

# Turnagain Pass

## Master Plan

JANUARY 2025



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# ACRONYMS

AADT	Annual Average Daily Traffic
ADA	Americans with Disabilities Act
ADEC	Alaska Department of Environmental Conservation
ADF&G	Alaska Department of Fish and Game
ADNR	Alaska Department of Natural Resources
AHRS	Alaska Heritage Resources Survey
ATV	All-Terrain Vehicle
AWC	Anadromous Waters Catalog
CE	Categorical Exclusion
CNFLMP	Chugach National Forest Land Management Plan
D	Direction
DMA	Demand Management Analysis
DOT&PF	Alaska Department of Transportation and Public Facilities
DPS	Distinct Population Segment
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FLAP	Federal Lands Access Program
GHG	Greenhouse Gases
ID	Identifier
INHT	Iditarod National Heritage Trail
KMTA NHA	Kenai Mountain Turnagain Arm National Heritage Area
KPB	Kenai Peninsula Borough
KPBAP	Kenai Peninsula Borough Area Plan
LUST	Leaking Underground Storage Tank
LOS	Level of Service
LWCF	Land and Water Conservation Fund
M&O	Maintenance and Operations
MMPA	Marine Mammals Protection Act
MOA	Memorandum of Agreement
Moto Lot	Motorized Lot
MOU	Memorandum of Understanding
MP	Milepost
MPH	Miles Per Hour
MRA	Multivariate Regression Analysis
MVMT	Million Vehicle Miles Traveled
NEPA	National Environmental Policy Act



NFIP .....	National Flood Insurance Program
NHD .....	National Hydrology Dataset
NHPA.....	National Historic Places Act
NOAA .....	National Oceanic and Atmospheric Administration
NPS .....	National Park Service
NRHP.....	National Register of Historic Places
OHA.....	Office of History and Archaeology
ROW.....	Right-of-Way
RV.....	Recreational Vehicle
SOP .....	Standard Operating Procedures
Sq Ft.....	Square Feet
Sq Yd .....	Square Yard
TBD .....	To be determined
The Pass.....	Turnagain Pass
TPMP .....	Turnagain Pass Master Plan
USDOT.....	United States Department of Transportation
USFS .....	United States Forest Service
USFWS .....	United States Fish and Wildlife Service
VPD .....	Vehicles per Day
WFLHD.....	Western Federal Lands Highways Division

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## A Special Thank You to the Local Community Members and Organizations That Helped Shape the Plan

Alaska Trails

Alaska Outdoor Alliance

Kenai Mountains-Turnagain Arm National Heritage Area (KMTA)

Singletrack Advocates

Chugach Backcountry Freeriders

Anchorage Snowmobile Club

Chugach National Forest Avalanche Information Center (CNFAIC)

Alaska Travel Industry Association (ATIA)

Alaska Wild Guides

Remarkable Adventures and Alaska Guide Collective



# 1. INTRODUCTION

The Turnagain Pass Master Plan (TPMP) provides a long-term guide for future corridor improvements with a focus on safety and recreational access. The Turnagain Pass Master Plan is a collaborative planning effort between the United States Forest Service (USFS), Alaska Department of Transportation and Public Facilities (DOT&PF), and the Federal Highway Administration (FHWA) Western Federal Lands Highway Division (WFLHD) for all existing recreational facilities within the Chugach National Forest with access to Seward Highway Milepost (MP) 56-75, in the area known as Turnagain Pass.

Turnagain Pass (the Pass) is located along the Seward Highway (Alaska Route 1) south of Anchorage, from MP 56 to 76 (Figure 1). This 20-mile corridor provides access to approximately 98,000 acres of the Chugach National Forest, found within the Glacier Ranger District. The existing corridor's adjacent facilities include a mix of recreational and tourism opportunities for a diverse group of users year-round. The existing land use and ownership throughout the plan area is entirely publicly owned lands managed by the USFS and the Alaska Department of Natural Resources (ADNR), with the roadway's right-of-way (ROW) maintained by the DOT&PF.

Facilities along the corridor include campgrounds, trailheads, turnouts, rest areas, parking, scenic views, and river access. Some facilities are experiencing strain due to existing uses, and the Master Plan identifies recommended improvements to support sustainable long term uses within the area. The identification and condition of all facilities is presented in Section 4.3 of this Plan, including parking, roadside pullouts, trailheads, and campgrounds. These facilities, their location, and the current owner and maintenance provider are included in Table 1 for reference.

This Master Plan was completed over the course of 24 months using a two-phase process. Phase One (Appendix 1), was comprised of capturing and documenting the existing conditions (Chapter 1 of Appendix 1), engaging with community representatives (Chapter 2 of Appendix 1), performing and documenting a demand management analysis (Chapter 3 of Appendix 1), and identifying all needs within the Pass (Chapter 4 of Appendix 1). Phase Two (Appendix 2) was comprised of ongoing community engagement, identifying potential projects and prioritization criteria (Chapter 1 of Appendix 2), creating conceptual designs and cost estimates (Chapter 2 of Appendix 2), and crafting a management and maintenance strategy (Chapter 3 of Appendix 2).

## 1.1 Area Overview

The TPMP area covers approximately 98,000 acres of the Chugach National Forest within the Glacier Ranger District and includes the Seward Highway Corridor MP 56-76 (Turnagain Pass), Figure 1.







Figure 1. Turnagain Pass Master Planning Area

**Table 1. Existing Facilities Conditions**

Facility	Location/Extents	Existing Features	Owner/ Maintenance
Recreational Infrastructure	Various	Public Use Cabins (41) Motorized User Access Trails (500 miles) Roads (90 miles)	USFS
Recreational Motorized Use Access (Winter)	West Side of Seward Highway	Access for use of motorized vehicles (snowmachines) during winter months	USFS
Iditarod National Historic Trail (INHT)– Southern Trek	Iditarod National Historic Trail – Southern Trek: 180 miles long	Multi-Use Trail (Non-Motorized) Camping Includes the 12-mile long Turnagain Pass Trail	USFS
Canyon Creek Rest Area	MP 56.6 (West) MP 56.6 (East)	Delineated Parking Toilets (2) Dumpster Access Paved Trail Access (limited)	DOT&PF
Gulch Creek All-Terrain Vehicle (ATV) and Pedestrian Bridge Access	MP 57.4 (West)	Viewing Area Hiking Trail Unmarked Parking – Gravel (2-4 vehicles)	DOT/USFS
Raft Launch	MP 59.0	Raft Launch Delineated Parking - Paved	DOT&PF
Gravel Pit	MP 62.2	Limited Unmarked Parking – Gravel (2-4 vehicles)	Gravel Pit Owned and Maintained by USFS Parking – DOT&PF
Granite Creek Campground	MP 62.9	Camp Sites (19)	USFS
Johnson Pass North Trailhead	MP 63.6	Delineated Parking - Gavel Multi-Use Trail Toilet	USFS
Bertha Creek Campground	MP 65.4	Camp Sites (12)	USFS
Cornbiscuit Pullout	MP 66	Limited Unmarked Parking - Paved Skiing Access	DOT&PF
Sunburst Pullout	MP 66.8	Limited Unmarked Parking - Paved Skiing Access	DOT&PF
Center Ridge Trailhead	MP 68.0	Delineated Parking - Paved Toilets (2) Multi-Use Trail (Non-Motorized)	USFS/DOT
Motorized Vehicle Access Area (Moto Lot)	MP 68.4	Delineated Parking Toilets (2) Picnic Tables Snowmachine Access Skiing Access	USFS/DOT&PF
Tincan Trailhead/Pullout	MP 69.2 (East)	Limited Unmarked Parking- Paved Skiing Access	DOT&PF
Snowstake Lot	MP 69.8	Unmarked Parking - Paved	DOT&PF
Upper Ingram Trailhead also referred to as Muskeg Meadows	MP 72.5	Limited Unmarked Parking - Paved Skiing Access	DOT&PF
Base of Pass	MP 75.5	Unmarked Parking - Paved	DOT&PF



# 2. WHAT WE HEARD

## 2.1 How Involvement Has Informed the Plan

Throughout the development of the Turnagain Pass Master Plan, stakeholder and agency involvement played key roles in the identification and evaluation of needs as well as the development and evolution of project designs. Verbal and written public comments were solicited through both phases of the planning process from individuals who frequently use the Pass, agencies that operate in the Pass, and those who travel through the Pass. The culmination of these public comments has overall guided and shaped the final master plan.

## 2.2 Engagement Overview

The TPMP prioritized comprehensive public and agency engagement to make sure that all stakeholders were informed and actively involved in the planning process. The objective of this engagement effort was to work directly with the interested public and regulatory bodies to communicate the goals of the project and gather input required for advancement through the project milestones. The Engagement Strategy was designed to fulfil relevant Federal, State, and local requirements for public involvement, fostering a transparent planning environment. The Engagement Strategy was reviewed and agreed upon by all partner agencies on the TPMP planning team.

The key communication objectives for the Master Plan were to identify all stakeholders interested in and impacted by the Master Plan and recognize potential concerns in the planning area. The plan aimed to use communication strategies that included processes for seeking out and considering the needs of traditionally underserved populations, such as low-income and minority households, who might face challenges accessing employment and other services. Additionally, the objectives included addressing opportunities for environmental justice, maintaining a detailed stakeholder register and comment log, engaging with the community and stakeholders through interviews and public meetings, consulting with Tribal agencies, developing media communications and online project information, and regularly communicating the progress of the project to stakeholders.

Initial outreach and engagement for the TPMP began in the spring of 2023, which included the identification of stakeholders, the development of stakeholder focus groups, and the establishment of a project website.

### Stakeholder outreach sought to answer the following questions:

How do you use Turnagain Pass?

When do you visit Turnagain Pass?

How often do you visit?

How do you access the places you go?

What do you like best about Turnagain Pass?

When you visit Turnagain Pass, why do you choose to go there over other places?

What challenges do you experience? When do you experience them and how often?

What would you improve about Turnagain Pass?



## 2.3 Engagement Opportunities & Outreach

### 2.3.1 Project Website

A project website was established at [www.turnagainpassmasterplan.com](http://www.turnagainpassmasterplan.com) to house information pertinent to the planning process, including the plan description, planning goals, task list, engagement opportunities, plan documents and summaries, and information for how to contact the planning team.

### 2.3.2 StoryMap

ESRI ArcGIS StoryMaps were used to provide interactive, multimedia content pages to detail overall and specific features of the TPMP. The features provided an introduction, background information, overview of goals and themes, task list, and key planning contacts. During Phase One of the planning effort, the StoryMap included an interactive map that enabled stakeholders to provide public comments on specific locations within the planning area to help the planning team identify usage within the Pass, challenges, and desired facilities and improvements. During Phase Two of the planning effort, the StoryMap included an interactive map that displayed the proposed project concepts, allowing viewers to see how their feedback has informed the concept designs and provide an opportunity for additional comments.

### 2.3.3 Stakeholder Interview Meetings

The planning team conducted stakeholder interview meetings to provide an overview of the plan, history, goals, and tasks for the TPMP to targeted user groups. The stakeholder interview meetings allowed informal and personal interactions with the planning team. Each meeting sought to identify how the Pass is used, what challenges exist, and how facilities could be improved. The first round of stakeholder interviews was held in the summer of 2023. Additional interviews were requested with winter user groups in the spring of 2024, due to low participation in the previous round of interviews. Meeting summaries were prepared for each meeting and stakeholder feedback was used to improve recommendations in the Master Plan. These are included in the Public Engagement Summary in Appendix 5.

### 2.3.4 Open Houses

The planning team conducted a series of in-person and virtual open houses. The first round of open houses in 2023 focused on informing communities about the TPMP and gathering feedback, while the second round of open houses in 2024 focused on providing an opportunity for public review and feedback on draft prioritized projects for the TPMP.

#### Summer 2023 Open Houses

Given the distances between the communities near Turnagain Pass, in-person public open house meetings were held at the following locations:

- Moose Pass Sportsman’s Club on Friday, June 2, 2023, from 4:00 – 6:00 PM
- Girdwood Community Room on Tuesday, June 13, 2023, from 5:00 – 7:00 PM



- REI Anchorage on Thursday, June 15, 2023, from 4:00 – 6:00 PM

The meeting format was open house style, with no formal presentation. Attendees were greeted at a sign-in table with a fact sheet detailing the plan overview, background and history, goals and themes, tasks, and engagement opportunities. Display boards lined the perimeter and an aerial roll plot was set up in the center of the room. Comments were collected on written comment forms and the aerial roll plot. Members of the planning team were



**Image 1. Attendees Gathered Around Aerial Plot at Moose Pass Sportsman’s Club – June 2023.**

available throughout the meetings to answer questions and gather input on the vision and current challenges for safety and recreation in Turnagain Pass.

### Summer 2024 Open Houses

During Phase One, the planning team received feedback from the Soldotna and Kenai communities expressing a desire for an open house to be held in a more convenient location for them. As a result of this feedback, the planning team hosted the following open houses during Phase Two:

- Soldotna Public Library on Monday, August 12, 2024, from 4:00 – 6:00 PM
- Girdwood Community Room on Tuesday, August 13, 2024, from 5:00 – 7:00 PM
- Virtual Open House on Tuesday, September 17, 2024, from 12:00 – 2:00 PM

The in-person meetings during the summer of 2024 were open house style, like the meetings held in the summer of 2023. During these meetings, the roll plot showed the draft prioritized plans, concepts, and cost estimates. Comments were collected on written comment forms and the aerial roll plot. Members of the planning team were available throughout the meetings to answer questions about the designs and gather input on the TPMP.

The virtual open house was hosted via Zoom and recorded for interested individuals to access information during the remainder of the planning process. Participants were informed about how to ask questions and provide comments, with ample time for discussion after the presentation. The master plan focus area, goals, themes, timeline, and key engineering assumptions were shared. Proposed project categories included parking improvements, paths and trails, and programs. Input from local agencies, planning goals, and the overarching goal of promoting meaningful engagement with the forest, maintained by the USFS, determined these categories. A presentation of proposed projects followed. After the presentation, meeting participants were encouraged to ask questions and provide comments to the project team.

Meeting summaries were prepared for all open houses and feedback was used to inform the Master Plan.

### 2.3.5 Tribal Consultation

Tribal consultation was conducted in accordance with the United States Department of Transportation (USDOT) Tribal Consultation Plan, as well as applicable federal land management agency policies.<sup>1</sup> Tribal consultation included a letter to Tribal governments identified within the planning area. The letter outlined the project, requested the Tribal government’s preferred engagement method, and described any additionally planned engagement opportunities. Tribal governments were contacted by a follow-up phone call as well. The following Tribal agencies were included in outreach:

- Chugach Alaska Corporation
- Cook Inlet Tribal Council
- Cook Inlet Region, Inc.
- Kenaitze Indian Tribe
- Kenai Natives Association, Inc.
- Ninilchik Natives Association, Inc.
- Salamatof, Inc.

The TPMP outreach included tribal coordination by providing updates to tribal representatives and notice prior to all public engagement activities that took place.

### 2.3.6 Engineer Round Table Meetings

Two (2) engineers round table meetings were held in July of 2024 with Alaska DOT&PF and USFS. These meetings served as a valuable tool to foster collaboration, knowledge sharing, problem solving, and effective communication. The meetings began with a welcome, introduction of the project team, and agenda overview. The goals and themes of the project were reviewed, with an emphasis on improving safety in Turnagain Pass. An update on the project status was provided, noting that conceptual designs and cost estimates for several projects were being developed. The proposed projects were selected based on input from local agencies and stakeholders, project prioritization, and maintaining project goals. It was announced that a series of open houses would be held in August and September of 2024 to present this information to the public and stakeholders.

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<sup>1</sup> [https://www.transportation.gov/sites/dot.gov/files/docs/DOT\\_Tribal\\_Consultation\\_Plan.pdf](https://www.transportation.gov/sites/dot.gov/files/docs/DOT_Tribal_Consultation_Plan.pdf)



## 2.4 Timeline of Engagement Activities

Year	Date	Activity	Key
2024	April 28	Kick-off	Public Open House Stakeholder Interview Meeting Tribal Consultation Public Webinar Engineer Round Table Meeting
	June 2	Moose Pass	
	June 5	General	
	June 6	Biking	
	June 7	Motorized	
	June 9	Commercial Guides – Non-Motorized <i>no attendees</i>	
	June 12	River Guides <i>no attendees</i>	
	June 13	Girdwood	
	June 14	Public Safety & Avalanche	
	June 15	Anchorage	
	June 16	Tourism	
	June 28	Commercial Guides – Motorized	
	June 23	Introduction Letter Mailed	
	June 29	Introduction Email	
September 8	Salamatof Native Association Meeting		
2024	January 22	Phase 1	
	May 8	Winter Commercial Guides	
	May 22	Kick-off	
	July 11	DOT&PF	
	July 17	USFS	
	July 26	Phase 2 Letter Mailed	
	August 12	Soldotna	
	August 13	Girdwood	
September 17	Virtual		
2025	January 15	Final Webinar	



# 3. VISION FOR TURNAGAIN PASS

The TPMP provides a long-term guide for future corridor improvements with a focus on safety and recreational access. It is intended to facilitate future investment for the facilities within Turnagain Pass to support and enhance recreational access within the Chugach National Forest for all users on a year-round basis.

## 3.1 Goals

The Master Plan process was guided by the following goals:

- Develop a joint vision for the corridor between the USFS, DOT&PF, and their partners
- Identify current and future needs and create a prioritized list of projects to address those needs
- Increase the long-term sustainability, safety, and access to Chugach National Forest for travelers and users.

## 3.2 Themes

The key themes present additional opportunities for improvement that are addressed through the master plan:

- Improve capacity at recreation sites between seasons
- Improve connections between facilities
- Improve pullouts and parking locations
- Address snow removal and management needs at recreation sites
- Improve long-term operations, including funding opportunities





# 4. CURRENT CONDITIONS

## 4.1 State, Regional, and Local Plans

Table 2. State, Regional, and Local Plans that Shaped the TPMP

Plan	Agency	Key Themes
Seward Highway Corridor Partnership Plan, 1998	DOT&PF	<p>The plan names three keystone strategies with additional critical actions that would assist in reaching the overarching goals.</p> <p>The three strategies are:</p> <ul style="list-style-type: none"> <li>▪ The Seward Highway providing a safe, aesthetic, and world class driving experience.</li> <li>▪ Providing effective visitor management to support long-term economic development through tourism.</li> <li>▪ Limiting haphazard development that poses a threat to the highway’s ability to attract visitors and quality development.</li> </ul> <p>Recreation needs and issues identified in the 1998 Plan focused on the need for additional day use areas, trailheads to increase access, identification of uses for federal and state-owned lands, and providing independent travelers education on potential hazards such as avalanche activity, wildlife, and falling rocks.</p>
Kenai Peninsula Borough Area Plan (KPBAP), 2001	DNR Division of Mining	<p>The KPBAP notes the primary attraction of the Seward Highway is the beautiful scenery the corridor offers to motorists and highlights Sixmile and Canyon creeks, summit, trails, Kenai lakes and Turnagain Pass.</p> <p>Transportation goals identified in the KPBAP focused on supporting plan designations, minimizing costs and adverse effects, promoting efficiency, and supporting public safety. Additional goals focus on solutions for accommodating public access, safety requirements and recreational and tourism use.</p> <p>The KPBAP also addresses the need for nodal development areas, corridor development areas, and corridor preservation areas, as unorganized development can be a threat to the scenic characteristics of the Seward Highway.</p>
Kenai Peninsula Borough Comprehensive Plan, 2019	Kenai Peninsula Borough (KPB)	<p>The KPB Comprehensive Plan identifies fulfilling its recreation goals as an opportunity to diversify and grow the Kenai Peninsula Borough economy. Goals for recreation include:</p> <ul style="list-style-type: none"> <li>▪ Supporting outdoor recreation and tourism opportunities for a wide range of users</li> <li>▪ Improving recreational trails, access, and mobility</li> <li>▪ Protecting and expanding the quality of recreation and tourism appeal</li> <li>▪ Expanding recreation and tourism marketing, education, and job training opportunities</li> </ul>
Chugach National Forest Land Management Plan (CNFLMP), 2020	USFS	<p>The CNFLMP specifically points to desired conditions for the Iditarod National Historic Trail (INHT), which is defined as a Special Area and passes through the plan area.</p> <p>The list of Desired Conditions provides a connection to the purpose of the TPMP by stating support for the future of any Forest land access, educational opportunities, and recreation, including the Turnagain Pass area.</p>
Seward Highway Corridor Plan (MP 0-90) DRAFT, 2022	DOT&PF	<p>The 2022 draft plan focuses on existing conditions such as crash reports and safety issues, ROW availability and conflict/intersections with the Alaska Railroad, non-motorized routes, land use and adjacent development, existing plans and studies, roadway infrastructure, and past projects along the corridor.</p>



## 4.2 Recreation Infrastructure

The corridor's adjacent facilities include a mix of recreational and tourism opportunities for a diverse group of users year-round. Facilities along the corridor include campgrounds, trailheads, turnouts, rest areas, parking, scenic views, and river access. The existing facilities within the corridor are displayed on Figure 2. Full descriptions of the recreational infrastructure can be referenced in Appendix 3.

