Alaska Federal Lands Collaborative Long-Range Transportation Plan, 2020-2040

Federal Highway Administration

Glacier Bay National Park & Preserve. NPS Photo.

Acknowledgements

The Alaska Transportation Working Group would like to thank the following agencies and organizations for their contributions to this plan. This document is a truly collaborative effort that benefits from the unique perspectives of all who have participated.

Alaska Transportation Working Group

Bureau of Land Management (BLM)
National Park Service (NPS)
U.S. Fish and Wildlife Service (FWS)
U.S. Forest Service (FS)
Federal Highway Administration (FHWA), Western Federal Lands Highway Division (WFL)
Federal Highway Administration (FHWA), Alaska Division Office
Alaska Department of Transportation & Public Facilities (DOT&PF)
Alaska Municipal League (AML)

Development Team

U.S. Department of Transportation (USDOT), Volpe National Transportation Systems Center
National Park Service (NPS), Denver Service Center (DSC)

Contacts

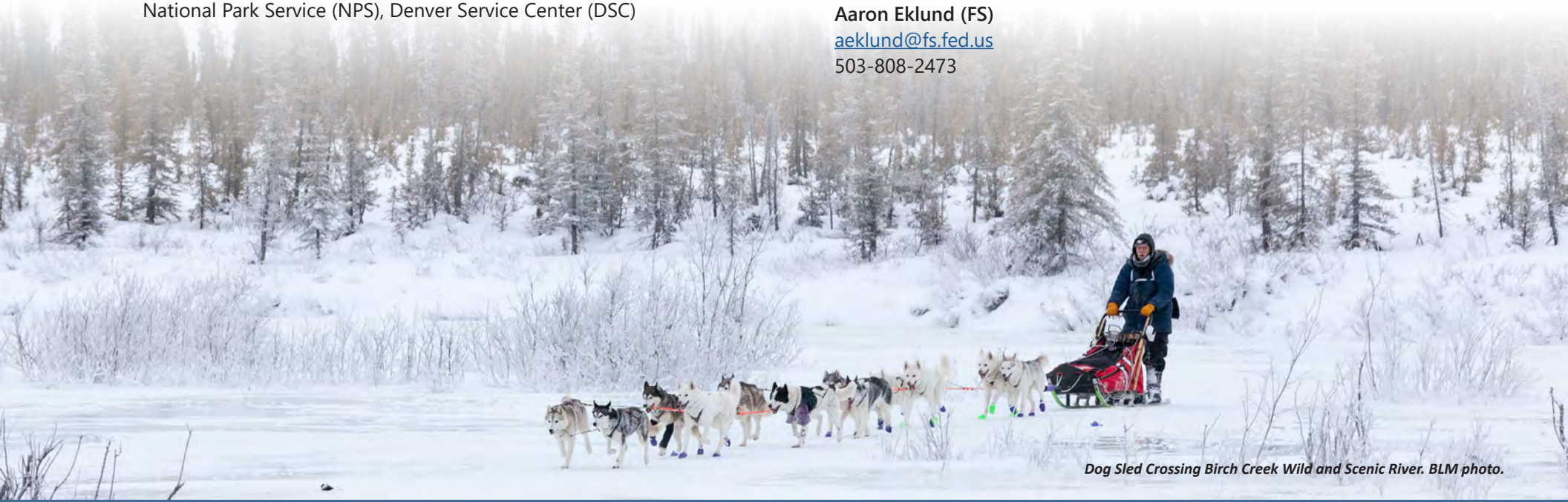
Roxanne Bash, PMP
Planning Team Lead
Federal Highway Administration, Western Federal Lands Division
610 East 5th Street, Vancouver, WA 98661
roxanne.bash@dot.gov
(360) 619-7558

Curt Fortenberry (BLM)
cfortenb@blm.gov
907-474-2206

Kevin Doniere (NPS)
kevin_doniere@nps.gov
907-644-3390

Amy Klein (FWS)
amy_klein@fws.gov
907-786-3579

Aaron Eklund (FS)
aeklund@fs.fed.us
503-808-2473



Dog Sled Crossing Birch Creek Wild and Scenic River. BLM photo.

Prologue

Seven years ago, the Alaska Transportation Working Group published its first-ever long-range transportation plan for Federal lands in Alaska, the 2012 *Alaska Federal Lands Long Range Transportation Plan (LRTP)*. This plan was a collaboration between a wide range of partners – the Bureau of Land Management, National Park Service, U.S. Fish and Wildlife Service, U.S. Forest Service, Federal Highway Administration, Alaska Department of Transportation and Public Facilities, and the Alaska Municipal League – to create a strategic, performance-based vision for future transportation investments. The plan recognized the highly unique nature of Alaska's multimodal transportation network, which often crosses jurisdictional boundaries to provide access to recreation, economic development, and subsistence uses on Federal lands.

Since the completion of the 2012 *Alaska Federal Lands LRTP*, the Alaska Transportation Working Group has implemented the plan by:

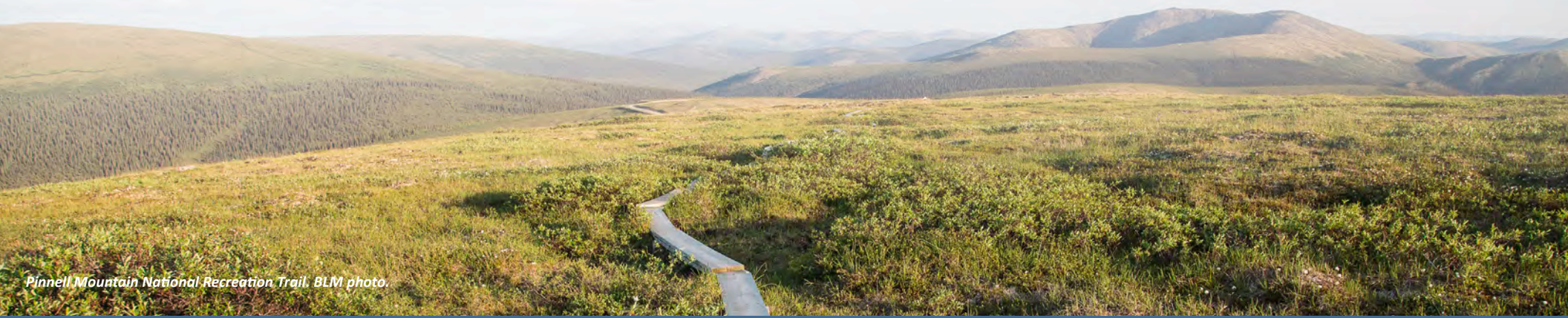
- completing joint research related to the plan's goals of system management, safety and mobility, user experience, and resilience;
- holding regular teleconferences and annual in-person meetings to discuss common challenges and opportunities for collaboration; and
- leveraging multiple funding sources to complete projects of mutual benefit that improve transportation access to Federal lands for Alaska's residents and visitors.

The purpose of the *Alaska Federal Lands Collaborative Long-Range Transportation Plan (CLRTP), 2020-2040*, is to update the 2012 *Alaska Federal Lands LRTP* and build on the successes of the original plan. This plan updates the baseline conditions to reflect new data, agency guidance, and surface transportation legislation. This plan also provides updated goals, objectives, implementation actions, and performance measures for a new 20-year transportation planning horizon (2020-2040). The collaboratively identified goals work toward achieving a "seamless" transportation system for public and administrative access to Federal lands.

This update represents the continued commitment of participating agencies to work together to solve transportation challenges and manage existing transportation systems. Partnering agencies understand that transportation systems can span multiple jurisdictions necessitating the need for communication and partnerships to address transportation system needs, make informed decisions, and use resources efficiently. The contribution of each participating agency in the development of this plan provides for not just a collaborative document, but a truly richer plan.

The *Alaska CLRTP, 2020-2040* plan is meant to be a living document and participating agencies will continue to collaborate after its completion to implement the goals of this plan. We thank you for your interest in this plan and hope you find it useful and informative.

Final Plan: December 2019



Pinnell Mountain National Recreation Trail. BLM photo.

This page intentionally left blank.

Table of Contents

Acronymns

AIVC	Arctic Interagency Visitor Center
AMATS	Anchorage Metropolitan Area Transportation Solutions
AML	Alaska Municipal League
ANCSA	Alaska Native Claims Settlement Act
ANILCA	Alaska National Interest Lands Conservation Act
API	Asset Priority Index
ATAP	Alaska Transportation Alternatives Program
ATV	All-Terrain Vehicles
AVSP	Alaska Visitor Statistics Program
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
BOR	Bureau of Reclamation
CIRES	Cooperative Institute for Research in Environmental Sciences
CTP	Community Transportation Program
CVTS	Collaborative Visitor Transportation Survey
DOI	Department of the Interior
DOT	Department of Transportation
DOT&PF	Department of Transportation and Public Facilities
ER	Emergency Relief
ERFO	Emergency Relief for Federally Owned Roads
FAA	Federal Aviation Administration
FAHP	Federal-Aid Highway Program
FARS	Fatality Analysis Reporting System
FAST	Fixing America's Surface Transportation (Act)
FC	Functional Classes
FCI	Facility Condition Index
FHWA	Federal Highway Administration
FLAP	Federal Lands Access Program
FLH	Federal Lands Highway
FLTP	Federal Lands Transportation Program
FMATS	Fairbanks Metropolitan Area Transportation System
FS	U.S. Forest Service
FTA	Federal Transit Administration
FWS	U.S. Fish and Wildlife Service
FY	Fiscal Year
GHG	Greenhouse Gas
GIS	Geographic Information System
HSIP	Highway Safety Improvement Program
IAA	Interagency Agreements
IFA	Independent Federal Agencies
ITS	Intelligent Transportation System
LRTP	Long-Range Transportation Plan
MAP-21	Moving Ahead for Progress in the 21st Century Act
MOA	Memoranda of Agreement
MOU	Memoranda of Understanding
MPO	Metropolitan Planning Organization
MTP	Metropolitan Transportation Plan
NAGPRA	Native American Graves Protection and Repatriation Act
NCA	National Conservation Area
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NHTSA	National Highway Traffic Safety Administration
NSFHP	Nationally Significant Freight and Highway Projects
NSFLTP	Nationally Significant Federal Lands and Tribal Projects
NOx	Nitrogen Oxides
NP	National Park
NP&P	National Park & Preserve
NPS	National Park Service
NRA	National Recreation Area
NWR	National Wildlife Refuge
OHV	Off-Highway Vehicle

OST	Office of the Secretary of Transportation
PDC	Programming Decision Committee
PM	Particulate Matter
RTP	Recreational Trails Program
RTPO	Regional Transportation Planning Organization
RV	Recreational Vehicle
SAR	Search and Rescue
SHMP	State Hazard Mitigation Plan
SHSP	Strategic Highway Safety Plan
SOx	Sulfur Oxides
STBG	Surface Transportation Block Grant
STIP	Statewide Transportation Improvement Program
TAP	Transportation Alternatives Program
TINA	Transportation Investment Needs Analysis
TIP	Transportation Improvement Program/Transportation Improvement Plan
TMA	Transportation Management Area
TRB	Transportation Research Board
TRSPT	Transportation Resource Stewardship Planning Tool
TTP	Tribal Transportation Program
US/U.S.	United States
USACE	U.S. Army Corps of Engineers
USC	United States Code
USDA	U.S. Department of Agriculture
USDOT	U.S. Department of Transportation
USMP	Unstable Slope Management Program
VMT	Vehicle Miles Traveled
WFL	Western Federal Lands Highway Division

Executive Summary

This plan is the 2020-2040 update to the *Alaska Federal Lands Long-Range Transportation Plan (LRTP)*, originally published in 2012. This plan describes the benefits of and actions for coordinated planning and decision making among Federal lands management agencies (FLMA) involved in managing transportation systems to and within Federal lands in Alaska. This plan results from a partnership between the National Park Service (NPS); U.S. Fish and Wildlife Service (FWS); U.S. Department of Agriculture (USDA), U.S. Forest Service (FS); Bureau of Land Management (BLM); Alaska Department of Transportation and Public Facilities (Alaska DOT&PF); and the Federal Highway Administration (FHWA), Western Federal Lands Highway Division (WFL). This LRTP assists FLMAs to consolidate efforts through long-term coordination in transportation planning and decision-making processes. Such cooperation is accomplished through developing common goals and objectives; setting priorities for implementing projects; facilitating objective decision making for the transportation system; and developing common actions that benefit each FLMA in furthering the common goals and objectives. The key objective of such a planning process is to develop and maintain a coordinated, "seamless" transportation system for public and administrative access to Federal lands.

LRTP Goals

System Management: Provide a long-term transportation system to address current and future land management needs.

User Experience: Proactively enhance the Alaskan multimodal transportation system experience and connectivity.

Safety and Mobility: Provide users with safe, efficient, affordable, and agency-appropriate access to and through Federal lands.

Environment: Protect and enhance natural and cultural resources through comprehensive transportation planning and management.

Risk and Resilience: Develop a long-term transportation system that addresses environmental, social, and economic risks.

Partnerships: Maintain existing mutually beneficial relationships and build future opportunities for collaboration with tribal, Federal, state, local, and other external partners.

The LRTP is an update to the original *Alaska Federal Lands LRTP*, published in 2012. The 2012 plan was a pioneering effort to develop the first multiagency LRTP for Federal lands. The 2012 LRTP was developed with a 20-year time horizon (2012-2032) but is meant to be updated periodically to reflect new transportation conditions, multiagency accomplishments, and needs. This LRTP update covers the years 2020-2040 and addresses the following:

- Reflects new requirements and funding opportunities in the Fixing America's Surface Transportation (FAST) Act;
- Uses updated transportation and visitation data to provide more current information on the conditions and needs of Federal lands transportation networks;
- Aligns the updated LRTP with FLMAs' national guidance;
- Reports on FLMA and partner accomplishments from the 2012 plan;
- Builds upon the interagency team's progress to develop performance measures and monitoring systems; and
- Increases understanding of the unique benefits and challenges of transportation planning for Federal lands.

Alaska's multimodal transportation system provides critical links to connect local residents and visitors with their Federal lands and, in many cases, provides critical links for inter-village travel and subsistence use. Understanding the connection between transportation and conservation, the Alaska FLMAs have established mission, goals, and objectives to serve as benchmarks for evaluating improvements to the transportation system as part of this LRTP. Together with an understanding of existing transportation infrastructure deficiencies in the state of Alaska, this plan enables FLMAs, individually and collectively, to make better decisions regarding the most critical needs. Other specific benefits of the LRTP include:

- Enables Alaska Federal land managers to make informed decisions based on long-term transportation mission, goals, objectives, and performance measures.
- Provides a holistic and long-term view of transportation in relation to core operations and other programs and priorities such as asset management, deferred maintenance, resource protection, visitor services, and the visitor experience.
- Provides current data on multimodal transportation issues and needs across the region.
- Provides an opportunity for Alaska Federal land units to partners and discuss areas of mutual interest with the public and regional entities such as minimizing carbon footprint, alternative transportation systems, and transportation system linkages.
- Provides Alaska Federal land managers with a better understanding of future transportation needs.
- Serves as a basis for FLMA leaders to work with local communities, native tribes, and other FLMAs, many of whom could potentially contribute funding or in-kind services to advance priority projects.
- Fulfills Federal requirements to conduct long-range transportation planning in a manner that is consistent with U.S. Department of Transportation (USDOT) planning practices for states and metropolitan organizations.

RVs on Taylor Highway. BLM photo.

Travel in Alaska

Understanding the unique nature of travel in Alaska is a prerequisite for planning future transportation projects. More than anywhere else in the United States, Alaska depends on a mix of roads, rail, marine, snow, and air connections to meet its transportation needs. This multimodal network responds to the state's immense size, challenging physical geography, and extreme climate. Travel in the state is often a matter of connecting from one modal system to another. The efficiency of Alaska's multimodal transportation system heavily influences accessibility, subsistence living, business and recreational travel opportunities, and the state's overall economy.

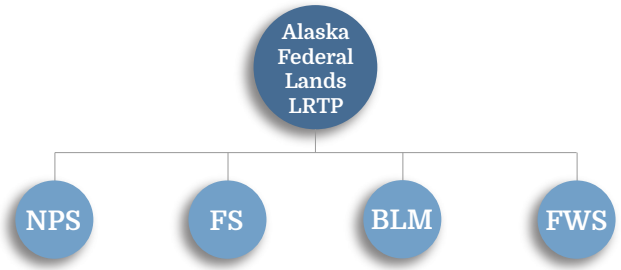
Float Plane at Alaska Peninsula National Wildlife Refuge Mother Goose Lake. FWS photo.

Alaska Railroad Depot. FS photo.

In order to provide information for this multiagency plan, each Federal agency also has prepared their own long-range transportation plans, called drop-down plans, for the portions of Alaska's transportation system within an agency's jurisdiction. These drop-down plans enable each agency to outline the transportation facilities within their jurisdiction as well as the existing and future needs. Drop-down plans elaborate upon topics discussed in the *Alaska Federal Lands LRTP* with agency-specific details including baseline conditions, transportation needs and gaps, project selection processes, funding opportunities, performance measures, and recommended future actions. All agencies coordinate with Alaska DOT&PF during the development of these plans, and the information resulting from these planning efforts informs the *Alaska Federal Lands LRTP*. This tiered approach, illustrated in Figure 1, is structured so that all FLMAs are represented in the LRTP, and agency-specific topics and details are represented in an agency drop-down plan.[1]

This plan and the FLMA drop-down plans are therefore interdependent in nature. This plan relies on the details established in the drop-down plans about agency specific conditions, needs, gaps, and performance measures. Conversely, drop-down plans rely on this plan for FLMA-wide analysis (in the areas of visitation trends and natural hazards), coordination (for partnerships and improved statewide system management / experience / mobility), and the mutually beneficial implementation plan.

Figure 1. Tiered LRTP Approach



Through development of this LRTP and individual agency drop-down plans, several actions were identified as being necessary to further common FLMA LRTP goals and objectives or improving the impact of future FLMA and drop-down plans. The following section identifies the implementation actions identified by the interagency planning team. The performance of FLMAs in achieving LRTP goals and objectives is therefore measured by the progress made in accomplishing these actions over time.

Iditarod National Historic Trail. BLM photo.

1 The 2012 NPS, FS, FWS, and BLM drop-down plans are available on the FHWA Federal Lands Planning Program website: https://flh.fhwa.dot.gov/programs/flpp/lrtp/. NPS is currently updating its drop-down plan.

Short Term Implementation Actions

The multiagency LRTP team selected the following implementation actions as high-priority actions to work towards in the first one to two years after plan update completion:

1. **Create a Multimodal Transportation Safety Database:** Collaborate with FLMAs, state, and local partners to collect and analyze multimodal transportation safety data and monitor safety performance for travel to and through Federal lands in Alaska. Where appropriate, link this database with Alaska DOT&PF efforts to monitor and improve safety performance through the Highway Safety Improvement Plan and Strategic Highway Safety Plan.
2. **Collaborate to Evaluate Fish Passage Barriers at a Watershed Level** through completing a culvert inventory and compiling existing watershed documentation. Conduct an inventory of culverts across FLMA units to identify locations and conditions, where culverts are not properly sized to accommodate expected flow levels, and where culverts and other transportation infrastructure poses fish passage barriers. Create a set of best practices for culvert management and maintenance.
3. **Maintain Collaborative Multiagency Working Group** focusing on Federal lands transportation needs:
    - Maintain and update coordinated GIS systems
    - Participate in annual Project Coordination Meetings and regular teleconferences
    - Document collaborative accomplishments
4. **Pursue Collaborative Funding Opportunities** such as FLAP, FLTP, and other applicable funding sources to support transportation projects, plans, and research.
5. **Coordinate Training Efforts:** Organize annual multiagency training on topics of mutual interest, such as conducting Transportation Safety Assessments. In addition, each agency should invite other agency staff to attend applicable trainings they are organizing, as appropriate.

Medium Term Implementation Actions

The LRTP team identified the following as second tier implementation actions:

1. **Complete Gravel Roads Condition Assessment** for Federal lands in Alaska that generates actions to improve condition and contribute to performance management.
2. **Develop Key Factors of Multimodal Access:** Develop key factors and data collection for multimodal travel and active transportation (tie-in with safety database); this also includes consideration of concessionaires / private partners, such as shuttle operators.
3. **Monitor Emerging Visitor Use Trends:** Identify and research the emergence of new visitor transportation trends – such as fat bikes, electric bikes, and changing shoulder season and winter travel patterns – and their implications for Federal lands transportation and safety.
4. **Tribal and Municipal Relations:** Reach out to tribes, Alaska Native Corporations, and municipalities on LRTP implementation and update.
5. **Visitor Data:** Periodically (every five years) administer a collaborative survey of Federal lands transportation users in Alaska. Analyze survey data and share with partners to inform future decision making.

This page intentionally left blank.

Introduction

Arctic Interagency Visitor Center. BLM photo.

Introduction

Transportation infrastructure connects local residents and visitors with Alaska's Federal lands including national parks, national forests, national wildlife refuges, and other dispersed lands under the jurisdiction of Federal land management agencies. This *Alaska Federal Lands Long-Range Transportation Plan, 2020-2040 (Alaska Federal Lands LRTP 2020-2040)* is the joint product of the following agencies:

FLMAs:

- Bureau of Land Management (BLM)
- National Park Service (NPS)
- U.S. Fish and Wildlife Service (FWS)
- U.S. Forest Service (FS)

Partners:

- Federal Highway Administration (FHWA) Office of Federal Lands Highway (FLH)
- Alaska Department of Transportation and Public Facilities (Alaska DOT&PF)
- Alaska Municipal League (AML)

Decisions regarding transportation projects on Federal lands necessitate participation with the Bureau of Indian Affairs (BIA); therefore, the BIA is considered a significant stakeholder, but not a FLMA Core Team member because the BIA is not a land management agency.

This LRTP is intended to assist FLMAs in consolidating their transportation-related efforts, where reasonable, by coordinating planning and decision-making processes and identifying areas of common need and interest. This coordination is achieved through documenting common goals and objectives; setting priorities for implementing projects; facilitating objective decision making processes; identifying areas of need; and developing common actions that benefit each FLMA in furthering the common goals and objectives of this LRTP. The key objective of such a planning process is to develop and maintain a coordinated, "seamless" transportation system for public and administrative access to Federal lands.

This *Alaska Federal Lands LRTP 2020-2040* strengthens opportunities where there is overlap in agency missions, while supporting the unique aspects of each FLMA through agency-specific plans. This tiered approach, illustrated in Figure 1, is structured so that matters that relate to all FLMAs are represented in this *Alaska Federal Lands LRTP 2020-2040*, and agency-specific topics and details are represented in agency-specific plans. Figure 2 shows the division of content and agency-specific details between the *Alaska Federal Lands LRTP 2020-2040* and the drop-down plans.

Purpose of the Alaska Federal Lands LRTP 2020-2040 Update

The LRTP is an update to the original *Alaska Federal Lands LRTP*, published in 2012. The 2012 plan was a pioneering effort to develop the first multiagency LRTP for Federal lands. The 2012 LRTP was developed with a 20 year time horizon (2012-2032) but is meant to be updated periodically to reflect new transportation conditions, multiagency accomplishments, and needs. This LRTP update covers the years 2020-2040 and addresses the following:

- Reflects new requirements and funding opportunities in the FAST Act;
- Uses updated transportation and visitation data to provide more current information on the conditions and needs of Federal lands transportation networks;
- Aligns the updated LRTP with FLMAs' national guidance;
- Reports on FLMA and partner accomplishments from the 2012 plan;
- Builds upon the interagency team's progress to develop performance measures and monitoring systems; and
- Increases understanding of the unique benefits and challenges of transportation planning for Federal lands.

Figure 2: Alaska Federal Lands LRTP and Agency Drop-Down LRTPs

Alaska Federal Lands LRTP	Drop-Down LRTP
• Establishes common Alaska FLMA transportation goals, objectives, and strategies. • Documents unique role of multimodal travel to and within FLMAs and Alaska as a whole. • Identifies common FLMA transportation-related trends, policies, and relevant non-FLMA transportation planning. • Identifies common FLMA transportation funding sources. • Documents role of outreach in the LRTP planning process. • Identifies joint FLMA actions and long-range transportation performance measures.	• Establishes agency-specific transportation goals, objectives, and strategies. • Documents the role of the LRTP in decision-making processes and significance to other plans. • Establishes existing and baseline conditions. • Identifies needs, gaps, or opportunities. • Identifies agency-specific transportation funding sources and trends. • Documents transportation project selection processes. • Identifies actions and performance measures. • Makes recommendations for future actions.

Plan Purpose

Each FLMA in has its own defined mission, as defined in its specific enabling legislation. These missions guide all aspects of these agencies, including how they manage their transportation networks. The purpose of the *Alaska Federal Lands LRTP* is to coalesce around the many shared goals of these agencies, which are reflective of individual FLMA missions. The defined mission of each agency is summarized as follows:

BLM Mission - *To sustain the health, diversity, and productivity of America's public lands for the use and enjoyment of present and future generations.*

FWS Mission - *The mission of the U.S. Fish and Wildlife Service is working with others to conserve, protect, and enhance fish, wildlife, plants, and their habitats for the continuing benefit of the American people.*

NPS Mission - *The National Park Service preserves unimpaired the natural and cultural resources and values of the national park system for the enjoyment, education, and inspiration of this and future generations. The Park Service cooperates with partners to extend the benefits of natural and cultural resource conservation and outdoor recreation throughout this country and the world.*

FS Mission - *The mission of the USDA Forest Service is to sustain the health, diversity, and productivity of the Nation's forests and grasslands to meet the needs of present and future generations.*

The *Alaska Federal Lands LRTP 2020-2040*:

- Defines the transportation network.
- Identifies needs for the transportation network.
- Defines consistent transportation performance measures and targets.

- Develops a process that identifies each agency's larger planning needs and supports their local-level transportation planning processes.
- Creates interagency working groups to continue collaborating on transportation planning after the LRTP process.

The LRTP update does not include specific project selection or management decisions, but instead provides high-level analysis and guidance to inform local, implementation-level plans and decisions. As such, this LRTP provides pre-decisional analysis that FLMA staff and partners can use as a resource and it does not require a National Environmental Policy Act (NEPA) process.[2]

Alaska Specific Plan

More than anywhere else in the United States, people in Alaska depend on a mix of highway, rail, marine, trail, water and air connections to meet their transportation needs. As with nearly all travel in Alaska, visiting the state's Federal lands requires access to multimodal transportation opportunities. Multimodal access to and within Federal lands is particularly important in Alaska where FLMAs manage 62 percent of the state's surface land area. This LRTP, unlike other LRTPs developed for FLMA regions in the lower 48 states, focuses on addressing planning issues related to interconnectivity of the various modes to provide a unique and seamless experience for visitors, local residents, agency staff, and other non-recreational users, such as contractors and concessionaires. While each FLMA addresses their own unique transportation system through drop-down plans, this LRTP looks at the state as a whole and identifies how these systems interconnect, where modal gaps occur, and how information is disseminated to visitors regarding how to access multimodal connections.

2 Transportation planning under 23 USC 134 and 135 are NEPA FHWA categorical exclusions per 23 §771.117.

Supporting Alaska's Communities

This multiagency regional plan is intended to recognize and support economic, environmental, and social quality of life in gateway communities that are located around and within Alaska's Federal lands. The intent of this multiagency effort is to promote collaboration on projects and policies. The general concepts reflected in this plan include recognition of the following:

- Many of the Federal lands in Alaska are tourist destinations in tourism-driven economies
- FLMA transportation systems support subsistence and inter-village travel
- There is seasonal variation in transportation choices and hazards associated with winter travel
- Some modes of transportation on Federal lands preserve historic or traditional access, such as dog sleds and ice roads
- FLMAs contribute to educational and recreational opportunities
- Alaska communities and Federal lands are vulnerable to a wide range of natural hazards
- FLMAs may play a role in community and economic development as a result of transportation corridors within their boundaries

Access

Transportation matters in Alaska are especially sensitive to topics of access. Private land is sometimes located within or effectively surrounded by Federal public lands. Access to these places is addressed through specific legal requirements within each land management unit.

Policy also ensures that Alaska Native communities' land and access claims are addressed by state and FLMAs. Such access issues are considered in this LRTP and each agency-specific drop-down plan.

Arctic National Wildlife Refuge. FWS photo.

These concerns evolved from pre-statehood, when nearly all land in Alaska was Federally owned. The 1959 Alaska Statehood Act granted the state the right to select 104 million acres of Federal land. Much of the land selected by the state consisted of lands traditionally used by Alaska Native communities. Contention and several lawsuits arose as a result. This situation finally led to broad Alaska Native community objections and resulted in a freeze on further state land selections until Congress could settle the Native claim issues.

In 1971, Congress passed the Alaska Native Claims Settlement Act (ANCSA), a fundamental purpose of which was resolution of Native land claims. ANCSA provides for the conveyance of approximately 44 million acres of public land and nearly $1 billion to distribute to the Native corporations. ANCSA Section 17(b) reserves public trail easements across lands conveyed to Native corporations as a means of access to public lands. Section 17(d)(2) also provided for the withdrawal of 80 million acres of unreserved public lands suitable for addition to or creation as national parks, fish and wildlife refuges, national forests, and wild and scenic rivers.

In 1980, Congress enacted the Alaska National Interest Lands Conservation Act (ANILCA), which created 21 new conservation system units, designated 3,210 miles of wild and scenic rivers, 57 million acres of wilderness areas, and expanded 12 existing parks and refuges, influencing over 157 million acres in Alaska.

The FLMAs involved in this LRTP recognize the importance of ANILCA and carefully consider the Act in addressing access issues in this and subsequent transportation plans. The full text of ANILCA Title VIII, XI, XIII, and ANCSA Section 17(b) is in Appendix A of this document.

Authority for Long-Range Transportation Planning

Title 23 United States Code (USC)—Highways, and Title 49 USC, Chapter 53—Public Transportation, include most of the laws that govern transportation planning for the Federal-Aid Highway Program (FAHP), and the Public Transportation Program, respectively. The provisions under each Title establish similar requirements for states and Metropolitan Planning Organizations (MPOs) for transportation planning.

Beginning with the passage of the Moving Ahead for Progress in the 21st Century Act (MAP-21) in 2012, and as further supported by the enactment of the FAST Act in December 2015, FLMAs are required to develop and implement transportation planning processes and procedures that generally are consistent with the currently adopted metropolitan and statewide planning processes guidance (23 USC §134 and §135). This requires that FLMAs have regional, statewide, or unit-level long-range transportation plans (LRTPs) that inform the inclusion of projects in Statewide Transportation Improvement Programs (STIPs). The STIP is a four-year, fiscally constrained list of Federal-aid projects maintained by states. FLMAs work with FHWA to integrate their projects into STIPs. MAP-21 and the FAST Act also further emphasize the need for multiagency collaboration, breaking down of stove-piped funding, and establishment of transportation system performance metrics.

MAP-21 established two new programs through which the majority of FHWA-directed transportation funds specifically dedicated to system improvements benefiting FLMA units are authorized:

1. **Federal Lands Transportation Program (FLTP)**, which provides funding for transportation projects that facilitate mobility to and within the jurisdictional boundaries for units of five core partners: FS, BLM, U.S. Army Corps of Engineers (USACE), FWS, and NPS. (The FAST Act included the Department of the Interior's (DOI) Bureau of Reclamation (BOR) on the list of eligible recipients for FLTP funding.)
2. **Federal Lands Access Program (FLAP)**, which provides funding for transportation projects for those facilities or services that are owned or maintained by non-FLMA organizations (typically state DOTs or local government agencies) that facilitate access to Federal lands in each state or territory.

Alaska Marine Highway, MV Aurora. FS photo.

MAP-21 and the FAST Act allow up to five percent of the total annual appropriations funding for the FLAP and FLTP programs to be set aside for strategic planning, bridge inspections, and data collection. One intention of the transportation planning set-aside is to facilitate the collaboration between multiple FLMAs, tribes, state Departments of Transportation (DOTs), and other local transportation agencies in the areas of strategic long-range transportation planning, transportation improvement program development, and transportation facilities condition data collection and assessment.

Planning Scale and Scope

This LRTP is focused primarily on the role of FLMAs. However, it explicitly acknowledges that planning does not occur in a vacuum, and continued collaboration with external stakeholders will be necessary to see the goals set forth in this Plan come to fruition. Jurisdictional boundaries limit the amount of influence FLMAs have on the overall transportation networks that provide access to Federal lands. Programs such as the FLAP help to bridge the gap, yet hurdles still exist in developing seamless transport to and from these valued Federal lands. Therefore, the LRTP is intended to be consistent with statewide transportation plans.

