedicated bridge maintenance crew in the Southcoast Region.
- Removing homeless debris and trash under bridges that could fuel fires.

Accommodate Mitigation Strategies

Potential accommodate strategies include:

- Advancing programmed repair and rehabilitation projects for poor condition or deteriorating bridges.
- Pursuing new bridge replacement projects and seismic retrofit improvements where necessary.
- Assessing pier protection to reduce damage from bridge strikes for bridges located in active marine transportation corridors.

2.2.3.3 Airports

Southeast airports generally demonstrate strong resilience characteristics relative to other regions of the state. Pavement condition trends indicate relatively slower deterioration rates. Many lighting systems are older, however, few have documented performance failures. Large runway footprints and comparatively favorable geotechnical conditions contribute to this positive performance. Many communities in Southeast rely on aviation as their primary, and for a few communities only, year-round mode of access. In these locations, disruptions to airport operations can significantly affect emergency response, medical access, and the movement of people and goods.

Hazards with the greatest potential to affect airport infrastructure include earthquakes, tsunami, and erosion, which are more difficult to mitigate through design alone but are supported by established emergency response practices. The assessment reinforces the importance of modal redundancy for aviation-dependent communities. When air service is compromised by weather or hazard events, the ability to rely on marine services can serve as a lifeline. However, most communities do not have daily marine service, limiting this redundancy. Marine services are also vulnerable to weather-related disruptions, though these disruptions may be shorter than for other modes.

Overall, Southeast airports have similar impacts and consequences from hazard events, however a few specific airport concerns were raised:

- Juneau International Airport (JNU) operates as a regional hub, so disruptions have cascading impacts on surrounding communities.
- Sitka Rocky Gutierrez Airport (SIT) was highlighted as an airport with existing impacts from wave activity, and wave mitigation is necessary to protect the airport runway.
- Yakutat Airport (YAK) is sensitive to power outages due to issues with the community electrical power infrastructure and is also sensitive to wildlife breaches. In 2020, an Alaska Airlines plane was damaged after hitting a brown bear on the Yakutat runway.[15]

[15] *McKinstry, E. (2020, November 16). Alaska Airlines jet hits bear on Yakutat Airport runway. KTOO. https://www.ktoo.org/2020/11/16/alaska-airlines-jet-hits-bear-on-yakutat-airport-runway/*

- Skagway Airport (SGY) was identified as potentially sensitive to erosion. A USACE project to repair the levee on the Skagway River, with proposed construction dates beginning in 2026, will construct emergency repairs on the levee to restore flood risk management capabilities and repair the levee back to pre-flood conditions.[16]
- Seaplane facilities were identified as a significant concern, as some state-owned seaplane facilities are experiencing deterioration and are not part of the National Plan for Integrated Airport Systems (NPIAS) and are therefore ineligible for federal funding for rehabilitation or replacement.

These facilities provide for important community access and redundancy. Appendix 4 provides a detailed assessment of select airports, including mitigation strategies and potential actions. Appendix 5 provides an inventory of seaplane and harbor facilities including condition and improvement recommendations. Section 2.2.3.4 Ferry Terminals and Harbors also includes a listing of Seaplane and Harbor facilities that are ranked medium to very high for repair or replacement.

There was less concern that hazard events would result in prolonged airport closures compared to road impacts, as most weather-related disruptions are typically short in duration. However, several operational and system dependencies were identified that influence airport resilience. The availability and reliability of Automated Weather Observing Systems (AWOS) are critical, as loss of weather reporting can prevent aircraft operations even when conditions may otherwise be flyable. Aging airfield lighting systems are a concern, as lighting reliability is essential during low visibility conditions common in the region. Wildlife hazards and security breaches are also operational risks that require ongoing management.

2.2.3.3.1 Potential Mitigation Strategies

Several mitigation strategies were discussed for airports including strategies focused on protect-in-place and accommodate. Managed retreat was not discussed as a viable mitigation strategy.

Protect in Place Mitigation Strategies

Potential protect-in-place strategies include:

- Maintaining operability of existing facilities, including continued routine maintenance and emergency response.
- Providing functional airport lighting systems.
- Maintaining weather reporting systems and navigational aids.
- Improving energy reliability through backup or emergency power generation for airfield lighting and other critical systems.
- Identifying interim or rapidly deployable tie-up and shore access solutions for seaplane facilities where permanent infrastructure is vulnerable or deteriorating.

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[16] Alaska Department of Administration. (2025, March). Notice of Application for State Water Quality Certification – ER-25-001 v1.0, Skagway River, US Army Corps of Engineers– Skagway River Levee Repair. https://aws.state.ak.us/OnlinePublicNotices/Notices/View.aspx?id=218792

- Maintaining current AEPs at certificated airports in accordance with 14 CFR Part 139.325[17] and ensuring that operational roles, communication procedures, and mutual aid coordination remain accurate and up to date.
- Implementing regular exercises involving airport personnel and local response agencies is important for sustaining interagency coordination and operational readiness.
- Extending structured emergency planning practices to non-certificated airports would also improve overall response capability.

Accommodate Mitigation Strategies

Potential accommodate strategies include:

- Establishing locally available stockpiles of materials to support timely airport repair and reconstruction in the event of damage to the airport runway.
- Incorporating seismic protection, erosion mitigation and flood resilience into near-term airport rehabilitation projects, as needed.
- Advancing runway, seawall, and wave mitigation improvements where exposure to coastal processes is increasing.
- Installing fencing and vegetation control to manage wildlife intrusions.
- Maintaining a system of reliable alternate landing areas.
- Expanding weather monitoring and camera coverage.
- Coordinating across aviation, marine, and road modes to preserve access during disruptions.

2.2.3.4 Ferry Terminals and Harbors

The assessment found that Southeast ferry terminals and harbor facilities are built to withstand constant marine conditions like wave action, resulting in lower hazard sensitivity. A detailed facility-level risk matrix was not completed as for other modes because the risks across facilities are similar and are generally less sensitive to many hazards. Instead, the assessment focused on system-level vulnerabilities and state-of-good-repair, identified as the primary risk for marine infrastructure. The Alaska Marine Highway System Long-Range Plan 2045 (AMHS LRP) also provides terminal specific condition information and describes erosion and sea-level rise as primary hazard risk factors.[18]

Southeast marine services and infrastructure were identified as critical to modal redundancy and emergency response when other modes are disrupted. During weather events, vessel docking may become challenging, but this is typically a limited duration issue. However, the assessment highlighted the limited redundancy for vessels within the Alaska Marine Highway System (AMHS) as a risk. When a vessel is out of service or providing service elsewhere, it cannot be easily replaced or relocated, resulting in service disruptions or reducing ability to provide emergency response services. Finally, marine services come with high-cost logistics for provision of service, which is further discussed in Section 3.1 Funding Risk Assessment.

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[17] Federal Aviation Administration. (2026, March 9). Part 139 airport certification. https://www.faa.gov/airports/airport_safety/part139_cert

[18] Alaska DOT&PF Long Range Plan 2045 Long-Range Plan - Alaska Marine Highway System

Landside infrastructure condition for state-owned harbors and seaplane facilities was identified as a near-term risk, with several cited as being in poor or deteriorating condition and without access to federal funds for improvements. These facilities were cited as a significant concern for DOT&PF due to their condition, local importance, and difficulty funding. For some facilities, if improvements are funded then local governments may accept ownership of the facilities along with future maintenance and operations. Appendix 5 provides an inventory of all state-owned harbors and seaplane facilities. Facilities on this inventory that are indicated as medium-to-high priority for repair or replacement include:

- Angoon Seaplane Float (Hoonah-Angoon Census Area)
- Elfin Cove Inner & Outer Floats (Hoonah Angoon Census Area)
- Entrance Island (Hobart Bay) Refuge Float (Petersburg Borough)
- Excursion Inlet Seaplane Facility (Haines Borough)
- Funter Bay Cannery and Seaplane Float (Hoonah-Angoon Census Area) [19]
- Funter Bay Refuge Flat (Hoonah-Angoon Census Area)
- Hoonah Seaplane Facility (Hoonah-Angoon Census Area)
- Hyder Harbor (Prince of Wales-Hyder Census Area)
- Port Protection Refuge Float, Seaplane Float and Tidal Grid (Prince of Wales-Hyder Census Area)
- Tenakee Floating Breakwaters (Hoonah-Angoon Census Area)

Other concerns raised included:

- Terminal infrastructure that cannot accommodate all ferries is an operational risk because ferries cannot be deployed to locations with incompatible terminals.
- The ferry vessels themselves are an asset with inherent risks; repairs can be both costly and lengthy, and funding is difficult to secure for ferry boat replacements.
- There are concerns for adequate staffing for the AMHS. Without sufficient staffing, AMHS service is at risk.

2.2.3.4.1 Potential Mitigation Strategies

Several mitigation strategies were discussed for ferry terminals and harbors including strategies focused on protect-in-place and accommodate. Managed retreat was not discussed as a viable mitigation strategy.

Protect in Place Mitigation Strategies

Protect-in-place strategies for ferry terminals and harbors focus on:

- Keeping shoreside facilities in a state of good repair through routine maintenance, inspections, and rehabilitation of docks, floats, ramps, and associated upland infrastructure.

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[19] During the development of this report it was indicated that a recent storm caused damage and the seaplane float has been removed. Future plans remain uncertain with regard to whether the facility will be rebuilt or decommissioned.

- Provision of docking aids, fender systems, and lighting to support safer vessel operations during adverse weather.
- Maintaining emergency response readiness and crew training for severe-weather operations.
- Planning for modal coordination during outages, so ferry service can effectively complement aviation and road systems during emergencies.

Accommodate Mitigation Strategies

Accommodate strategies include:

- Reconstructing or upgrading terminal and harbor facilities to incorporate resiliency features.
- Standardizing AMHS fleet and terminals to allow for operational flexibility.
- Continuing efforts to modernize and replace vessels.
- Identifying and developing road connections that can shorten ferry routes, reducing marine dependency.
- Pursuing transfers of harbor facilities to local governments.

2.2.3.5 Active Transportation and Transit

Active transportation (walking, biking, micromobility) serves as a flexible, resilient lifeline during disasters, providing mobility when roads are congested or infrastructure is damaged. It can enhance disaster response by offering last-mile delivery of supplies, enabling evacuations via non-motorized routes, and aiding first responder reconnaissance. Risks to active transportation infrastructure and transit systems are similar to those affecting roads. Road disruptions typically disrupt access to sidewalks, bike lanes, and transit services. As a result, a detailed hazard infrastructure risk matrix was not completed for active transportation infrastructure and transit facilities. The assessment focused on system-level vulnerabilities and opportunities.

Active transportation and transit, due to their structural and operational flexibility, can play an important role in mitigating risk during disasters. For example, in response to Typhoon Halong in October 2025, residents in impacted areas were airlifted to Anchorage where state and local government mobilized school buses and local transportation resources to transport evacuees to shelters in the city as part of coordinated emergency logistics. In the Lower 48, there are other examples of how transit plays a vital role in disaster management. The Regional Transportation Authority of Northeast Illinois developed the Flooding Resilience Plan for Bus Operations, identifying best practices for transit-based evacuation and establishing evacuation routes and bus assignments in advance.[20]

Severe weather, particularly winter weather, creates the greatest operational challenge. Heavy snow and ice make sidewalks, pathways, and transit stops difficult to traverse and access. Sidewalks and pathways may be blocked due to their temporary use for snow storage. Disruptions may take longer to resolve for active transportation infrastructure and transit systems than for the associated road. Some facilities require specialized equipment, such as the constrained-width sidewalk on the Juneau-

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[20] The Regional Transportation Authority of Northeast Illinois. (2018, March 30). Flooding Resilience Plan for Bus Operations. https://www.rtachicago.org/uploads/files/general/Drupal-Old/documents/plansandprograms/RTA%20FRPBO%20Full%20Report%20With%20Appendices.pdf

Douglas Bridge. Transit stop maintenance can vary because responsibility is divided among jurisdictions, each with different resources, priorities, and infrastructure conditions. Resourcing for winter weather response is particularly difficult due to variability from year to year and limited budgets.

In Juneau, a sidewalk snow removal priority map has been developed that establishes local clearing priorities that users can view online to gain information for specific routes. An areawide snapshot is shown in Figure 3. Priorities are based on usage and connectivity: Level 1 routes serving schools, transit stops, and business centers are cleared first within about 48 hours; Levels 2 and 3, serving moderately and lightly used routes, may take up to 72 and 96 hours, respectively. Risks related to insufficient equipment or staffing can make it difficult to meet these priority levels. Other Southeast communities lack established clearing priorities, leaving users uncertain about snow removal timing.

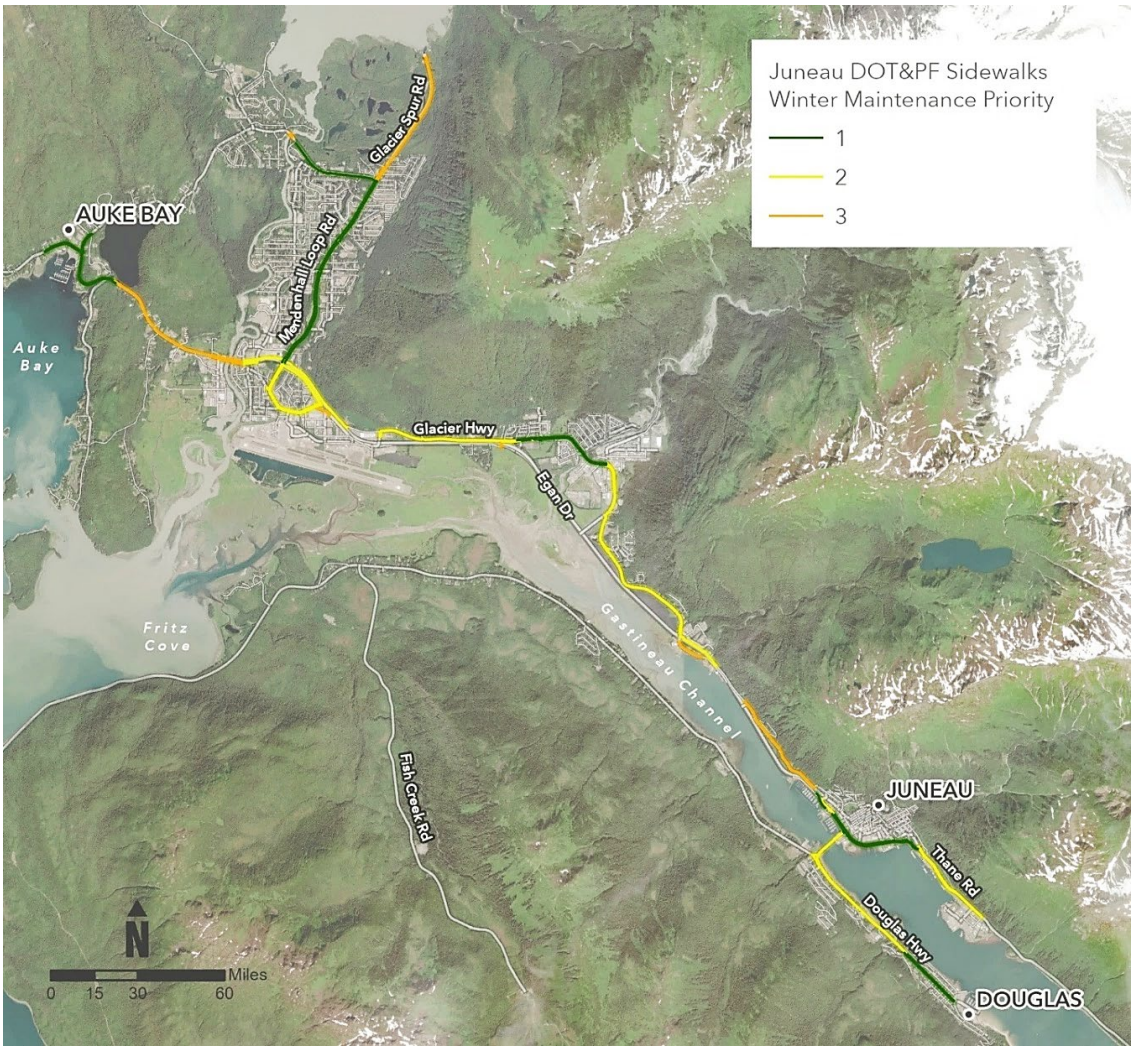

Figure 3: Juneau Sidewalk Winter Maintenance Priority

2.2.3.5.1 Potential Mitigation Strategies

Potential mitigation strategies were identified for active transportation and transit facilities including strategies focused on protect-in-place and accommodate. Managed retreat was not included as a viable mitigation strategy.

Protect in Place Mitigation Strategies

Protect-in-place strategies for active transportation and transit facilities focus on improvements to winter maintenance and providing information to users. These include:

- Improving snow and ice removal on sidewalks and transit stops and, when possible, clearing sidewalk and transit facilities at the same time as adjacent roads.
- Developing winter maintenance priority maps for additional communities would help to set priorities for resources and provide helpful information to users.
- Coordinating with transit system operators to clarify and document roles for winter maintenance is important to maintaining transit access during hazard events.

Accommodate Mitigation Strategies

Accommodate strategies for active transportation and transit facilities primarily focus on incorporating design features that reduce the need for specialized equipment.

2.2.3.6 Other Assets

A significant vulnerability was also identified in the community of Hyder related to flood protection infrastructure, which impacts the community's entire transportation network. A rock slope protected levee currently provides flood protection for Salmon River Road and many of the residential and commercial areas within Hyder. This levee protects the community from flooding associated with the Salmon River, a large, glacially-fed system that experiences one or more GLOF events during summer months. Loss or failure of this structure would result in substantial damage to transportation infrastructure, homes, and businesses.

The U.S. Army Corps of Engineers (USACE) and DOT&PF have identified numerous deficiencies in the existing levee, which is in poor condition and at risk of breach during a severe flooding event. The DOT&PF assumed responsibility for maintenance and repair of the structure in 1962. Since 2006, DOT&PF has pursued design and engineering efforts to rehabilitate or improve the levee in response to inspection findings and correspondence with the USACE. Engineering investigations have progressed to approximately 50 percent design; however, no federal funding source has been identified, and state funding has yet to be secured. Continued deterioration of the levee without improvements presents a growing risk to both the transportation system and the long-term viability of the community.

2.2.3.6.1 Potential Mitigation Strategies

The Hyder Levee requires specific action to advance the existing levee design to completion which requires the identification of state and federal funding. Interim measures to monitor the levee condition should continue.

2.2.3.7 Operational Readiness and Response

Operational readiness and the ability to scale operations when and where events occur is critical to maintaining a resilient and responsive system. DOT&PF's increasing response to emergency events was a recurring topic throughout the assessment, both highlighting this important role and identifying potential additional activities for DOT&PF and communities.

The assessment identified opportunities to strengthen resilience through more robust planning and coordination. In some communities, emergency response plans are outdated or may not be sufficiently comprehensive. AEPs are available (and required) for airports certificated under 14 CFR Part 139.325 but would benefit non-certificated airports as well. Southeast Conference workshop participants noted that emergency planning should consider issues such as the ability of emergency workers to travel between their residences and emergency sites and changes in wildlife movement following hazard events.

Staffing and available resources following an emergency is a continuing challenge. Existing maintenance and operations staff must continue to meet routine system needs, often necessitating the use of contractors for emergency response and repairs. However, contractor availability is limited in many parts of Southeast. In communities affected by an event, there may only be a single contractor, often already engaged or lacking additional capacity.

The DOT&PF uses technology to help with response and augment limited staffing, and it is important to continue to explore opportunities to leverage its value. Drones were used to capture LiDAR mapping data and aerial imagery following the GLOF events in Juneau. Additionally, DOT&PF is expanding the use of remotely deployed Unmanned Aircraft Systems (UAS), docking systems distributed across the state to support remote operations and near-real-time field reporting and asset visibility. These dock-based systems allow unmanned aircraft to be launched, recovered, charged, updated, and monitored without requiring personnel to be physically present at each location. A dock based UAS system was used for the response to the 2023 landslide in Wrangell.

More recently, DOT&PF has led response efforts on the West Coast of Alaska following Typhoon Halong. Under an integrated Incident Command Structure (ICS), DOT&PF collected and processed a significant amount of data from UAS and GoPro 360 footage supplemented by surveys populated by people 'on the ground,' transforming it into available information for use on dashboards, hub sites, and similar to provide information to decision-makers and real-time documentation that supports future fund reimbursements.[21] The workflows developed for this response effort may serve to support and expand future response efforts, while conserving staff and funding resources.

DOT&PF is also increasingly collecting routine data and providing dashboard tools to provide information to users and to support the prediction of hazard events. Dashboards available include 511 Know B4 U Go, Avalanche Forecasts & Road Impacts, Winter Operations, and Road Weather Information.

511 Know B4 U Go

DOT&PF's 511 Know B4 U Go portal[22] provides real-time information on road conditions, traffic incidents, construction and maintenance activities, current and planned closures, weather impacts, wildfires, special events, and other travel-related updates.

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[21] Alaska Department of Transportation & Public Facilities. (2026, February 13). Lunch and learn: How we built a shared view of the storm (and accelerated recovery) with innovative tools. In Motion (ArcGIS Hub). https://in-motion-akdot.hub.arcgis.com/

[22] Alaska DOT&PF. (n.d.). 511 Know B4 U Go [porta]. Retrieved May 2026. https://511.alaska.gov/

Avalanche Forecasts & Road Impacts

The Avalanche Forecasts & Road Impacts dashboard[23] presents recent avalanche forecasts, occurrences, and avalanche related road closures. The dashboard allows for data to be sorted based on identified forecast zones which for Southeast include Klondike Highway, MP 7-15 (Figure 4), Thane Road, MP 1-4 (Figure 5), and Egan Drive, MP 1.5-3 (Figure 6).

[23] *Esri. (n.d.). Alaska DOT&PF Avalanche Forecasts & Road Impacts [ArcGIS Dashboard]. Retrieved May 2026. https://akdot.maps.arcgis.com/apps/dashboards/203851f1092a463abc39e0a18b8f0373*

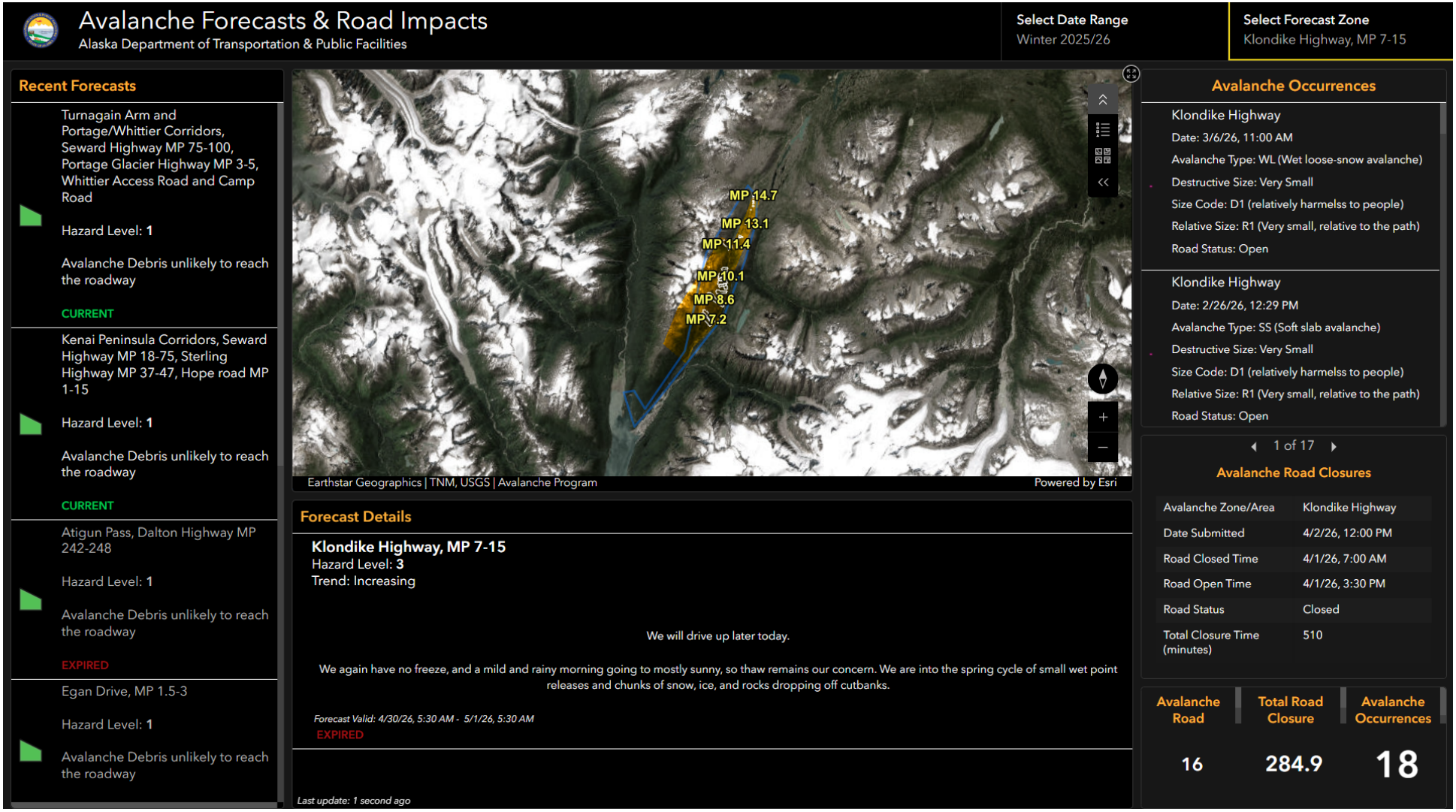

Figure 4: DOT&PF's Avalanche Forecasts & Road Impacts Dashboard, Klondike Highway, MP 7-15 (May 2026)

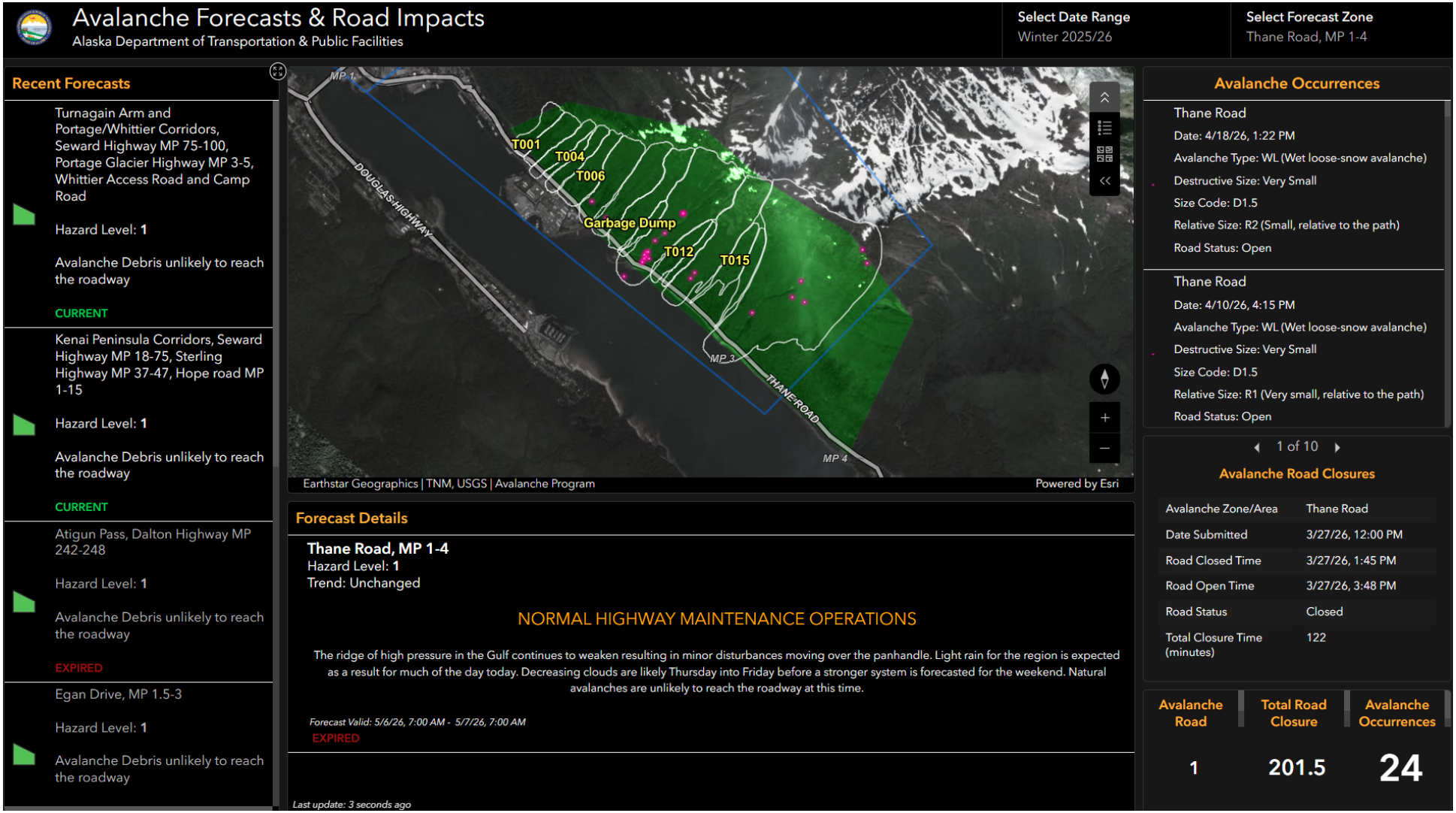

Figure 5: DOT&PF's Avalanche Forecasts & Road Impacts Dashboard, Thane Road, MP 1-4 (May 2026)

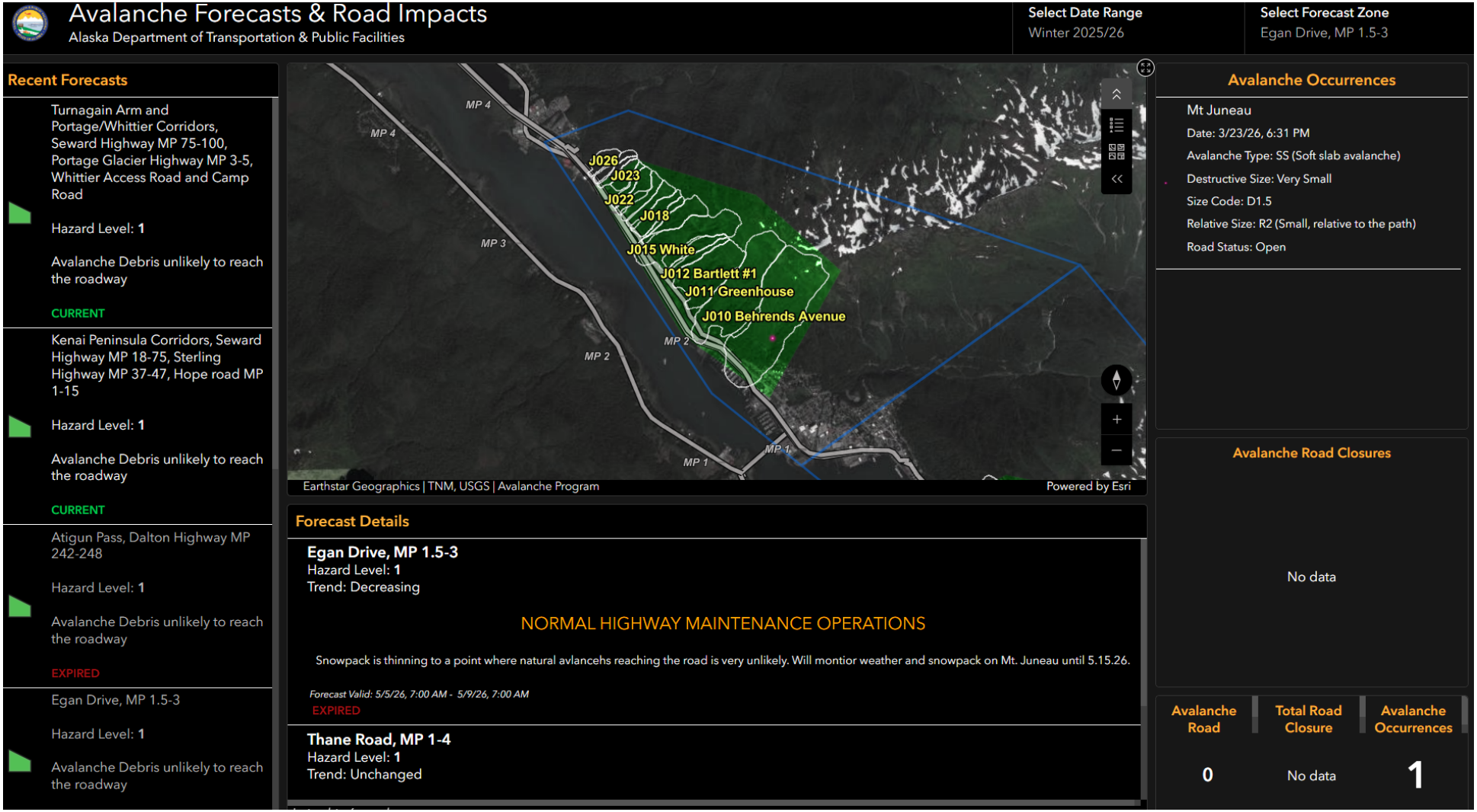

Figure 6: DOT&PF's Avalanche Forecasts & Road Impacts Dashboard, Egan Drive, MP 1.5-3 (May 2026)

Winter Operations

The Winter Operations Dashboard (Figure 7)[24] displays the current location of DOT&PF snowplows, snowplow route history, and road priority level.