### West and East Side: Motorized and Non-Motorized Users

In the winter months, the west side of Seward Highway through Turnagain Pass is open for motorized use and has become a popular destination for snowmachining, resulting in parking lots along the pass to be at capacity during the winter months. The east side of Turnagain Pass is made up of numerous trailheads that access the Turnagain Pass Trail, as well as a segment of INHT. Recreationists on the east side of Turnagain Pass can enjoy hiking (backpacking and day hiking), mountain biking, skiing/snowboarding, cross country skiing/snowshoeing, and fat tire biking.

### 4.2.1 Parking and Roadside Pullouts

#### Canyon Creek Rest Area

Located at MP 56.6 on the west and east sides of the highway, Canyon Creek Rest Area is owned and maintained seasonally by Alaska DOT&PF. The west location offers travelers two toilets, ample parking, access to dumpsters, and some paved trail access. The east location offers two rest rooms, limited parking, and dumpsters.

#### Gravel Pit

Located at MP 62.2 on the east side of the Seward Highway, entrance to the gravel pit is within DOT&PF ROW and maintained by DOT&PF. The facility beyond the ROW is owned and maintained by USFS. The entry currently allows for two to four cars to park up against a chained gate. During the winter months this area has been used as a helipad for skiing and as a snowmachine terminus, while in the summer months the area is used most by the USFS for training. It is anticipated that 100,000 tons of gravel from the pit is scheduled for use on upcoming Seward Highway construction projects, which will then conclude mining activities and leave the area open for potential future recreation opportunity.

#### Cornbiscuit and Sunburst Pullouts

These pullouts are located in proximity to each other, with Cornbiscuit being located at MP 66 and Sunburst's entries being at MP 66.8. Both pullouts are located on the east side of the Seward Highway and are most often used in the winter for parking to access popular backcountry ski destinations.

#### Moto Lot

The Moto Lot has two driveways on the west side of the Seward Highway and is located at MP 68.4. This lot provides access for snowmachine use on public lands when the area is open during the winter. Signage leading up to the lot identifies the location with an official brown United States Forest Service sign that reads "Turnagain Pass Rest Area" with icons for restrooms, picnic tables, snowmachining, and skiing. A smaller blue triangular sign stating rest area and an arrow pointing to the lot with an icon showing a snowmachine.



### Snowstake Lot

Located at MP 69.8, the Snowstake Lot is surrounded by State owned land. Despite often being referred to by the public as the “DOT lot” the lot is not DOT&PF owned, maintained, or plowed. A defunct weather station is located on the lot, but it is most frequently used as an up-trail access point for snowmachines to access Seattle Ridge and during the summer a vantage point for informal target shooting. During the early parts of the winter recreation season, trucks will drive through for ski access prior to heavy snowmachine usage.

### Base of Pass

Located at MP 75.5 on both the east and west side of the Seward Highway these lots are the starting point of the plan area and are technically within the Municipality of Anchorage. These areas are managed by DOT&PF and are intended to be used for travelers to chain and unchain their tires before entering or exiting Turnagain Pass during winter conditions. However, these lots are often used as informal camping areas, DOT&PF construction staging, and/or parking for recreationists. These areas see an increase of usage in the summer months due to the popularity of Pink Salmon fishing and have the potential to see significant increases of usage with future trail parking as the Turnagain Pass Trail is extended to sea level and as the Portage Curve Bicycle Path is constructed.

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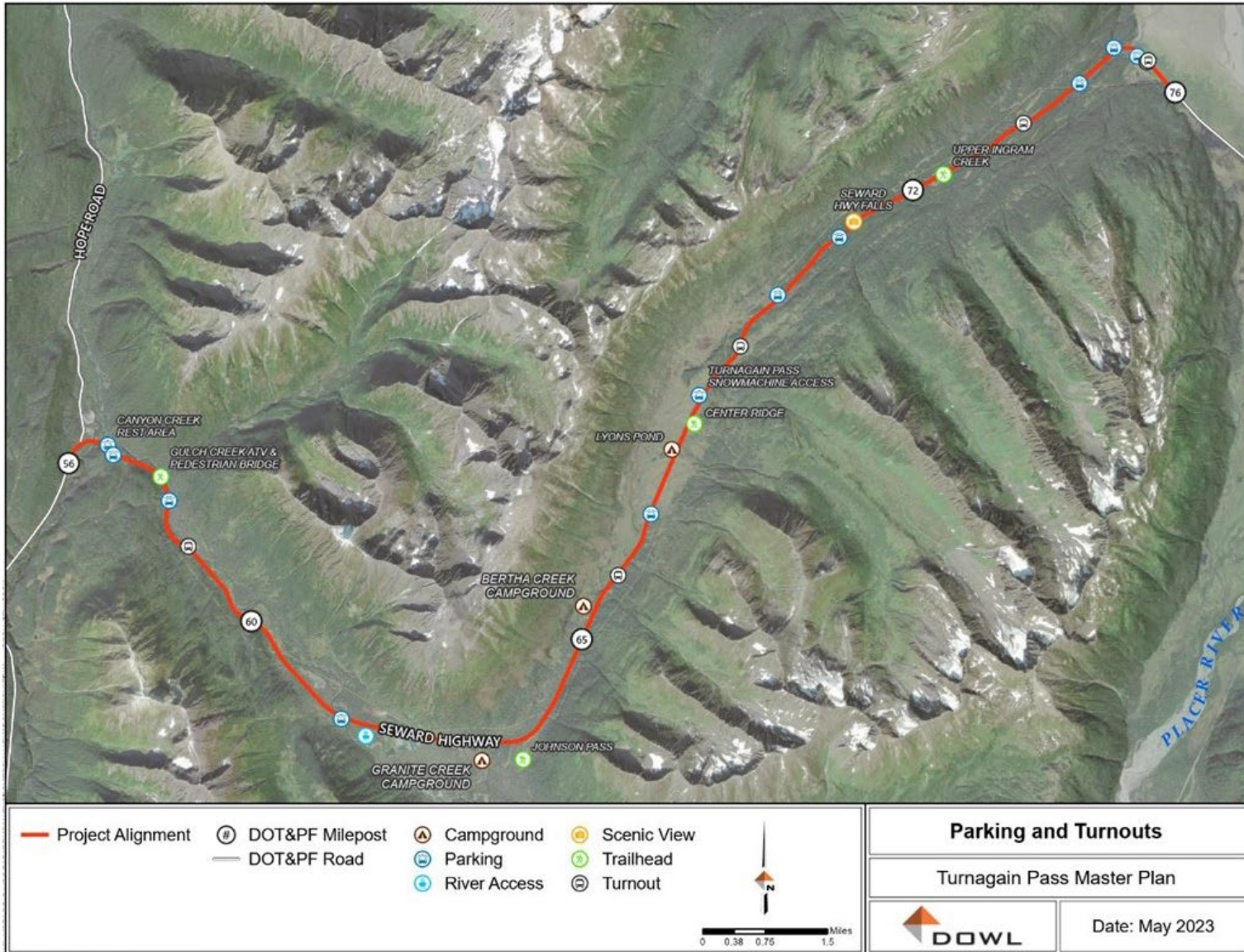


Figure 2. Existing Parking and Turnout Facilities in the Turnagain Pass



## 4.2.2 Recreation Sites, Trails, and Trailheads

The 12 identified and documented trails with the Pass are shown in Figure 3.

### Iditarod National Historic Trail – Southern Trek

The INHT– Southern Trek is a 180-mile portion of the overarching INHT. The INHT was once used by Alaska Native cultures and in more recent history (late 1800s to early 1900) winter travelers.<sup>2</sup>

### Turnagain Pass Trail

Turnagain Pass Trail is a 12-mile segment of the INHT. The center of the trail is located at Center Ridge Trailhead where in either direction (north or south) the trail is six miles. The Turnagain Pass Trail is popular among mountain bikers and winter recreationalists.

### Gulch Creek ATV and Pedestrian Bridge Access

Located at MP 57.4 on the west side of the Highway, this location marks the beginning of the historic mining trail further up Gulch Creek. The parking area has room for a few vehicles but is often used by working placer miners who park their equipment in this location.

### Raft Launch

A state-owned facility located on the west side of Seward Highway at MP 59.0 often referred to as East Fork Boat Launch or Six Mile Raft Launch is primarily used by rafting guides.

### Johnson Pass North Trailhead

Located at MP 63.6 this trailhead is a gateway to a 23-mile-long segment of the INHT, with a gravel parking lot that tends to reach capacity on the weekends. There is a public restroom as well as interpretive signage. These information signs are weathered and outdated, and overdue for upgrades.

The entire length of the Trail is closed to motorized vehicles from May 1 to November 30, while the North Trailhead, closest to the plan area, is closed to motorized vehicles year-round. The trail is closed to pack/saddle stock from April 1 to June 30.<sup>3</sup>

### Center Ridge Trailhead

Located at MP 68, this trailhead provides access to a non-motorized “loop to nowhere” and Turnagain Pass Trail. This location is maintained by USFS in conjunction with DOT&PF and has restroom facilities and interpretive signage.

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<sup>2</sup> USFS Website. Iditarod National Historic Trail - Southern Trek. <https://www.fs.usda.gov/chugach>. Accessed 2023.

<sup>3</sup> Chugach National Forest Website: Johnson Pass Trail South -INHT. <https://www.fs.usda.gov/recarea/chugach/recreation/hiking/recarea/?recid=74185&actid=50>. Accessed 2023.



### Tincan Trailhead

Located at MP 69.2 on the east side of the Highway, the Tincan Trailhead is not an official trailhead, but is instead a pullout with limited parking against a guardrail. This area reaches peak popularity during the winter months with the primary user group being skiers. Significant safety issues exist for recreation users pulling in and out of the area, especially when the area is at capacity. These safety issues are due to the location of the pullout on a horizontal and vertical curve, the presence of a lane merge right at the pullout, limited sight distance, and high speeds on the Highway.

### Upper Ingram Trailhead

Located at MP 72.5, the Upper Ingram Trailhead is the gateway to a 12-mile segment of the INHT as well as popular skiing terrain. This location was originally built as a slow vehicle turnout by DOT&PF but has seen an increase in use, especially during the winter.

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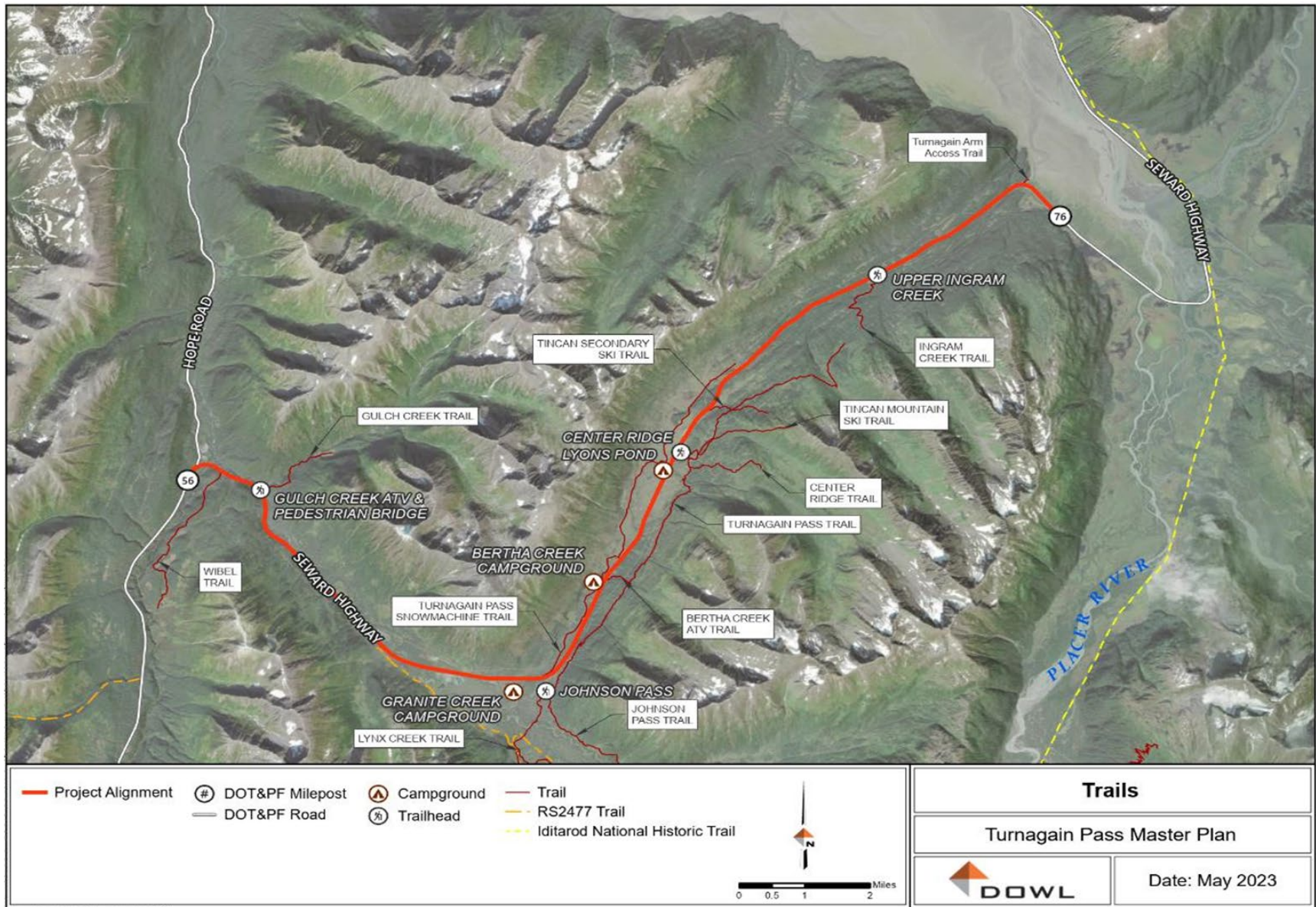


Figure 3. Existing Trails in the Turnagain Pass



### 4.2.3 Camping

The Pass has two distinct USFS Campgrounds: Granite Creek Campground at MP 62.9 and Bertha Creek Campground at MP 65.4. Both sites require a fee for use. Additional camping opportunities exist along longer hiking trails or at dispersed campsites that do not require a fee to use. With limited enforcement within the corridor, unauthorized camping has become popular at roadside pullouts and parking lots within the Pass, this does not include locations that allow users to camp without notice for up to 14 days. Campsites are documented on Figure 2 along with existing parking and pullouts.

## 4.3 Traffic Trends and Characteristics

### 4.3.1 Characteristics

#### Facility Characteristics

The Seward Highway is classified as an Interstate Highway by DOT&PF. Through the 20-miles of rolling terrain in the plan area the Highway has a posted speed of 65 miles per hour (MPH). The cross-sections vary between two and four lanes, with varying lane and shoulder widths due to the surrounding terrain through the Chugach Mountains. For the ease of evaluation, the 20-mile stretch of the Highway was divided into segments where lane and capacity changes occur. The available facilities differ for the increasing MP number direction (North/East), and the decreasing direction (South/West) and therefore are reported separately in Table 3 and Table 4. With an average snowfall of up to 100 inches in the winter months, shoulder widths through the Pass should be able to accommodate reasonable snow storage for the heavy precipitation. <sup>4</sup>

**Table 3. Ascending Roadway Segment Characteristics**

Segment Name	MP		Highway Type	Lane Width (feet)	Shoulder Width (feet)	Posted Speed (MPH)	Terrain	Median
	Start	End						
A1	56.0	61.4	Two-Lane	12	6	65	Rolling	-
A2	61.4	63.3	Two-Lane	12	7	65	Rolling	-
A3	63.3	65.2	Two-Lane	12	6	65	Rolling	-
A4	65.2	67.7	Two-Lane	12.5	8	65	Rolling	-
A5	67.7	68.6	Multi-Lane	12.5	10	65	Rolling	Striped 18'
A6	68.6	69.2	Two-Lane	11.5	6	65	Rolling	-
A7	69.2	76.0	Two-Lane	12	6	65	Rolling	-

<sup>4</sup> National Weather Service. Turnagain Pass Annual Snow Depth Plot. Accessed June 29, 2023. [https://www.weather.gov/apr/c/Snow\\_Depth](https://www.weather.gov/apr/c/Snow_Depth).





**Table 4. Descending Roadway Segment Characteristics**

Segment Name	MP		Highway Type	Lane Width (feet)	Shoulder Width (feet)	Posted Speed (MPH)	Terrain	Median
	Start	End						
D1	76.0	69.2	Two-Lane	12	6	65	Rolling	-
D2	69.2	68.6	Two-Lane	11.5	6	65	Rolling	-
D3	68.6	67.7	Multi-Lane	12.5	10	65	Rolling	Striped 18'
D4	67.7	65.2	Two-Lane	12.5	8	65	Rolling	-
D5	65.2	63.3	Two-Lane	12	6	65	Rolling	-
D6	63.3	61.4	Two-Lane	12	7	65	Rolling	-
D7	61.4	56.0	Two-Lane	12	6	65	Rolling	-

Figure 4 visualizes the ascending and descending segments and the corresponding facility characteristics described in Table 3 and Table 4. From the information displayed varying shoulder widths may cause safety concerns for road users such as the inability to safely pull over for roadside emergencies or safely slow down for turnoffs to access recreation areas. The areas with narrower shoulder widths accompanied with high posted speeds and rolling terrain serve as an obstacle for non-motorized recreational users. Additionally, these narrow shoulders create challenges for snow storage.





Figure 4. Turnagain Pass Road Segments Identified



## Traffic Characteristics

The count data available at the time indicates 60 percent of traffic traveled in the peak direction, leading to a directional (D) factor of 0.60. For analysis, the count that is nearer to the analysis area was applied to that section. These volumes can be seen below in Table 5. Using Table 5 for reference, these volumes consider the count station location by MP, the year of data collection, the average count of vehicles for August, a seasonal adjustment ratio, the annual average daily traffic (AADT)/Vehicles per Day (VPD), the K Ratio, 30th Highest Hour, D Ratio, and the 30th Highest Hour Peak Direction.

**Table 5. Traffic Volumes**

Count Station MP	Year	August Average Count (Vehicles)	Seasonal Adjustment Ratio	AADT/ VPD	K Ratio	30 <sup>th</sup> Highest Hour	D Ratio	30 <sup>th</sup> Highest Hour Peak Direction
65.5	2021	10,967	0.57	6,240	0.239	1,491	0.60	895
75	2022	8,253	0.57	4,696	0.241	1,132	0.60	679

### 4.3.2 Existing Traffic Needs

Existing needs for traffic were identified through capacity and safety analyses of the roadway segments by taking the available existing conditions data and comparing it to DOT&PF standards.

## Safety Analysis

The calculated crashes per Million Vehicle Miles Traveled (MVMT) identified for the Pass and included in Table 6 were compared to the DOT&PF statewide Rural Freeway average crashes per MVMT of 1.1. None of the segments of the Highway, which were determined based on where the number of lanes change, show that the crashes per MVMT are over the statewide average. Therefore, there are no high-level safety needs on the corridor.