Policy and Strategic vs. Project Level Analysis

Transportation planning is conducted at a policy level, plan level, or project level, depending on the application. Each of these three levels of planning require varying levels of outreach to state and local agencies and the public. This *Alaska Federal Lands LRTP 2020-2040* is a strategic and policy-level document, addressing transportation issues for all FLMAs. Long-range policy plans address big-picture topics through guidance and direction for transportation programs.

Plan level activities occur during development of medium-range or long-range plans that analyze specific transportation needs and identify potential project solutions such as land use management plans, comprehensive conservation plans, area long-range transportation plans, MPO LRTPs, borough transportation plans, corridor studies for specific highways or local transit development plans.

Project level activities occur when specific projects are being developed. Planning at this level includes environmental evaluation under the National Environmental Policy Act (NEPA) of 1969, resulting in a categorical exclusion, environmental assessment, or environmental impact statement, depending on the complexity of the project. Further project development activities result in project design and construction.

Long-Range Transportation Plan Relationship to NEPA

By design, this LRTP does not meet the standards required of a standalone NEPA document and does not make project-level recommendations. NEPA-level public involvement and documentation will occur once project-level needs are identified and solutions are considered. At the project-level NEPA stage, however, this LRTP plays a vital role in explaining how project need was identified, which supports NEPA-level project need, purpose, and objective definitions.

While this plan does not identify specific projects for implementation, it does provide a decision-making context to guide planning professionals in making better, more objective investment decisions (i.e., project selection). The information assembled to support this plan and the collective drop-down plans can contribute to future NEPA documentation and analysis.

Audience and Outreach

The primary audience for the LRTP update are the FLMAs who will benefit from having its contents available to inform their individual agency planning processes. Additionally, the Plan also will benefit and have implications for partner agencies and for the millions of visitors to these Federal lands. The FLMAs and their partners each have conducted outreach activities throughout the development of the Plan. The following are a representative sample of the public forums at which the LRTP has been presented and information about the Plan has been shared:

- Transportation Research Board (TRB) Annual Meeting, January 2016, Washington, DC
- Alaska Federation of Natives Conference, November 2016, Fairbanks, AK
- TRB Annual Meeting, January 2017, Washington, DC
- Alaska Aircraft Owners and Pilots Association, March 2017, Anchorage, AK
- Alaska Tribal Transportation Working Group Symposium, March 2017, Anchorage, AK
- Southeast Alaska Tribal Transportation Workshop, April 2017, Ketchikan, AK
- TRB Symposium on the Transportation Needs of National Parks and Public Lands, September 2017, Washington, DC
- Alaska Tribal Conference on Environmental Management, November 2017, Anchorage, AK
- BIA Annual Providers Conference, December 2017, Anchorage, AK
- TRB Annual Meeting, January 2018, Washington, DC
- Alaska Forum on the Environment, February 2018, Anchorage, AK
- Alaska Tribal Transportation Working Group Symposium, April 2018, Anchorage, AK
- BIA Providers Conference, November 2018, Anchorage, AK

Goals and Objectives

System Management: *Provide a long-term transportation system to address current and future land management needs.*

- **Asset management:** Use asset priority and facility condition information as a guide when considering transportation investments that benefit multiple FLMAs.
- **Interagency coordination:** Accomplish annual interagency coordination by setting priorities for needs, exchanging data, and discussing mutual policies to facilitate shared execution and potential economic savings for projects of mutual interest.
- **Asset investment planning:** Consider sustainability of operation and maintenance of new assets in the planning process.
- **Hazard avoidance:** Recognize and avoid conditions that jeopardize asset management or creation of new assets.

User Experience: *Proactively enhance the Alaskan multimodal transportation system experience and connectivity.*

- **User profile:** Collect and analyze user information on an ongoing basis to determine which experiences are most important, relevant to transportation access.
- **Multimodal transportation:** Establish a seamless interagency multimodal transportation system that emphasizes the journey as part of the Alaskan experience.
- **Mobility:** Provide users with safe, efficient, affordable, and agency-appropriate access to and through Federal lands for all users.

Safety and Mobility: *Provide users with safe, efficient, affordable, and agency-appropriate access to and through Federal lands.*

- **Coordinated planning:** Strive for seamless multimodal connections to and across Federal lands in Alaska.
- **User information:** Provide a recognizable interagency multimodal transportation system and effective communication through outreach efforts.
- **Safety:** Transportation infrastructure will provide safe access for the public to and within Alaska's Federal lands.

Environment: *Protect and enhance natural and cultural resources through comprehensive transportation planning and management.*

- **Planning at an appropriate ecosystem scale:** Consider indirect effects on regional areas.
- **Water quality:** Ensure protection of open water, wetlands, and aquifers across Federal lands.
- **Air quality:** Maintain or improve air quality.
- **Habitat:** Avoid, minimize, or mitigate transportation related impacts.
- **Cultural:** Avoid or minimize negative impacts to culturally sensitive human settlements, subsistence areas, cultural landscapes, and historic and archaeological sites while providing appropriate access consistent with protecting said resources.
- **Soils:** Avoid or minimize impacts on permafrost and other at risk soil systems.

Risk and Resilience: *Develop a long-term transportation system that addresses environmental, social, and economic risks.*

- **Risk identification:** Evaluate major risks to transportation systems.
- **Adaptation:** Adapt transportation systems and practices to address extreme weather, environmental hazards, and other risks where appropriate.
- **Mitigation:** Identify and alter transportation practices and activities that contribute to increased risks while continuing to provide for and encourage compatible uses.

Partnerships: Maintain existing mutually beneficial relationships and build future opportunities for collaboration with tribal, Federal, state, local, and other external partners.

- **Partner Coordination:** Coordinate with partners to share resources, data, and expertise.
- **Project Champions:** Coordinate with project champions to support mutually beneficial programs, initiatives, projects, and goal area working group activities.

Sea Ice at Demarcation Bay, Arctic National Wildlife Refuge. FWS photo.

This page intentionally left blank.

System Management

Goal

Provide a long-term transportation system to address current and future land management needs.

Objectives

- **Asset Management:** Use asset priority and facility condition information as a guide when considering transportation investments that benefit multiple FLMAs.
- **Interagency coordination:** Accomplish annual interagency coordination by setting priorities for needs, exchanging data, and discussing mutual policies to facilitate shared execution and potential economic savings for projects of mutual interest.
- **Asset investment planning:** Consider sustainability of operation and maintenance of new assets in the planning process.
- **Hazard avoidance:** Recognize and avoid conditions that jeopardize asset management or creation of new assets.

Dalton Highway. BLM photo.

Introduction

Understanding the unique nature of travel in Alaska is a prerequisite for planning future transportation projects, operations, and maintenance. More than anywhere else in the United States, Alaska depends on a mix of road, trail, rail, marine, snow, and air connections to meet its transportation needs. These multimodal transportation systems provide crucial access to and across Federal lands that support industry, recreation, subsistence, and intervillage travel. As such, Alaska Federal lands transportation systems provide critical support to FLMA missions and local economies.

Alaska's transportation network is extremely multimodal, depending on a mix of road, trail, rail, marine, snow, and air connections to meet users' transportation needs. This multimodal network responds to the state's immense size, challenging physical geography, and extreme climate. Travel in Alaska is often a matter of connecting from one modal system to another. The efficiency of Alaska's multimodal transportation system heavily influences access to Federal lands, which comprise a large majority of the land area of the state, for recreation, economic activity, intercommunity travel, and access to subsistence resources.

Maintaining such a wide variety of assets for which a number of agencies are responsible is a difficult but important task. Because of limited funding and staff resources, it is important for FLMAs and their partners to identify and fund their highest asset management priorities, and to coordinate with partners where possible to achieve project efficiencies.

Baseline Conditions and Trends

Baseline conditions analysis considers the dynamics of use and the roles of transportation modes in efficiently moving people and goods to and through Alaska's Federal lands. Ultimately, it is a matter of condition, importance, and need that determines which transportation assets receive funding. This section provides an overview of Alaska's unique multimodal transportation system and its significance to Alaska Federal lands.

System Overview

The transportation systems that make up Alaska's multimodal network can be broken down into the following modes of travel: roads, trails, aviation, rail, transit, and water. Each mode of travel impacts the ways in which residents and non-residents travel to and within FLMA lands (see User Experience goal area). Any given trip that a user takes to or through Federal lands in Alaska will depend on at least one of these modes; many trips depend on multiple modes of transportation. Therefore, each of these networks are affected by and dependent on all of the others.

Roads

Despite the uniquely multimodal nature of transportation in Alaska, roads provide critical connections for visitors, residents, and commerce alike. According to the Alaska Visitor Statistics Program (AVSP), Visitor Volume and Profile (State of Alaska, 2016), tour bus/van, rental vehicle, and personal vehicle form a significant portion of visitors' travel between sites in Alaska and depend on Alaska's

View of Dalton Highway from Sukakpak Mountain. BLM photo.

Table 1: Miles of Roads by Alaska Public Road Jurisdictions

Jurisdiction	Miles (paved and unpaved)	Percentage of Total
Alaska DOT&PF	5,609	34.4
Borough	3,697	22.7
Indian Nations	2,241	13.7
Municipal	1,854	11.4
U.S. Army	702	4.3
U.S. Forest Service	548	3.4
Bureau of Indian Affairs	476	2.9
Alaska Dept. of Natural Resources	456	2.8
Other local agencies	205	1.3
National Park Service*	162	1
U.S. Navy	169	1
U.S. Fish & Wildlife Service*	102	0.6
Private Agency	60	0.4
Bureau of Land Management*	24	0.1
U.S. Army Corps of Engineers	12	0.1
Other State Agencies	3	0.02
U.S. Coast Guard	2	0
Total	**16,322**	**100%**

*Total as of 2018, all other mileage is as reported in the Certified Report of Public Road Mileage (Alaska DOT&PF, 2012).

Table 2: Miles of Paved and Unpaved Roads and Number of Bridges by FLMA

Asset Type	NPS	FWS	FS	BLM	Total
Paved Roads (miles)	26.2	3.3	18.9	1.2	49.6
Unpaved Roads (miles)	136.4	98.7	2,228.4	23	2486.5
Road Bridges	12	4	543	2	561

road system. Furthermore, residents are dependent upon the use of roads, with 93 percent of the state's population 16 years of age and older being licensed drivers in 2016.[3]

According to the Certified Report of Public Road Mileage (Alaska DOT&PF, 2012), there are 16,301 centerline miles of public-use roads in Alaska, 62 percent of which are unpaved and 38 percent are paved. However, Alaska is exceedingly sparse in terms of roads per square mile of land. Based on FHWA lane mile and U.S. Census land area data, Alaska contains only 0.06 lane miles of road for every square mile of land compared to the national average of 2.47 lane miles per square mile.

Public-use roads are within the jurisdictions of multiple land management agencies, but are predominantly managed by the state and boroughs, as summarized in Table 1. Individual FLMAs do not account for a large number of public roads within the state; collectively, NPS, FS, FWS, and BLM account for only 5.1 percent of Alaska's public roads.

Federal lands with road infrastructure are connected by Alaska's state, borough, and municipal road network. These road connections are essential for access to Federal lands.

Trails

Trails support numerous travel modes including off-highway vehicles (OHV), snow machines, pedestrians, dog sleds, horses, bicycles, paddlers, and boaters. Trails can be land-based or water-based providing access for recreational and non-recreational travel. Land-based trails in Alaska are often designated as winter and/or summer trails. Special trail designations such as a national historic trail offer the opportunity to communicate historic and cultural information about the region while linking communities and providing recreational opportunities that can span multiple jurisdictions and FLMA lands through multiagency coordination and partnerships.

3 U.S. Department of Transportation, FHWA Highway Statistics, Licensed Drivers by Sex and Ratio to Population – 2016, Table DL-1C, published December 2017. https://www.fhwa.dot.gov/policyinformation/statistics/2016/.

Table 3: Miles of Trails and Number of Trail Bridges by FLMA

Asset Type	NPS	FWS	FS	BLM	Total
Trails (miles)	213.2	145.35	1,527.3	873	2758.85
Trail Bridges	40	14	450	14	504

Tanalian Trail, Lake Clark National Park & Preserve. NPS photo.

Steese National Conservation Area, Birch Creek Wild and Scenic River. BLM photo.

The Iditarod National Historic Trail is one such example. Trails may also be designated as an accessible trail, providing those with mobility impairments the opportunity to utilize these resources.[4]

In addition to providing recreational access, many trails in Alaska provide important transportation access to subsistence resources or intervillage travel. For some remote communities, trails are the primary means of accessing neighboring communities or goods and services. Although a large number of trails have been documented throughout Alaska in all jurisdictions including Federal, state, and tribal lands, there are also many undocumented trails.

Table 3 shows the trail mileage and trail bridges for each FLMA in Alaska. This data represents documented trail assets, but there are also many additional trails that are not documented in agency asset management databases. The FS manages by far the largest trail network among FLMAs in Alaska, comprising over half of all Federal trail mileage in the state.

Aviation

Air travel is a critical mode of transportation to and within Alaska. Air travel is possible through a wide range of options, including commercial airlines, air taxis, and personal general aviation. General aviation and air taxis play an important role for in-state travel and are used to access both remote backcountry areas and populated places.

The significance of personal air travel in the state is demonstrated by the high number of registered active aviation pilots found in

4 "Accessible trail" refers to trails designed to meet the requirements of the Americans with Disabilities Act (ADA) or Architectural Barriers Act (ABA).

the state. By a significant margin, Alaska has the highest per capita quantity of pilots at 1.1 per 100 people, whereas the second highest, North Dakota, has less than half that amount at 0.5 pilots per 100 people, and is substantially higher than the national average of 0.2 pilots per 100 people.[5]

Alaska has 567 Federal Aviation Administration (FAA) documented airports, 55 heliports, and 138 seaplane bases.[6] Fourteen percent of these are located on Federal lands (but are not necessarily maintained by FLMAs or open to the public). These facilities provide access to Federal lands through general aviation and are important gateways to remote areas. Undocumented "backcountry" landing strips are also used for accessing remote recreational opportunities and private lands, but were not quantified or located geographically for the purposes of this LRTP.

Communication with public and private associations will be needed to better determine the scope, sensitivity, cost, and liability of securing a higher level of documentation of backcountry airstrips.

Plane at Yukon Flats National Wildlife Refuge. FWS photo.

5 U.S. Census Bureau, Population Division, Table 1. Annual Estimates of the Resident Population for the United States, Regions, States, and Puerto Rico: April 1, 2010 to July 1, 2017 (NST-EST2017-01), Released December 2017; U.S. Department of Transportation, Federal Aviation Administration, U.S. Civil Airmen Statistics, 2017, Table 5 Estimated Active Pilots and Flight Instructors by FAA Region and State December 31, 2017.

6 Federal Aviation Administration. June 6, 2018. *Airport Facilities Data*. https://www.faa.gov/airports/airport_safety/airportdata_5010/

Self-propelled Chugach Explorer Railcar. FS photo.

Rail and Transit

According to the AVSP VII[7], 14 percent of visitors to Alaska utilize rail on their trips. In 2017, the Alaska Railroad transported 506,000 passengers and 4.8 million tons of freight.[8] The Alaska railway system extends 656 miles from Seward to Fairbanks. The privately-owned White Pass and Yukon Route Railroad provides a 21 mile link from Skagway into Canada.

Trains providing access stations to Federal lands serve as a single stage of travel in a multi-stage trip to visit or view Federal lands while en route to a secondary destination. The Alaska railway system provides access to well-known Federal lands such as Denali National Park & Preserve and Chugach National Forest. The Alaska Railroad reported that about one in five visitors to Denali National Park & Preserve in 2015 arrived by train.[9]

7 Alaska Visitor Statistics Program VII: https://www.alaskatia.org/marketing/alaska-visitors-statistics-program-avsp-vii.

8 Alaska Railroad. March 29, 2018. *2017 Annual Report*. https://www.alaskarailroad.com/sites/default/files/Communications/ARRC_Annual_Report_2017_forWeb.pdf.

9 Alaska Railroad. May 15, 2016. *Railroad at a Glance*. https://www.alaskarailroad.com/sites/default/files/Communications/2016_ARRC_Facts-Figures_or.pdf.

According to the Federal Lands Multimodal Catalog, there are six bus or shuttle systems that provide access to Federal lands in Alaska.[10] These include public transit systems that provide access to or near FLMAs – such as the Anchorage People Mover (accessing the BLM's Campbell Tract) and Ride Sitka (accessing NPS's Sitka National Historical Park). Other transit systems are private shuttle systems that provide access to or within Federal lands, such as the shuttle to Mendenhall Glacier in Tongass National Forest. These systems are operated by local municipalities, tribal governments, or by a private entity through a concessions contract or other agreement. While none of these systems are FLMA owned or operated, they provide important access to Federal lands. Transit routes also have specific needs related to FLMA-managed road and parking lot assets, such as pull-offs for stops, dedicated parking spots, or turnaround areas.

Water

Water allows for direct and scenic access by ferries, passage for island barge traffic, flexible access by small craft to coastal areas and rivers, landing sites for seaplanes, and access for snow machines during winter months. The Alaska Marine Highway System – a system of roads and ferry ports operated as a division of the Alaska DOT&PF – is an iconic Alaskan mode of travel for passengers, cars, recreational vehicles (RVs), and OHVs. The system carries vehicles to locations where roads cannot. The Alaska Marine Highway System serves 33 ports along 3,500 miles of coastline from Bellingham, Washington to Unalaska in the Aleutian Island chain. Alaska DOT&PF estimates that the Alaska Marine Highway serves approximately 300,000 passengers and over 100,000 vehicles annually.[11] The Alaska Marine Highway is also used as one stage in a multimodal trip to directly access Federal lands or to view the land from marine vessels. Direct access to Federal lands describes trips that enter Federal land boundaries during the course of a traveler's journey, including out-of-state visitors, residents, and administrative users (e.g. for shuttling workers and supplies). Indirect access describes travelers who view

Alaska Marine Highway System MV Tazlina Vessel. Alaska DOT&PF photo.

Federal lands while on the Alaska Marine Highway, but never set foot on the lands. This type of access is sometimes accompanied by interpretation services offered on some ferry routes.

Small watercraft are frequently used to access Federal lands. Such access does not require the use of formal harbors or ports and is therefore a popular mode of travel for remote access of Federal lands for recreation. Inland waterways are therefore important corridors for water based travel. By a significant margin, Alaska has the most miles of navigable inland waterways in the country. According to the USACE, Alaska has 15,400 miles of inland waterways whereas the second highest state, Louisiana, has about one-third as much, 5,334 miles. The national average for inland waterways is 837 miles per state.

In addition to the extensive Alaska Marine Highway System, smaller water taxis such as the privately owned Russian River Ferry provide desired services to residents and visitors. The Russian River Ferry is located adjacent to Chugach National Forest and Kenai National Wildlife Refuge National Wildlife Refuge, and it provides access to the popular Russian River fishing area and the nearby Russian River

10 USDOT Office of Federal Lands Highway. *Federal Lands Multimodal Catalog Access Database*. https://flh.fhwa.dot.gov/programs/flpp/.
11 Alaska Department of Transportation & Public Facilities. 2015. *Annual Traffic Volume Report*. https://issuu.com/alaskamarinehighwaysystem/docs/atvr_15/4.

campground in Chugach National Forest. The Russian River Ferry is a privately owned concessionaire through Kenai National Wildlife Refuge that is operated by a permit.

Other Systems

In addition to the modes of transportation already discussed, there are a few smaller transportation systems that provide access to Federal lands. These systems include a vehicle-railroad tunnel, aerial tram, and bikeshare.

The Whittier Tunnel (Anton Anderson Memorial Tunnel) is a 2.5 mile single-lane tunnel, originally constructed in 1943 to provide military access to the Port of Whittier via rail. In 1998 it was opened to vehicles after a vehicular road was constructed to access the tunnel. The tunnel now operates as a combined vehicle and railroad tunnel. Prior to construction of the access road vehicles were transported through the tunnel on flatbed train cars.[12] The Whittier Tunnel provides access between Portage and Whittier, Alaska.

Chugach National Forest, Alaska Railroad Glacier Discovery Train Tunnel. FS photo.

12 Alaska Department of Transportation & Public Facilities. "Whittier Access Tunnel." http://www.dot.state.ak.us/creg/whittiertunnel/index.shtml.

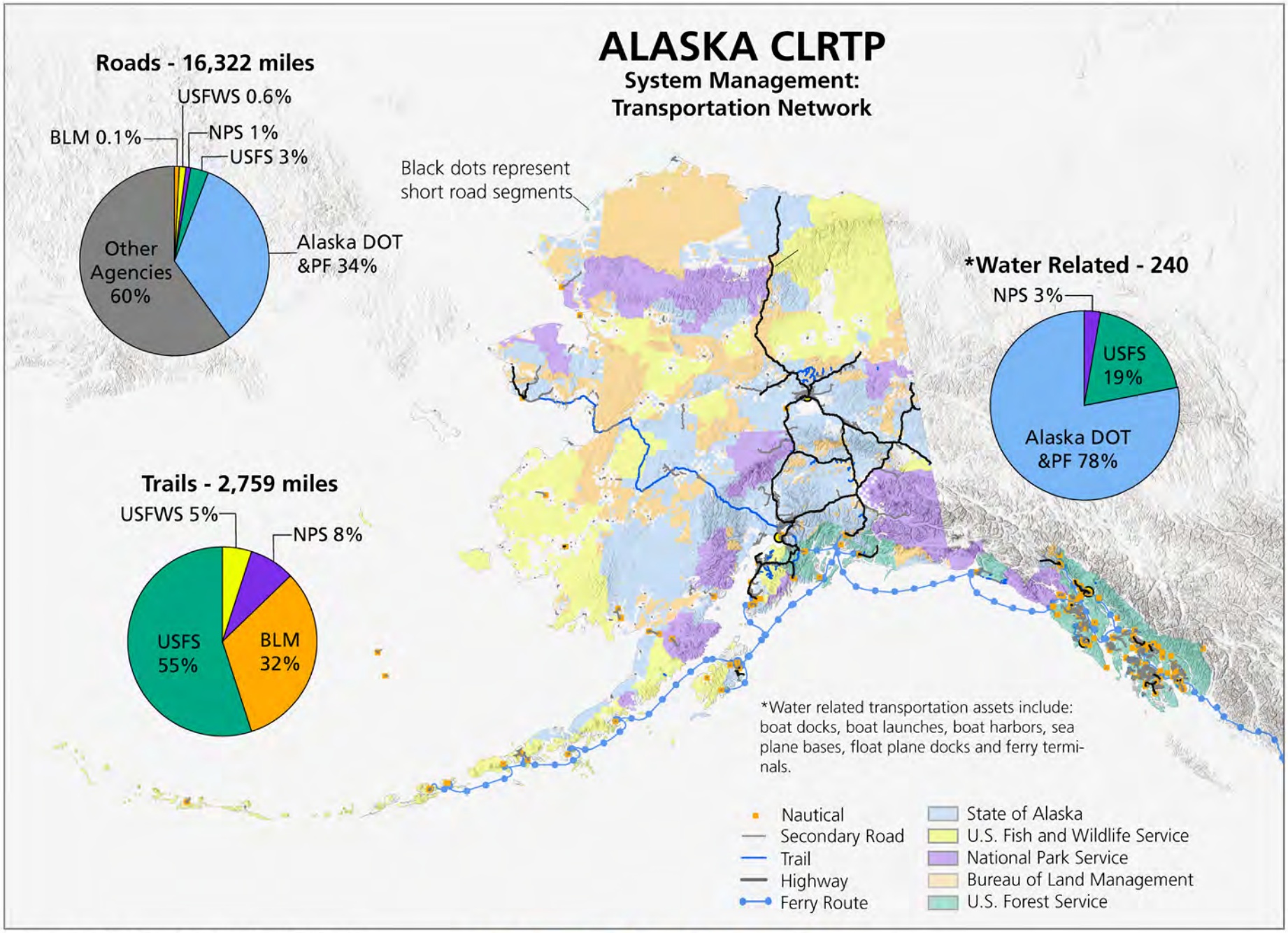
Girdwood Hand Tram. USDOT photo.

Mount Roberts Tramway is an aerial tramway that opened in 1996 and provides seasonal services taking passengers 1,800 feet from its based on the south side of downtown Juneau into the Tongass National Forest. Located near the cruise ship dock, it offers visitors a unique experience into the National Forest that they may not otherwise get to experience with limited time at each cruise stop.[13]

Bikeshare programs offer another way for both visitors and residents to get around. In some cases bikeshare programs are a tourist attraction in themselves for visitors. Fairbikes bikeshare[14] currently operates several docking stations within Fairbanks providing access to the downtown and also to the University of Alaska Fairbanks. Alaska's seasonal weather, distance between population centers, and lack of bicycle infrastructure can be a challenge for operating a bikeshare system in many locations. Although there are currently very limited bikeshare systems accessing Federal lands in Alaska, this may be an area of growth in the future – particularly in locations where communities are in relatively close proximity to Federal lands.

13 Mount Roberts Tramway. http://mountrobertstramway.com/.
14 Republic Bike, Lock+Dock Profile: Fairbikes. http://www.republicbike.com/sharedbike_lock_and_dock.asp.

Figure 3. Alaska CLRTP Transportation Network



Asset Management Priorities and Investment Planning

All FLMAs in Alaska face a common challenge: with limited amounts of funding, FLMAs have to make strategic investment decisions to manage their transportation systems. While specific project prioritization processes differ between agencies, each agency has a process to identify priority transportation assets for investment based on which assets are most critical to agency missions.

It is also important for FLMAs to consider the full life-cycle of an asset when making investment decisions. In the case of a road or similar infrastructure, this would include building, maintaining, and operating the asset until it needs replacement. In the case of a transit system this could include the capital cost of vehicle purchase as well as the cost of operations, maintenance.

Asset Priority Index

FLMAs within the DOI utilize an Asset Priority Index (API) which ranks assets based on their importance to serving each agency's mission and goals. The API is used to rank owned and leased real property and is applicable to existing and proposed assets. The API scale ranges from 0 to 100, where 100 is the highest importance. The scale is used to prioritize assets, the result of which decision-makers incorporate into asset funding, best use, and disposal decision-making.

Functional Class

Functional classes (FC) are labels used to describe types of surface roads. The labels denote the utility of a given road. A road segment is given an FC of 1 through 8, which reflects a qualitative description of the purpose that given road serves within the larger transportation system. FCs can be used to determine priority if a park values certain types of roads over others.

Facility Condition Index

Facility condition index (FCI) is another way for an agency to objectively benchmark a facility's condition with respect to the condition of other facilities. The FCI value can be calculated by dividing the cost of necessary maintenance and repair obligations demanded of a facility by the current replacement value of that facility (what it would cost to re-construct today). Usually, a facility's FCI will be a number between 0 and 1. A score of more than 1 would mean that the facility in question costs more to maintain than it would to rebuild. In many cases, an asset's value is not necessarily its utility, rather many transportation assets have a cultural and historical value that cannot be measured in dollars.

Interagency Coordination

Because many travel corridors to and within Federal lands in Alaska are multijurisdictional – including multiple FLMAs, Alaska DOT&PF, municipalities, boroughs, tribes, and private land owners – it is important for FLMAs to collaborate with partners to manage these assets as a coherent system. This involves developing a shared understanding of the uses and importance of the system and the potential to achieve project efficiencies by coordinating maintenance and capital projects.

In Alaska, the FLMAs and their partners have established strong collaborative relationships, described in more detail in the Partnerships goal area. This includes regular teleconferences, collaboration on long-range transportation planning, and annual project coordination meetings where partners review their respect programs of projects. The FLMAs and their partners have also worked to coordinate opportunities from multiple funding programs – including the FLTP, FLAP, Transportation Alternatives Program (TAP), and others. The ultimate goal of these efforts is to optimize the utility of transportation investments that support LRTP goals and objectives, leverage partnerships to access diverse funding streams, and ultimately create cost efficient construction scenarios.

Natural Hazards and Resilience

System management also requires consideration of risks to assets from hazards such as extreme weather conditions, seismic and volcanic hazards, and geotechnical hazards (e.g., landslides or rockslides). New projects should be designed to avoid hazards or with resilience measures to avoid catastrophic failure. High-priority assets in high risk areas should be evaluated for context-appropriate solutions that increase their resilience. See the Risk and Resilience goal area for additional information.

Collaborative Asset Management in Practice: Herman Leirer Road, Seward, Alaska

Herman Leirer Road, near Seward, Alaska, is an example of a multijurisdictional road corridor that requires coordination between multiple land owners and transportation agencies. The road provides sole road access to Exit Glacier in Kenai Fjords National Park. The road is 13 miles long from Highway 9 (Seward Highway) to the Exit Glacier Visitor Center and passes through land owned by private landowners, the Alaska Department of Natural Resources, Chugach National Forest, and Kenai Fjords National Park. Alaska DOT&PF manages the land to the boundary of the national park, and NPS manages the remainder of the road. To effectively manage the road, it is therefore necessary for all of the agencies along the road to coordinate on operations, maintenance, and planning for future projects.