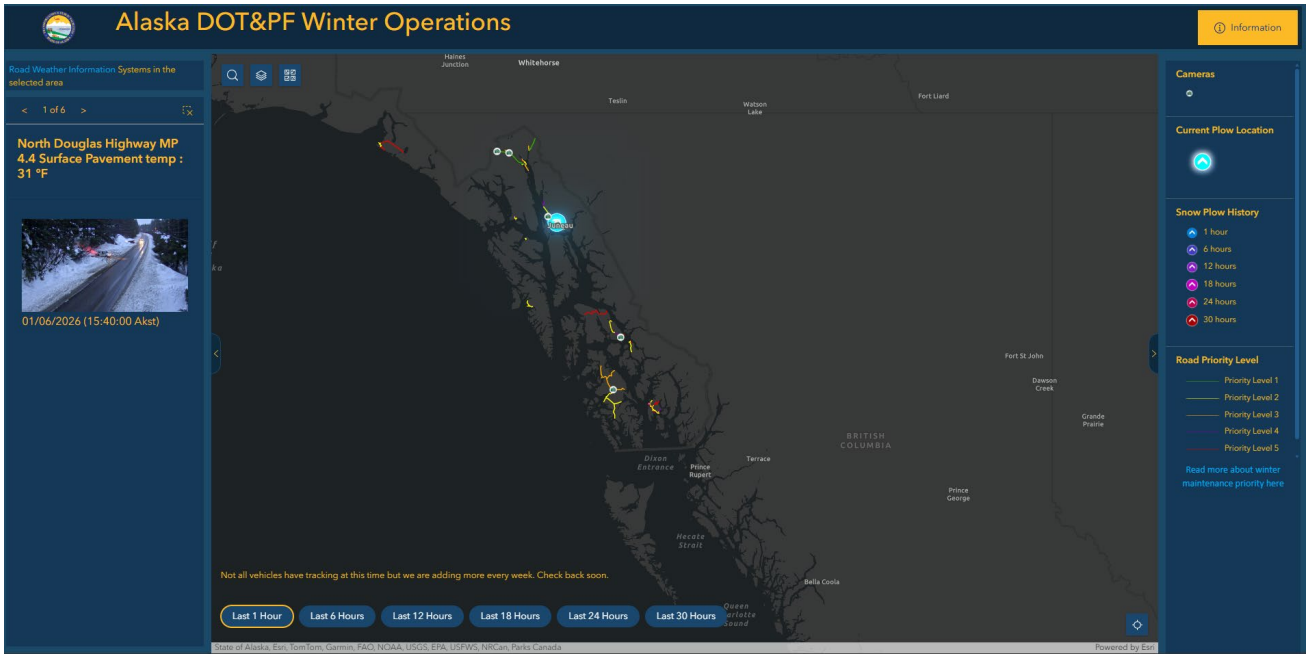

Figure 7: Alaska DOT&PF Winter Operations Dashboard

Road Weather Information System

The Road Weather Information System dashboard (Figure 8) provides information to users to make travel decisions and for M&O winter maintenance decisions. During the assessment it was noted that additional weather stations would be helpful, as some communities only have weather stations located at their airport and do not have roadway weather stations in other parts of the community which may experience different weather conditions.

[24] *Esri. (n.d.). Alaska DOT&PF Winter Operations [ArcGIS Dashboard]. Retrieved January 6, 2026, from https://experience.arcgis.com/experience/cf0f4221d3d940a4a331bf37fffe8284?dlg=Window*

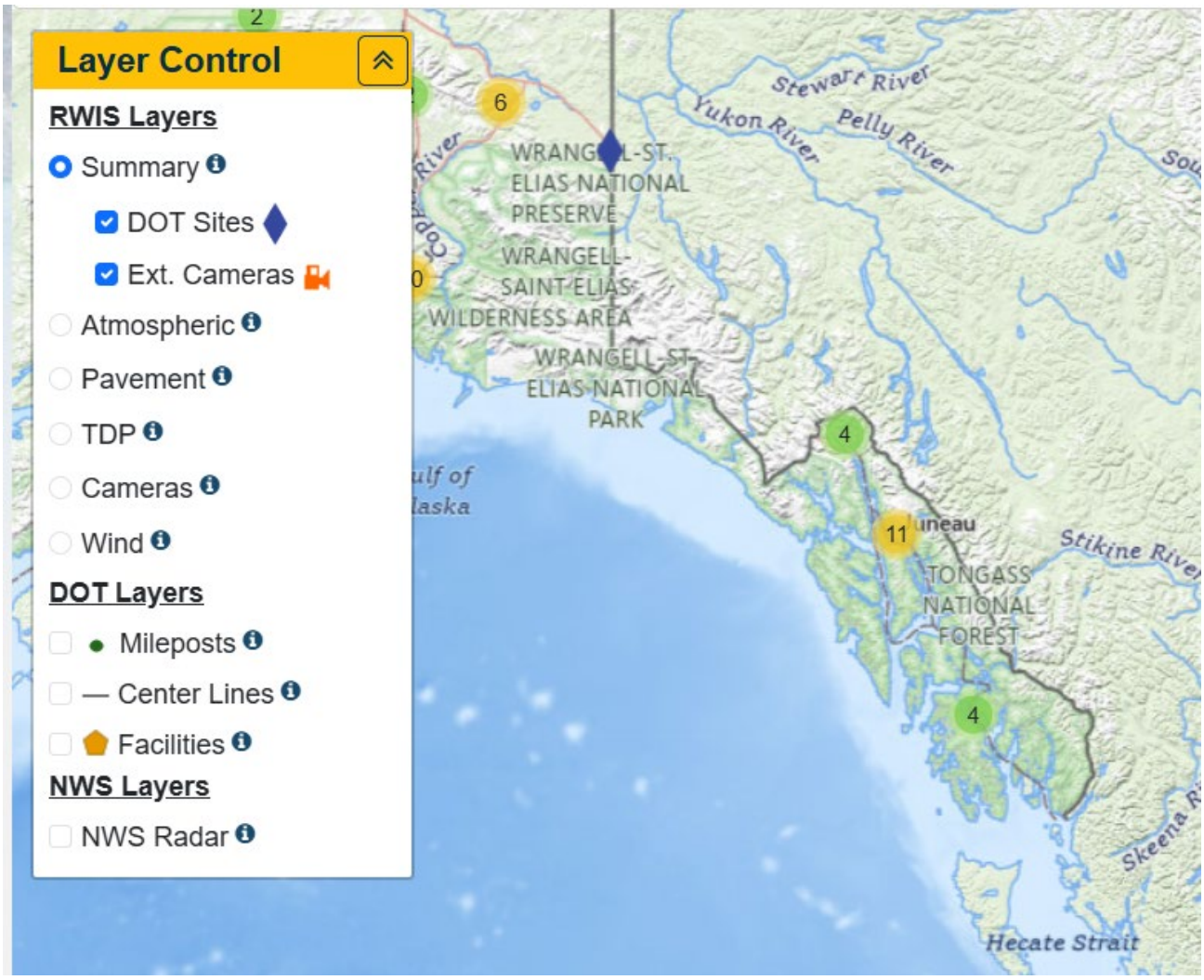

Figure 8: DOT&PF RWIS Dashboard (May 2026)

The DOT&PF also applied for and received a grant through the Strengthening Mobility and Revolutionizing Transportation (SMART) Program to implement the Alaska Rural Remote Operations Work Plan (ARROW), providing another opportunity to collect and use data. Through this grant, the DOT&PF successfully deployed operational UAS to ten communities across Alaska, including the City and Borough of Juneau in Southeast. The program has provided resources to develop standard data workflows and governance and a statewide GIS database for sharing critical climate, public health and socioeconomic data. The DOT&PF is seeking an additional grant to implement Stage 2, Scalable Operations and Advanced Remote Technologies (SOAR).[25]

[25] *Alaska Department of Transportation & Public Facilities. (n.d.). ARROW program overview. ArcGIS Hub. https://arrow-program-overview-arrowak.hub.arcgis.com/*

Increasing hazard events in Southeast require reliable and timely funding to respond effectively. The DOT&PF currently has a process whereby operating funding is initially used to allow for quick response to emergencies. Cost collector accounting codes are set up internally if DOT&PF determines the event response to be non-routine (i.e., beyond typical snow removal or other maintenance efforts). By establishing a cost collector accounting code, DOT&PF can track expenditures and later recover funds spent from routine operational budgets through the transfer of those expenses to a capital project specifically designated for emergency response, often supported with state or federal emergency funding. In most cases, a disaster declaration is necessary to access these supplemental funds and fully reimburse response costs. This process can take a significant amount of time and DOT&PF's internal processes are set up to accommodate these lengthy timelines.

2.2.3.7.1 Potential Mitigation Strategies

Regarding operational readiness and response, several mitigation strategies were discussed including strategies focused on protect-in-place and accommodate.

Protect in Place Mitigation Strategies

The following protect-in-place strategies were identified to emphasize strengthening coordination, planning, and response capacity:

- Pursuing partnerships between DOT&PF, communities, tribes, and emergency response agencies could support the identification and formalization of emergency routes within communities and document staff availability during hazard events.
- Updating and expanding community emergency plans to address transportation access, workforce mobility, wildlife hazards, and restoration priorities would support response and recovery. Similarly, provision of AEPs for non-certificated airports would support response and recovery related to airport operations.
- Exploring advance emergency procurement mechanisms to pre-qualify or pre-contract emergency response contractors across multiple communities to allow staff and equipment to be shared during major events.
- Consider additional RWIS stations to provide real-time weather information for travel and M&O decisions, prioritizing communities that do not have RWIS.

Accommodate Mitigation Strategies

Potential accommodate strategies emphasize digital infrastructure and telepresence as core parts of adaptive capacity. This includes the use of drones, dock-based aircraft, standardized inspection workflows, and redundant communications for assessing post-event conditions. These measures can cut response time, reduce exposure to personnel, and improve federal documentation. This is particularly helpful in communities with limited access or where hazards directly restrict ground-based inspections.

2.3 Recommendations

This section includes the identified infrastructure-related risk and resiliency recommendations. These recommendations are presented in four categories, 1) Programmatic and Funding, 2) Policy and Planning Engagement, 3) Recommended Plans and Studies, and 4) Recommended Capital Investments, along with their corresponding transportation mode.

The recommendations in this section will be carried forward for further consideration in the SEATP Funding and Implementation Technical Memorandum.

2.3.1 Programmatic and Funding

The recommendations included in Table 6 relate to programs and funding, including maintenance, preservation, and operations.

Table 6: Programmatic and Funding Infrastructure Recommendations

MODE	RECOMMENDATION
Multi-Modal Network	Continue routine maintenance and emergency response to address closures and localized damage for all transportation facilities.
Multi-Modal Network	Expand the regional network of weather-reporting stations to improve forecasting accuracy and operational decision making.
Roads	Implement slope-related measures such as debris flow management, rock slope stabilization, and landslide mitigation. This effort should be supported through landslide susceptibility mapping.
Bridges	Preserve existing bridge and tunnel structures to maintain safe operations under current conditions through continued routine maintenance, inspection, and emergency response. This includes the maintenance of associated electrical and fire protection infrastructure for tunnels.
Bridges	Complete scour protection for bridges experiencing or susceptible to erosion.
Bridges	Explore funding or organizational approaches for a dedicated bridge maintenance crew out of the DOT&PF's Southcoast Region Office.
Bridges	Support pursuit of seismic retrofit improvements.
Aviation	Maintain operability of existing facilities through continued routine maintenance and emergency response. These actions include maintaining functional airport lighting systems, weather reporting systems, navigational aids, fencing, and vegetation control.
Ferry Terminals and Harbors	Prioritize maintaining shore-side facilities in a state of good repair through routine maintenance, inspections, and rehabilitation of docks, floats, ramps, and associated upland infrastructure. Improve docking aids, fender systems, and lighting to support safer vessel operations during adverse weather conditions. The AMHS LRP provides specific facilities and priorities.
Ferry Terminals and Harbors	Maintain emergency response readiness and crew training for severe-weather operations.
Active Transportation and Transit	Improve snow and ice removal on sidewalks and at transit stops, when possible, clear these facilities at the same time as adjacent roads.
Active Transportation and Transit	When designing active transportation and transit facilities incorporate design features that reduce the need for specialized snow removal equipment.

2.3.2 Policy and Planning Engagement

The recommendations included in Table 7 relate to policy and planning engagement, including the development of systems and processes and coordination with local agencies and organizations.

Table 7: Policy and Planning Engagement Infrastructure Recommendations

MODE	RECOMMENDATION
Multi-Modal Network	Support provision of transportation access, identification and formalization of emergency routes within and between communities, and documentation of staff availability during hazard events through coordinated efforts between DOT&PF, communities, tribes, and emergency response agencies. Workshops may be helpful venues for kick-starting multi-agency coordination.
Multi-Modal Network	Explore advance emergency procurement mechanisms to pre-qualify or pre-contract emergency response contractors across multiple communities to allow staff and equipment to be shared during major events.
Multi-Modal Network	Support/Encourage the use of dock-based UAS, standardized inspection workflows, and redundant communications for assessing post-event conditions.
Aviation	Identify interim or rapidly deployable tie-up and shore-access solutions at seaplane facilities where permanent infrastructure is vulnerable or deteriorating.
Aviation	Work with communities to establish locally available stockpiles of materials to support timely airport repair and reconstruction in the event of damage to the airport runway.
Aviation	Maintain a system of reliable alternate landing areas.
Aviation	Strengthen the function and application of Airport Emergency Plans (AEPs) across Southeast. This includes maintaining current AEPs at certificated airports in accordance with 14 CFR Part 139.325 and ensuring that operational roles, communication procedures, and mutual aid coordination remain accurate and up to date.
Roads	Consider additional RWIS stations to provide real-time weather information for travel and M&O decisions, prioritizing communities that do not have RWIS.
Active Transportation and Transit	Work to develop winter maintenance priority maps for communities to help set priorities for resources and to provide helpful information to users.
Active Transportation and Transit	Coordinate with transit system operators to clarify and document roles for winter maintenance to assist in maintaining transit access during hazard events.

2.3.3 Recommended Plans and Studies

Table 8 includes recommended plans and studies to further explore and elevate potential risk and resiliency solutions.

Table 8: Recommended Infrastructure Plans and Studies

MODE	RECOMMENDATION
Roads	Conduct landslide susceptibility mapping to identify hazards originating outside of the rights-of-way, corridors for mapping include: • North Tongass Highway • Thane Road • South Tongass Highway • Mitkof Highway • Craig/Klawock/Hollis Highway • Big Salt Lake Road • Sawmill Creek Road • Klondike Highway • Zimovia Highway
Roads	Complete the ongoing culvert inventory to further support improved culvert asset management and long-term resilience.
Bridges	Support the development of studies that assess collision risks to bridges from vehicles or vessels and identify appropriate mitigation measures. For bridges located in active marine transportation corridors, these studies should consider the implementation of pier protection.
Bridges	Support planning efforts focused on identifying and providing routes or crossings where long detours or lack of redundancy increase system vulnerability.
Aviation	Encourage the development of AEPs for non-certificated airports.

2.3.4 Recommended Capital Projects

Table 9 includes recommended capital projects to lower the risk to infrastructure in the Southeast and to enhance the Southeast's resilience.

Table 9: Recommended Infrastructure Capital Projects

MODE	RECOMMENDATION
Multi-Modal Network	Support the advancement of the existing Hyder Levee design to completion through the identification of state and federal funding sources; in the interim, continue measures to monitor levee conditions.
Roads	Advance programmed capital projects where road improvements are already underway. Specific project priorities include: • Final stage of Haines Hwy MP 3-25 Project (STIP IDs 2152, 26330) • South Tongass Projects (STIP IDs 27766, 21114, 23455)
Roads	Advance rock slope and erosion protection projects. Specific project priorities include: • North Douglas Highway rock slope mitigation at MP 10 historic rock fall source. Potential additional project to realign sections of North Douglas Highway away from the cliff side. • Sawmill Creek Road rock slope mitigation project at MP 5 historic rock fall source. • Dyea Road erosion protection project along Taiya River near MP 6.5.
Roads	Evaluate and implement remote avalanche control and detection systems to improve forecasting and mitigation in avalanche-exposed corridors. Prospective corridors include Thane Road, Klondike Highway, Salmon River Road, Dyea Road, and Haines Highway.
Roads	Implement drainage improvements, including culvert replacement projects, that have been identified to address existing capacity constraints and improve performance under heavy rainfall and snowmelt conditions.
Roads	Continue to support the development of a North Crossing in Juneau (STIP ID 34146) to aid in providing redundancy for Juneau's transportation system.
Bridges	Advance programmed repair and rehabilitation projects for poor condition or deteriorating bridges and culverts. Priority projects include: • Tongass Ave and Water Street Viaduct repair projects (STIP IDs 31719, 34457, 34458). Identify funding for full viaduct replacement project(s). • Ward Creek Bridge Replacement (Need ID 31469). • Three Mile Creek culvert replacement (STIP 34566).
Bridges	Pursue an improvement project for the Mendenhall River Bridge (Back Loop) to create a more resilient structure. Currently, efforts are focused on accommodating with engineering practices, but this structure will eventually need to be replaced with a more robust structure.
Bridges	Lewis Reef Tunnel Updates: • Complete electrical/fire protection project. • Develop a mitigation plan to support the identification of necessary actions and outreach in the event of tunnel failure impacting airport runway operations.
Bridges	Funds are available to remove homeless debris for bridge inspection access, but not to permanently address homeless encampments and flammable materials under bridges. Further funding and resources would be needed to remove flammable materials from under bridges, especially in Ketchikan, Juneau, and Sitka.
Aviation	Implement ways to improve energy reliability through back-up or emergency power generation for airfield lighting and other critical systems. This also includes exploring community-wide electrical power infrastructure. Airports identified for Southeast include Yakutat and Wrangell.
Aviation	Advocate for the incorporation of seismic protection, erosion mitigation, and flood resilience into near-term airport rehabilitation projects, as needed. Airports identified for Southeast include Skagway.
Aviation	Advance projects that focus on runway, seawall, and wave-mitigation improvements where exposure to coastal processes is increasing. Airports identified for Southeast include Sitka.
Aviation	Explore opportunities to mitigate wildlife intrusions at all airports. Potential opportunities include installing fencing, implementing vegetation control, or using emerging technology similar to Aurora,

MODE	RECOMMENDATION
	Fairbanks International Airport's robotic helper. Airports with notable wildlife hazards identified for Southeast include Yakutat and Kake.
Ferry Terminals and Harbors	Implement project recommendations identified in the AMHS LRP.
Ferry Terminals and Harbors	Identify funding and advance projects that address all deteriorating harbor and seaplane facilities. As facilities are improved, identify opportunities to transfer facilities to local governments. Facilities with the medium to high priority needs include: • Angoon Seaplane Float (Hoonah-Angoon Census Area) • Elfin Cove Inner & Outer Floats (Hoonah Angoon Census Area) • Entrance Island (Hobart Bay) Refuge Float (Petersburg Borough) • Excursion Inlet Seaplane Facility (Haines Borough) • Funter Bay Cannery and Seaplane Float [26] (Hoonah-Angoon Census Area) • Funter Bay Refuge Float (Hoonah-Angoon Census Area) • Hoonah Seaplane Facility (Hoonah-Angoon Census Area) • Hyder Harbor (Prince of Wales-Hyder Census Area) • Port Protection Refuge Float, Seaplane Float and Tidal Grid (Prince of Wales-Hyder Census Area) • Tenakee Floating Breakwaters (Hoonah-Angoon Census Area)

[26] During the development of this report it was indicated that a recent storm caused damage and the seaplane float has been removed. Future plans remain uncertain with regard to whether the facility will be rebuilt or decommissioned.

3.0 NON-INFRASTRUCTURE RISK AND RESILIENCY

The Southeast transportation system faces risks that do not directly impact infrastructure. This section provides a brief assessment of potential risks related to future funding and population uncertainty and strategies to improve resilience. This assessment was informed by discussions at both the Southeast Conference scenario planning workshop and the DOT&PF Risk-Resiliency Workshop.

3.1 Funding Risk Assessment

Stable, long-term funding is necessary for maintaining the region's infrastructure in a state of good repair and providing for improvements and new facilities. Alaska relies heavily on federal transportation funding, making it difficult to plan for the long-term. Funding has been identified as a risk due to the uncertainty of future funding.

Future transportation funding for Southeast may shift significantly due to statewide budget pressures, national economic conditions, federal reauthorization cycles, and changing policy priorities. Both decreases and increases in funding will affect infrastructure maintenance, ferry and aviation services, and long-term system investments across all modes.

Congressional reauthorization outcomes may increase or decrease available funding for highways, airports, and public transportation.

- The Infrastructure Investment and Jobs Act (IIJA) expires on September 30, 2026.
- The FAA Reauthorization Act of 2024 runs through September 30, 2028.

The IIJA included many grant programs which have provided opportunities for increased funding, but with the expiration of this bill there is uncertainty as to whether these programs will continue and some have already faced delays. For example:

- Many Southeast communities (Juneau, Ketchikan, Sitka, Gustavus, Angoon, Craig, Hoonah, Thorne Bay, Haines, Metlakatla) have recently received Safe Streets For All (SS4A) grants for Safety Action Plans. These plans provide opportunities to apply for implementation grants and there is uncertainty as to whether the program will be continued in surface reauthorization.
- The AMHS has planned to use a new federal grant program, Ferry Service for Rural Communities Program, to help fund ferry operations. The grant that was expected to be issued last year was not released, leaving a $78 million gap in the $170 million budget for the current calendar year.[27] The opportunity to apply for both the 2025 and 2026 appropriated funds was announced on April 6, 2026.[28]

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[27] *Samuels, I. (2026, February 2). Alaska ferry system faces $78M budget hole after Trump administration delays federal grant. Anchorage Daily News. https://www.adn.com/politics/alaska-legislature/2026/02/02/alaska-ferry-system-faces-78m-budget-hole-after-trump-administration-delays-federal-grant/*

[28] *Federal Transit Administration. (2026, April 6). *FY 2026 notice of funding opportunity: Passenger Ferry Program, electric or low-emitting ferry pilot program, and ferry service for rural communities program*. U.S. Department of Transportation. https://www.transit.dot.gov/notices-funding/fy-2026-notice-funding-*

One opportunity DOT&PF annually pursues is the opportunity to secure additional federal obligation authority through a process called August Redistribution. August Redistribution reallocates FHWA spending authority that other states have not used to states that are ready to put it to work quickly and in line with federal requirements. In 2025, Alaska received $183.4 million, the largest August Redistribution in state history.[29]

3.1.1 Risk and Resiliency Assessment Outcomes

This assessment found that Southeast Alaskans are dependent on reliable transportation funding to support daily mobility, cultural connections, medical travel, school travel, supply chains, and economic activity. Transportation funding is also important for emergency response and long-term resilience. When funding is limited, workshop participants emphasized prioritizing basic needs such as accessibility, public transportation, safety, and facilities that support emergency response and essential travel.

A frequently cited issue was the region's reliance on federal transportation funding. While federal programs represent a source of funding, they can be difficult to access. Grant programs often include complex eligibility requirements, short application timelines, and extensive documentation that are challenging, particularly with limited staff capacity. Project costs may change between application and award, creating funding gaps. Federal shutdowns and agency staffing shortages have further demonstrated a risk to funding availability and delays to project delivery. Despite these challenges, continued engagement with federal partners remains an opportunity. For example, the Federal Aviation Administration's (FAA) 2024 reauthorization included provisions that expanded eligibility for Alaska projects, reflecting the benefits of sustained coordination between the State, Alaska's congressional delegation, and federal agencies.

Workshop participants highlighted several recent successes that demonstrate the value of federal and congressionally supported programs:

- Denali Commission
  - Road design in multiple communities
  - Dock restoration in Ketchikan
  - Good River Bridge restoration in Gustavus
- Multiple Southeast communities have received SS4A grants to develop and implement community safety action plans
- Federal Transit Administration (FTA) Formula Grants for Rural Areas (Section 5311) supporting AMHS operations

[29] *Alaska Department of Transportation & Public Facilities. (2025, August 29). Alaska DOT&PF secures record-setting $183M in federal transportation funding (Press Release No. 25-0035). State of Alaska. Alaska DOT&PF Secures Record Setting $183M in Federal Transportation Funding*

Limited state funding was identified as a concern as needs exceed funding for basic maintenance needs for roads, bridges, airports, culverts, or marine facilities. As a result, many communities face growing maintenance backlogs that affect access to essential services. Lack of state transportation funds also presents a risk for emergency response because federal funds typically require a longer timeline to obligate and deploy. Sometimes funds from operational budgets are used and this has an impact on funds available for routine operations. Additionally, federal funds come with eligibility restrictions and some facilities are more difficult to fund such as the seaplane bases and harbor facilities discussed in Section 2.0 Infrastructure Risk and Resiliency. These conditions highlight the need to strengthen state support and develop a more reliable funding structure that reduces dependence on federal cycles.

Competitive statewide programs, including the Community Transportation Program (CTP) and the Transportation Alternatives Program (TAP) were also identified as constraints. These programs draw from limited funding pools that are heavily oversubscribed. As a result, communities may need support in identifying complementary funding sources and developing partnerships that expand available resources beyond traditional programs.

Multiple funding concerns were raised that emphasize the high-cost logistics of the AMHS system. Specific concerns included challenges associated with funding for replacement ferry vessels (which are more difficult to finance than shoreside infrastructure) and the need for sufficient and stable funding to retain and support AMHS staffing. A broader concern highlighted was the ability to continue to justify existing service levels given declining ridership and revenue, which is attributed to both population decline and funding uncertainty risks identified in this memo. As population declines, ridership and revenue also decline. The AMHS operations rely primarily on state funding and are subject to annual legislative approval. A short-term exception to this dependence on state funds for operational costs has been provided through the Federal Transit Administration's Ferry Services for Rural Communities Program, which allows eligibility for operating costs; however, delays in program implementation have resulted in funds not being allocated as expected, and there is uncertainty regarding continuation of the program in the next federal transportation authorization. This funding structure represents an inherent and ongoing risk unique to AMHS, as the state only provides infrastructure for other transportation modes but does not directly provide or fund ongoing service operations.

3.1.1.1 Potential Actions

Actions focused on strengthening partnerships offer an opportunity to increase access to resources and build capacity to compete for and manage transportation funds. Coordinating with federal agencies such as the FHWA, FAA, U.S. Maritime Administration, and U.S. Forest Service will continue to support program alignment and funding opportunity awareness. Partnering with tribal governments to apply Tribal Transportation Program funds toward bridge and culvert repairs, road safety improvements, and the development of transportation safety plans may open up additional funding opportunities for priority projects.

Providing shared resources, regional technical assistance, or coordinated grant support could improve access to federal and state funding and reduce administrative burden at the local level. The Alaska Municipal League has fulfilled this role for many communities and may continue to serve as a resource. Additionally, the Southeast Conference Regional Planning Organization (RPO) was recently established and will serve as a resource for transportation planning in Southeast.

Several actions were identified to support the long-term sustainability of ferry operations. Specific workforce actions included paying for in-state crew travel as a recruitment and retention strategy and addressing inequity between in-state and out-of-state travel policies to help stabilize staffing and reduce service disruptions. Specific to infrastructure, actions focus on the need for long-term funding strategies for ferry vessel replacement as well as strategies to reduce annual operations expenses that are not covered by revenue. The AMHS LRP is the primary guiding document for these actions and includes recommendations for service, fleet and terminal assets, workforce, and financial efficiency.

An AMHS LRP strategy (1B.2) that intersects more directly with the SEATP Update is to actively participate in DOT&PF planning processes to include new road connections to better connect communities to AMHS service. This strategy recognizes the potential for longer roads that can shorten ferry links to reduce AMHS operating costs and enhance service efficiency.

Southeast Conference workshop participants recommended exploring additional public/private partnerships to supplement traditional funding sources, particularly for facilities or services that support both public access and economic activity. These partnerships may help share risk, accelerate project delivery, and align transportation investments with broader community development goals. Participants also recommended advocating for an increase in the Commercial Passenger Vessel (CPV) Tax, which has not been updated in over a decade, to help address rising costs and infrastructure needs in cruise-impacted communities.

3.2 Population Risk Assessment

Changes to population impacts travel demand, funding, and user needs. The population in Southeast has been declining over the past decade. Declines are attributed to net out-migration (more people moving out of the region than moving in) outweighing gains from natural increase (births minus deaths). Figure 9 displays population by year for Southeast from 2015 to 2025.

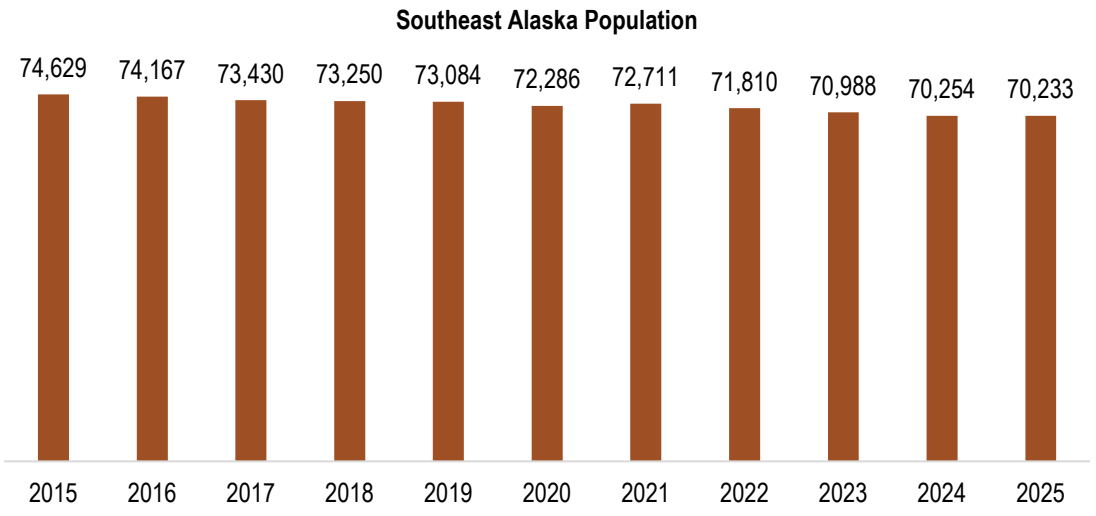

Figure 9: Southeast Population Trends 2015-2025

In the long-term, Southeast's population is projected to return to the same level as it was in the early 1980s. The general aging of Southeast's population is expected to significantly influence the next 25 years. The number of annual deaths is expected to outweigh births, leading to "natural decrease" rather than increase. This is unusual for most states in the Lower 48, as well as other regions in Alaska. Figure 10 shows population projections for Southeast through 2050.