**Table 6. Crash Rates Reflected from 2013 to 2021**

Segment Name	MP		Highway Type	AADT /APD	Crashes	Fatal or Injury Crashes	Crashes per MVMT	Statewide Avg. Rate
	Start	End						
1	56.0	61.4	Two-Lane	6,240	31	13	0.30	1.1
2	61.4	63.3	Two-Lane	6,240	14	5	0.40	1.1
3	63.3	65.2	Two-Lane	6,240	13	4	0.30	1.1
4	65.2	67.7	Two-Lane	6,240	13	6	0.30	1.1
5	67.7	68.6	Multi-Lane	6,240	10	3	0.50	1.1
6	68.6	69.2	Two-Lane	6,240	9	5	0.70	1.1
7	69.2	76.0	Two-Lane	4,695	72	24	0.70	1.1

## Segment Capacity

There are three (3) two-lane highway segments that are not operating at the Level of Service (LOS) targets laid out by DOT&PF. These are from MP 65.2- 67.7 (LOS D), and 68.6- 69.2 (LOS D) in the ascending milepost direction and from MP 67.7- 65.2 (LOS E) in the descending direction. These segments are identified in Figure 5 using blue for northbound and yellow for southbound.



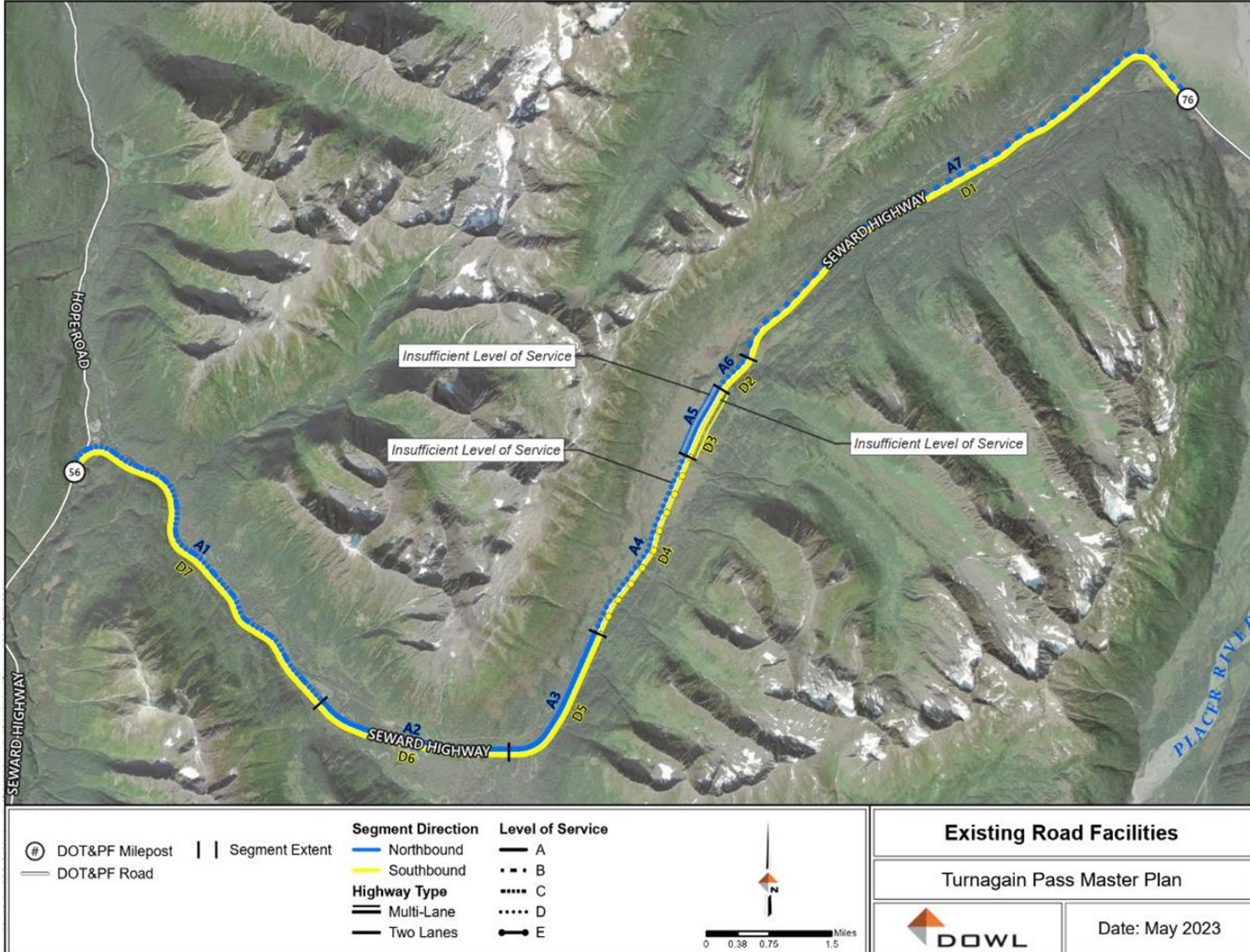


Figure 5. Turnagain Pass Existing Road Facilities LOS



## 4.4 Utility Infrastructure

Throughout the plan area, the existing utility infrastructure is limited to overhead electric lines. Roadside electrical service within the plan area can be found at the Hope Cutoff (approximately MP 56.3). Utility level electrical service exists at approximately MP 55. Figure 6 displays the location of the overhead electric power lines within the plan area.



Figure 6. Location of Overhead Electric Power Lines within the TPMP Area

## 4.5 Emergency Services and Safety Considerations

There are four (4) fire stations providing first responder services in the broader area surrounding the plan area, though cell service is extremely limited and may impact the ability to call for help.<sup>5</sup> These fire stations are located in Girdwood, Hope, Cooper Landing, and Moose Pass. In addition to response services, two emergency call boxes are located within the plan area at MP 68.4 and MP 56.6. There is also an Alaska State Trooper Post located near Cooper Landing.

Local news sources state that the State Trooper Detachment A North based in Soldotna, and the Girdwood Fire and Rescue often need to respond outside of their dedicated service areas to attend to crashes and emergencies throughout the Kenai Peninsula Borough. Sometimes these responses are for emergencies that occur as far south or north, depending on agency location, as MP 50.5.

Additional mutual aid locations for the Girdwood Fire and Rescue station include, Hope Fire Department, Cooper Landing Fire Department, Alaska Mountain Rescue Group, State of Alaska Division of Forestry, and the Alaska State Troopers.<sup>6</sup> Girdwood Fire and Rescue is also the first to respond to any incident involving the transportation corridor that contains the Alaska Railroad, Seward Highway, and ENSTAR gas transmission pipeline.<sup>6</sup> The location and identification of these facilities are included in Figure 7.

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<sup>5</sup> 2019 April 1. Cell coverage, distance limit Turnagain Pass 911 response. <https://www.alaskasnewsresource.com/content/news/Cell-coverage-distance-limit-Turnagain-Pass-911-response-507976861.html>

<sup>6</sup> Girdwood Fire and Rescue <https://www.girdwoodfire.com/> Accessed 2023



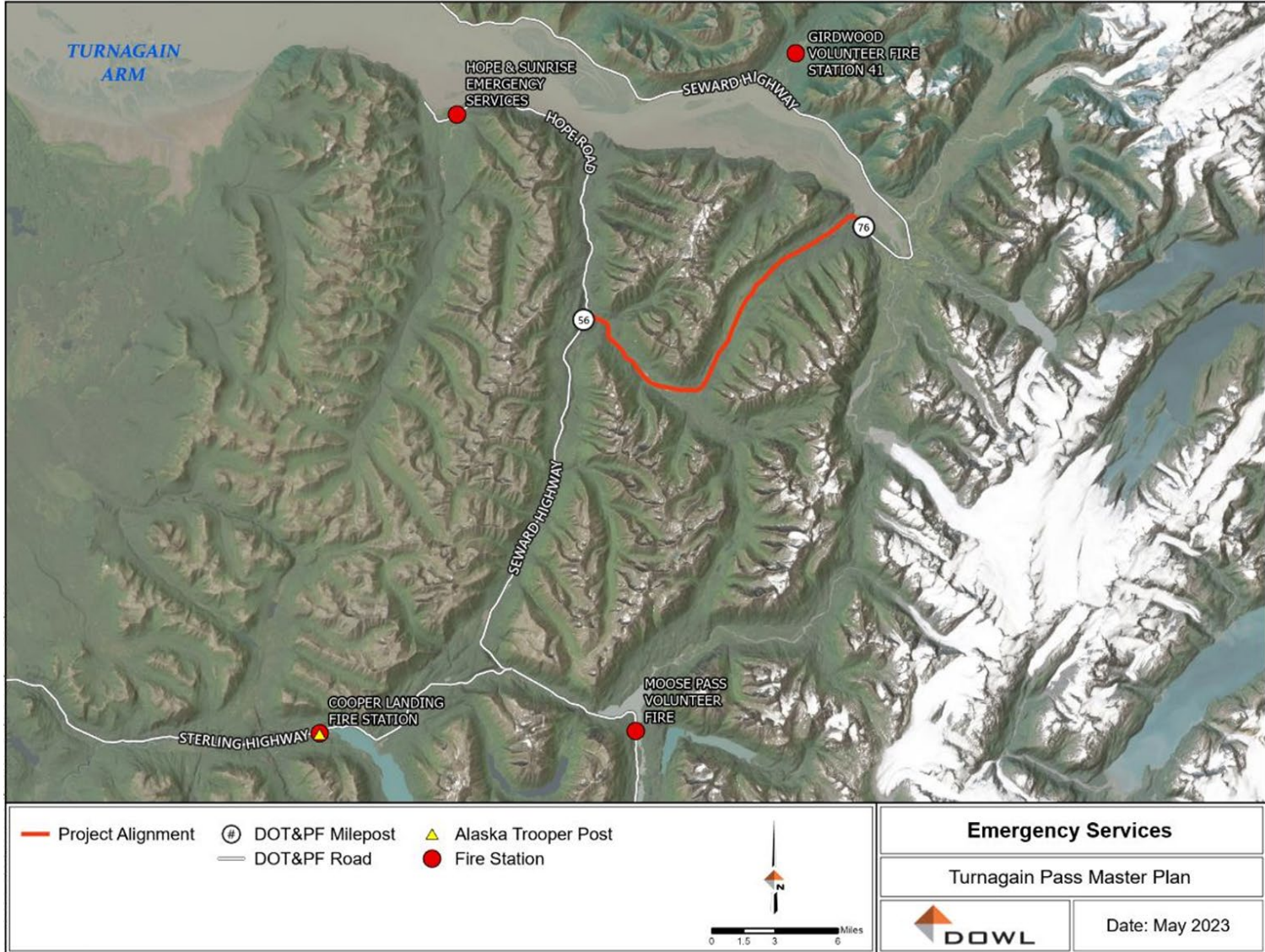


Figure 7. Location of Emergency Services in Proximity to the TPMP Area



## 4.6 Cultural Significance of the Area and Environmental Considerations

### 4.6.1 Cultural and Historical Significance

Cultural resource data for the TPMP is derived from the Alaska Heritage Resources Survey (AHRs) database maintained by the ADNR, Office of History and Archaeology (OHA) and the National Park Service's (NPS's) National Register of Historic Places (NRHP) database, the identified cultural resources are classified by property type and NRHP eligibility status. The data pulled from the AHRs database was checked for accuracy and completeness and included verifying determinations of eligibility. Please note the AHRs database has been under construction since December 15, 2022, and is not currently active for users. Data reported to the OHA after that date is not accessible at this time and is not reflected in this overview

AHRs properties displayed on Figure 8 are mapped as they are recorded within the AHRs database, and no field verification or assessment of locational reliability was performed. AHRs properties are mapped according to their geometry as contained within the database (e.g., points, lines, polygons), and may not be an accurate reflection of the spatial extent of the property (e.g., a large historic site may be represented by a single point).

In total, five (5) AHRs properties are recorded within or intersecting the extent of the plan area. Of these five properties:

- Two have been determined ELIGIBLE (One Historic District, One Structure)
- One is ELIGIBLE as part of the INHT (One Structure)
- Two have been determined NOT ELIGIBLE for the NRHP (2 Structures)
- None are LISTED in the NRHP

The number of AHRs properties significantly increases directly adjacent to the 200-foot-wide plan area and includes historic properties that have been determined eligible for listing in the NRHP.

The locational reliability of these properties varies, and is influenced by factors such as:

- Year when the property was identified and entered the AHRs database.
- The subsequent re-investigations or relocations of resources as part of cultural resource compliance activities or scholarly research collection and mapping methods used to record the location of the property (e.g., GPS unit vs. hard copy field map).

The condition of AHRs properties should be field verified, with particular attention paid to properties located within privately owned or managed lands, or properties recorded within intensive residential or commercial development. For instance, a property may no longer be extant, or it may be significantly altered from its original condition.







Figure 8. AHR Sites within the TPMP Area



## Kenai Mountains-Turnagain Arm Cultural Heritage Area

The plan area is in the Kenai Mountains-Turnagain Arm National Heritage Area (KMTA NHA). KMTA NHA encompasses a distinctive landscape of mountains, lakes, rivers, glaciers, and fjords. The area is depicted in Figure 9 and encompasses a north-south highway, rail, and trail corridors from Bird Creek to Seward and includes the communities of Girdwood, Portage, and Moose Pass. To the west, the area includes Cooper Landing, Sunrise, and Hope. To the east lie Portage, Whittier, and the wild waters of Prince William Sound. The unique landscape features prehistoric and historic land use that includes Dena'ina Athabascan heritage; exploration and gold mining; trails that include the Iditarod National Historic Trail; railroad, road, and highway construction; trapping and hunting; subsistence use; and outdoor recreation. Cultural Heritage Areas are afforded the same level of protection and consideration under the National Historic Places Act (NHPA), and federal agencies are required to account for potential effects to the resource through consultation and coordination detailed in Section 106.

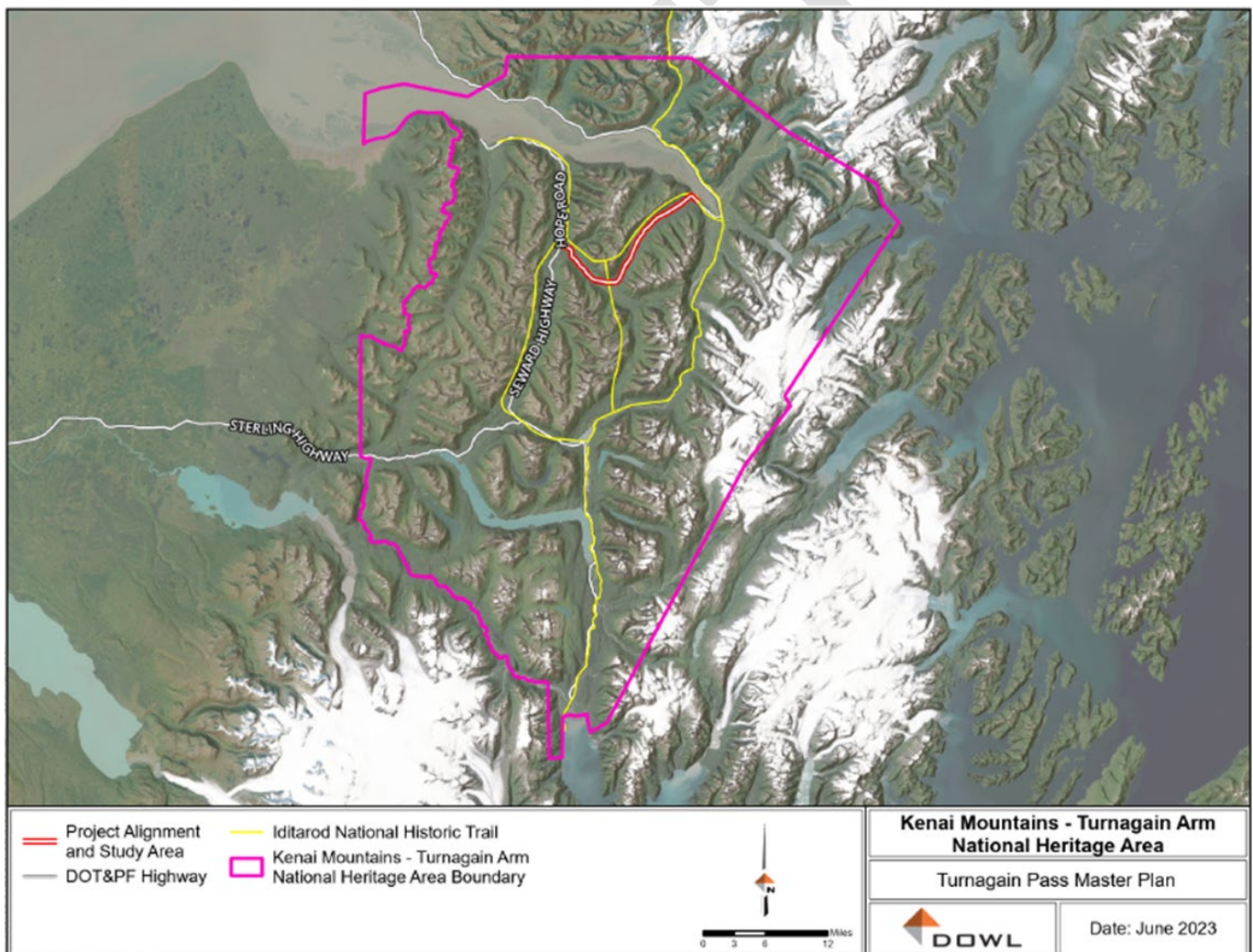


Figure 9. Turnagain Arm National Heritage Area – Kenai Mountains

## 4.6.2 Environmental Considerations

Existing environmental conditions within the plan area (defined as 100 feet from centerline on either side of the Seward Highway (MP 57 to 76) have been evaluated. Resources are described to be consistent with FHWA National Environmental Policy Act (NEPA) guidelines. The following discusses resource categories present in the plan area. Categories that are not present, such as minority or low-income communities, farmlands, and coastal resources are not discussed.

### Contaminated Sites

Three Alaska Department of Environmental Conservation (ADEC) contaminated sites are located within one mile of the plan area (Figure 10). These sites with their Hazard Identification (ID) Number, Name, Type, Status, and Location are included in Table 7.

**Table 7. Hazards with the Turnagain Pass**

Hazard ID No.	Site Name	Site Type	Status	Location
26579	DOT&PF Silvertip Maintenance Station Class V Injection Well	Injector Well	Active	Approx 0.75 miles from MP 57
23444	DOT&PF Silvertip Highway Maintenance Station (Former location)	Leaking Underground Storage Tank (LUST)	Active	Approx 0.75 miles from MP 57
24703	DOT&PF Silvertip Station (Current location)	LUST	Cleanup Complete	250-feet from MP 60

### Parklands or Other Special Land Uses

As described in Section 4.2 of this document, recreational resources are rich in the area with four trailheads and three campgrounds, two of which are owned and maintained by the USFS (Figure 10). Detailed descriptions of the trails and campgrounds can be found in Section 4.2. It is reasonable to assume all the recreational resources would be protected under Section 4(f) of the USDOT Act because they are on USFS lands, however protection would need to be confirmed with the DOT&PF Statewide Environmental Office. Section 4(f) of the USDOT Act prohibits use of Section 4(f) properties unless all measures to minimize harm are incorporated and there is no other reasonable and prudent alternative to the 4(f) use.

Additionally, the Seward Highway right-of-way in the plan area is surrounded by Chugach National Forest, which has received funding under the Land and Water Conservation Fund (LWCF) Act and is therefore subject to protection under Section 6(f) of the LWCF Act (Figure 10). The LWCF uses strong provisions to prevent conversion of 6(f) protected lands to non-recreational uses. Any conversion of land to non-recreational purposes requires consultation with the NPS, who administers the funding and ADNR, who manages the resources.