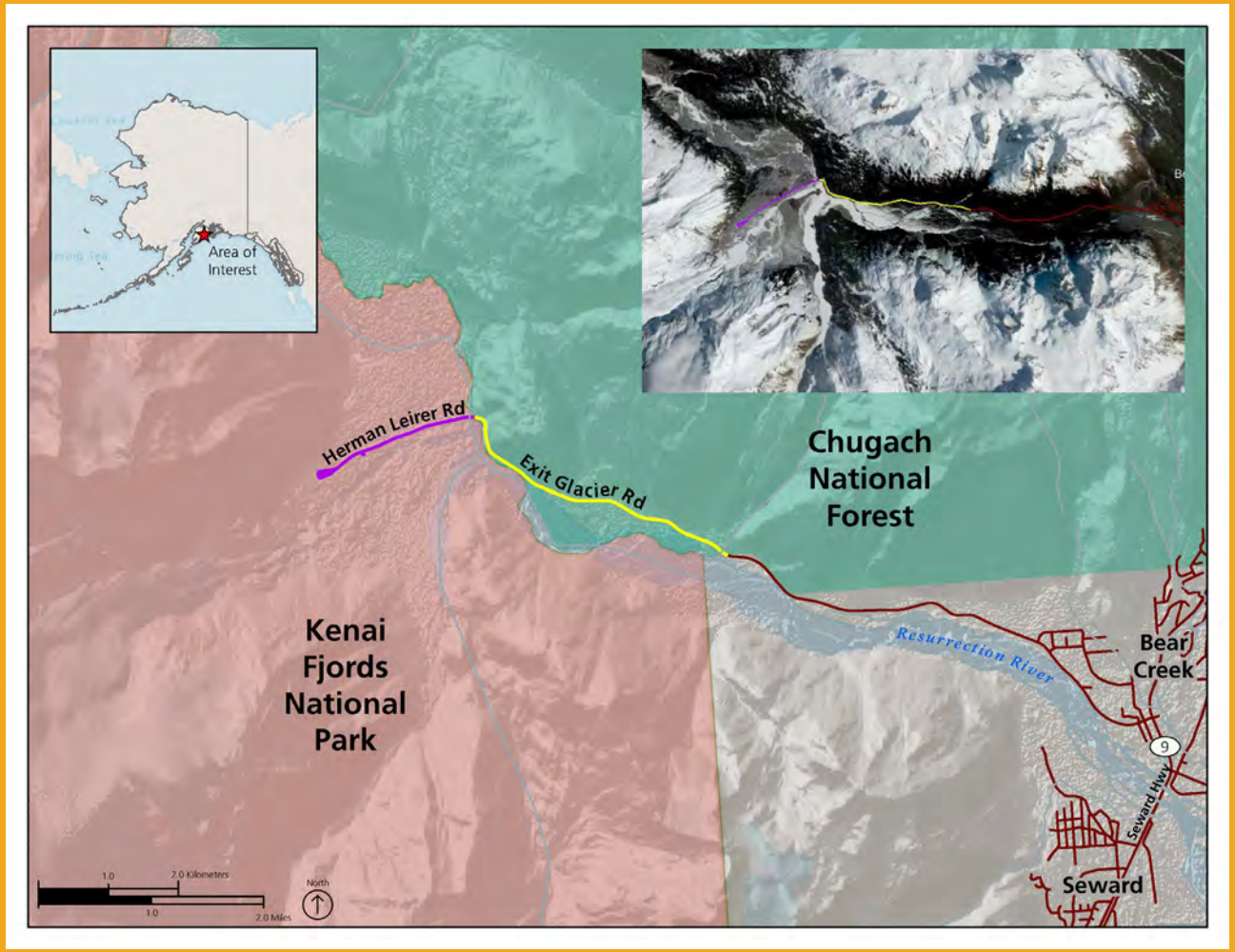
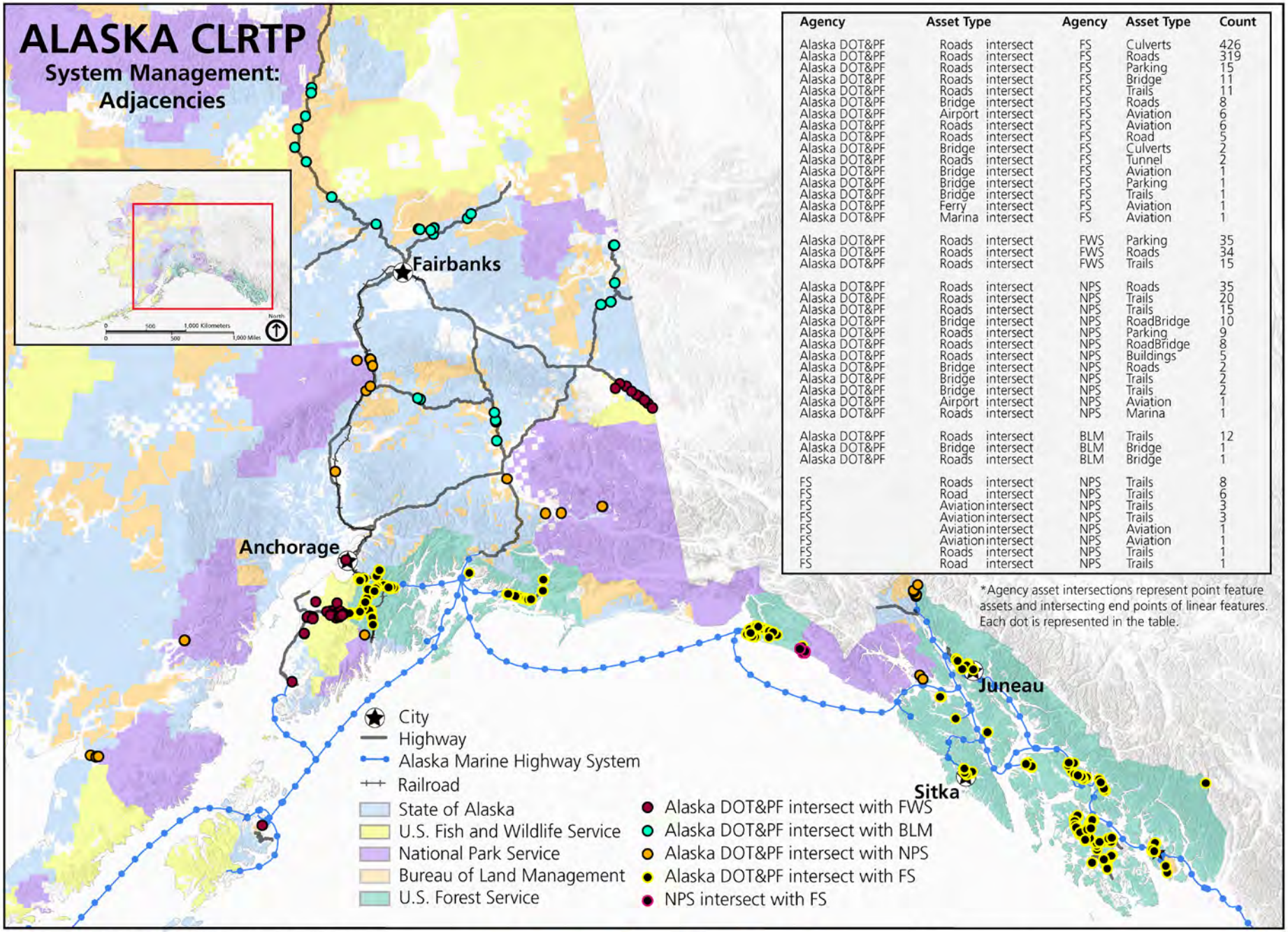


Figure 4. Alaska CLRTP System Management: Asset Adjacencies



Agency	Asset Type		Agency	Asset Type	Count
Alaska DOT&PF	Roads	intersect	FS	Culverts	426
Alaska DOT&PF	Roads	intersect	FS	Roads	319
Alaska DOT&PF	Roads	intersect	FS	Parking	15
Alaska DOT&PF	Roads	intersect	FS	Bridge	11
Alaska DOT&PF	Roads	intersect	FS	Trails	11
Alaska DOT&PF	Bridge	intersect	FS	Roads	8
Alaska DOT&PF	Airport	intersect	FS	Aviation	6
Alaska DOT&PF	Roads	intersect	FS	Aviation	6
Alaska DOT&PF	Roads	intersect	FS	Road	5
Alaska DOT&PF	Bridge	intersect	FS	Culverts	2
Alaska DOT&PF	Roads	intersect	FS	Tunnel	2
Alaska DOT&PF	Bridge	intersect	FS	Aviation	1
Alaska DOT&PF	Bridge	intersect	FS	Parking	1
Alaska DOT&PF	Bridge	intersect	FS	Trails	1
Alaska DOT&PF	Ferry	intersect	FS	Aviation	1
Alaska DOT&PF	Marina	intersect	FS	Aviation	1
Alaska DOT&PF	Roads	intersect	FWS	Parking	35
Alaska DOT&PF	Roads	intersect	FWS	Roads	34
Alaska DOT&PF	Roads	intersect	FWS	Trails	15
Alaska DOT&PF	Roads	intersect	NPS	Roads	35
Alaska DOT&PF	Roads	intersect	NPS	Trails	20
Alaska DOT&PF	Roads	intersect	NPS	Trails	15
Alaska DOT&PF	Bridge	intersect	NPS	RoadBridge	10
Alaska DOT&PF	Roads	intersect	NPS	Parking	9
Alaska DOT&PF	Roads	intersect	NPS	RoadBridge	8
Alaska DOT&PF	Roads	intersect	NPS	Buildings	5
Alaska DOT&PF	Bridge	intersect	NPS	Roads	2
Alaska DOT&PF	Bridge	intersect	NPS	Trails	2
Alaska DOT&PF	Bridge	intersect	NPS	Trails	2
Alaska DOT&PF	Airport	intersect	NPS	Aviation	1
Alaska DOT&PF	Roads	intersect	NPS	Marina	1
Alaska DOT&PF	Roads	intersect	BLM	Trails	12
Alaska DOT&PF	Bridge	intersect	BLM	Bridge	1
Alaska DOT&PF	Roads	intersect	BLM	Bridge	1
FS	Roads	intersect	NPS	Trails	8
FS	Road	intersect	NPS	Trails	6
FS	Aviation	intersect	NPS	Trails	3
FS	Aviation	intersect	NPS	Trails	3
FS	Aviation	intersect	NPS	Aviation	1
FS	Aviation	intersect	NPS	Aviation	1
FS	Roads	intersect	NPS	Trails	1
FS	Road	intersect	NPS	Trails	1

Looking Ahead

Alaska's FLMAs identified the following actions that they will pursue to meet the objectives of the System Management goal area:

- ***Asset Data Coordination:***
    - Share asset definitions across agencies to facilitate greater understanding of partner transportation systems.
    - Coordinate for increased compatibility of asset data.
- ***Collaborate to Evaluate Fish Passage Barriers at a Watershed Level*** through completing a culvert inventory and compiling existing watershed documentation. Conduct an inventory of culverts across FLMA units to identify locations and conditions, where culverts are not properly sized to accommodate expected flow levels, and where culverts and other transportation infrastructure poses fish passage barriers. Create a set of best practices for culvert management and maintenance.
- ***Complete Gravel Roads Condition Assessment*** for Federal lands in Alaska that generates actions to improve condition and contribute to performance management.

Performance Management

Performance measures for the System Management goal area include:

- Percent of paved road miles in good / fair / poor condition
- Percent of bridges in good condition or better
- Percentage of bridges in poor condition
- Completion of pilot gravel roads condition assessment
- FLMA units with agency-appropriate asset-level vulnerability assessments completed

Taylor Highway at Mount Fairplay Wayside. BLM photo.

User Experience

Goal

Proactively enhance the Alaskan multimodal transportation system experience and connectivity.

Objectives

- **User profile:** Collect and analyze user information on an ongoing basis to determine which experiences are most important, relevant to transportation access.
- **Multimodal transportation:** Establish a seamless interagency multimodal transportation system that emphasizes the journey as part of the Alaskan experience.
- **Mobility:** Provide users with safe, efficient, affordable, and agency-appropriate access to and through Federal lands for all users.

Delta Wild and Scenic River Wayside. BLM photo.

Introduction

Alaska Federal lands offer unique experiences for both recreational visitors and non-recreational users. These users include Alaska resident recreational users, non-resident recreational users, economic users, and Alaska resident subsistence users.

Alaska's transportation system is unique because it is truly multimodal and an integral part of the user experience. Users may arrive to Federal lands in Alaska by cruise ship, ferry, road (paved or unpaved), plane, or even by snow machine or dog sled. Further, there are seasonal variations that dramatically affect transportation systems. Due to this complexity, it is crucial for FLMAs to consider the transportation network holistically rather than focusing on one mode or one type of user.

One important aspect of the experience a user has when on Federal land in Alaska is communication. In order for a user to rely on a safe and efficient transportation system, the user needs to be well-informed about what to expect. Road closures, inclement weather, and wayfinding all contribute to a user's experience when on Federal land. To support such a system, it is important for FLMAs and their partners to effectively communicate travel and safety conditions and to manage users' expectations for their travel experience.

Baseline Conditions and Trends

The baseline conditions and trends established in this section rely heavily on the results of the *Collaborative Visitor Transportation Survey (CVTS): Results from Summer 2016 Alaska Survey, March 1, 2018* report. This report is the product of the multiagency collaboration to implement the 2012 Alaska Federal Lands LRTP, which called for developing baseline data to better understand users' experiences traveling to and within Federal lands in Alaska.

User Profile

Most users of Alaska Federal lands can be classified into one of three categories: Alaska resident recreational users, non-resident recreational users, and Alaska resident subsistence users. Popularity of activities that users engage in have some notable variations by user type. The use of Federal lands by Alaska resident recreational users is generally characterized as those activities in which one would engage as an extension of their own backyard such as hiking and camping. Recreational activities on Federal lands popular among non-residents overlap a great deal with Alaska resident activities but diverge in several ways as shown in Figure 5. For example, non-residents are more likely to engage in activities more closely associated with tourism, such as commercial aircraft tours ("flight seeing").

Visitation Statistics

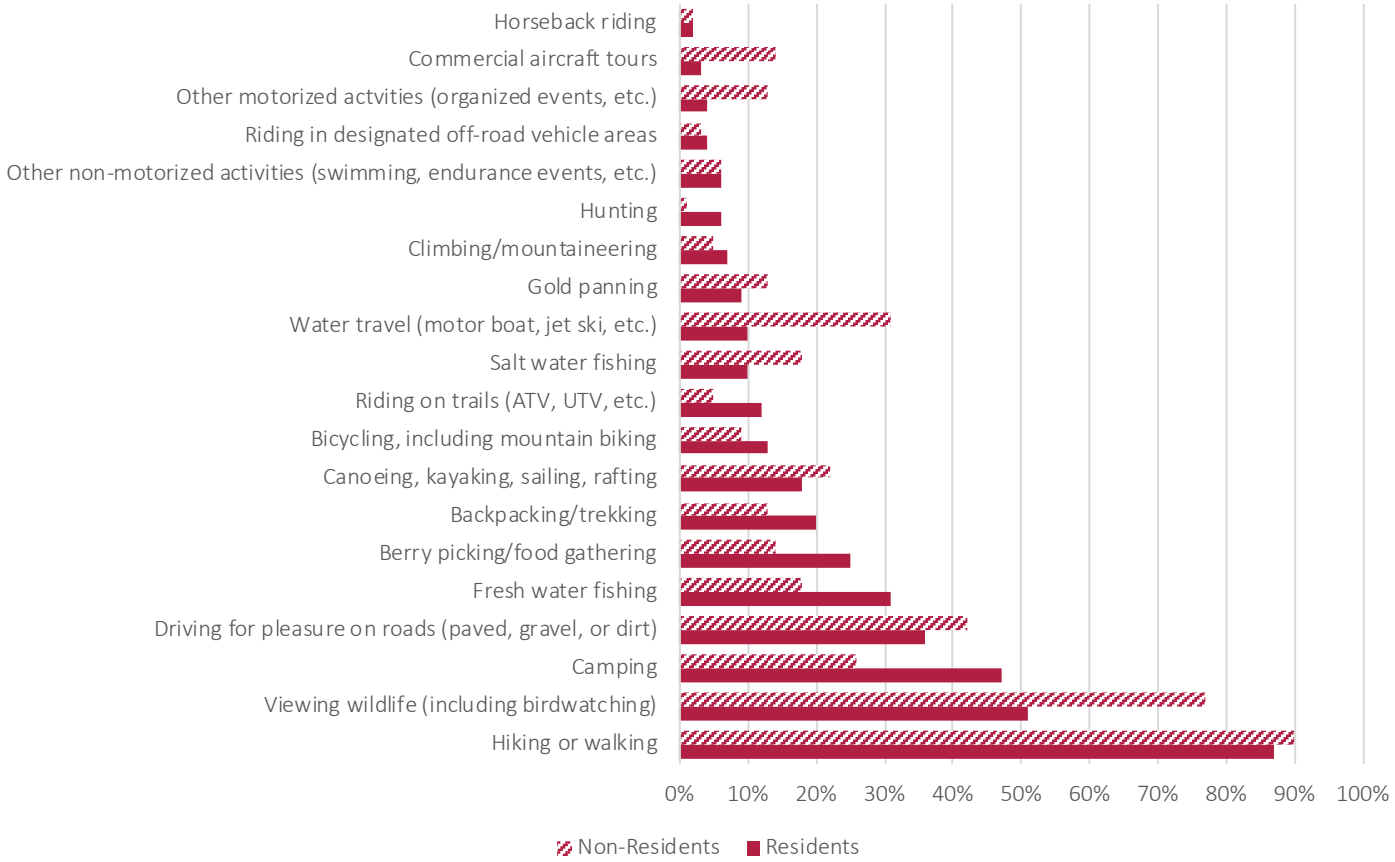
Each FLMA takes responsibility for collecting visitation data on its own land. This type of data collection is particularly difficult in Alaska given the vast amount of land managed by each FLMA across the state. The sheer size of the Federal lands, and in some cases, the integrated nature of the Federal lands with communities, leads to numerous ways to enter and exit Federal lands which cannot all be monitored on a daily basis to track visitation.

Each agency employs its own methodology for collecting data on how many visitors arrive and what they are doing on Federal land. In general, the NPS is able to keep more precise visitation statistics due in part to more limited ingress and egress routes into the parks. NPS breaks down visits into Recreation Visits and Non-Recreation Visits. On average from 2013-2017, NPS sites across Alaska saw approximately 835,000 non-recreational visitors and 2.7 million recreational visitors totaling an average of 3.5 million visits per year.[15] Of the 15 NPS sites reporting visitation statistics in Alaska, Klondike Gold Rush National Historical Park, Denali National Park & Preserve, and Glacier Bay National Park were the top three most visited and accounted for approximately 81 percent of total visitation.

The BLM, on the other hand, manages lands over a more dispersed area. As such, BLM reports visitation in terms of recreation visits and

15 National Park Service (NPS), Public Use Statistics

Figure 5: Recreational Activity Participation in Alaska by Resident and Non-Resident



Source: Collaborative Visitor Transportation Survey (CVTS): Results from Summer 2016 Alaska Survey, March 1, 2018, Figure 21

dispersed visits. A recreation site visit is a visit to BLM lands designated as developed recreation sites containing some component of site management. A dispersed area visit constitutes visits to all other BLM lands, which while open to recreational use are not managed or developed for recreational use. On average, between 2013 and 2017, BLM sites in Alaska saw an average of 440,000 recreation visits and 327,000 dispersed area visits totaling an average of 767,000 visits per year on BLM managed lands.[16]

The FWS, in additional to maintaining total yearly visitation counts, provides a breakdown of different categories of site visits such as hunting or fishing visits, boat launch visits, wildlife observation, photography participants, etc. The average total yearly visitation from 2013 to 2017 to all FWS refuges in Alaska was 1.5 million visits. Of the 16 refuges that the FWS manages in Alaska, one in particular, Kenai National Wildlife Refuge, accounts for 75 percent of total visitation among FWS-managed land in Alaska. [17]

16 Bureau of Land Management (BLM), Public Land Statistics, Table 4-1, editions 2013 through 2017

17 U.S. Fish and Wildlife Service (FWS), Region 7, Alaska Annual Visitation 2013-2017 (from FWS staff)

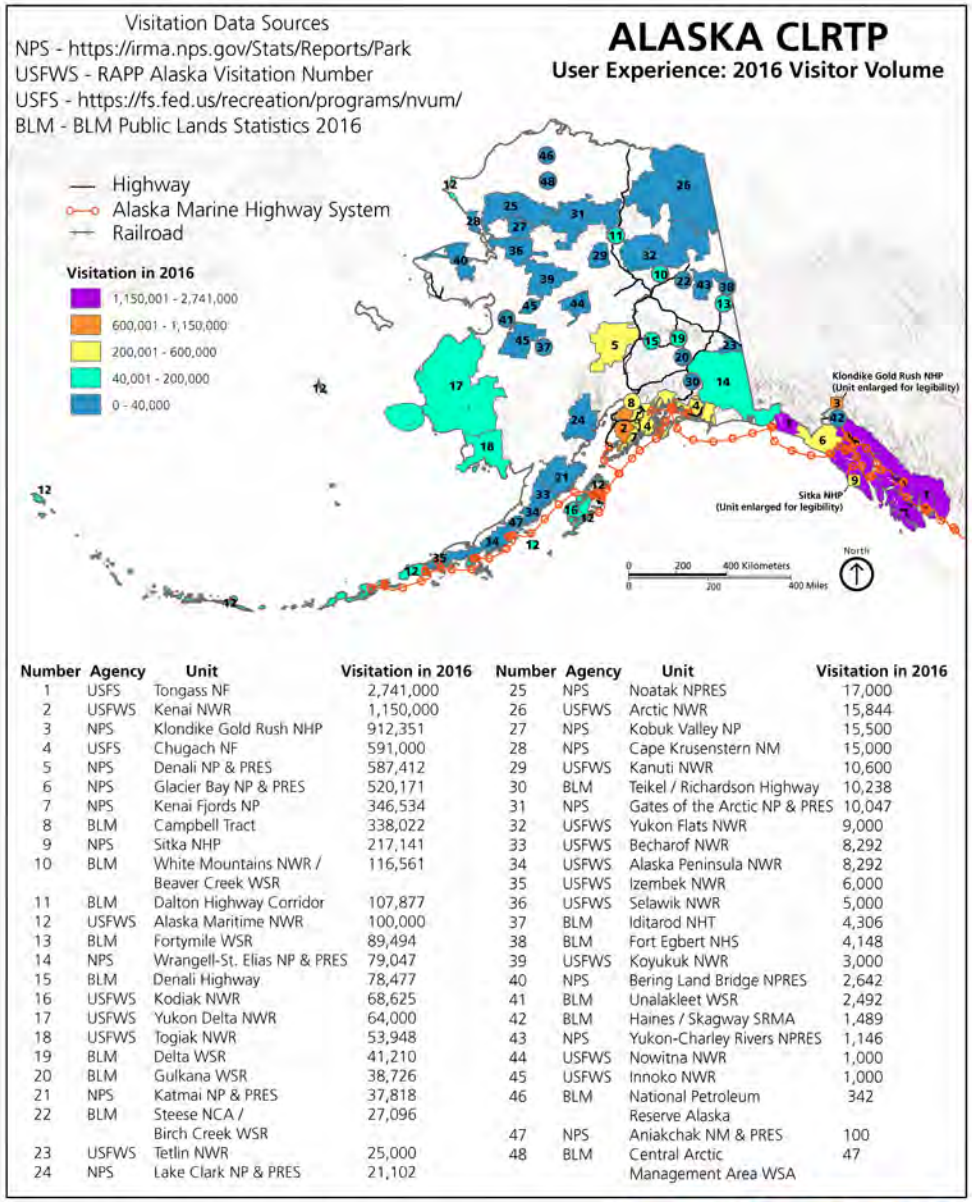
The FS collects visitation data on a rotating basis, sampling each forest once every five years. For this reason, it is difficult to provide precise visitation numbers for the FS Alaska-wide for a single year. Although data is not available on a yearly basis for all units, having snapshots of data is still important for understanding visitation volumes trends over time. In the FS 2012-2016 National Summary Report there were approximately 2.4 million National Forest visits reported per year in Alaska.[18]

Collaborative Visitor Transportation Survey

The Alaska CVTS published in 2018 is a survey measuring user experience related to Alaska Federal lands. The CVTS specifically focuses on transportation-related experiences and was conducted during the summer of 2016 through a multiagency effort. The CVTS was developed as an implementation action in the 2012 LRTP. Completing this action with the publication of the survey results provides detailed baseline data on resident and non-resident visitor experiences accessing and using Alaska Federal lands.

Overall, more than 90 percent of both Alaska residents and non-residents rated their transportation experience arriving at and traveling within an FLMA site as good or excellent according to the CVTS report. Only one percent of both Alaska residents and non-residents rated their transportation experience as poor. Most visitors had no problems with transportation connections (74 percent) or accessing sites/activities (90 percent). Users expressed high levels of satisfaction with all travel modes, particularly train, boat, commercial aircraft, and foot. They also expressed high levels of satisfaction with facilities, especially trails, although there was a slightly lower satisfaction with number of trail markers.

Figure 6: 2016 Visitor Volume by FLMA Unit



Number	Agency	Unit	Visitation in 2016	Number	Agency	Unit	Visitation in 2016
1	USFS	Tongass NF	2,741,000	25	NPS	Noatak NPRES	17,000
2	USFWS	Kenai NWR	1,150,000	26	USFWS	Arctic NWR	15,844
3	NPS	Klondike Gold Rush NHP	912,351	27	NPS	Kobuk Valley NP	15,500
4	USFS	Chugach NF	591,000	28	NPS	Cape Krusenstern NM	15,000
5	NPS	Denali NP & PRES	587,412	29	USFWS	Kanuti NWR	10,600
6	NPS	Glacier Bay NP & PRES	520,171	30	BLM	Teikel / Richardson Highway	10,238
7	NPS	Kenai Fjords NP	346,534	31	NPS	Gates of the Arctic NP & PRES	10,047
8	BLM	Campbell Tract	338,022	32	USFWS	Yukon Flats NWR	9,000
9	NPS	Sitka NHP	217,141	33	USFWS	Becharof NWR	8,292
10	BLM	White Mountains NWR / Beaver Creek WSR	116,561	34	USFWS	Alaska Peninsula NWR	8,292
				35	USFWS	Izembek NWR	6,000
11	BLM	Dalton Highway Corridor	107,877	36	USFWS	Selawik NWR	5,000
12	USFWS	Alaska Maritime NWR	100,000	37	BLM	Iditarod NHT	4,306
13	BLM	Fortymile WSR	89,494	38	BLM	Fort Egbert NHS	4,148
14	NPS	Wrangell-St. Elias NP & PRES	79,047	39	USFWS	Koyukuk NWR	3,000
15	BLM	Denali Highway	78,477	40	NPS	Bering Land Bridge NPRES	2,642
16	USFWS	Kodiak NWR	68,625	41	BLM	Unalakleet WSR	2,492
17	USFWS	Yukon Delta NWR	64,000	42	BLM	Haines / Skagway SRMA	1,489
18	USFWS	Togiak NWR	53,948	43	NPS	Yukon-Charley Rivers NPRES	1,146
19	BLM	Delta WSR	41,210	44	USFWS	Nowitna NWR	1,000
20	BLM	Gulkana WSR	38,726	45	USFWS	Innoko NWR	1,000
21	NPS	Katmai NP & PRES	37,818	46	BLM	National Petroleum Reserve Alaska	342
22	BLM	Steese NCA / Birch Creek WSR	27,096	47	NPS	Aniakchak NM & PRES	100
23	USFWS	Tetlin NWR	25,000	48	BLM	Central Arctic Management Area WSA	47
24	NPS	Lake Clark NP & PRES	21,102				

Produced by National Park Service Denver Service Center Planning Division
Data sources: NPS, Alaska DOT&PF, FWS, USFS, BLM
Date: 5/21/2019

18 U.S. Forest Service (FS), Visitor Use Report, Alaska Region (R10), 2012-2016

Figure 7. Alaska CLRTP User Experience: Visitor Travel Satisfaction

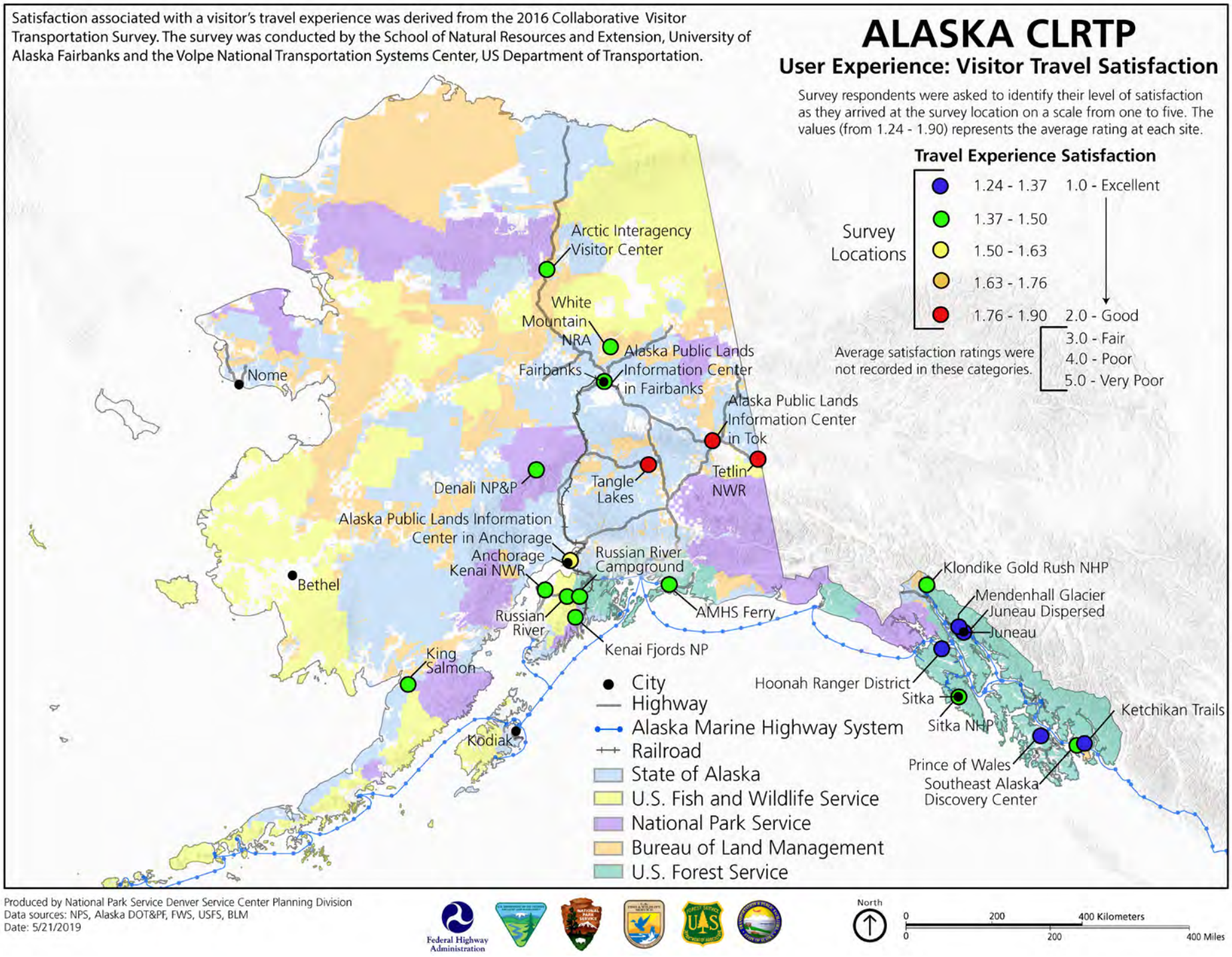
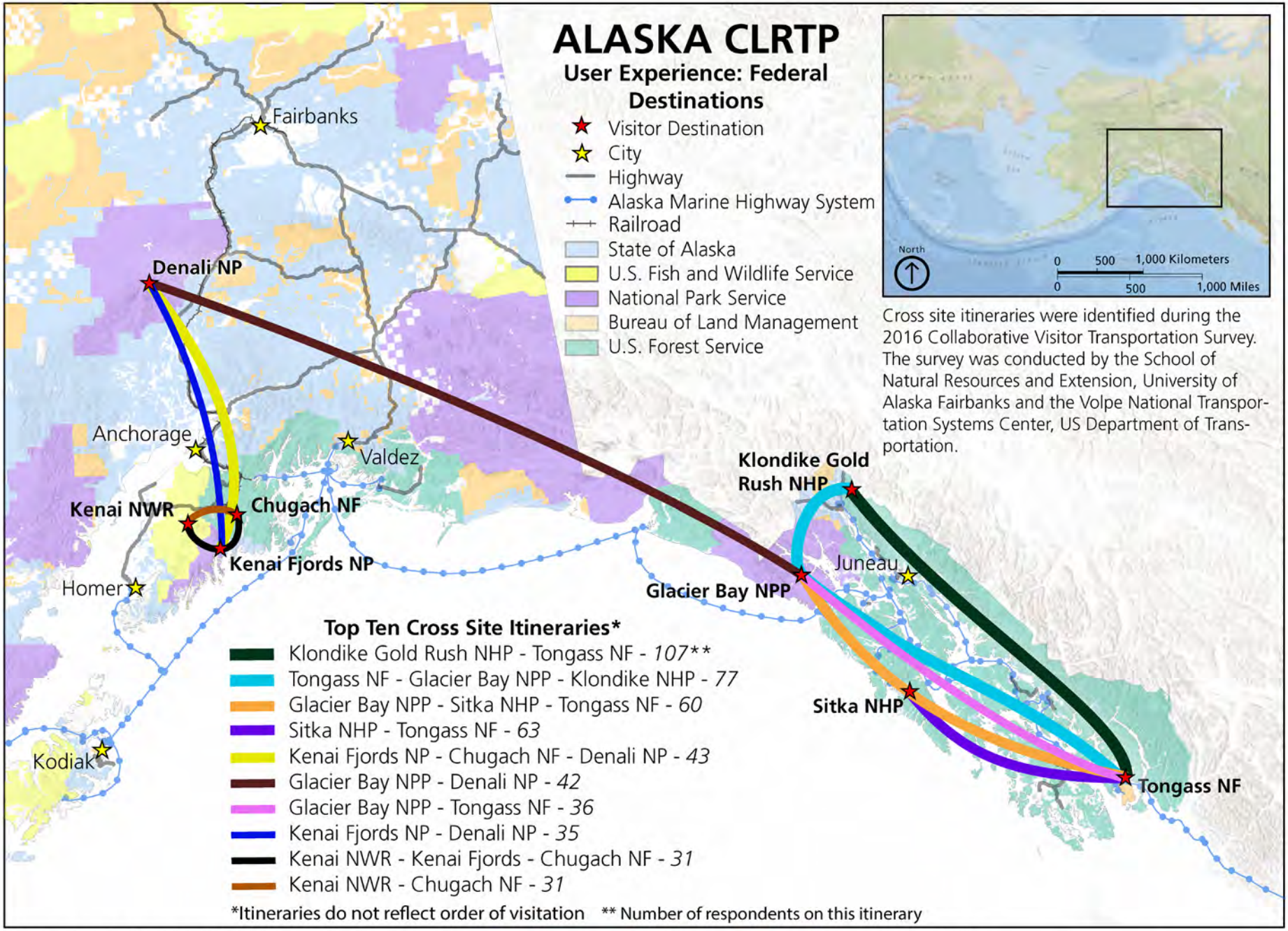


Figure 8. Alaska CLRTP User Experience: Top Ten Cross Site Itineraries for Federal Destinations



Multimodal Transportation Experiences

Visitors arrive to Alaska primarily by one of two modes: cruise ship and air, which constitute approximately 96 percent of visitor trips to Alaska (Figure 9).

