Context Sensitive Solutions Design Report

Safer Seward Highway Milepost 98.5 - 118

State of Alaska DOT&PF

May 27, 2025

CSS Design Report

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Acronyms and Initialisms

AADT	Average Annual Daily Traffic
AASHTO	American Association of State Highway and Transportation Officials
ACWR	Alaska Coastal Wildlife Refuge
ADA	Americans with Disabilities Act
ADF&G	Alaska Department of Fish and Game
ADNR	Alaska Department of Natural Resources
AKRO	Alaska Regional Office
AMATS	Anchorage Metropolitan Area Transportation Solutions
APE	Area of Potential Effects
ARRC	Alaska Railroad Corporation
ATA	Alaska Trucking Association
ATIA	Alaska Travel Industry Association
BA	Biological Assessment
BLM	Bureau of Land Management
BOP	Beginning of Project
CO	Carbon Monoxide
CSP	Chugach State Park
CSS	Context Sensitive Solutions
CVTC	Chickaloon Village Traditional Council
CY	Cubic Yards
DOT&PF	Department of Transportation and Public Facilities
EA	Environmental Assessment
EFH	Essential Fish Habitat
EO	Executive Order
EOP	End of Project
ESA	Endangered Species Act
FAQ	Frequently Asked Question
FD	Follower Density
FHWA	Federal Highway Administration
FI	Fatality and Injury
FMS	Freight Mobility Study
HCM	Highway Capacity Manual
HDP	Hillside District Plan
HDR	HDR Engineering, Inc.
HPCM	Highway Preconstruction Manual
HSIP	Highway Safety Improvement Program
LF	Linear Feet
LOS	Level of Service
LWCA	Land and Water Conservation Fund Areas
MADT	Monthly Average Daily Traffic
MOA	Municipality of Anchorage
MOD	Mobility on Demand
MOU	Memorandum of Understanding
MP	Milepost
mph	Miles per hour
MPO	Metropolitan Planning Organization
MTP	Metropolitan Transportation Plan
N/A	Not Applicable
NB	Northbound
NEPA	National Environmental Policy Act
NHS	National Highway System
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration

NPS	National Park Service
OWJ	Official with Jurisdiction
PDO	Property Damage Only
PI	Public Involvement
PIP	Public Involvement Plan
PM	Particulate Matter
PRD	Protected Resources Division
PVCC	Potter Valley Community Council
RCCC	Rabbit Creek Community Council
ROW	Right-of-Way
RV	Recreational Vehicle
SB	Southbound
SHPO	State Historic Preservation Office
SHSP	Strategic Highway Safety Plan
STIP	State Transportation Improvement Program
SVROR	Single-Vehicle Run-Off-Road
SWG	Stakeholder Working Group
TACC	Turnagain Arm Community Council
TIP	Transportation Improvement Program
TRB	Transportation Research Board
TSMO	Transportation System Management and Operations
UAA	University of Alaska Anchorage
URL	Uniform Resource Locator
USACE	United States Army Corps of Engineers
USDOT	United States Department of Transportation
USFWS	United States Fish and Wildlife Service
WOTUS	Waters of the United States

Project Team

The Safer Seward Highway Milepost 98.5–118 project (Project) is managed by the State of Alaska Department of Transportation and Public Facilities (DOT&PF). The Project utilizes an agile management methodology, under DOT&PF's TransportationX program, with points of contact as shown in Table 1.

Table 1 – Project Team

Role	Name	Title	Email	Phone
Sponsor	Ryan Anderson, PE	DOT&PF Commissioner	ryan.anderson@alaska.gov	907-419-4111
Owner	Sean Holland, PE	DOT&PF Central Region Director	sean.holland@alaska.gov	907-269-0770
Liaison	Chris Hughes, PE	HDR Engineering, Inc. (HDR), Transportation Business Group Manager	chris.hughes@hdrinc.com	907-644-2155
Coach	Sean Baski, PE	DOT&PF Central Region Preconstruction Chief	sean.baski@alaska.gov	907-269-0566
Supervisor	Lauren Little, PE	DOT&PF Chief Engineer	lauren.little@alaska.gov	907-209-5097

Introduction

This Context Sensitive Solutions (CSS) Design Report for the Project is intended for review by the Municipality of Anchorage (MOA) Planning and Zoning Commission. The Commission shall issue a

decision based on this document; a public hearing is not required but may be held at the Commission's discretion.

DOT&PF is proposing to realign and construct safety improvements to the Seward Highway from mileposts (MPs) 98.5 to 118, Bird Flats to Rabbit Creek, also called the Safer Seward Highway Project (Figure 1). The Project lies entirely within the MOA and includes the communities of Rainbow, Indian, and Bird. The Project would be developed with a combination of State of Alaska and Federal-Aid Highway Program funds administered by Federal Highway Administration (FHWA). A portion of the Project, from MP 112 to 118, is within the Anchorage Metropolitan Area Transportation Solutions (AMATS) boundary. Currently, DOT&PF is completing the environmental phase of the Project, under the National Environmental Policy Act (NEPA), and is preparing an Environmental Assessment (EA).

Public involvement (PI) and stakeholder outreach for the Project commenced early at DOT&PF's 2023 Anchorage Transportation Fair. Comments received from visitors at the fair and the precursor Windy Corner project shaped the Project's Public Involvement Plan (PIP), which outlines how stakeholders including residents, agencies, Tribes, and organizations are engaged throughout development of the EA. The Project team offers stakeholders and the public multiple ways to communicate their thoughts regarding the Project, including but not limited to hosting public meetings, Stakeholder Working Group (SWG) meetings, small group discussions, one-on-one meetings, online open houses, and listening posts.

During Project development and draft EA preparation, DOT&PF consulted and coordinated with pertinent federal, state, and local agencies; Tribal entities; and the public to obtain information and assist with development of the Project's Purpose and Need statement and reasonable alternatives, as well as to identify potential issues and mitigation measures.

Typically, the CSS process is completed during the design phase of a project; however, the MOA has requested that DOT&PF conduct the CSS process earlier to allow for MOA and public input to affect the decision-making process on alternatives selection. Both entities are in the process of updating the memorandum of understanding (MOU) on how DOT&PF will complete the MOA-required CSS process.

The Project is advancing the CSS process at the EA stage to facilitate additional public input and MOA engagement. However, because the Project is still in the preliminary design and environmental phase, some details that are typically required for Planning and Zoning Commission review, such as detailed street illumination, utilities, and storm drain design, are not yet available and will not be completed until the design phase. This report includes the best information available to meet the intent of the CSS process at this stage.

Future design projects will complete the final steps in the MOA CSS process.

Figure 1 – Project Location and Vicinity Map

Project Purpose

The purpose of the Project is to improve safety by reducing crash rates and severity, improving mobility and reliability, and safely accommodating mixed uses within the corridor.

Project Needs

This is a safety project driven by multiple interrelated needs, as described in the subsections below.

Need 1: Reduce crash rates and crash severity. In 2006, this stretch of the Seward Highway was designated as the state's first Highway Safety Corridor. Despite additional enforcement presence, community education, improved signage, and safety improvement projects, high crash rates and crash severity issues remain. Contributing factors to crashes, based on available crash data, include limited passing opportunities, curvy and constrained road geometry, and poor access management. Extreme

driving conditions—including atmospheric (high winds, rain, snow, and dark conditions) and road surface (wet, icy, snowy, and changes that occur at the freeze-thaw line)—increase the risk of drivers losing control and sliding off the road or into oncoming traffic. Due to heavy summer seasonal traffic volumes, drivers spend considerable time following vehicles without safe passing opportunities, resulting in frustrated drivers making high-risk passing maneuvers and increasing the risk of head-on collisions.

Need 2: Improve mobility and reliability. Mobility for vehicle users within the Seward Highway corridor begins to fail during summer weekend peaks. Summer traffic volumes can result in long platoons (i.e., lines) of vehicles. When vehicles slow to turn or pull over for scenic or wildlife viewing, these actions pulse back through the lanes, causing variable speeds. Mobility is also degraded by high truck and recreational vehicle (RV) volumes; uncontrolled access to and from scenic turnouts and trailheads, driveways, and intersections; and difficult weather and road conditions. Crashes, vehicle breakdowns, and poor weather or road conditions can cause unexpected delays, which reduce reliability. Emergency lane or road closures following collisions, rockfall, or avalanches cause miles- and hours-long backups since no alternative road routes exist through the Project area. Access to the emergency location is limited by the two-lane facility, slowing the response times of emergency services in the event of lane closure or backup. For non-motorized users, mobility and reliability are limited as the primary non-motorized facility is the existing road shoulders.

Need 3: Safely accommodate mixed uses in the corridor. The Project corridor's multitude of scenic, natural, and recreational attractions contribute to the highway's designation as a National Forest Scenic Byway, All-American Road, and Alaska Scenic Byway. However, the popularity of the attractions alongside—and including—the road exacerbates the safety, mobility, and reliability issues. The need exists to maintain the corridor's scenic qualities while safely accommodating the needs of all users, including recreators and tourists accessing attractions, local residents accessing their homes and communities, commercial and through-travelers making long-distance trips, and bicyclists and pedestrians. Numerous access points to pullouts and private driveways mean that vehicles are making many turning movements throughout the corridor. Vehicles pulled onto the highway shoulders create safety hazards. Gaps in non-motorized pathways result in people biking and walking along or across the highway to access attractions, creating safety and mobility issues.

Project History

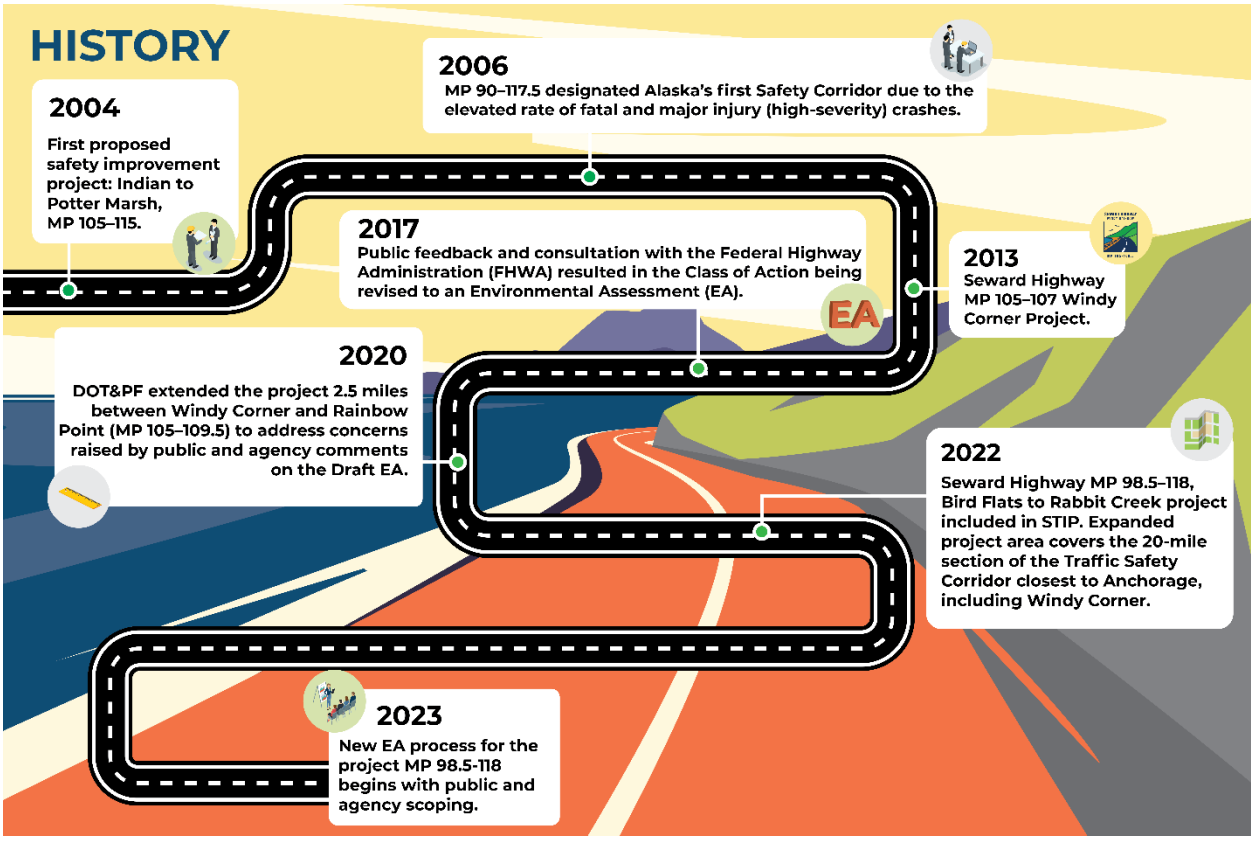
Project Origin

DOT&PF's current efforts to improve safety along the Seward Highway between Girdwood and Anchorage began with the following efforts (see Figure 2), many of which also involved public and stakeholder outreach that the Project team has considered for the current EA process:

- Seward Highway Safety Improvements, Indian to Potter Marsh, MPs 105–115, Categorical Exclusion approved in 2004.
- Seward Highway MPs 105 to 107, Windy Corner project, began in 2013 with the Class of Action revised to an EA in 2017.

- *Seward Highway Route Development Plan* (for MPs 90 to 118), completed in 2017 (DOT&PF 2017a)
- *Seward Highway: MP 105 to 107, Windy Corner Environmental Assessment* (DOT&PF 2019), made publicly available in March 2020. Public and agency comments extended the project to MPs 105–109.5.
- Seward Highway MPs 105 to 109.5, Windy Corner to Rainbow Point project, DOT&PF conducted public and agency scoping during spring 2021 (DOT&PF 2021).
- Seward Highway Reconstruction MPs 98.5 to 118, Bird Flats to Rabbit Creek, included in the State of Alaska Statewide Transportation Improvement Program (STIP). Expanded project area covers the 20-mile section of the Safety Corridor near Anchorage through Windy Corner. DOT&PF published a Notice of Intent to Begin Engineering and Environmental Studies and Floodplain Encroachment on January 25, 2023.

Figure 2 – Project History



Seward Highway Route Development Plan (January 2017)

In the mid-2010s, DOT&PF developed a reconnaissance study to develop a long-term solution for the corridor. The Seward Highway Route Development Plan evaluated improvements to mobility and safety of motorized traffic on the Seward Highway between the Alyeska Highway intersection (MP 90) and the Rabbit Creek Interchange (approximately MP 118).

The typical section recommended by the Seward Highway Route Development Plan includes:

- Two 12-foot travel lanes in each direction
- A 40-foot median with ditch separating the travel directions
- Widened shoulders (12-foot outside shoulder and 8-foot inside shoulder)
- Alaska Railroad Corporation (ARRC) centerline at least 43 feet from the edge of roadway pavement with a ditch to route drainage between the road and the railroad
- Coastal riprap on the waterside of the track
- Multi-use path on the land side of the road; the path should be located outside the highway clear zone (30 feet from the pavement edge) with a 3-foot depressed median between the path and the road

See Section 8 of the Seward Highway Route Development Plan for more information.

Windy Corner Environmental Assessment (2020)

The "Windy Corner" (MPs 105 to 107) and "Windy Corner to Rainbow Point" (MPs 105 to 109.5) projects (the "Windy Corner projects," collectively) focused on smaller segments of the Seward Highway. These studies evaluated reconstruction of the Seward Highway milepost segments and realignment of the ARRC corridor as required to accommodate, develop a material source for, and create project-related Chugach State Park (CSP) visitor facilities. Under the roadway reconstruction, realignment and/or widening were considered, including separated highway lanes and enhanced buffer zones between the road and the neighboring railroad corridor. To facilitate the roadway reconstruction, relocations, and transfer of right-of-way (ROW), easements and other property interests were evaluated, including relinquishment of Alaska Department of Natural Resources (ADNR) sections to be used for CSP facilities such as parking areas and interpretive sites.

In March 2020, DOT&PF published a Draft EA for Seward Highway: MP 105 to 107, Windy Corner. In response to public and agency comments on the 2020 Draft EA, DOT&PF again expanded the project limits to a 20-mile corridor from MP 98.5 to 118. Reviewing a longer section of the highway facilitates development of a more comprehensive safety solution and better coordination among agencies on recurring issues along the corridor (HDR 2023). The Windy Corner EA did not result in a final NEPA decision and is now subsumed in this Safer Seward Hwy MP 98–118.

Input From Other Planning Documents

This segment of the Seward Highway is governed by multiple guidance documents from the MOA, regional, statewide, and national highway systems. The sections below summarize the documents which provide specific guidance for roads within the Project area, including the adopted elements listed in 21.01.080 of the Anchorage Municipal Code.

Alaska Highway Safety Plan

The Alaska Highway Safety Plan acknowledges the Seward Highway Safety Corridor and emphasizes continued focus on enforcement of the posted speed limit, with the goal of decreasing the number of speed-related crashes. In addition, it stresses enforcement of driving under the influence laws when data suggests a high rate of impaired driving occurrences (DOT&PF 2023c).

Alaska Safety Corridors Audit 2022

The Safety Corridor Review Team identified that between 2006 and 2022, fatal crashes increased on the Seward Highway. The 2022 audit document references work along the Seward Highway and recommends decommissioning safety corridors when divided highway and other permanent changes take effect (DOT&PF 2023a).

Alaska Strategic Highway Safety Plan

The Alaska Strategic Highway Safety Plan (SHSP) acknowledges the Alaska Highway Safety Plan and its intent to enforce impaired driving laws on the Seward Highway. In addition, a fall 2023 virtual consultation meeting identified the Seward Highway as a danger zone for dangerous driving behaviors such as speeding, inattentiveness, aggressive driving, and driving under the influence, presenting serious risks to vulnerable road users. The Alaska SHSP also identifies the Seward Highway as a corridor for a Highway Safety Improvement Program (HSIP) project to increase light-emitting diode lighting to mitigate night-time crashes.

Alaska Strategic Freight Plan (2023)

The Alaska Strategic Freight Plan identifies projects that promote safe, efficient, economical freight movements; partnership opportunities; and strategies to maximize federal funding opportunities. The plan identifies the Seward Highway as part of the Primary Highway Freight System (a subsystem of the National Highway Freight Network) and proposes adding the Old Seward Highway between 34th Avenue and the Seward Highway as a Critical Urban Freight Corridor. The Seward Highway is also identified as part of the Statewide Multimodal Freight Network. The plan's freight investment project list recommends the Seward Highway from MP 99 to 118 as part of the Governor's safety initiative, and improvements would help freight travel as well as safety.

Anchorage Metropolitan Area Transportation Solutions Transportation Improvement Plan (TIP) 2023–2026

The original 2023–2026 TIP included the Project to reconstruct the highway to a four-lane roadway. The first amendment to the 2023–2026 TIP revised reconstruction to better accommodate traffic flow and address safety concerns.

In the second amendment to the 2023–2026 TIP, the AMATS metropolitan planning organization (MPO) Policy Committee voted in April 2025 to remove the Project from the TIP and MTP.

Alaska Statewide Transportation Improvement Program (STIP)

The Project was included in the approved 2020–2023 State of Alaska STIP under ID 12641 for MP 98 to 118 of the Seward Highway. The current 2024–2027 STIP includes the Parent project under ID 12641 and Child stages under IDs 34165, 34166, 34167, and 34437, which identify the Project limits as MP 98.5 to MP 112. The Project is progressing the EA for the original mileposts of 98.5–118, as funded in the current environmental phase, to evaluate a long-term solution for the whole corridor, including MP 112–118.

Anchorage Bowl Comprehensive Plan (2001)

The Project aligns with land use and transportation goals, as well as design and environment goals listed in the plan. These include improving mobility and access for safe and convenient transport of people and goods; providing transportation choices with an efficient transportation system that includes multiple modes of travel; supporting transportation design and maintenance by developing safe infrastructure that will improve maintenance and operations and is designed for existing environmental conditions; and maintaining access to parks, trails, and recreation facilities. The Project additionally aligns with transportation policy No. 30 by improving multimodal and intermodal connection, safe and efficient freight travel, and congestion management as well as policy Nos. 31 and 32 by improving safety, reliability, and efficiency of the highway corridor.

MOA Long Range Transportation Strategy (2024)

Table 2 below lists how the Project addresses goals within the MOA Long Range Transportation Strategy.