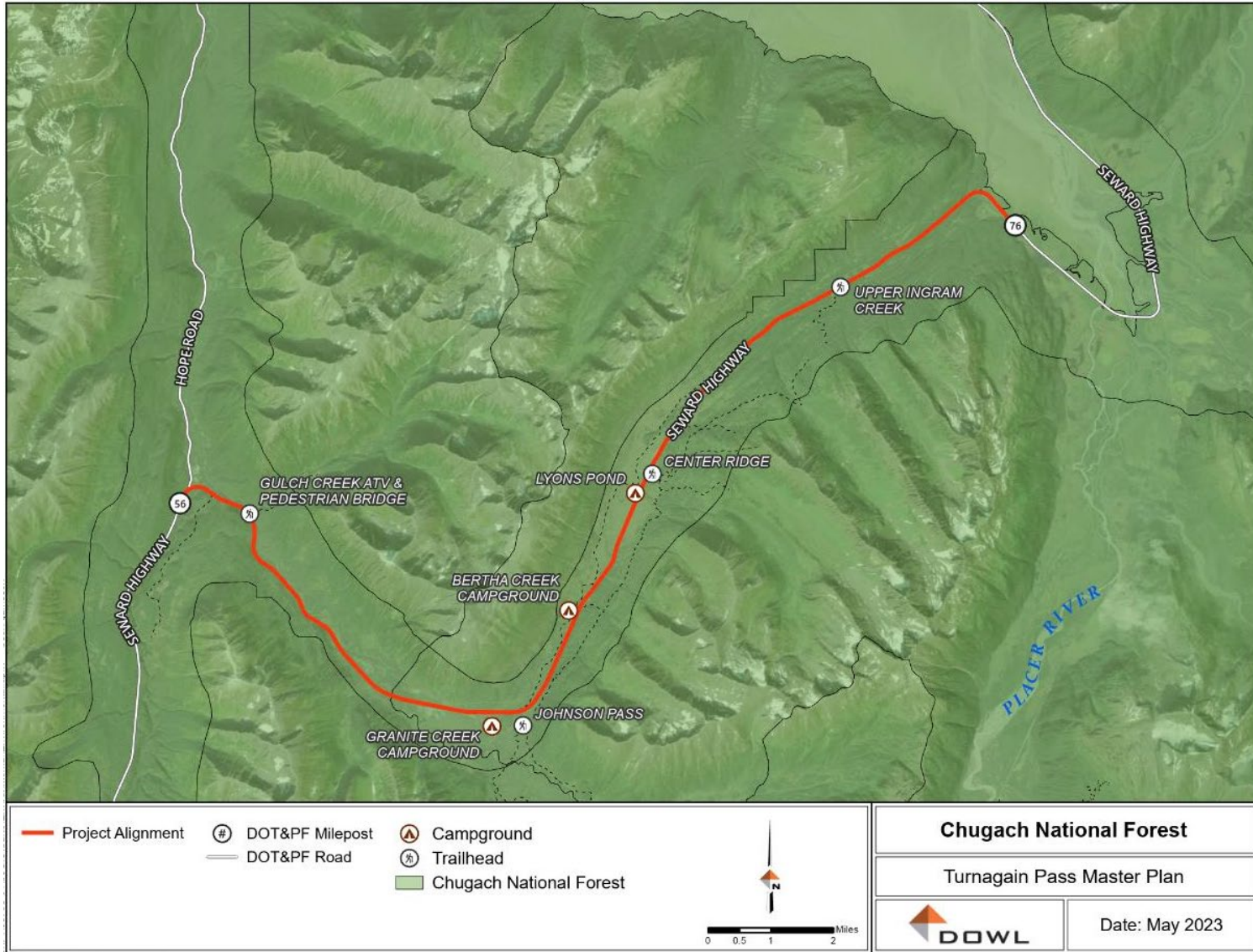


Figure 10. TPMP Area - Parklands



## Climate Change and Air Quality

Cloudy conditions, short summers, and moderate to cold temperatures characterize the climate of this area. The average annual precipitation ranges from about 15 to 30 inches along the boundary with the Cook Inlet Lowlands to more than 100 inches in the highest mountains. Later summer and fall are generally the rainiest months. According to historical snow depth averages reported by the National Weather Service in Turnagain Pass, average snowfall can reach up to 100” in the winter months, while the average annual snowfall ranges from about 80 to 400 inches or more in the greater Cook Inlet Mountains region, which includes the Chugach Mountain surrounding Turnagain Pass<sup>7,8</sup>. The average frost-free period is about 60 to 80 days. At higher elevations, freezing temperatures can occur during every month.

## Waterbodies, Floodplains, and Wetlands

Numerous drainages flow into Turnagain Pass from adjacent mountains. The streams largely flow into Ingram Creek, Granite Creek, and East Fork Sixmile Creek. The existing Seward Highway from MP 57 to 76 has 31 stream crossings. The Kenai Peninsula Borough participates in the National Flood Insurance Program (NFIP); however, the plan area has not been mapped by the Federal Emergency Management Agency (FEMA). Any proposed projects would need a Hydraulic and Hydrologic analysis to understand flood conveyances and base flood elevations. If floodplains are present, local floodplain management regulations would apply, however impacts to NFIP-protected properties is unlikely due to the remote nature of the plan area and lack of residences.

The different wetland types and their acreage are provided in Table 8 and visualized in Figure 11.

**Table 8. TPMP Area Wetlands**

Wetland Type	Acreage
Estuarine and Marine Wetland	5.6
Estuarine and Marine Deepwater	0.1
Freshwater Emergent Wetland	2.3
Freshwater Forested/Shrub Wetland	3.6
Freshwater Pond	0.6
Riverine	4.1
<b>Total</b>	<b>16.3</b>

<sup>7</sup> National Weather Service. Turnagain Pass Annual Snow Depth Plot. Accessed June 29, 2023. [https://www.weather.gov/apr/c/Snow\\_Depth](https://www.weather.gov/apr/c/Snow_Depth).

<sup>8</sup> United State Department of Agriculture, Natural Resources Conservation Service. Land Resource Regions and Major Land Resource Areas of Alaska. October 2004. Access June 29, 2023. <http://www.ak.nrcs.usda.gov/technical/lrr.html>



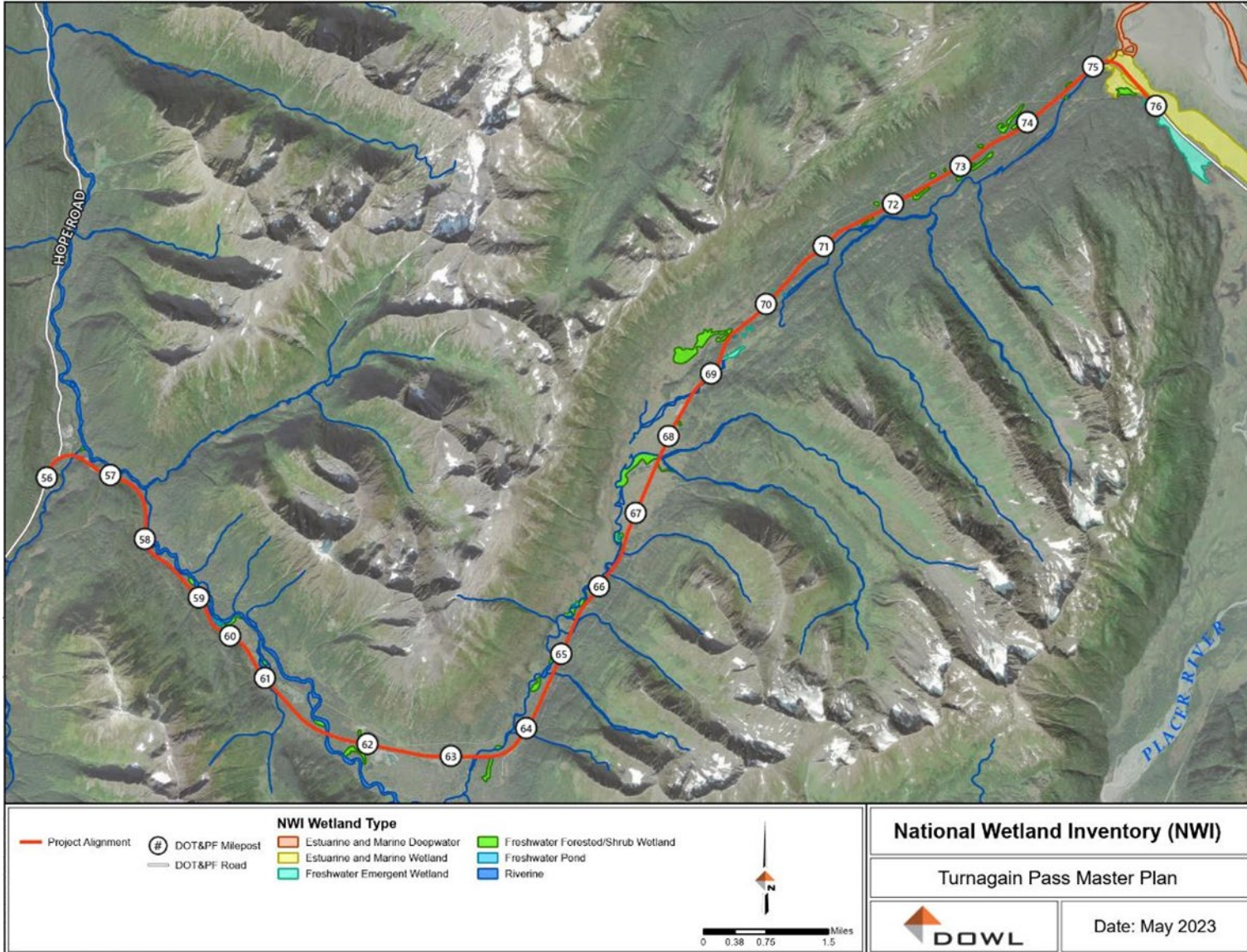


Figure 11. TPMP Area Wetlands



## Threatened and Endangered Species

Federally threatened or endangered species present near the plan area include the endangered Cook Inlet Distinct Population Segment (DPS) beluga whale (*Delphinapterus leucas*).<sup>9</sup> The plan area overlaps and is adjacent Critical Habitat from approximately MP 75 to 76 (Figure 12). The Cook Inlet beluga whale is known to follow feed on eulachon and salmon in Turnagain Arm; coho salmon are documented in Ingram Creek, crossed by the plan area, and eulachon may be present. Consultation with National Oceanic and Atmospheric Administration (NOAA) Fisheries is required when the actions may affect Marine Mammal Protection Act (MMPA) protected or Endangered Species Act (ESA)-listed species or their designated critical habitat. Consultation would likely result in measures to minimize construction noise impacts to Cook Inlet DPS beluga whale and direct and indirect impacts to the critical habitat.

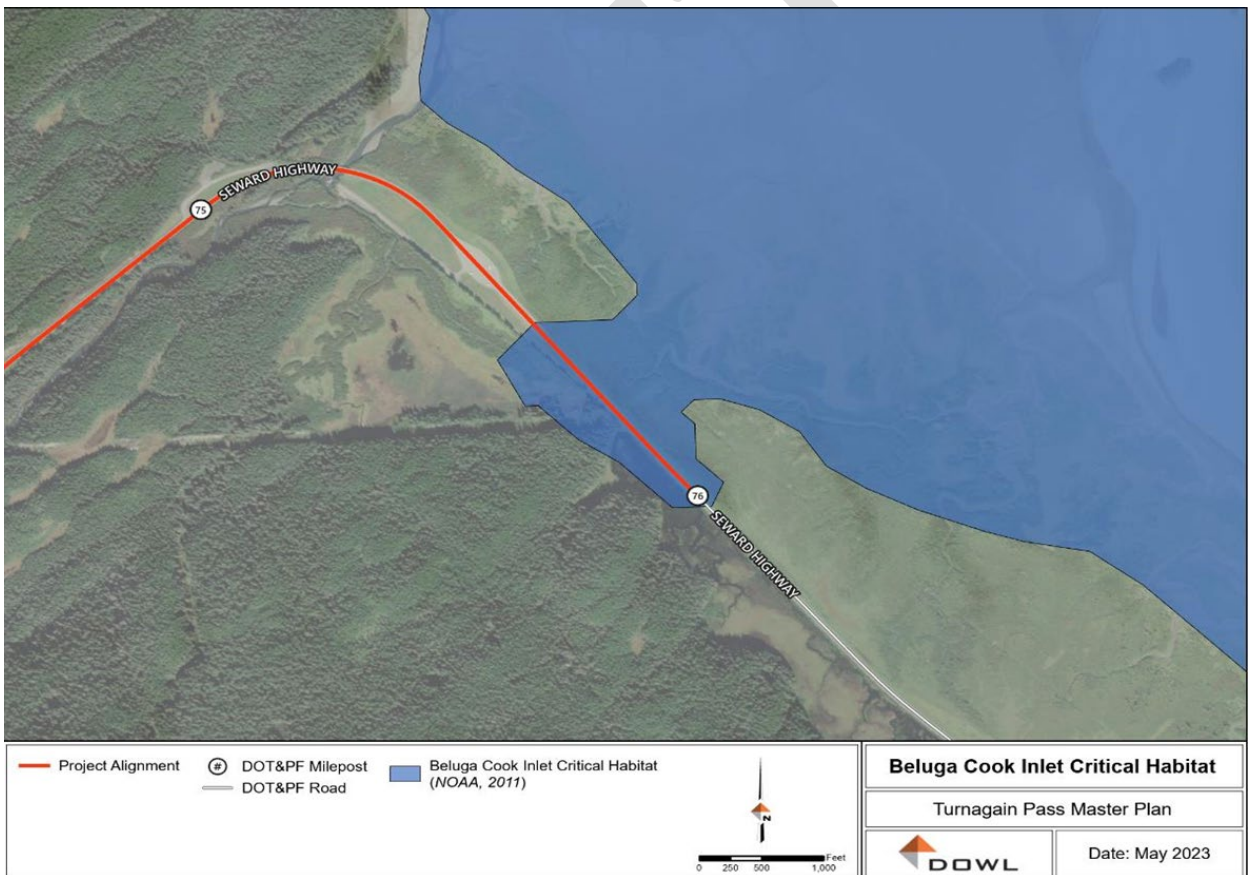


Figure 12. Location of Cook Inlet Beluga Critical Habitat in Relation to plan Area

<sup>9</sup>National Oceanic and Atmospheric Administration. Fisheries Species Directory. <https://www.fisheries.noaa.gov/species-directory/threatened-endangered>. Accessed 2023.

## Fish

Resident fish are very common in streams within the Pass and include Alaska brook lamprey, three-spine stickleback, ninespine stickleback, slimy sculpin, and Dolly Varden trout. In addition to resident fish, the area is also habitat to all five species of salmon. The current roadway crosses anadromous streams 11 times (Figure 13), including named streams Granite Creek, Canyon Creek, Silvertip Creek, East Fork Sixmile Creek, and Ingram Creek. All the current anadromous stream crossings are rated by Alaska Department of Fish and Game (ADF&G) to have culverts that are assumed inadequate or may be inadequate for fish passage. Alaska Statute 16.05.871 requires approval from ADF&G before constructing within or across anadromous streams, and Statute 16.05.841 requires approval for construction within or across resident fish streams. Additionally, the Kenai Peninsula Borough’s Habitat Protection District requires a conditional use permit for any disturbance within 50-feet of an anadromous stream. The five (5) locations crossed by the planning area are identified in Table 9. Included in the identification is the Anadromous Waters Catalog (AWC) Code, stream name, and species that make up their resident fish and salmon population.

**Table 9. Anadromous Streams Crossed by Plan Area and the Associated Species**

Anadromous Waters Catalog (AWC) Code	Stream Name	Species
247-60-10170-2030	Canyon Creek	Chinook, Coho Salmon
247-60-10170-2029-3026	Silvertip Creek	Chinook, Coho Salmon
247-60-10170-2029	East Fork Sixmile Creek	Chinook, Coho, Pink, Sockeye Salmon
247-60-10170-2029-3041	Granite Creek	Coho Salmon
247-60-10190	Ingram Creek	Dolly Varden & Chum, Coho, Pink, Sockeye Salmon





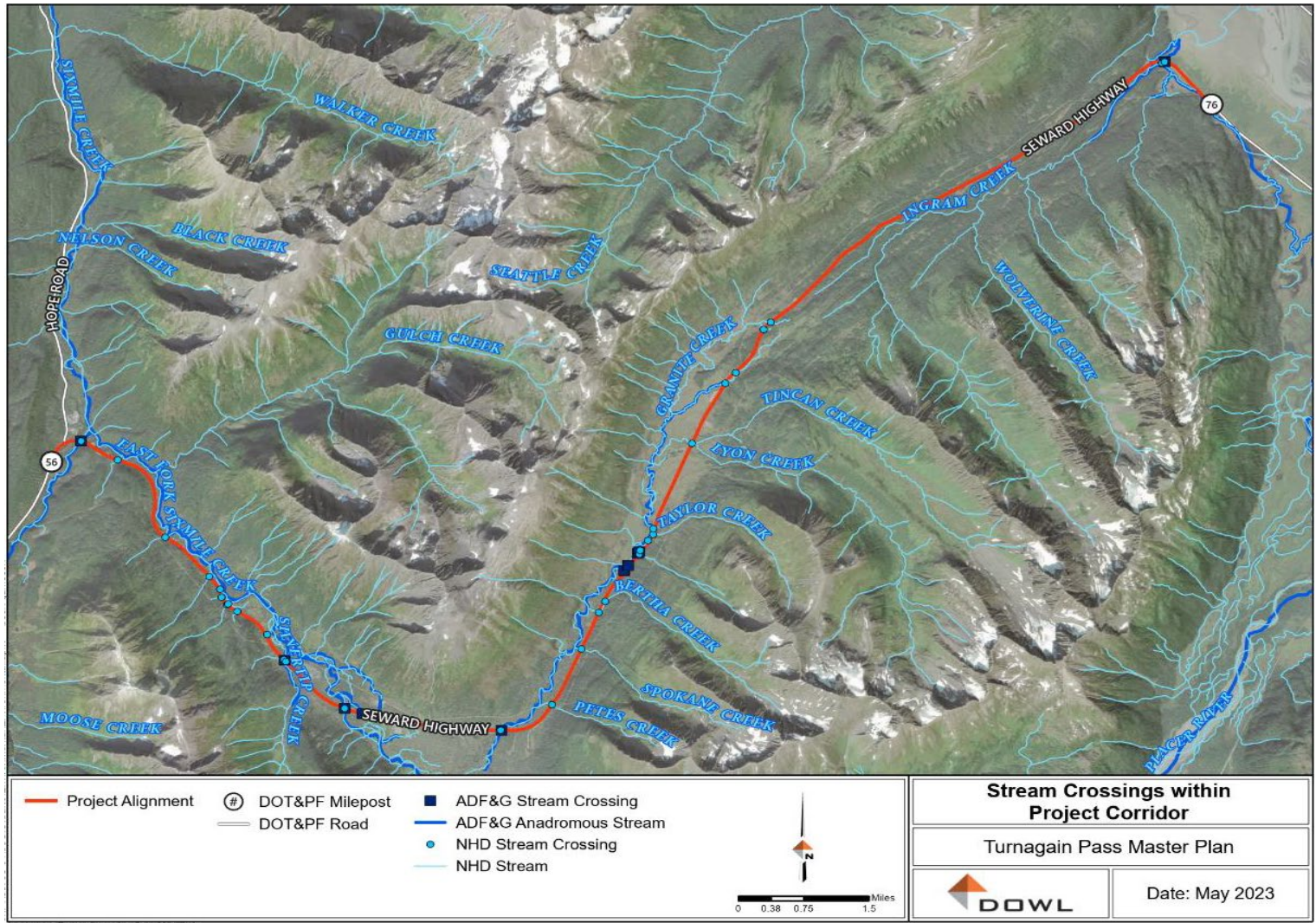


Figure 13. Map of National Hydrology Dataset (NHD) and ADF&G Anadromous Streams within Plan Area

## Birds

Migratory birds in the plan area include Bald and Golden eagles (*Haliaeetus leucocephalus* and *Aquila chrysaetos*), common loon and red-breasted merganser (*Gavia immer* and *Mergus serrator*), and two birds of conservation concern, the Olive-sided flycatcher, and Rufous Hummingbird (*Contopus cooperi* and *Selasphorus rufus*). Migratory Birds are protected by the Migratory Bird Treaty Act and consultation with U.S. Fish and Wildlife Service (USFWS) would be required before disturbing habitat during the bird window for the region May 1 to July 15. Bald and Golden eagles are protected under the Bald and Golden Eagle Protection Act and consultation with USFWS would be required for any activities that may disturb eagles or take nests. If active eagle nests are found within 660 feet of the plan area (primary and secondary protection zones), the DOT&PF, in conjunction with the United States Fish and Wildlife Service, will determine appropriate actions. Appropriate actions could include: 1) restricting certain construction activities during sensitive nesting time periods; or 2) monitoring the nest during construction. An eagle nest survey would likely be needed to ensure compliance with USFWS regulations.