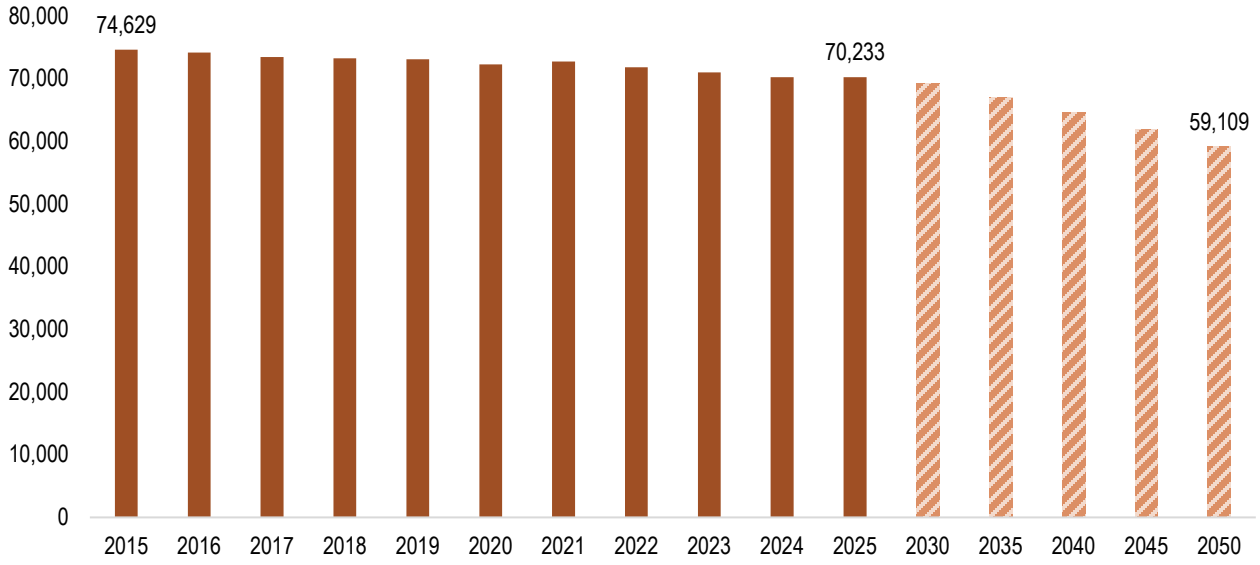

Figure 10: Population projections for Southeast

Past and projected population declines can mean less pressure on the transportation system including reduced vehicle volume and fewer riders on ferries, transit, and regional air service. Lower populations increase the per capita costs of transportation systems in a region. Aging populations with fewer working-age people can change travel patterns such as peak hour commute trips and places more emphasis on accessible transportation and medical-related trips.

3.2.1 Risk and Resiliency Assessment Outcomes

The risk and resiliency assessment confirmed and highlighted concerns that lower population could mean lower demand for transportation services, smaller revenue streams, difficulties maintaining workforce levels, and challenges in keeping long-term infrastructure investments cost-effective. This could be especially difficult for small or remote communities that already struggle to maintain essential connections to larger hubs.

Directly related to transportation, the assessment confirmed the region has experienced flat to declining traffic growth over time, and major increases in everyday traffic are not anticipated. Tourism is expected to increase travel during certain seasons or in specific locations. In areas with limited transportation options, this can lead to traffic congestion and may require targeted improvements to better manage temporary increases in travel demand.

Many emphasized the transportation system's needs that are becoming more evident as the demographics shift to an aging population. An example provided indicates that Prince of Wales is experiencing an increase in residents over age 55 and a reduction in working-age adults. This demographic shift throughout Southeast is increasing demand for accessible and on-demand transportation and medical travel. There were concerns cited about the accessibility of transit infrastructure, particularly during winter conditions.

It was also noted that changes in some industries may influence future population patterns and transportation needs in some communities. Logging and mining could bring growth to certain areas, while the fishing industry seems to be shrinking. Tourism remains important and impacts the transportation system directly with seasonal surges. Feedback was provided that limited developable land in some communities makes it hard to provide affordable housing for seasonal workers. Further, a decrease in working age adults presents challenges for sustaining the workforce in these and other industries. This was specifically brought up as a concern for the AMHS.

Southeast Conference workshop participants highlighted concerns related to retaining long-term residents, identifying several factors that make continued residency difficult, including severe weather, high living costs, limited housing availability, limited transportation options, land constraints, and insufficient childcare options. Participants noted that limited transportation contributes to population decline but may also present an opportunity. Metlakatla was cited as an example where reliable daily ferry service to Ketchikan has supported population growth by enabling access to employment and services. More frequent or shorter ferry routes, improved winter transit access, and stronger connections between communities may support population stability, though it is recognized that more transformative regional changes are likely needed to offset demographic changes.

3.2.1.1 Potential Actions

Maintaining reliable and accessible transportation services was identified as a priority, particularly for older adults. These actions prioritize keeping existing facilities in good working condition, improving winter operations, and expanding accessibility features to better support older adults and residents with mobility limitations.

In areas where visitor activity is increasing or shifting into new locations, upgrades to pedestrian routes, transit stop locations, and emergency access support seasonal surges without committing to large capital expansions.

Because many Southeast communities are small and lack alternate routes, participants stressed the importance of funding decisions that reflect vulnerability and asset condition rather than population size.

3.3 Recommendations

This section documents key recommendations identified through the development of this memo to help inform SEATP objectives. Recommendations are categorized as programmatic and funding, policy and planning engagement, and potential capital project recommendations.

3.3.1 Programmatic and Funding

Key programmatic and funding recommendations include:

- Strengthen partnerships to increase access to resources and funding.
- Coordinate with federal agencies to support program alignment and increase awareness of funding opportunities.

3.3.2 Policy and Planning Engagement

Key policy and planning engagement recommendations include:

- Focus limited resources through the transfer of local roads and local harbors to local jurisdictions.
- Further leverage existing organizations, such as the Alaska Municipal League and Southeast Conference Regional Planning Organization, to strengthen coordinated grant development and funding management.
- Partner with tribal governments to leverage and apply Tribal Transportation Program funds to bridge, culvert, and road improvements, and the development of safety plans.
- Explore public-private partnerships for projects that support both public access and economic activity.

3.3.3 Recommended Plans and Studies

Key recommended plans and study recommendations include:

- Advance feasibility studies for road connections identified in the AMHS LRP.
- Identify additional community connections that use roads to enable shorter ferry routes.

3.3.4 Recommended Capital Projects

There are no specific capital projects to address funding and population risks. Instead, recommended actions focus on maintaining the existing system in a state of good repair, given funding constraints and a stable or declining population. Actions prioritize access to medical care and other essential services for older adults and people with limited mobility. This includes low-cost operational or maintenance improvements to pedestrian routes, transit stops, and emergency access, rather than new construction.

APPENDIX 1: COMMUNITY RISK ASSESSMENT

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FIGURES

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ACRONYMS & ABBREVIATIONS

AEP	Airport Emergency Plan
AK	Alaska
AML	Alaska Marine Lines
BRIC	Building Resilient Infrastructure and Communities
CBS	City and Borough of Sitka
CBJ	City and Borough of Juneau
CDBG-MIT	Community Development Block Grant – Mitigation
CFR	Code of Federal Regulations
DCRA	Division of Community and Regional Affairs
DFFP	Division of Forestry and Fire Protection
DNR	Department of Natural Resources
DOT&PF	Alaska Department of Transportation and Public Facilities
EAL	Expected Annual Loss
EPA	U.S. Environmental Protection Agency
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
GKA	Greater Ketchikan Area
GST	Gustavus Airport
HMP	Hazard Mitigation Plan
HUD	U.S. Department of Housing and Urban Development
ICS	Incident Command System
IIJA	Infrastructure Investment and Jobs Act
JNU	Juneau International Airport
KGB	Ketchikan Gateway Borough
KTN	Ketchikan International Airport
N/A	Not Applicable
NFIP	National Flood Insurance Program
NIMS	National Incident Management System
NOAA	National Oceanic and Atmospheric Administration
NPS	National Park Service
NRI	National Risk Index
PAWG	Wrangell Airport (ICAO Identifier)
PROTECT	Promoting Resilient Operations for Transformative, Efficient, and Cost Saving Transportation
PSG	Petersburg James A. Johnson Airport
RAPT	Resilience Analysis and Planning Tool
Risk MAP	Risk Mapping, Assessment, and Planning
SEATP	Southeast Alaska Transportation Plan
SHMP	State Hazard Mitigation Plan

SIT	Sitka Rocky Gutierrez Airport
TSA	Transportation Security Administration
USDOT	U.S. Department of Transportation
USACE	U.S. Army Corps of Engineers
USCG	United States Coast Guard
USGS	United States Geological Survey
USPS	United States Postal Service
WRG	Wrangell Airport
YAK	Yakutat Airport
YCHC	Yakutat Community Health Center
YTT	Yakutat Tlingit Tribe

1.0 INTRODUCTION

This document identifies potential natural hazards and risks to regional transportation infrastructure in Southeast Alaska. The identification of risk includes an analysis of community profiles from the Federal Emergency Management Agency (FEMA) National Risk Index (NRI), the State of Alaska Hazard Mitigation Plan (SHMP), select community/tribal hazard mitigation plans (HMPs), and airport emergency plans.

2.0 CURRENT REGIONAL CLIMATE IN SOUTHEAST ALASKA

Southeast Alaska is home to the largest temperate rainforest in the world. The region is characterized by a maritime climate with persistent cloud cover, high annual precipitation totals, and moderate temperatures. Precipitation totals vary across the region from 29 inches on the northern panhandle to over 150 inches annually within southern parts of the region. Temperatures average in the mid-60 degrees Fahrenheit during summer months and low-30 degrees Fahrenheit during winter months. The mountainous terrain contributes to varying weather conditions throughout the region, even between places in close proximity.

2.1 Changing Climate

Alaska has been warming at a rate twice as fast as the global average since the mid twentieth century. Figure 1 shows the average temperature during summer (June through August) over five-year periods from 1925 to 2020. The black dots show annual values, while the gold bars show averages over the selected 5-year periods. The black line across Figure 1 shows the long-term average identified as 50.8 degrees Fahrenheit. There is a distinct increase in summer temperatures identified during the years following 1990, with a peak average around 56 degrees Fahrenheit around 2004.[1],[2]

Over the last seven decades, Southeast has seen an upward linear trend for annual temperatures by 4.3 degrees Fahrenheit[3]. Warming temperatures result in a higher percentage of precipitation falling as rain rather than snow. Annual precipitation is projected to increase by the end of the century, including extreme precipitation events such as atmospheric rivers.

[1] NOAA (National Oceanic and Atmospheric Administration). (2022). National Center for Environmental Information State Climate.

[2] A CRC. (2022). Alaska State Climate Center, Fairbanks.[Data] Retrieved from: http://akclimate.org/climate-change-in-alaska/.

[3] Alaska Climate Research Center. (2026). Climate Change in Alaska. https://akclimate.org/climate-change-in-alaska/.

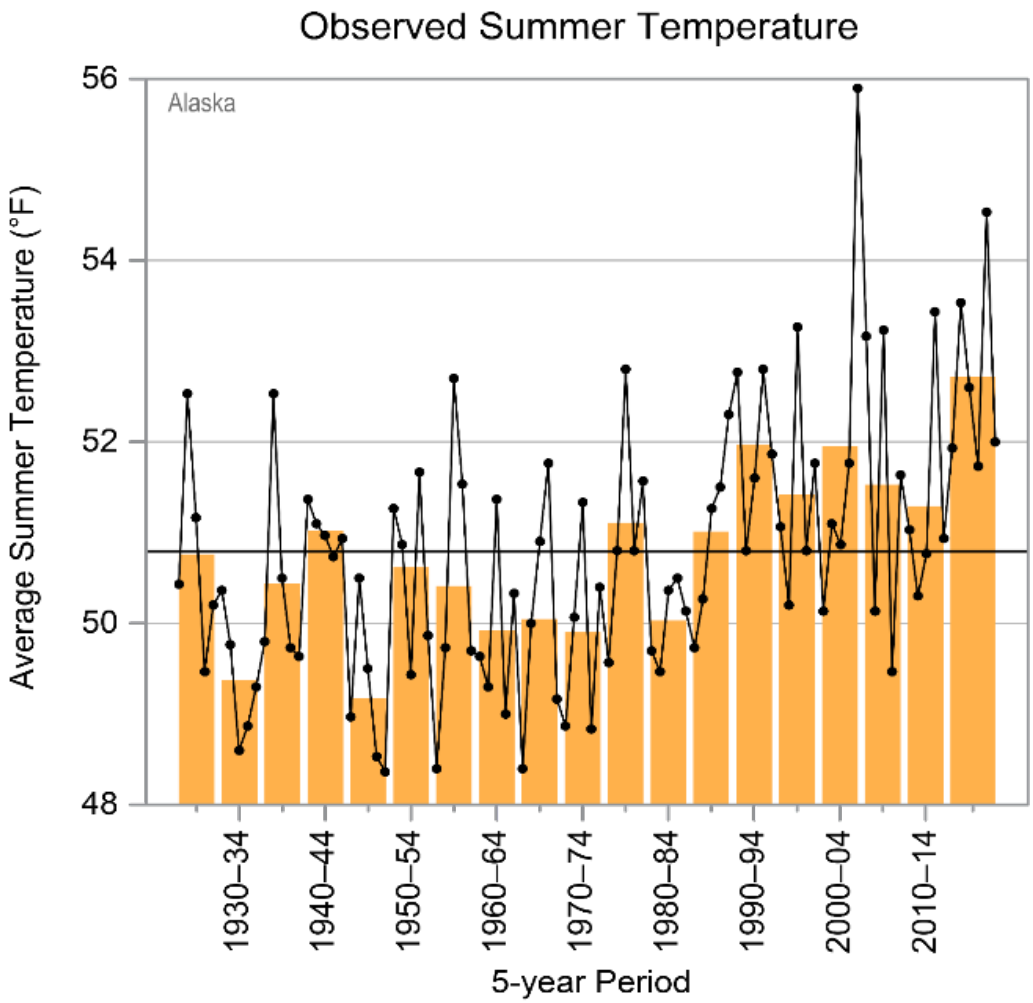

Figure 1: Alaska Observed Summer Temperatures 1925 to 2020 (National Oceanic and Atmospheric Administration 2022)

3.0 COMMON NATURAL HAZARDS IN SOUTHEAST ALASKA

FEMA defines a threat as a natural, technological, or human-caused occurrence, individual, entity, or action that has or indicates the potential to harm life, information, operations, the environment, and/or property. A hazard is defined as an environmental phenomenon having the potential to affect societies and the human environment. For this analysis, the term hazard will be used in place of threat. This is due to all identified events being categorized as environmental phenomena. The defined terms of threat and hazard relate to how risk is defined as a function of the nature, magnitude, vulnerabilities, and consequences that could result from a threat/hazard. Table 1 shows identified hazards from the SHMP, plus an identified snow avalanche hazard for Southeast. These are discussed further in the following subsections.

Table 1: Identified Hazards

IDENTIFIED HAZARDS	
	Earthquake – Although Southeast has not experienced a major earthquake with catastrophic damage to the magnitude that other areas of the state have experienced in recent years, the risk still remains. This hazard is often concurrent with events such as land/mud slides, sluffing, avalanches, etc.
	Erosion – The act of erosion is often overlooked, as it is a hazard that typically happens slowly and over an extended time period. It is often not spotted without the assistance of aerial viewing equipment and comparisons to be able to verify changes over time. It can be seen in such events as when a river encroaches upon transportation infrastructure that, when built, were not near the impending hazard.
	Flood – Most prevalent in late spring and summer due to melting snow and wet weather, flooding causes washouts to existing structures or other instances of extreme damage. If infrastructure is unharmed, surface transportation may still be affected due to excess water on roads. Traffic becomes delayed in many areas as there is a lack of redundancy in the transportation system.
	Ground failure – Ground failure happens when rock and soil lose stability, causing collapse or movement. Landslides are the downward movement of materials like rock, soil, or fill. Avalanches linked to ground failure include debris avalanches—fast-moving flows from slope collapse or bedrock breakdown. Causes include natural events (earthquakes, wildfires), human activities (construction), or both. In Southeast, steep slopes and heavy rain often trigger landslides and avalanches.
	Tsunami – A tsunami is caused by underwater ocean wave disturbances that are triggered by earthquakes, landslides, or volcanic eruptions. While there are monitorable warning signs, it initially appears as individual, increasingly large waves over several hours. Tsunamis can cause massive damage, flooding, and destroy communities with debris-filled waters and possibly extreme land erosion. Outer Southeast coastal communities are at particularly high risk.
	Volcano - Volcano-generated ash periodically impacts Alaska communities, with impacts that are most severe for communities closer to volcanoes. Volcanic ash can create severe air quality, water quality, marine, and road transportation impacts, disrupt utility operations, etc.

IDENTIFIED HAZARDS	
	Severe Weather – Alaska often faces severe weather due to its location and changing climate. Natural weather events can trigger winter storms, heavy rain, freezing rain, thunderstorms, and typhoons. These can lead to secondary hazards such as floods, landslides, snow, and strong winds. In Southeast, extremely heavy rainfall from atmospheric rivers, is becoming more common and can cause ground failure, putting communities and resources at risk.
	Snow Avalanche – Southeast is prone to snow avalanches, which can vary in destructive power from harmless to large enough to destroy mature forests and buildings. The frequency, extent, and severity of avalanches depend on the weather, terrain, and snowpack. New snow fall, melting snow, or even minor disturbances can cause a mass of snow to slide down the slope. Roadways can become blocked or destroyed, causing closures.
	Wildfire – Happens in the warmer months when the weather is dry for extended periods of time, uncommon in Southeast. Even when fires occur outside the region, intense smoke and haze can cause significant visibility issues for travelers and disrupt transportation operations.

3.1 Earthquake

Alaska is the most seismically active state in the country due to the subduction of the Pacific tectonic plate beneath the North American plate at the Alaska-Aleutian subduction zone. This subduction zone experiences frequent major movement that has resulted in deformation. There is no way to predict where in the state the next "big one" would occur or how large it would be. Figure 2 illustrates seismic events that struck Alaska in 2024, the most recently released Alaska Seismicity Summary from the Alaska Earthquake Center at the University of Alaska Fairbanks.

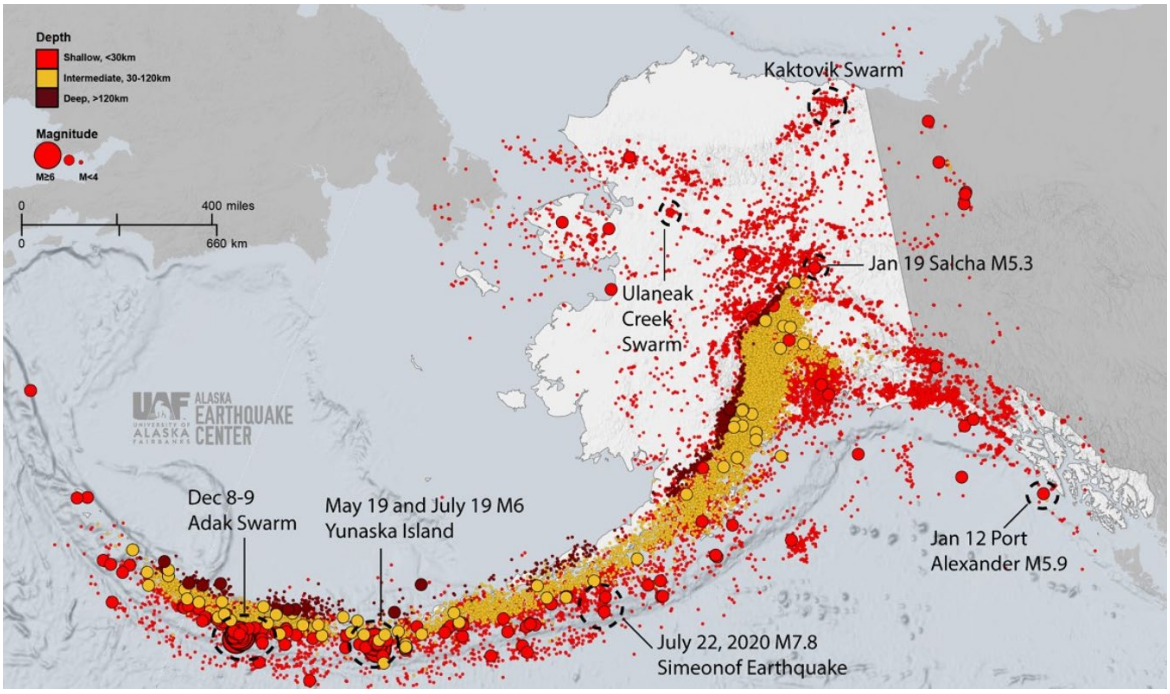

Figure 2: 2024 Seismicity Year in Review (University of Alaska Fairbanks, Alaska Earthquake Center)

Southeast Alaska is located within the Queen Charlotte-Fairweather Fault system, an active seismic zone. On December 7, 2025, a 7.0 magnitude earthquake only three miles deep occurred 57 miles north of Yakutat.

3.2 Erosion

Erosion occurs from water, ice, or wind and results in the removal of soil, rock, or any other dissolved material from one location to another. While it most often occurs over a lengthy time period, in instances of flash flooding, erosion happens rapidly and causes land to disappear without warning.

3.3 Flood

Flooding is defined as the general and temporary condition of partial or complete inundation of two-plus acres of typically dry areas of land. This condition is the result of overflow, unusual and rapid accumulation or run-off of surface water, mud or landslides, or the collapse of land due to erosion. Flooding is a natural phenomenon, but when development is in proximity, it becomes a hazard to life and structures/infrastructure.

During recent years, climate change has contributed to increased flooding and erosion within Southeast. Riverine flooding in Southeast is often caused by water overflowing the side of the riverbank due to rainfall or runoff, flash flooding, alluvial fans, and ice jams. Other types of flooding occur from fluctuating lake levels, glacial lake overflow, groundwater, and aufeis[4].

3.4 Ground Failure

Ground failure includes hazards such as landslides, avalanches, mudslides, and rockslides in a single category. Table 2 identifies the several types of ground failure and their causes.

Ground failures are often seen when there is an increased slope to the land. Ground failure is unique in that as a hazard, it is typically a byproduct of another hazard. The type of ground failure is dependent on the type of moving material and the mechanics of it moving.

During recent years, Southeast has seen an increase in the number of landslides, which are primarily the result of increased precipitation. Four fatal landslides have occurred since 2015[5]. Specific events are provided in the community hazard mitigation section (Section 7).

Table 2: Types of Ground Failure

GROUND FAILURE TYPE	CAUSE
Landslide	Earthquake, human activity, groundwater, wildfire, steep slope
Avalanche	Earthquake, human activity, severe weather, steep slope
Mudslide	Heavy rain, human activity, groundwater, wildfire, steep slope
Rockslide	Heavy rain, human activity, groundwater, wildfire, steep slope

[4] Aufeis is the accumulation of layered ice that forms in Arctic and Subarctic regions during winter. It is created when river or groundwater overflows existing ice and freezes in successive layers.

[5] Soliman, A. (2026, January 29). Climate change is making destructive landslides more common across Alaska, especially in southeast. Alaska Public Media. https://alaskapublic.org/new/environment/2026-01-29/climate-change-is-making-destructive-landslides-more-common-across-alaska-especially-in-southeast.

3.5 Tsunami

A tsunami is a series of waves in a waterbody caused by large, sudden, water displacement. Subduction zone earthquakes, land-based and submarine landslides, volcanic eruptions, calving glaciers, underwater explosions, and even meteorite impacts have the potential to generate tsunamis. In Alaska, subduction zone earthquakes pose the primary tsunami threat.

Tsunamis are categorized by their distance from the source to the inundation zone:

- **Local tsunami:** Inundation occurs near the source. Sources include earthquakes, volcano eruptions, landslides, glacial calving, and rockfall. This category of tsunami has the least amount of evacuation warning time, typically resulting in inundation within one hour.
- **Regional tsunami:** Inundation takes between one and three hours, allowing some time for evacuation warning.
- **Distant tsunami:** Typically allows adequate time for evacuation, taking more than three hours to arrive. A distant tsunami is typically less destructive because it loses energy as it travels.

Southeast communities located near mouths of rivers draining into the ocean, such as Yakutat and Sitka, are particularly at risk of submarine, landslide-generated tsunamis.

3.6 Volcano

Volcanos present another hazard for Southeast. Volcanic ash is a serious hazard, even from eruptions hundreds of miles away. Volcanic ash is a risk to aviation safety because it consists of abrasive, microscopic rock and glass particles that can damage jet engines. The ash can also contaminate fuel and water systems. Volcanic ash has the potential to significantly disrupt air travel. For example, the April 2023 eruption of the Shiveluch Volcano on the Kamchatka Peninsula in Russia resulted in days of flight cancellations in Alaska due to the spread of the ash and risk to aircrafts[6].

Mount Edgecumbe volcanic field in Sitka has been experiencing low-level volcanic unrest for several years. There are no imminent signs of an eruption, and the alert level remains green[7].

3.7 Severe Weather

Severe weather in Southeast consists of several different types of weather, including extreme cold, winter storms, heavy or excessive snow, high winds, ice storms, and heavy rain. Extreme cold can cause fuels to freeze, limiting motorized transportation. Heavy snow can halt transportation by closing roads and airports. It can lead to an increase in vehicle crashes and capsize small boats. It may also trigger other hazards such as avalanches.

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[6] *Williams, T. (2023, April 13). Ash from Russia volcano that caused Alaska flight cancellations may ease Friday. Anchorage Daily News. https://www.adn.com/alaska-news/aviation/2023/04/13/drifting-ash-from-russian-volcano-prompts-alaska-flight-cancellations-2/.*

[7] *Alaska Volcano Observatory. (n.d.). https://avo.alaska.edu/volcano/edgecumbe.*

3.8 Snow Avalanche

A snow avalanche is the rapid downslope movement of snow, ice, and associated debris triggered when the weight of accumulated snow exceeds the strength of the underlying snowpack. Avalanches are most commonly caused by heavy snowfall, rapid temperature changes, wind-loading of slopes, or disturbances such as earthquakes or human activity.

In Southeast Alaska, steep mountainous terrain combined with frequent winter storms and high precipitation creates conditions favorable for avalanche formation. Avalanches can pose risks to transportation corridors, backcountry recreation, and infrastructure, particularly in areas where development or travel routes intersect with avalanche-prone slopes.

3.9 Wildfire

While wildfires are increasing in number and severity in Alaska, Southeast experiences relatively few wildfires and has decreasing trends overall in both numbers and area burned by large wildfires[8]. However, during the Southeast drought from 2016 to 2019, the Tongass National Forest reported 32 wildfires in 2018, approximately double the annual average[9].

Though large wildfires occur infrequently in Southeast, the increasing number and severity of wildfires in general poses a risk. Distant wildfires occurring internationally and nationally in places such as Russia, Canada, Washington, and California bring dense smoke, impacting air quality and visibility. Poor air quality is a risk to the health of humans and animals, while poor visibility impacts transportation safety. Wildfires may also spread into adjacent communities where the buildings are wooden structures with limited or inadequate fireproofing.

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[8] *Sanford, T., Wang, R., and Kenward, A. (2015). The Age of Alaskan Wildfires [report]. Climate Center.*

[9] *Stremple, C. (2022, March 4). Scientists are studying what extreme drought looks like in Alaska's temperate rainforest. KTOO. https://alaskapublic.org/news/alaska-desk/2025-08-22/rockslides-have-battered-skagways-biggest-cruise-ship-dock-what-else-is-at-risk.*

4.0 OTHER KNOWN NATURAL HAZARDS IN SOUTHEAST ALASKA

Drought is also an emerging hazard in Southeast. Though the region is expected to see more precipitation, warmer temperatures and changing precipitation patterns may increase the potential for drought. Southeast experienced a drought from 2016 to 2019, driven by warmer temperatures and changing precipitation patterns, which caused significant disruptions to hydropower and salmon hatcheries as well as contributed to wildfires[10].

[10] Hoell, A., Thoman, R., McFarland, H.R., and Parker, B. (2022, January) Southeast Alaska drought [report]. International Arctic Research Center, University of Alaska Fairbanks.

5.0 CURRENT STATEWIDE RESILIENCY PLANNING EFFORTS

There are several planning efforts that support statewide and community preparation for natural hazards and weather events. This section provides an overview of statewide plans.

5.1 State Hazard Mitigation Plan

Alaska has a SHMP[11] to reduce losses from natural hazards. The SHMP was produced in partnership between the Alaska Division of Homeland Security and Emergency Management; FEMA; and state and federal agencies, education centers, and community agencies. SHMPs are required by the federal Disaster Mitigation Act of 2000 to maintain eligibility for FEMA mitigation grant funding. Additionally, local governments must have their own plans or participate in multi-jurisdictional plans to be eligible for FEMA funding.

The purpose of the SHMP is to identify and profile relevant natural hazards, analyze the population and facilities at risk, and develop mitigation actions to reduce or eliminate the risk from those hazards. The plan includes information on:

- **Introduction:** Provides a general overview of hazard mitigation planning and its purpose.
- **Background:** Summarizes key background information about the state relevant to hazard mitigation.
- **Planning Process:** Describes the development of the SHMP, including outreach efforts, and the schedule for plan updates.
- **Hazard Identification and Risk Assessment:** Profiles the hazards addressed in the SHMP and outlines their potential impacts on vulnerable populations and critical facilities.
- **State Capabilities:** Assesses the state's capacity to manage hazard mitigation, including existing programs, resources, and authorities.
- **Mitigation Strategies:** Presents the state's hazard mitigation goals, priorities, and progress made since the previous SHMP update.
- **Local Planning, Coordination, and Capability Building:** Explains how the state supports and collaborates with local jurisdictions in their hazard mitigation planning efforts.
- **Plan Review, Evaluation, and Implementation:** Documents the process used to conduct annual reviews and the required 5-year plan update.
- **Plan Adoption and Assurances:** Provides information on the formal adoption of the SHMP and required compliance assurances.

[11] Alaska Division of Homeland Security and Emergency Management (2023). *State Hazard Mitigation Plan.* DHS&EM | State Hazard Mitigation Plan (SHMP)

The SHMP evaluates communities based on both the likelihood of specific hazards and their sensitivity to those hazards. As part of this assessment, the SHMP assigns each community a hazard rating that helps establish a baseline understanding of vulnerability across Alaska. Hazard ratings range from 1 to 4, in which 1 represents negligible impacts and 4 represents catastrophic impacts (see Table 3). The SHMP also assigns a probability rating, also on a 1 to 4 scale, indicating how likely a hazard is to occur, from unlikely to highly likely (see Table 4). Both the magnitude/severity and probability ratings are informed by the SHMP's risk assessment, historical event data, SHMP analysis, and subject matter expertise.