Table 2 – Project's Alignment with the Adopted MOA LRTS

Goal	Project Alignment with Plan
Goal 1: Take a Safe System approach to all projects	
S1: Treat every project as a safety project	Two of the primary Project purposes are to improve safety by reducing crash rates and severity, as well as safely accommodate mixed uses in the corridor. The Proposed Action has been informed by a transportation safety analysis and designed specifically to support these goals.
S2: Set a modal hierarchy. When tradeoffs are required, prioritize improvement needs based on the vulnerability of the users as follows: 1. Pedestrians 2. Bicyclists 3. Public Transportation Users 4. Freight Vehicles 5. Personal Vehicles	The Project does not require trade-offs among different users; that is, reconstruction of the highway would not eliminate non-motorized or public transportation use. The Seward Highway is the only roadway option for freight and personal vehicle users transiting north and south; hence these users are prioritized. The Project includes a multi-use pedestrian pathway to improve safety and mobility for non-motorized users from Anchorage to Girdwood using the Indian to Girdwood Bike Path. Additionally, the railroad alignment will be maintained, including provisions for future multiple tracks to not preclude potential future transit options.
S3: Move away from default metrics that prioritize moving vehicles fast or in high volumes over other community priorities.	The metrics of success for the Project are reducing crash rates and severity, improving mobility and reliability, and safely accommodating mixed uses within the corridor. The Project does not prioritize moving vehicles at faster speeds. Instead, it adjusts curve radii to match the design speed (rather than above design speeds) to further promote vehicles driving the speed limit to reduce vehicle crash rates and severity. The Project would improve the highway's ability to manage high volumes of traffic in the context of more safely and reliably moving a diverse range of users, supporting a wider variety of travel modes, managing access, limiting the impact of road closures, and improving emergency vehicle access.
Goal 2: Maintain existing transportation infrastructure: improve, fix and use what we have first	

M1: Prioritize operational maintenance (things like snow clearing or gravel sweeping) first for people walking, rolling, or biking.	The Seward Highway is a priority level 1 winter road for winter maintenance, which DOT&PF conducts road maintenance for (such as street sweeping and snow plowing). As such, there is no operational maintenance required for walking, rolling, and biking on the highway. Once the multi-use pathway is complete, DOT&PF and ADNR may enter into an agreement for its maintenance and management.
M2: Prioritize structural maintenance (things like striping, landscaping, and maintaining/fixing drainage) first for people walking, rolling, or biking.	The Seward Highway is a priority level 1 winter road for winter maintenance, which DOT&PF conducts road maintenance (street sweeping and snow plowing) for. As such, there is limited operational maintenance for walking, rolling, and biking. Once the multi-use pathway is complete, DOT&PF and ADNR may enter into an agreement for its maintenance and management.
M3: Account for, provide for, and make known the full seasonal cycle of road or path facility needs in design and funding guidelines, on all transportation projects for the lifespan of those projects.	DOT&PF must guarantee it can maintain the constructed facility in order to receive federal funds. Following Project development, highway maintenance such as pavement resurfacing and bridge replacements would continue in accordance with DOT&PF guidelines. Snow removal, street sweeping, trash removal, brush clearing, and other similar maintenance and operations activities within the DOT&PF ROW that are necessary to maintain clear zones would continue to occur and follow documented DOT&PF processes. Additionally, the Project will provide significant maintenance benefits for the roadway over the existing conditions due to the designed median area providing snow storage and improved ditching. The Project would also install rock catchment areas, stabilize slopes, and improve drainage, potentially reducing DOT&PF maintenance and operations resources dedicated to ice and rockfall cleanup efforts.
M4: Avoid acquiring right-of-way in all projects except as a last resort.	The Project was designed to acquire as little ROW as possible while allowing for highway widening necessary for safety and reliability improvements. This amounts to 250.2 acres (mainly CSP) of ROW acquisition, including only 3.5 acres of MOA parcels.
Goal 3: Provide Transportation Choices in how people move around the Municipality	
C1: Plan and build infrastructure consistent with mode share targets.	Understanding that the MOA has set local mode-share targets for transportation infrastructure, the Seward Highway is a National Highway System (NHS) and is responsible for reliable travel primarily for highway users. The Seward Highway between Anchorage and the Sterling Highway in the Kenai Peninsula is additionally classified as a Primary Highway Freight System (PHFS) highway by the FHWA; the designation is for the most critical portions of highway in the country's freight transportation network. The DOT&PF prioritizes state and federal goals of the highway, including providing reliable and safe transport for personal and freight vehicles. However, the new multiuse pathway extending from Anchorage to Girdwood would provide an opportunity to increase the

	mode share of those safely biking and walking through the Project corridor.
C2: Enhance the financial sustainability of public transportation, enabling increased frequency and expanded service coverage.	The realignment of the railroad would accommodate future railroad upgrades, such as adding a second track within a widened embankment. The second track could provide potential opportunities for both freight and passenger rail traffic to operate simultaneously. The Project would not impact residential density or zoning and would involve the conversion of approximately 250.2 acres of land for transportation use, 246.8 acres of which belongs to the State.
C3: Make it easier for people to link different types of transportation for the same trip (i.e., bike to the bus, etc.).	This Project serves a diverse range of users and transportation modes and allows them to combine different types of transportation in one trip, such as using the multiuse pathway to bike to a trailhead or driving to parking area to walk the pathway and access scenic viewing. There is no public transit in the Project area. The realignment of the railroad would also accommodate future railroad upgrades, such as adding a second track within the widened embankment.
C5: Connect outlying communities within the MOA.	The Seward Highway is the only roadway connection between Anchorage, the Turnagain Arm communities, and the Kenai Peninsula. This Project prioritizes improving the reliability of the highway to maintain the connection between communities, such as providing a median and extra lanes for emergency access or traffic diversion. With the new multiuse pathway, people would be able to use non-motorized transport to safely travel between Anchorage and Girdwood.
Goal 4: Reflect Public Priorities in Transportation Investments and Decision Making	
P1: Engage the public in project planning & programming	Engagement has occurred early and often for the Project, and feedback has been incorporated into the Project design. Refer to the Public Involvement Summary of the CSS report for details on the public involvement process.
P2: Implement adopted land use and transportation plans.	N/A.
P3: Assess the design standards for how roads are built and classified, including updating the Design Criteria Manual (DCM) and Official Streets and Highways Plan (OSHP) in accordance with community needs.	N/A.
P4: Require infrastructure projects to justify how they align with adopted land use or neighborhood plans.	This Project is being developed in accordance with applicable land use, neighborhood, and transportation plans; an in-depth discussion follows this table.
P5: Implement this plan.	N/A.
Goal 5: Consider Environmental Sustainability	
E1: Reduce negative ecological/health impacts from the transportation system.	An EA is being developed for the Project in accordance with NEPA, with the goal of analyzing, documenting, and minimizing adverse ecological and health impacts associated with Project development. As part of this process, a number of best management practices and mitigation measures have been developed to minimize

	any potential short- or long-term ecological or health impacts from Project development.
E2: Implement the Climate Action Plan	N/A.

2040 Metropolitan Transportation Plan (MOA 2020)

Table 3 below lists the MTP projects associated with the Project study area.

Table 3 – 2040 MTP Projects in the Seward Highway Corridor

Time Period	Project Name	MTP #	Project Description	Purpose
Short-Term (2018–2030)	Rabbit Creek Road Reconstruction – Seward Highway to Goldenview Drive	127	Reconstruct Rabbit Creek Road from the Seward Highway to Goldenview Drive with a center turn lane. Project would include non-motorized improvements and consider adjacent land use.	Connectivity
Illustrative (after 2040)	Seward Highway Reconstruction – Potter Weigh Station to Potter Marsh Turn Off (154th Avenue)	317	Reconstruct and widen the Seward Highway between Potter Weigh Station and Potter Marsh turn off (154th Avenue). Project would include non-motorized improvements and consider adjacent land use.	Safety (designated safety corridor), capacity, congestion, and freight (regional truck route)
	Seward Highway: Rabbit Creek Road to Girdwood Planning and Environmental Linkages (PEL) Study	318	Building off the 2017 Seward Highway Route Development Plan: Reconnaissance Study, this project will plan and analyze impacts of conceptual project alternatives on segments of the Seward Highway from Rabbit Creek Road to Girdwood, reducing the time required to obtain environmental approval.	Safety (designated safety corridor), capacity, congestion (seasonal), and promote environmental sustainability

Official Streets and Highways Plan (2014)

The Official Streets and Highways Plan is intended to classify streets and highways throughout Anchorage to establish and reserve the required ROW to accommodate future development and demand needs. The Plan classifies the Seward Highway from the Glenn Highway to just south of where the Old Seward Highway crosses the new Seward Highway as a Class V freeway; the plan classifies the Seward Highway from just south of where the Old Seward Highway crosses it (MP 118) to the south MOA boundary as a Class III Major Arterial (Project area). DOT&PF classifies the Seward Highway as a Rural Principal Arterial roadway and an Interstate. DOT&PF has established the Project within a 300-foot-wide DOT&PF ROW to ensure appropriate space for multiple driving lanes and future maintenance and operations. The Project would not convert land use in a manner that would detract from future ROW for transportation development for other roadways in the Anchorage Bowl.

Street and Highway Landscape Plan

In accordance with the Official Streets and Highways Plan, landscaping requirements are dictated per Title 21. Title 21 specifically references the Seward Highway between Tudor Road and Potter Valley

Road, requiring freeway landscaping on any lot abutting the right-of-way. The Project shall adhere to applicable landscaping requirements and standards as design progresses.

Anchorage Bowl Park, Natural Resource, and Recreation Facility Plan (2006)

The plan notes that the Southeast Park and Recreation District, where the Project is located within the Anchorage Bowl, has the lowest number of developed parks of all the park districts but the largest concentration of Natural Resource Use areas. The primary Natural Resource Use area in the district is the CSP, despite not being part of the Anchorage Bowl Park System, and the plan says maintaining access to CSP will be an important consideration for future development. The plan recommends trail development of the Rabbit Creek Greenbelt and Potter Creek Greenbelt, as well as development of trails that provide CSP access. Additional park access and trail connectivity recommendations include completing the Rabbit Creek Trail to connect the Seward Highway to CSP, maintaining and improving trailhead access for CSP, connecting more trails to CSP access points, improving access to Potter Marsh, and protecting key drainages there. The Project's non-motorized multiuse pathway between Anchorage and CSP access points throughout the Project corridor aligns with all recommendations. While not within the Anchorage Bowl area, the Project would provide access to and parking at key CSP trailheads by maintaining existing parking facilities and expanding parking facilities at Beluga Point and Rainbow Trailhead. Potter Creek would be realigned to accommodate the highway and frontage road, but new fish-passage culverts would be installed for the highway.

Anchorage Park, Greenbelt and Recreation Facility Plan, Volume 3: Turnagain Arm (1985)

According to the plan, Bird Creek and Indian residents said their most important recreation issues were the baseball diamonds at Boulder Stadium, where Indian and Bird residents hold softball games; a bike path connecting Bird and Indian; developing greenbelts; and providing tennis courts combined with a park/play area. The mapped recreational facilities in Indian within the Project area include the baseball diamond and Indian to Girdwood Bike Path, both of which are considered significantly important to residents. The Project would relocate the baseball diamond and associated Indian Creek Scenic Overlook and Trailhead parking area, but the Project would also extend the multiuse pathway through the entire community of Indian and beyond to Anchorage. In Bird, the mapped recreational facilities within the Project area include the Indian to Girdwood Bike Path and Bird Creek Coastal Reserve, while the Bird Creek Fishing and Picnic Area and Bird Creek Neighborhood Park are adjacent to the highway. The Project would maintain a multiuse trail alignment through Bird and avoid impacts to the reserve and neighborhood park areas; the Bird Creek access parking adjacent to the highway at MP 101.25 would additionally be relocated near the current Bird Creek Overflow Camping/Parking area.

Anchorage 2040 Land Use Plan (2017)

The land adjacent to the Project area included in the Anchorage 2040 Land Use Plan map is designated primarily as large-lot residential with some single-family and two-family neighborhoods and parks or natural area designations. The Project area is also listed as an area of little growth by 2040 in the plan. The Project would have a minimal impact to Anchorage Bowl land use, acquiring 3.5 acres of MOA parcels and converting 0.2 acres of residential land use to transportation use.

Turnagain Arm Comprehensive Plan (2009)

Land use within Indian and Bird is mainly residential, and Rainbow consists of one residential development. Land uses in these communities are expected to remain like today. The Project would align with elements of Goal 1 by performing an environmental impact analysis and implementing best practices to protect fish and wildlife habitat and area vegetation; Goal 3 by minimizing impacts to area land use; Goal 4 by providing safer, more formalized access to recreational areas, maintaining or expanding

parking facilities at trailheads and scenic viewing areas, and reducing conflicts with Bird and Indian drivers through controlled access points; Goal 6 by creating more reliable access for emergency services on the highway; and Goals 5 and 7 by implementing a robust PI process, promoting safety updates to the Seward Highway that alleviate traffic congestion, removing certain pullouts and introducing formal pullouts into parking facilities, and improving pedestrian safety and access. A repeating theme throughout the plan is the importance of preserving existing visual and noise buffers between the communities and the highway; while the Project would impact these buffers through additional rock cuts and widening the roadway toward the communities, DOT&PF will implement BMPs to minimize impacts.

Anchorage Coastal Management Plan (2007)

The coastal boundary zone is described by ADNR as "the inland coastal boundary of the MOA along with the coast between the MSB and Potter Creek" (p. 3). The coastal zone boundary follows the 100-year floodplain of known and mapped streams. Areas meriting special attention within the Project corridor include the Seward Highway and Turnagain Arm scenic corridor and the Bird Creek Regional Park. The Project addresses the plan's Goal 1 with wetlands delineation, as well as the design of fish passage culverts and bridges for crossings. While the Project would require acquisition of CSP land and fill in Turnagain Arm waters, environmental analysis was performed to inform development of appropriate construction techniques and BMPs to ensure responsible development of the area, aligning with Goal 2. Goal 3 is supported with the design of a boat launch for emergency access and grade-separated pedestrian access to Beluga Point. In accordance with Goals 4 and 5, the Project would preserve access to and provide safety enhancements for drivers taking advantage of scenic views along the arm, fishers accessing Bird Creek, and recreators accessing trails along the corridor; additionally, the Project would introduce a multiuse pedestrian pathway along the waterfront. Goal 6 is supported through extensive outreach and stakeholder coordination to develop the EA, inform design, and align with the CSS process.

Anchorage Wetlands Management Plan (2014)

Wetlands in the Project study area within MOA boundaries (MP 118 to 112) primarily include Potter Marsh and the estuarine wetlands of the Turnagain Arm. DOT&PF completed a Preliminary Jurisdictional Determination Report to identify wetlands and waterbodies near the Project area and analyzed Project impacts to area wetlands, which include the permanent fill of 23.6 acres of terrestrial wetlands and 88.2 acres of other WOTUS over the 612 acres of ground disturbance across the entire Project corridor (MP 98.5 to 118). Potter Marsh proper (deepwater habitat on east side of the highway) would not be impacted but Turnagain Arm waters in MOA boundaries would. The Project would incorporate BMPs that align with those recommended in the plan, such as developing appropriate erosion and sediment control measures (e.g., silt fences, 25-foot vegetative buffers) on or at the perimeters of disturbed soil surfaces (prior to disturbance) to minimize sediment transport to WOTUS. Additionally, existing drainage patterns would be maintained or enhanced wherever possible, including replacement of damaged or failing culverts with pipes of equal or larger size. A Stormwater Pollution Prevention Plan would be developed in accordance with the Alaska Pollutant Discharge Elimination Program Construction General Permit that identifies BMPs required during construction. The Project would adhere to requirements under Section 404 of the CWA (1972, as amended) and Section 10 of the Rivers and Harbors Act of 1899.

AMATS Areawide Trails Plan (1997)

The Project aligns with a number of recommendations in the Areawide Trails Plan due to the development of the multi-use pathway through the entire Project corridor alongside a roadway development project. These include constructing a separated trail along the Seward Highway; creating a paved pedestrian link that runs the entire way through Indian and connects it to Bird; providing a safe

pedestrian crossing at Indian Creek; retaining the pedestrian crossings in Bird; and developing a pedestrian walkway at Windy Corner. The Project's multiuse trail would also bring the plan closer to its goal of connecting Potter Marsh to Portage by trail. While the paved pathway is not a natural trail, it would also provide pedestrian access through the Anchorage Coastal Wildlife Refuge, as recommended in the plan. The Project continues to coordinate with applicable agencies to avoid impacts to the Iditarod Trail.

Girdwood-Iditarod Trail Route Study (1997)

The trail's study area begins south at the Seward Highway and extends north to the Crow Pass-Iditarod trailhead. The route connects from the Indian to Girdwood Bike Path in the Girdwood Old Townsite north toward the trailhead. The Project would not impact the Girdwood-Iditarod Trail; however, the Project's multiuse path would provide connection from Anchorage to the Crow Pass-Iditarod trailhead using the trail alignment.

AMATS Non-Motorized Plan (2021)

The AMATS Non-Motorized Plan states that the Seward Highway has a Level of Traffic Stress (LTS) of 4, which is a higher stress roadway, coupled with lower non-motorized demand. The Project aligns with the plan Goals 1, 2, 3, and 5 by increasing the miles of protected, ADA-compliant, non-motorized trail network in Anchorage, while also improving safety for users, creating more opportunities for residents to engage in physical activity, and connecting Anchorage to other communities and CSP recreational facilities via the pathway. Within the AMATS boundary, the plan does not rate the new Seward Highway for bicycle network development but considers the Old Seward Highway to be high-priority and the area south of Potter Valley Road to be low priority. The Project aligns with recommended projects such as developing a shared-use pathway between Turnagain Arm Trail (Northern Trailhead) and Potter Valley Road and providing an alternative route to the study corridor on the Old Seward Highway between Potter Valley Road at Rabbit Creek Road.

AMATS Pedestrian Plan (2007)

Due to the development of the multi-use pedestrian pathway through the entire length of the highway corridor, the Project would align with the Pedestrian Plan's goals by increasing pedestrian trips while reducing the rate of pedestrian-vehicle crashes (overall goal, Goal 1); creating an ADA-accessible, paved pathway for all types of users (Goals 2 and 5); improving pedestrian connectivity between Anchorage and other communities via paths of Indian, Bird and Girdwood (Goal 4); and creating an opportunity to increase pedestrian use for all modes of nonmotorized transport (Goal 6). While the Project would not address a specific project from the plan's priority list, the multi-use pedestrian pathway will provide a safe pedestrian connection between Rabbit Creek Road and Potter Valley Road (the southeast extent of the plan), where none currently exists. Adjacent projects that sought to add sidewalks/connecting links include project no. 243 (Goldenview Drive – Rabbit Creek Road to Bridgeview Drive), 294 (Old Seward Highway – west side DeArmoun Road to Rabbit Creek Road), 216 (Rabbit Creek Road – Seward Highway to Goldenview Drive), and 314 (Old Seward Highway to Potter Valley Road).

AMATS Bicycle Plan (2010)

The AMATS Bicycle Plan shows a proposed, separated, multi-use pathway along the west side of Potter Marsh that extends north to Rabbit Creek Road and south to Potter Valley Road, where the Project would develop the multi-use pathway. The Project would align with the Anchorage Bicycle Plan's goals by improving connectivity and safety through the development of a separate, multiuse pathway that was under the plan and incorporated into a broader roadway project (Goals 1 and 3). Additionally, the Project aligns with the recommended bicycle network projects to develop a separated path on the Seward

Highway between Potter Weigh Station and Rabbit Creek Road as well as an alternative to the project to improve the shoulder on Old Seward Highway between Rabbit Creek Road and Potter Creek Road.

Anchorage Freight Mobility Study (2017)

The Anchorage Freight Mobility Study (FMS) was prepared to guide future growth in the Anchorage area. The FMS recommended that the Seward Highway be designated as a regional truck route. FMS recommendations in the Project area are listed in Table 4.