## Other Wildlife

Turnagain Pass is in Game Management Unit 7, managed by ADF&G. The management unit is habitat for brown and black bear, caribou, Dall sheep, mountain goat, moose, and several furbearers such as beaver, wolf, and wolverine. Much of the wildlife listed above are found at higher elevations in the mountain range, however moose, beaver, and black bear may be found at lower elevations. Because the Seward Highway corridor has existed through the wildlife habitat since approximately 1951, improvements to the existing corridor are not expected to fragment habitat or create a new bisection of a wildlife migration corridor.

## 4.7 Operations and Maintenance

Turnagain Pass is maintained by DOT&PF Maintenance and Operations (M&O) centers within the DOT&PF Central Region. MP 56 to 75.5 is maintained by Peninsula District's Silvertip Station and the remaining half mile from MP 75.5 to 76 is maintained by Anchorage District's Girdwood Station.

### Current Maintenance Staffing<sup>10</sup>

The pool of available labor for the Silvertip station is very limited and draws primarily from the small communities of Hope and Girdwood with occasional participation from Crown Point and Cooper Landing to the south, reflecting significant staffing problems at the Silvertip Maintenance Station. For example, most of the winter of 2022/23 saw only two fulltime regular staff at the station.



Image 2. DOT&PF M&O Peninsula District's Silvertip Station

<sup>10</sup> 2023 April 18. Interview with Sean Montgomery, DOT&PF Peninsula District M&O Superintendent.

### Winter Maintenance<sup>10</sup>

The Seward Highway throughout the plan area experiences heavy snowfall which frequently arrives in back-to-back storms. As snow is plowed from the highway, it accumulates on the limited shoulders and in the shallow ditches on each side of the road. Roadway travelers will often experience a narrowing of the road until snow can be removed. This action usually involves pulling the snow into remaining lane space and then blowing away from the road. The M&O staff would see considerable advantage to widening shoulders and ditches to provide more snow storage and a space to “pull” the snow that is not within driving lanes or existing parking lots and pullouts. Parts of the corridor (MP 69-76) are bounded on the west side by rock walls or cliffs that prevent snow blowing actions. Removing or cutting this rock back will significantly improve M&O snow removal operations.



Image 3. Rocky Area Along Seward Highway Through Turnagain Pass

### Drainage / Spring Runoff<sup>11</sup>

DOT&PF M&O staff view drainage along much of the corridor as insufficient to accommodate spring thaw, which results in peak water runoff. This is leading to premature deterioration of pavement, frost heaves, and the need for pumping water to prevent extreme washouts.



Image 4. Restroom at the Motorized Lot in Turnagain Pass during Snowy Conditions

### Roadside Assets<sup>11</sup>

Roadside assets such as signs, guardrails, and callboxes are easily lost in snow berms along much of the plan area. M&O has requested that alternate means of mounting (higher) or marking these devices be explored, such as taller markers or in road makers. GPS is a consideration.



Image 5. Canyon Creek Toilet Facility

### Avalanche Areas

Active avalanche areas are known to exist within the plan area. Active shooting/control of avalanches has occurred at the summit lake site just outside of the plan area in recent years at MP 46.

### Rest Areas

Two official DOT&PF rest areas are located at approximately MP 56.6. These rest areas are maintained by DOT&PF throughout the summer months by contract and closed for winter months. Pullouts remain low priority for road maintenance in comparison to the roadway, which serves heavy freight traffic between Anchorage and the Kenai Peninsula.<sup>11</sup>

<sup>11</sup> 2023 April 18. Interview with Sean Montgomery, DOT&PF Peninsula District M&O Superintendent.

## 4.8 Fees, Permits, and Revenue

### User Fees

Turnagain Pass has two campground locations that have daily fees for usage. Bertha Creek Campground requires a fee to be paid per night during the peak recreation season.

Granite Creek Campground also requires a fee to be paid per night during the peak recreation season, but visitors can reserve a campsite up to 180 days in advance and provide payment online where they are charged the site fee as well as a service fee.

### USFS Permits and Interagency Passes

Permits issued by the USFS to include outfitter guide, non-commercial use, recreation event, and commercial filming and photography permits. Interagency passes and permits are available for purchase at Chugach National Forest offices located in Anchorage, Girdwood, Seward, Cordova, Begich and Boggs Visitor Centers as well as online. These passes are honored nationally at all Forest Service, National Park Service, Bureau of Land Management, Bureau of Reclamation and USFWS sites charging entrance or amenity fees<sup>12</sup>. Currently none of the recreation sites within the plan area require entrance or standard amenity fees that would be included for a user using an interagency pass.

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<sup>12</sup> <https://www.fs.usda.gov/main/chugach/passes-permits/recreation> Accessed 2023



# 5. DEMAND MANAGEMENT ANALYSIS

## 5.1 Purpose and Methodology

A Demand Management Analysis (DMA) was sought to focus on predicting, planning, and managing vehicle/visitor demand at each site through an understanding of the key characteristics of a site which generate user demand. Understanding the key characteristics and how these lead to changes in demand allows responsible agencies to strategically invest resources where they have the highest likelihood of creating the desired outcome.

The methods used in this DMA are comprised of an assessment of qualitative site data, visitor information data collected with video camera footage, and a multivariate regression analysis to assess the correlation between site data and the corresponding visitor information. The following assessment is applicable to Turnagain Pass only during the summer season.

A multivariate regression analysis (MRA) determined what site characteristics were statistically significant in predicting each visitor information metric. In addition, correlation analysis assisted in distilling the number of site characteristics to those which exhibited lower correlation and higher relevance as independent variables. The methods will be described in greater detail in the following sections.

One characteristic of demand considered is the available acreage of recreational access. The acres of recreational access provided at each site was difficult to assess in the field. Through interviews with year-round area users, summer usage appears to differ from winter usage. Crowd-sourced data using Strava's Global Heat Map was used to determine the total potential recreational acreage accessed from each site along Turnagain Pass. Strava is a global company that allows non-motorized users to log and track their trips for personal reference and use. These trips are then anonymized and combined to provide the Strava Global Heat Map of non-motorized activity. Figure 14 is an example of a Strava heat map, showing the color-graded view of routes of recreators an area is experiencing based on application user supplied data. The heatmap's color grade uses orange to indicate the "hottest" or most used routes. As route use declines, the color grade moves from orange to gray. The heatmap example in Figure 14 along the Turnagain Pass corridor is a snapshot near the INHT, on the east side of the Seward Highway. The "hottest" routes shown here are filtered to show summer walking/biking routes, as well as acreage further to the east of the INHT access points at Tin Can and Center Ridge Trailheads. To show winter recreation, the "snowflake" icon would be selected to filter for only winter recreation types. These recreation sheds give a good sense of how sites compare in their potential to engage users who are already using each site.



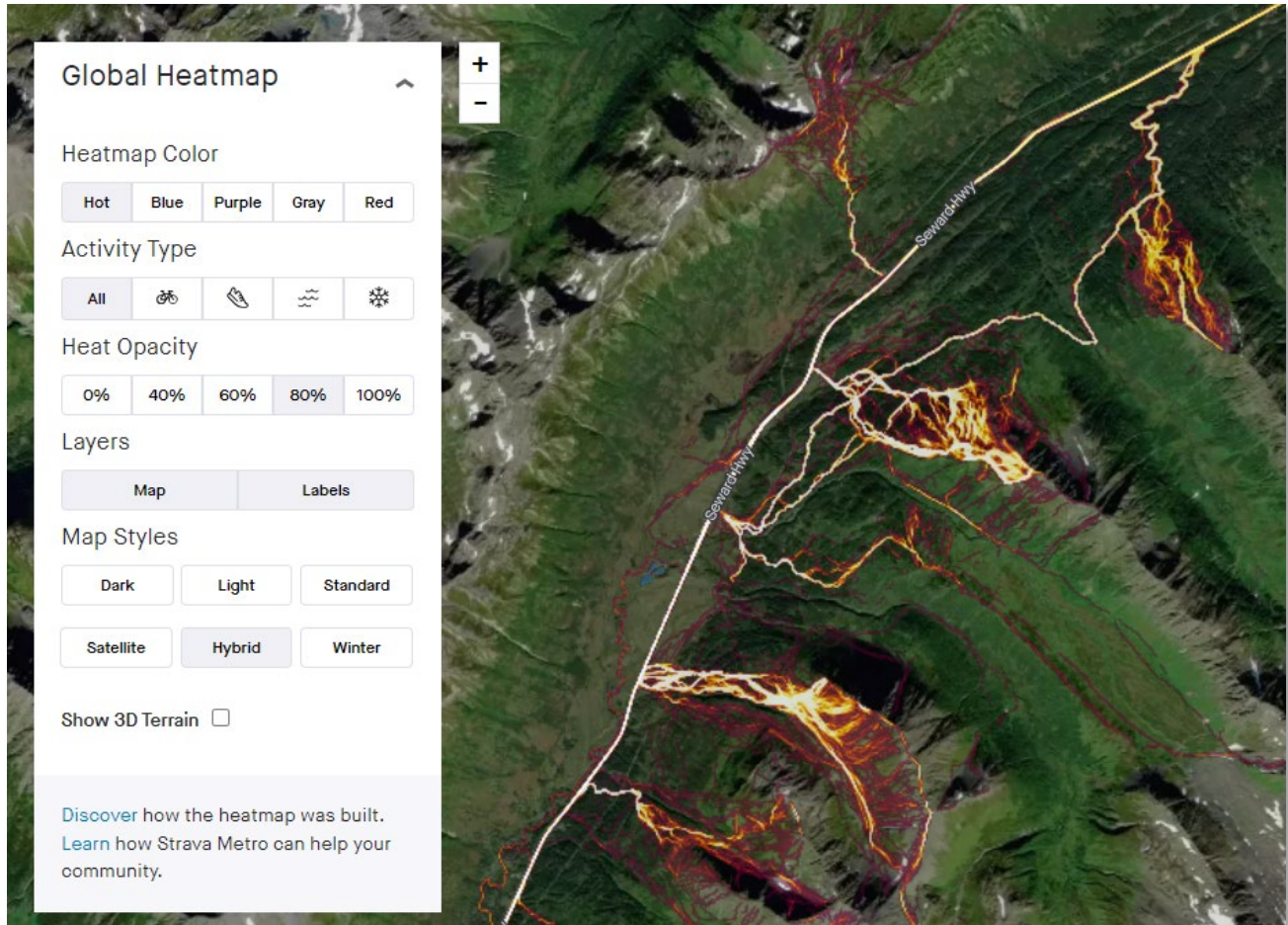


Figure 14. Strava Heatmap

The following sites were selected for data collection and observation, and map of the sites and associated data collection dates are found in Chapter 3 of Appendix 1.

- Riverview Lot
- Center Ridge Trailhead
- Johnson Pass Trailhead
- Sixmile Raft Launch
- Snowstake Lot
- Upper Ingram Trailhead
- Motorized “Moto” Lot
- Johnson Pass Trailhead
- Sunburst Parking Lot
- Tincan Trailhead
- Welcome to Kenai Sign



Each site location was evaluated over a four-day window between Thursday and Monday to capture the peak weekend behavior. Each day was evaluated independently as some sites showed Saturday peaks, while others peaked on Friday or Sunday. By separating each day, the project team was able to assess the impact of the day of week on visitor behavior. The following information was collected for each vehicle recorded entering/exiting a site location:

- Arrival time
- Departure time
- Duration of stay
- Number of visitors seen
- Overnight stays
- Occupancy

One important factor that cannot be represented in the numerical analysis is the type of usage seen across each site in the sample, such as groups of trail cyclists arriving simultaneously or recreational vehicle (RV) caravans. This qualitative part of the analysis helps fill in the context on why visitors are stopping, and what they use the sites for. Qualitative trends witnessed in the recordings could be split up by type of location – pull-out, river access, parking lot, trailheads, and campgrounds. Unique visitor characteristics noticed when reviewing the camera footage are summarized in (Table 10). While some of these characteristics may seem intuitive (such as a campground attracting more camping and trail use), some were more surprising, such as the high frequency of overnight stays in the major parking lots.

**Table 10. Sites and Visit Characteristics**

Site Type	Applicable Sites	Visit Characteristics Identified from Recordings
Pull-out	Riverview, Sunburst	Higher frequency of RVs and 18-wheeler quick visits, limited use of nearby area
River Access	Sixmile	Raft trips with multiple vehicles and big groups; some vehicles stay overnight as well; majority of longer visits involve river use
Parking Lot	Motorized, Snowstake, Welcome Sign	Higher frequency of RVs and overnight stays, more vehicle caravans, tour bus stops, 18-wheeler stops, limited use of nearby area (excluding pictures of welcome sign)
Trailheads	Center Ridge, Johnson Trail, Upper Ingram, Tincan	Regular use of nearby trails, more groups of hikers/bikers arriving in coordinated groups
Campground	Bertha Creek, Granite Creek	Regular use of nearby trails, camping

The complete overview of the methods used in the DMA is included in Chapter 3, Section 2 of Appendix 1.



## 5.2 Results and Recommendations

### 5.2.1 Results

The results of the analysis indicate the dependent variable relationships shown in Table 11 are significant and correlated. Common themes include the provision of campsites and parking areas to increase duration, daily vehicle counts, and peak occupancy. However, additional amenities such as toilets and garbage receptacles should only be used in conjunction with other recreational uses given the negative impact to visit duration.

Where toilets and garbage receptacles are currently provided without other amenities, consideration should be given to the installation of picnic benches or access to other significant recreational opportunities to increase visit duration. The complete breakdown of the analysis is included in Chapter 3 Section 3 of Appendix 1.

**Table 11. Dependent Variable Relationships**

Dependent Variable	Increased by	Decreased by
85th Percentile Visit Duration	Campsites, Total Parking Area, Picnic Benches	Toilet + Garbage
Daily Vehicle Count	Campsites, Total Parking Area, Toilet + Garbage	-. <sup>a</sup>
Peak Occupancy	Campsites, Total Parking Area, Toilet + Garbage	-. <sup>a</sup>

<sup>a</sup> Variables with negative coefficients do not appear to be predictive.<sup>13</sup>

### 5.2.2 Recommended Demand Management Strategies

Overall, this demand management analysis provides a documented basis for correlated characteristics and visitor behaviors along the Turnagain Pass corridor during summer months. The results of the demand management analysis coupled with information gathered during public and stakeholder engagement can lead to overall strategies to promote safe access, improve existing facilities, and balance visitor demands. The impact to visitors is improved access to the wealth of recreational activities and stunning landscape along the Turnagain Pass corridor.

The recommended strategies below can assist with visitor demand management along the Turnagain Pass corridor. These strategies fall under three main goals for various demand management needs:

1. Increase visitor time duration and peak occupancy.
2. Increase daily visitors with select amenities.
3. Balance both visitor time duration and amenity usage.

<sup>13</sup> The negative coefficient on picnic benches is likely due to the small sample size of sites with picnic benches and the correlation with campgrounds which have an upper limit on peak occupancy based on available campsites.





Each goal requires different strategies crafted to increase or decrease the time duration spent at each location, as well as increase or decrease use of amenities. Recommended strategies are simply a starting point to provide next steps on how the Turnagain Pass corridor can realize improved access to the Chugach Forest’s recreational opportunities, as well as provide roadside amenities for sightseers and travelers to and from the Kenai Peninsula. The strategies are crafted with the intent to inform the continued development of the Turnagain Pass Master Plan and its recommendations to improve access to the Chugach Forest’s vast recreational opportunities for users.

## Goal 1: Increase Visitor Time Duration and Peak Occupancy

- **Strategy 1.1:** Improve access to an existing recreational opportunity.
- **Strategy 1.2:** Improve sites with known higher duration amenities such as picnic tables or camping facilities.
- **Strategy 1.3:** Connect to existing amenities through improved pedestrian facilities, potentially creating a pedestrian facility to connect the opposite sides of the Seward Highway.
- **Strategy 1.4:** Connect to other existing recreational opportunities through a seasonal shuttle or guide service.

The demand management analysis for the TPMP corridor found that visitor duration and peak occupancy is driven by the combination of available amenities and access to potential recreational activities at each site observed in the summer months. It is not surprising that a campground or trailhead generally results in longer stays, but the capacity of the campground results in a limited numbers of visitors over that same period. However, access locations with public toilets and garbage receptacles resulted in some of the highest levels of visitor usage along the corridor, but with the lowest duration, such as was observed at the “Moto” Lot site. Adjusting available amenities can allow for either increased or decreased demand at a given site.

**Recommended Site(s):** Welcome Sign, Moto Lot, Center Ridge Trailhead, Canyon Creek Rest Areas.

## Goal 2: Increase Daily Visitors with Select Amenities

- **Strategy 2.1:** Add shorter duration, day-use amenities (picnic tables, trailheads, river access) to longer duration facilities (campgrounds).
- **Strategy 2.2:** Provide clear and direct signage for intended use of existing access points (example: clearly indicate rafting, fishing, or camping facilities).
- **Strategy 2.3:** Cultivate and improve unique recreational opportunities throughout the corridor.
- Granite Creek Campground and its proximity to the gravel pit located at MP 62 is an excellent example of an underused site where daily visitor counts are constrained by the availability of campsites. It was mentioned during stakeholder engagement conversations that additional recreational opportunities with places for rafting, biking, hiking, etc., are needed to drive additional use and this is consistent with the demand analysis. Additional, clearly signed recreational opportunities that create an experience for the user can drive additional visitors to a site. The addition of select day-use amenities to complement the recreation uses available can further support the visitor use.

**Recommended Site(s):** Bertha Creek Campground, Granite Creek Campground, Johnson Pass Trailhead, Sunburst Parking Lot, Gravel Pit, Snowstake Lot, Raft Launch.



### Goal 3: Create a Consistent User Experience Across Sites

- **Strategy 3.1:** Develop select pull-outs with amenities to attract new need-based and activity-based visitors (Example: formal parking lots, dispersed camping, and toilet/garbage).
- **Strategy 3.2:** Invest in maintenance of existing and future amenities (Example: parking lot plowing or maintenance of public toilets).
- **Strategy 3.3:** Consider consolidation of existing access to fewer sites with appropriate accommodations for adventure guides' equipment such as larger raft-hauling trucks and buses.
- **Strategy 3.4:** Add shelters for educational and recreational opportunities for all ages and abilities.

The more detailed results of this analysis indicate that the more developed an access area is, the more the site is used, and the longer people stay. For example, this analysis found that roadside pull-outs resulted in less time spent by visitors than fully developed parking lots with toilets and access to recreational activities such as trailheads, river access, or campgrounds. The size of a parking lot also resulted in higher visitor use, but not necessarily a longer time duration being spent by visitors.

The Tincan pull-out is the most popular parking area during the winter due to its proximity to highly desirable backcountry skiing, with stakeholders reporting limited parking opportunities and dangerous conditions as vehicles fill up available parking and spill onto the shoulder of Seward Highway. The opposite is true of the Tincan access during the summer months. This pull-out observed some of the lowest usage and time durations within the sample size. Without amenities or more direct access to a summer season recreational opportunity, Tincan will continue to see large seasonal swings in usage.

By developing new year-round amenities and improving recreational access at these pull-outs they can be expanded into a user experience more consistent with other locations along Turnagain Pass. However, care should be taken to only develop sites consistent with the long-term vision of the corridor. Some pull-outs may be served best through consolidation instead.

During stakeholder interviews, it was noted that year-round maintenance of all facilities is highly desirable. Stakeholders mentioned a need for both improved toilet maintenance and improved snow removal to allow for safe parking as the main factors in determining the use of a parking area's facilities. Stakeholders also noted that access to new or improved recreational opportunities would be welcomed. Recreational facility suggestions included both ideas for new and improved recreational activities for the Turnagain Pass area, including single-track mountain biking trails, groomed winter and summer trails, pedestrian and non-motorized facility connections between recreational accesses, and dedicated access to popular backcountry skiing locations throughout the corridor.