Table 3: SHMP Magnitude/Severity Criteria

MAGNITUDE/SEVERITY	SHMP MAGNITUDE/SEVERITY CRITERIA
4 – Catastrophic	• Multiple deaths • Complete shutdown of facilities for 30 or more days • More than 50% of property is severely damaged
3 – Critical	• Injuries and/or illnesses result in permanent disability • Complete shutdown of critical facilities for at least 2 weeks • More than 25% of property is severely damaged
2 – Limited	• Injuries and/or illnesses do not result in permanent disability • Complete shutdown of critical facilities for more than 1 week • More than 10% of property is severely damaged
1 – Negligible	• Injuries and/or illnesses are treatable with first aid • Minor quality of life lost • Shutdown of critical facilities and services for 24 hours or less. • Less than 10% of property is severely damaged

Table 4: SHMP Hazard Probability of Future Events Criteria

PROBABILITY	SHMP HAZARD PROBABILITY OF FUTURE EVENTS CRITERIA
4 – Highly Likely	• Event is probably within the calendar year • Event has up to a 1 in 1-year's chance of occurring (1/1=100%) • History of events is greater than 33% likely per year
3 – Likely	• Event is probable within the next 3 years • Event has up to 1 in 3-year's chance of occurring (1/3=33%) • History of events is greater than 20% but less than or equal to 33% likely per year
2 – Possible	• Event is probable within the next 5 years • Event has up to 1 in 5-year's chance of occurring (1/5=20%) • History of events is greater than 10% but less than or equal to 20% likely per year
1 – Unlikely	• Event is possible within the next 10 years • Event has up to 1 in 10-year's chance of occurring (1/10=10%) • History of events is less than or equal to 10% likely per year

The natural hazards and community hazard rating, according to the 2023 Alaska SHMP, are summarized in Table 5.

Table 5: Identified Hazard Magnitude/Severity Rating by Community

COMMUNITY	HAZARDS															
	EARTHQUAKE		EROSION		FLOOD		GROUND FAILURE, LANDSLIDE, AVALANCHE		TSUNAMI		VOLCANO		SEVERE WEATHER		WILDFIRE	
	Probability	Magnitude	Probability	Magnitude	Probability	Magnitude	Probability	Magnitude	Probability	Magnitude	Probability	Magnitude	Probability	Magnitude	Probability	Magnitude
Haines Borough	4	4	2	1	3	4	3	3	2	3	0	0	4	3	3	1
Hoonah-Angoon Census Area	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Angoon	2	2	2	1	1	0	0	0	1	2	0	0	0	0	2	1
Hoonah	3	3	3	3	3	3	3	2	1	2	0	0	3	3	0	0
Kake	1	1	4	1	0	2	2	3	0	0	0	0	2	2	1	1
City and Borough of Juneau	1	2	1	2	2	2	2	3	1	3	1	1	2	2	1	1
Ketchikan Gateway Borough	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ketchikan	3	1	0	0	1	1	2	0	1	3	0	0	1	2	0	0
Saxman	3	1	0	0	0	1	2	0	1	3	0	0	1	2	0	0
Petersburg Borough	1	1	0	0	1	0	0	2	1	3	0	0	0	0	0	0
Prince of Wales-Hyder Census Area	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Craig	3	2	4	2	3	4	2	3	0	0	0	0	4	2	1	2
Klawock	2	3	0	0	0	3	2	2	0	0	0	0	3	2	3	3
Thorne Bay	3	1	0	0	2	3	1	1	0	0	1	1	3	1	2	1
Hydaburg	1	1	0	0	1	1	1	1	0	0	0	0	1	1	1	1
Kasaan	1	3	0	0	0	3	3	2	0	0	0	0	3	3	1	2
City and Borough of Sitka	2	3	3	3	3	3	3	2	3	4	0	0	3	3	0	0
Municipality of Skagway Borough	2	3	3	3	3	3	3	3	1	3	0	0	3	3	0	0
City and Borough of Wrangell	2	1	2	1	1	2	2	1	2	1	0	0	2	2	3	1
Yakutat City and Borough	2	3	2	1	1	4	2	2	1	3	0	0	4	2	2	2

Natural hazards can affect a region's transportation system in many ways, from minor inconveniences to major disruptions. These events may force the closure of roads, airports, and docks, or damage infrastructure to the point that it becomes temporarily—or even permanently—unusable. Such impacts can hinder emergency response operations and limit the movement of people, goods, and essential services into and out of a community.

Even smaller-scale events can cause significant challenges. For example, natural hazards may trigger power outages that disrupt traffic signals and roadway lighting, making travel more difficult and less safe. These disruptions can also lead to congestion if travelers must alter their routes to avoid affected parts of the transportation network.

For additional information about the natural hazards in Southeast and the impacts of those hazards, please see the Alaska SHMP.

5.2 Airport Emergency Plans

Airport Emergency Plans (AEPs) are developed for airports certificated under 14 Code of Federal Regulations (CFR) Part 139. The Southeast Area Transportation Plan (SEATP) region includes seven 14 CFR Part 139-certificated airports, each within a different borough or census area. Three borough and census areas of the SEATP plan area do not include a certificated airport, and AEPs are not developed for any of the airports within these subregions. Table 6 lists the 14 CFR Part 139 airports in Southeast.

Table 6: 14 CFR Part 139 Airports in Southeast Alaska Communities

SEATP SUBREGION	AIRPORT ID	AIRPORT
Haines Borough	N/A	No Certificated Airport
City and Borough of Juneau	JNU	Juneau International
Ketchikan Gateway Borough	KTN	Ketchikan International
Petersburg Borough	PSG	Petersburg James A. Johnson
Prince of Wales-Hyder Census Area	N/A	No Certificated Airport
City and Borough of Sitka	SIT	Sitka Rocky Gutierrez
Municipality of Skagway Borough	N/A	No Certificated Airport
City and Borough of Wrangell	WRG	Wrangell
Yakutat City and Borough	YAK	Yakutat

Notes: ID = Identifier; N/A = not applicable

An AEP must comply with 14 CFR Part 139.325, which sets the standards for emergency plans at airports, and states that "each certificate holder must develop and maintain an airport emergency plan designed to minimize the possibility and extent of personal injury and property damage on the airport in an emergency." Each plan is intended to assist the airport owner (or the certificate holder) and mutual aid agencies/personnel respond effectively to an airport emergency by outlining predetermined roles so that parties can act in a coordinated manner. Responses generally follow the National Incident Management System (NIMS) and Incident Command System (ICS) structures.

The purpose of an AEP is to:

- Provide an operational template of how an airport emergency response will be structured and coordinated.
- Provide guidance as to how the emergency response roles will be filled and how those duties will be carried out.
- Provide operation checklists for specific emergency events at the airport.
- Highlight key communication elements essential for effective emergency response and mitigation.

The AEPs developed for the Southeast airports focus on response and initial recovery issues, and:

- Assign responsibility to agencies and individuals for specific actions
- Establish lines of authority and communication
- Describe how people and property will be protected
- Identify personnel, equipment, facilities, supplies, and other resources available.

Although the plans are developed specifically to address emergencies that may impact the airport and its operations, content within each AEP could be valuable during any community emergency. The AEPs include airport and community-wide communication resources, channels, and authorities. The list of resources and equipment in each AEP extends beyond that available at the airport itself.

AEPs are required by 14 CFR Part 139.325 to contain instructions for response to threats and hazards such as:

- Aircraft incidents and accidents
- Terrorism – bomb threats/incidents
- Criminal interference with operations
- Fires – structural, fuel storage
- Hazardous materials incidents
- Power failure
- Water rescue
- Natural disasters, such as:
- Earthquakes
- Tsunamis
- Floods
- Storm events
- Volcanic activity

Each AEP recognizes that the airport is critical community infrastructure, and its expedient return to service following any disaster or emergency is of utmost importance to the community; therefore, stabilization and recovery of airport operations is a top priority. Several key assumptions considered in each AEP are common throughout the region and influence how the plans detail emergency response activities. Natural and accidental events will occur within the region and around the airport that create emergency situations. Large-scale emergencies may overwhelm the airport and local community's resources. Characteristics that affect responses to Southeast airports and their communities include their remoteness, lack of road access, and limited resources. These assumed circumstances lead to emergency plans that integrate mutual aid and off-airport resources for emergency response.

The Southeast AEPs were developed in coordination with local plan participants and using locally available emergency response plans, hazard management plans, and other resources. The AEP participants typically include the airport tenants and air carriers, local fire department, local law enforcement agencies, local and regional medical centers, U.S. Post Office (USPS), U.S. Coast Guard (USCG), and other local and state agencies with a potential role in emergency response to that community and airport. The airport holds annual tabletop exercises and triennial full-scale exercises with all AEP participants to train on the plan and ensure the plan's requirements are current.

The AEPs state that they only describe the response of the airport during scheduled and permitted air carrier operations. While this is the extent of their regulatory response requirement, the reality is that the same people and parties would respond to any emergency, at any time in their communities. Whether formal agreements exist, the local agencies and resources in each community work together to respond to disasters and restore their communities. Since AEP participants include many of the parties that would respond to any community emergency—and since the AEPs are reviewed and exercised regularly—the AEPs are a valuable tool to each community in maintaining continuous training and coordination between the airport and other agencies who would respond in the event of a disaster.

5.3 FEMA Hazards Risk Assessment

The FEMA NRI is an interactive mapping tool that depicts the 18 most common natural hazards and their risk throughout the United States. The 18 risks analyzed in the NRI include:

- Avalanche
- Coastal flooding
- Cold wave
- Drought
- Earthquake
- Hail
- Heat wave
- Hurricane
- Ice storm
- Inland flooding
- Landslide
- Lightning
- Strong wind
- Tornado
- Tsunami
- Volcanic activity
- Wildfire
- Winter weather

The NRI is updated at least every five years. The NRI tool provides data on risk index, expected annual loss, social vulnerability, and community resilience, which are the components of assessing a community's resilience to hazards. Possible ratings are: Very High, Relatively High, Relatively Moderate, Relatively Low, Very Low, and Insufficient Data.

The NRI is a representation of the potential for negative impacts resulting from natural hazards. The NRI is calculated using the combined elements of Expected Annual Loss (EAL) due to an event and the Community Risk Factor, as shown in Figure 3. Each element contains data associated with the natural hazard occurrence related to economic loss (for EAL) and overall community vulnerability and resilience (for Community Risk Factor).

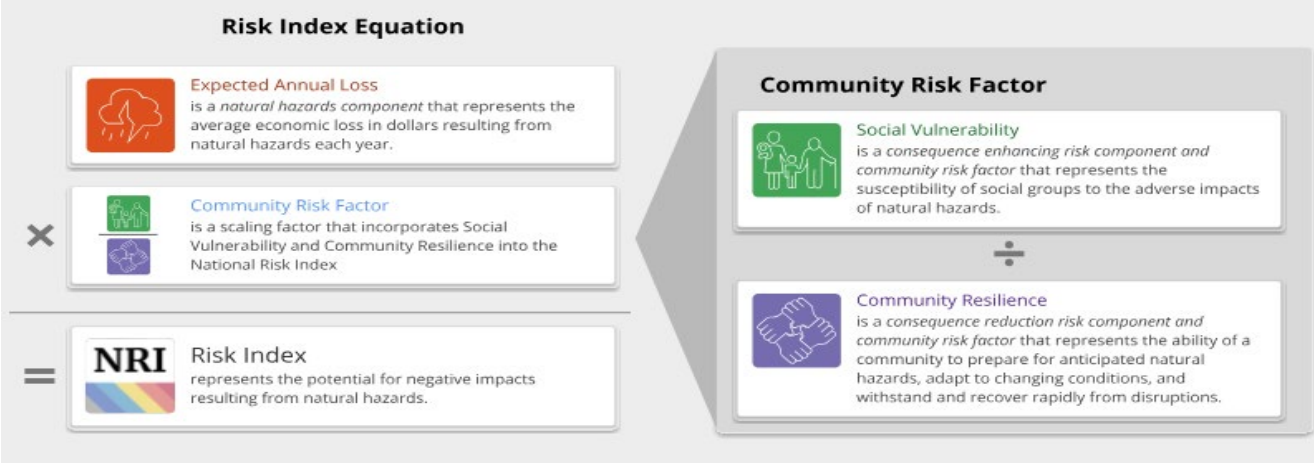

Figure 3: FEMA NRI Definitions for Risk Index Equation and Community Risk Factors

5.4 State and Federal Resilience Programs

EAL is calculated from three criteria reduced to a representative number. Figure 4 outlines how loss is estimated due to a natural hazard consequence factor ("Exposure"), the probability of the event each year ("Annualized Frequency"), and the estimated percentage of exposed infrastructure value expected to be lost due to the natural hazard occurrence ("Historic Loss Ratio").

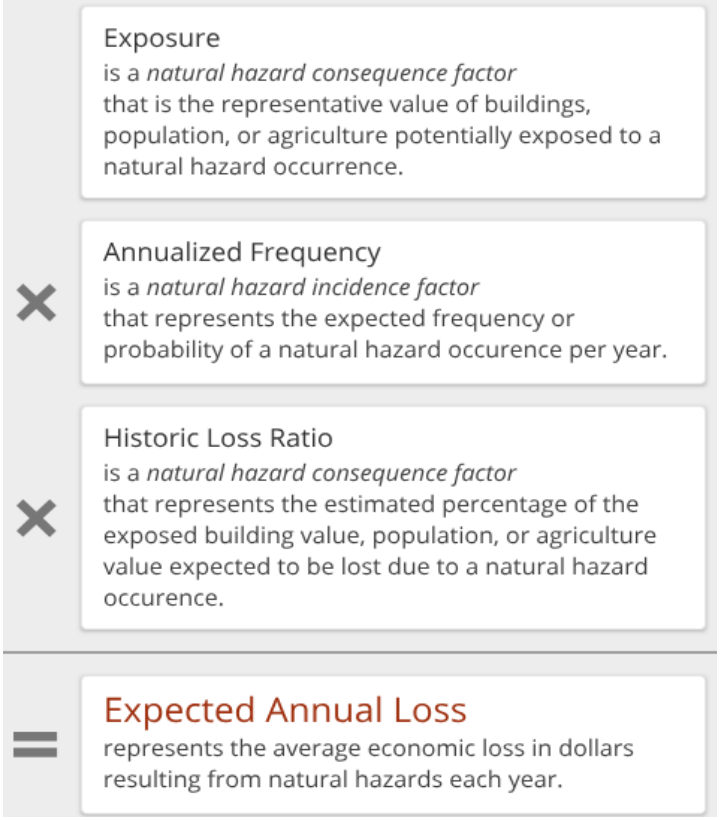

Figure 4: Expected Annual Loss Calculation

The **Community Risk Factor** incorporates social vulnerability and community resilience to create a scaling factor into the NRI.

- **Social Vulnerability:** The susceptibility of social groups to the adverse impacts of natural hazards.
- **Community Resilience:** The ability of a community to prepare for anticipated natural hazards, adapt to changing conditions, and withstand and recover from disruptions.

The NRI assesses the census tract as a whole, and the ratings do not reflect risk ratings for specific communities. Figure 5 depicts the 2025 NRI for each census tract/borough in Southeast. Table 7 provides a summary of the NRI, EAL, social vulnerability, and community resiliency rating for each Southeast community profiled in the SEATP.

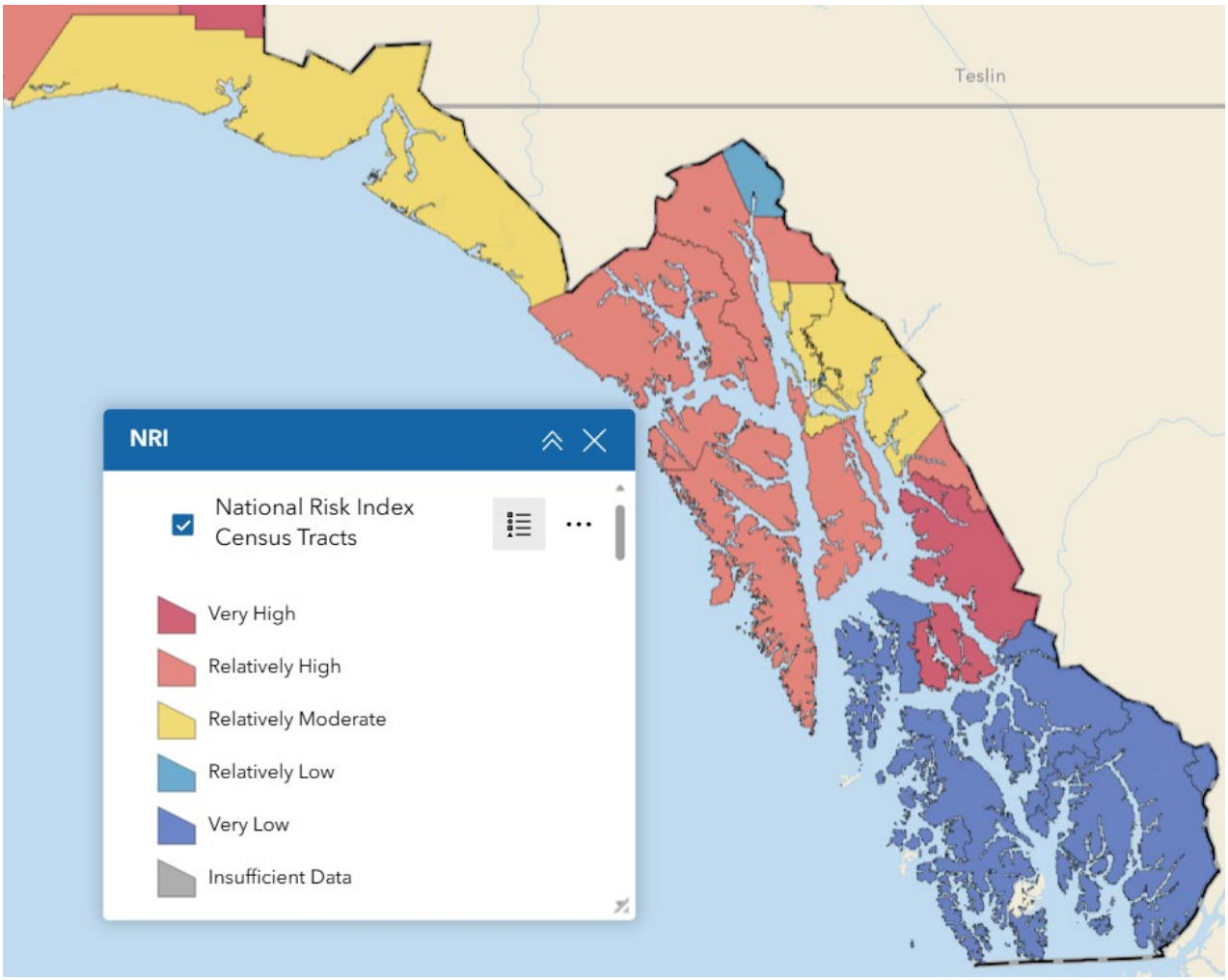

Figure 5: 2025 NRI Rating by Census Tract for Southeast Alaska (FEMA Resilience Analysis and Planning Tool)

Table 7: FEMA National Risk Index Ratings Summary

LOCATION	NATIONAL RISK INDEX	EXPECTED ANNUAL LOSS	SOCIAL VULNERABILITY	COMMUNITY RESILIENCY
City and Borough of Juneau	Relatively Moderate	Relatively Moderate	Very High	Relatively Moderate
Haines Borough	Relatively High	Relatively Moderate	Relatively High	Very Low
Hoonah-Angoon Census Area	Relatively High	Relatively High	Very High	Very Low
Ketchikan Gateway Borough	Very Low	Very Low	Relatively Moderate	Relatively Moderate
Petersburg Borough	Very High	Relatively High	Relatively High	Very Low
Prince of Wales-Hyder Census Area	Very Low	Very Low	Very High	Relatively Low
City and Borough of Sitka	Relatively High	Relatively High	Relatively Moderate	Relatively High
Municipality of Skagway Borough	Relatively Low	Very Low	Relatively High	Very Low
City and Borough of Wrangell	Very Low	Very Low	Relatively High	Relatively Low
Yakutat City and Borough	Relatively Moderate	Relatively Low	Very High	Very Low

6.0 CURRENT COMMUNITY RESILIENCY PLANNING EFFORTS

On federal and state levels, several resilience-focused programs have been created, and are available for reference and implementation in Alaska's communities. The functionality of these programs ranges from managing and distributing funding to providing technical tools, training, and education. These resilience-based programs not only focus on the overarching theme of resilience but also address other areas, such as mitigation, sustainability, and climate.

State programs support Alaska communities to conduct hazard mitigation, education, and planning. State agencies providing programs include the Division of Community and Regional Affairs (DCRA); Department of Transportation and Public Facilities (DOT&PF); and Department of Natural Resources, Division of Forestry and Fire Protection (DNR, DFFP), while the efforts of the federal programs provided by agencies and programs such as FEMA, the U.S. Department of Transportation (USDOT), and the Infrastructure Investment and Jobs Act (IIJA) focus on providing competitive grant funding opportunities.

Table 8 summarizes some of these programs, the agency responsible, a brief description, and their focus area(s). Please note that Table 8 is not a list of all available resilience- and mitigation-related programs.

Table 8: Federal and State Resilience-Based Programs

PROGRAM	ENTITY	DESCRIPTION	FOCUS AREA(S)			
			Resilience	Mitigation	Sustainability	Climate
Floodplain Management/ National Flood Insurance Program (NFIP)	DCRA	Serves as Alaska's NFIP Coordinator, overseeing the state's participation in the NFIP by providing training, technical assistance, and outreach to NFIP-participating communities in managing their local floodplain management programs.	✓	✓	—	—
Risk Mapping, Assessment, and Planning (Risk MAP)	DCRA	Serves as Alaska's Risk MAP Coordinator, providing training, technical assistance, and outreach that builds local understanding of risk, guides decision making, and supports actions to reduce risk. Key deliverables are Flood Insurance Study and Flood Insurance Rate Maps.	✓	—	—	—

PROGRAM	ENTITY	DESCRIPTION	FOCUS AREA(S)			
			Resilience	Mitigation	Sustainability	Climate
Alaska Climate Change Impact Mitigation Program	State of Alaska	Established in 2008 and completed in 2016, this program created materials that remain available and valuable. This program supplied technical assistance and funding to communities experiencing immediate impacts from natural hazards resulting from environmental climate changes. The program assisted in developing planned mitigation approaches using hazard impact assessment and community adaptation planning grants.	—	✓	—	✓
Firewise	DNR, DFFP	Focuses on community-based practices for preparing communities and homes to be compatible with the area's ecosystem to withstand wildfires. Three communities are currently regarded as Firewise communities, none of which are within Southeast Alaska.	✓	✓	—	—
Carbon Reduction Program	IIJA	Supplies funding for projects designed to reduce transportation emissions (strictly defined as carbon dioxide emissions from on-road highway sources).	—	—	✓	✓
Safeguarding Tomorrow Revolving Loan Fund Program	IIJA	Enables eligible jurisdictions to establish revolving loan funds for hazard mitigation projects.	—	✓	—	—
Promoting Resilient Operations for Transformative, Efficient, and Cost Saving Transportation	IIJA	Provides funding for projects that focus on creating surface transportation that is resilient to natural hazards through planning, resilience improvements,	✓	✓	—	—

PROGRAM	ENTITY	DESCRIPTION	FOCUS AREA(S)			
			Resilience	Mitigation	Sustainability	Climate
(PROTECT) Formula Program		community resilience, evacuation routes, and at-risk coastal infrastructure.				
Congestion Mitigation and Air Quality Improvement	USDOT	Supplies funding for transportation projects and programs that aid in meeting the Clean Air Act.	—	—	✓	✓
Hazard Mitigation Grant Program	FEMA	Provides funding to state, local, tribal, and territorial governments for purposes such as developing hazard mitigation plans and opportunities to rebuild in ways that reduce or mitigate future losses in the community.	✓	✓	—	—
Building Resilient Infrastructure and Communities (BRIC)	FEMA	Provides funding to state, local, tribal, and territorial governments to undertake hazard mitigation projects that reduce the risks faced from disasters and other natural hazards. BRIC focuses on supporting communities by being a flexible, consistent program that builds capabilities and capacities, encourages and promotes innovation, promotes partnerships and collaborations, and creates the possibility of large-scale projects.	✓	✓	—	—
FEMA Resilience Analysis and Planning Tool (RAPT)	FEMA	Provides a free, Geographic Information System-based tool to help communities analyze hazards, infrastructure, and population data to improve their community resilience.	✓	—	—	—
Statewide Threat Assessment 2026	Denali Commission	Updates the 2019 Alaska Statewide Threat Assessment and incorporates new data and changes in	✓	✓	—	—

PROGRAM	ENTITY	DESCRIPTION	FOCUS AREA(S)			
			Resilience	Mitigation	Sustainability	Climate
		community vulnerability. It will also add additional hazards (e.g., earthquake, volcano, landslide, tsunami, wildfire).				
Community Resilience Toolkit	U.S. Department of Housing and Urban Development (HUD)	Provides a toolkit designed to help communities improve their resiliency to climate-related natural hazards.	✓	—	—	—
HUD Community Development Block Grant – Mitigation (CDBG-MIT)	HUD	Provides funds that support activities that increase resilience to hazards and reduce the long-term risk caused by disasters.	✓	✓	—	—
Planning Framework for a Climate-Resilient Economy	U.S. Environmental Protection Agency (EPA)	Provides a methodology to help communities identify their economic vulnerability to climate change-related hazards and improve their economic resilience.	✓	—	—	—
Hazard Mitigation for Natural Disasters: A Starter Guide for Water and Wastewater Utilities	EPA	Identifies ways in which water and wastewater utilities can mitigate natural hazards.	—	✓	—	—

7.0 COMMUNITY HAZARD MITIGATION PLANS

Under the Disaster Mitigation Act of 2000, community hazard mitigation planning is a requirement for communities to be eligible to receive FEMA disaster mitigation funding. In response to this requirement, several communities in Southeast Alaska have developed local HMPs. Local HMPs, such as the SHMP, are required to be updated every five years to be considered compliant with FEMA's guiding legislation. HMPs and Tribal HMPs should, at a minimum, include:

- Identification of the planning area
- Completion of a risk assessment, including:
    - Identification and description of hazards that may occur within the planning area
    - Identification of community assets
    - Analysis of potential hazard impacts
    - Vulnerability summary
- Review of community mitigation capabilities
- Development of a mitigation strategy, including:
    - Mitigation goals
    - Mitigation actions
    - Prioritization of actions
    - Implementation plan
- Strategies to keep the plan current

This section provides a summary of the hazards and critical transportation infrastructure vulnerability based on the HMPs. It also provides a summary of the AEP (if applicable), the FEMA NRI for each borough and census area, and documented severe hazard events causing fatalities or damage to critical transportation infrastructure.

Note that the hazard names used in this section are those used in the respective plans and may differ from the hazard names used in the SHMP. In addition, communities have identified vulnerabilities differently. Some communities indicated if the facility was vulnerable to a hazard while others indicated a probability. The information presented in Section 7 reflects how the vulnerabilities were identified in the original HMPs.

In addition to the facilities identified in the community hazard mitigation plans below, additional facilities were identified during DOT&PF's Risk Workshop. This workshop also identified the risks for airports with AEPs. A list of those facilities and risk ratings can be found in Appendix 2.

7.1 Haines Borough

7.1.1 Hazard Mitigation Plan

According to the 2022 Haines HMP, the potential natural hazards within the community include[12]:

- Changes to the cryosphere[13]
- Earthquake
- Flood/erosion
- Ground failure
- Tsunami and seiche[14]
- Wildland/conflagration fires

Table 9 summarizes the critical transportation infrastructure and its vulnerability to identified natural hazards.

[12] Haines Borough Planning Team. Haines Borough Hazard Mitigation Plan Update. (2022, June). https://www.hainesalaska.gov/media/58551.

[13] According to the State Hazard Mitigation Plan, cryosphere refers to the portions of Earth's surface and subsurface where water is in solid form. It includes sea, lake, and river ice; snow cover; glaciers; ice caps and ice sheets; and frozen ground).

[14] A seiche is a standing wave oscillating in a water body. They are often caused by strong wind, rapid atmospheric pressure changes, earthquakes, tsunamis, or severe storms.

Table 9: Transportation System Vulnerability, Haines

FACILITY	CRYOSPHERE	EARTHQUAKE	FLOOD/ EROSION	GROUND FAILURE	SEVERE WEATHER	TSUNAMI AND SEICHE	WILDFIRE
Airport	—	H	M	—	H	—	—
Haines Highway	H	H	H	H	H	—	H
Small Boat Harbor	—	H	—	—	H	L	—
Letnikof Boat Harbor	—	H	—	—	H	L	—
Port Chilkoot Dock	—	H	M	—	H	L	—
Port Chilkoot Dock Bathroom	—	H	M	—	H	L	—
Haines/Skagway Ferry and State Ferry Terminal	—	H	—	—	H	L	—
Harbor Restrooms	—	H	—	—	H	—	—
Lutak Dock	—	H	—	—	H	L	—
CIA Dock	—	H	—	—	H	L	—

Notes: H = High, M = Medium, L = Low

7.1.2 Airport Emergency Plans

No airports within the Haines Borough have developed an AEP. None of the airports within the borough hold 14 CFR Part 139 certificates; therefore, they are not required to have an AEP.

7.1.3 FEMA Risk Index

The FEMA NRI for the Haines Borough is rated as relatively high. Factors influencing this rating include very high social vulnerability and relatively moderate community resiliency. Of the 18 hazards assessed in the NRI, Haines Borough received a relatively high rating for risk of landslides and winter weather. Other notable risks according to the NRI include avalanches and earthquakes.

7.1.4 Recent Hazard Events

Six flooding disasters have occurred in the Haines Borough between 1985 and 2021. A very strong atmospheric river impacted Southeast in December 2020, bringing 5.49 inches of rainfall in 24 hours. Runoff from the rainfall and snowmelt overwhelmed culverts and caused major road damage. Haines saw severe flooding and a landslide that caused two fatalities[15]. The weather event also caused an avalanche above Chilkat Lake. The probability of another landslide due to the effects of changes in the cryosphere impacting the borough is highly likely based on an annual occurrence.

The Haines Borough is located along the Chilkat River and the river's alluvial fan. The area is known for annual debris flows that overflow the Haines Highway. Portions of the highway have been reconstructed to minimize the risk of overflow.

Lutak Road, which accesses the Alaska Marine Highway System and freight docks, has been damaged by two landslides, one in 2012 and one in December 2020.

Haines Borough was part of the January 2026 disaster declaration due to severe winter weather that brought record-breaking snowfall, extreme cold, and rain.

7.2 Hoonah-Angoon Census Area

7.2.1 Hazard Mitigation Plans

7.2.1.1 Angoon

According to the 2012 City of Angoon HMP, the community may experience the following natural hazards[16]:

- Earthquake
- Erosion
- Flood

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[15] *KCAW. (2020, December 2). Homes destroyed, six missing after 'half-mile' landslide in Haines. https://www.kcaw.org/2020/12/02/homes-destroyed-six-missing-after-half-mile-landslide-in-haines/.*

[16] *City of Angoon Mitigation Planning Team. City of Angoon Hazard Mitigation Plan. (2012, February).*

- Ground failure
- Weather
- Wildland fires

Table 10 summarizes the critical transportation infrastructure and its vulnerability to identified natural hazards.

Table 10: Transportation System Vulnerability, Angoon

FACILITY	EARTHQUAKE	FLOOD/ EROSION	GROUND FAILURE	SEVERE WEATHER	WILDFIRE
Deep Draft Dock	X	X	X	X	X
Killisnoo Small Boat Harbor (45 berths)	X	X	X	X	X
Killisnoo Ferry Terminal and Dock	X	X	X	X	X
Killisnoo Dock	X	X	X	X	X
Angoon Seaplane Dock	X	—	X	X	X
City Maintenance Shop	X	—	X	X	X

7.2.1.2 Gustavus

According to the 2019 City of Gustavus HMP, the primary natural hazards experienced by the community are earthquake, flood and erosion, severe weather, and wildland fire[17]. The community has the potential for tsunami, but this is considered a minor hazard.