Table 4 – Study Area Projects from the FMS

Project Name	Description	Priority
Seward Highway – O'Malley Road to Rabbit Creek Road	Construct Americans with Disabilities Act (ADA)-compliant ramps for existing pedestrian crossings and extend pedestrian facilities from Rabbit Creek Road to O'Malley Road.	Low
Yield Signs at Highway On-Ramps	Add yield signs at on-ramps on the Glenn and Seward Highways.	Low

Hillside District Plan (2010)

The Hillside District Plan (HDP) is a sub-area plan that provides guidance regarding future development decisions on the Anchorage Hillside. The Project aligns with the HDP's recommendation to "prioritize maintenance and upgrades of primary and secondary roads, placing emphasis on projects that address existing safety and efficiency concerns." The HDP also states that the Old Seward Highway from Rabbit Creek south to Potter Creek forms a corridor largely within a natural setting, connecting several large tracts of parkland and natural open space land, as well as a limited number of residential lots. The community has identified this roadway and the lands along it as very important for their wildlife viewing and habitat values, nature appreciation, public recreation, and scenic qualities. This plan supports a context-sensitive design for the future upgrade of this stretch of the Old Seward Highway to retain the highway's rural and recreational character and to integrate natural landscape features, natural resource values, and recreational uses into the road design. The HDP supports a byway character with moderated speeds and recreational access features, rather than a typical arterial design.

The Anchorage Bowl's Rabbit Creek neighborhood is located on the northern end of the Project corridor in the vicinity of MPs 118 to 112 of the Seward Highway. According to the HDP, the neighborhood consists primarily of residential single-family and vacant land uses, with some park and open space scattered throughout the area. Most of the area is zoned as a mix of rural residential, single-family residential, and multiple family districts. The Project aligns with goal 9-C by updating a primary road (Seward Highway) with an emphasis on safety and efficiency, as well as with goals 10-A and 10-B by providing non-motorized access to CSP with a multi-use, non-motorized pathway and maintaining or expanding parking facilities at trailheads and scenic viewing areas.

Seward Highway Corridor Partnership Plan (1998)

The purpose of the Seward Highway Corridor Partnership Plan (DOT&PF 1998) is to identify how growth and economic development can enhance and sustain the physical, recreational, and visual enjoyment of

the Seward Highway corridor by residents and visitors. The plan acknowledges that the Seward Highway is a multi-purpose corridor serving residents and visitors, commerce, and the environment. It also recognizes the challenge of accommodating tourists who want to enjoy the scenery while providing safe, year-round access for others. The Project addresses the plan by supporting relevant critical actions including design integration, a separated bike path, highway signage, dedicated turn lanes, and additional design details to improve the corridor.

Utility Corridor Plan (1990)
The plan shows proposed upgraded electrical transmission lines following Old Seward to Potter Valley Road, as well as proposed gas mains following Old Seward to the Turnagain Arm. Existing utility infrastructure may require some relocation to accommodate road widening and railroad track realignment. However, DOT&PF will continue to coordinate planning efforts with utility providers to ensure the Project accommodates existing and planned development, as well as limits service interruptions.

AMATS Complete Streets Policy
The policy defines principles including equitable, context-sensitive solutions, connectivity and level of comfort for all modes of travel, use of best practices, effective planning, balancing stakeholder needs including maintenance, all of which are supported by the Project through outreach and ongoing design coordination.

MOA Vision Zero Action Plan (2016)
Vision Zero is a global movement to eliminate all traffic-related deaths and serious injuries while increasing safe, healthy, and equitable mobility for all. The Project's Purpose and Need align exactly with these goals.

Interpretive Plan for the Seward Highway Scenic Byway (Chugach National Forest 1993)
The intent of the Interpretive Plan is upheld by the Project, in that the sightseeing, touring, and recreational opportunities along the Scenic Byway are preserved and enhanced.

Long Range Transportation Plan (2016)
The DOT&PF Long Range Transportation Plan's goals align with the Project's in that the design will modernize to improve performance and reliability and reduce safety risks. In addition, the Project will also enhance roadway geometry to meet performance targets and level of service.

Anchorage Land Use Study (1996)
The Anchorage Commercial and Industrial Land Use Study acknowledges the Seward Highway as a major transportation facility for the movement of goods, commodities and bulk fuel stocks. Rail freight parallel to the Seward Highway corridor is also mentioned, particularly for coal transport to the port of Seward.

Potter Valley Land Use Analysis (1999)
The nearest study subarea to the Project is Subarea A; the Project is not anticipated to impact the area or change land use in Subarea A.

Public Involvement Summary

PI for the Windy Corner project, the precursor for this Project, began in 2013. The Project team reviewed all comments submitted on the Windy Corner project prior to commencing outreach for this Project. In response to those comments, the Project team took the following actions:

- Adopted a separated, paved pathway as part of the Project description and Proposed Action due to clear public interest in such a pathway
- Developed an SWG that provides ongoing feedback, such as during scoping as well as alternatives development and evaluation, because many competing priorities and overlapping jurisdictions occur within the Project corridor
- Developed the EA scope to address potential impacts identified during the Windy Corner project, including visual impacts and material site selection, which were high-interest topics that garnered many public comments, as well as emergency access, wildlife, tourism, and recreation

The Project involves the state-owned and operated Seward Highway within the MOA and is within a DOT&PF Highway Safety Corridor, which is a segment of state highway with a higher-than-average incidence of fatal and major injury crashes. The Seward Highway has been recognized for its scenic, natural, historical, and recreational values and is designated as a U.S. Department of Agriculture Forest Service Scenic Byway, Alaska Scenic Byway, and All-American Road. Concerns regarding safety and these values have been raised by the public and stakeholders during the PI process and are summarized in this report.

Before developing the PIP, the Project team conducted early outreach at DOT&PF's 2023 Anchorage Transportation Fair. This event introduced the transition from the Windy Corner project and the restart of the NEPA process. Public feedback from the fair helped shape the PIP, which outlines how stakeholders—including residents, agencies, Tribes, and organizations—will be engaged throughout the EA. The PIP guides inclusive, transparent outreach and meets federal, state, and local requirements and is available on the Project website at https://safersewardhighway.com/wp-content/uploads/2025/02/Safer-Seward-Highway_Public-Involvement-Plan_May-2023.pdf.

For the Project, stakeholders include area residents and businesses, recreational users, federal and state agencies, local government, emergency services, utilities, Tribal entities, and non-governmental organizations. The Project team offered stakeholders and the public multiple ways to communicate their thoughts regarding the Project, including public, small group, and one-on-one meetings; an online open house; and listening posts. The Project team collected public and stakeholder input by gathering comments using a robust comment-management software application; developing a third-party survey; providing an interactive digital toolbox to facilitate analyzing concepts; and distributing information to an extensive (more than 700 contacts) email and mail contact list.

During Project development and EA preparation, DOT&PF consulted and coordinated with pertinent federal, state, and local agencies; Tribal entities; and the public to obtain information, assist with development of reasonable alternatives, and identify potential issues and mitigation measures. This

section summarizes coordination with agencies, Tribes, and the public. The actions described below have been completed to date to engage stakeholders, agencies, the public, and potentially affected interests.

Project Website

On February 20, 2023, the Project website was launched at www.safersewardhighway.com (DOT&PF 2023). The ADA-compliant website provides Project information, meeting notices, PI opportunities, key contacts, a mechanism to submit comments, and other materials to support public education about the Project and encourage feedback at any time. The website is maintained to ensure timeliness and accuracy of messaging.

Project Initiation and Scoping

Public scoping began on January 25, 2023, when the Notice of Intent to Begin Engineering and Environmental Studies and Floodplain Encroachment was published, initiating the NEPA process. DOT&PF requested that comments be submitted by February 24, 2023. The Project team hosted three in-person public meetings during March 2023 in Girdwood, Indian, and Anchorage as well as an online open house between March 21 and April 20, 2023. Public scoping meetings were advertised for 8 weeks, beginning in February, with a combination of advertisements as well as print and online postings to reach a wide range of stakeholders. In-person meetings were held at three key Project locations, including Anchorage, Indian, and Girdwood, as well as through a 30-day online open house available on the Project website with all meeting materials. It offered Project information and multiple ways to comment during the scoping period, including an online comment form. A public scoping comment period requested all comments by April 20, 2023. However, the Project team has accepted and considered public and stakeholder comments throughout the development of the draft EA.

Agency Consultation and Outreach

Agency Scoping Letter

An agency scoping letter was sent to agencies anticipated to have an interest in protecting resources or with special expertise on the Project on June 14, 2023. The letters identified the Project location and termini, described the relationship to the prior Windy Corner EA, and requested feedback from agencies by July 24, 2023. Comments were requested on the draft purpose and need statement, proposed Project description, and preliminary environmental research. Additionally, scoping letter recipients were asked to inform the DOT&PF if further analyses were needed to evaluate sensitive resources potentially impacted by the proposed Project, if regulatory permits and/or clearances were required, and whether there were any concerns or issues with the proposed Project.

Stakeholder Working Group

The SWG was convened to provide ongoing, early feedback during scoping, preliminary engineering, and development of the EA. This transparent, collaborative group met to provide feedback on work in progress. The SWG included both agency and public stakeholders. This was intentional to build awareness about the diversity of competing and overlapping interests within the corridor and identify win-win solutions where possible.

Organizations invited to participate in the SWG included key state, federal, and local agencies as well as community organization staff with the power to speak on behalf of their organizations or act as a conduit for information. Organizations were contacted by DOT&PF and asked to nominate a primary and a secondary representative. Table 5 provides a list of the agencies and community organizations invited to participate in the SWG and the position titles of the representatives from those organizations.

Table 5 – SWG Invitee Organizations and Representatives' Titles

Organization	Position
ADNR/CSP	Park Superintendent
Alaska Department of Fish and Game (ADF&G) – Habitat Section	Habitat Biologist Fish & Game Coordinator
State Historic Preservation Office	Chief Review and Compliance Coordinator
ARRC	Vice President, Chief Engineer Engineer
MOA Planning and Zoning	Manager and Platting Officer
Anchorage Metropolitan Area Transportation Solutions	Coordinator
National Marine Fisheries Service (NMFS)	Lead Biologist
United States Army Corps of Engineers (USACE)	South Branch Chief Project Manager
Bike Anchorage	President
Friends of Chugach	Agent
Alaska Trucking Association (ATA)	Executive Director
Alaska Travel Industry Association	Director of Policy & Communications
Turnagain Arm Community Council	Council Representative
Rabbit Creek Community Council	Co-Chair Land Committee Chair
Girdwood Board of Supervisors	Roads & Utilities

The group met monthly from June to December 2023 and approximately every other month in 2024. Meetings were scheduled to allow the greatest number of participants to attend (see Table 6 and Table 7). Verbal and written feedback was used to refine ideas and inform DOT&PF decision-making.

Table 6 – SWG Meetings

Date	Purpose	Location	Discussion Topics
6/15/2023	Kick-off Meeting	Michael Baker International, 3900 C Street, Suite 900, Anchorage, AK 99503	Project introduction, scope; draft purpose and need, SWG goals and objectives, SWG ground rules
7/13/2023	Project Update: Agency Briefings	Michael Baker International, 3900 C Street, Suite 900, Anchorage, AK 99503	Project update, agency presentations, traffic data/design team issues, draft purpose and need exercise

Date	Purpose	Location	Discussion Topics
8/24/2023	Project Update: Concepts Discussion I	Michael Baker International, 3900 C Street, Suite 900, Anchorage, AK 99503	Project update; Concepts – Constraints overview; introduce Sandbox – Pinch Point Discussion Part I
8/31/2023	Project Update: Concepts Discussion II	DOT&PF, 4111 Aviation Avenue, Anchorage, AK 99502	Project update, review last meeting highlights, Sandbox – Pinch Point Discussion Part II
9/28/2023	Project Update: Blended Concept	DOT&PF, 4111 Aviation Avenue, Anchorage, AK 99502	Project update, introduce small group meetings, Sandbox – Blended Concept
11/2/2023	Project Update: Screening	DOT&PF, 4111 Aviation Avenue, Anchorage, AK 99502	Project update, Blended Concept review, introduce public opinion survey, screening criteria discussion
12/14/2023	Project Update: Public Meetings	DOT&PF, 4111 Aviation Avenue, Anchorage, AK 99502	Project update, public meetings review, 10- versus 25-foot offset pathway discussion
2/29/2024	Project Update	DOT&PF, 4111 Aviation Avenue, Anchorage, AK 99502	Environmental update, engineering update – design speed, communications update
5/9/2024	Project Update	DOT&PF, 4111 Aviation Avenue, Anchorage, AK 99502	Concept updates, screening, public opinion survey results
7/18/2024	Project Update	Z.J. Loussac Library, 3600 Denali Street, Anchorage, AK 99503	SWG team updates, design updates, environmental updates, Listening Post reports
9/26/2024	Project Update: Preferred Concept	Z.J. Loussac Library, 3600 Denali Street, Anchorage, AK 99503	SWG team updates, alternatives update, design update, environmental update, communications update
5/15/2025	Project Update: Draft EA and Social Media Campaign	Z.J. Loussac Library, 3600 Denali Street, Anchorage, AK 99503	SWG team updates, alternatives update, design update, environmental update, communications update, STIP/TIP updates, social media marketing campaign workshop
Planned Q4 2025	Draft EA Review	TBD	TBD

Table 7 – List of SWG One-on-One Meetings

Date	Who	Location	Purpose
9/7/2023	Alaska Travel Industry Association (ATIA)	HDR offices	Discuss Project with several ATIA members
9/8/2023	ADF&G	HDR offices	Discuss impacts to Potter Marsh, mitigation options
9/15/2023	ARRC	HDR offices; online	Project impacts to ARRC
9/15/2023	USACE, Alaska District	HDR offices	Project impacts to Waters of the United States
9/21/2023	ADNR, CSP	HDR offices	Project impacts to CSP

Date	Who	Location	Purpose
9/27/2023	National Oceanic and Atmospheric Administration (NOAA) Fisheries	HDR offices	Environmental Class of Action discussion
10/3/2023	ATA	HDR offices	Project impacts to Alaska commercial vehicles on the Seward Highway
10/6/2023	USACE and NOAA Fisheries	HDR offices	Concept updates; screening; Public Opinion Survey results
10/12/2023	ADNR and ADNR State Historic Preservation Office (SHPO)	HDR offices; online	Project impacts to key historic locations within the Project boundaries
10/12/2023	Bike Anchorage	HDR offices	Bike path discussion
6/19/2024	ATA	ATA, 3443 Minnesota Drive Anchorage, AK 99503	Introduce new ATA Director to Project
8/26/2024	ADNR, CSP	Teleconference	Project Update – Alternative discussion
9/23/2024	ARRC	ARRC, 327 West Ship Creek Avenue, Anchorage, AK 99510	Project Update in lieu of SWG meeting

As a result of this ongoing, collaborative discussion, the SWG affected decision-making in the following ways. The SWG members:

- Advocated strongly for a separated bike/pedestrian path that covered the full length of the Project and tied into existing paths both north and south of the Project boundaries. The pathway is included in the Project description.
- Engaged with and influenced the final purpose and need language, focusing on transportation corridor safety for all users.
- Advocated strongly to minimize impacts to Cook Inlet beluga whale habitat, which impacted design decisions around Project centerline locations along the route to minimize impacts.
- Advocated strongly for the 55-mile-per-hour (mph) design speed that was adopted by DOT&PF.
- Focused on minimizing impacts to Potter Marsh, influencing design decisions around roadway centerline through the area.
- Influenced the addition of frontage roads in the design at the communities of Indian and Bird.
- Advocated for and influenced the choice of Safety Express projects, encouraging DOT&PF to identify and fund small projects that could improve safety along the corridor before major construction projects begin.
- Advocated for consideration of a three-lane design alternative. A three-lane concept was developed for the entire corridor and studied in the traffic and safety analysis.
- Provided feedback on the questions that comprised the final public opinion survey conducted by DOT&PF.

- Provided examples of design solutions to minimize the Project footprint. This energized the design team to explore multiple design scenarios focused on minimizing the overall Project footprint, reducing Project impacts.

Endangered Species Act Consultation

The National Oceanic and Atmospheric Administration (NOAA) Alaska Regional Office (AKRO) Protected Resources Division (PRD) is the branch responsible for implementing the Endangered Species Act (ESA) for the marine mammal species that occur within the Project area. The SWG has included at least one representative from PRD. In addition to the SWG meetings, an initial meeting with the AKRO PRD staff regarding ESA consultation, which included Project details, effects on ESA-listed species, and potential mitigation measures, occurred on June 18, 2024. After the submittal of the Biological Assessment (BA) and preliminary review by AKRO PRD staff, they suggested that the Project could qualify for expedited informal Section 7 consultation with minor revisions to the BA. Concurrence was received from NOAA on March 25, 2025.

Section 4(f) Consultation

DOT&PF met with the Officials with Jurisdiction (OWJs) for the Section 4(f) properties within the Project area to specifically discuss the boundaries and significance of properties that are potentially protected by Section 4(f), and later met with the OWJs to discuss the Proposed Action and its impacts on and mitigation for Section 4(f) properties. The OWJ for CSP is the ADNR; the OWJ for Potter Marsh is ADF&G. Consultations are ongoing.

Section 6(f) Consultation

DOT&PF consulted with ADNR and National Park Service (NPS) in association with the Land and Water Conservation Fund Areas (LWCA) Section 6(f) consultation process. Consultations are ongoing.

Essential Fish Habitat

The Essential Fish Habitat (EFH) consultation was initiated with NOAA fisheries on April 3, 2025, and the process is ongoing.

Section 106 and Tribal Coordination

For purposes of Section 106 of the National Historic Preservation Act, DOT&PF, acting on behalf of FHWA under the 23 U.S. Code 327 MOU, initiated consultation with potential consulting parties on December 22, 2023, to identify historic properties that may be affected by the Project. Consultation was conducted in accordance with the First Amended Programmatic Agreement…Regarding Implementation of Section 106 of the National Historic Preservation Act for the Federal-Aid Highway Program in Alaska (DOT&PF 2017b). Meetings were held as delineated in Table 8.

At this point, no requests for government-to-government consultation have been received from any Tribes. Findings of Effect consultation letters were mailed to consulting parties on March 26, 2025. The process is ongoing.

Table 8 – Section 106 Meetings

Date	Participant	Location	Purpose
10/12/2023	DOT&PF, SHPO, HDR	HDR offices and online	One-on-one Project kick-off meeting with SHPO
5/29/2024	DOT&PF, SHPO, Bureau of Land Management (BLM), HDR	HDR offices and online	Project overview, coordination on Area of Potential Effects (APE), 2023 cultural resources survey results
6/10/2024	DOT&PF, SHPO, BLM, HDR	HDR offices and online	Project overview, coordination on APE, cultural resources survey results, discussion on potential effects to historic properties
6/10/2024	DOT&PF, Kenaitze Indian Tribe (KIT), HDR (Invited but did not attend: Tyonek Native Corporation; Koniag; Eklutna, Inc.; Eklutna Native Village; Chickaloon Village Traditional Council [CVTC]; Knik Tribe)	HDR offices and online	Coordination on APE, cultural resources survey results, discussion on potential effects to historic properties
6/25/2024	DOT&PF, Eklutna Native Village, KIT, HDR	HDR offices and online	Project overview, coordination on APE, discussion on potential effects to historic properties
7/29/2024	DOT&PF, SHPO, BLM, Chugach Alaska Corporation, Koniag, KIT, Knik Tribe, HDR (Invited but did not attend: CVTC; Eklutna Native Village; Eklutna, Inc.; Prince William Sound Economic Development District; Tyonek Native Corporation)	HDR offices and online	Project overview, coordination on APE, discussion on potential effects to historic properties
12/03/2024	DOT&PF, SHPO, KIT, BLM, MOA, CVTC, ARRC, United States Fish and Wildlife Service (USFWS), Forest Service, Alaska Association for Historic Preservation, Iditarod Historic Trail Alliance, HDR (Invited but did not attend: Koniag Cook Inlet Regional, Inc.; Eklutna, Inc.; Eklutna Native Village; Knik Tribe; Knikatnu, Inc.)	HDR offices and online	Project overview, coordination on APE, discussion on Project not having effects to historic properties within Project corridor

Public Outreach

Public Meetings

The Project has prioritized public engagement through a series of three planned rounds of public meetings designed to inform and involve community stakeholders throughout the Project's development (see Table 9). The first round was held in March 2023 and focused on presenting the Project's purpose

and need and soliciting feedback on the corridor. A second round was held in December 2023 to introduce potential alternatives and discuss safety metrics. A third round is scheduled for September 2025, during which the draft EA is slated to be shared. Each round of public meetings has been hosted in three key locations, Anchorage, Girdwood, and Indian, to provide regional accessibility. To expand participation, the Project includes interactive online open houses and offers 30-day public comment periods, providing multiple ways for public engagement and feedback opportunities.