**Recommended Site(s):** *Snow Chain lots, Upper Ingram Trailhead, Tincan, Sunburst Parking Lot, Gravel Pit*



# 6. NEEDS ASSESSMENT

## 6.1 Needs Identified

The public involvement process included six virtual and three in-person meetings conducted during June 2023 with attendance by various stakeholders. A list of identified needs was compiled from these meetings which was categorized by indicated need, addition of access, indicated location, Seward Highway milepost, need type, potential partners, and the frequency this need was identified. These needs are included in detail in Chapter 4 of Appendix 1. Of the **159** comments received, the largest number of requests were for improved winter maintenance of roads and increased funding (**13**), addition of multi-use trails (**7**), addition of hiking trails for summer use (**7**), improved cell phone reception (**6**), mountain bike trail development (**6**), and additional parking throughout the Pass (**6**). The need types are categorized as follows:

- **Facility Improvement** – Update existing facilities to increase overall safety, accessibility, utilization, and efficiency.
- **Maintenance** – On-going maintenance and operational needs, such as year-round restroom upkeep and winter snow plowing.
- **New Facility(s)** – Create additional facilities based on stakeholder feedback and demand.
- **No Improvement** – Maintain the current level of conditions and services.
- **Program** – Implements programmatic based needs, such as increased funding to promote increased service delivery to the plan area.
- **Safety Improvement** – Improved user safety both for vehicles and people accessing a recreational site.

## 6.2 Screening and Prioritizing Needs

A screening and prioritization process uses criteria to evaluate the needs based on a range of performance measures. Suggested evaluation criteria were developed based on feedback from partners to this Master Planning effort (Table 12). Included in the evaluation criteria is the need for projects to align with all applicable Forest Management Plans developed by USFS.



**Table 12. Suggested Evaluation Criteria**

<b>Category</b>	<b>Suggested Evaluation Criteria</b>
<b>Safety</b>	Provides safe access to/from Seward Highway
	Enhances recreation user safety
	Improves emergency response times/first aid
	Reduces fatal and serious injury vehicle crashes.
<b>User Experience</b>	Provides for meaningful engagement with the National Forest
	Provides for meaningful engagement with the surrounding landscape
	Encourages users to stay and use the area for recreation purposes
	Provides user amenities, information, and guidance to enhance user experience
	Improves connection between recreation areas
	Reduces user conflicts
<b>Sustainability/ Environmental Quality</b>	Supports or advances environmental goals of USFS, Tribes, state, and local agencies.
	Protects or enhances wildlife connectivity or aquatic organism passage
	Enhances water quality, riparian function, wetlands function
	Uses design, materials or techniques that exceed the minimum environmental requirements and/or mitigates an existing environmental problem in the area
	Contributes to improved environmental quality (i.e., sustainability, resiliency, Greenhouse Gas (GHG) reductions and/or reduces VMT)
<b>Maintenance Investment</b>	Improves level of maintenance investment
	Improves lifecycle cost to include minimum levels of service
	Improves condition of access to recreational facilities.
	Supports goals of existing surface management system program.
<b>Readiness and Support</b>	Level of project support
	Project is ready to deliver (“shovel ready”), delivery schedule defined, funds available
	Includes previous project support through agency priorities and previous federal investment.



# 7. IMPROVEMENT STRATEGY

## 7.1 Identifying Improvements

The gaps identified for the Turnagain Pass corridor include issues of perceived road safety for all user types, maintenance both year-round and specific gaps during the winter months, limitations associated with parking and access, limited wayfinding, and disjointed connections of trails and pathways. The overall needs for the area have previously been identified in the Turnagain Pass Master Plan Needs Assessment Technical Memorandum. The table containing the identified needs is attached as Appendix 4.

## 7.2 Proposed Projects

Many potential projects were suggested through the planning process and public input. The potential projects were categorized into Parking, Paths and Trails, or Programs based on the following needs:

- Interpretive signage and recreation
- Trails/trails wayfinding
- Pathways
- Parking
- Roadway safety/marking/safety wayfinding
- Program(s)

Many of the projects in the Turnagain Pass corridor are to address safety, parking, and trail/ trail wayfinding. A more in-depth look at the proposed projects and their identified needs can be found in the tables included in Chapter 2, Section 2 of Appendix 2.

### 7.2.1 Parking

Five (5) existing parking areas have been identified for improvements:

1. Tincan Pullout
2. Motorized (Moto) Lot
3. Center Ridge Trailhead Parking Lot
4. Johnson Pass Trailhead Parking Lot
5. Raft Launch Parking Lot

In addition to these existing parking locations, a new parking facility was initially recommended between MP 65 and MP 66 at either the Sunburst Peak Parking Lot or Cornbiscuit Pullout. However, public and agency input proved that redesigning the parking lot at Sunburst Peak would be most beneficial to the Pass.



## 7.2.2 Paths and Trails

The paths and trails section includes the multiuse path following the route of the Seward Highway, as well as any desired hiking, biking, and ski trail improvements or additions. Many of the identified needs include quality improvements or extensions to existing facilities, new facilities to provide connections between high-use sites such as campgrounds and trailheads and establishing new types of trails to cater to additional user groups.

## 7.2.3 Programs

One program has been identified for consideration within the Turnagain Pass corridor. This program is designed to address year-round and winter maintenance gaps. The development of a Facility/Winter Maintenance Management Plan is proposed to assist in coordinating among organizations operating within the Pass. The Management Plan would address quality and capacity issues, support adequate upkeep of facilities, and provide safe facilities for all user groups during all season. A program like the Vail Pass for users in Vail Colorado is proposed to increase funding for maintenance activities within the Pass.

## 7.3 Project/Program Prioritization

Project/program prioritization was conducted using an Impact and Effort Matrix. This matrix assists in sorting and identifying projects into four quadrants of “quick wins”, “major projects”, “fill ins”, and “for future consideration”. This method promotes objective decision-making based on data-driven evaluations and helps to highlight tasks with the most significant impact/value. The Impact and Effort Matrix and the categorization tables are both included in Chapter 1, Sections 4 and 5 of Appendix 2.

### 7.3.1 Categorization

Each project was categorized initially focusing on the level of effort (high or low), and then the likely impact of the project once complete.

#### Project/Program Effort:

- **High Effort:** Recommended project/program requires a project description, cost estimate, AND concept design.
- **Low Effort:** Recommended project/program requires a project description and/or a cost estimate.

#### Project/Program Impact:

- **High Impact:** Recommended project/program is likely to have a significant positive impact on the Master Plan area while meeting the needs established by the stakeholders and project team.
- **Low Impact:** Recommended project/program has low-level positive or neutral impact on the Master Plan area while still meeting the needs established by the stakeholder’s and project team.



### 7.3.2 Prioritization

All identified projects/programs were presented in a table to enable the project team to assign the project’s effort and impact level. Once assigned levels were determined, the projects/programs were sorted into four categories: quick wins, major projects, fill ins, and for future consideration. The assignment of these categories is based on the following level assignments:

- **Quick Wins:** Projects/programs requiring minimal design and engineering work but provide a large impact for the plan area. These projects receive rankings of high impact and low effort.
- **Major Projects:** Projects/programs requiring major design concepts and engineering efforts while also providing a large impact for the plan area. These projects receive rankings of high impact and high effort.
- **Fill-Ins:** Projects/programs requiring minimal design and engineering work and provide low impact for the plan area. These projects receive rankings of low impact and low effort.
- **For Future Consideration:** Projects/programs requiring major design concepts and engineering work yet provide low impact for the plan area. These projects receive rankings of low impact and high effort.

The prioritization matrix is included in Chapter 1, Section 5 of Appendix 2. The matrix yielded seven priority projects to move forward with conceptual designs as cost estimates. These priority projects are identified in Section 8 of this document: Priority Recommendations. In addition to the eight priority projects identified, eight “Quick Wins” have been identified. These proposed projects falling within the “Quick Wins” category, are projects having been identified as providing a large impact for the plan area, the eight identified will receive project descriptions.



# 8. RECOMMENDED IMPROVEMENTS

## 8.1 Overview

Overview of the recommended improvements, including those that have conceptual designs and cost estimates and those that are supported by a description only.

## 8.2 Tincan Parking Lot<sup>14</sup>

### Existing Site

The existing Tincan Pullout at MP 69.2 is not an official parking area, rest area, or trailhead but is frequently used to access the popular nearby ski terrain, particularly during the winter. The pullout, originally designed for slow vehicles, is in an area with limited visibility and high-speed traffic on the highway. The design for the new Tincan Parking Lot aims to provide safer access for all users, including backcountry skiers. This parking lot will also provide additional parking for the USFS' future public use cabin that has received funding and will be located at Tincan Peak, as well as other dispersed camping locations throughout the Pass.

### Conceptual Design

The new Tincan Parking Lot design, shown in Figure 15, is approximately 45,801 square feet (Sq Ft) (5,089 Square Yards (Sq Yd)) and has a designated one-way entry point south of a designated one-way exit point, both on the east side of the Seward Highway. Both the entry and exit point are marked with clear signage directing users. Upon entry, users are guided by a one-way driving lane through a row of angled-in parking stalls. The northwest side of the parking lot includes 35 standard parking stalls while the southeast side includes 30 standard parking stalls, a designated avalanche response parking spot, and three Americans with Disabilities Act (ADA) accessible parking stalls. This layout encourages the efficient movement of traffic, promotes increased ability for winter maintenance, and facilitates safety for users. Additional amenities to be included at the new Tincan Parking lot include interpretive signage, a vault toilet with maintenance access, a pavilion, picnic tables, a rescue cache, emergency phone, and a 511 camera. The current conceptual design does not include safety modifications including turning lanes, that may be needed.

**Estimated Cost: \$3.3 to \$4.0 Million**

### Site Specific Assumptions

- This site will experience a high volume of use during the winter months
- The primary user group at this site are backcountry adventurers, of all ages
- Additional topographical information is needed to inform final project design



Image 6. Existing Tincan Pullout

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<sup>14</sup> The existing Tincan location is not a formal parking lot, this identification refers to the conceptual design which creates a formal Tincan Parking Lot.



- Highway safety improvements will likely be needed
- This site will be maintained by USFS
- The USFS will construct a new Public Use Cabin at Tincan

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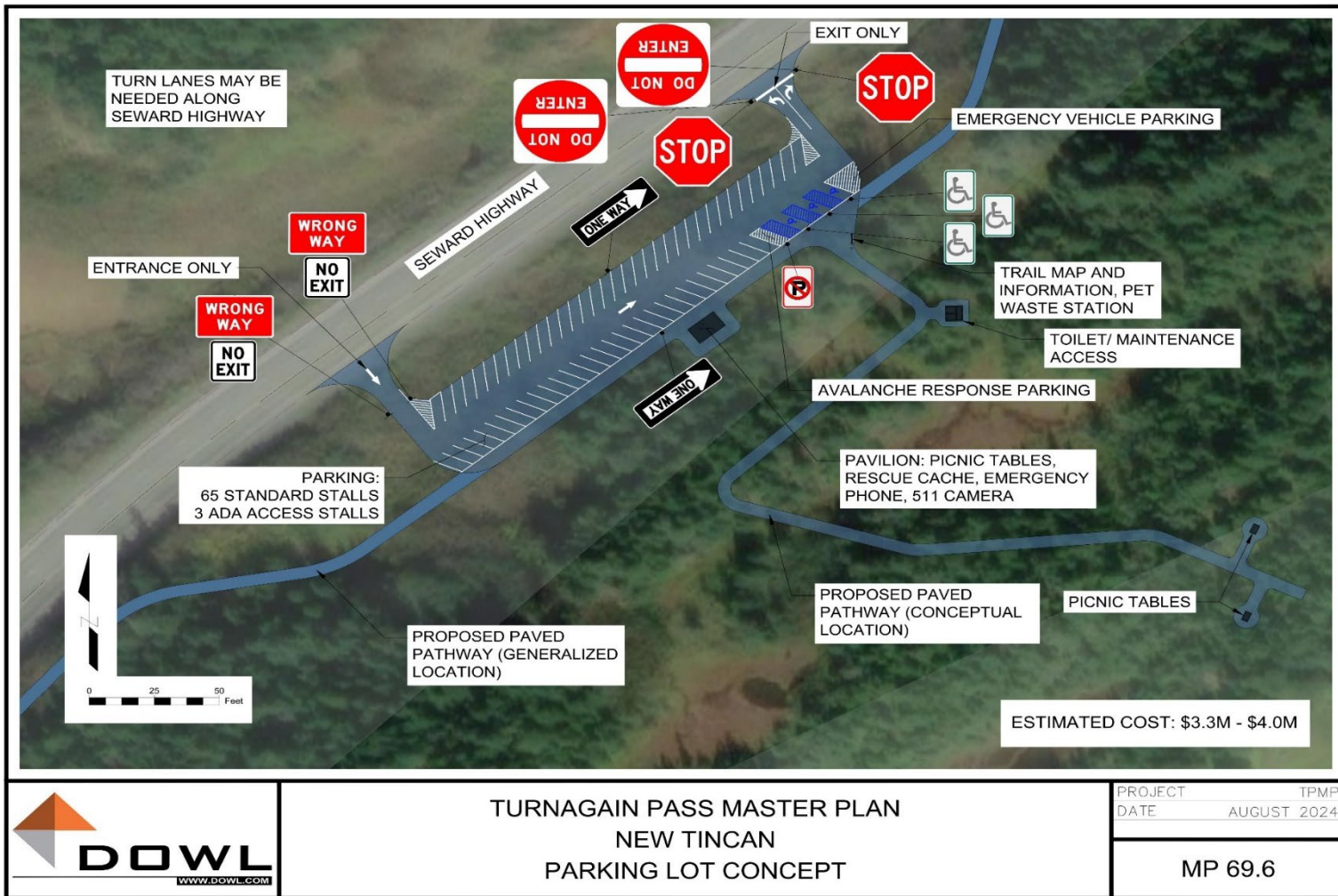


Figure 15. New Tincan Parking Lot Conceptual Design

## 8.3 Motorized Access Parking Lot

### Existing Site

The existing Motorized Access Parking Lot located at MP 68.4 on the west side of the Seward Highway is maintained by USFS. The current lot Moto Lot has two, two-way entry points and is used throughout all seasons. In the summer the lot sees increased use of the restroom facilities for non-forest users, and during the winter the lot is used to provide access to public lands for snowmachines. There are additional summer amenities that are frequently not used, including a loop trail.

### Conceptual Design

Improvements to the Moto Parking Lot, shown in Figure 16 include the redesign of the parking stall layout to provide nine parallel long stalls along the east side of the parking lot, 49 angled long stalls in the center of the parking lot, and 36 standard and five ADA accessible stalls along the west side of the parking lot. Improvements at this site also include a new ADA accessible path connection, avalanche response parking, a pet waste station, interpretive signage, picnic tables/grills, and a staircase to provide access to the existing loop trail.

**Estimated Cost: \$550,000 to \$700,000**

### Site Specific Assumptions

- This site is used during all seasons
- The emergency response cache at this site needs to be relocated to support easier access during winter months
- The current number of parking stalls is sufficient for the demand



Image 7. Existing Bathroom Facilities at Moto Lot

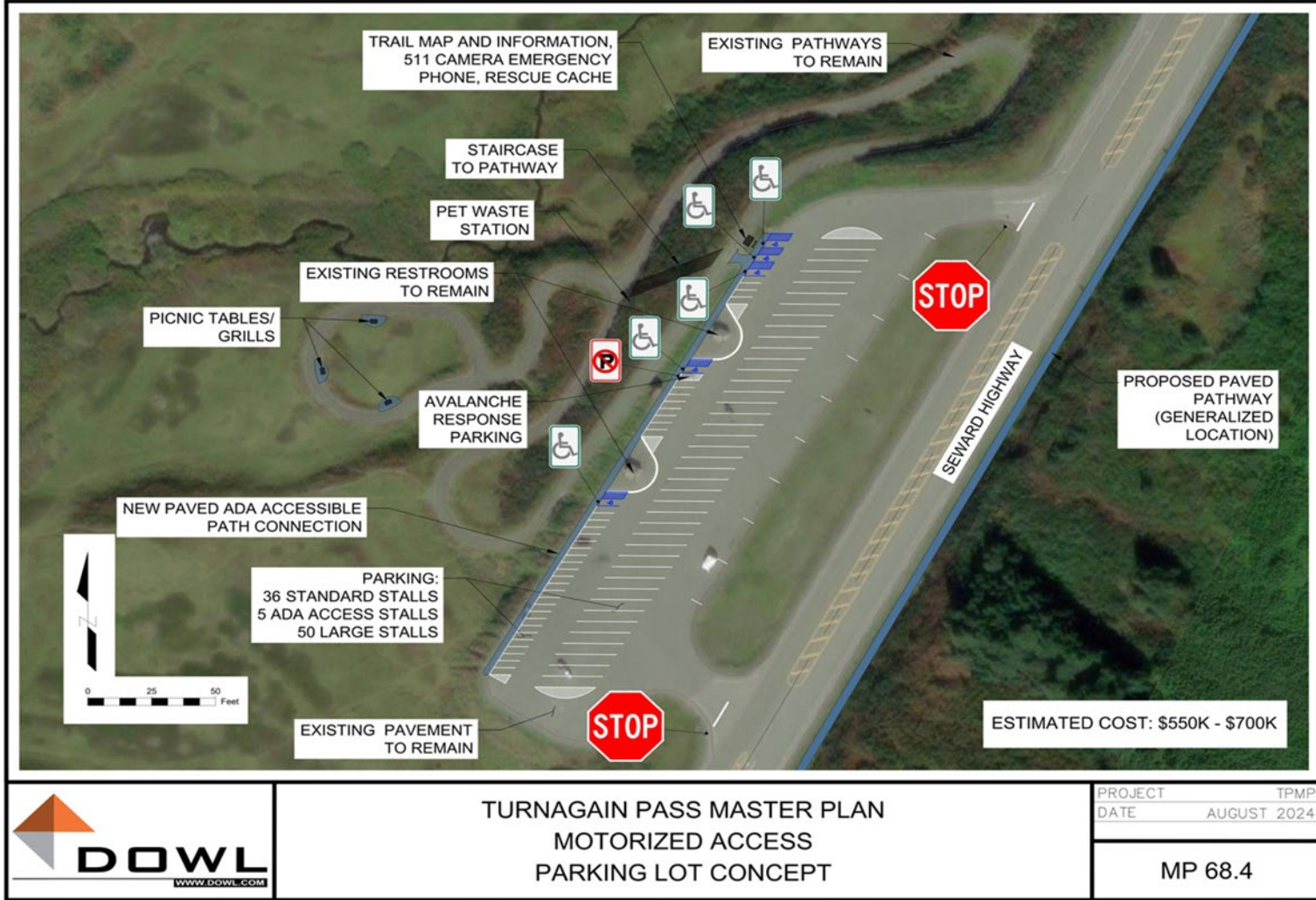


Figure 16. Motorized Access Parking Lot Improvements Conceptual Design

## 8.4 Center Ridge Trailhead Parking Lot

### Existing Site

The existing Center Ridge Trailhead is located at MP 68.0 on the east side of the Seward Highway with current facilities maintained by USFS. The existing parking lot has a single two-way entry point. The facilities at this location include restrooms and interpretive signage. The Center Ridge Trailhead serves as an access point to the INHT and provides opportunities to recreational users who hike, ski, and snowshoe. The proposed Center Ridge Trailhead Parking Lot Improvements aim to meet goals established for the TPMP, while also seeking to improve recreation opportunities between seasons.

### Conceptual Design

Improvements to the Center Ridge Trailhead Parking Lot, shown in Figure 17 include the removal of existing pavement lining the north and south sides of the entry way. This pavement removal will streamline parking and improve safety as it will limit speeds of entering vehicles. The northeast side of the parking lot will be lined with 15 standard stalls, the east side will have 15 standard and four ADA accessible stalls, while seven long vehicle stalls will be found in the center. A separate USFS project that has already received funding will remove the existing toilets at the east side of the parking lot and install a new vault toilet along the pathway towards the trailhead.