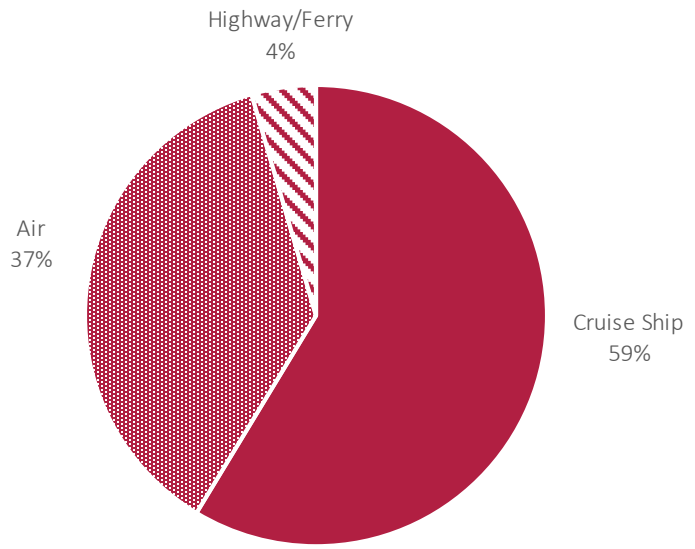
While traveling to Alaska may not be synonymous with traveling to and through Federal lands in Alaska, it does have quite a significant impact. For example, Klondike Gold Rush National Historical Park Visitor Center is located a short distance from a dock at which thousands of visitors disembark from cruise ships in a short period of time. Their mode of arrival impacts how they move through the park and the town of Skagway, since they do not have vehicles and have limited time on shore.

Modes of travel between sites in Alaska is more diverse and evenly distributed. A 2016 study by the AVSP found that most visitors travel between sites by either a personal or rental vehicle, a tour bus, by air, or railroad (Figure 10).

Modes of travel specifically to Federal lands, however, are predominately by private vehicle for both Alaska residents (92 percent) and non-residents (49 percent), as shown in Table 4. Non-residents also utilize walking/hiking, commercial tours, cruise ship, commercial aircraft, and railroad to a greater extent than Alaska residents to access Federal lands demonstrating the preference to use a private vehicle or the fact that multimodal options for Alaska residents may not be as easily accessible due to locations served, frequency, and/or cost.

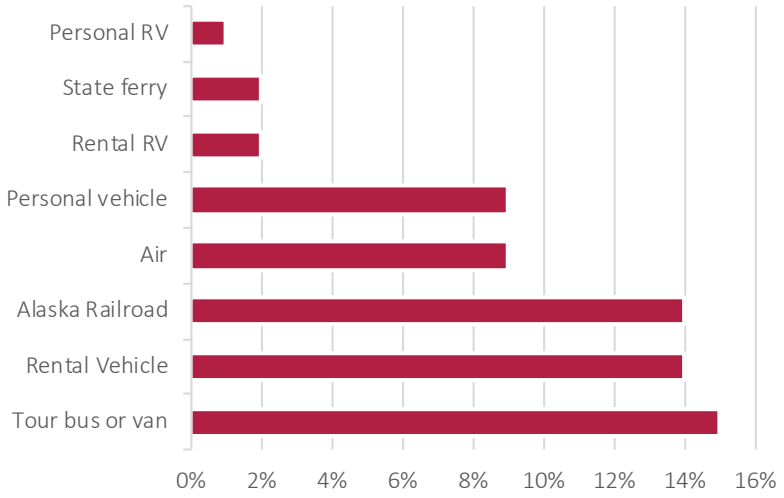
Travel within Federal lands is much more similar between Alaska residents and non-residents with a few notable deviations. Non-residents tend to have a higher usage of commercial tours and the Denali Visitor Transportation System than Alaska residents, and Alaska residents tend to have higher usage of watercraft and all-terrain vehicles (ATVs) than non-residents.

Figure 9: Mode of Visitor Arrival to Alaska, 2011 and 2016 Average



Source: Alaska Visitor Statistics Program VII, p. 3-4, Table 3.2; Alaska Visitor Statistics Program VI, p. III-4, Table 3.3

Figure 10: Visitors' Mode of Travel between Sites in Alaska, 2016



Source: Alaska Visitor Statistics Program VII, p. 4-9, Chart 4.8

Table 4: Types of Transportation Used to Travel to and Within Alaska FLMA Sites by Resident and Non-Resident

Mode of Transportation	Resident		Non-Resident	
	Travel to FLMA	Travel Within FLMA	Travel to FLMA	Travel Within FLMA
Private vehicle (car, truck, motorcycle, RV)	92%	31%	49%	26%
Foot/Hiking	10%	72%	16%	72%
Commercial shuttle/tour bus	1%	3%	15%	12%
Cruise ship	0%	2%	16%	2%
Commercial aircraft (includes air taxi, helicopter)	3%	2%	7%	2%
Alaska/White Pass Railroad	2%	2%	7%	4%
AMHS ferry	3%	2%	5%	2%
Public bus (not including shuttles or trolleys)	0%	2%	2%	2%
Private airplane	1%	2%	2%	1%
Denali Visitor Transportation System	0%	2%	1%	9%
Motorboat	1%	7%	1%	2%
Kayak, canoe, or raft	1%	17%	1%	4%
Bicycle	2%	11%	1%	3%
Other	0%	2%	2%	6%
All-terrain vehicle (ATV) or off-road vehicle	1%	11%	0%	1%

Source: Collaborative Visitor Transportation Survey (CVTS): Results from Summer 2016 Alaska Survey, March 1, 2018, Tables 25 and 29

User Information

Communication is an essential part of managing user experiences on Federal lands. Communication can help users have a more positive experience on Federal lands when they know what to expect whether it is information to assist with pre-planning or tools such as signage and maps that can assist users once they are on-site. Communication of transportation conditions, especially road closures (seasonal, maintenance, or hazard closures), are important for managing user experiences. When users are informed they can alter travel patterns or modify their planned activities accordingly.

User information is disseminated in a variety of ways such as agency websites, social media, maps, signage, intelligent transportation systems (ITS), and partner platforms (e.g., state DOT road weather information system). Due to the remoteness of many Federal lands in Alaska, consideration must be given to the ways in which user information is disseminated as cell phone and internet service may be very limited or not exist at all while traveling to or within Federal lands. For this reason, relying solely on websites and apps to provide up-to-date and real time information may meet the needs for pre-planning a trip, but may have very limited use for someone that is traveling to or within a Federal land where cell phone service does not exist. Having good signage including dynamic messaging with real time safety alerts and closure information; wayfinding signage for parking, trails, amenities, etc.; information stations; and maps that can be downloaded and used off-line are some of the ways in which to communicate with users traveling to or within Federal lands.

Perception of safety is a major part of managing user experiences. CVTS found lack of cell phone coverage cited most often as a safety concern (39 percent), followed by bad weather (16 percent), wildlife encounters (13 percent), and poor road conditions (11 percent).

Table 5 outlines the reasons cited by users that have prevented them from visiting FLMA lands. While the weather and other unforeseen natural hazard events resulting in closures or cancellations cannot be controlled, the results of the survey indicate there may be opportunities to improving information about activities and addressing safety concerns to reduce the number of people who were unable to participate in a planned activity.

Table 5: Reasons Preventing Alaska Residents and Non-Residents from Visiting FLMA Lands

Reasons preventing site visitation	Residents	Non-Residents
Not enough time	45%	52%
Bad weather	27%	23%
Didn't realize how long it would take to travel to destination(s)	9%	16%
Transportation to/from the destination was too costly	18%	11%
Area was closed/road closure	9%	9%
Transportation to/from the destination was not available	9%	7%
Transportation to/from the destination was not frequent enough/convenient	0%	5%
Transportation related mechanical problems	9%	2%

Source: Collaborative Visitor Transportation Survey (CVTS): Results from Summer 2016 Alaska Survey, March 1, 2018, Table 43

Looking Ahead

Alaska's FLMAs identified the following actions that they will pursue to meet the objectives of the User Experience goal area:

- ***Traveler information:*** Coordinate with public and private partners to provide proactive information for all users via a range of media that travelers use.
- ***Access to resources:*** Provide a multiagency approach to guidance for access to subsistence resources, industry, and intervillage travel.
- ***Visitor data:*** Periodically (every five years) administer a collaborative survey of Federal lands transportation users in Alaska. Analyze survey data and share with partners to inform future decision making.
- ***Develop Key Factors of Multimodal Access:*** Develop key factors and data collection for multimodal travel and active transportation (tie-in with safety database); this also includes consideration of concessionaires / private partners, such as shuttle operators.
- ***Monitor Emerging Visitor Use Trends:*** Identify and research the emergence of new visitor transportation trends – such as fat bikes, electric bikes, and changing shoulder season and winter travel patterns – and their implications for Federal lands transportation and safety.

Performance Management

Performance measures for the User Experience goal area include:

- Percentage of users surveyed who rate their transportation experience as good or excellent
    - Baseline: 94% in 2016 CVTS
- Percentage of FLMA unit websites that provide essential traveler information
- Number of projects to provide multimodal access options connecting communities to Federal lands

This page intentionally left blank.

Safety and Mobility

Goal

Provide users with safe, efficient, affordable, and agency-appropriate access to and through Federal lands.

Objectives

- **Coordinated planning:** Strive for seamless multimodal connections to and across Federal lands in Alaska.
- **User information:** Provide a recognizable interagency multimodal transportation system and effective communication through outreach efforts.
- **Safety:** Transportation infrastructure will provide safe access for the public to and within Alaska's Federal lands.

Fat Bikes, Campbell Tract. BLM photo.

Introduction

Each FLMA has specific needs for mobility based on transportation modes, terrain, and use of the land, but all strive to meet the mobility needs of transportation users in a safe and efficient way. Safety is a fundamental component of mobility; without a strong emphasis on safety, better mobility cannot be achieved.

Baseline Conditions and Trends

Coordinated Planning

Coordinated planning for safety and mobility is essential in Alaska because travel in Alaska also requires connections across modes and jurisdictions. Infrastructure and communication systems whose operation and maintenance are well-coordinated can help to create a seamless and safe journey for visitors to Federal lands. The coordinated planning objective will help ensure FLMA units have adequate transportation options for all users, and where possible, have transportation alternatives that serve a diversity of travelers with a range of needs.

Season, geography, and activity all influence how users travel to and across Federal lands in Alaska. For example, a resident may travel by road in a private vehicle, then take a snow machine, and then travel by foot or snowshoe to access remote areas for recreation or subsistence uses. An out-of-state visitor may travel to Alaska on a cruise through the Inside Passage, and upon arrival in Alaska, use public transit, privately operated bus routes, plane, helicopter, or boat tours to visit multiple public lands. Where a fat tire bicycle or cross-country skis may be used in the winter, a mountain bike trail or footpath may be used in the summer. Other winter trails may be inaccessible in the summer. Multimodal trips are commonplace so transportation systems need to be planned appropriately. Modal connections – such as parking lots, transit stops and pedestrian routes – should be as seamless as possible for users.

User Information

Up-to-date user information is crucial to mobility and safety. It is important to provide information about the transportation network, such as which areas can be accessed by road, whether the road is paved, schedules and prices for buses and ferries, weather conditions, and other basic information.

Because travelers may keep apprised of information through various channels, agencies should aim to convey information in a variety of ways, including agency websites, social media, and third party sources such as the Road Weather Information System. Staffed public land information centers are an important channel to disseminate real-time information as well as general local context. In addition, FLMAs coordinate the messages they disseminate through kiosks, brochures, third party applications, and other sources.

Technological advancements, such as smart phones and applications, have made visitor information accessible in new ways and provide new ways for FLMAs to communicate with visitors. However, in many parts of Alaska there is no cell phone service, and the most frequently cited safety issue among CVTS respondents was lack of cell phone coverage. FLMAs in Alaska can improve safety by communicating appropriate expectations for visitors, preparing them to visit areas without cell phone coverage and providing them with the information they need to be safe via other media, such as paper maps or digital road and trail maps for visitors to download prior to leaving cell phone coverage areas.

Education and outreach is an important component of transportation safety and mobility. Visitor information should serve two main purposes:

1. **Communicate long-term conditions:** Educate visitors about the transportation system and general conditions for their trip. This includes how to get to popular visitor destinations and general conditions, such as topography, wildlife, and other safety-related information.
2. **Communicate short-term or real-time conditions:** Inform visitors about current conditions that impact personal safety, such as inclement weather or wildfires resulting in road closures, organized outdoor events, and wildlife migration seasons.

Preparation for visiting rural Alaska may seem daunting to some out-of-state visitors, so FLMAs can help to promote smart travel rather than scare visitors away. Visitor information can educate visitors on what to expect when they travel in Alaska, help them prepare for areas of no cell coverage, and prevent visitors from getting lost or stuck in dangerous conditions. Visitor information can also help visitors look out for other types of road users or wildlife, reducing crash risk. Current information on weather or closures can also help visitors make more informed decisions about whether to visit an area or whether to use alternate routes to avoid specific conditions. FLMAs can ensure visitors to public lands are aware of all the resources available for weather conditions and hazards.

Currently, the majority of FLMAs publish detailed information on what to know before you go to Federal lands in Alaska and post information about travel conditions on their websites. In addition, Alaska DOT&PF shares up-to-date information on road, highway, and ferry service conditions and closures on their website.

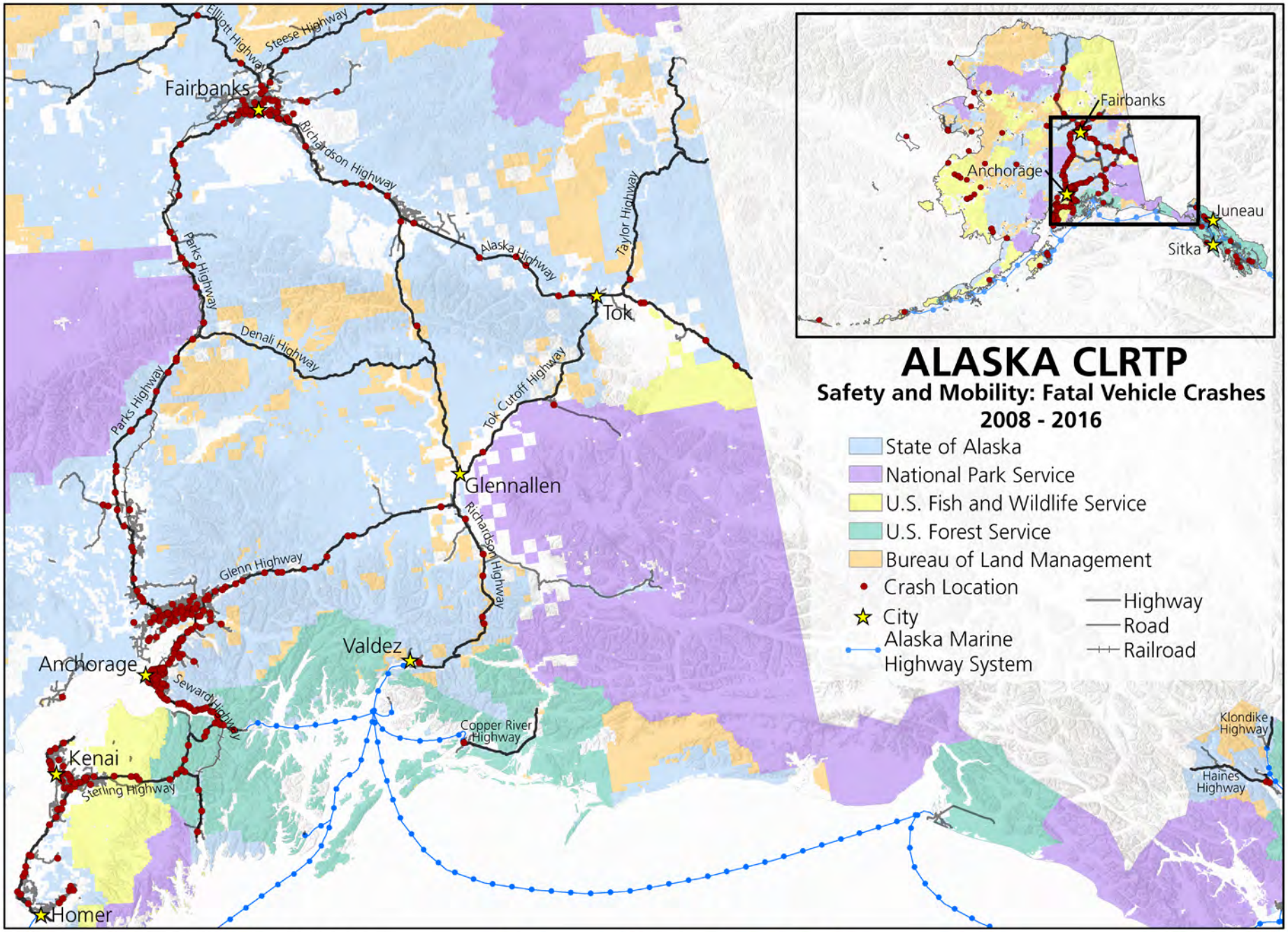
The CVTS reported on several themes related to user information:

- 11 percent of respondents did not visit all sites they had originally planned, due to a variety of factors such as not fully understanding time needed to travel, transportation being too costly, and bad weather.
- To plan trips, respondents used non-Federal websites, Federal websites, word of mouth, maps, and travel guidebooks as the top five resources. Residents relied on knowledge based on previous trips more than non-residents did.
- The top five information sources used during the trip were Federal or state websites, word of mouth, brochures, other websites, and travel guidebooks.
- Independent travelers are more likely to seek information than those on a package tour.
- 63 percent of respondents (both residents and non-residents) reported problems with trying to obtain information on electronic devices.
- 95 percent of respondents reported adequate signage on state highways, while only 88 percent thought signage at ferry terminals was adequate.
- Non-residents in general are significantly more likely than residents to research safety issues prior to travel.

Many of these findings speak to the need for FLMAs to set expectations in terms of safety and mobility and clearly communicate both travel conditions and outlets for information to visitors.

Pinnell Mountain National Recreation Trail. BLM photo.

Figure 11. Alaska CLRTP Safety and Mobility: Fatal Vehicle Crashes 2008-2016



Boating Safety

The Kids Don't Float program is sponsored by a coalition of partners including the FS, the Alaska Department of Health and Social Services, U.S. Coast Guard, Alaska Safe Kids, the Office of Boating Safety, Alaska Native Tribal organizations, private businesses, and community volunteers.

Nearly 200 communities throughout the state participate, with 535 loaner sites for child-sized life jackets available at boat ramps, marinas, river launches, and other places where children may interact with the water.

Alaska's public lands host many of the lakes, rivers, and coastline areas that are popular places for subsistence and recreational fishing, boating, swimming, and other water sports. By offering life jackets for children on public lands, many of the most popular water-related recreational areas are made safer for public use and enjoyment.

Life Jacket Loaner Board. AK DNR photo.

Safety

Transportation planners and engineers use the following framework of "4E's" when considering safety: Engineering, Education, Enforcement, and Emergency Management. Employing this holistic framework helps FLMAs and their partners consider a comprehensive range of opportunities to increase safety for transportation users.

Alaska DOT&PF's Long-Range Statewide Transportation Plan includes safety in three of its nine goal areas, illustrating the importance of this issue for the state. The policies stated aim at improving safety due to natural and man-made disasters, emergency preparedness, and partnering with other agencies to address safety and security. For a baseline on highway safety, the National Highway Traffic Safety Administration (NHTSA) maintains the Fatality Analysis Reporting System (FARS). This database contains information on all motor vehicle crashes nationwide that resulted in at least one fatality. Fatal crashes in Alaska have risen since 2012, while crashes that resulted in serious or minor injuries have declined. Details on crash locations are also reported, which are helpful in addressing location-specific needs. Because Alaska's unique environment demands many other modes of travel, the FARS data needs to be supplemented with multimodal data from other sources to gain a more comprehensive understanding of transportation safety.

Legislative Context

The FAST Act includes requirements for how FLMAs and state DOTs address safety in their planning and performance management.

Planning: The FAST Act requires that state DOTs consider safety in their Long-Range Transportation Plans and develop a Strategic Highway Safety Plan (SHSP). Following the 4E framework, SHSPs use a data driven approach to guide decisions about transportation investments that will improve safety. (The Alaska SHSP is available here[19]) The plan provides information on the system improvement, legislation, and financing needs necessary to implement a strong safety agenda for multimodal transportation in the state. States also receive Federal funds through the Highway Safety Improvement Program (HSIP), through which they fund planning, project implementation, and reporting to achieve a significant reduction

19 Alaska Department of Transportation & Public Facilities. *Strategic Highway Safety Plan*. http://dot.alaska.gov/stwdplng/shsp/index.shtml

in traffic fatalities and serious injuries on all public roads, including non-state-owned roads and roads on tribal land. The HSIP requires a data-driven, strategic approach to improving highway safety on all public roads with a focus on performance.

Performance Management: In 2012, MAP-21 required the USDOT to develop a rulemaking for safety performance management. The HSIP and Safety Performance Management Measures Final Rule, which became effective April 14, 2016, establishes five performance measures as the five-year rolling averages for: (1) Number of Fatalities, (2) Rate of Fatalities per 100 million Vehicle Miles Traveled (VMT), (3) Number of Serious Injuries, (4) Rate of Serious Injuries per 100 million VMT, and (5) Number of Non-motorized Fatalities and Non-motorized Serious Injuries. The Safety Performance Management Final Rule also establishes the process for state DOTs and MPOs to establish and report their safety targets, and the process that FHWA will use to assess whether state DOTs have met or made significant progress toward meeting their safety targets. The Safety Performance Management Final Rule also establishes a common national definition for serious injuries.[20] Alaska DOT&PF has begun to incorporate this and has established performance management systems to meet this requirement. As stated in Alaska DOT&PF's FHWA Performance Measure Baseline Report in 2016, Alaska DOT&PF will adopt the five required safety performance measures and does not plan to develop additional performance measures.[21] The Alaska DOT&PF Performance Dashboard provides updated performance data.[22]

MAP-21 and the FAST Act also require FLMAs to collect and report safety performance data. Although FHWA has not issued guidance on safety performance management for FLMAs, some FLMAs have already begun to develop Safety Management Systems. FLMAs also have the opportunity to collaborate with state DOTs as they implement their safety performance management systems.

Transportation-Related Fatalities

Alaska boroughs for which automobiles are the leading cause of transportation-related fatalities. The smaller circles represent the next-most-common causes.

**These boroughs or census areas have two accident types tied for the first or second most common type of transportation accident.*

20 USDOT Federal Highway Administration. March 15, 2016. Safety- Rulemaking. https://safety.fhwa.dot.gov/hsip/rulemaking/.

21 Alaska Department of Transportation & Public Facilities. October 1, 2016. *Initial State of Alaska DOT&PF Performance Report*. http://www.dot.alaska.gov/stwddes/asset_mgmt/assets/baseline_2016.pdf.

22 Alaska Department of Transportation & Public Facilities. Alaska DOT&PF Performance Dashboard. http://dot.alaska.gov/performance-dash/index.shtml.

Transportation Safety in Alaska Federal Lands

FLMAs face unique safety challenges on their transportation networks in Alaska. Due to the extensive land area that is wild or remote, numerous unpaved roads, reliance on air, water, and snow-based modes, safety hazards are varied and complex. When planning for Federal lands transportation safety in Alaska, FLMAs must consider the unique hazards and multimodal nature of their transportation systems.

One implementation action from the 2012 LRTP was to better understand multimodal transportation fatalities and injuries in Alaska. The multiagency team studied data from the Alaska Department of Health and Social Services Trauma Registry, Alaska Department of Health and Social Services Bureau of Vital Statistics, and Alaska DOT&PF crash records. Analysis from these sources combined provided a comprehensive look at injury and fatality data and made several key findings:

- Motor vehicles were involved in 67 percent of transportation fatalities statewide from 1999 through 2012. This was influenced largely by the most urban and populated areas. Air transport, snow machines, and water transport fatalities each contributed about 10 percent of the total.
- Motor vehicle crashes were the leading cause of transportation fatalities in 20 out of 27 boroughs.
- Transportation fatalities declined statewide roughly 2.6 percent per year during the study period. Fatalities for all modes except ATVs decreased during the study period.
- Motor vehicle crashes were the leading cause of transportation injuries statewide, accounting for 49 percent from 2005 through 2011. All-terrain vehicle crashes were the second leading cause, representing 20 percent transportation injuries statewide. Snow machines and bicycles accounted for 14 percent and 13 percent, respectively.
- Transportation injuries have declined roughly 3.1 percent per year during the study period. Injuries involving motor vehicles, ATVs, snow machines all declined, while injuries involving animal rides increased 1 percent.
- Although motor vehicle crashes are the leading cause of injuries statewide, the leading cause by borough is more variable. Most urbanized boroughs follow the statewide trend, but several boroughs report leading cause of injury by ATVs, snow machines, and one borough (Sitka) by bicycles.

FLMAs, in partnership with the state, are using the information to target safety issues in specific locations, devise, and implement countermeasures. As shown in Figures 12 and 13, the safety concerns vary widely by borough because reliance on transportation modes is associated with the terrain of the region. Countermeasures may cover topics such as reducing vehicle / pedestrian congestion, reducing vehicle / wildlife collisions, improving trail marking and signs, publishing maps and brochures, providing flotation devices, or developing safety messages about wearing a helmet. Eventually, the baseline conditions will be used to measure the impacts of targeted safety improvements. For more information, an executive summary of this safety study can be accessed in Appendix D.

Bridge Inspection. Alaska DOT&PF photo.

Figure 12: Most Common Type of Transportation Related Injuries by Borough

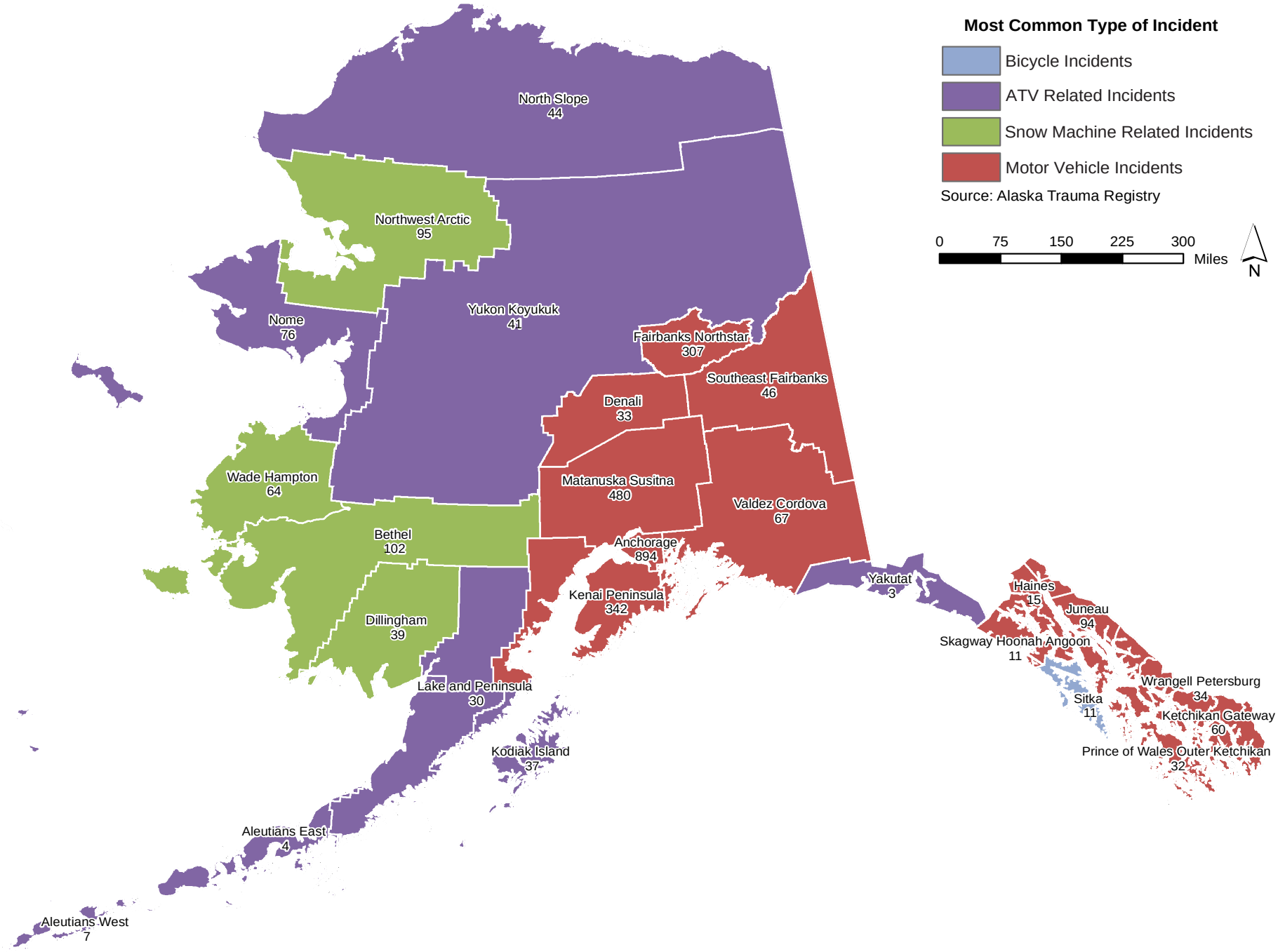
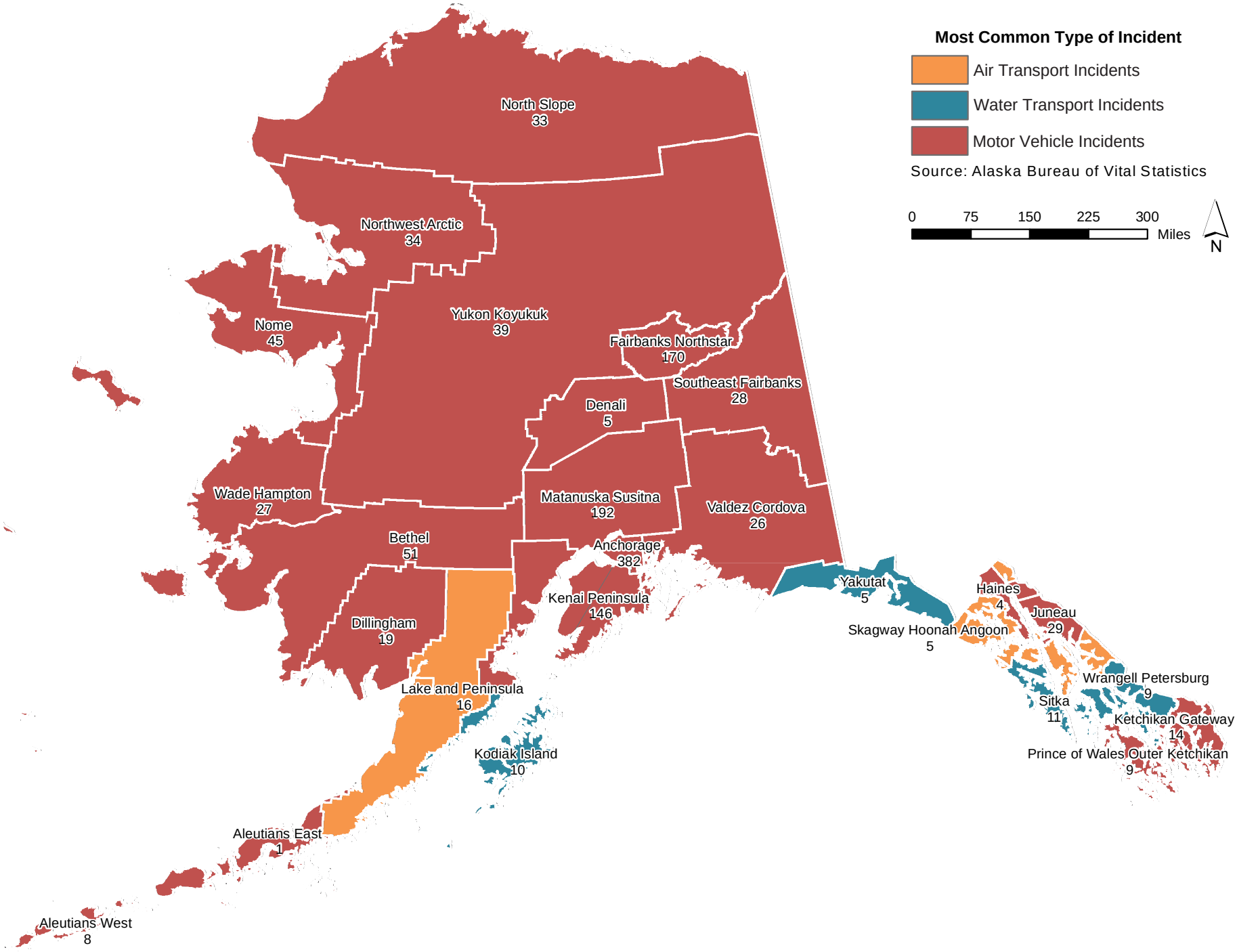


Figure 13: Most Common Type of Transportation Related Fatalities by Borough



Western Arctic Parklands: Place Critical Safety Winter Tripods from Shishmaref to Cape Espenberg and Reconstruct Safety Cabin

Partners: *NPS and Native Village of Shishmaref*

Year: *Begun in June 2017 and completed in September 2017*

Implementation: *The project was completed by working with the Native Village of Shishmaref through an agreement for local hire to provide labor and a youth carpentry project.*

The winter trail between the native communities of Shishmaref, Cape Espenberg, and Kotzebue is used by rural residents as well as visitors traveling through the Bering Land Bridge National Preserve. Cape Espenberg is an important subsistence location, used by indigenous Inupiat people for millennia.