Table 9 – Public Meetings

Date	Time	Location	Total Attendees
3/21/2023	5–7 p.m.	Girdwood Community Center	15
3/22/2023	5–7 p.m.	Valley Bible Chalet, Indian	20
3/23/2023	5–7 p.m.	Goldenview Middle School, Anchorage	28
12/5/2023	5–7 p.m.	Anchorage Public Library	41
12/6/2023	5–7 p.m.	Girdwood Community Center	24
12/7/2023	5–7 p.m.	Valley Bible Chalet, Indian	10
Planned for draft EA public review	TBD	Anchorage	TBD
	TBD	Girdwood	TBD
	TBD	Indian	TBD

Online Public Meetings

Three online, interactive, and self-guided public open houses were available on the Project website for 30 days during each round of public meetings (see Table 10). They offered Project information and multiple ways to comment during the various Project periods, including an online comment form.

Table 10 – Online Open House Metrics

Online Open House Name	Dates Available	Views, Users
Public Scoping	March 21 through April 20, 2023	244, 183
Alternatives	December 5, 2023, through January 4, 2024	218, 218
Draft EA	TBD	TBD

Public Comments

Comments were shared with the Project team developing preliminary engineering and the draft EA. Table 11 describes the numbers of commenters, communications received, and comments identified during scoping and draft EA development.

Table 11 – Comments Received and Coded

Category	Scoping (January 25 – July 24, 2023)	Draft EA Development (July 25, 2023 – April 22, 2025)
Number of Commenters	8	30
Communications Received	173	210
Comments Identified	206	21

Comments focused on a range of topics, including suggestions that the Project should:

- Focus on traffic enforcement (safety, speed)
- Focus on safety, and agree that safety improvements are needed in the corridor
- Consider that highway expansions actually create more demand on the highway, increasing traffic volumes, speeds, and likelihood of vehicle collisions
- Consider multimodal use when developing alternatives
- Consider other alternatives (e.g., bridge across Turnagain Arm, commuter rail, divided highway)
- Consider design issues/considerations (e.g., design day versus design year, traffic counts, speed, divided highway, turnouts, pullouts, slow traffic/passing lanes, traffic modeling, intersections)
- Coordinate with ARRC
- Consider highway users when determining locations/numbers of meetings (i.e., more meetings in Anchorage)
- Include a separated bike/pedestrian pathway
- Extend/connect/improve the current pathway
- Provide access (i.e., to trails, recreational facilities, wildlife viewing, fishing [hooligan])
- Consider connections with local roads
- Include dedicated turn lanes (McHugh Creek, Indian, Bird)
- Provide a better CSP Headquarters/Visitor Center
- Consider Project cost and financing
- Consider capability and funding for maintenance (e.g., winter plowing)
- Consider quality of life
- Consider/address rockfall/rock cuts and material blasting impacts (e.g., add soil/vegetate terraces left from rock cuts/blasting)
- Consider avalanches
- Consider road closure issues (develop an alternate route in addition to main route)
- Consider impacts on properties, neighborhoods, Potter Marsh
- Consider ROW issues
- Current noise issues
- Consider visual impacts/aesthetics; maintain the highway's National Forest Scenic Byway, Alaska Scenic Byway, and All-American Road designations
- Seed the sides of the highway with native wildflowers that are pollinator friendly and not treated with pesticides, instead of grass
- Consider mitigation options
- Explain TransportationX Project management
- Consider class of action (i.e., should be an environmental impact statement instead of an EA)

DOT&PF considered these comments and additional comments provided during and after the public comment period in the development of the EA.

There will be a 30-day public comment period following the release of the draft EA. DOT&PF will compile, consider, and respond to all comments received.

Public Opinion Survey, February 2024

In February 2024, an independent, third-party firm, Dittman, was contracted to conduct a public opinion survey of Southcentral Alaska residents using text and phone interviews (HDR 2024b). A summary of participants and their responses is included in Figure 3 through Figure 6.

Figure 3 – Survey Participants

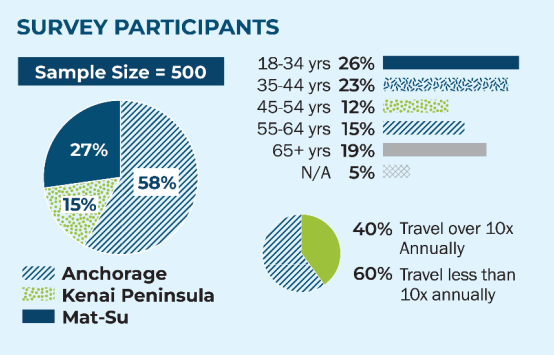


Figure 4 – Surveyed Improvements Importance

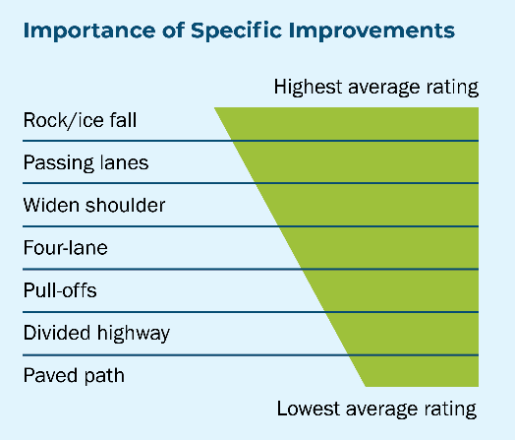


Figure 5 – Surveyed Project Cost Support

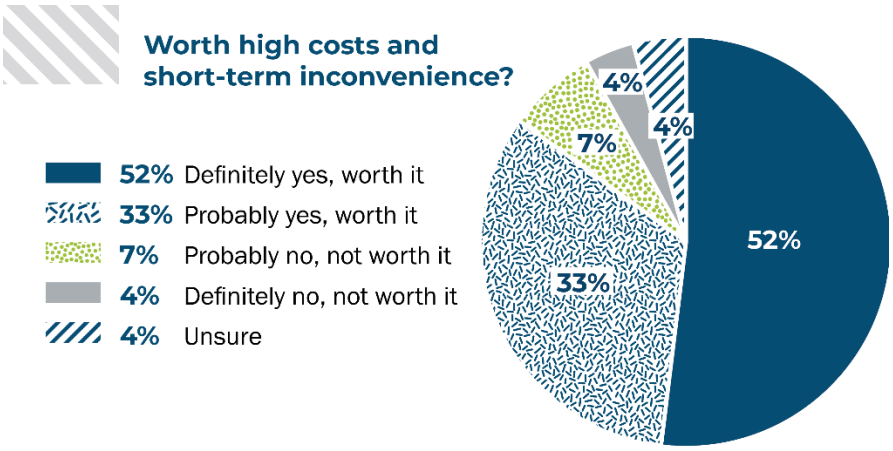
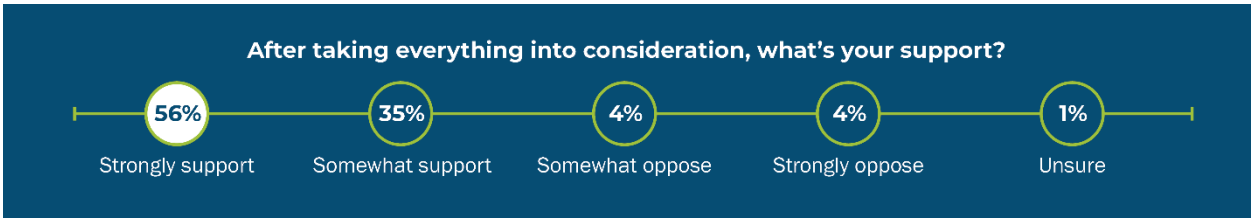


Figure 6 – Surveyed Project Support



The key findings of the Dittman survey include:

- Respondents frequently used the highway.
- Respondents viewed the highway as hazardous (46 percent believed the highway to be generally or very hazardous, 32 percent believed the highway to be of average safety, and 21 percent believed the highway to be generally or very safe).
- Respondents indicated that safety improvements are a priority (38 percent identified it as a high priority and 37 percent as a medium priority, and 9 percent each as a top or a low priority; safety was rated highest by respondents as a Project goal [4.19 on a 5-point scale]).
- More than 90 percent of respondents supported the Project (56 percent strongly supported and 35 percent somewhat supported).
- Respondents indicated that rock and ice fall mitigation and additional lanes are the most important Project improvements.
- More than 70 percent of respondents stated that they would rarely or never use the separated pathway.
- Respondents expressed broad support for use of rock blasting and placement of road (fill) material.

- Respondents commonly asked about Project duration, cost, and travel impacts during construction.
- Respondents primarily used this highway section during summer (48 percent) or year-round (47 percent), traveling through (74 percent) for recreation (75 percent).

Electronic Emails

The Project team has developed and maintained a contact list of almost 800 individual email addresses. The Project team initially developed this list using resources from previous DOT&PF projects near the Project corridor (e.g., the Windy Corner Project EA phase, with 519 subscribers). The Project team has kept this list current using contact information gathered through tools such as sign-in sheets at in-person events, as well as subscribers via email, website, and quick response (QR) codes on print materials.

As of May 1, 2025, the Project team sent a total of 19 e-blasts through MailChimp and tracked engagement and analytics data, including open rate, read rate, and reach. Table 12 provides a summary of e-blast results.

Table 12 – Summary of E-Blasts

Date	Purpose	Recipients	Open Rate (%)	Click Rate (%)
2/28/2023	Welcome + Project Launch	707	66.2	22.0
3/14/2023	Scoping Public Meeting Announcement	670	54.4	4.8
3/20/2023	Scoping Public Meeting Reminder	670	53.2	3.5
7/14/2023	Frequently Asked Questions (FAQs) & Website Updates Notice	730	53.0	10.5
8/17/2023	Photo Contest & Upcoming Events	723	53.7	3.1
9/7/2023	Potter Marsh Update & McHugh Listening Post	740	67.0	19.8
9/8/2023	Location Change: Beluga Point Listening Post	715	52.9	0.0
10/26/2023	Website Update: FAQs & Project Fact Sheet	718	66.1	30.3
11/7/2023	December Public Meetings Announcement	711	60.9	2.7
11/7/2023	December Public Meetings Announcement – Corrected Link	703	61.8	5.6
11/28/2023	December Public Meetings Reminder	703	48.6	2.9
12/5/2023	December Public Meetings ANC Today	706	47.4	3.6
3/26/2024	Anchorage Transportation Fair	750	47.3	3.7
4/10/2024	Public Opinion Survey	743	63.6	13.1
5/31/2024	Potter Marsh Discovery Day Listening Post	742	59.7	4.5
6/14/2024	Bird Ridge Race Listening Post	745	48.0	3.1
7/25/2024	Listening Posts: Chugach State Park Indian Ballfield Picnic and Girdwood Farmers Market	746	52.1	3.5
8/8/2024	Listening Post: Alyeska Blueberry Festival	764	48.4	2.1
12/2/2024	Safety Express Projects	761	48.0	3.3

DOT&PF Anchorage Transportation Fairs

The Project team attended three DOT&PF-hosted Anchorage Transportation Fairs at the University of Alaska Anchorage (UAA) Alaska Airlines Center to spread awareness about the Project, share where the team is in the process, and answer questions (see Table 13).

Table 13 – Transportation Fairs

Date	Time	Location	Total Attendees
1/23/2023	3:00–7:00 p.m.	UAA Alaska Airlines Center	17
3/28/2024	3:00–7:00 p.m.	UAA Alaska Airlines Center	10
4/15/2025	3:00–7:00 p.m.	UAA Alaska Airlines Center	100

Listening Posts

Listening posts are informal, accessible stations set up in public places to gather community input, share project information, and build trust through face-to-face engagement (see Table 14).

Table 14 – Listening Posts

Date	Time	Location	Total Attendees
7/21/2023	12:00–4:00 p.m.	Anchorage, Skinny Raven Sports Storefront	4
8/22/2023	4:00–7:00 p.m.	Anchorage, Alaska Rock Gym	23
9/8/2023	2:00–6:00 p.m.	Beluga Point	10
6/1/2024	11:00 a.m.–1:00 p.m.	Potter Marsh, Potter Marsh Discovery Day	7
6/16/2024	9:00–11:00 a.m.	Bird Ridge, Bird Ridge Race	12
6/16/2024	5:00–7:00 p.m.	Anchorage, Alaska Rock Gym	32
7/27/2024	1:00–3:00 p.m.	Indian, Chugach State Park, Indian Creek Ballfield, Indian Community Picnic	21
7/28/2024	11:00 a.m.–1:00 p.m.	Girdwood, Girdwood Farmers Market	11
8/10/2024	12:00–2:00 p.m.	Girdwood, Alyeska Blueberry Festival	20
9/21/2024	1:00–3:00 p.m.	Anchorage, REI	16

Small Group Meetings

Small group meetings were held with a variety of stakeholder groups throughout the life of the Project, first to introduce DOT&PF to the stakeholders in the community and then to deliver Project updates during milestones (see Table 15).

Table 15 – Small Group Meetings

Date	Purpose	Organization
11/28/2023	Introductory meeting	Girdwood Inc.
11/29/2023	Introductory meeting, review of outreach strategies	DOT&PF Civil Rights Office
12/18/2023	Introductory meeting	Climbers Alliance
2/21/2024	Introductory meeting	APD
2/22/2024	Introductory meeting	KPB
6/19/2024	Introductory meeting; new SWG representative	ATA

4/2/2024	Introductory meeting	National Audubon Society
4/23/2024	Project update meeting	AMATS CAC
8/26/2024	Proposed Action meeting	ADNR, CSP
9/10/2024	Project update	Girdwood Inc., Girdwood Fire Department
9/23/2024	Project update	ARRC
9/26/2024	Introductory meeting	Senator Kathy Giessel, District E
10/14/2024	Project update meeting	CSP, Citizen Advisory Board Meeting
10/15/2024	Introductory meeting	Anchorage Mayor LaFrance Office
10/23/2024	Project update meeting	APD, Traffic Unit/Major Collision Investigation
11/6/2024	Project update meeting	AMATS Work Session
4/4/2025	CSS Pre-Application Meeting	MOA CSS
4/16/2025	Project update	Girdwood, Inc.

Community Councils

Several community councils were identified as key stakeholders for the Project. DOT&PF regularly offered presentations to all community councils within immediate proximity of the Project area, including but not limited to the following: Rabbit Creek Community Council (RCCC), Turnagain Arm Community Council (TACC), Potter Valley Community Council (PVCC), and Girdwood Community Council. Several individual and group meetings were held with the community councils to develop an open channel for communication. Project status presentations were given at regularly scheduled council meetings as delineated in Table 16.

Table 16 – Community Council Project Update Meetings

Date	Organization
9/6/2023	RCCC, TACC
1/9/2024	RCCC
2/26/2024	PVCC Homeowners' Association
8/28/2024	TACC
9/10/2024	RCCC
12/12/2024	TACC
3/4/2025	RCCC

Accessibility

Visual or hearing-impaired individuals' inability to participate in meetings and access materials may preclude or inhibit them from attending or participating in Project activities. In response to this potential accessibility barrier, DOT&PF used ADA-compliant techniques for all materials and made reasonable accommodations for meetings. Section 508 was used as the baseline to make all public Project documents accessible.

When designing materials, colors, patterns, and spacing were kept in mind for accessibility. All documents were designed for screen readers to accurately read the document in specific order, which included attention to character and paragraph style. Website links were given screen tips instead of

reading the full uniform resource locators (URLs). Alternative text was provided for figures and graphics to facilitate understanding. After design and before implementation, each document underwent remediation that analyzed the document and gave it an accessibility score. All major errors were addressed and checked against the PDF Universally Accessible requirements before being placed online.

Existing Conditions

The Seward Highway is part of the National Highway System (NHS) and is functionally classified as a rural Interstate. Within the Project area, the roadway winds along the base of the Chugach Mountains to the north and Turnagain Arm to the south. From MP 99 to 117.6, the road generally has two 12-foot undivided lanes with 8-foot shoulders and limited passing opportunities, and access is direct to the highway. The ARRC tracks parallel the highway, predominantly on the south side.

The following two bridges are within the Project limits:

- Bridge No. 0643 was constructed in 1982 at MP 101.4 to cross Bird Creek.
- Bridge No. 0644 was constructed in 2022 at MP 102.9 to cross Indian Creek.

The ARRC tracks are located adjacent to Seward Highway along the entire length of the corridor.

Factors that influence the current operational performance and safety characteristics of the Project corridor include seasonal traffic volumes and the current capacity and geometry of the motorized and non-motorized facilities.

ROW Availability

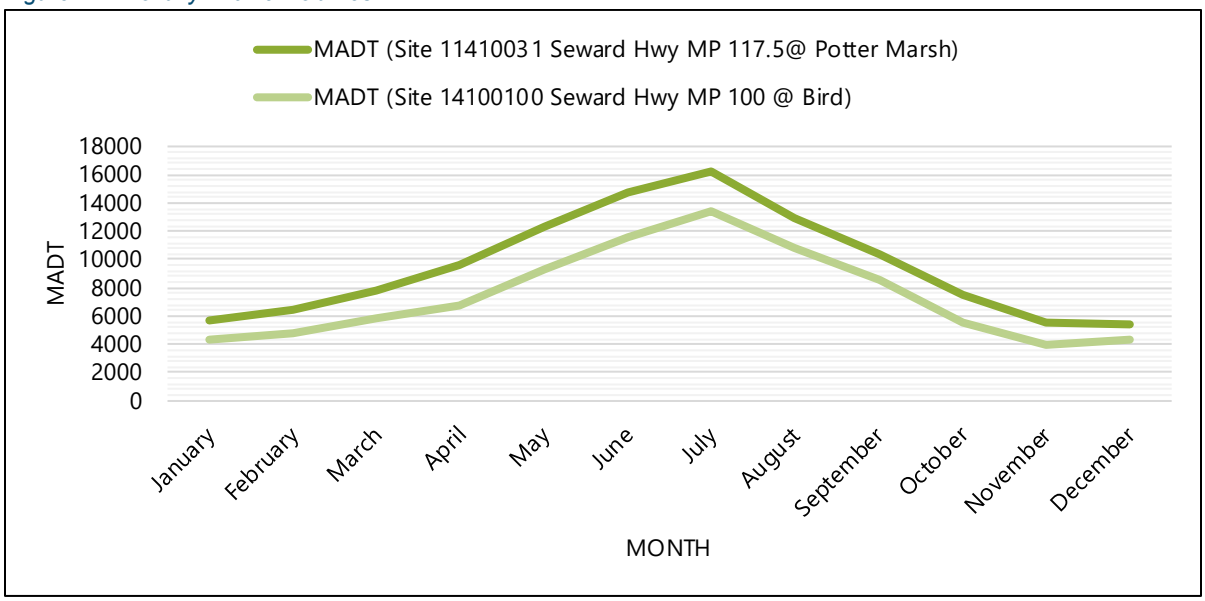
Generally, the existing transportation corridor consists of a 300-foot-wide highway Public Land Order ROW and a 200-foot-wide ARRC ROW that are each centered on their respective alignment and partially overlap for most of the corridor.

To establish the standard 300-foot easement for a highway, DOT&PF would acquire 150 feet of ROW on each side of the centerline of the proposed Project alignment. DOT&PF may require additional acreage within areas of high mountainside cuts to properly maintain the rock cuts and highway segments. Within areas where the 150-foot ROW overlaps the ARRC ROW, DOT&PF would likely continue to manage the facility under its current agreement with ARRC.

Traffic Conditions

The average annual daily traffic (AADT) in 2022 along the Seward Highway was approximately 7,730 and 9,550 vehicles per day (at Bird [MP 100] and Potter Marsh [MP 117.5], respectively). Tourism during the summer months causes the monthly average daily traffic (MADT) to vary greatly: it is higher during summer compared to other months, as shown in Figure 7 (HDR 2024a).