Table 11 summarizes the critical transportation infrastructure and its vulnerability to identified natural hazards.

[17] *City of Gustavus. (2019). 2019 City of Gustavus Hazard Mitigation Plan. gustavus_lhmp_20191014_v2_fema_final.pdf*

Table 11: Transportation System Vulnerability, Gustavus

FACILITY	EARTHQUAKE	FLOOD/ EROSION	SEVERE WEATHER	TSUNAMI AND SEICHE	WILDFIRE
Gustavus Airport Runways	X	—	X	—	—
Alaska Seaplanes Terminal	X	—	X	—	—
Harris Air Terminal	X	—	X	—	—
Alaska Airlines Terminal	X	—	X	—	—
Airport Hangars (multiple)	X	—	X	—	—
DOT&PF Shops/Garages/Sheds	X	—	X	—	—
DOT&PF Lease Buildings	X	—	X	—	—
Gustavus Multi-Modal Marine Facility	X	—	X	—	—
Salmon River Boat Launch	X	—	X	—	—
NPS Barco Dock	X	—	X	—	—
NPS Barco Fuel Dock	X	—	X	—	—
Buds Car Rental	X	—	X	—	—
TLC Taxi	X	—	X	—	—
Strawberry Point Tours	X	—	X	—	X
Frontier Freight	X	—	X	—	—
Community Wide: total road miles: 29.5	X	X	X	X	X
Salmon River Bridge	X	X	X		
Good Rive Bridge	X	X	X		
Harry Hall Creek Bridge	X	X	X		
Crane Flats Creek Bridge (@ Dicky Dr)	X	X	X		
Crane Flats Creek Bridge (@ CHA Entry Trail Footbridge)	X	X	X		
Mountain View Stream Bridge (@ Spruce Ln)	X	X	X		
Mountain View Stream Bridge (@ Tong Rd)	X	X	X		

7.2.1.3 Hoonah

The 2018 Hoonah HMP identifies the following natural hazards that may occur in the community[18]:

- Tsunami
- Earthquake
- Severe weather
- Flood
- Ground failure (landslide)
- Climate change

[18] *City of Hoonah. (2018). City of Hoonah Hazard Mitigation Update Plan.*

Table 12 summarizes the critical transportation infrastructure and its vulnerability to identified natural hazards.

Table 12: Transportation System Vulnerability, Hoonah

FACILITY	EARTHQUAKE	FLOOD/ EROSION	GROUND FAILURE	SEVERE WEATHER	TSUNAMI AND SEICHE	CLIMATE CHANGE
DOT&PF Maintenance Building	M	—	—	M	L	L–M
LAB Flying Service and City of Hoonah Airport Building	M	—	—	M	L	L–M
Wings of Alaska and Hangar	M	—	—	M	L	L–M
Island Aviation Hangar	M	—	—	M	L	L–M
Whitestone Logging Strip	M	—	—	M	L	L–M
Airstrip	M	—	—	M	L	L–M
Cruise Ship Dock/Visitor Support Facilities	M	M	H	M	L	L–M
Alaska Marine Highway Terminal	M	M	—	M	L	L–M
Hoonah Marine Industrial Center	M	M	—	M	L	L–M

Notes: L = Low probability of being susceptible to the potential hazard, M = Moderate probability of being susceptible to the potential hazard, H = High probability of being susceptible to the potential hazard

7.2.2 Airport Emergency Plan

The Gustavus Airport (GST) holds a 14 CFR Part 139 certificate and has a complete AEP. The DOT&PF owns and operates GST, and is responsible for the development, maintenance, and exercise of the AEP.

Principal plan participants in GST's 2011 AEP include:

- Airport tenants
- Alaska Airlines
- Alaska State Troopers
- Federal Aviation Administration
- Gustavus Medical Clinic
- Gustavus Volunteer Fire Department
- National Park Service
- Other air carriers and air taxis serving GST
- Other medical centers within region
- USCG
- USPS

The GST AEP outlines procedures for emergency events assumed to directly affect the airport and its operations. The airport and community are in an earthquake-prone region and experience substantial seasonal weather changes, including severe coastal storms. Table 13 indicates the risk of occurrence assigned by the AEP to each event.

Table 13: AEP Hazard Event and Risk of Occurrence, GST

HAZARD/EMERGENCY EVENT	RISK OF OCCURRENCE
Aircraft Incidents and Accidents	No Risk Level Assigned – a required element of an AEP
Terrorism and Criminal Acts	No Risk Level Assigned – details are sensitive security information and contained within the Airport Security Program
Water Rescue	No Risk Level Assigned – a required element of an AEP
Structural and Fuel Storage Fires	Moderate Risk
Earthquake	Moderate Risk – earthquake-prone region
Tsunami	Moderate Risk – earthquake-prone region, coastal location
Flood	Low Risk
Volcanic Activity	Low Risk
Storm	High Risk – frequent high winds and winter storms
Hazardous Materials Incident	Moderate Risk
Power Failure	No Risk Level Assigned – airport has a standby generator

7.2.3 FEMA Risk Index

The Hoonah-Angoon Census Area is rated as Relatively High in the FEMA NRI. Factors influencing this rating include very high social vulnerability and very low community resiliency. Of the 18 hazards assessed in the NRI, the census area received a relatively high rating for risk of avalanches and earthquakes. The census area is rated as very high for risk of winter weather. The remaining natural hazards were rated as either relatively low or very low for the area.

7.2.4 Recent Hazard Events

The City of Hoonah was part of the January 2026 disaster declaration due to severe winter weather that brought record-breaking snowfall, extreme cold, and rain.

7.3 City and Borough of Juneau

7.3.1 Hazard Mitigation Plan

According to the City and Borough of Juneau (CBJ) and the Central Council of Tlingit and Haida Indian Tribes of Alaska (Tlingit & Haida) 2025 Multi-Jurisdictional HMP, the following natural hazards occur within its planning area[19]:

- Earthquake
- Severe weather
- Wildland and urban (community/downtown) fire
- Landslide (Ground failure)
- Tsunami
- Flooding/erosion
- Changes in the cryosphere (reflected in Table 14 as Glacier and Avalanche)
- Volcano
- Dam failure

The HMP identifies human-caused hazards as risk to the CBJ and Tlingit & Haida. Those hazards include release of hazardous materials and cyber security. The HMP also acknowledges that CBJ is not connected to the continental road system, and is therefore vulnerable to potential longshoremen's strikes, policy trade wars, ship mechanical issues, and natural disasters that could delay the arrival of barges.

[19] City and Borough of Juneau, Central Council of Tlingit and Haida Indian Tribes of Alaska. (2025, July 28). City and Borough of Juneau and the Central Council of Tlingit and Haida Indian Tribes of Alaska (Tlingit & Haida) 2025 Multi-Jurisdictional Hazard Mitigation Plan Update.

Table 14 summarizes the critical transportation infrastructure and its vulnerability to identified natural hazards.

Table 14: Transportation System Vulnerability, CBJ

FACILITY	EARTHQUAKE	SEVERE WEATHER	WILD AND URBAN FIRE	LANDSLIDE	TSUNAMI	FLOOD	DAM FAILURE	EROSION	GLACIER	AVALANCHE	VOLCANO
Juneau International Airport	X	X	X	—	X	X	—	—	X	—	X
Statter Harbor (Office Building)	X	X	X	—	X	X	—	X	X	—	X
Amalga Harbor Boat Launch & Facility	X	X	X	—	X	X	—	X	X	—	X
Auke Bay Loading Facility	X	X	X	—	X	X	—	—	X	—	X
Intermediate Vessel Float	X	X	X	—	X	X	—	X	X	—	X
Downtown Cruise Ship Berths	X	X	X	X	X	X	—	X	X	—	X

Note: No transportation facilities were identified as being vulnerable to dam failure or avalanches.

7.3.2 Airport Emergency Plan

The Juneau International Airport (JNU) holds a 14 CFR Part 139 certificate and has a complete AEP. The CBJ owns and operates JNU, and is responsible for the development, maintenance, and exercise of the AEP.

Principal plan participants in JNU's 2018 AEP include City and Borough of Juneau Emergency Services.

The JNU AEP outlines procedures for emergency events assumed to directly affect the airport and its operations. The airport and community are in an earthquake-prone region and experience substantial seasonal weather changes, including severe coastal storms. Table 15 indicates the risk of occurrence assigned by the AEP to each event. The levels of risk determined by the AEP development team align with the 2009 Capital City Fire/Rescue All Hazards Risk Assessment, and in some cases, the risk levels have been reconfirmed more recently.

Table 15: AEP Hazard Event Risk of Occurrence, JNU

HAZARD/EMERGENCY EVENT	RISK OF OCCURRENCE
Aircraft Incidents and Accidents	No Risk Level Assigned – a required element of an AEP
Terrorism and Criminal Acts	No Risk Level Assigned – details are sensitive security information and contained within the Airport Security Program
Water Rescue	No Risk Level Assigned – a required element of an AEP
Structural and Fuel Storage Fires	Moderate Risk
Earthquake	Significant Risk
Tsunami	Low Risk
Flood	Moderate Risk
Volcanic Activity	Low Risk – JNU is a diversion airport for natural hazards (including volcanic activity), and can park large numbers of diverted aircraft and shelter displaced persons
Storm	High Risk
Hazardous Materials Incident	Significant Risk
Power Failure	No Risk Level Assigned – airport has a standby generator

7.3.3 FEMA Risk Index

The CBJ is rated as Relatively Moderate in the NRI. Factors influencing this rating include very high social vulnerability and relatively moderate community resiliency. Of the 18 hazards assessed in the NRI, the CBJ received a very high rating for risk of winter weather and a relatively high rating for risk of landslides. Other notable risks according to the NRI include avalanches and earthquakes with relatively moderate risk ratings. The remaining hazards assessed are rated relatively low and very low.

7.3.4 Recent Hazard Events

Suicide Basin is a glacial lake on a tributary of the Mendenhall Glacier. The glacier terminates in Mendenhall Lake, which drains into Mendenhall River. Suicide Basin has flooded and released into the lake and river annually since 2011. The river flows through a residential area and near critical infrastructure before reaching the ocean. Major flooding is considered beyond a riverbank crest of 14 feet. The river has crested over 14 feet each August of the last three years[20]. The Mendenhall Valley residential area experienced flooding in August 2024 in which more than 300 homes were damaged. While August 2025 saw a higher crest than 2024, HESCO barriers helped to mitigate flooding. This is not intended to be a permanent solution, and the CBJ continues to work toward flood mitigation solutions in partnership with the U.S. Army Corps of Engineers (USACE).

Two rockslides occurred on North Douglas Highway in April 2022. The second rockslide closed the highway to the traveling public.

The CBJ was part of the January 2026 disaster declaration due to severe winter weather that brought record-breaking snowfall, extreme cold, and rain[21].

7.4 Ketchikan Gateway Borough

7.4.1 Hazard Mitigation Plan

The Ketchikan Gateway Borough (KGB) Multi-Jurisdictional HMP, the natural hazards that are experienced in the KGB, City of Ketchikan, and the City of Saxman are shown in Table 16, along with their vulnerability[22].

Table 16: Natural Hazards within GKA

JURISDICTION	FLOOD	EARTHQUAKE	TSUNAMI	SEVERE WEATHER	CLIMATE CHANGE
Greater Ketchikan Area	L	M	M	M	L
City of Ketchikan	L	M	M	M	L
City of Saxman	N/A	M	M	M	L

Notes: L = low risk; little damage potential, minor damage to less than 5% of the jurisdiction; M = medium risk; moderate damage potential, causing partial damage to 5–10% of the jurisdiction, infrequent occurrence; H = high risk, significant risk/major damage potential, destructive damage to more than 10% of the jurisdiction; N/A = not applicable, not a hazard to the community.

[20] *University of Alaska Southeast in partnership with the Alaska Climate Adaptation Science Center. (2025). Juneau Glacial Flood Dashboard. http://juneauflood.org/#/home.*

[21] *Division of Homeland Security and Emergency Management. (2026, January 10). Governor Dunleavy Declares 2026 Jan Southeast Winter Storm a Disaster [Press Release]. https://ready.alaska.gov/Documents/PIO/PressReleases/2026.01.10_Press%20Release%20-%20Governor%20Dunleavy%20Declares%202026%20Jan%20Southeast%20Winter%20Storm.pdf.*

[22] *Ketchikan Gateway Borough, City of Ketchikan, City of Saxman. (2016, October 19). Greater Ketchikan Area Multi-Jurisdictional Hazard Mitigation Plan (MJHMP). https://www.kgbak.us/DocumentCenter/View/13462/Multi-Jurisdictional-Hazard-Mitigation-Plan-Final-Adopted-20161019?bidId=.*

Table 17 summarizes Ketchikan's critical transportation infrastructure and its vulnerability to identified natural hazards.

Table 17: Transportation System Vulnerability, GKA

FACILITY	FLOOD	EARTHQUAKE	TSUNAMI	SEVERE WEATHER
Ketchikan International Airport	L	M	—	M
Airport Float and Murphy's Landing	L	M	—	M
KIA Ferry	L	M	—	M
Alaska Marine Lines	L	M	—	M
Alaska Marine Highway Ferry Terminal	L	M	—	M
Samson Tug and Line Terminal	L	M	—	M
Berth 1	—	—	—	—
Berth 2	—	—	—	—
Berth 3	—	—	—	—
Berth 4	—	M	—	M
Harbor Master	M	M	—	M

Notes: H = High, M = Medium, L = Low

Other transportation infrastructure identified as critical include:

- Knudson Cove Boat Ramp
- Inter-Island Ferry Terminal
- Alaska Marine Highway Terminal
- Bar Harbor Boat Ramp
- Thomas Basin Harbor
- Saxman Boat Landing
- Saxman Boat Ramp
- Mountain Point Boat Ramp
- Loring Floatplane Dock

7.4.2 Airport Emergency Plan

The Ketchikan International Airport (KTN) holds a 14 CFR Part 139 certificate and has a complete AEP. DOT&PF owns KTN, and the KGB operates the airport.

Principal plan participants in KTN's 2011 AEP include:

- Aero Services
- Alaska Airlines
- Alaska State Troopers
- Federal Aviation Administration
- Ketchikan Fire Department
- Ketchikan General Hospital
- Ketchikan Police Department
- Pacific Airways
- Transportation Security Administration
- USCG

The KTN AEP outlines procedures for emergency events assumed to directly affect the airport and its operations. The airport and community are in an earthquake-prone region and experience substantial seasonal weather changes, including severe coastal storms. Table 18 indicates the risk of occurrence assigned by the plan to each event.

Table 18: AEP Hazard Event Risk of Occurrence, KTN

HAZARD/EMERGENCY EVENT	RISK OF OCCURRENCE
Aircraft Incidents and Accidents	No Risk Level Assigned – a required element of an AEP
Terrorism and Criminal Acts	No Risk Level Assigned – details are sensitive security information and contained within the Airport Security Program
Water Rescue	No Risk Level Assigned – a required element of an AEP
Structural and Fuel Storage Fires	Moderate Risk
Earthquake	Low Probability of Occurring
Tsunami	Low Risk of Occurring
Flood	Low Probability of Occurring
Volcanic Activity	Low Risk of Impact – airport subject to volcanic ash fallout
Storm	High Risk – frequent high winds and winter storms
Hazardous Materials Incident	Low Risk of Occurring
Power Failure	No Risk Level Assigned – airport has a standby generator

7.4.3 FEMA Risk Index

The KGB is rated as very low in the NRI. Factors influencing this rating include very low EAL, and relatively moderate social vulnerability and community resiliency. Of the 18 hazards assessed in the NRI, the KGB did not receive any high ratings. The KGB has a relatively moderate risk rating for winter weather and landslide. The remaining hazards assessed are rated relatively low and very low.

7.4.4 Recent Hazard Events

Wolfe Point, an area along the North Tongass Highway, has experienced reoccurring landslides, the most recent on March 20, 2025[23]. The landslides have blocked the highway, limiting access to homes and businesses.

[23] *Darrell, J., and Fanelli, M. (2025, March 21). Rockslide blocks Ketchikan's main road, cutting off the island's north side. Alaska Public Media. https://alaskapublic.org/news/environment/2025-03-21/rockslide-blocks-ketchikans-main-road-cutting-off-islands-north-side.*

On August 25, 2024, a landslide came down over Ketchikan's Third Avenue bypass and across First and Second Avenues[24]. The landslide resulted in one fatality, three injuries, and destroyed several homes. The landslide occurred during heavy rainfall.

On October 6, 2024 a landslide occurred along Revilla Road blocking both lanes near the turn off to Ward Lake.[25] The slide was 400 feet wide, spanning 1,500 feet, and stranded multiple people. No injuries were reported, though one family of four was temporarily trapped in their vehicle.

7.5 Petersburg Borough

7.5.1 Hazard Mitigation Plan

According to the Petersburg Borough Multi-Jurisdictional HMP, the natural hazards that pose the greatest threat to the borough include[26]:

- Earthquake
- Flood
- Landslide
- Infectious disease epidemic
- Downtown conflagration
- Climate change

Other hazards that have a low probability of occurrence or to substantially affect life and property include:

- Avalanche
- Erosion
- Severe weather
- Tsunami and seiche
- Volcano
- Wildland fires

Transportation infrastructure that was identified as critical facilities include:

- Alaska Marine Lines Barge Terminal
- Sampson Tug and Barge
- Petro Marine Fuel Dock

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[24] Ketchikan Gateway Borough. (n.d.). Response to 3rd Avenue Landslide. https://www.kgbak.us/1098/Response-to-3rd-Avenue-Landslide.

[25] Darrell, J., (2024, October 7). Landslide strands multiple people on remote stretch of Revilla Road near Ketchikan. KRBD. Landslide strands multiple people on remote stretch of Revilla Road near Ketchikan - KRBD.

[26] Petersburg Hazard Mitigation Planning Committee. (2018, March). Petersburg Borough Multi-Hazard Mitigation Plan Update.

- Marine Railway
- Petersburg Motor Pool Shop & Heavy Equipment Fleet
- Petersburg Middle Public Harbor
- Petersburg North Public Harbor
- Petersburg South Public Harbor
- James A. Johnson Airport
- Lloyd R. Roundtree Seaplane Base
- State Ferry Terminal
- South Mitkof Ferry Terminal
- Public Works Parking Garage
- Public Works Fueling Facility
- Public Works Parking Shed
- Petersburg Borough Streets/Roads (12.5 total miles)
- Mitkof Highway (32.211 total miles)

The plan does not identify specific transportation infrastructure at risk to specific hazards. In general, earthquake severity and impact to the community is considered low. The impact of landslides is considered low to medium as landslides do occur; however, historically, landslides have not caused damage to critical infrastructure, and caused only minor travel and communication delays. The plan indicates there is a one in 10-year's chance of a flood event, though one is considered unlikely. Losses and damage due to a flood are not expected. The plan identifies climate change generally as a risk to critical infrastructure as it will exacerbate other natural hazards identified.

The plan also identifies human-caused hazards that pose a risk to the community such as oil spills and hazardous materials, and technological and terrorism occurrences.

7.5.2 Airport Emergency Plan

The Petersburg James A. Johnson Airport (PSG) holds a 14 CFR Part 139 certificate and has a complete AEP. DOT&PF owns and operates PSG, and is responsible for the development, maintenance, and exercise of the AEP.

Principal plan participants in PSG's 2025 AEP include:

- Airport tenants
- Alaska Airlines
- Alaska State Troopers
- Federal Aviation Administration
- Petersburg City Clerk
- Petersburg Fire Department
- Petersburg Harbormaster
- Petersburg Medical Center
- Petersburg Police Department
- Transportation Security Administration
- USCG
- USPS
- Weather Data Service

The PSG AEP outlines procedures for emergency events assumed to directly affect the airport and its operations. The airport and community are in an earthquake-prone region and experience substantial seasonal weather changes, including severe coastal storms. Table 19 indicates the risk of occurrence assigned by the plan to each event.

Table 19: AEP Hazard Event Risk of Occurrence, PSG

HAZARD/EMERGENCY EVENT	RISK OF OCCURRENCE
Aircraft Incidents and Accidents	No Risk Level Assigned – a required element of an AEP
Terrorism and Criminal Acts	No Risk Level Assigned – details are sensitive security information and contained within the Airport Security Program
Water Rescue	No Risk Level Assigned – a required element of an AEP
Structural and Fuel Storage Fires	Low Risk
Earthquake	Low Risk
Tsunami	No Risk Level Assigned – not included in plan
Flood	Low Risk
Volcanic Activity	No Risk Level Assigned – not included in plan
Storm	Moderate Risk – frequent high winds and winter storms
Hazardous Materials Incident	Moderate Risk
Power Failure	No Risk Level Assigned – airport has an emergency back-up system (generator)

7.5.3 FEMA Risk Index

Petersburg is rated as very high in the NRI. Factors influencing this rating include relatively high EAL, relatively high social vulnerability and very low community resiliency. Of the 18 hazards assessed in the NRI, Petersburg received a very high rating for risk of landslides and winter weather. Other notable risks according to the NRI include avalanches with a relatively moderate risk rating. The remaining hazards assessed are rated relatively low and very low.

7.5.4 Recent Hazard Events

On October 31, 2022, a landslide occurred along the Mitkof Highway[27]. The landslide caused a power outage as well as phone and internet access to be out in portions of Petersburg.

7.6 Prince of Wales-Hyder Census Area

7.6.1 Hazard Mitigation Plans

7.6.1.1 Craig

According to the 2018 City of Craig HMP, Craig is most at risk to the following hazards[28]:

- Tsunami
- Ground failure

[27] *Cassandra, R., and Denning, A. (2022, November 1). Halloween landslide in Petersburg takes out power, phones and internet. KTOO. https://www.ktoo.org/2022/11/01/halloween-landslide-in-petersburg-takes-out-power-phones-and-internet/.*

[28] *City of Craig. (2018, January). City of Craig, Alaska Multi-Hazard Mitigation Plan.*

- Earthquake
- Severe weather
- Wildland fire

The city's HMP recognizes the overall risk of climate change contributing to these hazards. Table 20 summarizes the critical transportation infrastructure and its vulnerability to identified natural hazards.

Table 20: Transportation System Vulnerability, Craig

FACILITY	EARTHQUAKE	TSUNAMI	SEVERE WEATHER	GROUND FAILURE	WILDLAND FIRE
Craig Cannery Dock	M	H	M	—	L
Shaan Seet Industrial Dock	M	H	M	—	L
Seaplane Terminal	M	H	M	—	L
North Cove Boat Launch	M	H	M	—	L
Harbormaster Building	M	L	M	—	L
North Cove Harbor	M	H	M	—	L–M
South Cove Harbor	M	H	M	—	L–M
City Dock and Floats	M	H	M	—	L–M

Notes: L = hazard is present with a low probability of occurrence within the next 10 years, and event has up to a 1 in 10-year's chance of occurring; M = hazard is present with a moderate probability of occurrence within the next 3 years, and event has up to a 1 in 3-year's chance of occurring; H = hazard is present with a high probability of occurrence within the calendar year, and event has up to a 1 in 1-year's chance of occurring. No transportation facilities were identified as being vulnerable to ground failure.

7.6.1.2 Hydaburg

The 2011 City of Hydaburg HMP indicates the community is at risk of the following natural hazards[29]:

- Flood
- Wildland fire
- Earthquake
- Snow avalanche
- Tsunami and seiche
- Severe weather
- Ground failure

Critical transportation facilities that are subject to flooding include the marina, the harbormaster building and city maintenance facility, the City dock, and boat warehouse. Should a wildland fire, earthquake, or severe weather event occur in Hydaburg, all critical transportation facilities would be affected given its small geographic footprint and relative remoteness. The HMP also indicates that all infrastructure in Hydaburg is vulnerable to a tsunami, especially infrastructure on the shoreline.

[29] *City of Hydaburg. (2011, October). City of Hydaburg Local Hazard Mitigation Plan.*

The HMP indicates that landslides are a concern along the Klawock-Hollis Highway because they could cut off the community's access to the Inter-Island Ferry Authority Terminal at Hollis connecting Hydaburg to Ketchikan and to the island's only airport in Klawock. This connection is essential to travel and commerce to and from Prince of Wales Island.

7.6.1.3 Kasaan

The 2017 City of Kasaan/Organized Village of Kasaan Multi-Jurisdictional HMP indicates that the community is at risk of the following natural hazards[30]:

- Ground failure
- Severe weather
- Earthquake
- Wildland fire
- Tsunami
- Climate change

Table 21 summarizes the critical transportation infrastructure and its vulnerability to identified natural hazards.

Table 21: Critical Transportation Facility Vulnerability, Kasaan

FACILITY	GROUND FAILURE	SEVERE WEATHER	EARTHQUAKE	WILDLAND FIRE	TSUNAMI
Organized Village of Kasaan's Department of Transportation building	L	M	M	L	L
Kasaan City Shop	L	M	M	L	L
Dock	L	M	M	L	L

Notes: H = High, M = Medium, L = Low

The plan also indicated that the community is concerned about a landslide closing the road to Thorne Bay, cutting them off from other communities on Prince of Wales Island. It also states that ground failure could impact Prince of Wales Island's road system. Other transportation-related concerns mentioned in the plan include the potential for severe weather to impact air traffic and that a tsunami could cause damage to roads, the harbor, and docking facilities.

[30] *City of Kasaan, Organized Village of Kasaan. (2017, May). City of Kasaan/Organized Village of Kasaan, Alaska Multi-Jurisdictional Hazard Mitigation Plan.*

7.6.1.4 Kake

The 2022 City of Kake HMP identifies the following natural hazards as the primary risks for the community[31]:

- Climate change
- Earthquake
- Flooding/erosion
- Ground failure
- Severe weather
- Tsunami
- Wildfire

According the HMP, the entire coastline is vulnerable to sea level rise as well as associated coastal erosion and flooding. The entire community may experience rising temperatures and increased precipitation, while more than 20 percent of the area is at risk of wildfires. Additionally, the entire community can experience severe weather.

Transportation-related concerns include erosion causing increased sedimentation, which hinders channel navigation. Landslides are a risk to roads and other transportation throughout the community, especially within areas with steep slopes.

7.6.1.5 Klawock

The 2022 City of Klawock HMP identifies the following natural hazards as risks for the community[32]:

- Climate change
- Drought
- Earthquake
- Ground failure
- Severe weather
- Tsunami
- Wildfire

The HMP indicates the entire community may be impacted by sea level rise, including the Klawock Airport. Other transportation infrastructure identified as at-risk from landslides includes Church Street, East Street, Anchorage Street, Big Salt Road north and east of Klawock Airport and along Halfmile Creek, and Port St. Nicholas Road near Craig.

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[31] *City of Kake. (2022). City of Kake Local Hazard Mitigation Plan.*

[32] *City of Klawock. (2022). City of Klawock Local Hazard Mitigation Plan.*

Other hazards that are likely to impact the entire community include drought, earthquake, and severe weather. The entire area is subject to wildfires, with south-facing, steep-sloped areas with woody vegetation having the highest risk. The airport area is considered to have a low wildfire risk. Coastal areas are more likely to be at risk from a tsunami. The Klawock River Bridge and Causeway is of considerable concern because damage to these features would cut off many Klawock residents from medical and other critical services.

7.6.1.6 Thorne Bay

The 2012 City of Thorne Bay HMP indicates the community is vulnerable to the following natural hazards[33]:

- Earthquake
- Flood
- Ground failure (landslide, subsidence, unstable soils)
- Tsunami and seiche
- Volcano
- Severe weather
- Wildland fire

Table 22 summarizes the critical transportation infrastructure and its vulnerability to identified natural hazards.

[33] *City of Thorne Bay Mitigation Planning Team. (2012, January). City of Thorne Bay Hazard Mitigation Plan.*

Table 22: Critical Transportation Facility Vulnerability, Thorne Bay

FACILITY	EARTHQUAKE	FLOOD	GROUND FAILURE	TSUNAMI	VOLCANO	SEVERE WEATHER	WILDLAND FIRE
Roads (Community) (36 miles)	X	—	X	—	X	X	X
Bay View Drive	—	—	X	—	—	—	—
Bypass Road	—	—	X	—	—	—	—
Deer Creek Lane	—	—	X	—	—	—	—
Charlie Brown Street	—	—	X	—	—	—	—
Federal Way	X	—	X	—	X	X	X
Freeman Drive	—	—	X	—	—	—	—
Finney Drive	—	—	X	—	—	—	—
Lake Shore Drive	X	—	X	—	X	X	X
Harbor Road	X	—	X	—	X	X	X
Hemlok Loop	X	—	X	—	X	X	X
Kasaan Road	X	—	X	—	X	X	X
Rainy Lane	X	—	X	—	X	X	X
Ron's Roads	X	—	X	—	X	X	X
Sandy Beach Road	X	—	X	—	X	X	X
Scenic View Drive	—	—	X	—	—	—	—
Shoreline Drive	X	—	X	X	X	X	X
South Thorne Bay Road	X	—	X	—	X	X	X
Spruce Lane	—	—	X	—	—	—	—
Svend's Drive South	—	—	X	—	—	—	—
Thorne Bay Highway (HWS) State Owned/ Maintained	X	—	X	—	X	X	X
U.S. Forest Service Drive	X	—	X	—	X	X	X
Willow	X	—	X	—	X	X	X
Wolverine Court	—	—	X	—	—	—	—
Thorne Bay River Bridge (State)	X	X	X	—	X	X	X
Deer Creek Bridge	X	X	X	X	X	X	X

Other transportation related concerns mentioned in the HMP include:

- The bridge crossing Thorne Bay has the potential to flood. Other transportation facilities may be damaged by flooding.
- Volcanic ash may disrupt air and marine transportation.
- Severe weather can impact the airport and roads. It may also cause damage to boats and planes.

7.6.2 Airport Emergency Plans

No airports within the Prince of Wales-Hyder Census Area have developed an AEP. None of the airports within the census area hold 14 CFR Part 139 certificates; therefore, they are not required to have an AEP.

7.6.3 FEMA Risk Index

The Prince of Wales-Hyder Census Area is rated as very low in the NRI. While social vulnerability is rated very high and community resiliency is rated very low, the expected EAL is rated very low. Of the 18 hazards assessed in the NRI, the census area received a relatively high rating for risk of landslides and winter weather. The remaining hazards assessed are rated relatively low and very low or have no rating.

7.6.4 Recent Hazard Events

A severe storm in October 2020 caused seven landslides across Prince of Wales Island, blocking state-owned roads, including three landslides on Big Salt Lake Road[34]. A severe storm in November 2023 caused widespread damage, including landslides and washed-out roads and culverts[35]. Prince of Wales Island was included in a state disaster declaration.

7.7 City and Borough of Sitka

7.7.1 Hazard Mitigation Plan

According to the 2018 City and Borough of Sitka (CBS) HMP, natural hazards that are likely to occur include[36]:

- Flood
- Earthquake
- Tsunami
- Severe weather
- Ground failure

Hazards that may occur in Sitka but are likely to have negligible effects include erosion, wildland fire, avalanche, and volcano. Erosion, fire, and avalanches are not likely to impact the transportation system. Volcanic ash may impact transportation facilities but the closest active volcano is over 300 miles away.

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[34] Stone, E. (2020, October 26). Seven landslides on Prince of Wales Island block key roads. KRBD. https://www.krbd.org/2020/10/26/seven-landslides-on-prince-of-wales-island-block-key-roads/.

[35] Herbert, S. (2023, November 22). Storm that hit Wrangell brought wider southeast Alaska damage. Alaska Public Media. https://alaskapublic.org/news/2023-11-22/storm-that-hit-wrangell-brought-wider-southeast-alaska-damage.

[36] City and Borough of Sitka. (2010, April 20). 2010 City & Borough of Sitka Multi-Hazard Mitigation Plan. https://www.commerce.alaska.gov/web/Portals/4/pub/RiskMAP/Sitka/Sitka%20City%20and%20Borough-April%202010.pdf.