There are no roads out of Shishmaref; travel is by boat or snow machine and can be extremely dangerous due to increased inclement weather and storm events often occurring year-round. Flooding, high winds, whiteout conditions, and extremely low temperatures reaching -50°F with wind chill can make the journey perilous. After a storm in 2006 destroyed the Kividlo cabin, a shelter located at the half-way point, the passage lacked emergency infrastructure.

The new project placed above ground winter trail tripods along the route to help users navigate in inclement weather, as well as a new coastal emergency shelter cabin of 12x16 feet in size. The cabin serves as a shelter for users, and as a base for search and rescue operations by NPS personnel and local Search and Rescue (SAR) organizations. The cabin is equipped with a short-wave radio antenna and survival equipment, allowing SAR workers to respond to emergencies sooner, ensuring safety for Preserve staff and volunteers, and ultimately saving lives.

Western Arctic Parklands Safety Cabin. NPS photo.

Winter Markings Tripods and Adjacent Trail. NPS photo.

Emergency Management & Incident Response

Transportation systems to and within Federal lands also play an important role in emergency management and incident response. Federal lands transportation systems are vulnerable to a variety of environmental hazards, but they also play an important role in incident response, serving as evacuation routes and providing access for emergency responders. This is especially true in Alaska, where many remote communities rely on travel across Federal lands to access nearby communities or transportation networks.

The state of Alaska maintains the Alaska State Hazard Mitigation Plan (SHMP), which analyzes a range of natural hazards and the populations and infrastructure that are vulnerable. The purpose of the plan is to identify and coordinate risk mitigation efforts with state, Federal, and local partners, and includes goals, objectives, and actions to reduce injury and damage from natural disasters. In Appendix E, the Natural Hazards Technical Report gives a summary of natural hazards in Alaska and corresponding resources.

Looking Ahead

Alaska's FLMAs identified the following actions that they will pursue to meet the objectives of the Safety and Mobility goal area:

- ***Traveler information:*** Coordinate with public and private partners to effectively disseminate travel planning and transportation safety information through a variety of media to provide general and location-specific information to users.
- ***Create a Multimodal Transportation Safety Database:*** Collaborate with FLMAs, state, and local partners to collect and analyze multimodal transportation safety data and monitor safety performance for travel to and through Federal lands in Alaska. Where appropriate, link this database with Alaska DOT&PF efforts to monitor and improve safety performance through the Highway Safety Improvement Plan and Strategic Highway Safety Plan.
- ***Transportation Safety Assessments:***
  - Develop and train a multiagency Transportation Safety Assessment team that can conduct multimodal safety assessments of Federal lands transportation safety corridors in Alaska.
  - Develop a clearinghouse for Transportation Safety Assessment reports and data.
  - Conduct periodic evaluation of Transportation Safety Assessment implementation of recommendations.

Performance Management

Performance measures for the Safety and Mobility goal area include:

- Progress towards creation of a multimodal transportation safety database
- Progress towards developing and conducting multiagency Transportation Safety Assessment training
- Number of Transportation Safety Assessments performed
  - Target: one per agency over the next five years
- Funding spent on safety improvements / number of projects that improve safety

This page intentionally left blank.

Environment

Goal

Protect and enhance natural and cultural resources through comprehensive transportation planning and management.

Objectives

- **Planning at an appropriate ecosystem scale:** Consider indirect effects on regional areas.
- **Water quality:** Ensure protection of open water, wetlands, and aquifers across federal lands.
- **Air quality:** Maintain or improve air quality.
- **Habitat:** Avoid, minimize, or mitigate transportation related impacts.
- **Cultural:** Avoid or minimize negative impacts to culturally sensitive human settlements, subsistence areas, cultural landscapes, and historic and archaeological sites while providing appropriate access consistent with protecting said resources.
- **Soils:** Avoid or minimize impacts on permafrost and other at risk soil systems.

Gulkana Wild and Scenic River. BLM photo.

Introduction

Natural and cultural resource management and preservation are key to the missions of FLMAs. Transportation systems are critical to promoting visitors access to these resources, but can also negatively impact them. In Alaska, FLMAs and state and local governments are working collaboratively to avoid, minimize, and mitigate transportation impacts on natural and cultural resources.

FLMAs also consider environmental factors during the project development process. NEPA requires Federal agencies to assess the environmental effects of their proposed actions prior to making decisions. As part of NEPA, agencies identify sensitive resources and strategies to address environmental impacts from transportation projects. FLMAs also comply with other national environmental laws and regulations, such as the Clean Air Act and Clean Water Act, and laws governing cultural and historic resources (e.g., Antiquities Act, National Historic Preservation Act, Native American Graves Protection and Repatriation Act, and Alaska Native Interest Lands Conservation Act).

A key aspect of meeting this plan's goal to "*protect and enhance natural and cultural resources through comprehensive transportation planning and management*" involves identifying natural and cultural resources and determining where they intersect with transportation systems. The NPS Transportation Resource Stewardship Planning Tool (TRSPT) identifies natural and cultural resources that may be affected by transportation. As part of the Alaska LRTP update this tool was piloted in 15 locations, including national parks, FWS refuges, national forests, and BLM sites. Additional data comes from the NPS Transportation Investment Needs Analysis (TINA) tool, a spatial tool that includes a number of data layers covering FLMAs in Alaska.

Baseline Conditions and Trends

The following sections describe current environmental conditions and trends affecting FLMAs in Alaska. It also briefly discusses actions that FLMAs are pursuing within the topics of wildlife and endangered species, cultural and historic resources, soils, air and water quality, and light and noise impacts.

Wildlife and Endangered Species

The variety of habitats present in Alaska, from tundra to boreal forest to marine and coastal environments, are home to countless plant and animal species. Alaska's relative isolation from the lower 48 states allows many species that are at risk or have gone locally extinct elsewhere in the world to thrive. For this reason, Alaska's FLMA units provide a crucial refuge for Federally-listed threatened and endangered species[23] as well as anadromous fish and migratory birds. Some of these species, such as salmon, steelhead and Stellar sea lions support ecosystem function as well as Alaskan fisheries and tourism. They are also integral to subsistence hunting and fishing, and cultural resources for Alaska's indigenous people that the DOI is tasked with managing, protecting and ensuring access to.

23 TRSPT Executive Summary Draft, March 2018

Examples of Threatened and Endangered Species in Alaska

- Stellar's eider (*Polysticta stelleri*)
- Spectacled eider (*Somateria fischeri*)
- Short-tailed albatross (*Phoebastria albatrus*)
- Northern sea otter (*Enhydra lutris kenyoni*)
- Polar bear (*Ursus maritimus*)
- Aleutian shield fern (*Polystichum aleuticum*)
- Eskimo curlew (*Numenius borealis*)
- Wood bison (*Bison bison athabascae*)
- Beluga Whale (*Delphinapterus leucas*)
- North Pacific Right Whale (*Eubalaena japonica*)
- Blue Whale (*Balaenoptera musculus*)
- Bowhead Whale (*Balaena mysticetus*)
- Sei Whale (*Balaenoptera borealis*)
- Fin Whale (*Balaenoptera physalus*)
- Stellar Sea Lion (*Eumetopias jubatus*)
- Leatherback Sea Turtle (*Caretta caretta*)

Spectacled Eider, Yukon Delta National Wildlife Refuge. FWS photo.

Polar Bears Along Beaufort Sea. FWS photo.

Transportation features such as roads can have an adverse impact on fish and wildlife through loss of available habitat and habitat fragmentation. Habitat fragmentation occurs when transportation features break up a landscape into smaller habitat patches that decrease the range of movement and breeding population size of wild populations. Fragmented landscapes also create hazardous crossing conditions that can threaten wildlife and human safety by increasing the chances of wildlife-vehicle collisions.

In Alaska, the majority of recorded wildlife-vehicle collisions involve moose and other large mammals such as caribou, bear, and bison. Although there is no comprehensive data on wildlife-vehicle collisions on FLMA-owned or managed roads in Alaska, the Alaska Department of Fish and Game estimates that an average of 800 moose are killed annually by vehicles on all public roads throughout the state.[24] The NPS and FWS are working together to develop a wildlife-vehicle collision detection smartphone application to fill this data gap and allow FLMA parks and refuges to identify problem areas to reduce collisions. Several FLMAs have enacted guidance on wildlife crossings to combat these safety and environmental concerns. Possible mitigation efforts include wildlife passage above or below transportation corridors, fencing, reflectors, warning signs, and reduced speed limits.

Transportation projects on FLMA lands are incorporating some of these strategies. For example, the Sterling Highway Milepost 58 to 79 project at Kenai National Wildlife Refuge includes six underpasses for wildlife passage that will help increase safe passage of moose, caribou, bears, lynx, and other large mammals. In Alaska, winter can create additional maintenance requirements for mitigation structures, as snow and ice accumulation can impede these structures by blocking passages or obscuring reflectors and warning signs.

Another habitat-related issue facing Alaska's FLMAs is the ability of fish and other aquatic organisms to move upstream or downstream under roads. Alaska has approximately 365,000 miles of rivers, of which 3,210 miles across 25 rivers are designated as wild and scenic.[25]

24 Alaska Department of Fish and Game. "Driving in Moose Country." http://www.adfg.alaska.gov/index.cfm?adfg=livewith.drivingmoosecountry.

25 National Wild and Scenic Rivers System. "Alaska." https://www.rivers.gov/alaska.php.

When transportation infrastructure bisects rivers it can disrupt fish migration and spawning. This disruption has a range of impacts on other wildlife as well as food and cultural resources that the people of Alaska depend on.

Improving aquatic organism passage and ecological connectivity is a goal for FLMAs. To accomplish these goals, transportation projects can be planned to avoid stream crossings altogether, cross further upstream, or implement culverts and drainage structures that are designed with aquatic organism passage in mind. Stream simulation is an approach to culvert design that aims to improve waterway connections through wider culverts that maintain features of the existing stream bed. This creates infrastructure that increases habitat connectivity and is more resilient to both extreme events and normal wear-and-tear. Traditional culverts often clog over time, which can lead to flooded roadways, damage during storm events and expensive maintenance. Stream simulation culverts, on the other hand, accommodate larger flows and better handle sediment accretion leading to lowered maintenance and repair costs as well as improved environmental outcomes.

Fort Egbert, Eagle National Historic District. BLM photo.

Cultural and Historic Resources

Alaska's FLMAs are home to numerous cultural and historic resources; transportation systems both provide access to these resources and can negatively impact them. Several Federal laws guide the protection and preservation of cultural and historic resources in Alaska:

- The **American Antiquities Act of 1906** established that archaeological sites on public lands are important public resources. It obligates Federal agencies that manage public lands to preserve for present and future generations the historic, scientific, commemorative, and cultural values of the archaeological and historic sites and structures on these lands.[26]
- The **National Historic Preservation Act (NHPA) of 1966** aimed to preserve historical and archaeological sites by creating the National Register of Historic Places and the Advisory Council on Historic Preservation, and by requiring states to have a historic preservation office and complete an inventory of important sites. Section 106 of the NHPA requires Federal agencies to take into account effects of their activities on historical and archaeological resources and to consult on the Section 106 process with State Historic Preservation Offices, Tribal Historic Preservation Offices, and tribes.
- The **Native American Graves Protection and Repatriation Act (NAGPRA)** provides a process for museums and Federal agencies to return certain Native American cultural items to lineal descendants, culturally affiliated Indian tribes, and Native Hawaiian organizations. All Federal agencies are responsible for complying with NAGPRA. The law includes provisions for unclaimed and culturally unidentifiable Native American cultural items, intentional and inadvertent discovery of Native American cultural items on Federal and tribal lands, and penalties for noncompliance and illegal trafficking.

26 National Park Service. June 22, 2017. "American Antiquities Act of 1906." https://www.nps.gov/subjects/legal/american-antiquities-act-of-1906.htm.

- The **Alaska National Interest Lands Conservation Act (ANILCA)** requires Federal land managers to balance the national interest in Alaska's scenic and wildlife resources with recognition of Alaska's economy, infrastructure, and its distinctive rural way of life. Over 100 specific provisions of ANILCA require some form of Federal agency consultation with the state of Alaska, including on the topics of continued public access for traditional activities; guaranteed access to inholdings; transportation and utility corridors; access for subsistence; and recognition of state authorities concerning fish, wildlife, navigable waterways, tidelands, and submerged lands.[27]

Alaska is home to a variety of types of cultural resources, including historical sites, cultural landscapes, archaeological sites, and areas used for subsistence access. Alaska has 50 National Historic Landmarks[28] and over 420 places listed on the National Register of Historic Places.[29] There are numerous other historic and cultural resources across the state, but there is no comprehensive dataset documenting them. Many of these resources are undiscovered, and there are also sensitivities around sharing site locations due to concerns over looting and privacy.

FLMAs inventory cultural resources during project-level planning and environmental review to determine if transportation or other infrastructure projects are likely to affect cultural resources. They also consult with tribes and other local stakeholders about potential resources in an area, and determine how to minimize or mitigate impacts.

For example, in 2017 the NPS completed the reconstruction of two roads in the Dyea area of Klondike Gold Rush National Historical Park. This project was needed to increase the safety of road users and provide protection to natural and cultural resources in the Dyea area. The Dyea area is listed on the National Register of Historic Places, and is within the Chilkoot Trail and Dyea Site National Historic Landmark. More intensive archaeological surveys were required along both road corridors once the area of potential effects was identified. During construction, archaeologists were on hand to monitor impacts and to assist in the identification of previously undocumented cultural resources. The project resulted in a safer and smoother roadway surface, and reduced degradation to cultural features and vegetation that was previously caused by users bypassing mud holes.

In addition to providing access to historic and cultural resources, some transportation facilities in Alaska are themselves historic resources. For example, Denali Park Road was built between 1922 and 1938 by the Alaska Road Commission, and was nominated to the National Register of Historic Places in 2013.[30] Denali Park staff work to both maintain the road as a historic resource and minimize its impact on the surrounding environment.

Archaeologist, Noatak National Preserve. NPS photo.

27 Alaska Department of Natural Resources. "State ANILCA Coordination." http://dnr.alaska.gov/commis/opmp/anilca/more.htm.

28 National Park Service. "List of NHLs by State." https://www.nps.gov/subjects/nationalhistoriclandmarks/list-of-nhls-by-state.htm#onthisPage-1.

29 Alaska Office of History and Archaeology. "Explore the National Register of Historic Places in Alaska." http://soa-dnr.maps.arcgis.com/apps/MapSeries/index.html?appid=7f2e0da912f54f74a7448fbcb2cce655.

30 National Park Service. April 2, 2019. "Maintaining the Character of the Denali Park Road Beyond Mile 15." https://www.nps.gov/articles/denali-character-of-park-road.htm.

Figure 14. Alaska CLRTP Environment: National Register of Historic Places Locations

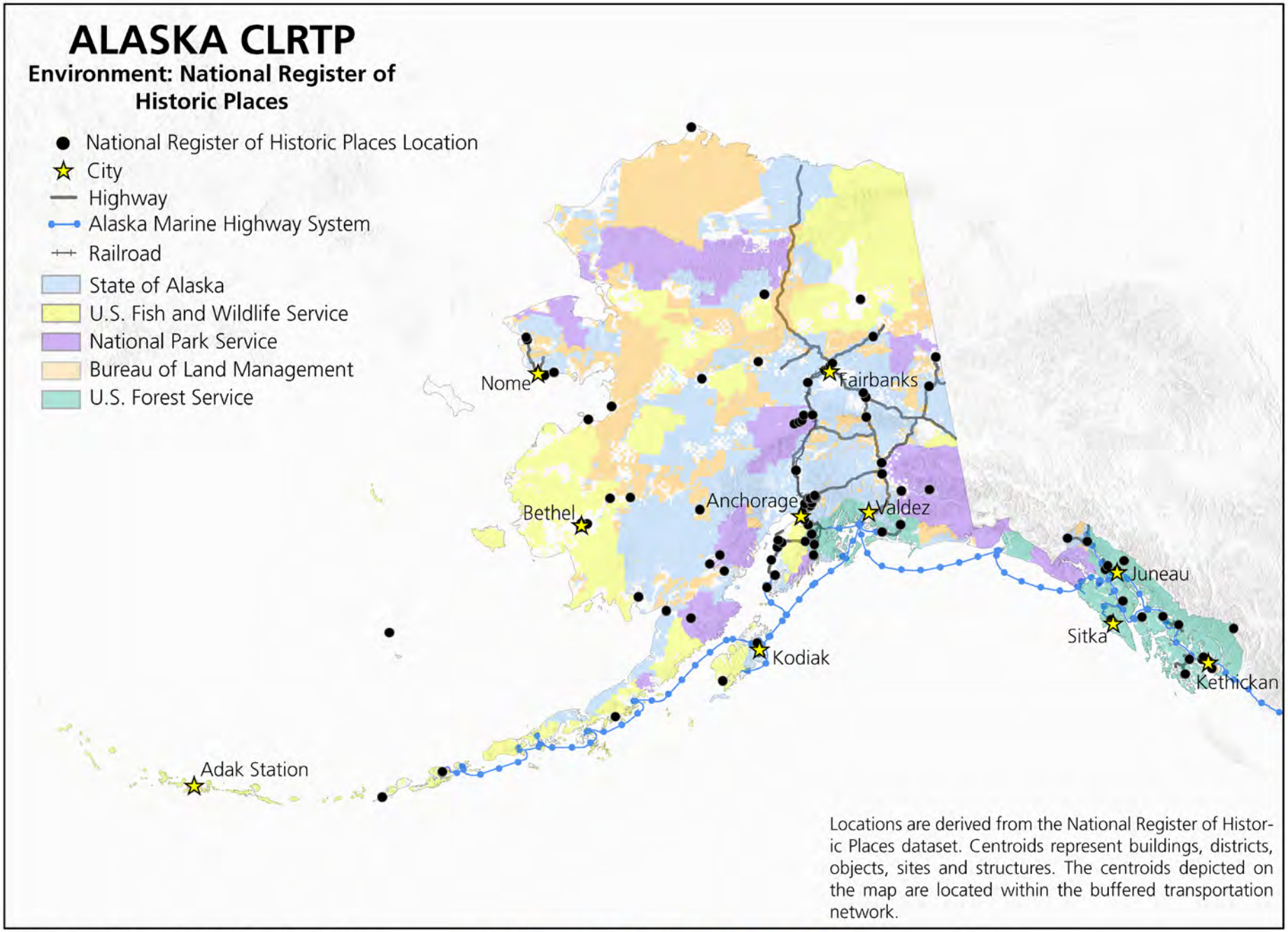
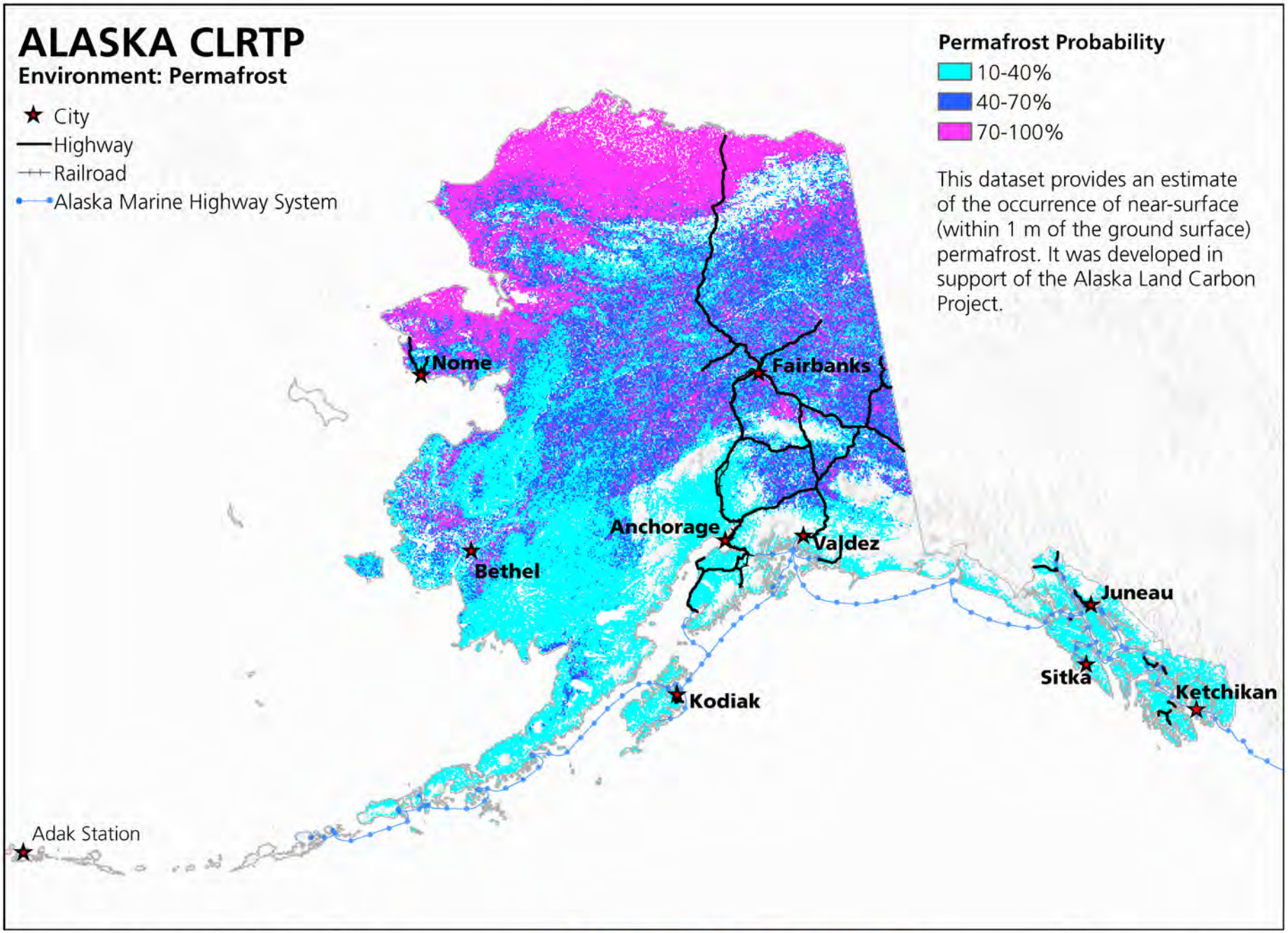


Figure 15. Alaska CLRTP Environment: Permafrost Probability Map



Soils

Alaska's FLMAs work to ensure that transportation systems minimize impacts on permafrost and other at risk soil systems. Permafrost is found to some extent beneath nearly 85 percent of Alaska, and is thickest in the northern part of the state. As temperatures warm, permafrost thaw is expected to lead to uneven sinking of the ground and the disruption of infrastructure built on permafrost, including roads, airports, and buildings (see the Natural Hazards Technical Report in Appendix E for more information). As permafrost thaws, transportation infrastructure built on it will require more frequent maintenance and repair, and in some cases relocation.

Slope instability may be caused or worsened by a number of factors, including heavy precipitation or snow melt, permafrost thaw, seismic activity, slope exposure and weathering, or overly steep construction. Unstable slopes can lead to landslides, erosion, or other damage to transportation infrastructure. The Unstable Slope Management Program (USMP) is a collaborative effort between FLMAs to develop an asset management approach for managing unstable rock and soil slopes. The project involves the development of a standardized rating tool, a database with searching and reporting capabilities, and a GIS-based map to display unstable slopes and rockfalls along transportation corridors.[31]

Permafrost, Riverbank within Birch Creek Wild and Scenic River. BLM photo.

As part of the Denali National Park & Preserve Long-Range Transportation plan, completed in 2018, the NPS conducted a comprehensive risk analysis of geologic hazards along the Denali Park Road, which traverses a highly active geologic landscape. The risk assessment used the rating criteria from the USMP to identify the spatial distribution of geologic hazards, their severity, and the associated risk. It resulted in a preliminary identification of the areas with the highest relative risk, which will be used to inform future infrastructure plans.

Air and Water Quality

Vehicle emissions from transportation to and within Federal lands can impact local air quality by producing nitrogen oxides (NOx), sulphur oxides (SOx), particulate matter (PM), and greenhouse gas (GHG) pollutants. Other mobile sources such as cruise ships, aviation, and freight also contribute to air pollution. Currently, a portion of the Fairbanks North Star Borough, including the City of Fairbanks and the City of North Pole, is in nonattainment for PM2.5, meaning that it does not meet the air quality standards established by the U.S. Environmental Protection Agency. This poor air quality may be caused or worsened by a number of sources, including emissions from wood stoves, burning distillate oil, industrial sources, and mobile emissions. Smoke from wildfires can also contribute to air pollution and impact health.[32] Many roads in and providing access to FLMA units in Alaska have a gravel surface, and the way that dust is managed on gravel roads can impact air quality, health, and the viewshed.

Transportation activities can also impact water quality. Stormwater and snowmelt can increase runoff and erosion that are detrimental to Alaska's waterways. Chemical runoff in the form of oils, grease,

31 "Unstable Slope Management Program." http://usmp.info/client/credits.php.
32 Alaska Department of Environmental Conservation. "Fairbanks Particulate Matter PM2.5." http://dec.alaska.gov/air/anpms/communities/fbks-particulate-matter.

heavy metals, road salt and antifreeze contain substances that are toxic to fish and humans. These pollutants, which collect on roadways, parking lots and airport tarmacs, permeate groundwater and are deposited into watersheds by precipitation and thaw events. Siltation, caused by dust generated from travel and construction activities as well as improperly draining roadways, creates turbid water and changes sediment accretion rates. This results in cloudy water, clogged culverts and reduced flow which degrades water quality, stresses aquatic plants and animals and disrupts ecological passage.

With increasing tourism to Alaska's coastline, pollutants in discharge from cruise ships has the potential to impact marine parks and watersheds. Cruise ships in Alaskan ports are monitored for compliance with discharge regulations, but treatment and containment failures can result in elevated bacterial counts and pollution levels that are hazardous to humans as well as Alaska's abundant natural resources.

Light and Noise Impacts

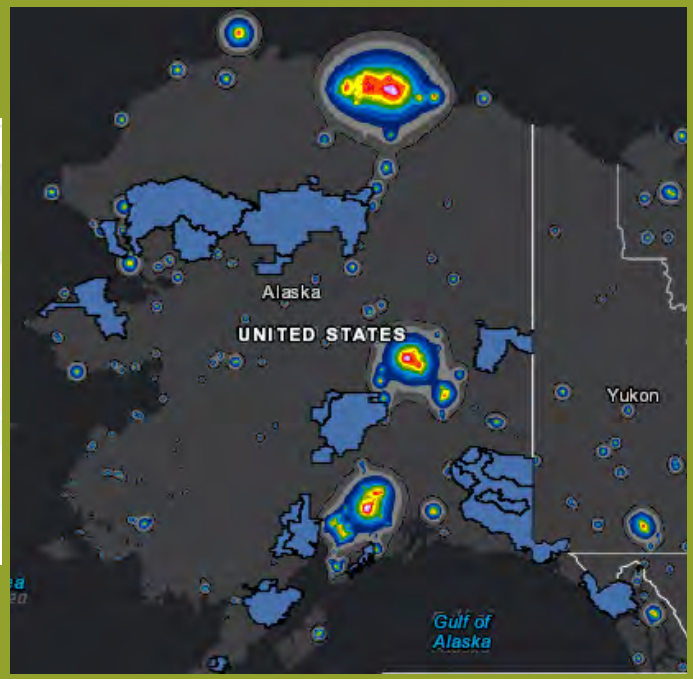
Artificial lights can disrupt animals' natural rhythms and systems such as feeding, sleep, and reproduction. Preserving and promoting dark skies can help protect the natural habitat for many animals. In Alaska, dark skies also support tourism as visitors come for viewing the aurora borealis.

The transportation system contributes to light pollution through street lights and other lighting that supports transportation facilities. In Alaska, impacts from outdoor lighting primary occur around Anchorage and Fairbanks, as well as in oil and gas development

Artificial brightness in Alaska is concentrated around Anchorage and Fairbanks as well as oil development areas along the North Slope

Ratio to natural brightness	Artificial brightness (μcd/m²)	Approximate total brightness (mcd/m²)	Color	
<0.01	<1.74	<0.176	Black	
0.01–0.02	1.74–3.48	0.176–0.177	Dark gray	
>0.02–0.04	>3.48–6.96	>0.177–0.181	Gray	
>0.04–0.08	>6.96–13.9	>0.181–0.188	Dark blue	
>0.08–0.16	>13.9–27.8	>0.188–0.202	Blue	
>0.16–0.32	>27.8–55.7	>0.202–0.230	Light blue	
>0.32–0.64	>55.7–111	>0.230–0.285	Dark green	
>0.64–1.28	>111–223	>0.285–0.397	Green	
>1.28–2.56	>223–445	>0.397–0.619	Yellow	
>2.56–5.12	>445–890	>0.619–1.065	Orange	
>5.12–10.2	>890–1780	1.07–1.96	Red	
>10.2–20.5	>1780–3560	>1.96–3.74	Magenta	
>20.5–41	>3560–7130	>3.74–7.30	Pink	
>41	>7130	>7.30	White	

Source: Cooperative Institute for Research in Environmental Sciences (CIRES). https://cires.colorado.edu/artificial-sky



areas in the North Slope. FLMAs are taking steps to reduce visual impacts from lighting and protect dark skies. For example, strategies to minimize impacts from lighting may include using lighting fixtures that are fully shielded and point downwards, minimizing blue light emission and using lighting types that mimic natural light, and only using lights where necessary and no brighter than necessary.[33] BLM and NPS have visual resource management programs that are working to minimize light pollution impacts in Alaska FLMAs. BLM and FWS are coordinating on visual resource management related to aurora borealis viewing in the Arctic National Wildlife Refuge.

Noise impacts can also negatively affect both wildlife and FLMA visitors. Efforts are underway to document baseline natural noise levels as well as noise impacts from particular projects or transportation modes (such as aviation noise). For example, BLM is working to understand the noise impacts of oil and gas development north of the Arctic Circle. They are looking at noise from aircraft, generators, and other sources related to energy development, and documenting impacts on wildlife.

The Denali National Park & Preserve Long-Range Transportation Plan includes a report on acoustic resources.[34] The NPS has been working on acoustic measurement at Denali since the 1990s in response to an increase in aviation and snowmobile noise. The Denali Soundscape Inventory describes the park's acoustic environment at a landscape scale, and can be used to make management decisions about how to address competing priorities (e.g., transportation access and a noise-free environment). For example, one noise mitigation strategy suggested by the project is to direct air traffic over areas that backcountry user groups are less likely to frequent. Therefore, areas that already have air traffic would continue to bear the brunt of resource damage, allowing the most pristine acoustic environments of the park to remain intact.

33 International Dark Sky Association. "Outdoor Lighting Basics." http://darksky.org/lighting/lighting-basics/.

34 National Park Service. 2018. "Denali NP&P Long Range Transportation 2018 (final)." https://parkplanning.nps.gov/document.cfm?parkID=9&projectID=49953&documentID=88019

Invasive Species Monitoring, Buskin Lake. FWS photo.