Figure 7 – Monthly Traffic Volumes



Traffic volumes are highest near Anchorage (Potter Marsh and the Rabbit Creek Interchange) and generally trend downward traveling southbound (SB) within the Project area. Locals and tourists both drive and recreate within the Project corridor, often stopping and/or turning around at trailheads and pullouts.

The Highway Capacity Manual (HCM) states that the follower density (FD) of a two-lane corridor is the metric used to determine its level of service (LOS) (Transportation Research Board [TRB] 2022). Table 17 shows the LOS and corresponding FD ranges for a two-lane facility.

Table 17 – Level of Service per Follower Density

LOS	FD (followers per mile per lane)
A	≤ 2
B	> 2–4
C	> 4–8
D	> 8–12
E	> 12
F	Demand Exceeds Capacity

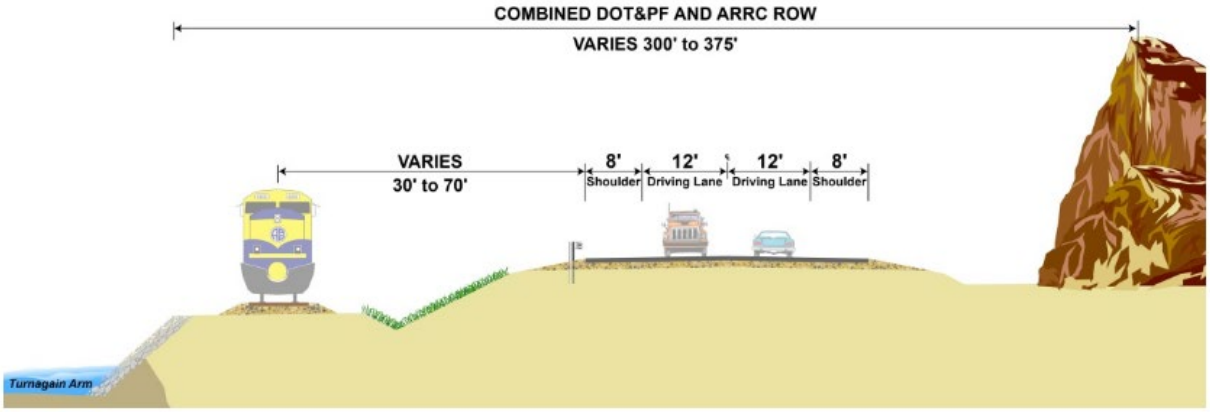
Source: TRB 2022

The Seward Highway corridor FD ranges from 10 to 11 and higher within the northern segments, where volumes are higher. Therefore, under existing conditions, the corridor performs at LOS D.

DOT&PF classifies the Seward Highway as a rural principal arterial roadway and an Interstate. It is the only roadway connection between Anchorage and the Kenai Peninsula Borough, providing access to communities, commerce, recreation, and tourism.

The current configuration consists of two 12-foot-wide travel lanes and 6- to 8-foot shoulders with rumble strips at the centerline and lane edges (see Figure 8). The highway segment within the Project area has a 55-mph posted speed limit, except for a short section near the beginning of Project (BOP) that is posted at 65 mph. As the highway corridor passes through communities, many private driveways and roads have direct access with the highway.

Figure 8 – Existing Typical Section within the Project Area



Source: DOT&PF 2019

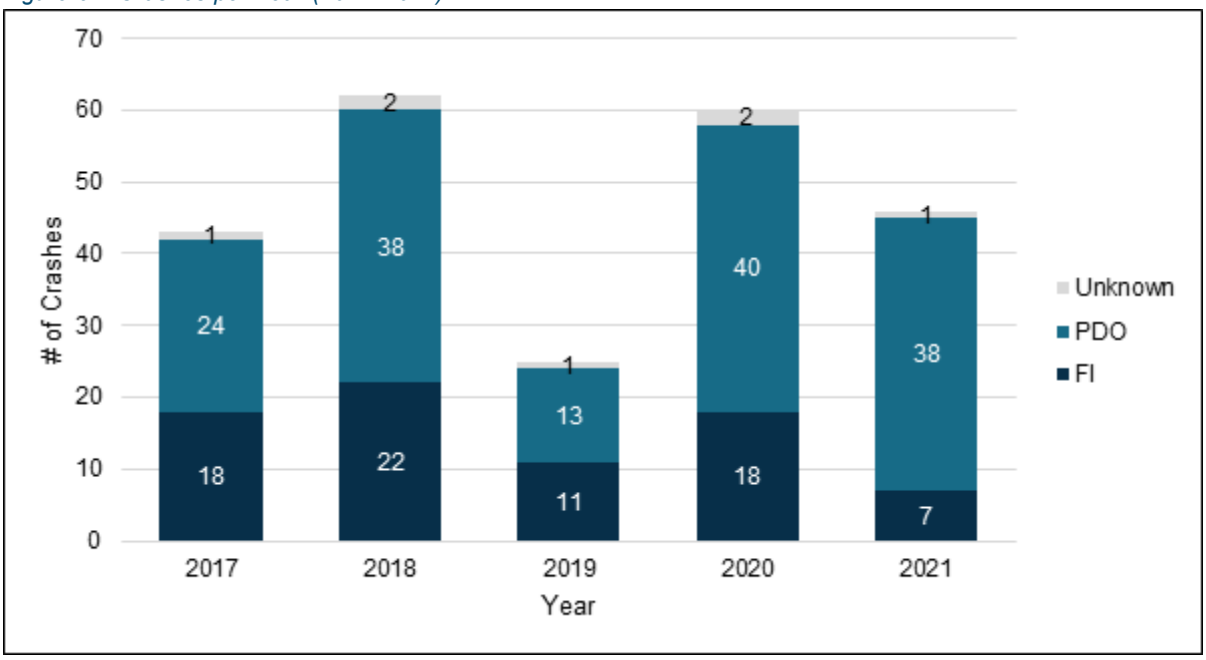
Safety

The Seward Highway between Anchorage and Girdwood is one of four designated Highway Safety Corridors in Alaska. Safety corridors receive targeted funding, planning, design, enforcement, and education efforts to resolve the elevated rate of severe crashes (crashes resulting in serious injuries or fatalities).

Crash Data

Factors such as weather, lighting, and road conditions have contributed to accidents, congestion, and road closures along the Project corridor. This segment of the Seward Highway was designated a Highway Safety Corridor in 2006 for its high crash rate and crash severity. There were 236 documented crashes between 2017 and 2021 (the study period; HDR 2024a). Figure 9 and Figure 10 show the number of crashes per year and per month between 2017 and 2021.

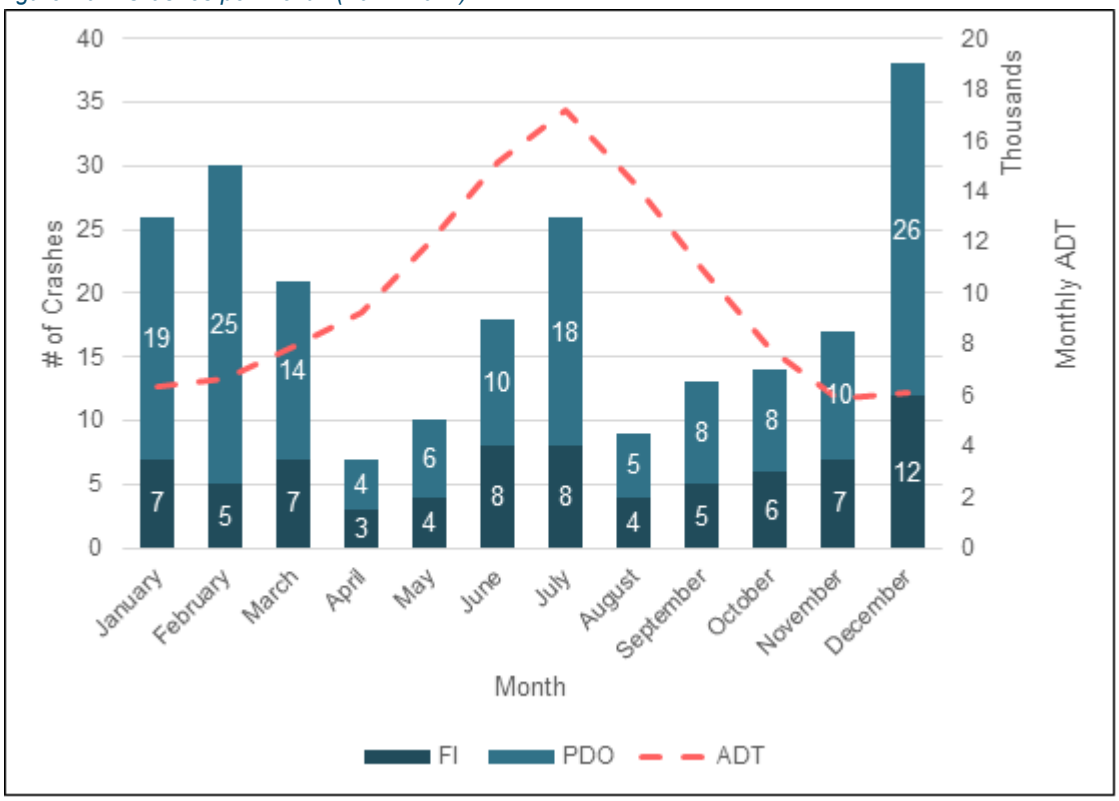
Figure 9 – Crashes per Year (2017–2021)



Source: HDR 2024a
Note: FI = fatality and injury; PDO = property damage only.

Crash summaries are aggregated by number of events and not individuals involved or impacted by these crash events. The reduced number of crashes during 2019 could be attributed to travel limitations during the summer due to the Swan Lake Fire, which started in June and ended in September and affected the road system to and from the Kenai Peninsula Borough (USFWS n.d.).

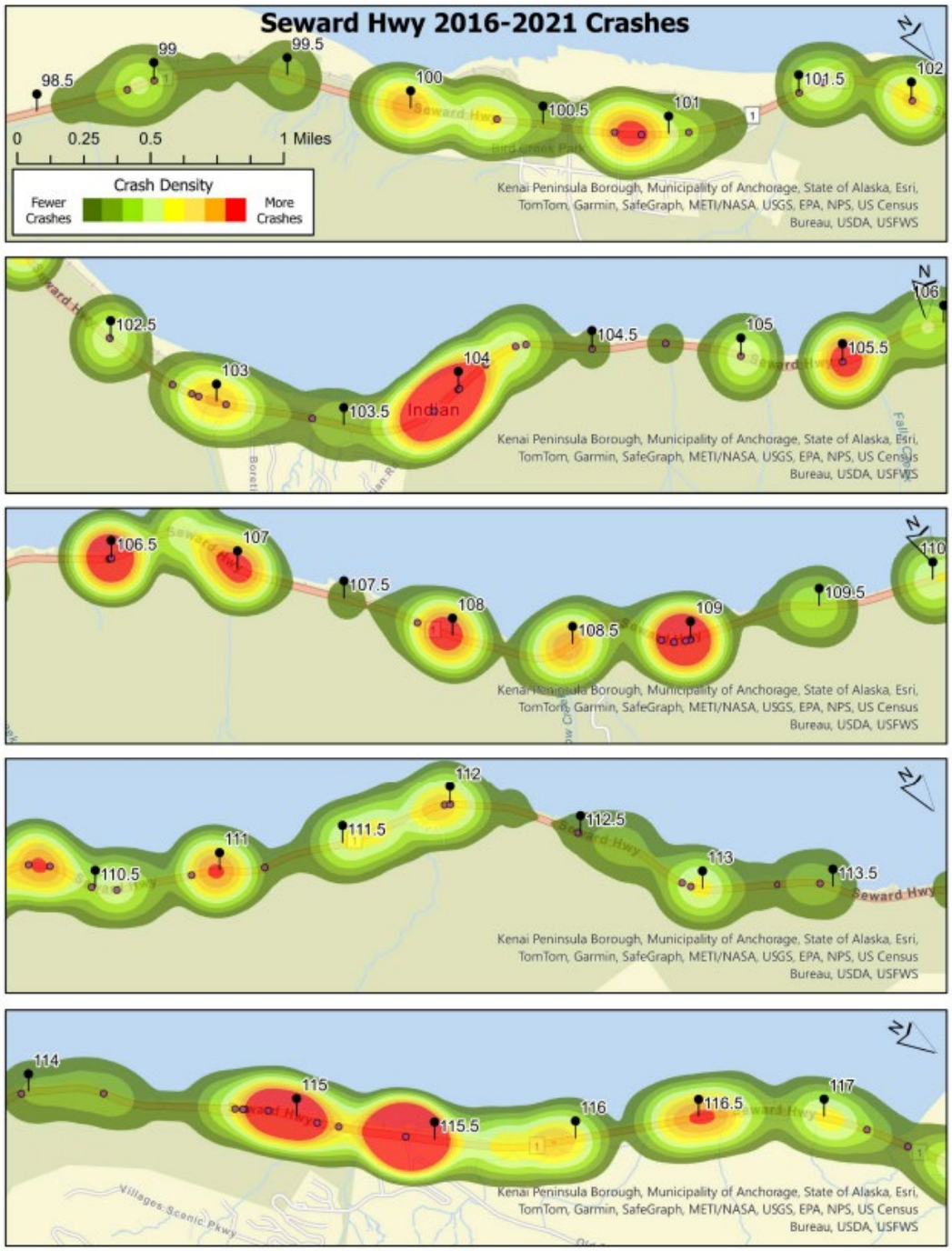
Figure 10 – Crashes per Month (2017–2021)



Source: HDR 2024a

Figure 11 depicts a density heat map of crashes by location along the Project corridor.

Figure 11 – Seward Highway Crash Density Heat Map, 2016–2021



Nearly 40 percent of the crashes occurred during winter, between December and February, when ice and frost create slippery roadway surfaces that reduce traction and consequently increase the risk of crashes. Table 18 provides pavement conditions along the corridor observed at the time of each crash.

Table 18 – Percent of Crashes Based on Roadway Surface Conditions (2017–2021)

Road Surface Condition	All Severity Crashes (%)	Fatal and Injury Crashes (%)
Snow	4.7	5.3
Slush	0.4	1.3
Ice/Frost	47.5	39.5
Wet	7.6	7.9
Dry	37.3	43.4
Mud/Dirt/Gravel	0.4	1.3
Water (Standing/Moving)	0.4	0
Unknown	1.7	1.3

Source: HDR 2024a

While the number of crashes has decreased along the entire safety corridor, the number of fatalities and serious injuries remains high. Within this 5-year dataset, 12 crashes resulted in severe injuries and/or fatalities.

Crashes during winter months are characterized by incidents related to weather or road conditions, while summer crashes correlate to incidents related to higher traffic volumes.

The most prevalent crash type was single vehicle run off road (SVROR), which accounted for 45 percent of all reported crashes during the study period (HDR 2024a). Specific road design improvements that have been shown to reduce the number or severity of SVROR crashes include straightening tight curves, improving clear zone limits, and installing medians or barriers between opposing travel lanes.

Rear-end crashes (19 percent) occur mainly during seasonal peak traffic levels. Drivers slowing to access the shoulder or a pullout for recreational attractions, such as scenic views or wildlife, can surprise vehicles following behind them and send speed “shockwaves” rippling back as drivers hit their brakes in response. Angle crashes (5 percent) are similarly correlated with turning movements at intersections and have a similar injury rate. Design improvements that have been shown to reduce the number of rear-end and angle crashes include adding turning lanes to allow vehicles to slow without impacting through-traffic movements, designing for vehicle storage (queuing) length, and reducing the number or limiting the frequency of locations where traffic can turn onto and off of the highway. Installing guide and warning signs to allow drivers to anticipate upcoming attractions or incoming traffic, respectively, can also reduce crashes.

Head-on collisions are often the most severe type of crash. While head-on crash incidents comprise only 11 percent of total crash incidents, 48 percent of head-on collisions resulted in injuries during the study period. Three of the four (75 percent) fatal crash incidents within the study period resulted from head-on collisions. Design changes that are shown to reduce head-on collisions include improving curves, adding passing opportunities, and adding medians or barriers to physically prevent vehicles from crossing into opposing travel lanes.

Design Speed and Speed Limit

The existing design speed through Bird, Indian, and Potter Marsh is 75 mph. Between those segments, there is a variance in design speed from 50 mph to 65 mph. This large range of design speeds through the corridor is indicative of the localized curve-widening efforts since the road's original construction in the 1970s.

The existing highway has a 55-mph posted speed limit for most of the Project area and 65 mph for the segment south of Bird. The Project will have.a design speed and a posted speed of 55-mph.

Typical Road Section

The current roadway consists of two 12-foot-wide travel lanes with 6- to 8-foot outside shoulders and rumble strips at the centerline and lane edges. The highway is located within a 300-foot-wide DOT&PF ROW, which is adjacent to and frequently overlapping a 200-foot-wide ARRC ROW. Throughout much of the corridor, the highway is within 50 feet of the railroad tracks, which is closer than current design guidance.

Curves

Within the Project area, the Seward Highway does not currently meet current design standards for a 55-mph design speed, including curve geometry and clear zones.

A total of 62 curves are within the Project corridor, of which 6 do not meet highway design standards for curve radius and superelevation. All six of these curves are within a 4-mile stretch between Windy Corner (just south of MP 107) and Beluga (MP 110.5) and have warning signs alerting drivers of the tight curves and decreased speed recommendations. These curves contribute to SVROR crashes, the most common crash type within the Project corridor.

The highway also contains stretches where the geometric design can support speeds up to 80 mph. Drivers often intuitively match their speed to the road design and road conditions. Roadways that have differentials of 10 to 30 mph between successive curves can contribute to drivers losing control of their vehicles. The best design practice is to keep the roadway speed differences less than 10 mph between successive curves to improve safety.

In general, the sinuous nature of the existing highway impedes drivers' ability to see upcoming hazards and reduces the time drivers have available to stop or slow when they see the hazards. Similarly, the visibility required for drivers to pass efficiently and safely is hindered. Although 65 percent of the highway within the Project corridor is designated (striped) as "no passing," drivers pass or attempt to pass in areas where passing is prohibited, contributing to elevated safety concerns within the Project corridor.

Clear Zones

A clear zone is an area alongside a road that allows a driver to stop or regain control of a vehicle that has left the road. Clear zones are unobstructed, relatively flat areas that are free of fixed objects such as trees, utility poles, and rock outcroppings.

The existing roadway does not provide sufficient clear zone area for drivers to respond to other drivers' errors, respond to roadway hazards, or correct for their own driving errors. Only 44 percent of the Project corridor has full clear zones. An additional 36 percent is shielded by guardrail, leaving 20 percent of the Project area without the recommended area for drivers to safely stop or recover vehicle control.

Pedestrian Conditions

There are numerous developed trailhead parking lots to access trails and recreational activities within CSP along the Project corridor. Additionally, there are several paved and unpaved pullouts that provide access to recreational activities such as hiking, biking, rock climbing, photography, and scenic and wildlife viewing. These parking lots and pullouts occur on both sides of the Seward Highway. The Indian to Girdwood Bike Path (commonly referred to as the "Bird to Gird" Trail) is a separated, multi-use pathway that parallels the roadway between the communities of Indian (MP 104) and Girdwood (MP 90; south of the Project area). The path lies within DOT&PF, CSP, and ARRC ROWs. No separated multi-use pathway exists between the northern Project terminus and the community of Indian; people bicycling and walking currently must do so within the existing roadway shoulders.

Non-Motorized Pathways

The Project corridor has sizeable gaps in non-motorized facilities. The Indian to Girdwood Bike Path is a paved, separated, multi-use pathway from MP 104 to Girdwood. Pathway tunnels exist under the highway at Indian (Indian Creek bridge) and Bird (near Bear Creek) to provide grade-separated connection points for those communities, and another underpass is at MP 99 to shift the pathway from the water side to follow the northbound (NB) lanes along Bird Flats. Within the northern half of the Project area (MPs 104 to 118), the existing highway has no non-motorized transportation facilities; walkers and cyclists must use the highway shoulder within this area. Cyclists typically stay near or within the corridor's narrow highway shoulder, but most users do not consider the segment between MPs 104 and 118 a reasonable facility for the public to walk or bike.

The Turnagain Arm Trail is a challenging, hiking-only trail that traverses the cliffs between Potter Creek and Windy Corner, with interim access points at McHugh Creek and Rainbow. Developed turnouts at Beluga Point, Rainbow, and Windy Corner provide parking and small scenic viewing platforms, and many other pullouts and turnouts provide access to hiking trails, scenic and wildlife viewing, and rock climbing adjacent to or near the highway.