Table 23 summarizes CBS's critical transportation infrastructure and its vulnerability to the natural hazards identified in the plan.

Table 23: Transportation System Vulnerability, CBS

FACILITY	FLOOD	EARTHQUAKE	TSUNAMI	SEVERE WEATHER	GROUND FAILURE[A]
Airport Terminal Building	—	H	—	H	—
O'Connell Bridge	L	H	H	H	—
Marine Services Building	—	H	—	H	—
Harbor Master Office	L	H	H	H	—
Petro Marine Services	L	H	H	H	—

Notes: H = High, M = Medium, L = Low
[a] Information for ground failure is not available. The HMP indicates historical landslide events have occurred on Blue Lake Road and Green Lake Road.

7.7.2 Airport Emergency Plan

The Sitka Rocky Gutierrez Airport (SIT) holds a 14 CFR Part 139 certificate and has a complete AEP. DOT&PF owns and operates SIT, and is responsible for the development, maintenance, and exercise of the AEP.

Principal plan participants in SIT's 2025 AEP include:

- Alaska Airlines
- Alaska State Troopers
- Allen Marine, Inc.
- City of Sitka Harbor Department
- Civil Air Patrol
- Federal Aviation Administration
- Guardian Flight
- Harris Air
- Mt. Edgecumbe Hospital
- North Pacific Search and Rescue
- Public Safety Academy
- Sitka Community Hospital
- Sitka Fire Department
- Sitka Mountain Rescue
- Sitka Police Department
- Southeast Alaska Regional Health Consortium
- USCG

The SIT AEP outlines procedures for emergency events assumed to directly affect the airport and its operations. The airport and community are in an earthquake-prone region and experience substantial seasonal weather changes, including severe coastal storms. Table 24 indicates the risk of occurrence assigned by the plan to each event.

Table 24: AEP Hazard Event Risk of Occurrence, SIT

HAZARD/EMERGENCY EVENT	RISK OF OCCURRENCE
Aircraft Incidents and Accidents	No Risk Level Assigned – a required element of an AEP
Terrorism and Criminal Acts	No Risk Level Assigned – details are sensitive security information and contained within the Airport Security Program
Water Rescue	No Risk Level Assigned – a required element of an AEP
Structural and Fuel Storage Fires	Moderate Risk
Earthquake	High Risk
Tsunami	Moderate Risk
Flood	No Risk Level Assigned – not included in plan
Volcanic Activity	Low Risk
Storm	Moderate Risk – frequent high winds and winter storms
Hazardous Materials Incident	Light to Moderate Risk
Power Failure	No Risk Level Assigned – airport has emergency power generators

7.7.3 FEMA Risk Index

The CBS is rated as relatively high in the NRI. Factors influencing this rating include a relatively high EAL and relatively moderate social vulnerability. The CBS is the only Southeast area assessed with a relatively high community resiliency rating.

Of the 18 hazards assessed in the NRI, the CBS received a very high rating for risk of landslides and a relatively high rating for risk of winter weather. Other notable risks according to the NRI include earthquakes, tsunami, and volcanic activity with relatively moderate risk ratings. The remaining hazards assessed are rated relatively low and very low.

7.7.4 Recent Hazard Events

On August 18, 2015, heavy rainfall triggered a landslide on Harbor Mountain that slid onto Kramer Avenue in Sitka resulting in three fatalities[37]. Since this event, Sitka has implemented a landslide warning system.

7.8 Municipality of Skagway Borough

7.8.1 Hazard Mitigation Plan

According to the 2019 Municipality of Skagway HMP, the natural hazards that pose the greatest threat to the area include[38]:

- Earthquake
- Flood

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[37] Waldholz, R., and Woolsey, R. (2015, August 18). Update: missing 3 presumed dead in Sitka landslide, Walker to visit. KTOO. https://www.ktoo.org/2015/08/18/gov-walker-visit-sitka-devastating-landslides/.

[38] Municipality of Skagway. (2019, October). Municipality of Skagway, Alaska Local Hazard Mitigation Plan. https://www.skagway.org/media/51601.

- Ground failure
- Tsunami
- Severe weather

Other hazards that may occur include wildland fire, communicable diseases, and wildlife interactions.

The Skagway HMP does not list its critical transportation infrastructure. The HMP states that all of the municipality is vulnerable to earthquakes and weather, including its transportation infrastructure. The municipality is surrounded by two major river systems, the Taiya River and Skagway River. Transportation infrastructure in coastal and riverine areas would be vulnerable to floods and tsunamis.

7.8.2 Airport Emergency Plan

No airports within the Municipality of Skagway Borough have developed an AEP. None of the airports within the borough hold 14 CFR Part 139 certificates; therefore, they are not required to have an AEP.

7.8.3 FEMA Risk Index

The Municipality of Skagway Borough is rated as relatively low in the NRI. Factors influencing this rating include a relatively low EAL, relatively high social vulnerability, and very low community resiliency ratings.

Of the 18 hazards assessed in the NRI, Skagway received a very high rating for risk of winter weather. The area also rated relatively high for risk of cold wave and landslides. Other notable risks include earthquakes, with a relatively moderate risk rating. The remaining hazards assessed are rated relatively low, very low, or not rated.

7.8.4 Recent Hazard Events

Reoccurring landslides alongside Railroad Dock, Skagway's largest cruise ship dock, have posed on an ongoing risk since 2022[39]. Skagway has received a FEMA grant to fund slope stabilization and protect dock infrastructure.

The Klondike Highway is at risk of avalanches and rockfall. During winter months, the Klondike Highway periodically closes due to avalanche hazard on the United States and Canadian sides of the border.

Skagway was part of the January 2026 disaster declaration due to severe winter weather that brought record-breaking snowfall, extreme cold, and rain.

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[39] Ellfeldt, A. (2025, August 22). Rockslides have battered Skagway's biggest cruise ship dock. What else is at risk?. Alaska Public Media. https://alaskapublic.org/news/alaska-desk/2025-08-22/rockslides-have-battered-skagways-biggest-cruise-ship-dock-what-else-is-at-risk.

7.9 City and Borough of Wrangell

7.9.1 Hazard Mitigation Plan

The 2020 City and Borough of Wrangell Multi-Jurisdictional HMP identifies the following risks for Wrangell[40]:

- Earthquake
- Flood and erosion
- Ground failure
- Tsunami and seiche
- Severe weather
- Wildland fire
- Volcanic ash

Table 25 summarizes Wrangell's critical transportation infrastructure and its vulnerability to the natural hazards identified in the plan.

[40] *City and Borough of Wrangell. (2020, March). City and Borough of Wrangell Multi-Jurisdictional Hazard Mitigation Plan. wrangell_mjhmp_revisedfinal_030220_version_approved_by_fema_3-10-2020.pdf.*

Table 25: Transportation System Vulnerability, Wrangell

FACILITY	EARTHQUAKE	FLOOD/ EROSION	GROUND FAILURE	TSUNAMI/ SEICHE	SEVERE WEATHER	WILDLAND FIRE	VOLCANO
Total Paved Road (9.9 miles)	X	X	X	X	X	X	X
Total Gravel Road (7.65 miles)	X	X	X	X	X	X	X
Pats Creek Bridge	X		—	X	X	X	X
McCormacks Bridge	X		—	X	X	X	X
City Park Bridge	X	X	—	X	X	X	X
SMB Park Bridge/Institute Creek	X	X	—	X	X	X	X
SMB Near Pullout/Zimovia Highway Culvert	X	X	—	X	X	X	X
USFS Bridges on Wrangell Island	—	—	X	—	X	X	X
Wood Street/Zimovia Highway Culvert	X	X	X	X	X	X	X
Pine Street/Zimovia Highway Culvert	X	X	X	X	X	X	X
Evergreen/Trailer Park Culvert	X	X	—	X	X	X	X
Nugget Trailer Park Culvert	X	X	—	X	X	X	X
Spur Road Culvert	X	—	—	—	X	X	X
Wrangell Airport (PAWG)	X	—	—	—	X	X	X
Wrangell Airport Runway	X	—	—	—	X	X	X
Wrangell Airport Runway	X	—	—	—	X	X	X
Wrangell Seaplane Base	X	—	—	—	X	X	X
Alaska Airlines Terminal and Hangar	X	—	—	—	X	X	X
State DOT&PF Highway Maintenance	X	—	—	—	X	X	X
City Bulk Fuel Tanks	X	—	—	—	X	X	X
U.S. Transportation Security Administration Offices	X	—	—	—	X	X	X
Wrangell Ports and Harbors	X	X	—	X	X	X	X
Wrangell Ferry Terminal	X	X	—	X	X	X	X
Samson Tug & Barge	X	X	—	X	X	X	X
6-mile Industrial Yard/Dock	X	X	—	X	X	X	X
Alaska Marine Lines Lynden Transport	X	—	—	—	X	X	X
Etolin Bus Company	X	—	—	—	X	X	X
Arrowhead Transfer and Arrowhead L.P. Gas	X	—	X	X	X	X	X
Alpine Fuel Expediting	X	—	X	—	X	X	X

FACILITY	EARTHQUAKE	FLOOD/ EROSION	GROUND FAILURE	TSUNAMI/ SEICHE	SEVERE WEATHER	WILDLAND FIRE	VOLCANO
LN'M Services and Gas Station	X	—	X	—	X	X	X
Petro Marine Services	X	—	X	—	X	X	X
Alaska Charters and Adventures	X	X	—	X	X	X	X
Alaska Vistas	X	X	—	X	X	X	X
Alaska Waters	X	X	—	X	X	X	X
Breakaway Adventures	X	X	—	X	X	X	X
Muddy Water Adventures	X	—	—	—	X	X	X
Practical Car Rental	X	—	—	—	X	X	X
Summit Charters	X	—	—	—	X	X	X
Sunrise Aviation	X	—	—	—	X	X	X

7.9.2 Airport Emergency Plan

The Wrangell Airport (WRG) holds a 14 CFR Part 139 certificate and has a complete AEP. DOT&PF owns and operates WRG, and is responsible for the development, maintenance, and exercise of the AEP.

Principal plan participants in WRG's 2011 AEP include:

- Airport tenants
- Alaska Airlines
- Federal Aviation Administration
- Ibex Weather
- Local radio station KSTK-FM
- Other medical centers within region
- USPS
- USCG
- Wrangell Harbor Master
- Wrangell Medical Center
- Wrangell Police Department
- Wrangell Volunteer Fire Department

The WRG AEP outlines procedures for emergency events assumed to directly affect the airport and its operations. The airport and community are in an earthquake-prone region and experience substantial seasonal weather changes, including severe coastal storms. Table 26 indicates the risk of occurrence assigned by the plan to each event.

Table 26: AEP Hazard Event Risk of Occurrence, WRG

HAZARD/EMERGENCY EVENT	RISK OF OCCURRENCE
Aircraft Incidents and Accidents	No Risk Level Assigned – a required element of an AEP
Terrorism and Criminal Acts	No Risk Level Assigned – details are sensitive security information and contained within the Airport Security Program
Water Rescue	No Risk Level Assigned – a required element of an AEP
Structural and Fuel Storage Fires	Moderate Risk
Earthquake	Moderate Risk
Tsunami	Moderate Risk
Flood	Low Risk
Volcanic Activity	Ash Fallout Risk
Storm	Moderate Risk – frequent high winds and winter storms
Hazardous Materials Incident	Moderate Risk
Power Failure	No Risk Level Assigned – airport has no emergency power back-up system

7.9.3 FEMA Risk Index

Wrangell is rated as very low in the NRI. Factors influencing this rating include a relatively low EAL, though it is rated relatively high for social vulnerability and relatively low for community resiliency.

Of the 18 hazards assessed in the NRI, Wrangell received a relatively high rating for risk of winter weather. Wrangell has a relatively moderate rating for landslides. The remaining hazards assessed are rated relatively low, very low, or not rated.

7.9.4 Recent Hazard Events

A massive landslide, resulting from heavy rainfall, occurred at Mile 11.2 of the Zimovia Highway on November 20, 2023. The landslide resulting in six fatalities. The debris flow was more than 400 feet wide, and DOT&PF required more than a week to open the road to through traffic. The same day, a second landslide inundated Middle Ridge Road[41].

7.10 City and Borough of Yakutat

7.10.1 Hazard Mitigation Plan

The 2024 City and Borough of Yakutat and Yakutat Tlingit Tribe Multi-Jurisdictional HMP indicates that the community is at risk of[42]:

- Changes in the cryosphere
- Earthquake
- Severe weather
- Wildland fire
- Landslide
- Tsunami
- Flood
- Erosion

Table 27 summarizes Yakutat's critical transportation infrastructure and its vulnerability to the natural hazards identified in the plan.

[41] *Rosen, Y. (2023, November 29). Deadly Wrangell landslide is part of a pattern in vulnerable Alaska mountainous terrain. Alaska Public Media. https://alaskapublic.org/news/2023-11-29/deadly-wrangell-landslide-is-part-of-a-pattern-in-vulnerable-alaska-mountainous-terrain.*

[42] *City and Borough of Yakutat and Yakutat Tlingit Tribe. (2024). City and Borough of Yakutat and Yakutat Tlingit Tribe 2024 Multi-Jurisdictional Hazard Mitigation Plan Update.. https://www.yakutatak.us/media/2131.*

Table 27: Transportation System Vulnerability, Yakutat

FACILITY	CRYOSPHERE	EARTHQUAKE	FLOOD/ EROSION	GROUND FAILURE	SEVERE WEATHER	TSUNAMI	VOLCANO	WILDLAND FIRE
Airport Runways	—	X	X	—	X	—	—	X
Airport Terminal	—	X	X	—	X	—	—	X
Harbor Building	—	X	—	—	X	—	—	X
Harbor Public Restrooms	—	X	—	—	X	—	—	X
Boat Harbor	—	X	X	X	X	X	—	X
DOT&PF Shop	—	X	—	—	X	—	—	X
DOT&PF Administrative Building	—	X	—	—	X	—	—	X
Ocean Cape Dock (Fish Processing & Ferry Load/Unload)	—	X	X	X	X	X	—	X
Multi-Purpose Dock (Fuel & AML Freight)	—	X	X	X	X	X	—	X
Ankau Road (Ocean Cape Road)	—	X	—	—	X	—	—	X
Ankau Road Extension	—	X	—	—	X	—	—	X
City Dock	—	X	X	X	X	X	—	X
City Dock Access Road	—	X	X	X	X	X	—	X
Council Avenue (ASHA)	—	X	—	—	X	—	—	X
Dangerous River Road (Forest Highway 10)	—	X	X	—	X	—	—	X
Dock	—	X	X	X	X	X	—	X
Dock Access Road	—	X	X	X	X	X	—	X
Dry Bay Road	—	X	—	—	X	—	—	X
Dry Bay Trail	—	X	—	—	X	—	—	X
First Street	—	X	X	X	X	X	—	X
FS 9981	—	X	—	—	X	—	—	X
GaGaanDeiyi (Thunderland)	—	X	—	—	X	—	—	X
Glacier Bear Road	—	X	—	—	X	—	—	X
Haida Street	—	X	—	—	X	—	—	X
Hemlock Street (Village)	—	X	—	—	X	—	—	X
High Avenue	—	X	—	—	X	—	—	X
Highland Avenue (Monti Bay Heights)	—	X	—	—	X	—	—	X
Highland Place	—	X	—	—	X	—	—	X

FACILITY	CRYOSPHERE	EARTHQUAKE	FLOOD/ EROSION	GROUND FAILURE	SEVERE WEATHER	TSUNAMI	VOLCANO	WILDLAND FIRE
Hill Street	—	X	—	—	X	—	—	X
Lake Street	—	X	—	—	X	—	—	X
Leonard's Landing Road	—	X	—	—	X	—	—	X
Lodge Lane	—	X	—	—	X	—	—	X
Lost River Road	—	X	—	—	X	—	—	X
Lower Situk River Boat Launch	—	X	X	—	X	—	—	X
Lower Situk Road	—	X	X	—	X	—	—	X
Max Italio Drive	—	X	X	X	X	X	—	X
Monti Bay Loop Road	—	X	—	—	X	—	—	X
Multi-Use Dock	—	X	X	X	X	X	—	X
North Range Street	—	X	—	—	X	—	—	X
North Second Street	—	X	—	—	X	—	—	X
Ocean Cape Road (Airport Road to MBL Road)	—	X	—	—	X	—	—	X
Ophir Creek Road (South Addition)	—	X	—	—	X	—	—	X
Orca Avenue	—	X	—	—	X	—	—	X
Post Office Street	—	X	—	—	X	—	—	X
Public Safety Office Parking Facility	—	X	—	—	X	—	—	X
Rainy Avenue	—	X	—	—	X	—	—	X
Redfield Cove Road	—	X	—	—	X	—	—	X
Resort Road	—	X	—	—	X	—	—	X
Ridge Road	—	X	—	—	X	—	—	X
Riley Lane	—	X	—	—	X	—	—	X
Rough Way	—	X	—	—	X	—	—	X
Russell Fiord Road	—	X	—	—	X	—	—	X
South Range Street	—	X	—	—	X	—	—	X
Sandy Beach Road	—	X	X	X	X	X	—	X
Sawmill Cove Road	—	X	—	—	X	—	—	X
Small Boat Harbor	—	X	X	X	X	X	—	X
Small Boat Harbor Access Road	—	X	X	—	X	—	—	X
Small Boat Harbor Boat Launch	—	X	X	X	X	X	—	X
Small Boat Harbor Boat Launch Access Road	—	X	X	—	X	—	—	X

FACILITY	CRYOSPHERE	EARTHQUAKE	FLOOD/ EROSION	GROUND FAILURE	SEVERE WEATHER	TSUNAMI	VOLCANO	WILDLAND FIRE
Small Boat Harbor Parking Facility	—	X	X	—	X	—	—	X
Small Boat Harbor Ramp	—	X	X	X	X	X	—	X
Small Boat Harbor Seaplane Float	—	X	X	—	X	—	—	X
Small Boat Harbor Trestle	—	X	X	X	X	X	—	X
Spruce Loop Road	—	X	—	—	X	—	—	X
Spruce Street	—	X	X	X	X	X	—	X
Strawberry Point Road (Cannon Beach Road)	—	X	—	—	X	—	—	X
Third Street	—	X	—	—	X	—	—	X
Thomas Lane	—	X	—	—	X	—	—	X
Tlingit Street	—	X	—	—	X	—	—	X
Tongass Street	—	X	—	—	X	—	—	X
Totem Avenue	—	X	—	—	X	—	—	X
Upper Situk River Boat Launch	—	X	—	—	X	—	—	X
Upper Situk River Boat Launch Access Road	—	X	—	—	X	—	—	X
Upper Situk Road	—	X	X	—	X	—	—	X
Water Tank Road	—	X	—	—	X	—	—	X
West Gate Road	—	X	—	—	X	—	—	X
Yakutat Avenue	—	X	—	—	X	—	—	X
Yakutat Elementary School Parking Facility	—	X	—	—	X	—	—	X
Yakutat High School Parking Facility	—	X	—	—	X	—	—	X
Yakutat School Access	—	X	—	—	X	—	—	X
Yakutat Senior Center Parking Facility	—	X	—	—	X	—	—	X
YCHC Parking Facility	—	X	—	—	X	—	—	X
YTT Drive	—	X	—	—	X	—	—	X
YTT Office Parking Facility	—	X	—	—	X	—	—	X
Ankau Bridge	—	X	—	—	X	—	—	X

Note: No transportation facilities were identified as being vulnerable to cryosphere or volcanos.

7.10.2 Airport Emergency Plan

The Yakutat Airport (YAK) holds a 14 CFR Part 139 certificate and has a complete AEP. DOT&PF owns and operates YAK, and is responsible for the development, maintenance, and exercise of the AEP.

Principal plan participants in YAK's 2024 AEP include:

- Airport tenants
- Alaska Airlines
- Alaska Department of Fish and Game
- City & Borough of Yakutat
- Federal Aviation Administration
- National Park Service
- National Weather Service
- Other medical centers within region
- Transportation Security Administration
- USCG
- U.S. Forest Service
- USPS
- Yakutat Community Health Center
- Yakutat Police Department
- Yakutat Power
- Yakutat Volunteer Fire Department

The YAK AEP outlines procedures for emergency events assumed to directly affect the airport and its operations. The airport and community are in an earthquake-prone region and experience substantial seasonal weather changes, including severe coastal storms. Table 28 indicates the risk of occurrence assigned by the plan to each event.

Table 28: AEP Hazard Event Risk of Occurrence, YAK

HAZARD/EMERGENCY EVENT	RISK OF OCCURRENCE
Aircraft Incidents and Accidents	No Risk Level Assigned – a required element of an AEP
Terrorism and Criminal Acts	No Risk Level Assigned – details are sensitive security information and contained within the Airport Security Program
Water Rescue	No Risk Level Assigned – a required element of an AEP
Structural and Fuel Storage Fires	Moderate Risk
Earthquake	Low Risk
Tsunami	High Risk
Flood	Low Risk
Volcanic Activity	Low Risk
Storm	Low Risk – infrequent damage from high winds or winter storms
Hazardous Materials Incident	Low Risk
Power Failure	No Risk Level Assigned – airport has no emergency power back-up system

7.10.3 FEMA Risk Index

Yakutat is rated as relatively moderate in the NRI. Though Yakutat is rated very high in social vulnerability and very low in community resiliency, EAL is rated relatively low.

Of the 18 hazards assessed in the NRI, Yakutat received a relatively high rating for risk of earthquakes, landslides, and winter weather. The remaining hazards assessed are rated relatively low, very low, or not rated.

7.10.4 Recent Hazard Events

Yakutat experienced a shallow 7.0 magnitude earthquake on December 6, 2025, followed by significant aftershocks. The earthquake occurred approximately 56 miles north of Yakutat[43].

[43] *Nadin, E. (2025, December 06). December 6 magnitude 7 near the Canadian border. Alaska Earthquake Center, University of Alaska Fairbanks. https://earthquake.alaska.edu/december-6-magnitude-7-near-canadian-border.*

APPENDIX 2: SOUTHEAST CONFERENCE SCENARIO PLANNING WORKSHOP

Scenario Planning Workshop Summary

2026 Southeast Conference, Mid-Session Summit, Transportation Symposium

February 12, 2026, 1:00 – 3:00 p.m., Juneau, AK

Workshop Overview

The Alaska Department of Transportation and Public Facilities (DOT&PF) in collaboration with the Southeast Conference, now designated as a regional planning organization (RPO), hosted a scenario-planning workshop for the Southeast Alaska Transportation Plan (SEATP) Update at the Southeast Conference's Mid-Session Summit and Transportation Symposium. The workshop took place on Thursday, February 12, 2026, at the Elizabeth Peratrovich Hall in Juneau.

The purpose of the workshop was to brainstorm and collaborate on scenario-planning considerations that may affect long-term transportation planning in Southeast Alaska.

Participants were presented with an overview of the SEATP Update and three scenario categories: weather events, funding, and population. Each scenario category was established at tables throughout the room. With the time provided, participants were anticipated to interact with two of the three scenario categories. Interactions for each scenario category included a guided discussion and a report out to the larger group. At each table, participants were prompted to sign in and received a handout with additional information about the scenario to be discussed; paper for notetaking was also available to participants.

Each scenario category had two project staff members, a facilitator, and a note taker:

Scenario Category	Facilitator	Note Taker
Weather Events	Laurie Cummings (HDR)	Courtney Kreis (DOT&PF) & Michelle Duncan (DOT&PF)
Funding	Kendal Ramage (DOWL)	Sarah Cripe (DOT&PF)
Population	James Marks (HDR)	Alexandria Lawrence (DOT&PF)

A total of 15 participants representing various communities, tribes, and agencies in Southeast Alaska signed in, in addition to DOT&PF project team members.

Scenario Discussion Summary

Scenario A: Weather Events

Key themes included:

Concern about limited snow-management equipment and snow-storage capacity.

Impacts of winter weather on emergency response need to be considered on a regional basis as well as local due to the role of some communities as transportation hubs. Events in these communities impact regional mobility.

Historical and ongoing challenges to marine highway service when weather limits vessel operations or dock access. This also applies to aviation.

Need for improved ferry vessels and more experienced crews trained for severe-weather operation.

Importance of route redundancy between communities to accommodate outages in various modes (public transit, roads, ferries/boats, and flights). There is also a need for redundant access to critical facilities within a community.

Suggestion to install additional weather-reporting stations in the region and in communities where the existing station has different weather conditions than other parts of the community.

Suggestion for communities to develop or update emergency response plans. Need to develop contingency plans in advance of an event. Response needs to be comprehensive and consider issues such as emergency workers being able to get to/from their residence to the event, more wildlife on the road after a heavy snow, etc.

Developing partnerships at the local and state levels is essential for mitigation and response activities.

Communities need to consider changing conditions as storms are getting more intense, getting more ice than snow, etc. Infrastructure needs to change in response, such as reconstructing existing facilities, changing design standards (such as requiring larger culverts, material choice, etc.).

Scenario B: Funding

Participants provided insight into the funding opportunities their communities have recently pursued or received, including:

a. Denali Commission
    i. Road design in multiple communities
    ii. Dock restoration in Ketchikan
    iii. Good River Bridge restoration in Gustavus
b. Safe Streets and Roads for All (SS4A)
    i. Several communities have received SS4A grants to create and implement community safety action plans
c. Congressional directed funding
d. Transit Funding – Federal Transit Administration (FTA) Formula Grants for Rural Areas (5311)

Issues discussed included:

Funding gaps affect cultural connections, air transport, road maintenance, ferry service, medical travel, school travel, and supply chains.

National Parks infrastructure is not equally accessible to all residents or communities.

Many funding opportunities have narrow scopes that limit their usefulness.

Federal government shutdowns delay funding and often increase overall project costs.

Project costs frequently change between application and award; participants suggested phasing project timelines to reduce risk.

Recommendation to pursue more public-private partnerships.

Concern about limited agency staffing capacity and how it affects funding reliability.

Aging infrastructure and deferred maintenance present ongoing challenges.

Communities should consider local housing availability and contractor capacity when planning new projects or grant applications.

Grant administrators should spend more time in communities to understand on-the-ground needs.

Questions arose about the long-term relevance of completed feasibility studies; concerns were largely focused on economic volatility and rapidly changing costs.

When funding is limited, basic needs such as accessibility, public transportation, and safety should be prioritized.

Many communities need external support to prepare competitive grant applications.

Opportunities discussed included:

Pursuing public private partnerships.

Advocating for an increase in the Commercial Passenger Vessel (CPV) Tax, which has not been increased in over ten years.

Pursuing federal partnerships to provide access to federal resource areas, i.e., forestry lands and seaplane bases in remote areas.

Suggestion for improved coordination between communities to share knowledge and funding strategies.

Scenario C: Population

Participants discussed population trends and future conditions:

Extreme weather may discourage population retention.

Prince of Wales Island is experiencing growth in the 55+ population.

Metlakatla is growing due to reliable transportation to and from the island.

Working-age populations may continue to decline due to decreased relocations into Alaska if daily transportation needs remain unmet. The logging industry may support population growth in certain communities.

Tourist communities, such as Ketchikan, have economies that depend heavily on low-wage tourism jobs that in the similar lower 48 communities these individuals live in outskirts of town or in suburbs; Southeast communities have limited developable land to realize this model.

Factors contributing to population decline include housing shortages, childcare limitations, high cost of living, restricted land development, and low-profit tourism.

Increased ferry service frequency or shorter trips paired with improved surface transportation connectivity could improve regional connectivity and mobility.

Southeast Alaska's overall population is aging and expected to continue aging.

Concern about transit infrastructure accessibility, especially in winter.

Funding for transportation may no longer align with changing industry needs.

Fishing industry activity is declining, while mining may present growth opportunities.

MATERIALS PROVIDED

- Southeast Conference Scenario Planning Workshop Agenda
- Scenario A Weather Events Tabletop Handout
- Scenario B Funding Tabletop Handout
- Scenario C Population Tabletop Handout

Scenario Planning for Future Transportation Strategies

Southeast Conference Mid-Session Summit, Transportation Symposium

Thursday, February 12, 2026, 1:00 – 3:00 p.m., Elizabeth Peratrovich Hall

Meeting Purpose

Gather input on future transportation strategies for Southeast Alaska to inform the Southeast Alaska Transportation Plan (SEATP) Update.

Workshop Goals

- Explore plausible futures – not predictions, but possibilities.
- Identify risks and opportunities for transportation systems.
- Engage interested parties to gather diverse perspectives that support planning for a resilient, long-term transportation system.

Scenarios

- *Scenario A – Weather Events*
- *Scenario B – Funding*
- *Scenario C – Population*

Agenda

- ***1:00 to 1:25 p.m. – Welcome & Overview***
  - *Purpose and status of SEATP Update*
  - *Overview of the scenario-planning approach and scenario topics*
  - *Introductions*
- ***1:25 to 2:05 p.m. – Round 1 (Participants choose Scenario A, B, or C, table)***
  - *Table discussions*
  - *Report-Out & Discussion: Each table shares its top three insights or priorities*
- ***2:05 to 2:45 p.m. – Round 2 (Participants choose Scenario A, B, or C, again)***
  - *Table discussions*
  - *Report-Out & Discussion: Each table shares its top three insights or priorities*
- ***2:45 to 3:00 p.m. – Close & Next Steps***
  - *How participant input will inform SEATP Update*
  - *Upcoming SEATP events or key milestones*

Scenario Planning for Future Transportation Strategies
Scenario A – Weather Events

Southeast Conference Mid-Session Summit, Transportation Symposium

Thursday, February 12, 2026, 1:00 – 3:00 p.m., Elizabeth Peratrovich Hall

Context:

Increasing frequency and intensity of atmospheric rivers and heavy rainfall events are resulting in more landslides, avalanches, and flooding across Southeast Alaska. These hazards affect transportation corridors and facilities, disrupt connectivity between communities, and influence the region's economic activity and overall resilience.

The Alaska State Hazard Mitigation plan assesses risks from various natural hazards. Hazards identified include earthquakes, erosion, flood, ground failure/landslide/avalanche, tsunami, and severe weather.

Recent weather events highlight the vulnerability of the transportation system in Southeast Alaska:

- In November 2023, a landslide killed 6 people and covered Zimovia Highway in Wrangell. The landslide was caused by excessive amounts of rainfall in a short time period. In a 24 hour period, 2.23 inches of rain were recorded with over an inch occurring in the six hours before the landslide event. There were also landslide events on Prince of Wales Island during this same event.[1] These events resulted in debris blocking the roadway and causing closure, inability to travel.
- In August 2025, flooding from a release of water and snowmelt at Mendenhall Glacier covered several roads and threatened homes along the Mendenhall river in Juneau, Alaska. This is a recurring event, increasingly threatening transportation infrastructure and homes.
- In December 2025, a series of winter storms across Southeast Alaska resulted in record breaking snowfall, extreme cold, and rain. A disaster declaration was issued. Local and state snow management resources were overwhelmed and travel was impacted.[2]

Framework for Table Discussions:

- **Uncertainty:** Discuss how changing and unpredictable weather patterns influence transportation infrastructure and services (roads, ferries, airports) and affect planning and decision-making.
- **Variability:** Discuss how seasonal or annual differences in precipitation, storm cycles, and freeze-thaw patterns affect transportation performance and operations.
- **Threats:** Identify transportation facilities, corridors, or communities that face the greatest weather-related risks.

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[1] *Czarnecki, C. (2024, March 5). Final report filed on cause of Wrangell's deadly landslide. Alaska Public Media. https://alaskapublic.org/news/2024-03-05/final-report-filed-on-cause-of-wrangells-deadly-landslide*

[2] *Zidek, J. (2026, January 10). Governor Dunleavy declares 2026 Jan Southeast Winter Storm a disaster [Press release]. Alaska Division of Homeland Security and Emergency Management. https://ready.alaska.gov/Documents/PIO/PressReleases/2026.01.10_Press%20Release%20-%20Governor%20Dunleavy%20Declares%202026%20Jan%20Southeast%20Winter%20Storm.pdf*

- **Opportunities:** Identify positive outcomes, innovations, or collaborative opportunities that may help address weather-related hazards.
- **Solutions/Priorities:** Identify actions DOT&PF and partners can take to reduce risk and maintain system reliability.