Additional improvements for this site include the installation of pavilions near the east side of the parking lot. These pavilions will have room for picnic tables, a rescue cache, and emergency phone. The location closer to the trailhead that will be receiving the new vault toilet will also receive a pet waste station.

**Estimated Cost: \$775,000 to \$1.0 Million**

### Site Specific Assumptions

- This site will be used during all seasons
- The USFS has funding and will complete a project that will remove the existing toilets and relocate the facility towards the trailhead



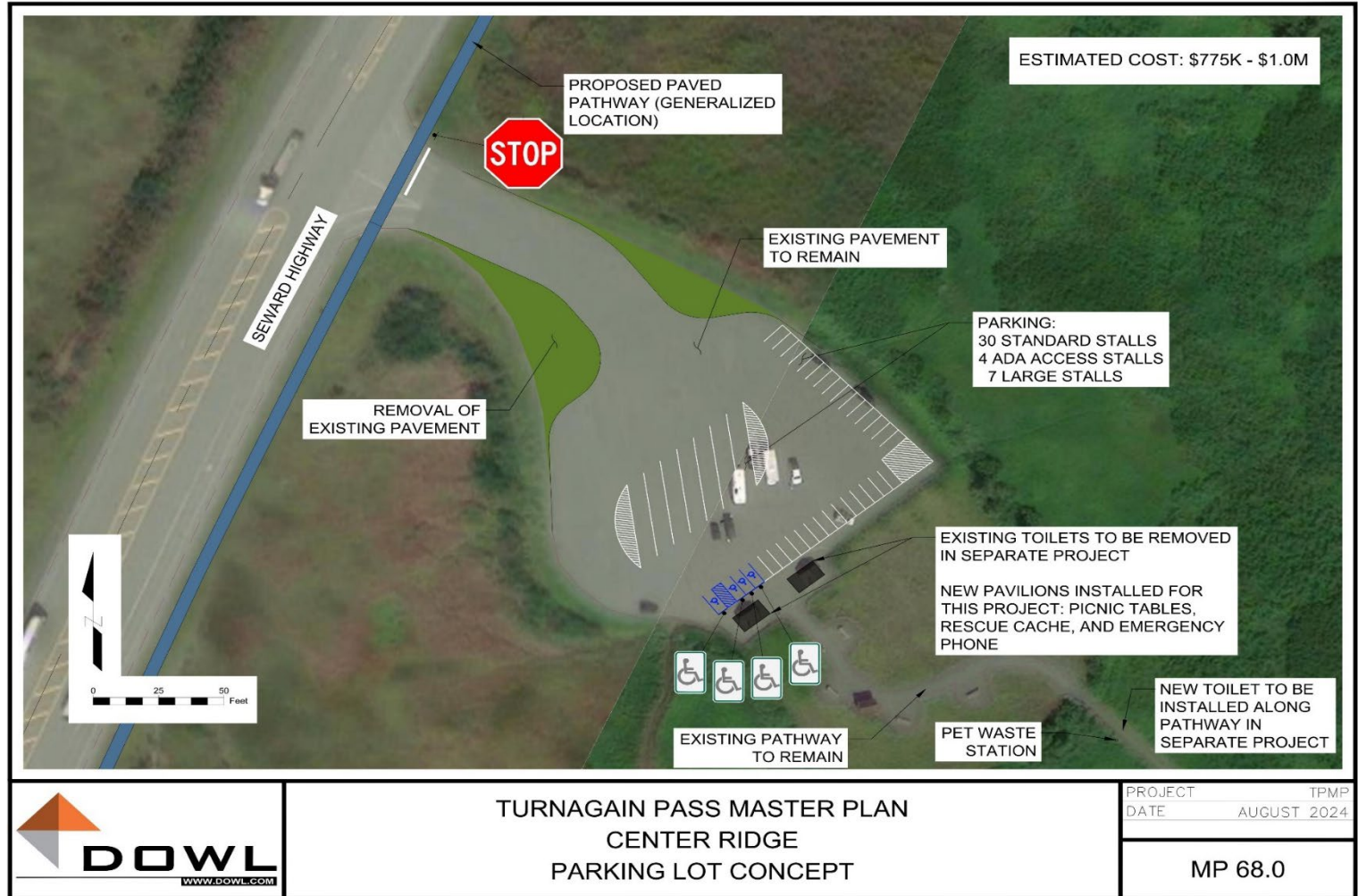


Figure 17. Center Ridge Trailhead Parking Lot Improvements, Conceptual Design

## 8.5 Sunburst Parking Lot

### Existing Site

The existing Sunburst Parking Lot is located at MP 66.8 on the east side of the highway and is intended to be a pullout. Currently the parking lot is used as a skiing trailhead during the winter months.

### Conceptual Design

Improvements to the Sunburst Parking Lot, shown in Figure 18, widen the existing dual entry points providing gravel shoulders, suitable for larger winter maintenance vehicles. This design includes the expansion of the existing parking lot from the current 20,304 Sq Ft (2,256 Sq Yd) to approximately 31,248 Sq Ft (3,472 Sq Yd), providing more streamlined parking as well as increased separation from the highway. Parking will include 38 standard stalls and four ADA accessible stalls with dedicated avalanche and emergency response parking. Additional amenities will include a pavilion able to accommodate picnic tables, rescue cache, and emergency phone as well as interpretive signage and a 511 camera.

**Cost Estimate: \$2.0 to \$2.4 Million**

### Site Specific Assumptions

- This site will experience a high volume of use during the winter months
- The primary user group at this site are backcountry adventurers



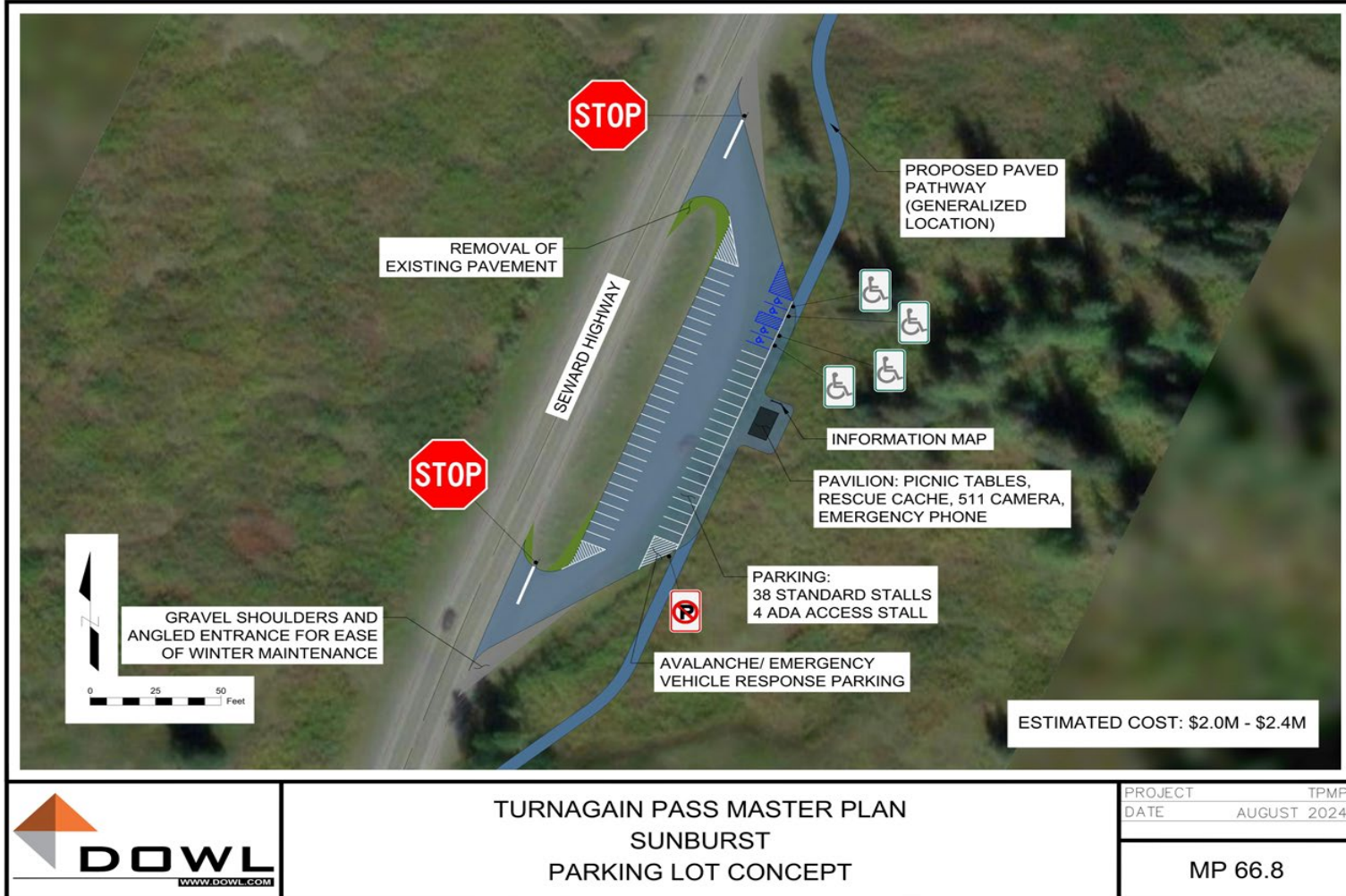


Figure 18. Sunburst Parking Lot Improvements, Conceptual Design



## 8.6 Johnson Pass Trailhead Parking Lot

### Existing Site

The current Johnson Pass Trailhead Parking Lot is 17199 Sq Ft, located at MP 63.6 of the Seward Highway. It is a gravel lot with restroom facilities and interpretive signage maintained by the US Forest Service. The current entry is a single, two-way access point and has been identified as a pinch point for larger vehicles, including snow removal equipment.

### Conceptual Design

The improvements to the Johnson Pass Trailhead Parking Lot, shown in Figure 19, include widening the entrance from Seward Highway to accommodate the entry and exit of larger vehicles. This design also includes a vehicle turnaround area closer to the widened entry point, allowing vehicles the opportunity to complete their turnarounds without entering the main parking lot. This turnaround area will also serve as parking if the main parking lot is not cleared after snowfall. This design is focused on providing the opportunity to turn around prior to the Hope cutoff as well as an opportunity to turn around even if the main Johnson Pass Trailhead Parking Lot is unplowed during the winter months.

The main Johnson Pass Trailhead Parking Lot will remain as a gravel surface with a teardrop-shaped, one-way layout and be approximately 44,253 Sq Ft (4,917 Sq Yd). A single lane driveway with one-way signage will direct traffic through the teardrop-shaped lot and no parking signage will indicate areas unsuitable for parking. There will be enough unmarked parking to accommodate ten standard vehicles on the west side of the lot with an additional parking area to accommodate oversized vehicles along the roadway shoulder on the east side of the lot. Additional amenities at this site include a new trail leading to picnic tables, pet waste station, emergency phone, 511 camera, and rescue cache.

**Estimated Cost: \$1.6 to \$1.9 Million**

### Site Specific Assumptions

- This site be used during all seasons
- An area to turn around even when the main lot is unmaintained during the winter is beneficial
- The entrance to the parking lot will need to be widened to accommodate larger vehicles including snow removal equipment



Image 8. Existing Johnson Pass Trailhead Parking Lot

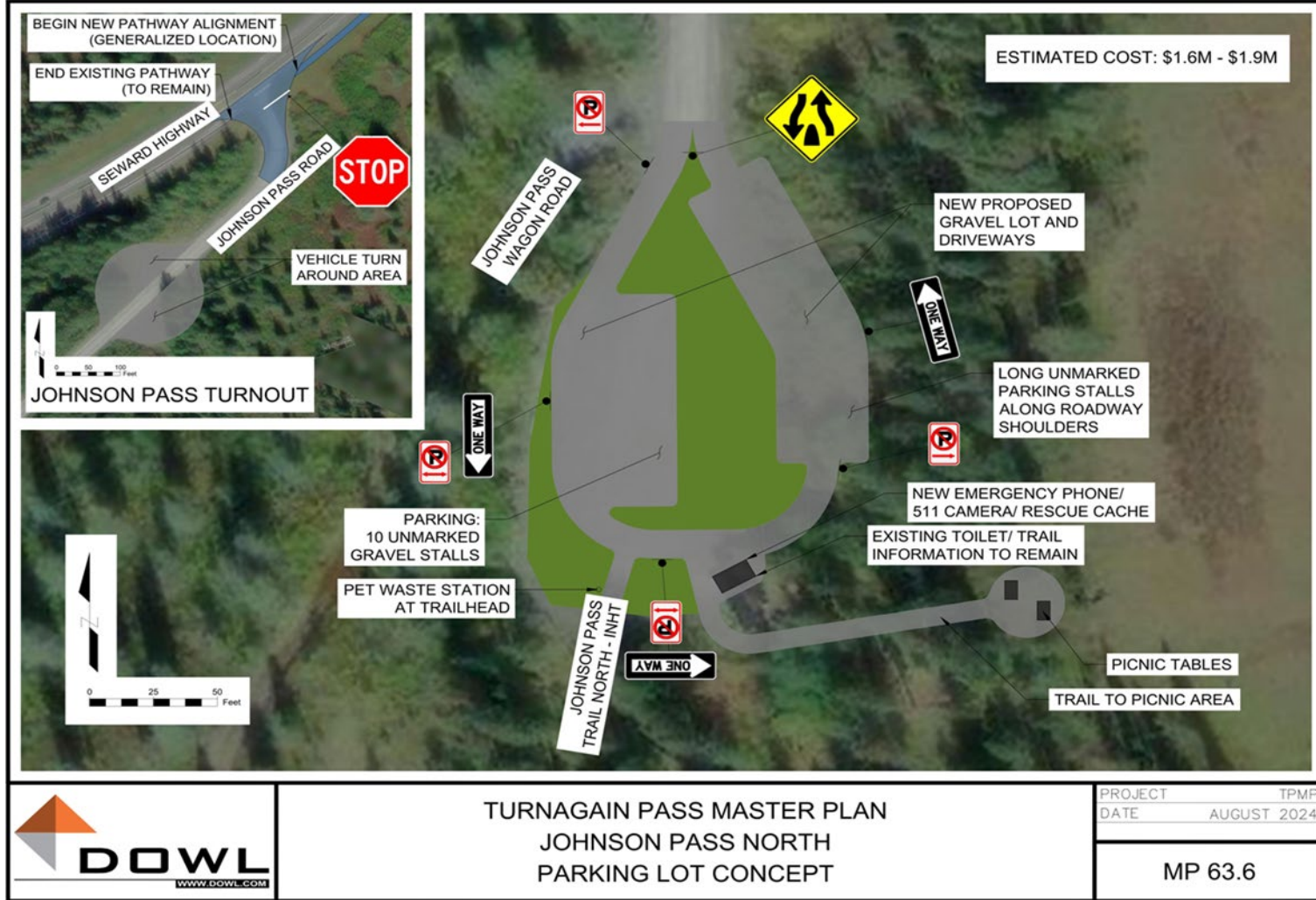


Figure 19. Johnson Pass Trailhead Access and Parking Lot Improvements, Conceptual Design

## 8.7 Raft Launch/River Access Parking Lot

### Existing Site

The existing raft launch and the associated parking lot is 17,199 Sq Ft (1,911 Sq Yd) and is a state-owned facility located on the west side of the Seward Highway at MP 59.0. The current parking lot has a single, two-way entry point. This location is often referred to as the East Fork Boat Launch or Six Mile Raft Launch and is primarily used by pack rafting guides and the public. The proposed Raft Launch/ River Access Parking Lot Improvements aim to meet goals established for the Turnagain Pass Master Plan, while also seeking to improve recreation opportunities during the summer season.



Image 9. Raft Launch in Use by Commercial Guide

### Conceptual Design

The improvements to the Raft Launch/River Access Parking lot, shown in Figure 20, include the addition of a second, two-way entry point north of the existing entry point and will increase the lot to 26,843 Sq Ft (2,983 Sq Yd). This project will improve the current raft launch ramp, providing river access with an improved slope and pavement. The design includes the addition of three large stalls along the west side of the lot and eight standard stalls and one ADA accessible stall on the east side, as well as the inclusion of interpretive signage and benches near the raft launch ramp.

**Estimated Cost: \$1.2 to \$1.5 Million**

### Site Specific Assumptions

- This site will be most used during the summer months
- The current parking at this site is sufficient for demand
- The primary users at this site include commercial tour guides

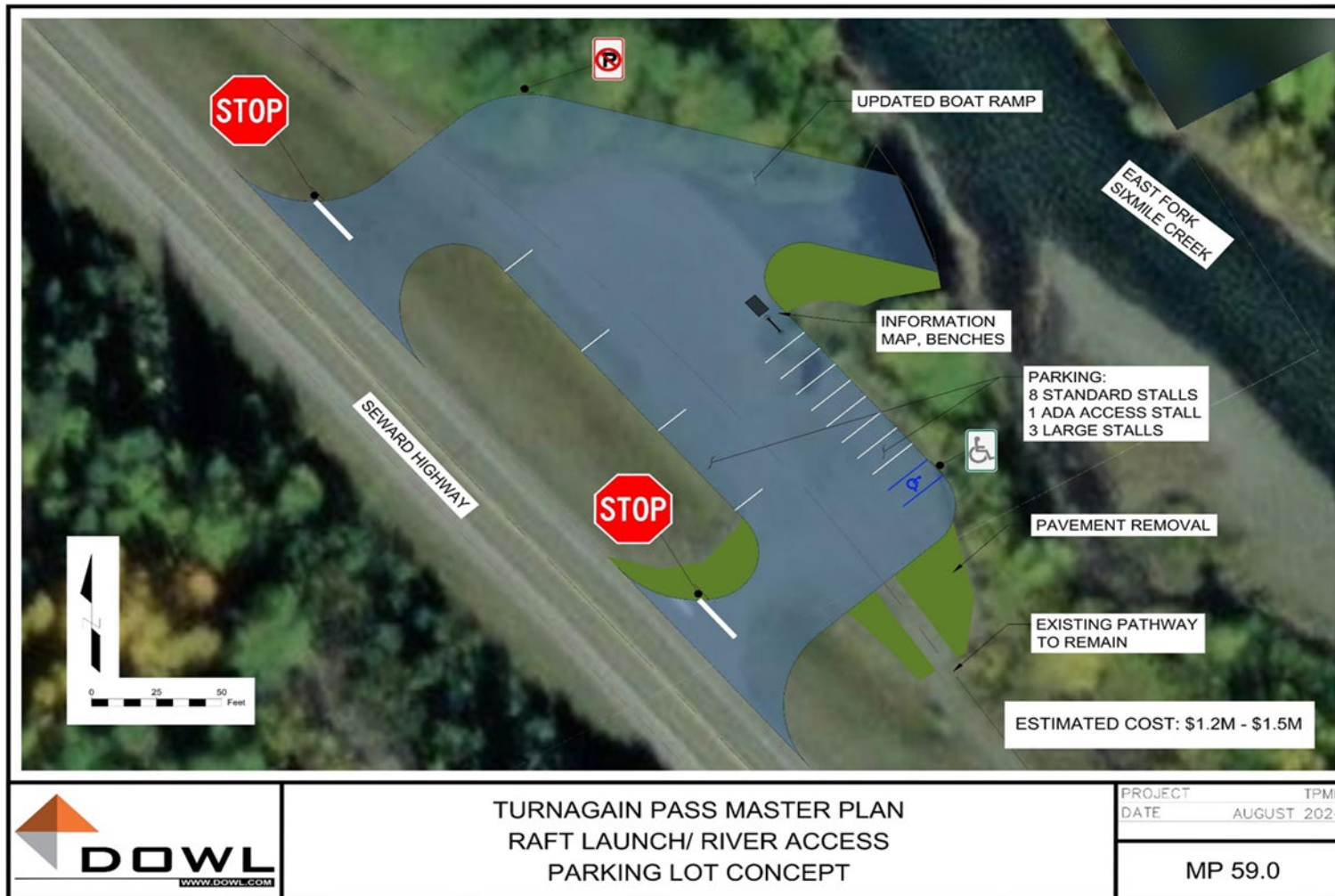


Figure 20. Raft Launch/River Access Parking Lot Improvements, Conceptual Design

## 8.8 Multi-Use Parkway Addition and Extension

The current multi-use pathway is not continuous. One (1) section extends the length of the Seward Highway from Hope Junction to Johnson Pass turnout. A second section begins at the base of the Pass and continues towards the 20-mile valley. The multi-use pathway project is designed to meet the goals established for the TPMP and the desires of stakeholders and user groups and connect these two existing segments.