No constructed facilities currently exist for non-motorized users to safely cross or move along the highway corridor except the pathway tunnels at Indian, Bird, and the Indian to Girdwood Bike Path.

Context

Land Use and Street Character

CSP borders approximately 90 percent of the corridor on both sides and is zoned as Public Lands and Institutions. The only exceptions are the short stretches of private lands in the communities of Bird, Indian, and Rainbow, and the private lands north of the Potter Weigh Station (MP 115).

Roadside facilities along the Seward Highway provide access to CSP for a wide variety of recreational uses including wildlife and scenic viewing, trail access, bicycling, windsurfing (among other forms of marine recreation), fishing, rock climbing, hiking, biking, and camping.

See pages 5 and 6 of the Seward Highway Route Development Study for more information.

Originally completed in 1951, the Seward Highway extends northward approximately 130 miles from Seward to Anchorage, Alaska. It is the only road corridor between Anchorage and communities to the south along Turnagain Arm, the Kenai Peninsula, and the Alaska Marine Highway System terminals at Whittier, Seward, and Homer. The highway is part of the NHS, designated partially as Interstate A-3, and provides overland travel between local and major cities, ports, and airports. The Seward Highway supports commercial, tourist, industrial, and residential traffic, and typical vehicle types range from passenger cars to RVs to industrial heavy trucks.

Existing Landscape

The highway segment within the Project area is tightly constrained between the tidal waters of Turnagain Arm, the ARRC tracks, and the steep slopes of the Chugach Mountains. At the northern terminus, the highway and rail embankments traverse in parallel through the southern end of the ACWR, between the mudflats and the constructed wetlands that form Potter Marsh Recreation Area. From MP 115 to the southern Project terminus at MP 98.5, the highway and rail corridors are within the boundaries of CSP, with a few private inholdings, MOA-owned lands, and state-owned lands near the communities of Rainbow (MP 108.5), Indian (MP 105), and Bird (MP 100).

Considerations for the environmental impact categories described below are being evaluated and will be elaborated upon in the forthcoming draft EA document (HDR 2025). The EA will detail measures to minimize and mitigate any impacts that have been developed in consultation with the appropriate regulatory agency(ies).

Physical Environment

Alaska is the most seismically active state in the country, and Turnagain Arm is predisposed to earthquakes, with multiple zones and an active belt of faults and folds nearby.

The Project area includes steeply sloped mountains, heavy snowfall, and strong winds, all of which create avalanche hazards. Multiple avalanche zones with several paths exist within the Project area. Frequently, these avalanche slides reach the roadway itself.

Similarly, rockfall and icefall hazards exist along several slopes in the Project area, despite incorporation of mitigation measures. The existing rock catchment is insufficient per current design standards.

Air Quality

In general, Anchorage has low levels of most types of air pollution. The Project is outside of the Anchorage carbon monoxide (CO) Maintenance Area and Eagle River particulate matter (PM)10 Maintenance Area boundaries.

Water Quality

Runoff from impervious surfaces such as roadbeds, parking areas, and pullouts is captured through various drainage structures along the Seward Highway, and is discharged into creeks and ultimately to Turnagain Arm. These discharges are covered under the Municipal Separate Storm Sewer System permit and Construction General Permit.

Four groundwater protection areas are within the Indian Creek Valley, and one is within the community of Bird; each of these areas is upgradient of the highway.

Biological Environment

Vegetation along the corridor is composed of diverse habitats including spruce, birch, and poplar trees; alder and willow shrubs; and a variety of mosses and lichens. Invasive species will be identified along the corridor in compliance with Executive Order (EO) 13112. Wetlands will be mapped in compliance with EO 11990.

Estuarine and marine waters of Turnagain Arm, including those within the Project area, are EFH for multiple salmon species. The Project crosses several streams nominated in the Anadromous Waters Catalog (ADF&G 2024).

Bird habitat types in the Project Area include wetlands, woodlands, riparian areas, cliffs, and tidally influenced shorelines.

Habitat for terrestrial mammals includes anadromous streams containing salmon that attract predators such as bears, rocky cliffs and mineral licks for Dall sheep and mountain goats, and wintering areas for moose.

Marine mammal species most likely to be observed in Turnagain Arm include harbor seals, Steller sea lions, harbor porpoises, killer whales, Cook Inlet beluga whales, gray whales, and humpback whales. NMFS listed the Cook Inlet beluga whale as an endangered species in 2008. The critical habitat for the Cook Inlet beluga whales is located adjacent to the proposed Project.

Human Environment

The Project corridor is characterized by its scenic qualities. Travelers frequently stop at pullouts to view the natural features and wildlife, as well as to access recreation areas for hiking, fishing, rock climbing, wildlife and scenic viewing, and camping. The area is open to personal use and sport fishing and hunting, but is in a non-subsistence area.

The highway is the sole transportation link that connects the Anchorage Bowl, Turnagain Arm, and Kenai Peninsula, supporting economics and tourism. Public services within the Project area are limited; no schools, libraries, or medical facilities are located within the Project area. The Anchorage School District offers bus services to schools in South Anchorage for students residing in Turnagain Arm communities.

Noise within the Project area is dominated by transportation-related sources such as automobiles, trucks, and trains. While these noise sources are present year-round, noise within the Project area generally increases during summer with additional tourist travel (both vehicle and rail).

The Project area includes hazardous waste sites that have been cleaned up according to the appropriate agency regulations. Additional undocumented hazardous materials, such as heating oil tanks, contaminants, herbicides, metals, and/or undocumented releases from various materials may be present.

Existing Drainage

Floodplains and Hydrology

The Project area is bordered by the slopes of the Chugach Mountains on one side and the waters of Turnagain Arm on the other. Minimal potential for flooding exists in the steepest drainages. Turnagain Arm experiences extreme tidal fluctuations. At high tide, the waters of Turnagain Arm reach the ARRC embankment; in numerous places, they flow beneath the existing transportation corridor, impounding water between the Seward Highway and the surrounding mountains, including at Potter Marsh (in the Anchorage Coastal Wildlife Refuge), Potter Creek, and Birdhouse Creek as well as near Beluga Point.

The two largest creek crossings within the Project area are Indian and Bird Creeks, and the lower reaches of both creeks are tidally influenced. Marine waters between MPs 115.5 and 117.5, as well as Bird Creek, Potter Marsh, the lower reaches of Rabbit Creek, and Indian Creek, are designated flood zones.

Existing Utilities

Buried and overhead utilities run within and parallel to the DOT&PF ROW. These utilities are owned and maintained by Alaska Communications; Chugach Electric Association, Inc.; ENSTAR; and General Communications Corporation.

Utilities would be relocated as needed for road widening and ARRC track realignments. Utilities within the corridor that would potentially be impacted include underground fiber-optic cable, natural gas, and overhead power lines.

Existing Street Illumination

Roadway lighting exists along the corridor from the Seward Highway Interchange with Rabbit Creek Road and the Old Seward Highway, which continues, primarily on the eastern side, to MP 117.25 where Rabbit Creek passes under the Seward Highway.

The remainder of the Project area has intermittent illumination, with lighting at the Potter Valley Road intersection, Potter Weigh Station, Boretide Road intersection in the community of Indian, and Sawmill Road intersection in the community of Bird.

Future lighting will be evaluated in accordance with the guidance provided in the Highway Preconstruction Manual (DOT&PF 2025) and Recommended Practice for Roadway Lighting (ANSI 2021).

Design Standards and Criteria

The tight corridor involves environmental constraints including wildlife, recreation, and topography, all of which will be considered as design progresses (see Table 19 through Table 21 and Figure 12 through Figure 14 for general specifications on design criteria). In particular, impacts to CSP (cut) and the inlet

(fill) will be balanced to the extent practicable. Additional details will be elaborated upon in the forthcoming draft EA (HDR 2025).

Table 19 – Design Criteria – Median Divided

Criterion	Selection	Notes
Design Speed	55 mph	
Lane Width	12 feet	
Inside Shoulder Width	4 feet	
Outside Shoulder Width	8 feet	
Median Width	30 feet	Depressed
Typical Section Width	148 feet	
Clear Zone	30 feet	
Barrier	Cable	At certain locations in the grass median

Figure 12 – Median Divided

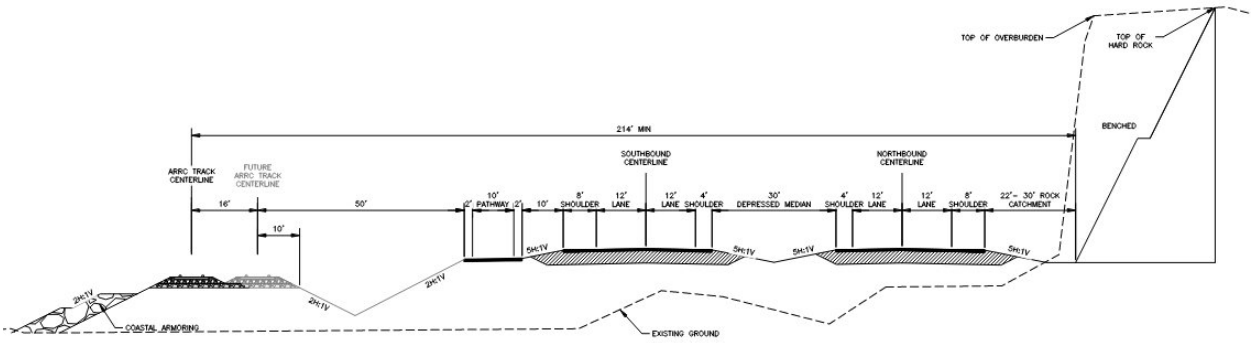


Table 20 – Design Criteria – Vertically Separated

Criterion	Selection	Notes
Design Speed	55 mph	
Lane Width	12 feet	
Inside Shoulder Width	4 feet	
Outside Shoulder Width	8 feet	
Median Width	Variable	NB lanes up to 100 feet above SB lanes, 200 feet separating inner shoulders
Road Footprint	370 feet	
Clear Zone	30 feet	
Maximum Grade	4%	NB, to avoid mandatory inclusion of truck climbing lanes

Figure 13 – Vertically Separated

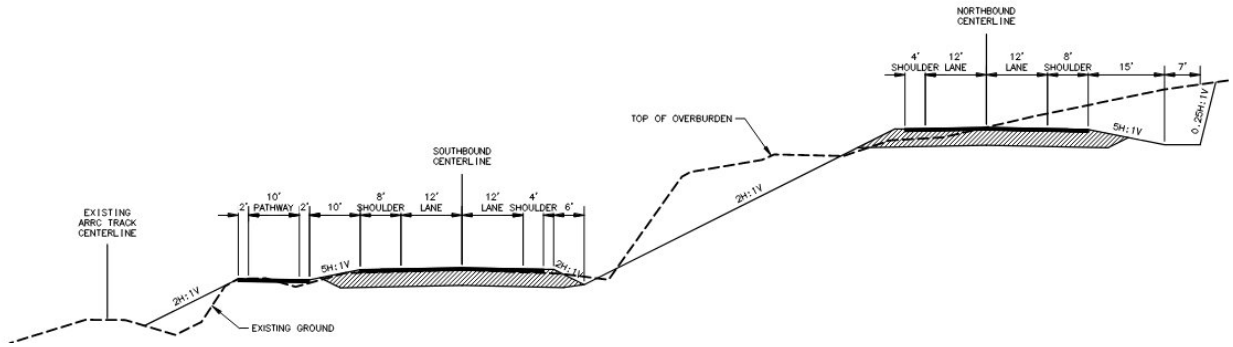
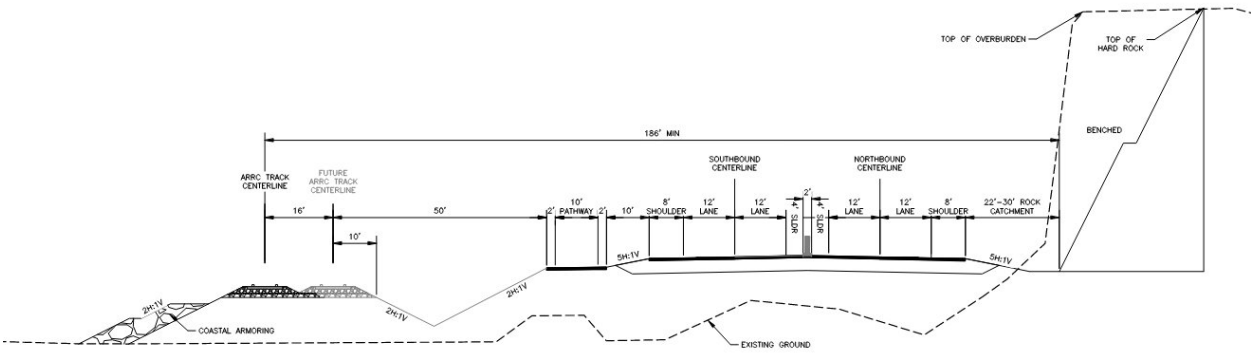


Table 21 – Design Criteria – Barrier Divided

Criterion	Selection	Notes
Design Speed	55 mph	
Lane Width	12 feet	
Inside Shoulder Width	4 feet	
Outside Shoulder Width	8 feet	
Barrier Area	2 feet	Total of 10 feet between opposing travel lanes
Typical Section Width	120 feet	
Clear Zone	30 feet	
Barrier	Concrete	Guardrails may be added within areas on the outside of the roadway when adequate space requirements cannot be met

Figure 14 – Barrier Divided



Detailed Design Criteria and Design Designations are included in Appendix C and Appendix D, respectively.

Design Alternatives

Alternatives Considered

Initial Concept Development

Initial concepts evaluated the impacts of several different roadway configurations, lane numbers, and design speeds. Additionally, several pathway offsets, from 5 feet to 25 feet from the travel way, were considered. These included the following:

- Four-lane divided highway with a 65-mph and 55-mph design speed. Within this concept, a variety of median treatments were considered that included divided, barriers, and vertical separation. Additionally, several pathway offsets were considered up to 25 feet from the travel way.
- Three-lane divided highway with alternating passing lanes with a 65-mph and 55-mph design speed. Within this concept, a variety of median treatments were considered that included divided, barriers, and vertical separation.

Conceptual alignments were developed to evaluate the impacts of each roadway configuration that both maximized and minimized impacts to CSP, Turnagain Arm, and ARRC facilities and then balanced the impacts and avoided critical environments as identified through the SWG and agency coordination. The initial concepts can be reviewed at the following URL: https://www.arcgis.com/apps/instant/sidebar/index.html?appid=ea53838b88104749abf72bfd81c87d83. The alignments and impacts of the initial configurations are included in Table 22.

Table 22 – Initial Configurations Impacts

Configuration	Cut Volume	Fill Volume	Impacts
NB lanes on the existing locations, SB lanes on ARRC facilities and ARRC relocated	3.5 million cubic yards (CY)	16.6 million CY	25.25 acres of impacts to Turnagain Arm
ARRC facilities remained in the current locations, all widening occurred to CSP with divided median	44.1 million CY	3.1 million CY	19,250 linear feet (LF) of cut slopes ranging from 60' to 100', 14,100 LF of cut slopes ranging from 100' to 200', and 9,100 LF of cut slopes exceeding 200'. For comparison, the Empire State Building is equivalent to 1.37 million CY; this concept would have required removing 32 Empire State Buildings' worth of material from the Project area.
ARRC facilities remained in current locations, all widening occurred to CSP with barrier	32.5 million CY	2.7 million CY	13,250 LF of cut slopes ranging from 60' to 100', 5,620 LF of cut slopes ranging from 100' to 200, and 2,690 LF of cut slopes exceeding 200'
ARRC facilities remained in current locations, all widening occurred to CSP with retaining walls	14.1 million CY	4.9 million CY	17,000 LF of cut slopes ranging from 60' to 100', 10,000 LF of cut slopes ranging from 100' to 200', and 3,500 LF of cut slopes exceeding 200'

The team quantified the following impacts when evaluating concepts:

- Total Project footprint
- Cut and fill volumes
- ARRC track realignment
- Cut slope heights: 60–100 linear feet, 100—200 linear feet, and over 200 linear feet
- Impacts to Turnagain Arm: 0–50 feet, 50–100 feet, and over 100 feet intrusion, and total area of impacts
- Wetland impacts in square footage
- ROW impacts: park, inlet, ARRC, private, and total
- Number of trailheads and parking/pullouts impacted, and historic properties
- Number of eagle nests within 330 and 660 feet of the proposed Project

Initial Concept Refinement

The initial concepts were reviewed with DOT&PF, stakeholders, agencies, and special interest groups to understand objectives, limitations, and regulations. Subsequent iterations reviewed alignments to balance material needs within the Project limits, reduce rock cuts in excess of 200 feet, and avoid and/or minimize impacts to critical habitats, recreation sites, and other areas of interest identified through the SWGs and PI process.

During the concept development stage, vertical separations were proposed to utilize an existing rock bench. This proposal resulted in reduced rock cuts, eliminated large sliver rock cuts, reduced the number of locations that required curve flattening, reduced blasting and fill in Turnagain Arm, and reduced the total length of railroad relocation. Utilizing vertically separated lanes would also allow off-alignment construction of the NB travel lanes for several miles and is expected to significantly reduce impacts to the traveling public during construction.

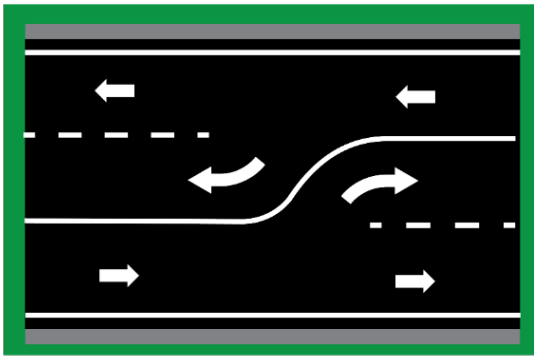
The concepts that were refined included:

- 65 mph: three-lane divided by median and/or barrier
- 65 mph: three-lane, two lanes with an alternating passing lane with median and/or barrier
- 55 mph: four-lane divided by median, barrier, and/or vertically
- 55 mph: three-lane, two lanes with an alternating passing lane with median and/or barrier

Intermittent Passing Lanes (Three-Lane) Divided Highway

DOT&PF considered the addition of intermittent passing lanes throughout the Project corridor, or a three-lane concept. The potential advantages of this concept are the construction of a smaller highway footprint compared to a four-lane concept, while providing some opportunities for drivers to make passing maneuvers within the Project corridor. DOT&PF conducted an analysis that focused on crash data and safety, reliability, and mobility within the Project corridor for the three-lane concept in comparison to the four-lane concept.

Figure 15 – Intermittent Passing Lanes



Stacked Structure

DOT&PF considered a design alternative that would double-stack portions of the highway. For example, the design could consist of NB lanes on long bridges above the SB lanes or above the railroad tracks. Theoretically, this would increase safety by separating NB and SB travel lanes while minimizing the highway footprint impacts outside the existing ROW. Miles of bridge structures would be extremely expensive in terms of construction and maintenance. Additionally, a stacked highway would have substantial adverse impacts on the highway's scenic quality, as the structure would be visually imposing from the adjacent lands, and scenery viewing would be limited in the SB lanes under the structure. Such a structure would require ramps to exit and enter the upper lanes, which would require large footprints and likely affect CSP and Waters of the United States (WOTUS). DOT&PF determined that the costs of a stacked structure would be of an extraordinary magnitude, and the impacts to the scenic nature of the highway corridor would be substantial. Therefore, a stacked structure is not a reasonable alternative for this Project.

Tunneling Through Curves

DOT&PF considered adding tunnels at tight curve locations within the Seward Highway corridor, specifically at Beluga Point (MP 110), Rainbow Point (MP 109), and Indian Point (MP 104). This would avoid some impacts to CSP and WOTUS by eliminating the need to move the highway and road into CSP and/or Turnagain Arm. However, like long bridges, tunnel costs reach an extraordinary magnitude when full operation and maintenance considerations are included; in addition to the costs of boring a tunnel, tunnels require emergency egress, ventilation, and lighting infrastructure. This would require bringing power to the tunnel site(s) and would increase ongoing operating expenses, with requisite tunnel ventilation infrastructure creating potential visual impacts. Additionally, the tunnels would have to be sized large enough to accommodate the oversized freight that moves down the Seward Highway. Therefore, tunneling is not a reasonable alternative for this Project.