Invasive Species

Although Alaska is isolated from the lower 48 states it is not immune to the presence and detrimental effect of invasive species to Alaskan ecosystems. Invasive species in Alaska can reduce opportunities for hunting, fishing, subsistence, and recreational activities, displace threatened and endangered species, impact flight patterns and nesting locations for migratory birds, and generate high costs for removal and eradication.

Transportation is a primary vector for the introduction of invasive or non-native species. Increasing access to FLMA lands in Alaska increases the risk that invasive species will be introduced to an area. Invasive species hitchhike on planes, boats, cars, trains and even on clothing of tourists and visitors. They are also transported through soil or firewood, and can be introduced through materials used in routine transportation maintenance and construction projects, such as gravel.

Invasive Species Threats to Alaska

- Northern Pike (Esox lucius)
- Norway Rat (Rattus norvegicus)
- Gypsy Moth (Lymantria dispar)

Invasive Plants

- Green Crab (Carcinus maenus)
- Pond weed (Elodea)
- Invasive Tunicates (Didemnum and Botrylloide

Agencies involved with management on public lands may follow these best practices to help prevent the introduction and spread of invasive species throughout Alaska's FLMA lands:

- Develop information campaigns to increase public awareness of both the threat that invasive species pose to cultural, financial and recreational resources as well as strategies to help prevent their both their introduction and spread.
- Provide washing stations for road vehicles and OHVs before entering the backcountry and in between trips to prevent the spread of invasive plant seeds.
- Encourage washing of float plane pontoons between trips to prevent the spread of *Elodea* to remote lakes.
- Wash fire vehicles before heading into burn areas.
- Require cleaning road maintenance equipment between locations.
- Source certified weed free or locally-sourced gravel before hauling and spreading along roadways (see the Risk and Resilience goal area for more information on gravel sourcing).
- Require dog mushers to use certified weed free straw for dog bedding during competitive events (BLM has noticed invasive plants growing at remote check points along the Iditarod Dog Sled Race route).
- Prohibit fishers from using felt-soled waders to prevent invasive species introduction in waterways.

Looking Ahead

Alaska's FLMAs identified the following actions that they will pursue to meet the objectives of the Environment goal area:

- Use data and spatial analysis to better understand where transportation infrastructure interacts with the natural environment, in particular wildlife habitat, aquatic habitat, migratory routes, steep slopes, wetlands, permafrost, and historical, archaeological, and cultural resources.
- Continue to implement best management practices to avoid, minimize, or mitigate potential impacts to natural and cultural resources from transportation systems.
- Enhance multiagency understanding of vehicle / wildlife collisions and wildlife interactions, and develop a strategy to reduce collisions and impacts on wildlife migration areas.
- Develop an inventory of historic transportation features.

Performance Management

Performance measures for the Environment goal area include:

- Number of reported vehicle / wildlife collisions on roads traveling through Federal lands.
    - Target: reduce the number of incidents
- Completion of culvert / Aquatic Organism Passage inventory
- Number of aquatic organism passage enhancements or wildlife connectivity enhancements completed per year on Federal lands.

This page intentionally left blank.

Risk and Resilience

Goal

Develop a long-term transportation system that addresses environmental, social, and economic risks.

Objectives

- **Risk identification:** Evaluate major risks to transportation systems.
- **Adaptation:** Adapt transportation systems and practices to address extreme weather, environmental hazards, and other risks where appropriate.
- **Mitigation:** Identify and alter transportation practices and activities that contribute to increased risks while continuing to provide for and encourage compatible uses.

Dalton Highway. BLM photo.

Introduction

Risks to FLMA transportation systems in Alaska stem from geophysical hazards and changes to social, economic, and environmental factors. An evaluation of risk considers both the likelihood or impact of an event occurring, and the expected impact or consequence from that event. In December 2017, the agencies involved in the Alaska LRTP Update participated in a Risk Assessment Workshop to identify the top risks to FLMA transportation systems in Alaska, determine the impact of these risks and potential responses, and discuss how the risk assessment results could inform the LRTP Update. The top risks identified in the workshop included environmental risks such as permafrost subsidence and river and stream flooding; risks due to changes in operations and maintenance practices for drainage structures and gravel production, processing, or purchase; and risks due to changes in FLMA management, such as system resilience, resource management, and safety management.

A closely related concept to risk is resilience, which the FHWA defines as "the ability to anticipate, prepare for, and adapt to changing conditions and withstand, respond to, and recover rapidly from disruptions."[35] In Alaska, many of these changing conditions and disruptions are caused by natural hazards, including thawing permafrost, erosion, flooding, wildfires, earthquakes, and volcanoes. FLMAs are working to build resilience to these and other disruptive events and trends. The Natural Hazard Vulnerability Technical Report (see Appendix E) provides additional details on the impact of these hazards on FLMA transportation systems and actions that these agencies are taking to respond.

Baseline Conditions and Trends

Climate and Extreme Weather

Many of the risks that affect FLMA transportation systems in Alaska are caused by extreme weather and climate change. Alaska's climate has warmed about twice as rapidly as the rest of the country over the past half century, and average temperatures have increased by approximately 0.7°F per decade since the late 1970s.[36] These trends are expected to continue into the future, and the state is expected to see higher high temperatures in the summer (4°-8°F), higher low temperatures in the winter (12°F), and fewer nights below freezing by mid-century.[37] In addition, sea ice melt is expected to continue across the Arctic, and late summers are expected to become nearly ice-free this century.[38]

Impacts of this changing climate that are likely to affect transportation infrastructure include:

- **Thawing permafrost.** In areas where soils below the surface remain frozen for all or most of the year, permafrost forms the foundation for structures and infrastructure. Permafrost is thickest in northern Alaska, but is found to some extent beneath about half the state (Figure 15). As temperatures warm, permafrost thaw is occurring. Permafrost is expected to disappear from 16 to 24 percent of its current extent by the end of the century.[39] Permafrost thaw causes uneven sinking of the ground and the disruption of infrastructure built on permafrost, including roads, airports, and buildings.
- **Erosion.** Sea ice melt and permafrost thaw are leading to increased erosion in coastal and riverine areas of Alaska. Transportation infrastructure in close proximity to coastal and riverine areas is likely to experience increased risks due to erosion. Erosion may cause damage to the structural integrity of roads or an accelerated degradation of infrastructure.

35 FHWA Order 5520

36 Markon, C., S. Gray, M. Berman, L. Eerkes-Medrano, T. Hennessy, H. Huntington, J. Littell, M. McCammon, R. Thoman, and S. Trainor, 2018: Alaska. In *Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II* [Reidmiller, D.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, K.L.M. Lewis, T.K. Maycock, and B.C. Stewart (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, pp. 1185–1241. doi: 10.7930/NCA4.2018.CH26

37 Markon et al, 2018

38 USGCRP, 2017: Climate Science Special Report: Fourth National Climate Assessment, Volume I [Wuebbles, D.J., D.W. Fahey, K.A. Hibbard, D.J. Dokken, B.C. Stewart, and T.K. Maycock (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, 470 pp, doi: 10.7930/J0J964J6

39 USGCRP, 2017

- **Flooding.** Coastal and riverine flooding – whether caused by heavy precipitation, sea level rise, storm surge, or snowmelt – can cause temporary disruption or long-term damage to transportation infrastructure through road washouts and overtopping of bridges and culverts. The cumulative effect of smaller, more frequent precipitation events can also cause increased structural vulnerability and damage to transportation infrastructure. Changes in precipitation patterns can also lead to shifting alluvial fans and stream beds, which can cause road washouts and other types of flooding and infrastructure damage.
- **Wildfires.** Wildfire activity in Alaska has increased in recent decades in both boreal forest and Arctic tundra environments. Wildfires are expected to increase through the end of the century due to warmer and drier conditions in interior Alaska and thawing permafrost. The thick smoke from wildfires is a risk to human health, and also temporarily disrupts visibility for vehicles and airplanes. Extensive wildfires can also change ecosystems and habitats.

Dalton Highway (Roadway Vulnerable to Permafrost Thaw). BLM photo.

Kenail National Wildlife Refuge, 2014 Funny River Fire. FWS photo.

To understand the impact of extreme weather on transportation assets, agencies are conducting vulnerability assessments to identify the likelihood of both temporary closure and permanent damage to existing assets and systems. For example, Alaska DOT&PF and Alaska FLMAs partnered on a vulnerability assessment funded by FHWA to look at the vulnerability of three transportation projects to climate risks: thawing permafrost on the Dalton Highway, storm damage at an airport in Kivalina, and landslide risk along Denali Park road. Building off of this effort, FLH is partnering with NPS and FWS to conduct a statewide, asset-level vulnerability assessment.

Once agencies have identified their vulnerabilities, they can begin to design and implement strategies to address them. For example, agencies could identify adaptation strategies to harden existing infrastructure, such as shoreline protection infrastructure or changing pavement types. They could also identify alternate routes or alternate modes of transportation if access routes become damaged and temporarily or permanently unusable. To address future vulnerabilities, agencies can take expected extreme weather impacts into account when planning new transportation infrastructure to ensure that the infrastructure is built to last.

Agencies can also integrate extreme weather and expected future conditions into their asset management programs, which Alaska DOT&PF aims to do. A risk-based asset management system can help agencies anticipate and effectively respond to extreme weather events and climate threats.[40] Such a system helps transportation agencies evaluate the costs of managing an asset over its entire life cycle, with the goal of minimizing costs while preserving or improving the condition of the asset.

Geologic Hazards

Geologic hazards such as earthquakes and volcanoes also pose risks to FLMA transportation systems in Alaska. The state has over 50 active volcanoes and experiences an average of one to two volcanic eruptions per year. Volcanoes in Alaska have the potential to temporarily or permanently displace entire communities and disrupt all modes of travel. Specific to transportation infrastructure, volcanic ash can damage or collapse structures and can be a significant hazard to aircraft and maritime vessels. Volcanoes can also lead to debris avalanches, mudflows (lahars), and debris flows, all of which can damage transportation infrastructure.[41] In addition, volcanic ash can damage aircraft engines, and as a result a volcanic eruption can ground flights and lead to major travel and tourism impacts.

Alaska is one of the most seismically active regions in the world, and 11 percent of the world's earthquakes occur in the state. The majority of earthquakes in Alaska are low consequence events, with minimal damage to communities and infrastructure. However, low probability, high consequence earthquakes may cause significant damage to infrastructure and structures, as well as loss of life. Damage to transportation infrastructure due to earthquakes can be caused by surface faulting, liquefaction, or landslides.[42] In addition, permafrost melt increases liquefaction potential, so these hazards are interrelated. Pacific earthquakes can also cause tsunamis, which can impact coastal areas.

Vine Road 2018 Earthquake Damage. Alaska DOT&PF photo.

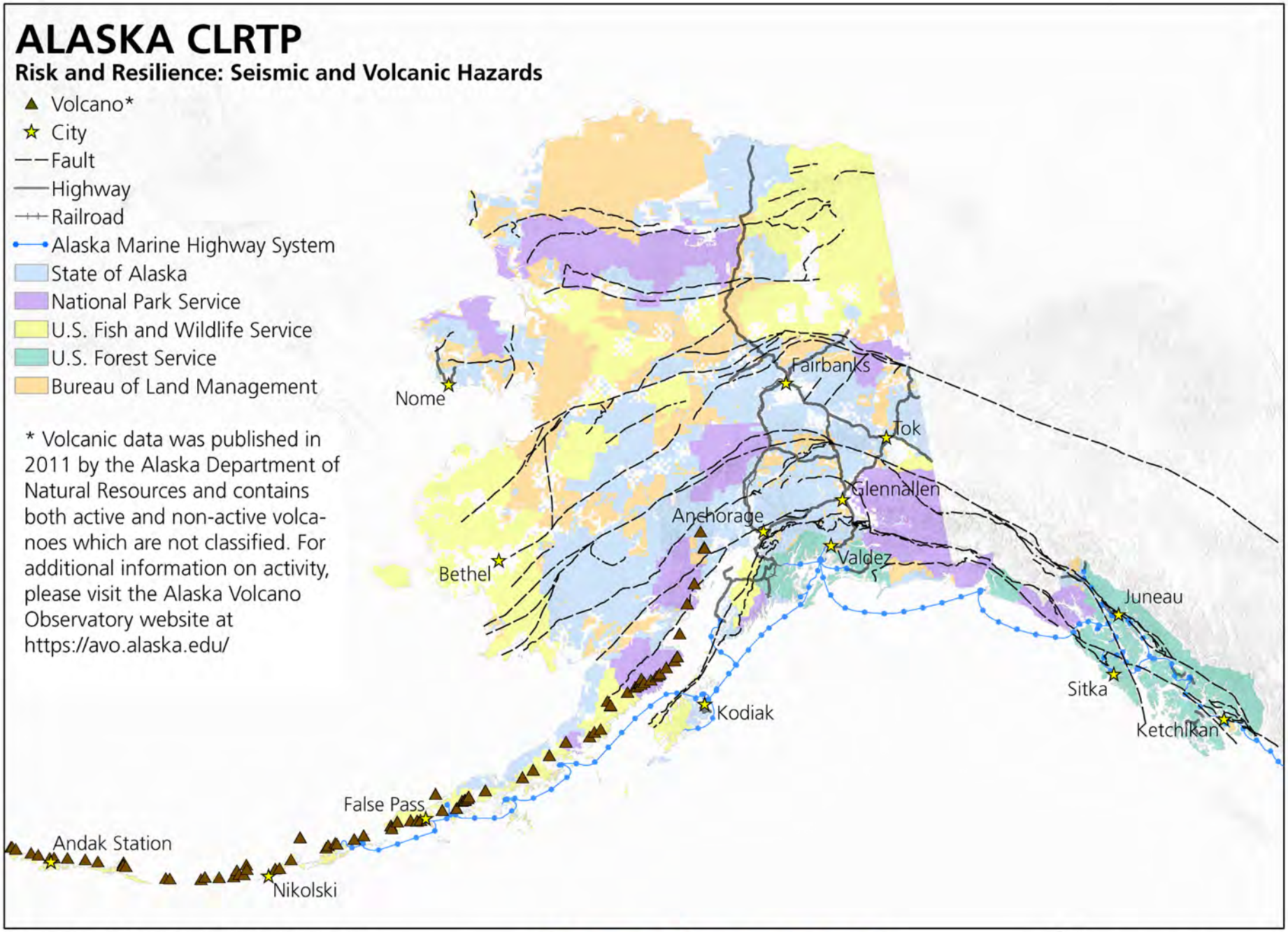
Mount Veniaminof, Alaska Peninsula/Becharof National Wildlife Refuge. FWS photo.

40 USDOT Federal Highway Administration. Vulnerability Assessment and Adaptation Framework, 3rd Edition. 2017. https://www.fhwa.dot.gov/environment/sustainability/resilience/adaptation_framework/index.cfm.

41 Alaska Hazard Mitigation Plan, 2013

42 ibid.

Figure 16. Alaska CLRTP Risk and Resilience: Seismic and Volcanic Hazards Map



Gravel Processing at Toklat River, Denali National Park & Preserve. NPS photo.

Changes in Operations and Maintenance

Changes in operations and maintenance practices can lead to changes in infrastructure condition. If assets are maintained less frequently, their condition may worsen and their overall lifespan may decrease. Two of the top risk related to operations and maintenance identified by Alaska FLMAs include 1) maintenance of drainage structures and culverts, and 2) gravel production, processing, and purchase.

When drainage structures or culverts become blocked by debris or ice, or are otherwise damaged, water is unable to pass through and the roadway may flood. This may disrupt travel on the road and limit access to adjacent FLMA sites. In the future, culverts may need to accommodate larger flows due to increasing severe precipitation events and quicker spring snowmelt in parts of the state. This may necessitate either the construction of larger culverts or more frequent maintenance of existing culverts. Additionally, there is no comprehensive data on the location and condition of culverts across FLMAs, making an analysis of the status of maintenance difficult. A related issue is that culverts and road drainage structures can block aquatic organism passage, limiting fish migration and spawning. The Environment goal area provides information about FLMA efforts to promote aquatic organism passage through culvert design.

Many roads in and providing access to FLMA units in Alaska have a gravel surface, and obtaining gravel is critical to maintaining the road in good condition. The cost, availability, and quality of gravel greatly depends on the source an FLMA uses for raw or processed gravel. For example, if FLMAs have to bring in gravel from offsite this will add to the costs of maintenance and construction projects. Gravel imported from offsite may also contain invasive species or asbestos, which will impact natural resources. The way that dust is managed on gravel roads can also impact air quality, the viewshed, health, and the natural environment. Agencies can reduce some of the risks related to gravel by coordinating on gravel production and sourcing for projects in the same geographic area.

For example, Denali National Park & Preserve processes native mineral materials from the Toklat River area for construction projects and cyclic maintenance of the unpaved portion of the Denali Park

Culverts at Nome Creek, White Mountain National Recreation Area. BLM photo.

Road. The gravel source and processing occurs in a centrally located area that the park identified in its Development Concept Plan and Gravel Acquisition Plan. Cyclic excavation and processing of material at Toklat will provide the material needed for a steady renewal of the park road's structural integrity and bearing capacity, while providing a smooth well-drained, solid driving platform. Utilizing native resources and processing within the park allows for compatibility of materials on construction projects, avoids the need for importing materials that may include invasive plant seeds and non-native material, and minimizes the cost and need for transporting materials on the park road to project sites.

FLMA Management

Risk assessment workshop participants identified risks related to FLMA management, including resource management and safety management, as top risks for Alaska FLMA transportation systems. As resource and safety management underlie much of the work that FLMAs do, these concepts are integrated throughout this plan. Goals and strategies related to resource management are discussed in more detail in this plan's Environment goal area, and safety management is discussed under the Safety and Mobility goal area. Being aware of the risks related to these topic areas can help FLMAs plan for and succeed under a range of future conditions. For example, changes in resource management or safety management may be required due to shifting Federal budget levels, bureau policy, regulations, and guidance, turnover and retirement of personnel, or the development of new practices and techniques.

Looking Ahead

Alaska's FLMAs identified the following actions that they will pursue to meet the objectives of the Risk and Resilience goal area:

- Conduct vulnerability assessments and scenario planning to identify and rank vulnerabilities to natural hazards and extreme weather.
- Incorporate expected future conditions into the planning of operations and maintenance strategies and new transportation infrastructure.
- Examine where permafrost is coming into contact with infrastructure using geospatial analysis and begin planning for long-term contingencies of roads impacted by permafrost subsidence.
- Improve gravel sourcing by developing a program to identify and appropriately treat gravel sources and a set of best practices and memorandums of agreement to facilitate coordinated contracting of gravel sources to meet project and maintenance needs.

Performance Management

Performance measures for the Risk and Resilience goal area include:

- FLMA units that have completed an agency-appropriate vulnerability assessment
- Percent of assets that have been removed, improved, or altered to reduce vulnerability
- Percent of new assets that consider future conditions at the planning stage
- Completion of an inventory of culverts (percent of roads inventoried)

This page intentionally left blank.

Partnerships

Goal

Maintain existing mutually beneficial relationships and build future opportunities for collaboration with tribal, Federal, state, local, and other external partners.

Objectives

- **Partner Coordination:** Coordinate with partners to share resources, data, and expertise.
- **Project Champions:** Coordinate with project champions to support mutually beneficial programs, initiatives, projects, and goal area working group activities.

Slate Creek Cove, Tongass National Forest. FS photo.

Introduction

Partnerships cut across all of the other goal areas in this LRTP, focusing on how agencies can work together to address common priorities. As such, the Partnership goal touches on the processes and shared resources that can help FLMAs and their partners improve conditions related to System Management, User Experience, Safety and Mobility, Environment, and Risk and Resilience. It is important for FLMAs to understand their partners' missions, needs, and planning and programming processes. Collaborative partnerships have multiple benefits:

- Recognizing the unique context of a place and its value to diverse partners;
- Developing shared strategies for working toward stated goals on a landscape scale;
- Developing a coherent, seamless transportation network appropriate to its context;
- Identifying opportunities for mutual benefit or increased efficiency; and
- Identifying funding opportunities or efficiency gains available through partnerships.

Baseline Conditions and Trends

Partner Coordination

Through development of the Alaska Federal Lands LRTP in 2012, the FLMAs, Alaska DOT&PF, FHWA, and AML recognized the value of regular coordination and developed an implementation action to meet regularly. Since then, the Core Team has held monthly teleconferences to advance the implementation of the LRTP and to share project information. The group also meets annually for a project coordination meeting to review projects on the STIP and each agency's program of projects that may provide an opportunity for multiagency collaboration. At these meetings, the agencies also discuss data-focused efforts and other relevant planning topics. The annual project coordination meeting ends with a list of both accomplishments and action items for each agency to continue to pursue.

Collaboration for Access to Steese National Conservation Area

The BLM is working with the Alaska Department of Natural Resources and the Alaska DOT&PF to improve access into the Steese National Conservation Area (NCA) in Interior Alaska.

The 175-mile Steese Highway connects Fairbanks with the town of Circle. The proposed 35-mile road through the southern unit of the Steese NCA would follow a state right-of-way that would connect the Circle Hot Springs Road to the Independence Creek / Harrison Creek mining roads before linking back to the Steese Highway.

Currently only four-wheel drive vehicles using an unmaintained mining road can access the area. Improving the road will provide access and opportunities for hunters and fishers, tour guides, float trips on Birch Creek Wild River, and even for goldmining.

Hut along Steese Highway. BLM photo.

West Glacier Trail Extension

The West Glacier Trail Extension was a collaborative effort that utilized FLAP funds, TAP funds, and FS commercial fees for a total of $1,055,124. The West Glacier area of the Mendenhall Glacier Recreation Area is at the end the Skater's Cabin Road, accessed by streets maintained by the City and Borough of Juneau. The West Glacier area serves as a starting point for various recreation activities accessing Tongass National Forest. Alaska DOT&PF applied for and was awarded a FLAP grant in 2016 and partnered with FHWA WFL and the FS to implement it. Alaska DOT&PF served in transferring the TAP funds to FHWA WFL. Local commercial tour companies donated materials, as did the construction company who was awarded the job. Many agencies and groups were involved in the effort, including:

- FS - Tongass National Forest
- FHWA WFL – FLAP funds
- State of Alaska DOT&PF - TAP funds
- City and Borough of Juneau – Access Road
- Cycle Alaska – Bike Racks
- Juneau Nordic Ski Club – Winter Trail Grooming
- Liquid Alaska, Alaska Travel Adventures, and Above and Beyond Alaska – Commercial and Non-Commercial launch locations

West Glacier Trail Extension. Alaska DOT&PF photo.

Outcomes of the successful collaboration addressed multiple issues that resulted in a better guided experience while enhancing year-round recreation for residents in:

- **Safety:** Moved pedestrians and bicyclists off the roadway and increased parking for motorized traffic.
- **Accessibility:** Facilitated easier access to public facilities, viewing points, and use of the trails for physically challenged as well as individuals of all fitness levels.
- **Capacity:** Increased parking and public facilities and enhanced day use areas.
- **Reduced conflict:** between guide / outfitter operations and residents.

West Glacier Trail Extension. Source: Alaska DOT&PF.

Federal Lands Access Program

The initial Alaska Collaborative LRTP of 2012 was crucial in enabling the FLMAs and their partners to better leverage funding to meet their shared transportation goals. The FLAP, administered by the FHWA is a formula-based program that provides funding for transportation planning, construction, rehabilitation, and maintenance for facilities located on or providing access to Federal lands. The program supplements state and local resources for public roads, bridges, trails, transit systems, multimodal, and other transportation facilities that are owned and/or maintained by the state, county, town, township, tribal, municipal, or local government. Federally-owned facilities are not eligible and for this reason, it is essential that FLMAs collaborate with state and local partners on developing applications for FLAP funds.

Collaborative Partners in Alaska

Collaboration among partners and disciplines is essential to an effective transportation system. To successfully plan for the various modes, geographies, and communities in Alaska, agencies need to coordinate across ownership boundaries and disciplines to meet context-sensitive transportation needs. It is important for FLMAs to recognize which partners to collaborate with based on context and to build this collaboration into planning and decision-making processes.

Federal Land Management Agencies

FLMAs collaborate with each other on issues that cut across land ownership boundaries, such as ecosystem, wildlife, and watershed management. In addition, users may pass through multiple FLMA lands in a trip. In many cases, the FLMAs' transportation systems are interconnected, requiring coordination on transportation data, maintenance, and incident management. Collaboration between FLMAs may take place via formal Memoranda of Understanding (MOUs), Memoranda of Agreement (MOAs), or Interagency Agreements (IAAs). FLMAs also may collaborate as stakeholders in other agencies' land use and transportation planning processes.

U.S. Department of Transportation

The USDOT is an important partner for Federal lands transportation. The FHWA's Federal Lands Highway WFL administers USDOT funds for Federal lands transportation programs, including FLTP, FLAP, and the Emergency Relief for Federally Owned Roads (ERFO) Program.

FLMA Collaboration: Arctic Interagency Visitor Center

The Arctic Interagency Visitor Center (AIVC) provides information and educational presentations and materials on the Arctic to the traveling public. The AIVC also disseminates important safety information related to driving the Dalton Highway, which has very limited services, and hiking in the remote Arctic.

The AIVC is operated as a partnership between three federal agencies that manage the public lands along the Dalton Highway: the BLM, the NPS (Gates of the Arctic National Park & Preserve), and the FWS (Yukon Flats, Kanuti and Arctic National Wildlife Refuges). The Alaska Geographic Association is a not-for-profit cooperating partner and operates the bookstore.

There is an IAA between the federal agencies to operate the AIVC. BLM, FWS, and NPS all contribute towards the operations, maintenance, and staffing of the AIVC.

Arctic Interagency Visitor Center. BLM photo.

WFL also provides planning support, technical assistance, and project delivery services for FLMAs. Because WFL works with all FLMAs in Alaska, WFL also can act as a convener to facilitate collaboration between FLMAs. The Federal Transit Administration (FTA) is also an important partner for FLMAs and their partners, because it administers grant funds for rural transit projects that may provide access to Federal lands. The FTA's Rural Transit Assistance Program also provides technical assistance, peer resources, and other tools to support rural transit.[43]

Alaska Department of Transportation and Public Facilities

The Alaska DOT&PF is a key partner for transportation planning to and within public lands. With a statewide, multimodal perspective, Alaska DOT&PF provides the link to other state agencies that require additional coordination. Alaska DOT&PF also collects and maintains statewide transportation datasets and monitors transportation system performance on the statewide transportation network, and they have strong relationships with local governments. They are a valuable resource and partner to FLMAs. Since travel to and through Federal lands is crucial to the state economy in Alaska and often provides key transportation connections between remote communities, it is likewise important for Alaska DOT&PF to collaborate with FLMAs. Table 6 depicts key statewide and area transportation plans. In addition, Alaska DOT&PF is involved in plans specific to particular modes as well as other transportation-related issues and these can be found on ADOT&PDF's Statewide and Area Transportation Plans website.

Local Governments (MPOs, Boroughs, and Municipalities)

Boroughs, local governments, and MPOs are important partners for FLMAs in Alaska, since they own and maintain many of the local routes that access or pass through Federal land. Federal lands are often important economic development drivers for local communities, and FLMA-managed roads and trails are important routes for intracommunity access. For this reason, it is important for FLMAs to coordinate transportation plans, communicate, and share data with boroughs and local governments to meet the transportation needs of the FLMA and surrounding communities.

43 USDOT Federal Transit Administration. "National Rural Transit Assistance Program." http://nationalrtap.org/.

Table 6: Alaska DOT&PF Statewide and Area Plans

Area	Document	Date
State of Alaska	Alaska Statewide Long-Range Transportation Plan Let's Keep Moving 2036: Policy Plan	2016
State of Alaska	Alaska DOT&PF Strategic Plan	2008
State of Alaska	Alaska DOT&PF Statewide Transportation Improvement Program (STIP)	2017
Southeast Alaska	Southeast Alaska Transportation Plan	2014 (draft)
Prince William Sound	Prince William Sound Area Transportation Plan	2001
Southwest Alaska	Southwest Alaska Transportation Plan	2016
Northwest Alaska	Northwest Alaska Transportation Plan	2004
Yukon-Kuskokwim Delta	Yukon-Kuskokwim (Y-K) Delta Transportation Plan	2018
Interior Alaska	Interior Alaska Transportation Plan	2010

NPS and Alaska DOT&PF: Collaborating at Denali National Park & Preserve Nenana River Wayside - Milepost 231

Source: NPS and Alaska DOT&PF

A partnership between NPS and Alaska DOT&PF will result in a new bridge over the Nenana River. It includes a separated pedestrian / bicycle connection that moves them safely off the George Parks Highway, a new vehicular bridge, and a wayside with parking, shelter, seating, and signage. The new bridge creates a safe pedestrian route to two separate trailheads, for the Oxbow and Triple Lakes Trail, as well as the future Nenana River Trail. The laydown area for the construction of the new bridge is on park land and beneficial to Alaska DOT&PF for ease of construction. It also benefits Denali National Park & Preserve, because it creates a safe wayside where trail connections occur, safe access into the park, a potential shuttle stop area, and a safe photo opportunity for visitors at the entrance sign into the park. Improving multimodal safety connections in Denali Park Village, the gateway to the park will also be realized.

Partners:

- NPS Alaska Region
- Alaska DOT&PF
- Denali National Park & Preserve

Funding:

- FLAP funds
- NPS funds
- Alaska DOT&PF funds

MPOs are Federally mandated and Federally funded organizations that carry out metropolitan transportation planning for census-defined urbanized areas with a population above 50,000. MPOs consist of representatives from local governments and transportation authorities. They develop Metropolitan Transportation Plans (MTPs), which are LRTPs for their metropolitan planning areas, and develop annual Transportation Improvement Programs (TIPs). FLMAs should coordinate with MPOs on their MTPs and TIPs as well as other plans where relevant, such as safety, congestion, or active transportation plans.

FLMAs should consult with MPOs when developing LRTPs, unit-level transportation plans, and other project plans. In addition, FLMAs should coordinate with MPOs to provide input on their plans and programs.

The Anchorage Metropolitan Area, due to its population greater than 200,000, falls under the Transportation Management Area (TMA) rules. This means that Anchorage Metropolitan Area Transportation Solutions (AMATS), the MPO for the Anchorage Bowl and Chugiak-Eagle River areas, is empowered to determine its own priority for projects and prepare its own TIP based on funding allocated to

AMATS within the STIP. Alaska is unique compared to the other 49 states in that the allocation of funds for Alaska TMAs is determined by Alaska DOT&PF within the STIP, rather than a statutory formula.

The two MPOs in Alaska are important partners for FLMA collaboration around urban areas. Though most Federal land is not within MPO boundaries, those lands that do fall within likely have high visitation by Alaska residents. Likewise, much of the local population that visits Federal lands originate from within the MPO areas. During the timeframe of this LRTP update, Matanuska-Susitna Valley may also become an MPO. This development would require further partnerships in the region.

Each MPO is required to create its own LRTP to guide regional transportation planning. Their current plans are listed in Table 8 below. Coordinating with FLMAs is particularly important for those Federal lands in the same region.

Tribal Governments

Native Alaskan tribes are sovereign governments and receive Federal transportation funding through the Tribal Transportation Program (TTP) "to contribute to the economic development, self-determination, and employment of Indians and Native Americans."[44] The TTP is administered through the BIA or FHWA but also requires partner coordination for successful implementation. Partnerships between tribes and all U.S. government agencies are subject to Executive Order 13175, under which all FLMAs and Federal agencies are required to consult with tribes in a government-to-government relationship when considering policies that would impact tribal communities. Many Federal lands are adjacent to tribal lands, so it is important to coordinate with tribes on routes of mutual interest. Some tribes also include FLMA-owned roads on the National Tribal Transportation Facility Inventory. In addition, tribes are important stakeholders in FLMA transportation plans, because Federal lands

44 USDOT Office of Federal Lands Highway. "Office of Tribal Transportation." http://flh.fhwa.dot.gov/programs/ttp/.

Table 7: Alaska MPOs

Major City	MPO	Population (2017 estimate)	FLMA units near MPOs
Fairbanks	Fairbanks Metropolitan Area Transportation System (FMATS)	97,738	Steese NCA, Denali NP&P, Yukon-Charley Rivers NP, White Mountains NRA, Nowitna NWR
Anchorage	Anchorage Metropolitan Area Transportation Solutions (AMATS)	401,469	Chugash NF, Wrangell-Saint Elias NP&P, Kenai NWR, Lake Clark NP

Table 8: Alaska MPO Transportation Plans

Location	Long-Range Transportation Plans	Planned Updates
Anchorage Metropolitan Area Transportation Solutions (AMATS)	Metropolitan Transportation Plan (MTP) 2040 Update for Anchorage and Chugiak-Eagle River	2040 MTP Approved August 2017 (Currently being updated)
Fairbanks Metropolitan Area Transportation System (FMATS)	2045 Metropolitan Transportation Plan: Envision 2045: Investing In Our Transportation Future	2045 MTP Approved

Table 9: Agency Tribal Liaison Plans

Agency	Tribal Liaison Plan
BLM	https://www.blm.gov/services/tribal-consultation
NPS	https://www.nps.gov/history/tribes/Tribal_Historic_Preservation_Officers_Program.htm
FWS	https://www.fws.gov/endangered/what-we-do/tribal-secretarial-order.html
FS	http://www.fs.fed.us/spf/tribalrelations/strategicplan.shtml

are important for their heritage, subsistence use, and community access. All FLMAs have tribal liaison plans to guide coordination with tribes, as shown in Table 9.