FHWA Vulnerability Concepts

To support discussion of threats and solutions, the FHWA Vulnerability Assessment and Adaptation Framework outlines three key elements of vulnerability:

- **Exposure:** How exposed the asset is to the hazard.
- **Sensitivity:** How susceptible the asset is to the hazard. Consider physical condition, design, and operational importance.
- **Adaptive Capacity:** How well the system or asset can continue functioning if affected. Consider alternate routes, emergency access, and ability to maintain essential connectivity.

Prompts – Questions:

- **Threats**
  1. Which transportation facilities, corridors, or communities are most affected during heavy rainfall, flooding, landslides, or avalanche events?
  2. How do weather-related hazards influence access to communities, response times, and essential services such as medical care, freight delivery, and school operations?
  3. What recent weather events provide insight into vulnerabilities or past system failures?
- **Uncertainty and Variability**
  4. How does year-to-year or seasonal variability in storm patterns influence maintenance, operations, and planning decisions?
  5. How might increasing uncertainty in rainfall intensity or storm timing change priorities for infrastructure investment?
- **Opportunities**
  6. What existing resources, partnerships, or programs support hazard monitoring, preparedness, or emergency response in the region?
  7. Are there opportunities to integrate new technologies, community partnerships, or local knowledge into weather-related preparedness?
- **Solutions and Priorities**
  8. What strategies should be prioritized to reduce risk and maintain mobility during severe weather events? Examples: slope stabilization, drainage improvements, route redundancy, early warning systems, emergency response planning, climate-resilient design approaches.
  9. Which transportation investments would provide the greatest long-term benefit for maintaining reliable access during future storm events?
  10. What near-term actions could reduce risk quickly while longer-term projects are developed?

Scenario Planning for Future Transportation Strategies
Scenario B – Funding

Southeast Conference Mid-Session Summit, Transportation Symposium

Thursday, February 12, 2026, 1:00 – 3:00 p.m., Elizabeth Peratrovich Hall

Context:

Future transportation funding for Southeast Alaska may shift significantly due to statewide budget pressures, national economic conditions, federal reauthorization cycles, and changing policy priorities. Both decreases and increases in funding will affect infrastructure maintenance, ferry and aviation services, and long-term system investments across all modes.

Alaska relies heavily on federal transportation funding.

- The Infrastructure Investment and Jobs Act (IIJA) expires on September 30, 2026.
- The FAA Reauthorization Act of 2024 runs through September 30, 2028.

Reauthorization outcomes may increase or decrease available funding for highways, airports, and public transportation.

The IIJA included many grant programs which have provided opportunities for increased funding, but there is uncertainty as to whether these programs will continue and some have already faced delays.

- Many Southeast Alaska communities (Juneau, Ketchikan, Sitka, Gustavus, Angoon, Craig, Hoonah, Thorne Bay, Haines, Metlakatla) have recently received Safe Streets For All (SS4A) grants for Safety Action Plans. These plans provide opportunities to apply for implementation grants and there is uncertainty as to whether the program will be continued in surface reauthorization.
- The AMHS has planned to use a new federal grant program, Ferry Service for Rural Communities Program, to help fund ferry operations. The grant was expected to be issued last year, but has not been released leaving a $78 million gap in the $170 million budget for the current calendar year.[3]

Framework for Table Discussions

- **Uncertainty:** Discuss how unpredictable changes in funding levels affect transportation infrastructure and services (roads, ferries, airports, transit) and influence long-term planning or decision-making.
- **Variability:** Discuss how annual shifts in federal or state revenues impact operations, maintenance, and capital project delivery.
- **Threats:** Identify system elements or communities that may be most impacted by reduced or inconsistent funding.
- **Opportunities:** Identify potential benefits, innovations, or new funding pathways that may emerge under improved or stable funding conditions.

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[3] Samuels, I. (2026, February 2). Alaska ferry system faces $78M budget hole after Trump administration delays federal grant. Anchorage Daily News. https://www.adn.com/politics/alaska-legislature/2026/02/02/alaska-ferry-system-faces-78m-budget-hole-after-trump-administration-delays-federal-grant/

- **Solutions/Priorities:** Identify actions DOT&PF and partners can take to manage funding variability and maintain essential services.

Prompts - Questions

- **Threats:**
  1. If funding declines, what services or programs face the greatest risk (roads, ferries, airports, transit)?
  2. Which communities or corridors would experience the most significant impacts from reduced funding?
- **Uncertainty and Variability**
  3. How do changing funding levels influence planning for major capital projects, vessel replacement, airport upgrades, or maintenance programs?
  4. How might short-term funding variability affect long-term resilience or system reliability?
- **Opportunities**
  5. If funding increases, what should be the top priorities for investment? Consider resilience, modernization, technology, safety, or service expansion.
  6. What opportunities exist for regional collaboration to attract competitive grants or strengthen the region's position in federal funding programs?
  7. For SS4A-funded planning efforts:
     - If SS4A funding continues, will Safety Action Plans position communities for successful implementation grant applications?
     - If SS4A funding ends, what alternative funding sources could support high-priority safety projects?
- **Solutions and Priorities**
  8. What strategies can help manage funding uncertainty, such as phased project delivery, diversified revenue streams, or new partnerships?
  9. What prioritization criteria should guide investment decisions during periods of limited funding?
  10. How can DOT&PF and partners increase readiness to pursue rapidly emerging or short-duration federal grant opportunities?

Scenario Planning for Future Transportation Strategies
Scenario C – Population

Southeast Conference Mid-Session Summit, Transportation Symposium

Thursday, February 12, 2026, 1:00 – 3:00 p.m., Elizabeth Peratrovich Hall

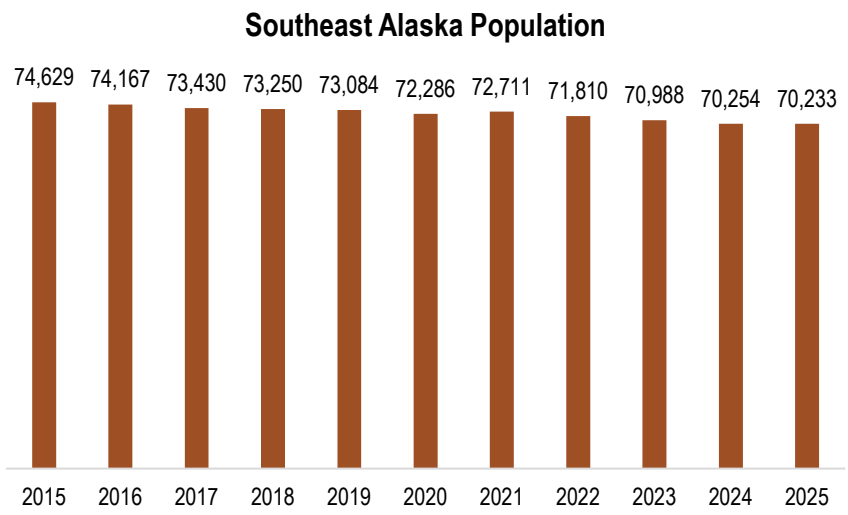
Context:

Demographic projections suggest that Southeast Alaska may experience population decline in the coming decades. This trend could reduce demand for transportation services, impact revenue streams, and challenge the long-term sustainability of infrastructure investments. Smaller or remote communities may face additional challenges in maintaining essential connectivity, raising equity and resilience considerations.

At the same time, population increases are still possible in certain communities due to economic development, new industries, resource activity, or shifts in regional workforce trends. Understanding both potential decline and growth is key to planning a resilient transportation system that can adapt to varying community futures.

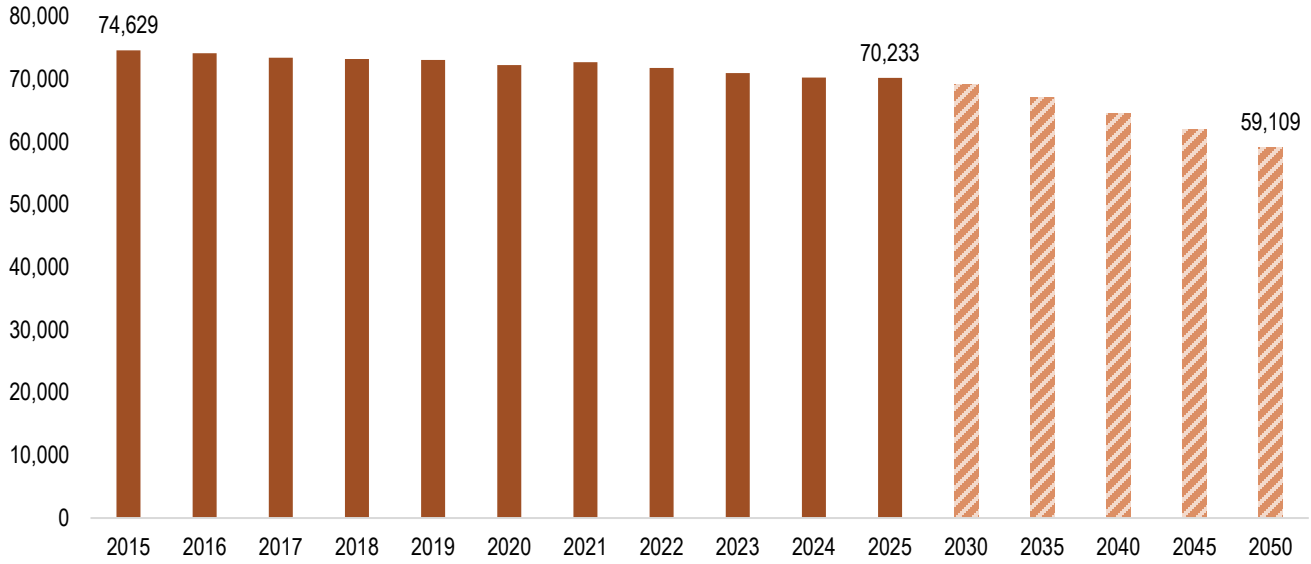
Where Are We? History of Population in Southeast

2015 Population	**74,629**
Births	+6,981
+	
Deaths	-5,476
"Natural Increase"	+1,505
+	
Net Migration	-5,901
2025 Population	70,233
Decade-Long Change	**-4,396**



Where are we going? Current Projections for Southeast Alaska

In the long-term, Southeast Alaska's population is projected to return to the same level as it was in the early 1980s. The general aging of Southeast's population is expected to significantly influence the next 25 years. The number of annual deaths is expected to outweigh births, leading to "natural decrease" rather than increase. This is unusual for most states in the Lower 48, as well as regions in Alaska.



Framework for Table Discussions

- **Uncertainty:** Discuss how future demographic changes influence transportation needs across all modes (roads, ferries, airports, transit) and affect long-term planning and decision-making.
- **Variability:** Discuss seasonal, annual, or community-level shifts in population, and how these fluctuations affect service demand, operations, and infrastructure needs.
- **Threats:** Identify communities, corridors, or services at risk if demand decreases or if population shifts strain existing capacity.
- **Opportunities:** Identify where population changes may create new service needs, economic opportunities, or innovative approaches.
- **Solutions/Priorities:** Identify actions DOT&PF and partners can take to support resilient transportation systems under different population futures.

Prompts - Questions:

- **Uncertainty**
  1. What major employers, industries, or economic sectors may grow in Southeast Alaska, and how might this influence regional population trends?
  2. What employers or industries may decline or relocate, and how could these changes affect population and transportation needs?
  3. What long-term demographic uncertainties (aging population, migration patterns, cost of living) could alter demand for transportation services?
- **Variability**
  4. What factors are currently contributing to population increases or decreases, and are these factors likely to change?
  5. How do seasonal shifts in population (tourism, fisheries, temporary workforce) affect demand for ferry, airport, and road system services?
- **Threats**
  6. How would population decline affect the ability to maintain and operate transportation infrastructure across all modes?
  7. Which communities, corridors, or services would be most affected by reduced demand or declining revenue?
  8. How might workforce shortages affect operations, maintenance capacity, or emergency response?
- **Opportunities**
  9. How could population growth support new transportation investments, expanded services, or innovative mobility options?
  10. Where might demographic changes create opportunities to align transportation services with emerging industries or community needs?
- **Solutions and Priorities**
  11. What strategies can support resilient transportation services under both growth and decline scenarios?
  12. How should DOT&PF prioritize investments when population trends differ across communities?
  13. What partnerships or planning tools can strengthen transportation decision-making under changing demographic conditions?

APPENDIX 3: DOT&PF RISK-RESILIENCY WORKSHOP

Risk & Resiliency Workshop Summary

February 24, 2026, 1:00 – 4:30 p.m., Juneau, AK

Workshop Overview

The Alaska Department of Transportation and Public Facilities (DOT&PF) hosted a workshop for DOT&PF staff representatives on Tuesday, February 24, 2026, at the DOT&PF 7 Mile building in Juneau.

The purpose of the workshop was to assess key risks and resiliency measures to inform strategies for the Southeast Transportation Plan (SEATP) update.

A total of 19 participants joined, in addition to SEATP project team members.

Participants received an overview of the SEATP Update and took part in a hazard-infrastructure assessment activity. An initial roundtable discussion allowed DOT&PF staff to share top concerns related to risk and resilience. The core of the meeting was a structured hazard-infrastructure assessment activity. Participants discussed vulnerabilities across multiple transportation modes. The meeting closed with a roundtable discussion on population and funding considerations.

Infrastructure Risk Assessment

Hazard-Infrastructure Assessment Activity

The purpose of the activity was to assess risks for regionally important DOT&PF owned assets in Southeast Alaska, particularly for hazards identified in the Alaska State Hazard Mitigation Plan (SHMP). Those hazards are:

- Earthquake
- Erosion
- Flood
- Ground Failure, Landslide, Avalanche
- Severe Weather
- Tsunami
- Volcano
- Wildfire

The Federal Highway Administration's (FHWA) Vulnerability Assessment and Adaptation Framework methodology to assess vulnerability of transportation infrastructure and systems to extreme weather and climate effects was adapted to assess the risks from these hazards. The level of exposure, sensitivity, and adaptive capacity was ranked for several regionally important infrastructure facilities.

In addition to evaluating asset risk, attendees listed mitigation strategies and potential actions that DOT&PF may consider taking, and that may inform SEATP Update recommendations.

Several handouts were provided to attendees to provide guiding information for the activity, which are included in Appendix 1. The notes below reflect discussion during the opening roundtable and the assessment activity. The results of the assessment activity will be included in the Risk and Resiliency Technical Memorandum.

Roads

- Concerns for the integrity of the region's aged signal system. There is a future HSIP project under consideration for improvements to the signal system.
- Many communities rely on a single road for all access, creating limited redundancy and making them vulnerable to disruptions from weather, maintenance issues, or hazard events.
- Understanding future traffic (and related needs) can be difficult. Major traffic increases are not forecasted. However, increased tourism and tourism in new areas (including cruise ships visiting communities or areas with limited infrastructure) may add pressure to the system.
- Traffic impacts are not always anticipated as accurately anticipated as they could be. The wording of Traffic Impact Analysis (TIA) regulations can put DOT&PF in a position to be responsible for implementing identified required improvements rather than the developers. This is a continuing concern into the future.
- Right-of-way (ROW) is a limiting factor. A lot of the corridors have tight ROW, making it difficult to widen a road or add a turn lane or other facilities.
- Culverts are deteriorating. The culverts often don't keep up with routine rainfall/snowmelt events, let alone extreme events. DOT&PF is working on a culvert inventory and a culvert asset management plan.
- Deteriorating culverts limit the ability to do roadway preventive maintenance because surface treatments are not an option if the culverts need to be replaced.
- Sea level rise has been countered by isostatic rebound, but may be a concern in the future.
- Some DOT&PF roads serve predominantly local needs, raising the question of whether local ownership might be more suitable under the right conditions.
- Along with identifying roads that are at risk from hazards such as landslides and flooding, DOT&PF staff also identified some of the roads less at risk in the region, including Garteeni Highway in the Hoonah-Angoon Census Area and Halibut Point Road in the City and Borough of Sitka.
- DOT&PF staff recommended checking in with the local/regional avalanche program for the most up-to-date information on probability and exposure.
- In areas where severe weather was identified as a potential hazard, DOT&PF staff shared that the impact of the event depends heavily on the availability of equipment and staff. For many of the roadways, it was difficult for participants to choose the level of adaptive capacity, as these variables play such a large role.

Bridges

- Traffic and vessel collisions should be included as hazard types in the bridge risk assessment.
- Bridge risk is driven primarily by natural deterioration and state-of-good-repair challenges, while hazard-specific risks tend to be less dominant in overall assessments.

- Tunnels should also be considered in the risk assessment, noting that Southeast has two of the state's four tunnels.
- There is a need for a dedicated bridge maintenance crew in the Southcoast Region to support ongoing inspection and preservation work.

Airports

- Communities that depend on air travel as their only means of access face heightened vulnerability, as limited or no alternative routes make it more difficult to mobilize personnel and resources quickly when issues arise.
- Ferries are not always a reliable alternative to air travel, as service is not daily and operations can be disrupted by weather.
- Automated Weather Observing System (AWOS) is critical for airport operations. Even when weather conditions are flyable, a loss of AWOS can prevent aircraft from using the airport during weather events due to the lack of certified weather reporting.
- Maintaining airport lighting is a critical priority, particularly in Southeast, where many lighting systems are past the FAA useful life of 10 years.
- Although Juneau International Airport is not state-owned, it remains a critical hub for regional mobility, and disruptions there often affect surrounding communities.
- Seaplane bases should also be included in the assessment. Several facilities face significant deterioration, and because some are not eligible for FAA funding, needed improvements can be difficult to address.
- Overall, there was less concern about the impact of hazards at airports. Operations may close due to severe weather, but the impact is probably for a few hours, not an extended duration.
- Consider security vulnerabilities as part of overall system risk, recognizing that breaches can disrupt operations and pose threats to airport safety and reliability.
- Wildlife hazards are a significant safety concern, particularly in regions where deer, bears, and other animals can access runways and movement areas.

Ferry Terminals/Harbors

- There is limited redundancy in the ferry system, and when a vessel is out of service, another boat cannot easily replace it, resulting in significant service disruptions.
- These facilities are resilient to most hazards because they are already designed to withstand constant wave motion. The risk of damage is to boats trying to dock in severe weather. Due to little concern for specific hazards, the hazard-infrastructure risk assessment was not completed for the ferry terminal and harbor facilities.
- Keeping shoreside facilities in a state of good repair is the priority need. In particular, the current condition of several state harbor and seaplane facilities was cited as a significant concern.
- AMHS is working to standardize the fleet and ferry terminals to increase resiliency.
- While ferry service was cited as a difficult alternative for air service due to infrequency, it was recognized that ferries can play a critical role in redundancy and for emergency response.

Active Transportation and Transit

- Hazard-Infrastructure assessment was not completed for this group. Risks are similar to those identified for roadways.
- Winter maintenance/snow removal is a concern for active transportation facilities, especially those that require specialized snow removal equipment (e.g., Juneau-Douglas Bridge).
- Transit can be impacted by weather events as there are some routes that buses can't use during heavy snow. These impacts are typically short-duration but can still affect system reliability and access.

Other / Multi-Modal

- For all modes, adaptive capacity for transportation systems in Southeast is considered to be low due to a lack of redundancy.
- For response to large emergency events, contracting is typically used. Existing M&O staff must continue daily activities.
- Lack of redundancy in the contractor system is a risk. There are a few contractors throughout the region, and there may be only one in certain areas. If they do not have capacity, there may not be others available.
- Technology can help with response and is important to continue to develop. For example, making use of drones or other technology to gain initial awareness of conditions following an event improves efficiency, helping to conserve staff and funding resources.
- Drought isn't on the list, but it may be an emerging hazard in some communities. This was primarily discussed in relation to cisterns used for water, with an example provided for Gustavus. It is unclear what impact there may be on the transportation system.

Non-Infrastructure Risk Discussion

Funding

Discussion points included:

- Funding is currently limited primarily to federal aid transportation funds. A state-funded component should be discussed and considered more seriously. Bandwidth for grant opportunities has reached capacity.
- Emergency hazard repair projects cannot be programmed in the STIP because the needs are unpredictable. A state emergency fund would be helpful.
- Additional state money is needed for maintenance as well as capital projects to help reduce overall costs.
- Concerns were raised regarding limited snow-management equipment and snow-storage capacity.
- One participant suggested strengthening partnerships to make greater use of FHWA Tribal Transportation Program funding for bridge projects. Doing so requires tribes to include DOT&PF-owned roads in their Tribal Transportation Facility Inventory, a process that is largely complete in Southeast.
- A significant funding gap relates to both the AMHS ferries and the terminals. Funding ferry service remains extremely challenging.

- AMHS is considering paying for in-state travel for its crews as a means of retaining staff. This is common in the maritime field. This is currently an inequity between out-of-state and in-state staff.
- Funding distribution can create equity challenges because not all programs allocate resources based on demand. Investments cannot be concentrated only in larger communities where more people benefit; smaller and remote communities still have essential transportation needs that must be addressed.
- Funding through the Federal Aviation Administration (FAA) has many parts and pieces. Overall, the 2024 reauthorization provided some relief to Alaska through increased eligibility, but did not provide increased funding.

Population

Discussion points included:

- Historically, the region has experienced flat or even declining traffic growth.
- Southeast is expecting a population loss, especially among workforce-age residents. Even declining populations need to maintain existing capacity. There may be fewer new facilities or improvement projects. However, there has been an increase in tourism, which may create the need for some system improvements.
- Low population communities still have needs but may have more difficulty competing or justifying high-cost transportation infrastructure improvements for programs that use population as a scoring criterion, including the Aviation Project Evaluation Board (APEB) and the Community Transportation Program. For the APEB, there is consideration for small communities accessed only by one mode, which helps to provide a balance for low population.
- AMHS is facing declining ridership and revenue, which makes it increasingly difficult to justify existing service levels. At the same time, the AMHS Long-Range Plan is focused on strategies to rebuild ridership and strengthen the system's long-term sustainability.

MATERIALS PROVIDED

- Risk-Resiliency Workshop Agenda
- Identified Hazards Handout
- Infrastructure Vulnerability Assessment Guide Handout
- Risk by Community Handout

DOT&PF Risk-Resiliency Workshop

February 24, 2026, 1:00 – 4:30 PM, 7-Mile Large Conference Room

Workshop Purpose

Assess key risks and resiliency measures to inform strategies for the Southeast Transportation Plan (SEATP) update.

Agenda

1:00 to 1:30 PM – Welcome & Overview:

Introductions

Purpose and status of the SEATP Update

1:30 to 2:00 PM – Roundtable Discussion:

- DOT&PF Staff: Top concerns related to Risk and Resilience

2:00 to 3:45 PM – Hazard-Infrastructure Assessment Activity

Approximate session timing:

- 2:00 to 2:20 PM – Roadways
- 2:20 to 2:40 PM – Bridges
- 2:40 to 3:00 PM – Active Transportation and Transit
- 3:00 to 3:15 PM – Break
- 3:15 to 3:35 PM – Airports
- 3:30 to 3:55 PM – Ferry Terminals

4:00 to 4:20 PM – Roundtable Discussion on Population and Funding Considerations

4:20 to 4:30 PM – Closing Remarks

VIRTUAL PARTICIPATION (MICROSOFT TEAMS)

FOR STAFF UNAVAILABLE IN JUNEAU

Join via Teams:

- https://teams.microsoft.com/meet/25923180488316?p=2hduy6STHAQVq14UYE
- Meeting ID: 259 231 804 883 16
- Passcode: TV6Mz2fT

Dial in by phone: +1 907-202-7104,,78192051# United States, Anchorage

Phone conference ID: 781 920 51#

Video Conferencing Device

- Tenant key: 260748889@t.plcm.vc
- Video ID: 114 764 715 2

DOT&PF Risk-Resiliency Workshop

February 2026

Identified Hazards	
	Earthquake – Although Southeast has not experienced a major earthquake with catastrophic damage to the magnitude that other areas of the state have experienced in recent years, the risk still remains. This hazard often houses events such as land/mud slides, sluffing, avalanches, etc.
	Erosion – The act of erosion is often overlooked, as it is a hazard that happens slowly and over an extended period of time. It is often not spotted without the assistance of aerial viewing equipment and comparisons to be able to verify changes over a period of time. It can often be seen when a river encroaches upon transportation infrastructures that, when built, were not near the impending hazard.
	Flood – Late spring and summer due to melting snow and wet weather. Causes washouts to existing structures or other instances of extreme damage. If infrastructure is unharmed, often surface transportation is affected due to excess water. Traffic becomes delayed as there is a lack of redundancy in the transportation system.
	Ground failure – Ground failure happens when rock and soil lose stability, causing collapse or movement. Landslides are the downward movement of materials like rock, soil, or fill. Avalanches linked to ground failure include debris avalanches—fast-moving flows from slope collapse or bedrock breakdown. Causes include natural events (earthquakes, wildfires), human activities (construction), or both. In Southeast, steep slopes and heavy rain often trigger landslides and avalanches.
	Tsunami – A tsunami is caused by underwater ocean wave disturbances that are triggered by earthquakes, landslides, or volcanic eruptions. While there are monitorable warning signs, it initially appears as individual, increasingly large waves over several hours. Tsunamis can cause massive damage, flooding, and destroy communities with debris-filled waters and possibly extreme land erosion. Alaska's southeast coastal communities are at particularly high risk.
	Volcano - Volcano-generated ash periodically impacts Alaska communities, with impacts most severe for communities closer to volcanoes. Volcanic ash can create severe air quality, water quality, marine, and road transportation impacts, disrupt utility operations, etc.

Identified Hazards	
	Severe Weather – Alaska often faces severe weather due to its location and changing climate. Natural weather events can trigger winter storms, heavy rain, freezing rain, thunderstorms, and typhoons. These can lead to secondary hazards such as floods, landslides, snow, and strong winds. In Southeast, extremely heavy rainfall, known as atmospheric rivers, is becoming more common and can cause ground failure, putting communities and resources at risk.
	Wildfire – Happen in the warmer months when the weather is dry for extended periods of time, uncommon in Southeast. An additional threat to transportation is visually. Wildfires outside of the region generating intense smoke/smog can cause extreme visual disruptions for transportation users.

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The Federal Highway Administration's (FHWA's) Vulnerability Assessment and Adaptation Framework provides methodology to assess vulnerability of transportation infrastructure and systems to extreme weather and climate effects. This framework has been adapted to assess the hazards identified in the SHMP.

	Exposure	Sensitivity		Adaptive Capacity
	Exposure refers to whether the asset or system is located in an area experiencing direct effects of hazards.	**Sensitivity refers to how the asset or system fares when exposed to a hazard.**		**Adaptive capacity refers to the system's ability to adjust to or cope with existing hazard variability or future impacts.**
Low	To be rated as low exposure the following conditions may apply: ▪ The hazard is somewhat likely to happen near the location of the asset, typically seen as events that happen at intervals greater than every 50 years or have a probability of happening 0-50 percent.	To be rated as low sensitivity the following conditions may apply: ▪ The loss or damage caused from this hazard would have a minor impact to the economic, transportation and social infrastructure of a community ▪ The infrastructure has never experienced prior damage.	High	To be rated as high adaptive capacity the following conditions may apply: ▪ There are already mitigation efforts in effect or planned mitigation efforts for the infrastructure. ▪ There are redundant facilities and/or detours in place
Medium	To be rated as medium exposure the following conditions may apply: ▪ The hazard is likely to happen near the location of the asset, typically seen as events that happen at intervals of every 10 to 50 years or have a probability of happening 50-75 percent.	To be rated as medium sensitivity the following conditions may apply: ▪ The loss or damage caused from the hazard would have considerable impacts to the economic, transportation and social infrastructure of a community. ▪ The infrastructure has experienced documented damage once.	Medium	To be rated as medium adaptive capacity the following conditions may apply: ▪ There are minimal mitigation efforts in effect or planned mitigation efforts for the infrastructure. ▪ There are sub-optimal redundant facilities and/or long length detours in place
High	To be rated as high exposure the following conditions may apply: ▪ The hazard is highly likely to happen near the location of the asset, typically seen as events that happen at intervals of every 1 to 10 years or have a probability of happening 75-100 percent.	To be rated as high sensitivity the following conditions may apply: ▪ The loss or damage caused from this hazard would have significant impacts to the economic, transportation and social infrastructure of a community. ▪ The infrastructure has experienced documented damage twice or more. ▪ Has been identified in DOT&PF twice damaged report.	Low	To be rated as low adaptive capacity the following conditions may apply: ▪ There are no mitigation efforts in effect or planned mitigation efforts for the infrastructure. ▪ There are no redundant facilities and/or detours in place.

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Mitigation Strategies	
Protect in Place	**Based in** engineering or planning solutions or practices that keep the threat/hazard at a manageable level. These practices can be person-made or based in the natural environment. **Often seen as** working in community outreach and education, environmental restoration, safety committees and policy boards, and implementation of management plans. **Requires** identification of hazards and at-risk locations, collaboration with federal and non-profit emergency management organizations, and community outreach.
Accommodate	**Ways to** enhance the infrastructure and community in a way that allows the threat to continue but keeps extreme damage from happening. **Often seen as** implementing engineering practices to stabilize, maintain, and prepare for what could happen. **Requires** funding for robust inspections of infrastructures, staff to preform inspection, engineering staff to design and implement safe and effective designs, staff for construction, and collaboration with federal and non-profit emergency management organizations.
Managed Retreat	**Works to** permanently move infrastructure away from the threat completely often after exhausting all other efforts. **Often seen as** a whole community moving at once, not single pieces of infrastructure moving. It is an emotionally tolling choice for a community to make as it forever changes the community. **Requires** community cooperation, collaboration, funding, and available resources.

DOT&PF Risk-Resiliency Workshop

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The State of Alaska Hazard Mitigation Plan (SHMP) identifies hazards for Alaska. The SHMP documents the following probability and magnitude for each community.

IMPACTED COMMUNITIES	HAZARDS															
	Earthquake		*Erosion*		*Flood*		*Ground Failure, Landslide, Avalanche*		*Tsunami*		*Volcano*		*Severe Weather*		*Wildfire*	
	Probability	Magnitude	Probability	Magnitude	Probability	Magnitude	Probability	Magnitude	Probability	Magnitude	Probability	Magnitude	Probability	Magnitude	Probability	Magnitude
Haines Borough	4	4	2	1	3	4	3	3	2	3	0	0	4	3	3	1
Hoonah Angoon Census Area																
Angoon	2	2	2	1	1	0	0	0	1	2	0	0	0	0	2	1
Hoonah	3	3	3	3	3	3	3	2	1	2	0	0	3	3	0	0
Kake	1	1	4	1	0	2	2	3	0	0	0	0	2	2	1	1
City and Borough of Juneau	1	2	1	2	2	2	2	3	1	3	1	1	2	2	1	1
Ketchikan Gateway Borough																
Ketchikan	3	1	0	0	1	1	2	0	1	3	0	0	1	2	0	0
Saxman	3	1	0	0	0	1	2	0	1	3	0	0	1	2	0	0
Petersburg Borough	1	1	0	0	1	0	0	2	1	3	0	0	0	0	0	0
Prince of Wales-Hyder Census																
Craig	3	2	4	2	3	4	2	3	0	0	0	0	4	2	1	2
Klawock	2	3	0	0	0	3	2	2	0	0	0	0	3	2	3	3
Thorne Bay	3	1	0	0	2	3	1	1	0	0	1	1	3	1	2	1
Hydaburg	1	1	0	0	1	1	1	1	0	0	0	0	1	1	1	1
Kasaan	1	3	0	0	0	3	3	2	0	0	0	0	3	3	1	2
City and Borough of Sitka	2	3	3	3	3	3	3	2	3	4	0	0	3	3	0	0
Municipality of Skagway Borough	2	3	3	3	3	3	3	3	1	3	0	0	3	3	0	0
City and Borough of Wrangell	2	1	2	1	1	2	2	1	2	1	0	0	2	2	3	1
Yakutat City and Borough	2	3	2	1	1	4	2	2	1	3	0	0	4	2	2	2

Ranking	4	3	2	1	0
Risk Level	High	High	Medium	Low	Low-None

APPENDIX 4: INFRASTRUCTURE RISK ASSESSMENT ACTIVITY

Approach

Staff attending the DOT&PF Risk-Resiliency Workshop completed an Infrastructure Risk Assessment Activity using adapted methodology recommended for the 'assess vulnerability' step in the FHWA vulnerability Assessment and Adaptation Framework. This adapted assessment considers three indicators: exposure, sensitivity, and adaptive capacity as defined in Figure 1.