Improvements Solely within the Existing Right-of-Way

DOT&PF considered whether improvements could be limited to the existing highway ROW, not requiring impacts to CSP or the ARRC tracks. The potential benefits of this concept are the reduced cost and environmental impacts of staying entirely within the existing DOT&PF ROW, as compared to concepts

that extend outside the DOT&PF ROW. Insufficient space exists within the existing DOT&PF ROW to make highway geometric improvements, add additional vehicle lanes, and include a separated multimodal pathway meeting current highway and non-motorized design standards. Insufficient space exists to add a median or barrier between SB and NB travel lanes to reduce the risk of head-on collisions, along with other corridor improvements. The need for spot improvements for safety and to reduce the risk of rockfall onto the highway would likely continue under this option, but it would not address these concerns enough to alleviate the risks. Due to these factors, it was determined that there were no reasonable alternatives solely within the existing DOT&PF ROW that met the Project purpose and need.

Non-Construction Alternatives

DOT&PF considered an array of non-construction activities that were suggested through public and agency comments on the Project. These include Transportation System Management and Operations (TSMO), Transportation Demand Management, expanded public transit, and commuter rail service.

No Action Alternative

An EA must compare the alternatives against a No Action Alternative to consider the consequences of not taking any action. The No Action Alternative serves as a benchmark to allow decision-makers and the public to compare the alternatives. The No Action Alternative assumes the implementation of measures already authorized, budgeted, and scheduled. In the No Action Alternative, the Project corridor would not be reconstructed to improve safety, increase mobility, and accommodate mixed uses within the corridor, as described in the purpose and need statement. It is reasonable to expect that DOT&PF would continue to make highway improvements in discrete locations as needs are identified and that funding is available. However, a corridor-wide safety improvement project would not occur. Currently programmed state and federal-aid projects with independent utility within the corridor would be constructed, as listed in Table 22.

It is reasonable to assume that crash rates would continue without improvement. No improvements to highway access would be made, and clusters of crashes around certain areas within the corridor would persist. Parking and access to trailheads and viewpoints would not be improved. No multimodal pathway would be constructed along the corridor length; pedestrians and bicyclists would have to use the highway shoulder to traverse the corridor until they reach the existing Indian to Girdwood Bike Path. Because these improvements would not occur, there would be no environmental impacts. Impacts from the projects listed in Table would occur.

Highway maintenance such as pavement resurfacing and bridge replacements would continue in accordance with DOT&PF guidelines. Snow removal, street sweeping, brush clearing within the DOT&PF ROW to maintain clear zones, trash removal, and other similar maintenance and operations activities would continue to occur.

Table 23 – Planned Projects within the Project Corridor

Project Name – Funding (Project Number)	Mileposts	Description
Sign Upgrades – State Funds (CSHWY01203)	116.5–94.6	This state-funded project is in construction with a completion date of July 2025 and will replace signs and increase size for legibility; increase size of recreational and cultural interest area signs for wayfinding; add MP markers in the pullouts so people calling for emergency response correctly identify their location; add additional signs in advance of pullouts/recreational signs to improve wayfinding; add curve warning signs; and repair the speed feedback signs.
McHugh Creek Turn Lane – State Funds (CSHWY01279)	112.5–111	This state-funded project will construct a left-turn lane for SB traffic. This should also eliminate passing on the right shoulder.
HSIP Rockfall Mitigation – Federal Aid (CFHWY01239)	113.5–112.5	This HSIP project proposes to stabilize the rock face and address the drainage conditions that are resulting in large ice buildup during winter; the project would include rock blasting, scaling, and/or stabilization; widening of the catchment to meet current standards is expected; minor lane shifts, signing, striping, paving, guardrail, ditching, culverts, and/or other drainage hardware/measures are expected.

Sources: DOT&PF n.d., 2023b

Transportation System Management and Operations and Transportation Demand Management

According to FHWA, TSMO is a set of strategies that focus on operational improvements that can maintain and even restore the performance of the existing transportation system before extra capacity is needed (FHWA 2024a, 2024b).

The United States Department of Transportation (USDOT) uses the term Mobility on Demand (MOD) to represent its vision for future mobility. MOD envisions a safe, reliable, and worry-free mobility ecosystem that supports complete trips for all and both personalized mobility and goods delivery (FHWA n.d.). DOT&PF supports this emerging technology and will continue to work with USDOT to help implement the future of mobility in Alaska. However, MOD is not a reasonable alternative to solve the identified Project needs.

Expanded Public Transit

DOT&PF considered whether expanded public transit into the Project area would be sufficient to address safety, mobility, and multimodal needs within the Project corridor. DOT&PF determined that it is not feasible to expand transit sufficiently to reduce traffic within the corridor to a level that would address safety, mobility, and mixed user needs. Seward Highway users have a diverse set of destinations and objectives, including traveling within and between the corridor to recreational sites, traveling through the corridor to points beyond, and simply enjoying the scenic nature of the drive. Undoubtedly, if an expanded bus service was offered, some users may switch modes. However, the safety issues of the existing highway would remain, which include tight curves, rockfall hazards, no opportunities to pass, limited ability for emergency vehicles to navigate road closures, a high density of direct highway access points,

and no connected multimodal pathway. Therefore, expanded transit is not a reasonable alternative for this Project.

Commuter Rail Service

Public and agency comments requested that DOT&PF consider whether implementing regular commuter rail service within the Project corridor would be a reasonable alternative for consideration in this Project. ARRC provides a regularly scheduled public transportation service that connects communities between Seward and Fairbanks, including a stop in Anchorage. This service varies highly between the summer peak season and winter. The nearest stop to the Project corridor is the Portage whistle stop. ARRC, which was a member of the SWG for this Project, stated that there is insufficient demand for regular commuter rail service within the Project corridor, but it would consider such service if conditions changed in the future. Commuter rail service is not a reasonable alternative because there would continue to be safety, mobility, and multimodal connection issues on the Seward Highway even if a portion of the highway traffic was shifted to rail, and there are no plans for ARRC or another entity to begin commuter rail service.

Proposed Action

Per the NEPA process and DOT&PF environmental procedures, the draft EA will present an analysis of the potential impacts of the Proposed Action on the human environment, compared to the No Action Alternative, and DOT&PF will accept public comments on the draft EA. The following section describes the Project's Proposed Action that will be included in the draft EA (HDR 2025).

Four-Lane Divided Highway

DOT&PF is proposing a four-lane divided highway; the NB and SB lanes would be divided using either a barrier or a median, and/or vertically throughout the Project corridor (see Figure 16). The four-lane divided concept is advantageous because traffic, including pass-through travelers and intra-Project area users, would be separated, thereby reducing conflicts (see Table 24). There would also be a reduced risk of head-on collisions caused by attempts to pass. If selected, a median would serve a dual purpose of offering an area to store snow in winter and an opportunity for errant drivers to recover control of their vehicles outside the travel lanes and possibly avoid a collision.

Figure 16 – Four-Lane Divided Highway

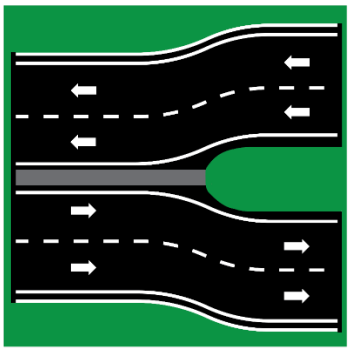


Table 24 – Four-Lane Design Details

Milepost	Description
Potter Marsh Area: Rabbit Creek to Potter Creek (MPs 118–115)	Along Potter Marsh, the Project generally follows the existing road alignment. To limit impacts on the high-value marsh habitat, constructed improvements would widen into the ACWR mudflats adjacent to Turnagain Arm. Over 2 miles of ARRC tracks would be reconstructed within this area. The new separated multi-use pathway would start at Rabbit Creek Road and run adjacent to the NB traffic lanes for much of this section. Potter Creek would be realigned to accommodate the highway and frontage road. The railroad track realignment south of Potter Creek is anticipated to use the existing railroad bridge, although new fish-passage culverts would be installed for the highway. The Potter Creek Trailhead parking, pavilion, and a segment of the Turnagain Arm Trail access would be reconstructed to allow space for the widened highway.
South of Potter Creek to McHugh Creek (MPs 115–111.5)	South of Potter Creek, approximately 1,300 feet of railroad would be realigned to accommodate the widened highway. The new highway would generally widen into the mountain side to avoid fill in Turnagain Arm. The SB lanes would remain on the existing highway corridor, and the proposed NB lanes between MPs 114.5 and 112 would be constructed at a higher elevation to take advantage of natural topography, reducing the height and volume of rock cuts. The NB lanes would be constructed to a height of approximately 100 feet above the SB lanes, with horizontal separation of approximately 200 feet between them. At these elevated sections, a guardrail would be constructed on the inside of the NB and SB lanes. The existing DOT&PF weigh station would be reconstructed at a location farther into the hillside at a location similar to that of the existing weigh station. From MPs 112.3 to 111.4, approximately 4,700 feet of ARRC embankment and track would be shifted into the water to provide adequate space for the widened roadway, which would widen into the mountain and water sides through this segment. A break in the divided highway would allow SB access into the McHugh Creek Day Use area.
South of McHugh Creek to Rainbow (MPs 111.5–108.75)	The Project would widen the highway into the mountain side, with rock cuts reaching 350 to 400 feet high. A break in the divided highway would allow access to Beluga Point from both travel directions. NB traffic turning left into the Beluga Point Scenic Overlook pullout would have a dedicated deceleration lane and left-turn pocket, and traffic turning left out of Beluga Point to head north on the highway would have a dedicated acceleration lane. An ADA-compliant, grade-separated, pedestrian crossing structure would be constructed across the ARRC tracks at the Beluga Point parking area to reduce trespassing on the tracks. The pathway would be located on the water side for this segment. Just south of the Beluga Point Scenic Overlook pullout, the highway and ARRC alignment would shift toward Turnagain Arm to flatten curves and minimize impacts on the Sunshine Ridge climbing area within CSP. The NB highway lanes between approximately MPs 111.5 and 110.5 would be elevated, with guardrails. South of Sunshine Ridge, the highway would widen into the mountain side from MP 109.8 to Rainbow Point (MP 108.8), with the NB lanes elevated to reduce cut volumes.
Rainbow to Windy Corner (MPs 108.75–105.5)	The tight curves surrounding Rainbow would be flattened to meet 55-mph design standards, shifting the highway alignment into the mountain side as it passes Rainbow Point and then shifting toward Turnagain Arm. A 1,500-foot section of ARRC tracks would be moved toward Turnagain Arm to allow the highway curves to be flattened. The existing small scenic pullout and parking area located at Rainbow Point would be retained,

Milepost	Description
	accessible to SB traffic only. Non-motorized access would be provided via the newly constructed multi-use path. Rainbow Trailhead parking would be expanded. The highway alignment would widen again into the mountain side between approximately MPs 108 and 107, with the NB lanes elevated higher than the SB lanes to reduce the cut volumes and minimize Turnagain Arm impacts. Overhead power lines would be relocated to accommodate the widened highway corridor between MPs 108 and 107. A 0.5-mile segment of the Turnagain Arm Trail would be rerouted farther up the hillside to provide room for the widened highway from approximately MPs 108 to 107.5. As the highway passes Windy Corner, curves would be flattened by shifting the highway and 5,700 feet (1.1 miles) of ARRC tracks toward Turnagain Arm. The Windy Corner scenic overlook would remain accessible to SB vehicles. A new trailhead and parking area would be constructed where the current highway embankment is at the Windy Trailhead. A highway undercrossing for pedestrians would connect the new trailhead to the multi-use pathway. A boat launch ramp would be constructed for emergency services to launch rescue boats into Turnagain Arm.
Falls Creek to Indian (MPs 105.5–102.5)	South of Windy Corner, the highway would shift to the mountain side to accommodate the widened highway. The NB lanes would be benched higher to reduce cut volumes. The highway pullouts that serve as the Falls Creek Trailhead and Indianhouse Peak Trailhead would be relocated farther up the hillside. As the highway approaches the community of Indian (MP 103), it would widen toward Turnagain Arm. Approximately 2.5 miles of ARRC alignment would need to be realigned, and a new ARRC bridge would be constructed over Indian Creek. A new two-way, two-lane frontage road would be constructed between the community of Indian and the highway, from approximately MPs 104 to 102.8. Parcels that currently have direct access onto the Seward Highway would access the frontage road and use the Boretide Road intersection to access the highway. The new multi-use pathway would cross under the highway at approximately MP 104.1 and run adjacent to the frontage road until crossing back toward Turnagain Arm under the highway bridges at Indian Creek (MP 103). The existing Indian Creek Scenic Overlook and Trailhead Parking and baseball/community park would be relocated to a location across the highway or adjacent to the current location. Parking for the recreational facilities would be constructed adjacent to the frontage road just north of Indian Creek. Two new highway bridges would be constructed over Indian Creek. The existing highway bridge would be repurposed for the new community frontage road and non-motorized pathway. The ARRC tracks between MPs 104.25 and 103 would be shifted toward Turnagain Arm. The ARRC tracks would keep the existing configuration, and a new ARRC bridge would be constructed over Indian Creek.
South of Indian to Bird (MPs 102.5–100)	The highway within this section would generally stay on the existing alignment with some widening. A new bridge would be constructed over Bird Creek for NB traffic. SB traffic would use the existing bridge. The fish-viewing platform currently located north of the existing bridge would be reconstructed upstream of the new NB bridge. The pedestrian pathway would be reconstructed along the NB bridge, and the existing multi-use pathway would continue to be located on the SB bridge. The Bird Creek access parking area adjacent to the highway at MP 101.25 would be rebuilt farther from the highway near the current Bird Creek Overflow Camping/Parking area.

Milepost	Description
	The highway would widen toward the campground within the existing highway ROW, and a new frontage road would be constructed within the community of Bird.
South of Bird to End of the Project (MPs 100–98.5)	This section of the Seward Highway would remain within the existing DOT&PF ROW. Impacts would be minimized by dividing the highway using a barrier between the NB and SB travel lanes. Pullouts within this section would be closed. Short segments of the existing Indian to Girdwood Bike Path would be rebuilt at MPs 99.2 and 99.4. All improvements would match the existing highway at MP 98.9.

Crash Data and Safety

A traffic and safety analysis for this Project was conducted that calculated the potential reduction in crashes in three typical cross sections, as delineated in Table 25.

Table 25 – Traffic and Safety Analysis Results

Type of Collision Reduction	Three-Lane	Three-Lane Divided	Four-Lane Divided
Reduction in total crashes	36%	39%	68%*
Reduction in fatality and injury (FI) crashes	37%	42%	68%*
Reduction in cross-median and head-on collisions	N	Y**	Y**

*This large reduction can be attributed to a combination of factors: removing platoons of vehicles waiting for passing opportunities; better balancing the different needs of both slower local-access traffic (including sightseeing) and through traffic; and providing enhanced visibility and better sightlines, which makes for a safer driving experience, especially in winter conditions.

**Head-on collisions represent a substantial portion of FI crashes, making the division of NB and SB lanes with a median a critical safety improvement. Median separation not only reduces the risk of head-on collisions but also enhances roadway safety by providing recovery zones for errant vehicles and other operational benefits. Therefore, DOT&PF concluded that a division of the highway travel lanes was necessary to improve highway safety and reduce head-on collisions within the Project corridor. All undivided concepts are considered not reasonable and removed from further analysis.

Based on the results of the crash analysis, DOT&PF determined that both three-lane highway design concepts do not sufficiently reduce crash rates and severity compared to the four-lane divided highway concept (see Table 26). The three-lane concepts would not adequately address the Project need for improving safety and are not reasonable.

Table 26 – Safety Assessment Matrix

Factor	No Action	Three-Lane	Three-Lane Divided	Four-Lane Divided
Fatal/Significant Injury Crashes	N/A	Better	Better	Best
Total Crash Frequency	N/A	Better	Better	Best
Safe System for Motorists	N/A	Better	Better	Better
Safe System for Vulnerable Roadway Users	N/A	Good	Good	Good
Reduced Head-on Collision Risk	N/A	Good	Better	Best

Notes: N/A = not applicable; a concept that improves upon the existing or No Action condition by up to 33 percent is rated as Good, up to 66 percent as Better, and above 66 percent as Best.

Highway Capacity

DOT&PF analyzed the difference in highway capacity and LOS between a three-lane divided highway concept and a four-lane divided highway concept (see Table 27). The Seward Highway is recommended to provide LOS B, based on the American Association of Highway and Transportation Officials' (AASHTO's) Green Book (AASHTO 2018). Based on DOT&PF's analysis, the three-lane divided highway concept performed at LOS D and E, which is lower than the recommended LOS B. The four-lane divided highway concept performed at LOS A and B, exceeding the recommended LOS B. See Appendix B - Highway Configuration Development and Selection Memorandum. Based on its analysis, DOT&PF does not consider the three-lane divided highway concept to produce an acceptable LOS; therefore, it does not address this Project need and is not a reasonable alternative.

Table 27 – 2052 (Design Year) LOS Concept Comparison

MP Range	Segment	No Action LOS		Three-Lane LOS		Three-Lane with Median LOS		Four-Lane Divided LOS	
		NB	SB	NB	SB	NB	SB	NB	SB
98.7–103.1	1	E	E	E	E	E	D	A	B
103.1–103.8	2	E	E	E	E	E	D	A	B
103.8–108.4	3	E	E	D	E	D	E	A	B
108.4–115.4	4	E	E	D	E	D	E	A	B
115.4–117.6	5	E	E	E	D	E	E	B	B

Reliability

The Seward Highway is the only roadway connection to Girdwood, Whittier, and the entirety of the Kenai Peninsula. To maintain reliability, the Seward Highway must remain open. DOT&PF reviewed existing four-lane divided sections of the Glenn Highway (north of Eagle River) to determine the ability to keep the highway open during crashes and other types of events when compared to a three-lane concept. If a crash or event were to occur in a segment with only a single lane of traffic, the highway would need to be closed in that direction. The review of the four-lane divided portions of Glenn Highway between January 2019 and December 2024 showed that, while both NB lanes were closed on two occasions and both SB lanes were closed on one occasion due to vehicle collisions, no vehicle collisions resulted in a full highway closure in both directions. Based on this review, the three-lane concept does not provide a substantial increase in reliability, does not address this Project need, and is not a reasonable alternative.

Balancing Roadway Users

As a National Forest Scenic Byway and Alaska Scenic Byway, the Seward Highway often attracts tourists who may drive slower to enjoy the scenery in addition to the regular through-traffic between Anchorage and Seward. Based on DOT&PF's analysis, the three-lane configuration results in bottlenecks and delays for through-traffic, especially during peak tourist seasons. The HCM (Chapter 15: A Guide for Multimodal Mobility Analysis; TRB 2022) describes how some highways serve as scenic and recreational areas, and how passing delays distract from the scenic enjoyment of trips and should be minimized wherever possible. Therefore, DOT&PF considers the three-lane concept inadequate for balancing the needs of

different users of the Seward Highway within the Project area. The three-lane concept does not address this Project need and is not a reasonable alternative.

Cost Estimate

The Project is anticipated to cost approximately $1.5 billion in 2024 dollars. The Project is proposed to be constructed in sections, with multiple phases and stages that would be identified in future STIP and TIP documents. A workshop held early in the Project identified potential sections based on opportunities to achieve cut and fill balance and BOP and end of Project (EOP) locations that were conducive to reconnecting with existing infrastructure, to rock removal, and to ARRC facility relocation. Two funding scenarios have been evaluated, one with an annual budget of $65 to $75 million and another with an annual budget of $150 million.

The first funding scenario (Figure 17), with an annual budget of $65 to $75 million, would require approximately 24 construction stages, an estimated construction duration of 24–25 years, and completion projected in 2050.