The ANCSA of 1971 and the ANILCA of 1980 have important applications to Federal lands transportation planning. ANCSA Section 17(b) describes how FLMAs must provide easements to allow access between ANCSA lands and Federal / state lands and waterways. ANILCA Title XI describes how FLMAs must consider special access and access to inholdings. FLMAs must permit use of snow machines, motorboats, airplanes, and other means of non-motorized surface transportation methods for traditional activities, including subsistence uses by local residents and access to villages and homesites. These transportation uses however must be under reasonable regulation in order to protect the natural and cultural resources. ANCSA Corporation lands and private parcels that are Native allotments are in many cases adjacent to or even surrounded by Federal and state lands. In such settings, the law requires access to and through the public lands for ANCSA land owners and occupiers, as well as their successors. ANILCA Title VIII describes subsistence use on public lands. It requires that FLMAs cooperate with adjacent land owners and land managers, including Federal, state, and local agencies, as well as Native Corporations on routes that provide access to subsistence resources. In addition, the FLMAs must take into account negative impacts to subsistence resources that any transportation route would have, and seek to avoid detrimental effects to fish, wildlife, habitat, cultural resources, and on traditional and rural lifestyles in general.

Non-Governmental Partners

FLMAs partner with a wide range of non-governmental organizations, both non-profits and for-profit companies. All of these relationships are guided by FLMAs' policies for partnering with non-governmental organizations.

Many non-profit partners have compatible missions to FLMAs and collaborate with FLMAs on shared goals. For example, "Friends of" groups tend to be locally based groups that care for and raise funds to support a particular FLMA unit of interest to a community. Other non-profits—for example, Alaska Trails—provide technical assistance and volunteer labor to help public lands build and maintain trails. Recreational groups—for example, the International Mountain Bike Association—often develop partnerships with FLMAs to support particular recreational activities. Associations may also provide a forum for exchange of information and are tuned in to issues that impact particular modes. The Alaska Aviation Coordination Council for example, works to share and exchange information, as well as provide accurate data to government agencies and the general public, and study and report on matters that impact the aviation community. FLMAs also partner with academic institutions on research projects, design, and implementation. The North and West Alaska Cooperative Ecosystem Studies Unit based at the University of Alaska Fairbanks brings together ten Federal agencies and ten research and technical representatives to provide research, technical assistance, and education to Federal FLMAs and environment and research agencies. One main objective is to "develop a program of research, technical assistance and education that involves

Rainbow Falls Trail Collaborative Project Between the Forest Service and Wrangell Cooperative Association. FS photo.

the biological, physical, social, and cultural sciences needed to address resources issues and interdisciplinary problem-solving at multiple scales and in an ecosystem context at the local, regional, and national level." In addition, special emphasis is placed on the working collaboration among Federal agencies and universities and their related partner institutions.[45]

It is also important for FLMAs to collaborate with for-profit companies on transportation plans and projects. For-profit partners include concessionaires, transit, air, and marine-based operators, and recreational outfitters. In addition, the for-profit companies that develop economic uses on Federal lands, such as logging, mining, oil and gas, and fishing companies, are important transportation system users. In many cases, private companies also build and maintain roads on or adjacent to Federal lands, working closely with FLMAs to plan, design, and build coordinated transportation systems.

45 University of Alaska Fairbanks. "About NWA-CESU." http://www.uaf.edu/snre/cesu/about-nwa-cesu/.

Looking Ahead

Alaska's FLMAs identified the following actions that they will pursue to meet the objectives of the Partnerships goal area:

- ***Maintain Collaborative Multiagency Working Group*** focusing on Federal lands transportation needs:
  - Maintain and update coordinated GIS systems
  - Participate in annual Project Coordination Meetings and regular teleconferences
  - Document collaborative accomplishments
- ***Tribal and Municipal Relations:*** Reach out to tribes, Alaska Native Corporations, and municipalities on LRTP implementation and update.
- ***Access to Subsistence Resources:*** Provide multiagency approach to guidance for access to subsistence.
- **Pursue Collaborative Funding Opportunities** such as FLAP, FLTP, and other applicable funding sources to support transportation projects, plans, and research.
- ***Coordinate Training Efforts:*** Organize annual multiagency training on topics of mutual interest, such as conducting Transportation Safety Assessments. In addition, each agency should invite other agency staff to attend applicable trainings they are organizing, as appropriate.

Performance Management

Performance measures for the Risk and Resilience goal area include:

- Percent of projects that leverage multiple funding sources and contribution to FLMA goals.
- Number of transportation plans or studies completed with interagency coordination or participation.

This page intentionally left blank.

Funding Sources for Federal Lands Transportation Systems

Stony Overlook, Denali National Park & Preserve. NPS photo.

Funding Sources for Federal Lands Transportation Systems

FLMA transportation systems are funded through a variety of Federal, state, and local programs. At this time, the funding levels for these programs are not anticipated to increase significantly over the next 20 years. In the current fiscally constrained environment, a well-defined funding and investment strategy built on defensible project selection processes and a wide-ranging pool of funding programs is critical to ensure continued maintenance and improvement of transportation assets. Federal, state, and local jurisdictions continue to look for innovative funding mechanisms to span growing gaps between projected needs and anticipated available funds.

This chapter identifies a broad range of Federal and non-Federal funding programs that are available to FLMAs. It is also important to note that, in a geographically large and complex area such as Alaska, many of the principal access routes to and from individual FLMA units are facilities owned and operated by either Alaska DOT&PF or local partners. These partners use a variety of transportation funding programs with monies generated at the Federal, state, and local levels. These programs emphasize the importance of partnering with other Federal, state, and local agencies to overcome funding gaps.

FHWA Role

The FHWA WFL provides stewardship and oversight to FLMAs in the form of financial resources and technical assistance for transportation activities. These activities include transportation planning, environmental studies, preliminary and final design, construction, and rehabilitation of the highways and bridges that provide access to and within Federally owned lands.

Project coordination meetings among key stakeholders can result in development of an interagency menu of projects (a TIP of sorts) where agencies agree that follow-up between interested parties is warranted to explore partnership opportunities for one or more specific projects. The ultimate goal of these efforts is to optimize the utility of transportation investments that support LRTP goals and objectives, leverage partnerships to access diverse funding streams, and ultimately create cost-efficient construction scenarios.

As an agency, FHWA serves two primary roles in supporting the Alaska Federal lands transportation systems. First, Alaska DOT&PF receives Federal transportation funds to support their state and Interstate highway systems. The FHWA Federal-Aid Division offices in each state also provide stewardship, oversight, and support to Alaska DOT&PF, and to the MPOs and Regional Transportation Planning Organizations (RTPOs) in each state, through the entire project development cycle.

Common Federal Lands Transportation Funding Programs

As noted previously, many of the principal access routes to and from individual FLMA units are facilities owned and operated by either Alaska DOT&PF or local government agencies. These state and local governments use a variety of transportation funding programs with monies generated at the Federal, state, and local levels. At the Federal level, most funds are provided through either the Title 23 program for surface transportation or the Title 49 program for urban and rural public transportation services. (Please refer to http://www.fhwa.dot.gov/fastact/summary.cfm for a summary of the major provisions of the FAST Act.) While the funding associated with these Federal transportation programs benefits all users of the surface transportation systems in Alaska to some degree, these programs are not specifically focused on the needs of visitors to the various FLMA units.

Numerous transportation funding programs are available to all FLMAs. These programs are described in the following sections and target specific transportation-related project types and purposes. A common theme for many of these programs is local partnership. These programs emphasize the importance of partnering by FLMA units with other Federal, state, and local agencies to overcome funding gaps. Many of these funding sources were authorized initially through MAP-21, enacted in July 2013, and were reauthorized in the FAST Act, which was enacted in December 2015.

Table 10: Federal Lands Transportation Program Annual Authorization Amounts, FY16-FY20

	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	Total
NPS	$268 M	$276 M	$284 M	$292 M	$300 M	**$1.42 B**
FWS	$30 M	$30 M	$30 M	$30 M	$30 M	**$150 M**
FS	$15 M	$16 M	$17 M	$ 18 M	$19 M	**$85 M**
BLM, USACE, BOR, and IFAs	$22 M	$23 M	$24 M	$25 M	$26 M	**$120 M**
Total	**$335 M**	**$345 M**	**$355 M**	**$365 M**	**$ 375 M**	**$1.78 B**

*M = millions of dollars, B = billions of dollars

Federal Lands Transportation Program

The FLTP was established under MAP-21 and continued under the FAST Act (23 USC §203). The stated legislative purpose of the program is to improve those transportation facilities that are owned and operated by the NPS, FWS, FS, BLM, USACE, BOR, and Independent Federal Agencies (IFAs) with natural resource and land management responsibilities. (Please refer to the FLTP implementation guidance presented at https://flh.fhwa.dot.gov/programs/fltp/documents/FLTP%20Guidance%20-%20CLEARED.pdf on the FHWA public website for additional program details.)

By statute, NPS, FWS, and FS receive a defined annual allocation of the total nationally authorized and appropriated funding amount for this program. The remaining FLTP funding each year is made available to the other defined recipient agencies based on competitive application submissions from each agency. On the basis of these competitive investment strategies, the Office of the Secretary of Transportation (OST) will determine allocations by using a performance management model. Table 10 shows the annual FLTP national funding authorizations and the defined suballocations through fiscal year (FY) 2020.

The Federal share for FLTP projects is 100 percent. Funds made available under FLTP will be available for obligation during the current Federal fiscal year in which they were appropriated plus three additional Federal fiscal years.

As described in the enabling Federal legislation, the FLTP provides funding for the following activities:

- Program administration, transportation planning, research, preventive maintenance, engineering, rehabilitation, restoration, construction, and reconstruction of Federal lands transportation facilities
- Capital, operations, and maintenance of transit facilities
- Transportation projects, eligible under Title 23, that are on the public network that provides access to, is adjacent to, or travels through Federal lands
- Up to $10 million per fiscal year for environmental mitigation activities

Table 11: Historical and Anticipated FLAP Funding for Alaska, FY13-FY18

	FY13	FY14	FY15	FY16	FY17	FY18	Total
Alaska	$7.1 M	$7.2	$7.0 M	$8.0 M	$8.0 M	$7.5 M	**$44.8 M**

Sources: USDOT Federal Highway Administration. September 30, 2015. "FLAP Funding Amounts by State, FY13-FY15." https://flh.fhwa.dot.gov/programs/flap/documents/2015-funding.pdf.

USDOT Federal Highway Administration. June 7, 2017. "FLAP Funding Amounts by State, FY16." https://flh.fhwa.dot.gov/programs/flap/documents/FAST_Public_FundingTABLE_FY2016.pdf.

Federal Lands Access Program

FLAP was established in 23 USC §204 by MAP-21 and has been continued by the FAST Act. The primary focus of the program is to improve those non-Federally owned transportation facilities that provide access to, are adjacent to, or are located within Federal lands. The FLAP supplements state and local resources for public roads, transit systems, and other transportation facilities, with an emphasis on the improvement of access opportunities to FLMAs with units that are cited as being high-use recreation sites and local economic generators. (Please refer to the following FHWA program implementation guidance document for additional information on the FLAP program: https://flh.fhwa.dot.gov/programs/flap/documents/FLAP%20Implem%20Guidance.docx.)

Projects are selected by a Programming Decision Committee (PDC) established in each state. The PDC members in each state must include: a representative of the FLH division responsible for that state (in this case, the WFL), a representative of the state DOT in that state, and a representative of some organization representing the views of local governments in that state. In Alaska the latter PDC member is represented by the AML. The PDCs request project applications through a call for projects. The frequency of the calls is established by the PDCs in each state, and typically varies from no more frequently than once each year to an average of once every two to three years.

Funds available to each state are determined by a legislatively mandated formula based on public land acreage, visitation, public road miles, and public bridges. The historically observed FLAP funding amounts over the FY13 to FY15 time period, and the anticipated future annual funding over the FY16 to FY18 time period, in Alaska are illustrated on Table 11.

Table 12 presents the national FLAP authorizations defined in the FAST Act for the period of FY2016 through FY2020. In total, the national authorized funding for this program is $1.3 billion.

Table 12: FLAP Annual Authorization Amounts, FY16-FY20

	2016	2017	2018	2019	2020
Amount	$250 M	$255 M	$260 M	$265 M	$270 M

*M = millions of dollars

Source: USDOT Federal Highway Administration. "FLAP FAST Act Fact Sheet." https://flh.fhwa.dot.gov/programs/flap/documents/FAST%20FLAP%20fact%20sheet.pdf.

Nationally Significant Federal Lands and Tribal Projects

The Nationally Significant Federal Lands and Tribal Projects (NSFLTP) Program is a new program established by the FAST Act for application to FLMA major projects. All FLTP, FLAP, and TTP eligible agencies can apply. States and localities may be co-applicants. This program is designed to provide additional financial assistance for the implementation of those "major" projects with total estimated costs of at least $25 million, with priority consideration given to projects with an estimated cost of more than $50 million. The NSFLTP Program requires that at least 10 percent of the total estimated project cost funding come from non-NSFLTP sources. Projects must

have completed the NEPA process, as demonstrated by a completed record of decision, finding of no significant impact, or categorical exclusion determination. This program is authorized in the FAST Act for up to $100 million per year.

In reviewing applications for the NSFLTP program, the Secretary of Transportation will consider the extent to which the project:

- Furthers the Department's goals, including state of good repair, economic competitiveness, quality of life, and safety;
- Improves the condition of critical transportation facilities, including multimodal transportation facilities;
- Needs construction, reconstruction, or rehabilitation;
- Has matching funds (projects with a greater percentage of matching funds rank higher than projects with a lesser percentage of matching funds);
- Is included on or eligible for the National Register of Historic Places;
- Uses new technologies and innovations to increase project efficiency;
- Is supported (whether for construction or for operation and maintenance) by funds other than those received under this program;
- Spans two or more states; and
- Serves land owned by multiple Federal agencies or Indian tribes. [FAST Act § 1123(f)]

Tribal Transportation Program

As defined in MAP-21, and as continued by the FAST Act, the purpose of the TTP is to provide safe and adequate transportation and public access to, within, and through Indian reservations for Native Americans, visitors, recreational users, resource users, and others. A prime objective of the TTP is to contribute to the health, safety, economic development, self-determination, and employment of Indians and Native Americans. (For additional details on this program, please refer to: http://www.fhwa.dot.gov/fastact/guidance.cfm.)

The FAST Act continues the TTP, with a Federal share of 100 percent. Table 13 presents the annual authorization amounts over the period FY16 to FY20 for this program as defined in the FAST Act.

Prior to distributing these funds, nominal amounts may be deducted for program administration, tribal planning, tribal bridges, tribal safety projects, and tribal supplemental funding. When the aforementioned set-asides are removed, the remainder of the annually appropriated funds are allocated to tribes according to a statutory formula based on tribal population, road mileage, and average tribal shares under the predecessor Indian Reservation Road program.

Table 13: Tribal Transportation Program Annual Authorization Amounts, FY16-FY20

	2016	2017	2018	2019	2020
National Amount	$465 M	$475 M	$485 M	$495 M	$505 M
Alaska State Share	$45.3 M	$45.3 M	$45.7 M	$46.3 M	$47.3 M

*M = millions of dollars

Source: USDOT Federal Highway Administration. February 2016. "Tribal Transportation Program FAST Act Fact Sheet." http://www.fhwa.dot.gov/Fastact/factsheets/tribaltransportationfs.cfm.

Transportation Alternatives Set-aside of the Surface Transportation Block Grant Program

The Transportation Alternatives set-aside of the Surface Transportation Block Grant (STBG) Program (previously Transportation Alternatives Program, or TAP) offers funding to help state and local governments expand transportation choices and enhance the built and natural environment. To be eligible for funding, a transportation enhancement project must fit into one or more of 12 eligible transportation enhancement activities specified in 23 USC §104 related to surface transportation, which include:

- Pedestrian and bicycle infrastructure and safety programs;
- Scenic and historic highway programs;
- Landscaping and scenic beautification;
- Preservation of historic transportation facilities; and
- Environmental mitigation and habitat connectivity enhancements associated with transportation facilities.

FLMAs are eligible recipients, or they can work with partners, such as gateway communities, to submit applications.

The program will continue to operate essentially as it did previously. This includes all projects and activities that were previously eligible under TAP. Table 14 illustrates the annual authorization amounts for the Transportation Alternatives Set-aside of the STBG Program over the period FY16-FY20 as described in the FAST Act.

The FAST Act requires all projects to be funded through a competitive process, administered by state DOTs and, in some cases, MPOs. To pursue TAP funding, FLMAs should reach out to their states and communities, develop partnerships, and make the case for how their projects meet state and local goals.

Table 14: Transportation Alternatives Set-Aside of the STBG Program Annual Authorization Amounts, FY16-FY20

	2016	2017	2018	2019	2020
Amount	$250 M	$255 M	$260 M	$265 M	$270 M

*M = millions of dollars

Source: USDOT Federal Highway Administration. February 2016. "Transportation Alternatives Program FAST Act Fact Sheet." https://www.fhwa.dot.gov/fastact/factsheets/transportationalternativesfs.cfm.

Recreational Trails Program

The Recreational Trails Program (RTP) provides funds to states for the purpose of developing and maintaining recreational trails and trail-related facilities for both non-motorized and motorized recreational uses (23 USC §206). Examples of trail uses include hiking, bicycling, in-line skating, equestrian use, cross-country skiing, snowmobiling, off-road motorcycling, ATV riding, or using other off-road motorized vehicles.

Eligible projects include:

- Maintenance and restoration of existing recreational trails;
- Development and rehabilitation of trailside and trailhead facilities and trail linkages for recreational trails;
- Purchase and lease of recreational trail construction and maintenance equipment;
- Construction of new recreational trails (with specific requirements when Federal land is involved);
- Acquisition of easements and fee simple title for recreational trail corridors; and
- Assessment of trail conditions.

The FAST Act consolidates the RTP, among other programs, into the STBG Program. However, the RTP will continue to operate essentially as it did previously. RTP provides a total of $85 million annually to

states to develop and maintain recreational trails and trail-related facilities for both non-motorized and motorized recreational trail uses. Alaska is apportioned roughly $1.5 million for RTP annually, which is administered by the Alaska Department of Natural Resources.[46]

Of the RTP funds, 30 percent are to be spent for uses relating to motorized recreation and 30 percent are to be spent for uses relating to non-motorized recreation. In addition, up to 40 percent is to be used for projects that facilitate diverse recreational trail use within a recreational trail corridor, trailside, or trailhead.

Emergency Relief for Federally Owned Roads

The ERFO Program assists Federal agencies with the repair or reconstruction of tribal transportation facilities, Federal lands transportation facilities, and other Federally owned roads that are open to public travel, which are found to have suffered serious damage by a natural disaster over a wide area or by a catastrophic failure.[47] The intent of the ERFO Program is to pay the unusually heavy expenses for the repair and reconstruction of eligible facilities.

Repairs are classified as either emergency or permanent repairs. Emergency repairs are those repairs undertaken during or immediately after a disaster to restore essential traffic, to minimize the extent of damage, or to protect the remaining facilities. Permanent repairs are those repairs undertaken after the occurrence of the disaster to restore facilities to their pre-disaster conditions. Emergency repairs do not require prior approval, while permanent repairs do.

This program is not intended to cover all repair costs but rather to supplement FLMA repair programs to help pay unusually high expenses resulting from the effects of extreme weather conditions. Funds are provided from the Highway Trust Fund. No funding match is required by the program; the Federal share is 100 percent.

46 Alaska Department of Natural Resources. "Recreational Trails Program." http://dnr.alaska.gov/parks/grants/trails.htm

47 USDOT Federal Highway Administration. 2016. Summary of Changes by the FAST Act to the Emergency Relief for Federally Owned Roads (ERFO) Program. https://flh.fhwa.dot.gov/programs/erfo/documents/fast-changes-summary.pdf.

Dalton Highway Flooding. Alaska DOT&PF photo.

Emergency Relief (ER) for Federal-Aid Highways and Roads

The ER Program assists state DOTs and local governments with the repair or reconstruction of Federal-aid highways and roads on Federal lands which have suffered serious damage as a result of natural disasters or catastrophic failures from an external cause. This program supplements the commitment of resources by states, their political subdivisions, or other Federal agencies to help pay for unusually heavy expenses resulting from extraordinary conditions.[48]

Like ERFO, this program is not intended to cover all repair costs but rather to supplement FLMA repair programs to help pay unusually high expenses resulting from the effects of extreme weather conditions. Funds are provided from the Highway Trust Fund. Approved ER funds are available at the pro-rata share that would normally apply to the Federal-aid facility damaged. For Interstate highways, the Federal share is 90 percent. For all other highways,

48 https://www.fhwa.dot.gov/programadmin/erelief.cfm

Dalton Highway Crossing the Yukon River. BLM photo.

the Federal share is 80 percent. The Federal share for permanent ER repairs may amount to 90 percent if the combined eligible ER expenses incurred by the state in a Federal fiscal year exceeds the annual apportionment of the state under 23 USC section 104 for the fiscal year in which the disasters or failures occurred.

Emergency repair work to restore essential travel, minimize the extent of damage, or protect the remaining facilities, accomplished in the first 180 days after the disaster occurs, may be reimbursed at 100 percent Federal share. The 180 day time period for 100 percent eligibility of emergency repairs may be extended if a state cannot access a site to evaluate damages and the cost of repair.

Nationally Significant Freight and Highway Projects

The Nationally Significant Freight and Highway Projects Program (NSFHP) is newly authorized in the FAST Act. This is a nationally competitive program created to allow for states, MPOs, and local agencies to address major investment needs. FLMAs are eligible to be co-applicants with states.

To be eligible for the receipt of these funds, any proposed projects must be categorized as meeting one or more of the following:

1. Highway freight projects on the National Highway Freight Network
2. Highway or bridge projects on the National Highway System or a project that would improve mobility or is located in a national scenic area
3. Freight intermodal projects
4. Railway-highway grade crossing or separation projects

NSFHP projects require a 40 percent match from non-NSFHP sources. Up to 20 percent can be from other programs such as FLTP; however, the remaining 20 percent must be from non-Federal sources.

The focus of this program is on projects with a total cost of greater than $100 million. However, it is anticipated that there will be set-asides for smaller projects and rural areas.

Non-Federal Sources

Although not a formally defined funding source, volunteer work can be an important source for labor and other talent. There are many different types and sizes of public land volunteer organizations in Alaska. FLMA staff should work with their agency procurement and contracting staff to ensure volunteer agreements meet agency requirements. In addition to the use of volunteer civilian personnel, a variety of other public and private agency staff and/or individuals may have an interest in the contribution of labor, materials, or funding to assist an FLMA with a specific transportation asset improvement action.

Alaska State Funding Opportunities

Alaska Transportation Alternatives Program

The Alaska Transportation Alternatives Program (ATAP) was authorized by MAP-21 and largely maintained by the FAST ACT to

Table 15: Historical and Anticipated ATAP Funding, FY16, FY19

	Rural	Urban	Statewide	Total
2016	$3,731,000	$ 2,083,000	$ 9,892,000	$15,706,000
2018 - 2019	$2,640,000	$2,040,000	$7,320,000	$12,000,000

Sources: Alaska Department of Transportation & Public Facilities. July 27, 2016. "Alaska Transportation Alternatives Program (ATAP). 2016 Awarded Projects." http://dot.alaska.gov/stwdplng/atap/2016-grant.shtml.

Alaska Department of Transportation & Public Facilities. August 8, 2019. "Alaska Transportation Alternatives Program (ATAP)" http://dot.alaska.gov/stwdplng/atap/index.shtml.

Table 16: Recreational Trails Program Annual Authorization Amounts, FY16-FY20

	2015	2016	2017	2018
Amount	$1.146 M	$1.283 M	$1.291 M	$1.410 M
Number of Projects	31	32	22	26

*M = millions of dollars

provide funding for programs and projects defined as transportation alternatives.[49] Funding was apportioned to MPOs with greater than 200,000 urbanized area populations, and apportioned to rural (defined as areas with populations 5,000 and under), urban (defined as areas with populations between 5,000 and 200,000), and a statewide program (covering all areas, including those that may also qualify as rural or urban). The Alaska DOT&PF requests project applications through a call for projects on a two-three year cycle, depending on funding availability. Projects are checked for eligibility by Alaska DOT&PF staff and then chosen by the ATAP Project Evaluation Board during a public meeting, and scored according to a 12-part rubric that examines health and quality of life, public support, capital costs, and more.[50]

The historically observed ATAP funding amounts from the FY16, and the anticipated future annual funding over the FY18 to FY19 time period are illustrated on Table 15. The table shows total project

Iditarod National Historic Trail. BLM photo.

funds, including both awarded and matching funds. ATAP requires at least 9.03% matching funds from applicant governments, although additional scoring points are awarded for greater contributions; ultimately, match funds tended to comprise between 10% and half of project funds.

Community Transportation Program

The Community Transportation Program (CTP)[51] is a component of the Alaska STIP. The Alaska STIP is scored according to separate criteria for a) urban and rural communities and b) remote communities, those not connected to the Alaska road system by road or ferry.[52]

Federal Lands Access Program

As previously described in this document, the FLAP is intended to improve those non-Federally owned transportation facilities that provide access to, are adjacent to, or are located within Federal lands.

49 http://dot.alaska.gov/stwdplng/atap/index.shtml
50 Alaska Department of Transportation & Public Facilities. 2018. *TAP (TRAAK) Projects Criteria 2018* http://dot.alaska.gov/stwdplng/atap/documents/TAP-(TRAAK)-Projects-Criteria-2018.pdf

51 http://dot.alaska.gov/stwdplng/cip/stip/projects/2023_ctp_peb.shtml
52 http://dot.alaska.gov/stwdplng/cip/stip/projects/Assets/2023_CTP_Criteria_Final.pdf

Alaska Recreational Trails Program

The Alaska RTP provides reimbursable, matching funds from the Alaska Department of Natural Resources to develop and repair recreational trails and trail-related facilities for both non-motorized and motorized recreational trail uses.[53] The RTP program also provides funds for trail related environmental protection, safety and educational projects.

Agreements in General

In certain situations, and with the appropriate legal authority, FLMAs can enter into partnership agreements with cooperators for road maintenance and construction activities. Road maintenance agreements are more common than agreements for construction improvements. Several elements are common to all types of partnerships, such as:

- Mutual interest in some goal or value;
- A state of participation or sharing;
- No conflict of interest;
- Agreement must be executed before costs are incurred or work commences;
- A specific relationship between the parties (written agreement); and
- Voluntary participation.

Cost Share Agreements

The Interior and Related Agencies Appropriations Act of 1992 authorizes DOI agencies to cooperate with other parties to develop, plan, and implement projects that are mutually beneficial to parties that enhance activities. This includes financing projects with matching funds from cooperators. Cooperators may be public and private agencies, organizations, institutions, and/or individuals.

Funding Gaps

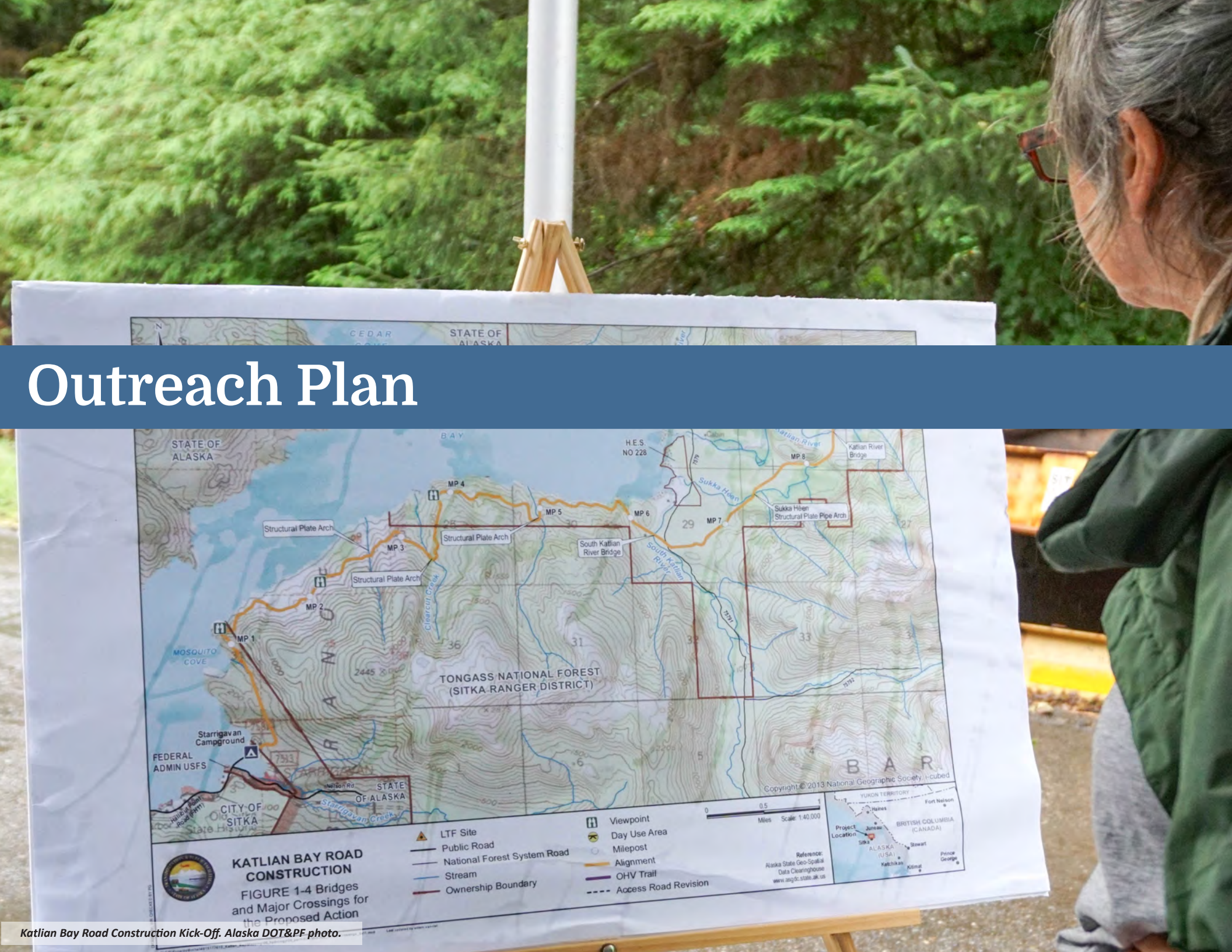
Each FLMA is experiencing decreases in the availability of transportation funds, while needs for routine maintenance and new projects remain constant or are increasing. Lack of funding contributes to increasing levels of deferred maintenance. Assets degrade over time and as maintenance continues to be deferred, the magnitude of the costs required to bring assets back to proper condition (i.e., to a "state of good repair") will only continue to grow.

FLMAs are challenged in how transportation funds are allocated. If yearly operation and maintenance costs exceed available funds, agencies must choose which assets receive funding, and to what level they are to be maintained. New projects are impacted by lower funding levels and increasing funding competition from the demands of deferred maintenance to ensure that existing assets can continue to be operated safely. There is a growing necessity to show that new projects are critical to the mission of each FLMA. Establishing frameworks for identifying the critical projects and making the very best use of available funds is one of the primary purposes of this Plan and accompanying agency profiles. The project selection processes, performance measures, actions, and recommendations ensure that transportation funds continue to support those efforts that are most effective in furthering FLMA missions.