The proposed pathway, shown in Figure 21, will be ten-feet wide and paved with two-foot gravel shoulders on either side to tie into the existing segments. For the project team to create a feasible pathway project, this 12-mile proposed pathway is divided into six segments with logical termini, allowing it to be completed in prioritized phases. The segments, their termini, corresponding length, and estimated costs are included in Table 13. More detailed cost estimate breakdowns are included in Chapter 2, Section 2.2 of Appendix 2. Segments are identified as paths 1 through 6 in addition to receiving color coding matching the segments displayed in Figure 25.

**Table 13. Turnagain Pass, Seward Highway Multi-Use Pathway Segments**

Segment ID	Length (ft)	Termini	Estimated Cost
Path 1 (RED)	9,000	Johnson Pass Turnout (MP 63.6) to Granite Creek Campground (MP 62.9)	<b>\$10.0 to \$12.0 Million</b>
Path 2 (ORANGE)	6,900	Granite Creek Campground (MP 62.9) to Sunburst Parking Lot (MP 66.8)	<b>\$7.7 to \$9.3 Million</b>
Path 3 (YELLOW)	6,600	Sunburst Parking Lot (MP 66.8) to Center Ridge Parking Lot (MP 68.0)	<b>\$7.3 to \$8.8 Million</b>
Path 4 (GREEN)	7,900	Center Ridge Parking Lot (MP 68.0) to Existing Tincan Pullout (MP 69.6)	<b>\$9.3 to \$11.2 Million</b>
Path 5 (BLUE)	15,100	Existing Tincan Pullout (MP 69.6) to Upper Ingram Trailhead (MP 72.5)	<b>\$17.7 to \$21.3 Million</b>
Path 6 (PURPLE)	15,700	Upper Ingram Trailhead (MP 72.5) to Base of Pass (MP 75.5)	<b>\$18.6 to \$22.4 Million</b>

### Site Specific Assumptions

- This facility will be used year-round
- Segments that connect campgrounds to other recreation locations will be prioritized
- The same design standards will be used for future segments as existing



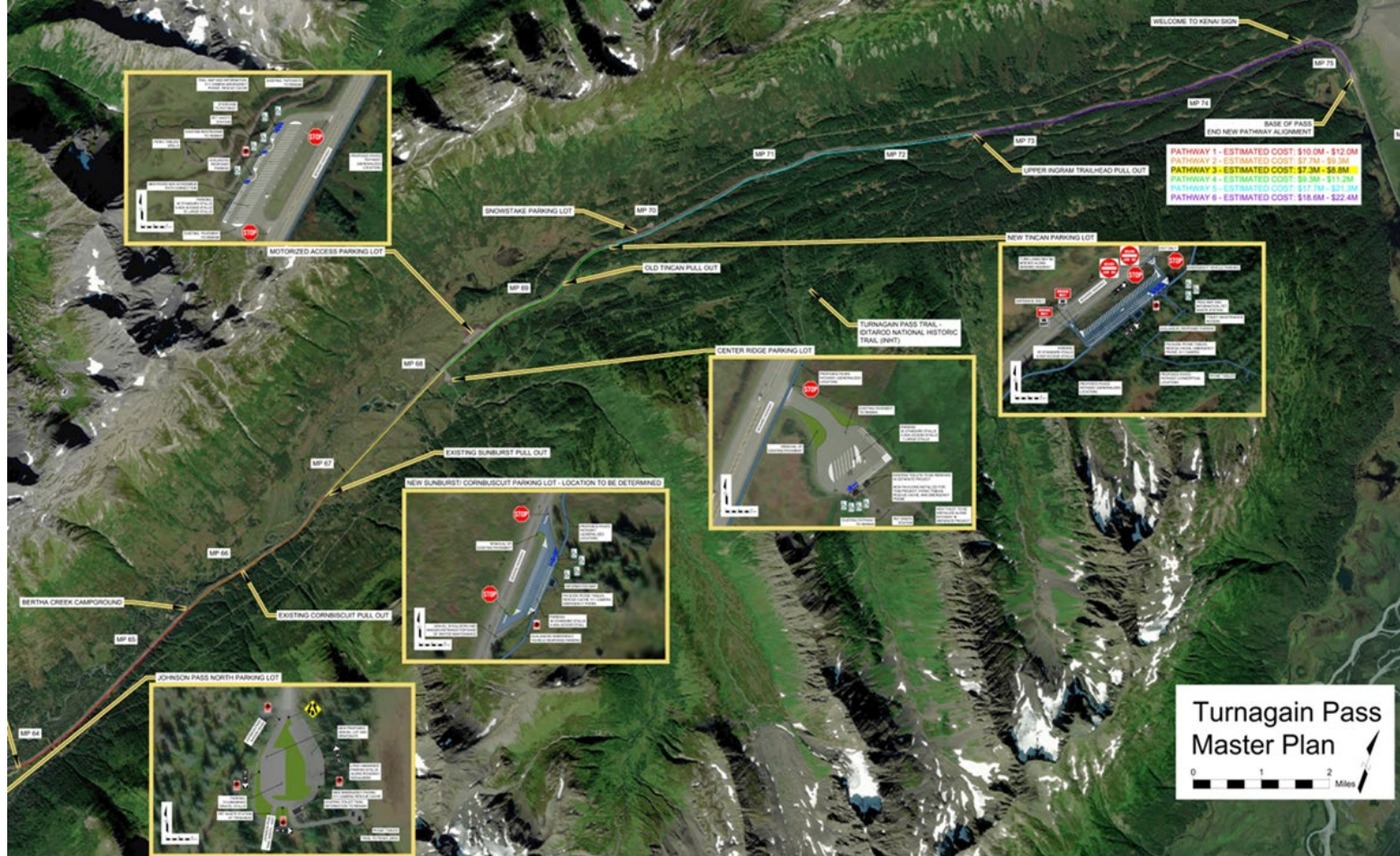


Figure 21. Turnagain Pass Seward Highway Multi-Use Pathway Additions and Improvements, Conceptual Design

## 8.9 “Welcome to Kenai” Sign Parking Lot

The Welcome to Kenai Sign Parking Lot is a visual landmark, creating a gateway to the entrance of Turnagain Pass and the Kenai Peninsula for southbound travelers. This parking lot location provides opportunities to access portions of the Pass for motorized recreation use that are currently underdeveloped or hard to reach. This location is near the boundary for the Municipality of Anchorage and the Kenai Peninsula Borough. A portion of the property is currently leased to a private party who owns and operates a recreation outfitting company within the Pass, and this location is on a curve and would require additional highway safety considerations from DOT&PF.

Potential improvements to this location include the addition of delineated parking, a formal trailhead, and the inclusion of interpretive signage and picnic tables. This sites current use as a photo stop and the desire to increase meaningful use with the forest creates an opportunity for agencies such as USFS to partner with the State to provide users with information on recreation within the Pass and to leverage social media to connect with new potential users.

## 8.10 Upper Ingram Trailhead Parking Lot

The current Upper Ingram Trailhead Parking Lot is a large pullout with the ability to accommodate upwards of ten vehicles. Potential improvements at this location include the addition of striping and/ or signage to delineate parking stalls.

## 8.11 Mountain Bike Trails

Provide mountain bike trails in the Turnagain Pass corridor by collaborating with area mountain bike groups and referring to the Mountain Bike Trail Development Guidelines.

Potential locations exist at the top of the Pass on both sides of the highway. Stakeholder feedback emphasizes an interest in trails with alpine terrain.

## 8.12 New Trails/New Trail Connections

Provide new trails or trail connectors that meet USFS design standards and specifications emphasizing the development of new connections and improved access to alpine terrain.

- A priority trail connection to be considered is the repurposing of decommissioned road between Granite and Bertha Creek Campgrounds. This connector will establish a connection between the two campgrounds and recreation opportunities.

## 8.13 Facility and Winter Maintenance Management Plan

Recommendations for creating a Facility and Winter Maintenance Management Plan are included in Section 9 of the plan.



# 9. MANAGEMENT AND MAINTENANCE

## 9.1 Multi-Agency Collaboration

The Seward Highway and its pullouts throughout the Pass, as well as the rest areas at Canyon Creek, are maintained by the DOT&PF Maintenance and Operations (M&O) centers within the DOT&PF Central Region. The section from Milepost (MP) 56 to 75.5 is maintained by the Peninsula District's Silvertip Station, while the remaining half mile from MP 75.5 to 76 is maintained by the Anchorage District's Girdwood Station.

Many parking facilities off the Seward Highway, which provide access to the Forest and are outside of DOT&PF's right-of-way, fall under the responsibility of the USFS. The USFS currently maintains the restroom and trash facilities at these locations. Under a verbal agreement with DOT&PF, the DOT&PF provides snow removal services to these sites when reasonably able.

### 9.1.1 Strategy Approach

The project team reviewed existing management and maintenance documents focused on snow removal and coordination and conducted a workshop with the project management team. These efforts helped to understand established best practices and what is envisioned to guide management and maintenance, what type of guidance is sought, and to understand which agency is best placed to lead collaborative management and maintenance.

#### What is Envisioned for Management and Maintenance

The project management team sought a collaborative approach to management and maintenance, considering the management of facilities and capacity to undertake management and maintenance activities. The following suggestions were made for management and maintenance in Turnagain Pass:

- **Creating a Formal Interagency Agreement:** The agencies expressed a desire to have a formal interagency agreement clarifying who was responsible for management and maintenance of specific facilities. Specific issues raised included restroom maintenance, improving plowing response, and trailhead maintenance.
- **Setting Priorities:** Both USFS and DOT&PF have expressed an interest in creating a typology of facilities to assist with setting priorities for management and maintenance, to make sure facilities that are used regularly are appropriately maintained on a regular basis.
- **Funding:** Scarce funding is an ongoing issue with prioritizing maintenance and management of facilities, and in having sufficient staff to complete maintenance operations.

#### What Type of Guidance is Sought?

When asked what type of guidance is sought to support consistent management and maintenance, the project management team noted that they would like a clear division of responsibilities between agencies and clarified maintenance issues, priorities, and solutions. The project management team also noted that they would





appreciate a mechanism to clarify to the public what can be expected for maintenance, including minimum levels of service, who facilities are provided for (particularly restrooms), and who is paying for maintenance.

## 9.2 Management and Maintenance Recommendations

The following steps are recommended for DOT&PF and the USFS to create a collaborative maintenance and management strategy while building off the Standard Operating Procedure (SOP) established by Central Region DOT&PF:

### Step 1: Identify Desired Level of Service, Performance Metrics, and Improvement Processes

One of the key concerns articulated through stakeholder and community engagement has been improving management and maintenance activities in Turnagain Pass, particularly snow plowing and restroom maintenance. To assist with informing the traveling public, seasonally dependent desired LOS and seasonal performance metrics can be established and monitored to assist with benchmarking management and maintenance activities and to support communication on how effectively maintenance activities are being delivered.

The establishment of seasonally dependent LOS sets a standard for each facility and allows for needs to easily be identified. The establishment of performance metrics further creates opportunities to identify whether improvements are needed once the plan is implemented, and how these improvements can be incorporated into plan updates and maintenance processes.

### Step 2: Facility Audit

The existing conditions information gathered as part of the TPMP could be used as a basis for the facility audit. The audit will assist to understand the condition of facilities, where repairs/replacement/upgrades are needed, and the state of repair of facilities. Issues to be addressed include snow plowing, maintenance of winter routes, restroom and other visitor comfort facilities, maintenance of pullouts, and trail maintenance. Table 14 provides an example of a facility audit which includes seasonally dependent LOS.

**Table 14. Example Facility Audit, Including Level of Service**

Facility [Motorized Access Lot]			
Amenity	Inventory	Standard LOS	Desired Winter LOS
Driveways	2	To Be Determined (TBD)	TBD
ADA Parking Stalls	4	TBD	TBD
Standard Parking Stalls	96	TBD	TBD
Oversize Parking Stalls	30	TBD	TBD
Toilet Facility	4	TBD	TBD
Picnic Area	0	0	0
Bear Locker	0	0	0
Interpretive Signage	1	TBD	TBD
Trash Facility	4	TBD	TBD



Emergency Phone	1	TBD	TBD
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### Step 3: Define and Prioritize Maintenance Tasks

This step will involve evaluating each facility and determining what type of maintenance is needed to meet the identified seasonal LOS. Maintenance could be reactive (in response to breakages, facility deterioration or other needs), or proactive (i.e., cleaning restrooms, emptying trash cans, checking emergency cache facilities or other regular tasks). Defining maintenance tasks will enable agencies to define whether routine inspections are needed, establish priorities for maintenance activities (i.e., high, medium, or low priority), which agency will be responsible for maintenance, and whether specific maintenance tasks could be performed by clubs or other volunteer organizations.

### Step 4: Schedule Maintenance Tasks

Once the maintenance priorities are defined, this will assist with scheduling a frequency for maintenance. Higher priority maintenance activities should be the focus when scheduling activities and determining the frequency. The scheduling process also provides a way to engage with agencies and volunteer organizations to confirm who will be lead/be responsible for the maintenance activities.

### Step 5: Allocate Resources

Scheduling and confirming which agencies and organizations will lead/be responsible for maintenance activities will enable them to determine the resources needed to carry out maintenance tasks, confirm budget requirements, and assign activities to staff.

### Step 6: Develop Health and Safety and Environmental Protocols

Task definition, priority, scheduling and understanding resources needed to accomplish maintenance activities is helpful to define whether any specific health and safety protocols are needed. Additionally, some maintenance activities may require additional environmental considerations (i.e., use of chemicals, activities on federal lands, etc.) which can be evaluated and managed through a maintenance strategy.

### Step 7: Implement the Plan

The final step is strategy implementation, working between agencies and other partners to deliver the plan, measure its performance, and make changes where needed to support consistent maintenance within the Pass. Building a Collaborative Governance Framework a Five-Step Process, developed by The National Policy Consensus Center at Portland State University identifies the importance of collaborative governance and the steps to develop a collaborative governance framework<sup>15</sup>. Figure 22 visualizes this five-step process.

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<sup>15</sup> <https://www.pdx.edu/policy-consensus-center/sites/policyconsensuscenter.web.wdt.pdx.edu/files/2020-06/1-Building-a-Collaborative-Governance-Framework.pdf>



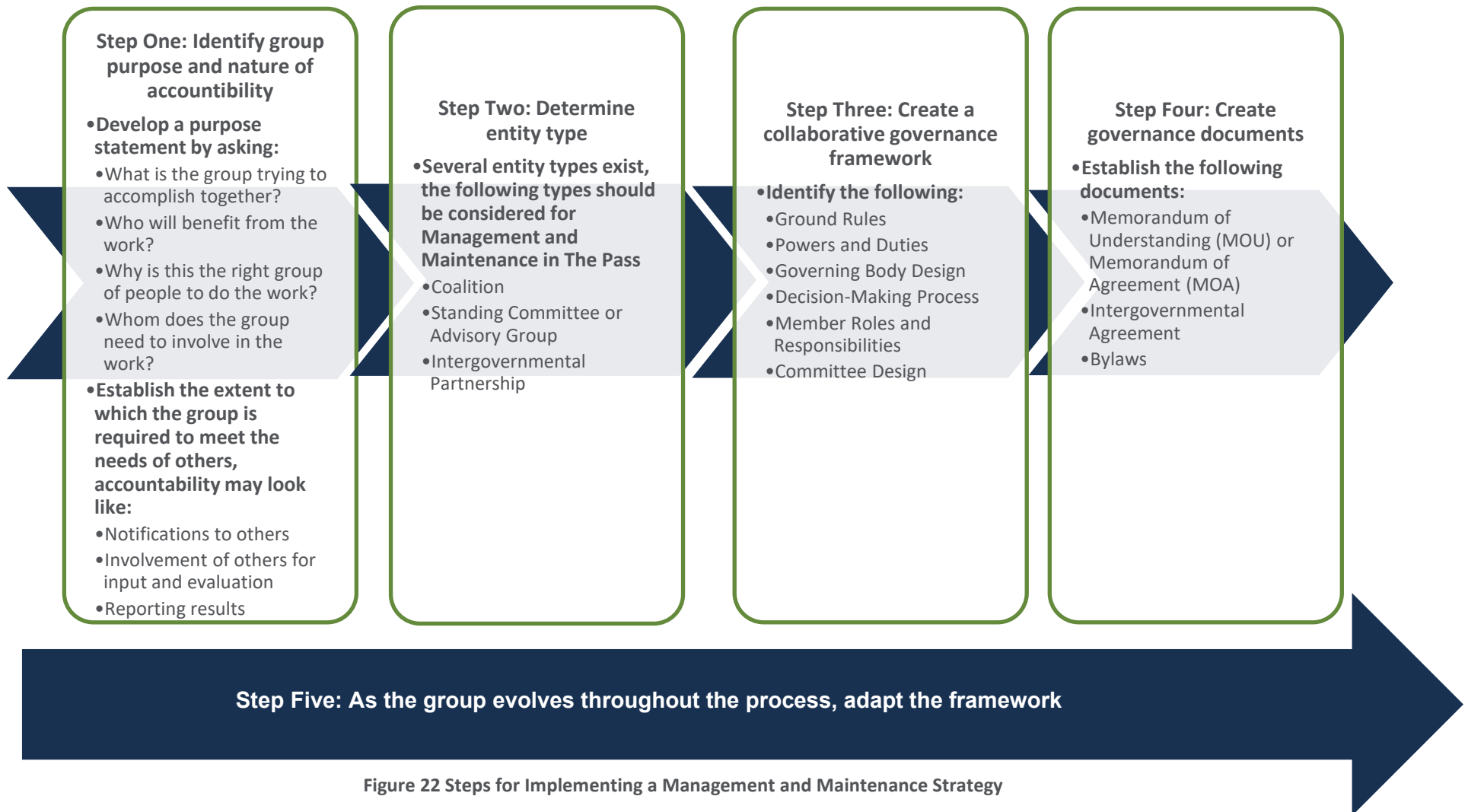


Figure 22 Steps for Implementing a Management and Maintenance Strategy



# 10. NEXT STEPS

Recommendations for implementation of the Master Plan:

- Advancing discretionary funding opportunities
- Identifying future opportunities for recreation and recreation access guided by the vision and goals
- Supporting community groups and the public to maximize recreation opportunities year-round in Turnagain Pass
- Bringing agencies responsible for management and maintenance together to collaborate on funding and approach
- Creating a Categorical Exclusion (CE) for the Tincan Lot by USFS
- Applying for the 2025 Federal Lands Access Program (FLAP) call for projects, using recommendations identified in the TPMP

Actions for Implementation			
Action	Owner/Lead	Partners	Timeline
Approve and Adopt the Final TPMP	DOT&PF	USFS	Quarter 1, 2025
Identify and Pursue Discretionary Funding Opportunities	DOT&PF and USFS dependent on facility		As Notices of Funding Opportunities are published
Identify Future Opportunities for Recreation and Recreation Access Guided by the TPMP Vision and Goals	USFS	Recreation Stakeholders	1-5 years
Coordinate Collaboration Among Agencies Responsible for Management and Maintenance to Create a Cohesive Funding Approach	DOT&PF	USFS	2025
Complete Any Necessary Environmental Review	USFS	DOT&PF	As projects move forward to implementation
Apply for the 2025 FLAP Call for Projects	USFS	DOT&PF	2025
Support Community Groups and the Public to Maximize Recreation Opportunities Year-Round in Turnagain Pass.	USFS	Recreation Stakeholders	1-5 years
Address Safety Concerns at the Tincan Parking Area	DOT&PF	USFS	1-3 years



# **APPENDICES**

**APPENDIX 1: FULL FACILITY DESCRIPTIONS**

**APPENDIX 2: IDENTIFIED NEEDS**

**APPENDIX 3: PHASE ONE SUMMARY**

**APPENDIX 4: PHASE TWO SUMMARY**

**APPENDIX 5: PUBLIC ENGAGEMENT SUMMARY**