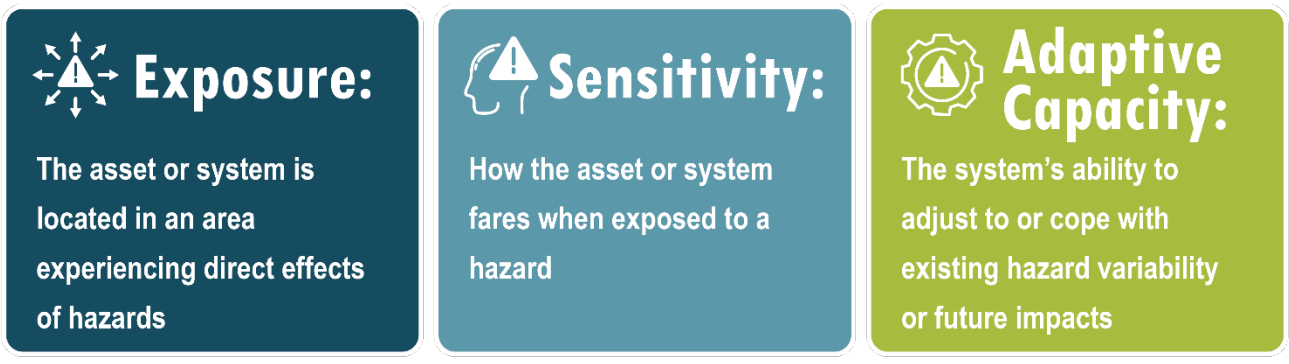

Figure1: Three risk indicators from the FHWA Vulnerability Assessment and Adaptation Framework

DOT&PF staff ranked each indicator for major road corridors, bridges, and airports using criteria detailed in the workshop handouts, which are provided in Appendix 3.

Table 1 presents the color-coded key used to summarize the results of the rankings. High exposure and sensitivity indicate that an asset faces greater potential impacts from hazards (i.e., lower resilience), whereas high adaptive capacity indicates a greater ability to adjust or respond to those impacts (i.e., higher resilience). Because adaptive capacity functions differently than exposure and sensitivity, its color scale is reversed. As a result, red consistently represents lower resilience, yellow represents moderate resilience, and green represents higher resilience across all three metrics, providing an intuitive visual summary.

Table 1:Color-Coded Key for Exposure, Sensitivity, and Adaptive Capacity

Exposure	Sensitivity	Adaptive Capacity
High	High	Low
Medium	Medium	Medium
Low	Low	High

Roads

Community	Facility	Hazards Identified	System Redundancy?	Top Hazards Assessed	Exposure	Sensitivity	Adaptive Capacity	Mitigation Strategies	Potential Actions
Haines Borough	**Haines Highway**	Earthquake Erosion Flood Ground Failure/Landslide Severe Weather Snow Avalanche	No	Erosion	High	High	Low	Protect in Place	Continue routine maintenance efforts. Complete final stage of Haines Hwy MP 3-25 Project (STIP IDs 2152, 26330).
				Ground Failure/Landslide	High	High	Low	Accommodate	Continue routine maintenance efforts and emergency response, as appropriate. Continue debris flow and rock fall mitigation efforts. Complete final stage of Haines Hwy MP 3-25 Project (STIP IDs 2152, 26330).
				Snow Avalanche	Medium	High	Low	Protect in Place	Continue routine maintenance efforts and emergency response, as appropriate. Complete final stage of Haines Hwy MP 3-25 Project (STIP IDs 2152, 26330). Evaluate avalanche control systems and implement detection systems.
Haines Borough	**Haines Highway / Lutak Road**	Earthquake Erosion Flood Ground Failure/Landslide Severe Weather	No	Ground Failure/Landslide	High	High	Low	Accommodate	Continue routine maintenance efforts and emergency response, as appropriate. Continue debris flow and rock slope mitigation efforts.
				Snow Avalanche	Low	Low	Low	Protect in Place	Continue routine maintenance efforts and emergency response, as appropriate.
Haines Borough	**Lutak Highway (non-NHS section)**	Ground Failure/Landslide	No	Ground Failure/Landslide Rockfall	Medium	Low	Low	Accommodate	Continue debris flow and rock slope mitigation efforts.
Hoonah-Angoon Census Area	**Garteeni Highway (Hoonah)**	Earthquake Erosion Flood Gound Failure/Landslide Severe Weather	No	All identified hazards	Low	Low	Low	Protect in Place	Continue routine maintenance efforts and emergency response, as appropriate.
Hoonah-Angoon Census Area	**Kootznahoo Highway (Angoon)**	Earthquake Erosion Severe Weather Wildfire	No	All identified hazards	Low	Low	Low	Protect in Place	Continue routine maintenance efforts and emergency response, as appropriate.
Hoonah-Angoon Census Area	**Gustavus Road Network**	Earthquake	Yes	Earthquake	Low	High	Medium	Protect in Place	Continue routine maintenance efforts and emergency response, as appropriate.

Community	Facility	Hazards Identified	System Redundancy?	Top Hazards Assessed	Exposure	Sensitivity	Adaptive Capacity	Mitigation Strategies	Potential Actions
Juneau, City and Borough	**Egan Drive**	Flood Severe Weather Avalanche Ground Failure/Landslide High Hazard Potential Dam	No	Flood	Low	Low	Low	Accommodate	Continue project for a North Crossing (STIP ID 34146) to aid in providing redundancy should Egan Drive be faced with a closure.
				Severe Weather	Medium	Medium	Low	Accommodate	Continue project for a North Crossing (STIP ID 34146) to aid in providing redundancy should Egan Drive be faced with a closure.
				Snow Avalanche/Landslide	Low	High	Low	Accommodate	Continue project for a North Crossing (STIP ID 34146) to aid in providing redundancy should Egan Drive be faced with a closure. Continue coordination with Juneau, City and Borough to manage avalanche hazards and support emergency response.
				High Hazard Potential Dam Failure	High	High	Low	Protect in Place	Create an action plan and a possible partnership with CBJ.
Juneau, City and Borough	**Thane Road**	Ground Failure/Landslide Snow Avalanche	No	Ground Failure/Landslide Snow Avalanche	High	High	Low	Accommodate	Continue routine maintenance efforts, avalanche forecasting and mitigation, and emergency response, as appropriate. Implement remote avalanche control systems and avalanche detection. Support landslide susceptibility mapping to identify landslide hazards beyond the ROW that may impact the corridor.
Juneau, City and Borough	**North Douglas Highway**	Ground Failure/Landslide	No	Landslide Rockfall	High	Low	Low	Accommodate	Continue rock slop mitigation efforts. Implement rock slope mitigation project at MP 10 historic rock fall source. Potential project to realign sections of North Douglas Highway away from the cliff side.
Juneau, City and Borough	**Glacier Highway**	Flood Severe Weather Avalanche Ground Failure/Landslide High Hazard Potential Dam	No	Flood	Low	Low	Low	Protect in Place	Continue routine maintenance efforts and emergency response, as appropriate.
				Severe Weather	Medium	Medium	Low	Protect in Place	
				Snow Avalanche/Landslide	Low	Medium	Low	Protect in Place	
Ketchikan Gateway Borough	**North Tongass Highway**	Earthquake Ground	No	Earthquake	Low	Medium	Low	Protect in Place	Continue routine maintenance efforts and emergency response, as appropriate.

Community	Facility	Hazards Identified	System Redundancy?	Top Hazards Assessed	Exposure	Sensitivity	Adaptive Capacity	Mitigation Strategies	Potential Actions
		Failure/Landslide Severe Weather		Ground Failure/Landslide	High	High	Low	Accommodate	Continue routine maintenance efforts and emergency response, as appropriate. Continue rock slope mitigation efforts to address frequent rock fall events. Support landslide susceptibility mapping to identify landslide hazards beyond the ROW that may impact the corridor.
Ketchikan Gateway Borough	**South Tongass Highway**	Earthquake Ground Failure/Landslide Severe Weather	No	Earthquake	Low	Medium	Low	Protect in Place	Continue routine maintenance efforts and emergency response, as appropriate. Continue S. Tongass Projects (STIP IDs 27766, 21114, 23455).
				Ground Failure/Landslide	High	High	Low	Accommodate	Continue routine maintenance efforts and emergency response, as appropriate. Continue rock slope mitigation efforts to address frequent rock fall events. Support landslide susceptibility mapping to identify landslide hazards beyond the ROW that may impact the corridor.
Ketchikan Gateway Borough	**Revilla Road**	Ground Failure/Landslide	No	Landslide	High	Medium	Low	Protect in Place	Continue routine maintenance efforts and emergency response, as appropriate.
Petersburg Borough	**Mitkof Highway**	Ground Failure/Landslide	No	Ground Failure/Landslide	Low	Medium	Low	Protect in Place	Continue routine maintenance efforts and emergency response, as appropriate. Support landslide susceptibility mapping to identify landslide hazards beyond the ROW that may impact the corridor.
Prince of Wales-Hyder Census Area	**Keku Road (Kake)**	Severe Weather	No	All identified hazards	Low	Low	Low	Protect in Place	Continue routine maintenance efforts and emergency response, as appropriate
Prince of Wales-Hyder Census Area	**Thorne Bay Road (POW)**	Ground Failure/Landslide	No	Ground Failure/Landslide	Medium	Medium	Low	Protect in Place	Continue routine maintenance efforts and emergency response, as appropriate.
Prince of Wales-Hyder Census Area	**Hydaburg Highway (POW)**	Ground Failure/Landslide	No	Ground Failure/Landslide	Low	Medium	Low	Protect in Place	Continue routine maintenance efforts and emergency response, as appropriate.

Community	Facility	Hazards Identified	System Redundancy?	Top Hazards Assessed	Exposure	Sensitivity	Adaptive Capacity	Mitigation Strategies	Potential Actions
Prince of Wales-Hyder Census Area	**Craig/Klawock/Hollis Highway (POW)**	Ground Failure/Landslide	No	Ground Failure/Landslide	High	High	Low	Accommodate	Continue rock slope mitigation efforts. Support landslide susceptibility mapping to identify landslide hazards beyond the ROW that may impact the corridor. Complete three mile creek culvert replacement (STIP ID 34566). Continue routine maintenance efforts and emergency response, as appropriate.
Prince of Wales-Hyder Census Area	**Big Salt Lake Road (POW)**	Ground Failure/Landslide	No	Ground Failure/Landslide	High	High	Low	Accommodate	Continue rock slope mitigation efforts. Support landslide susceptibility mapping to identify landslide hazards beyond the ROW that may impact the corridor. Complete three mile creek culvert replacement (STIP ID 34566). Continue routine maintenance efforts and emergency response, as appropriate.
Prince of Wales-Hyder Census Area	**North Prince of Wales Road (POW)**	Ground Failure/Landslide	No	Ground Failure/Landslide	Low	Medium	Low	Protect in Place	Continue routine maintenance efforts and emergency response, as appropriate.
Prince of Wales-Hyder Census Area	**Coffman Cove Road (POW)**	Ground Failure/Landslide	No	Ground Failure/Landslide	Low	Medium	Low	Protect in Place	Continue routine maintenance efforts and emergency response, as appropriate.
Prince of Wales-Hyder Census Area	**Salmon River Road (Hyder)**	Avalanche, Ground Failure/Landslide	No	Snow Avalanche	High	High	Low	Protect in Place	Continue routine maintenance efforts, avalanche forecasting and mitigation, and emergency response, as appropriate. Evaluate avalanche control systems and implement detection systems.
			No	Ground Failure/Landslide	High	High	Low	Accommodate	Implement rock slope/landslide mitigation efforts.
Sitka, City and Borough of	**Katlian Bay Road**	Ground Failure/Landslide	No	Ground Failure/Landslide	High	Low	Low	Protect in Place	Continue routine maintenance efforts and emergency response, as appropriate.
Sitka, City and Borough of	**Sawmill Creek**	Ground Failure/Landslide	No	Ground Failure/Landslide	Medium	Low	Low	Accommodate	Continue rock slope mitigation efforts. Implement rock slope mitigation project at MP 5 historic rock fall source. Support landslide susceptibility mapping to identify landslide hazards beyond the ROW that may impact the corridor.

Community	Facility	Hazards Identified	System Redundancy?	Top Hazards Assessed	Exposure	Sensitivity	Adaptive Capacity	Mitigation Strategies	Potential Actions
Sitka, City and Borough	**Halibut Point Road**	Ground Failure/Landslide	No	Ground Failure/Landslide	High	High	Low	Protect in Place	Continue routine maintenance efforts and emergency response, as appropriate. Support landslide susceptibility mapping to identify landslide hazards beyond the ROW that may impact the corridor.
Skagway Borough, Municipality of	**Klondike Highway**	Earthquake Erosion Flood Ground Failure/Landslide Severe Weather	No	Snow Avalanche	High	High	Low	Accommodate	Complete Klondike Highway Rehabilitation Projects (STIP IDs 31310, 34430). Implement remote avalanche control systems and avalanche detection. Continue routine maintenance efforts, avalanche forecasting and mitigation, and emergency response, as appropriate.
				Ground Failure/Landslide	High	High	Low	Accommodate	Continue rock slope mitigation efforts. Support landslide susceptibility mapping to identify landslide hazards beyond the ROW that may impact the corridor.
Skagway Borough, Municipality of	**Dyea Road**	Earthquake Erosion Flood Ground Failure/Landslide Severe Weather	No	Erosion	High	Medium	Low	Accommodate	Continue routine maintenance efforts. Implement erosion protection project along Taiya River near MP 6.5
				Ground Failure/Landslide	High	Medium	Low	Accommodate	Continue routine maintenance efforts and emergency response, as appropriate. Implement rock slope mitigation efforts..
				Snow Avalanche	Medium	Medium	Low	Protect in Place	Continue routine maintenance efforts, avalanche forecasting and mitigation, and emergency response, as appropriate. Evaluate avalanche control systems and implement detection systems.
Wrangell, City and Borough of	**Zimovia Highway**	Earthquake Erosion Flood Ground Failure/Landslide Severe Weather	No	Ground Failure/Landslide	High	High	Low	Accommodate	Continue routine maintenance efforts and emergency response, as appropriate. Continue rock slope mitigation efforts. Support landslide susceptibility mapping to identify landslide hazards beyond the ROW that may impact the corridor.
Yakutat City and Borough	**Airport Road**	Earthquake Flood Erosion Severe Weather Wildfire	No	All identified hazards	Low	Low	Low	Protect in Place	Continue routine maintenance efforts and emergency response, as appropriate

Bridges

Community	Facility	Hazards Identified	System Redundancy?	Top Hazards Assessed	Exposure	Sensitivity	Adaptive Capacity	Mitigation Strategies	Potential Action
Juneau, City and Borough	**Juneau-Douglas Bridge (0740)**	Earthquake Ground Failure/Landslide Severe Weather Collision/Bridge Strike	No	Earthquake	Low	Low	Low	Accommodate	Continue project for a North Crossing (STIP ID 34146) to aid in providing redundancy should Egan Drive be faced with a closure.
			No	Collision/Bridge Strike	Medium	High	Low	Accommodate	Continue project for a North Crossing (STIP ID 34146) to aid in providing redundancy should Egan Drive be faced with a closure. A Vessel Collision Study would support identification of necessary actions and outreach. If warranted, pier protection could help mitigate some types of vessel collisions.
Juneau, City and Borough	**Mendenhall River Bridge (0217)**	Earthquake Flood Ground Failure/Landslide Severe Weather	Yes	Earthquake Flood Ground Failure Landslide Severe Weather (combined assessment)	High	High	Medium	Accommodate	Complete cost estimates for retrofitting and pursue an improvement project for creation of a more resilient structure. Bridge sustained damage in the 2025 Glacier Lake Outburst Flood. Current stance is to accommodate with engineering practices but eventually need to replace with more robust structure.
Ketchikan Gateway Borough	**Tongass Ave Viaduct (0997)**	Earthquake Tsunami Deterioration	Long detour, insufficient capacity	Earthquake Tsunami (combined assessment)	Low	Low	Low	Accommodate	Complete Tongass Ave and Water Street Viaduct repair projects (STIP IDs 31719, 34457, 34458). Identify funding for full viaduct replacement project(s).
Ketchikan Gateway Borough	**Water Street Viaduct (0797)**	Earthquake Tsunami Deterioration	Long detour, insufficient capacity	Earthquake Tsunami (combined assessment)	High	High	Low	Accommodate	Complete Tongass Ave and Water Street Viaduct repair projects (STIP IDs 31719, 34457, 34458).Identify funding for full viaduct replacement project.
Ketchikan Gateway Borough	**Ward Creek Bridge (0747)**	Earthquake Tsunami	No	Earthquake Tsunami (combined assessment)	Low	Low	Low	Accommodate	Complete Ward Creek Bridge Replacement (Need ID 31469).
Ketchikan Gateway Borough	**Lewis Reef Tunnel (under airport runway, 4076)**	Earthquake	No	Earthquake	Medium	Low	Low	Protect in Place	Complete electrical/fire protection project. Develop mitigation plan to support identification of necessary actions and outreach in event of tunnel failure that impacts airport runway operations.
Ketchikan Gateway Borough	**Water Street Tunnel (1130)**	Earthquake	Yes	Earthquake	Medium	Low	High	Protect in Place	Continue routine maintenance efforts and emergency response, as appropriate.
Sitka, City and Borough of	**Sitka Harbor Bridge (0245)**	Earthquake Tsunami	No	Earthquake Tsunami (combined assessment)	High	High	Low	Protect in Place	A study to support identification of necessary actions and outreach should this bridge be faced with a closure. Continue routine maintenance efforts and emergency response, as appropriate.
Skagway Borough, Municipality of	**Klondike Highway Bridges (Various)**	Earthquake	No	Earthquake	Medium	Low	High	Protect in Place	Continue routine maintenance efforts and emergency response, as appropriate. Complete scour protection efforts.

Airports

Community	Facility	Hazards Identified	System Redundancy?	Top Hazards Assessed	Exposure	Sensitivity	Adaptive Capacity	Mitigation Strategies	Potential Action
All Communities	**Seaplane Bases**	Earthquake Tsunami Severe Weather	Intermodal	Earthquake	High	Medium	Low	Accommodate	Identify ways to provide rapidly-deployable floatplane tie-up and shore access methods until damaged infrastructure could be repaired/replaced.
			Intermodal	Tsunami	Low	Medium	Low	Accommodate	Identify ways to provide rapidly-deployable floatplane tie-up and shore access methods until damaged infrastructure could be repaired/replaced.
			Intermodal	Severe Weather	High	High	Medium	Protect in Place	Ensure weather reporting systems are operational. Expand system of weather reporting stations and weather cameras. Have a regional system of reliable alternate landing areas.
Haines Borough	**Haines Airport**	Earthquake Flood Erosion Severe Weather	Intermodal	Earthquake	High	Medium	Low	Accommodate	A locally available stockpile of materials would aid in reconstruction and repair of airport damage caused by hazard.
			Intermodal	Flood/Erosion	High	Medium	Medium	Accommodate	Near-term airport rehabilitation project (in ACIP) should include mitigation of river erosion potential.
Hoonah-Angoon Census Area	**Gustavus Airport**	Earthquake Severe Weather	Intermodal	Earthquake	High	Medium	Low	Accommodate	A locally available stockpile of materials would aid in reconstruction and repair of airport damage caused by hazard.
			Intermodal	Severe weather	High	High	Medium	Accommodate	Ensure weather reporting system is operational. Maintain airport NAVAIDs. Have a regional system of reliable alternate landing areas.
Hoonah-Angoon Census Area	**Hoonah Airport**	Earthquake Tsunami Severe Weather Climate Change	Intermodal	Earthquake	High	Medium	Low	Accommodate	A locally available stockpile of materials would aid in reconstruction and repair of airport damage caused by hazard.
			Intermodal	Wildlife	High	Medium	Medium	Protect in Place	2030 project programmed, fencing
Juneau, City and Borough	**Juneau International Airport**	Earthquake Severe Weather Fire Tsunami Flood Glacier Volcano Hazmat Cyber	Intermodal	Earthquake	High	Medium	Low	Accommodate	A locally available stockpile of materials would aid in reconstruction and repair of airport damage caused by hazard.
				Tsunami	Low	Medium	Low	Accommodate	A locally available stockpile of materials would aid in reconstruction and repair of airport damage caused by hazard.
				Flood	Medium	Low	Low	Accommodate	A locally available stockpile of materials would aid in reconstruction and repair of airport damage caused by hazard.
				Severe Weather	High	High	Medium	Protect in Place	Ensure weather reporting system is operational. Maintain airport NAVAIDs. Have a regional system of reliable alternate landing areas.
Ketchikan Gateway Borough	**Ketchikan International Airport**	Flood Earthquake Severe Weather	Intermodal	Earthquake	High	Medium	Low	Accommodate	A locally available stockpile of materials would aid in reconstruction and repair of airport damage caused by hazard.
			Intermodal	Severe Weather	High	High	Medium	Accommodate	Ensure weather reporting system is operational. Maintain airport NAVAIDs. Have a regional system of reliable alternate landing areas.
Petersburg Borough	**Petersburg James A Johnson**	Earthquake Volcano	Intermodal	Earthquake	High	Medium	Low	Accommodate	A locally available stockpile of materials would aid in reconstruction and repair of airport damage caused by hazard.

Community	Facility	Hazards Identified	System Redundancy?	Top Hazards Assessed	Exposure	Sensitivity	Adaptive Capacity	Mitigation Strategies	Potential Action
		Seer Weather Fire	Intermodal	Severe Weather	High	Medium	Medium	Protect in Place	Ensure weather reporting system is operational. Maintain airport NAVAIDs. Have a regional system of reliable alternate landing areas.
Prince of Wales-Hyder Census Area	**Klawock Airport**	Earthquake Fire	Intermodal	Earthquake	High	Medium	Low	Accommodate	A locally available stockpile of materials would aid in reconstruction and repair of airport damage caused by hazard.
			Intermodal	Wildland Fire	Low	Low	High	Accommodate	
Prince of Wales-Hyder Census Area	**Kake Airport**	Earthquake Wildlife	Intermodal	Earthquake	High	Medium	Low	Accommodate	A locally available stockpile of materials would aid in reconstruction and repair of airport damage caused by hazard.
			Intermodal	Wildlife (birds, deer)	High	Medium	Medium	Protect in Place	Complete perimeter fencing, robot dog (like used at Fairbanks International Airport).
Sitka, City and Borough of	**Sitka Rocky Gutierrez**	Earthquake Severe Weather Tsunami	Intermodal	Earthquake	High	Medium	Low	Accommodate	A locally available stockpile of materials would aid in reconstruction and repair of airport damage caused by hazard.
			Intermodal	Tsunami	Low	Medium	Low	Accommodate	A locally available stockpile of materials would aid in reconstruction and repair of airport damage caused by hazard.
			Intermodal	Severe Weather (water/waves impacting the runway & seawall)	High	High	Medium	Accommodate	Runway projects for wave mitigation (placement of rocks) Sitka runway wall, potentially pursue a letter of correction
Skagway Borough, Municipality of	**Skagway Airport**	Earthquake Severe Weather Erosion	Intermodal	Earthquake	High	Medium	Low	Accommodate	A locally available stockpile of materials would aid in reconstruction and repair of airport damage caused by hazard.
			Intermodal	Flooding/Erosion due to Levee Failure	Medium	Low	Medium	Accommodate	Future airport rehabilitation work should include provisions to mitigate potential erosion impacts.
Wrangell, City and Borough of	**Wrangell Airport**	Earthquake Volcano Tsunami Energy Reliability Severe Weather	Intermodal	Earthquake	High	Medium	Low	Accommodate	A locally available stockpile of materials would aid in reconstruction and repair of airport damage caused by hazard.
			Intermodal	Tsunami	Low	Medium	Low	Accommodate	A locally available stockpile of materials would aid in reconstruction and repair of airport damage caused by hazard.
			Intermodal	Energy Reliability	High	Medium	Medium	Protect in Place	Acquire backup/emergency generator to power airfield lighting and other critical infrastructure. Community-wide improvements to electrical power infrastructure.
			Intermodal	Severe Weather	High	High	Medium	Accommodate	Ensure weather reporting system is operational. Maintain airport NAVAIDs. Have a regional system of reliable alternate landing areas.
Yakutat City and Borough	**Yakutat Airport**	Earthquake Flood Severe Weather Fire Erosion Energy Reliability Wildlife	Intermodal	Earthquake	High	Medium	Low	Accommodate	A locally available stockpile of materials would aid in reconstruction and repair of airport damage caused by hazard.
			Intermodal	Erosion (Situk River migration)	Low	Low	Medium	Accommodate	Master Plan update underway to consider impacts to airport within 20 years (or beyond).
			Intermodal	Energy Reliability	High	High	Medium	Protect in Place	Acquire backup/emergency generator to power airfield lighting and other critical infrastructure. Community-wide improvements to electrical power infrastructure.
			Intermodal	Wildlife (moose, bears)	High	High	High	Accommodate	Complete perimeter fencing.

APPENDIX 5: STATE-OWNED HARBOR AND SEAPLANE FACILITIES CONDITION INVENTORY

State-Owned Harbor and Seaplane Facilities

Priorities			
Very High	High	Medium	Low

Community	Facility	Work Needed	Project Priority	Notes
Haines Borough	Excursion Inlet Seaplane Facility	Complete replacement	High	Poor condition. Some restoration work and minor repairs with used float materials completed in 2005.
Hoonah-Angoon Census Area	Angoon Seaplane Float	Refurbishment or replacement	Medium	Deterioration with age is evident. New planned ground airport in Angoon may reduce but will not eliminate the need for seaplane access.
Hoonah-Angoon Census Area	Elfin Cove Inner & Outer Floats	Complete replacement	Medium	Outer float and seaplane facility was replaced in 2015 and remains in good condition. Inner harbor mooring float facility is substantially deteriorated and in need of complete replacement.
Hoonah-Angoon Census Area	Funter Bay Cannery & Seaplane-Float	Complete replacement	High	Existing condition poor/critical. Gangway and seaplane floats recently damaged by a storm in 2026. The seaplane float has been permanently destroyed and is no longer present. Emergency stabilization efforts to remove the gangway and gangway float are underway as of May 2026. Design activity is pending with state funds and Alaska Department of Fish and Game federal grant, with construction anticipated in 2027. This project will only provide a partial refurbishment including a new gangway float. Additional refurbishment is likely needed within 10 years. Re-establishment of a seaplane float is also desired for local aviation needs, but funding is unlikely to restore this function.
Hoonah-Angoon Census Area	Funter Bay Refuge Float	Complete replacement	High	Some repairs were completed over five years ago by Maintenance and Operations. While functional and still in active public use, this float is deteriorating and damage is present. It has reached its design life.
Hoonah-Angoon Census Area	Hoonah Seaplane Facility	Dredging under gangway float, replacement of bridge bearings, refurbish or replace gangway float	Medium	Dredging and bridge bearing replacement is needed immediately and that effort is pending emergency funding approvals. Gangway float has deteriorating structural members and other refurbishment work needed.
Hoonah-Angoon Census Area	Tenakee Floating Breakwaters	Complete replacement of two floating breakwaters	Very High	All inner harbor facilities transferred to City of Tenakee Springs. DOT&PF retains ownership of two floating breakwaters. Existing condition of both structures is very poor, beyond Maintenance and Operations' capacity to repair. Inner harbor facilities at risk of damage if breakwater fails.
Ketchikan Gateway Borough	Helm Bay Refuge Float	Complete replacement	Low	No recent inspections have been completed. Condition largely unknown.
Petersburg Borough	Entrance Island (Hobart Bay) Refuge Float	Complete replacement	Very High	Very poor condition. Use of this facility by the public is lower than other facilities but it still serves as an important harbor of refuge for a significant amount of transient boat traffic.
Petersburg Borough	Kupreanof Float	Refurbishment or partial replacement	Low	Kupreanof has completed some recent improvements with grant funding. DOT&PF is continuing to work with the community to pursue funding opportunities for repair and rehabilitation of the dock infrastructure.

Community	Facility	Work Needed	Project Priority	Notes
Petersburg Borough	Petersburg Papke's Landing Float	Possible replacement	Low	No recent inspections have been completed. Condition largely unknown.
Petersburg Borough	Petersburg Seaplane Facility	Restoration and new pile anodes	Medium	No recent inspections have been completed. Local maintenance and operations crews observe and maintain this facility to some extent. Condition is fair but rehabilitation work or replacement is needed.
Prince of Wales-Hyder Census Area	Edna Bay Harbor	None at present	N/A	Fully replaced with last of state harbor funds. Work completed August 2021. Float infrastructure has been transferred to City of Edna Bay. Ownership of underlying tidelands in process of transfer to City of Edna Bay.
Prince of Wales-Hyder Census Area	Hollis Harbor and Seaplane Float	Refurbishment or partial replacement	Low	Removal might be considered, but it serves alternate seaplane access. (Clark Bay SPB located nearby is the primary seaplane facility). The small boat mooring float part of this facility is extensively used by local and transient boats. Local community is interested in taking over ownership or management, but there is not an incorporated entity or recognized local government and transfer cannot legally take place.
Prince of Wales-Hyder Census Area	Hydaburg Seaplane Facility	Replacement	Underway	Active FAA project to replace entire facility. Construction to be completed in 2027.
Prince of Wales-Hyder Census Area	Hyder Harbor	Dredging or relocation, new breakwaters, refurbishment	High	The existing facility is in very poor condition. Timber floating breakwaters have broken apart and are no longer in place and protecting this facility. Siltation in the harbor basin over time has rendered access to the seaplane float and the harbor floats unusable at lower tides.
Prince of Wales-Hyder Census Area	Kasaan Harbor & Seaplane Facility	Miscellaneous refurbishment, some improvements have been made in the recent past	Low	Substantial refurbishment efforts were completed in 2012. Additional work is likely needed in near future.
Prince of Wales-Hyder Census Area	Metlakatla Seaplane Float	None at present	Low	This facility was completely replaced in 2021 and remains in very good condition.
Prince of Wales-Hyder Census Area	Naukati Harbor	Replace floating breakwater	Low	The State owns the harbor floats, tidelands, and upland property and has an agreement in place for the local community to manage and maintain the harbor. Harbor mooring floats were completely replaced in 2014. This facility is in need of a new floating breakwater; however, this breakwater is a community owned structure and is neither owned nor maintained by DOT&PF. If a failure to the breakwater occurs, then the state-owned infrastructure would likely be damaged.
Prince of Wales-Hyder Census Area	Point Baker Refuge Float	Refurbishment or partial replacement	Medium	No recent inspections have been completed. Condition largely unknown, but replacement or refurbishment is likely needed.
Prince of Wales-Hyder Census Area	Port Protection Refuge Float, Seaplane Float and Tidal Grid	Refurbishment or replacement	Very High	Three DOT&PF owned facilities: seaplane float, refuge float, and tidal grid. Refuge float significantly deteriorated and sinking but remains heavily used. Replacement or removal required at earliest opportunity. Continued public use and safety is a concern.