More specific information on each agency's funding needs is available in the agency drop-down plans.

53 Alaska Department of Natural Resources Division of Parks & Outdoor Recreation. 2019. "Recreational Trails Program" http://dnr.alaska.gov/parks/grants/trails.htm

Outreach Plan



Katlian Bay Road Construction Kick-Off. Alaska DOT&PF photo.

Outreach Plan

The LRTP multiagency planning team designed outreach for this LRTP to inform and solicit input from interested stakeholders and the public. The intent of outreach is to help the public and stakeholders understand and influence how LRTP strategies could eventually translate into specific projects, and how the LRTP does not itself select projects. The LRTP's multiagency team used various outreach methods to communicate plan intent, garner agreement to the plan's approach and assumptions, solicit input that furthers the intent and/or effectiveness of the plan, and provide opportunities to comment on a draft document. Because this LRTP update is a pre-decisional policy document, it does not require a NEPA review. Although the level of outreach conducted on behalf of this plan is not intended to meet the levels required of NEPA projects, it can be used as a springboard for subsequent NEPA efforts for projects that may be influenced by the LRTP.

The goals of *Alaska Federal Lands LRTP 2020-2040* outreach efforts include:

- Inform and educate external stakeholders about Federal Land Management Agency (FLMA) transportation planning processes
- Provide opportunities for stakeholders to identify their concerns, values, ideas, and interests with regard to access to and within Federal public lands
- Allow agency management and external stakeholders the opportunity to provide input on this LRTP
- Build support for the transportation planning process
- Strengthen existing partnerships while forging new ones

In general, the outreach strategy for the Alaska LRTP update strategically leveraged existing events rather than creating new ones. The Core Team members sought out and attended relevant workshops, meetings, and conferences that were already planned by groups that may have an interest in the FLMA transportation planning process. By researching and keeping apprised of events planned with relevant stakeholders, attendance maximized the value of an already captured audience that should be reached. The Core Team also sent team members to attend events near where they were already located in order to minimize travel costs.

Since the first *Alaska Federal Lands LRTP* was published in 2012, outreach has led to some noteworthy accomplishments. In the years leading up to this LRTP update, some of the major achievements in ongoing outreach are:

- Monthly coordination calls among representatives of the FLMAs, Alaska DOT&PF, and AML
- Annual project coordination meetings

As an example, the annual project coordination meetings are in-person events that include representatives from each FLMA, Alaska DOT&PF, and AML. The project coordination meetings serve to identify projects of mutual interest and possible partnerships. They support the development of an interagency menu of projects (a Transportation Improvement Plan (TIP) of sorts) where agencies agree that follow-up between interested parties is warranted to further explore and implement partnership opportunities.

Specific efforts that were developed or advanced through outreach and continued relationship-building activities are:

- Unpaved roads pilot with gravel road inventory and condition assessment
- TINA workshop, advancing GIS and use of geospatial data in public lands
- Coordination on new TTP funding requirements
- Coordinating and implementing common performance metrics

- Climate change planning
- CVTS and Visitation Trends Report
- Alaska Transportation Safety Study—coordinated data collection and analysis for injury and fatality statistics throughout all transportation modes; subsequent drafting of safety performance measures
- Animal / vehicle collision app
- TIPs, STIPs, FLAPs, FLTPs

Outreach Levels and Context

This LRTP built upon other FLMA and partner agencies' planning and outreach activities, thereby providing multiple opportunities for internal and external parties to become aware and/or involved in the LRTP planning process. Outreach can be categorized into three basic levels, listed in order of most to least involved:

- Involved
- Informed
- Aware

In transportation planning for public lands, these levels of outreach are useful for different audiences depending on whether the opportunities are *project level, plan level, or policy level*.

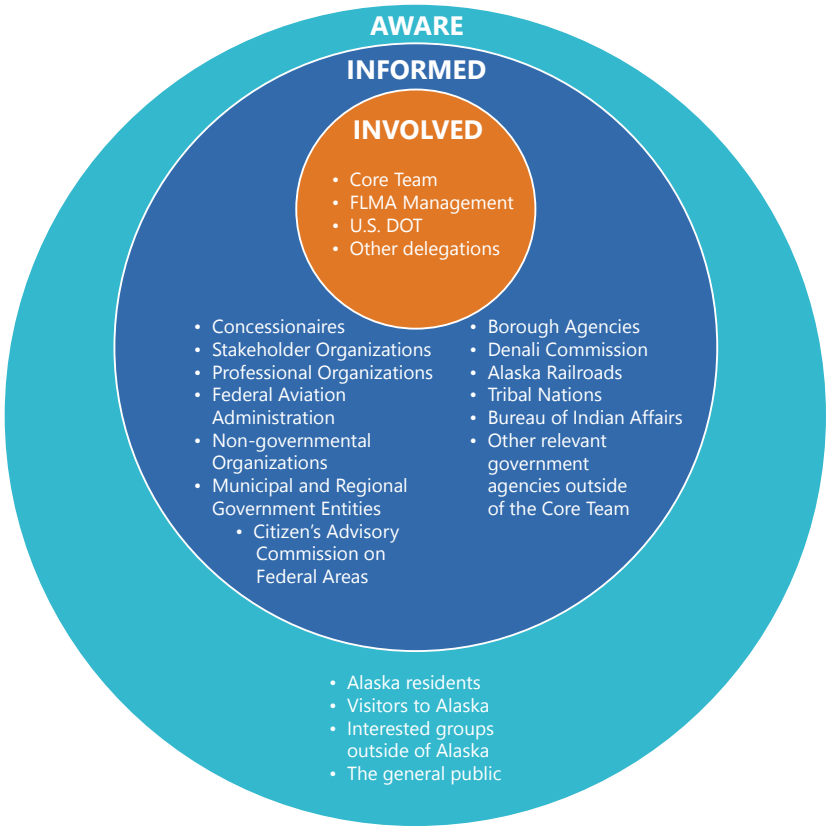
Project-level outreach occurs when specific projects are being developed through the evaluation and assessment process used under NEPA. *Plan-level* outreach occurs during development of medium-range or long-range plans that analyze specific transportation needs and identify potential project solutions such as land use management plans, comprehensive conservation plans, area long-range transportation plans, MPO LRTPs, borough transportation plans, corridor studies for specific highways or local transit development plans. *Policy-level* outreach occurs during the development of a LRTP, such as this Alaska Federal Lands LRTP update, regional transportation plans, and Alaska DOT&PF's Let's Keep Moving 2036. Such long-range policy plans provide guidance and direction for transportation programs. In short, they address "big picture" topics.

Collecting Wind Data at Arctic National Wildlife Refuge. FWS photo.

As this Alaska Federal Lands LRTP update is a policy-level document, it will not develop a list of selected projects, such as those developed in agency specific TIPs. Outreach activities associated with specific projects are conducted at the appropriate level of planning by individual FLMAs.

The public has further opportunity to provide input on specific proposed projects through the NEPA project evaluation and assessment process. All projects that include Federal funding must comply with the NEPA process. The NEPA process requires public outreach at several stages: project scoping (to present the proposed project and identify potential issues), public review of the draft environmental document (environmental assessment or environmental impact statement), and public review of the final environmental impact statement. Additional public involvement opportunities, such as public meetings are often provided at various stages of project development.

Figure 17: Spheres of Outreach



Recognizing that not all potential stakeholders are interested in participating in every outreach activity, three categories of stakeholders have been identified for this LRTP Update, as illustrated by the three spheres shown in Figure 17. The planning team tailored outreach content to the interests of each specific audience represented in the spheres. The innermost sphere represents the most involved stakeholders, with involvement intensity and level of information and detail regarding the LRTP decreasing through the middle and outer spheres.

The participants listed in the inner sphere, or "Involved," of Figure 17 received the most outreach interaction as the LRTP's results could potentially influence project-related activities from the unit to the agency levels. These participants were briefed throughout the LRTP development process to foster widespread buy-in and ensure agency-specific concerns are adequately addressed by the plan. During the development of this LRTP, FLMA senior management were briefed routinely on LRTP purpose, goals, objectives, and status to ensure agency concurrence with the plan and its outcomes. Buy-in from senior management is important for this multiagency LRTP as the plan reflects elements of each agency's national transportation policy goals.

The participants listed in the middle sphere of Figure 17 tend to have a greater stake in the LRTP because their own efforts may have some degree of overlap with plan goals, objectives, analysis, or conclusions. At this level, examples of cooperative interests range from concessionaire business plans, to non-vehicular access concerns, and ideally, coordination and consistency with similarly-related local or other governmental agency transportation plans.

In many states, LRTP development may not typically generate considerable interest from the general public given their non-project specific emphasis and policy level goals, objectives, and analysis. In most cases, the general public and other participants listed in the outermost sphere of Figure 17 are interested in the basic themes of a plan like this Alaska Federal Lands LRTP update and understanding how the process may result in specific projects of further interest to them.

Outreach Events

Outreach activities involve diverse audiences in a wide range of forums. Sequencing of outreach events varies by audience. Internal FLMA outreach to senior management occurred throughout the planning process to brief decision makers regarding topics such as goals, objectives, and strategies, and availability of technical drafts. External outreach will continue to occur as opportunities present themselves. Opportunities for external outreach include conferences and meetings where groups represented are most likely to have an interest in this LRTP and a presentation would complement conference proceedings.

External outreach events to date include the following:

- TRB Annual Meeting, January 2016, Washington, DC
- Alaska Federation of Natives Conference, November 2016, Fairbanks, AK
- TRB Annual Meeting, January 2017, Washington, DC
- Alaska Aircraft Owners and Pilots Association, March 2017, Anchorage, AK
- Alaska Tribal Transportation Working Group Symposium, March 2017, Anchorage, AK
- Southeast Alaska Tribal Transportation Workshop, April 2017, Ketchikan, AK
- TRB Symposium on the Transportation Needs of National Parks and Public Lands, September 2017, Washington, DC
- Alaska Tribal Conference on Environmental Management, November 2017, Anchorage, AK
- BIA Annual Providers Conference, December 2017, Anchorage, AK
- TRB Annual Meeting, January 2018, Washington, DC
- Alaska Forum on the Environment, February 2018, Anchorage, AK
- Alaska Tribal Transportation Working Group Symposium, April 2018, Anchorage, AK
- BIA Providers Conference, November 2018, Anchorage, AK

Becharof National Wildlife Refuge. FWS photo.

Outreach Delivery Tools

Numerous outreach tools were used during the development of the LRTP update and will continue during LRTP implementation. Outreach tools range from passive informational resources such as handouts and websites, to meetings and formal briefings and presentations. Planning team members encourage participation through the following methods:

Briefings

Briefings will be used most extensively for participants listed in the inner sphere of Figure 17. These briefings will provide senior management and other agency leaders with updates on LRTP update progress and findings. Participants will be engaged throughout the planning process and will be provided concise newsletter-level hardcopy information, supplemented by in-person discussions with Core Team representatives. Briefings will accompany key project milestones.

Presentations

In-person presentations will be conducted for both inner and middle sphere (Figure 17) participants as they provide a comprehensive basis for understanding the LRTP update effort through direct face-to-face interaction. Presentations will be tailored specifically to audience interests. Presenters will be apprised beforehand of any specific issues important to a particular audience.

Handouts

Handouts alerting stakeholders of project purpose, goals, and schedule will be provided to all three spheres represented in Figure 17 as a way of introducing the LRTP effort and building ongoing interest. Handout content will be concise and suitable for all outreach participants. Frequency of distribution will be in coordination with events and accompanying project milestones.

Website

The project website is intended for all outreach participants as a way to build interest and as a source of general information, updates, draft plans, links to relevant websites and documents, contact information, and gateway to public comment. The Core Team will work with in-house contractors to create a new website, and in the agreement with the website developers, consideration will be given to funding for duration of website maintenance and periodic updating to an agreed-upon degree. This could range from an infrequent but necessary change to fix a broken link to periodic news updates on the project. The video may also be present on the website.

Video

The Alaska LRTP update video will be intended for all outreach participants in order to both inform and build interest. It will be short in length (approximately 3 ½ minutes) and give an overview of the project and lead interested parties to more information on the website. The video may be played at conferences and workshops, posted on the Alaska LRTP update website, and may accessible from the various public land agency websites, social media pages, and YouTube channels.

E-blast

E-blasts combine the advantages of printed and electronic resources through the use of an email listserv. The e-blast will reach all participants who register via the project website, by request during in-person events, or are added to the listserv by the Core Team. E-blasts will be sent out accompanying project milestones.

Social Media

A variety of media channels will be used to dispense information regarding the LRTP effort, including Twitter, Facebook, and Instagram. The agencies involved in the Core Team will be responsible for updating their respective social media feeds that reach relevant audiences at the state and unit levels. The project team will ensure coordination of content on the various social media outlets.

Outreach Audiences

Alaska DOT&PF

Alaska DOT&PF plans and initiatives help to influence FLMA long-range transportation planning. In addition, the Alaska Federal Lands LRTP efforts include Alaska DOT&PF planning staff as Core Team members. The team relies on them to reach out to other state level agencies as needed. While the state of Alaska conducts outreach for their own planning processes, it is an opportunity for the Alaska Federal Lands LRTP team to disseminate materials and communicate with relevant groups statewide. It is also an opportunity to reach a greater variety of geographic areas. Alaska DOT&PF is engaged in many planning activities and areas of interest that overlap with the Alaska Federal Lands LRTP, such as the recent statewide bicycle and pedestrian master plan. Alaska DOT&PF staff can bring handouts to events and provide an overview of how the LRTP effort aligns with other state transportation planning efforts. Alaska DOT&PF staff members are key in bridging this communication. Statewide transportation-related studies and policies help inform aspects of the LRTP and are central to informing Alaska transportation needs over all. The following Alaska DOT&PF plans and programs are of particular interest to FLMA transportation planning as they embody the results of Alaska DOT&PF outreach efforts, portray the state's vision for the statewide transportation system, suggest areas of potential partnership, and provide valuable data about statewide travel.

- Alaska Statewide Long Range Transportation Plan
- Alaska Statewide Long Range Transportation Policy Plan
- Area Long Range Transportation Plans
    - Southeast Alaska LRTP
    - Southwest Alaska LRTP
    - Prince William Sound LRTP
    - Yukon-Kuskokwim Delta LRTP
    - Northwest-Arctic Alaska LRTP
    - Interior Alaska LRTP
- Metropolitan Transportation Plans
    - Anchorage MTP
    - Chugiak-Eagle River LRTP
    - Fairbanks MTP
- Modal Plans
    - Alaska Aviation System Plan
    - Alaska Strategic Traffic Safety Plan
    - Alaska Regional Ports Study (precursor to a ports and harbors LRTP)
    - Alaska Marine Highways System Plan (outdated, but addressed in current area plans)
    - Alaska National Highway System (no current plan, but addressed in MPO LRTPs and other plans)
    - Alaska Statewide Bicycle and Pedestrian Master Plan
- Alaska Statewide Transportation Improvement Program

Bureau of Indian Affairs

Decisions regarding transportation projects on Federal lands necessitate participation with the BIA. BIA is considered a significant stakeholder, but not a FLMA Core Team member because BIA is not a land management agency. As a significant stakeholder, BIA is considered an interested party for all levels described in Outreach Levels and Context Section of this plan. BIA will also be engaged through several outreach events such as the BIA Provider's Conference.

Tribal Nations

Tribal nations are critical partners on the Alaska LRTP, but not a Core Team members because tribal lands are not public. Tribal lands throughout the state share borders with public lands, and road, trail, marine, and air transportation modes that serve tribal lands need to make seamless transitions over borders. Tribal planning processes and funding are important for the LRTP to align with. As such, tribal outreach will include attending events where tribal representatives

are present and potentially holding a webinar or workshop. Alaska Forum on the Environment, Tribal Transportation Symposium, BIA Provider's Conference, and others listed in the Outreach Events Section of this plan draw a large representation of tribal members and these events will be used to disseminate relevant LRTP information.

Partners

The planning process being used to develop this LRTP will help to engage FLMAs in how they might partner with each other to meet statewide transportation priorities and leverage funds to address transportation needs for Alaska's Federally managed public lands.

Other potential partners may use this LRTP to identify FLMA goals and initiatives of mutual interest as a basis for initiating future partnerships. State level agencies as mentioned above, boroughs, municipalities, and non-governmental organizations are all possible partners for projects and initiatives that may arise from this LRTP. For example, the AML sends a representative to LRTP Core Team meetings and the representative may then act as a liaison to municipalities throughout Alaska. Through this representative and others acting likewise on behalf of other groups, they can facilitate outreach and raise comments and concerns from their respective audiences. FLMAs recognize the value of cooperative transportation partnerships and seek to leverage their funds with other agencies and organizations. The objective is to achieve the greatest benefit to the largest number of goals and objectives held by multiple agencies and organizations.

Tongass National Forest, Mitchell Creek Fishpass Rebuild. FS photo.

Implementation Plan

Root Glacier, Wrangell-St. Elias National Park & Preserve. NPS photo.

Implementation Plan

This Implementation Plan lists the following for each goal area:

- **Goal:** a broad statement that describes a desired end state.
- **Objective:** a specific, measurable statements that supports achievement of a goal.
- **Implementation action:** a specific action for FLMAs and their partners to make progress in achieving their goals and objectives.
- **Performance measure:** an indicator that agencies can use to assess progress toward an objective.[54]

This implementation plan relates to the multiagency goals and objectives in this LRTP and focuses on actions and performance measures that require multiagency collaboration. Each agency will participate in these actions as appropriate given agency missions and available resources.

Alaska Railroad Glacier Discovery Train, Chugach National Forest. FS photo.

54 FHWA, Performance Based Planning and Programming Guidebook, September 2013.

Short Term Implementation Actions

The multiagency LRTP team selected the following implementation actions as high-priority actions to work towards in the first one to two years after plan update completion:

1. ***Create a Multimodal Transportation Safety Database:*** Collaborate with FLMAs, state, and local partners to collect and analyze multimodal transportation safety data and monitor safety performance for travel to and through Federal lands in Alaska. Where appropriate, link this database with Alaska DOT&PF efforts to monitor and improve safety performance through the Highway Safety Improvement Plan and Strategic Highway Safety Plan.
2. ***Collaborate to Evaluate Fish Passage Barriers at a Watershed Level*** through completing a culvert inventory and compiling existing watershed documentation. Conduct an inventory of culverts across FLMA units to identify locations and conditions, where culverts are not properly sized to accommodate expected flow levels, and where culverts and other transportation infrastructure poses fish passage barriers. Create a set of best practices for culvert management and maintenance.
3. **Maintain Collaborative Multiagency Working Group** focusing on Federal lands transportation needs:
    - Maintain and update coordinated GIS systems
    - Participate in annual Project Coordination Meetings and regular teleconferences
    - Document collaborative accomplishments
4. ***Pursue Collaborative Funding Opportunities*** such as FLAP, FLTP, and other applicable funding sources to support transportation projects, plans, and research.
5. ***Coordinate Training Efforts:*** Organize annual multiagency training on topics of mutual interest, such as conducting Transportation Safety Assessments. In addition, each agency should invite other agency staff to attend applicable trainings they are organizing, as appropriate.

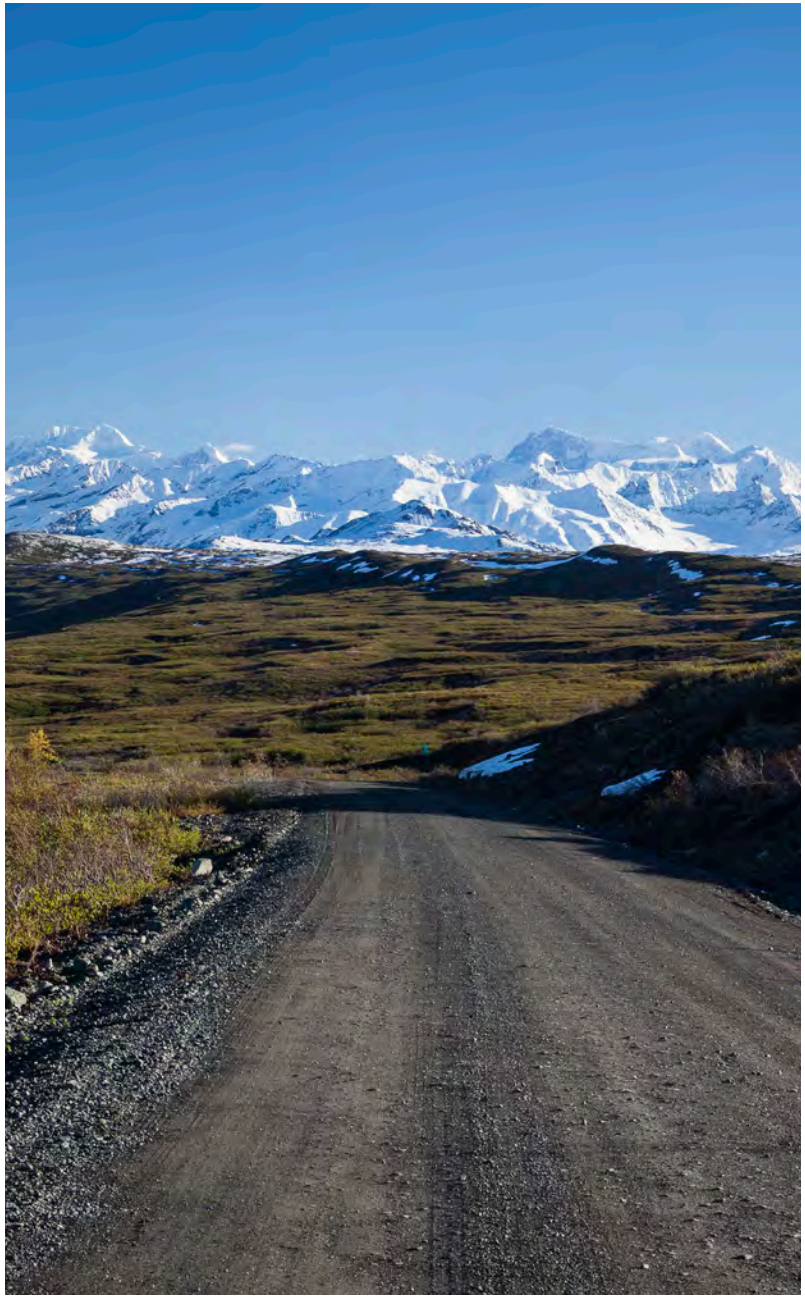
Medium Term Implementation Actions

The LRTP team identified the following as second tier implementation actions:

1. ***Complete Gravel Roads Condition Assessment*** for Federal lands in Alaska that generates actions to improve condition and contribute to performance management.
2. ***Develop Key Factors of Multimodal Access:*** Develop key factors and data collection for multimodal travel and active transportation (tie-in with safety database); this also includes consideration of concessionaires / private partners, such as shuttle operators.
3. ***Monitor Emerging Visitor Use Trends:*** Identify and research the emergence of new visitor transportation trends – such as fat bikes, electric bikes, and changing shoulder season and winter travel patterns – and their implications for Federal lands transportation and safety.
4. ***Tribal and Municipal Relations:*** Reach out to tribes, Alaska Native Corporations, and municipalities on LRTP implementation and update.
5. ***Visitor Data:*** Periodically (every five years) administer a collaborative survey of Federal lands transportation users in Alaska. Analyze survey data and share with partners to inform future decision making.

Implementation Actions by Goal Area

The following tables summarize the goals, objectives, implementation actions, and performance measures for each goal area.



Denali Highway. BLM photo.

System Management

Goal: *Provide a long-term transportation system to address current and future land management needs.*

Objectives:

- ***Asset Management:*** Use asset priority and facility condition information as a guide when considering transportation investments that benefit multiple FLMAs.
- ***Interagency coordination:*** Accomplish annual interagency coordination by setting priorities for needs, exchanging data, and discussing mutual policies to facilitate shared execution and potential economic savings for projects of mutual interest.
- ***Asset investment planning:*** Consider sustainability of operation and maintenance of new assets in the planning process.
- ***Hazard avoidance:*** Recognize and avoid conditions that jeopardize asset management or creation of new assets.

Implementation Actions:

- ***Asset Data Coordination:***
  - Share asset definitions across agencies to facilitate greater understanding of partner transportation systems.
  - Coordinate for increased compatibility of asset data.
- ***Collaborate to Evaluate Fish Passage Barriers at a Watershed Level*** through completing a culvert inventory and compiling existing watershed documentation. Conduct an inventory of culverts across FLMA units to identify locations and conditions, where culverts are not properly sized to accommodate expected flow levels, and where culverts and other transportation infrastructure poses fish passage barriers. Create a set of best practices for culvert management and maintenance.
- ***Complete Gravel Roads Condition Assessment*** for Federal lands in Alaska that generates actions to improve condition and contribute to performance management.

Performance Measures:

- Percent of paved road miles in good / fair / poor condition
- Percent of bridges in good condition or better
- Percentage of bridges in poor condition
- Completion of pilot gravel roads condition assessment
- FLMA units with agency-appropriate asset-level vulnerability assessments completed

User Experience

Goal: *Proactively enhance the Alaskan multimodal transportation system experience and connectivity.*

Objectives:

- ***User profile:*** Collect and analyze user information on an ongoing basis to determine which experiences are most important, relevant to transportation access.
- ***Multimodal transportation:*** Establish a seamless interagency multimodal transportation system that emphasizes the journey as part of the Alaskan experience.
- ***Mobility:*** Provide users with safe, efficient, affordable, and agency-appropriate access to and through Federal lands for all users.

Implementation Actions:

- ***Traveler information:*** Coordinate with public and private partners to provide proactive information for all users via a range of media that travelers use.
- ***Access to resources:*** Provide a multiagency approach to guidance for access to subsistence resources, industry, and intervillage travel.
- ***Visitor data:*** Periodically (every five years) administer a collaborative survey of Federal lands transportation users in Alaska. Analyze survey data and share with partners to inform future decision making.
- ***Develop Key Factors of Multimodal Access:*** Develop key factors and data collection for multimodal travel and active transportation (tie-in with safety database); this also includes consideration of concessionaires / private partners, such as shuttle operators.
- ***Monitor Emerging Visitor Use Trends:*** Identify and research the emergence of new visitor transportation trends – such as fat bikes, electric bikes, and changing shoulder season and winter travel patterns – and their implications for Federal lands transportation and safety.

Performance Measures:

- Percentage of users surveyed who rate their transportation experience as good or excellent
  - Baseline: 94% in 2016 CVTS
- Percentage of FLMA unit websites that provide essential traveler information
- Number of projects to provide multimodal access options connecting communities to Federal lands

Safety and Mobility

Goal: *Provide users with safe, efficient, affordable, and agency-appropriate access to and through Federal lands.*

Objectives:

- ***Coordinated planning:*** Strive for seamless multimodal connections to and across Federal lands in Alaska.
- ***User information:*** Provide a recognizable interagency multimodal transportation system and effective communication through outreach efforts.
- ***Safety:*** Transportation infrastructure will provide safe access for the public to and within Alaska's Federal lands.

Implementation Actions:

- ***Traveler information:*** Coordinate with public and private partners to effectively disseminate travel planning and transportation safety information through a variety of media to provide general and location-specific information to users.
- ***Create a Multimodal Transportation Safety Database:*** Collaborate with FLMAs, state, and local partners to collect and analyze multimodal transportation safety data and monitor safety performance for travel to and through Federal lands in Alaska. Where appropriate, link this database with Alaska DOT&PF efforts to monitor and improve safety performance through the Highway Safety Improvement Plan and Strategic Highway Safety Plan.
- ***Transportation Safety Assessments:***
  - Develop and train a multiagency Transportation Safety Assessment team that can conduct multimodal safety assessments of Federal lands transportation safety corridors in Alaska.
  - Develop a clearinghouse for Transportation Safety Assessment reports and data.
  - Conduct periodic evaluation of Transportation Safety Assessment implementation of recommendations.

Performance Measures:

- Progress towards creation of a multimodal transportation safety database
- Progress towards developing and conducting multiagency Transportation Safety Assessment training
- Number of Transportation Safety Assessments performed
  - Target: one per agency over the next five years
- Funding spent on safety improvements / number of projects that improve safety

Environment

Goal: *Protect and enhance natural and cultural resources through comprehensive transportation planning and management.*

Objectives:

- ***Planning at an appropriate ecosystem scale:*** Consider indirect effects on regional areas.
- ***Water quality:*** Ensure protection of open water, wetlands, and aquifers across Federal lands.
- ***Air quality:*** Maintain or improve air quality.
- ***Habitat:*** Avoid, minimize, or mitigate transportation related impacts.
- ***Cultural:*** Avoid or minimize negative impacts to culturally sensitive human settlements, subsistence areas, cultural landscapes, and historic and archaeological sites while providing appropriate access consistent with protecting said resources.
- ***Soils:*** Avoid or minimize impacts on permafrost and other at risk soil systems.

Implementation Actions:

- Use data and spatial analysis to better understand where transportation infrastructure interacts with the natural environment, in particular wildlife habitat, aquatic habitat, migratory routes, steep slopes, wetlands, permafrost, and historical, archaeological, and cultural resources.
- Continue to implement best management practices to avoid, minimize, or mitigate potential impacts to natural and cultural resources from transportation systems.
- Enhance multiagency understanding of vehicle / wildlife collisions and wildlife interactions, and develop a strategy to reduce collisions and impacts on wildlife migration areas.
- Develop an inventory of historic transportation features.

Performance Measures:

- Number of reported vehicle / wildlife collisions on roads traveling through Federal lands.
    - Target: reduce the number of incidents
- Completion of culvert / Aquatic Organism Passage inventory
- Number of aquatic organism passage enhancements or wildlife connectivity enhancements completed per year on Federal lands.

Risk and Resilience

Goal: *Develop a long-term transportation system that addresses environmental, social, and economic risks.*

Objectives:

- ***Risk identification:*** Evaluate major risks to transportation systems.
- ***Adaptation:*** Adapt transportation systems and practices to address extreme weather, environmental hazards, and other risks where appropriate.
- ***Mitigation:*** Identify and alter transportation practices and activities that contribute to increased risks while continuing to provide for and encourage compatible uses.

Implementation Actions:

- Conduct vulnerability assessments and scenario planning to identify and rank vulnerabilities to natural hazards and extreme weather.
- Incorporate expected future conditions into the planning of operations and maintenance strategies and new transportation infrastructure.
- Examine where permafrost is coming into contact with infrastructure using geospatial analysis and begin planning for long-term contingencies of roads impacted by permafrost subsidence.
- Improve gravel sourcing by developing a program to identify and appropriately treat gravel sources and a set of best practices and memorandums of agreement to facilitate coordinated contracting of gravel sources to meet project and maintenance needs.

Performance Measures:

- FLMA units that have completed an agency-appropriate vulnerability assessment
- Percent of assets that have been removed, improved, or altered to reduce vulnerability
- Percent of new assets that consider future conditions at the planning stage
- Completion of an inventory of culverts (percent of roads inventoried)

Partnerships

Goal: *Maintain existing mutually beneficial relationships and build future opportunities for collaboration with tribal, Federal, state, local, and other external partners.*

Objectives:

- ***Partner Coordination:*** Coordinate with partners to share resources, data, and expertise.
- ***Project Champions:*** Coordinate with project champions to support mutually beneficial programs, initiatives, projects, and goal area working group activities.

Implementation Actions:

- ***Maintain Collaborative Multiagency Working Group*** focusing on Federal lands transportation needs:
  - Maintain and update coordinated GIS systems
  - Participate in annual Project Coordination Meetings and regular teleconferences
  - Document collaborative accomplishments
- ***Tribal and Municipal Relations:*** Reach out to tribes, Alaska Native Corporations, and municipalities on LRTP implementation and update.
- ***Access to Subsistence Resources:*** Provide multiagency approach to guidance for access to subsistence.
- ***Pursue Collaborative Funding Opportunities*** such as FLAP, FLTP, and other applicable funding sources to support transportation projects, plans, and research.
- ***Coordinate Training Efforts:*** Organize annual multiagency training on topics of mutual interest, such as conducting Transportation Safety Assessments. In addition, each agency should invite other agency staff to attend applicable trainings they are organizing, as appropriate.

Performance Measures:

- Percent of projects that leverage multiple funding sources and contribution to FLMA goals.
- Number of transportation plans or studies completed with interagency coordination or participation.

Federal Highway Administration

Canning River Study Area. FWS photo.