Figure 17 – Budget Table for 25-Year Construction

	Section A 118 -115	Section B 115 - 111.5	Section C 111.5-108.75	Section D 108.75 - 105.5	Section E 105.5 - 102.5	Section F 102.5 - 100	Section G 100 - 98.5
Phase 2	$ 3,509,150	$ 18,342,450	$ 14,151,950	$ 9,734,000	$ 7,976,750	$ 2,186,300	$ 848,750
Phase 3	$ 1,684,392	$ 8,804,376	$ 6,792,936	$ 4,672,320	$ 3,828,840	$ 1,049,424	$ 407,400
Phase 4	$ 84,414,262	$ 440,880,986	$ 340,198,646	$ 233,987,520	$ 191,769,990	$ 52,589,564	$ 20,430,150
Phase 7	$ 3,342,196	$ 4,402,188	$ 3,396,468	$ 2,336,160	$ 1,914,420	$ 524,712	$ 203,700
Estimate (2024)	**$ 92,950,000**	**$ 472,430,000**	**$ 364,540,000**	**$ 250,730,000**	**$ 205,490,000**	**$ 56,350,000**	**$ 21,890,000**
Funding Start	Jan-52	Sep-40	Sep-29	Sep-25	Sep-37	Sep-35	Sep-35
Funding End	Sep-50	Dec-48	Dec-36	Dec-30	Dec-41	Dec-37	Dec-37
Design Start	2046	2039	2028	2024	2036	2034	2034
Construction Start	May-48	May-41	May-30	May-26	May-38	May-36	May-36
Construction End	Oct-50	Oct-48	Oct-36	Oct-30	Oct-41	Oct-37	Oct-38

The second funding scenario (Figure 18), with an annual budget of $150 million, would require approximately 12 construction stages, an estimated construction duration of 10–12 years, and completion projected in 2036.

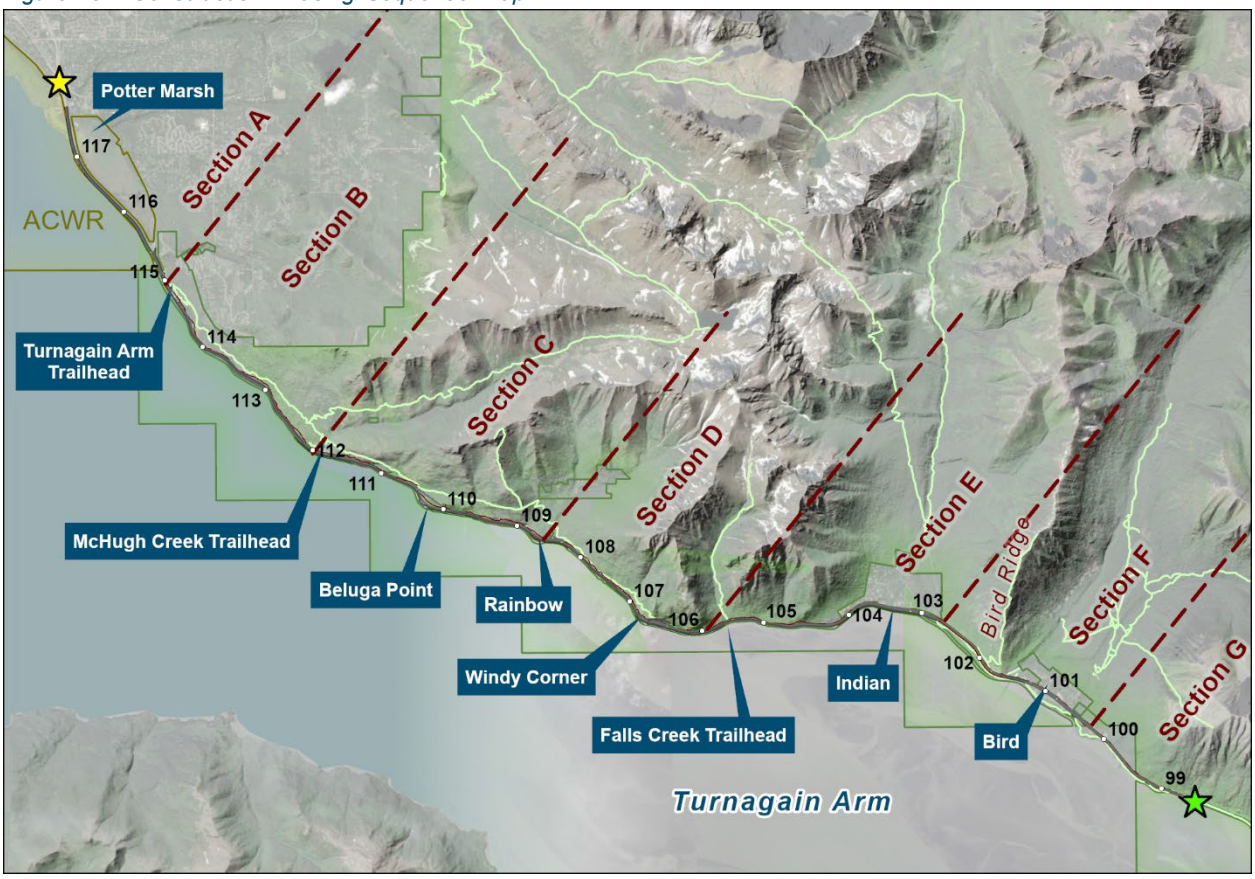
Figure 18 – Budget Table for 12-Year Construction

	Section A 118 -115	Section B 115 - 111.5	Section C 111.5 - 108.75	Section D 108.75 - 105.5	Section E 105.5 - 102.5	Section F 102.5 - 100	Section G 100 - 98.5
Phase 2	$ 3,509,150	$ 18,342,450	$ 14,151,950	$ 9,734,000	$ 7,976,750	$ 2,186,300	$ 848,750
Phase 3	$ 1,684,392	$ 8,804,376	$ 6,792,936	$ 4,672,320	$ 3,828,840	$ 1,049,424	$ 407,400
Phase 4	$ 84,414,262	$ 440,880,986	$ 340,198,646	$ 233,987,520	$ 191,769,990	$ 52,589,564	$ 20,430,150
Phase 7	$ 3,342,196	$ 4,402,188	$ 3,396,468	$ 2,336,160	$ 1,914,420	$ 524,712	$ 203,700
Estimate (2024)	**$ 92,950,000**	**$ 472,430,000**	**$ 364,540,000**	**$ 250,730,000**	**$ 205,490,000**	**$ 56,350,000**	**$ 21,890,000**
Funding Start	Sep-32		Sep-25		Sep-30	Sep-30	
Funding End	Dec-36		Dec-30		Dec-32	Dec-31	
Design Start	2031		2024		2029	2029	
Construction Start	May-33		May-26		May-31	May-31	
Construction End	Oct-36		Oct-30		Oct-32	Oct-31	

In both scenarios, Phase 2 includes all preconstruction activities including environmental processes for the Project, PI, utility relocation agreements, and design. Phase 3 includes ROW activities. Phase 4 includes construction, and Phase 7 includes construction-associated utility relocations.

Figure 19 depicts the proposed construction phases and sequencing.

Figure 19 – Construction Phasing Sequence Map



- **Section A:** Potter Marsh (MP 118) to MP 115. This section is located within the AMATS boundary. To limit impacts to the estuary east of the road, all improvements will be constructed to the west and will require relocation of approximately 3 miles of ARRC facilities.
- **Section B:** Potter to McHugh Creek (MP 115–111.5). A portion of this section falls within the AMATS Boundary (MP 115–113). The weigh station in Section B must be reconstructed. A section of the railroad, under 1 mile, will need to be relocated due to widening towards Turnagain Arm that is needed to avoid impacts to the McHugh Creek recreation area. Large rock cuts of over 100 feet are expected, which will require engineered rock catchment and slope stabilization. This segment proposes to utilize an existing rock bench to vertically separate approximately 1.5 miles of roadway to reduce cuts and visual impacts.
- **Section C**: McHugh Creek to Rainbow (MP 111.5–108.75). There is a high-use rock-climbing location south of Beluga Point that the Project team has committed to preserving. Avoiding impacts to McHugh Creek and preserving this rock-climbing area required road widening to the Turnagain Arm, which results in approximately 1.5 miles of relocated railroad facilities. This section includes one of the more frequently visited recreation sites, Beluga Point. This location has significant amounts of railroad trespass, and providing a vertically separated pedestrian

crossing is highly desired by ARRC. A single access should be provided to Beluga Point with turning/acceleration/deceleration lanes to improve safety. Parking should be expanded to reduce the number of vehicles parking on the shoulder.

- **Section D:** Rainbow to Windy Corner (MP 108.75–105.5). Vertical separations, retaining walls, and other measures are proposed to reduce the height of rock cuts and visual impacts. The area of Rainbow has a small residential component and a trailhead with access to the Turnagain Arm Trail. There are two small parking areas: one residential and one recreational. Consolidated access is recommended with expanded parking. Windy Corner has significant parking, rest stop facilities, and water access in the already progressed design. Approximately 1 mile of railroad will need to be relocated due to curve flattening at Rainbow and the Windy Corner recreational improvements.
- **Section E:** Windy Corner to Indian (MP 105.5–102.5). This section includes residential, recreational, and commercial properties. A frontage road in Indian is recommended to consolidate access and improve safety. The ball field and approximately 1.5 miles of railroad will need to be relocated due to widening towards Turnagain Arm to avoid impacting residential areas. Access to the residential area from Indian Valley Road is at a skew to the highway, which creates sight distance challenges and has a high-density crash cluster, further supporting consolidated access on the frontage road.
- **Section F:** Indian to Bird Creek (MP 102.5–100). This section has residential, commercial, and recreational facilities paralleling the highway. Recreational facilities include a large parking area to provide access to a highly visited fishing location as well as camping, trail access, bike and pedestrian pathways, and scenic opportunities. A frontage road in Bird is recommended to consolidate access and improve safety. This section will require construction of a new bridge over Bird Creek.
- **Section G:** Bird Creek to EOP (MP 100–98.5). Vertical separation is used to reduce/eliminate large sliver cuts and blasting impacts to Turnagain Arm. This section uses barrier median to separate NB and SB lanes and to avoid large fill slopes. The Project will connect to the existing, undivided four-lane roadway.

All sections include a separated pathway that will be ADA-compliant and provide connectivity to the existing Indian to Girdwood Bike Path at the south Project terminus and the trail at the Old Seward Highway and DeArmond Road interchange at the north Project terminus.

Maintenance Considerations

Design would incorporate adequate room for snow-clearing activities. This includes sufficient shoulders and ditch depths to hold a reasonable amount of snow. Bridges would be designed to promote snow removal such that there would not be lasting snow storage on the structure.

The Seward Highway would remain as a Priority Level 1 route. In Bird, Indian, and the south end of Potter Marsh, the new access roads would be Priority Level 4 up to the extent of DOT&PF ROW. Road and access facilities outside DOT&PF ROW would be Priority Level 5 facilities unless otherwise negotiated after Project completion.

Railroad relocations will be completed to provide sufficient room for concurrent ARRC operations and DOT&PF road facility maintenance.

Memoranda of agreement designating maintenance responsibilities for facilities adjacent to the corridor would be prepared as necessary. Where the proposed DOT&PF ROW overlaps with ARRC ROW, DOT&PF would continue to maintain its own facilities (DOT&PF et al. 2001).

Response to Comments on the Concept Report

To date, no comments have been received on the previously submitted Concept Report for the Project.

Preliminary Project Plans

Please reference Appendix A for the Proposed Action Mapbook.

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Appendix A – Proposed Action Mapbook

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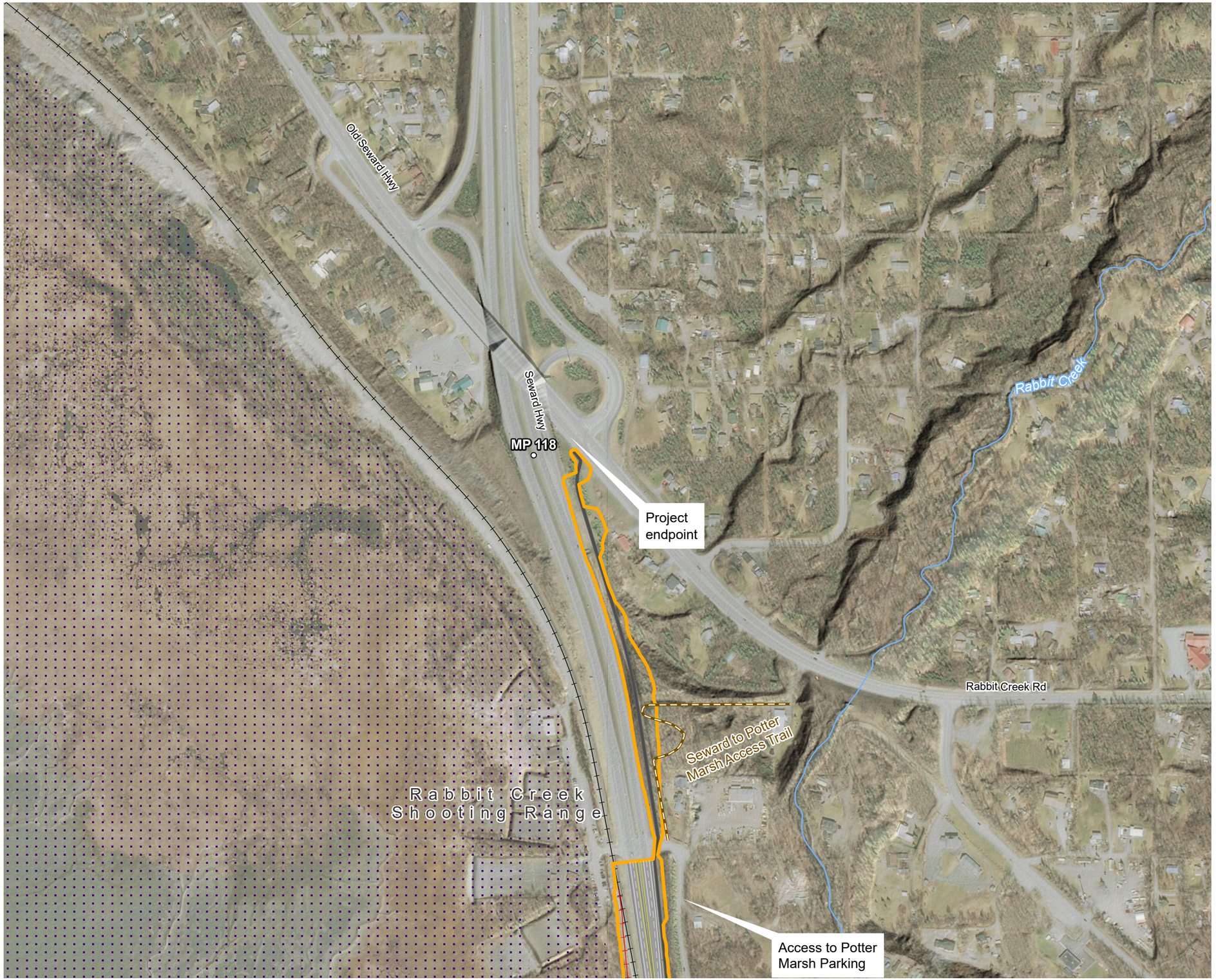

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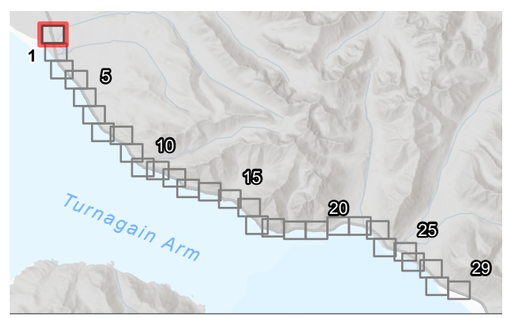

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Rabbit Creek Shooting Range

Seward to Potter Marsh Access Trail

Access to Potter Marsh Parking

Old Seward Hwy

MP 117.5

Rabbit Creek

Potter Marsh Parking

Little Rabbit Creek

Potter Marsh Boardwalk

Culvert replacement of Rabbit Creek

Seward Hwy

Potter Marsh

MP 117

Turnagain Arm

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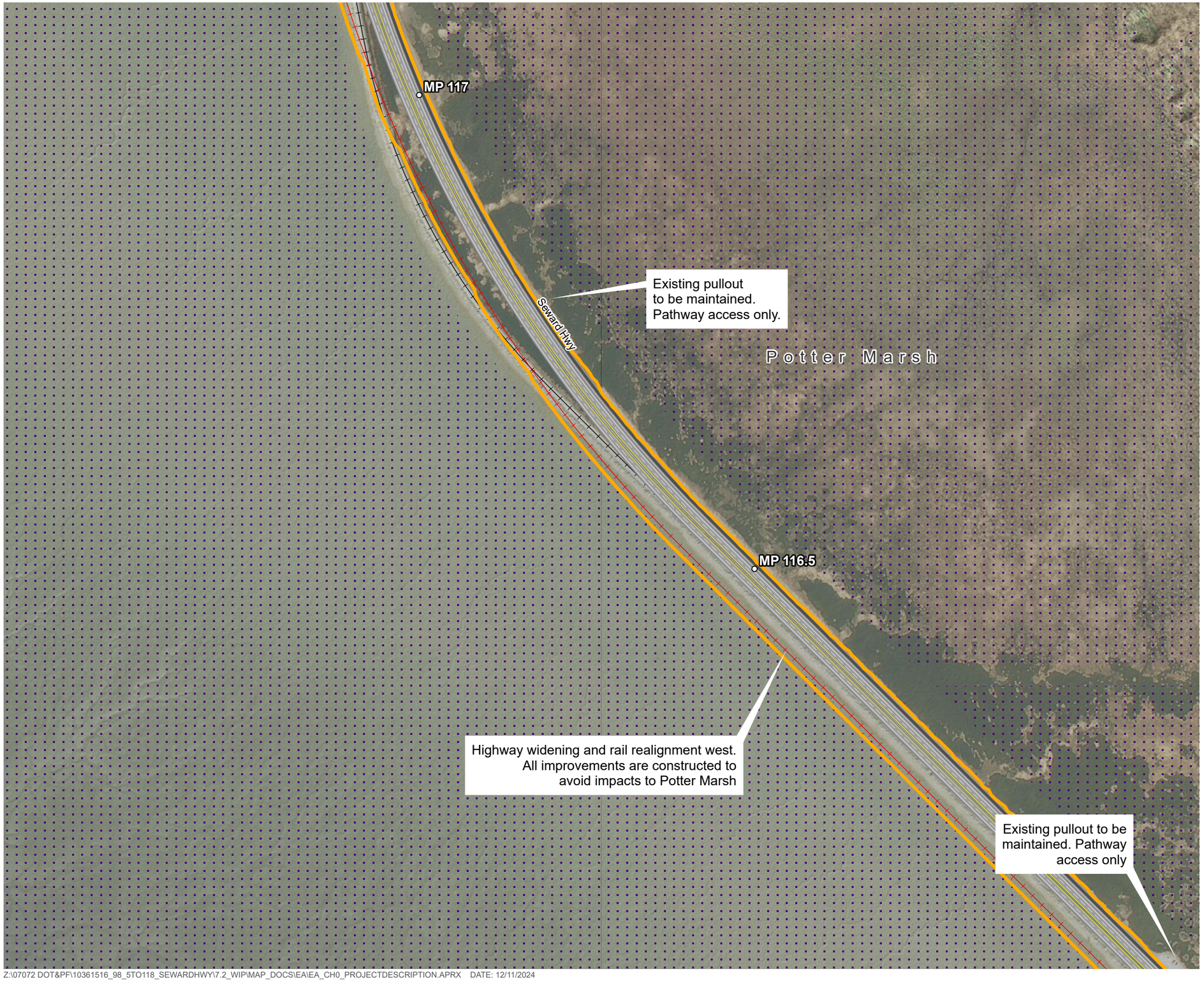

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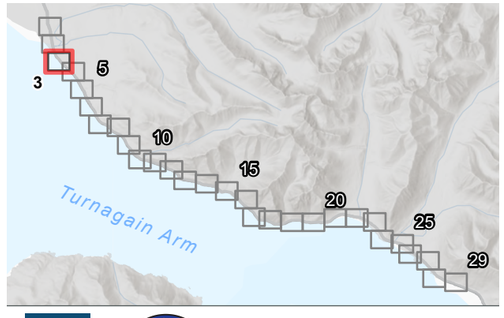

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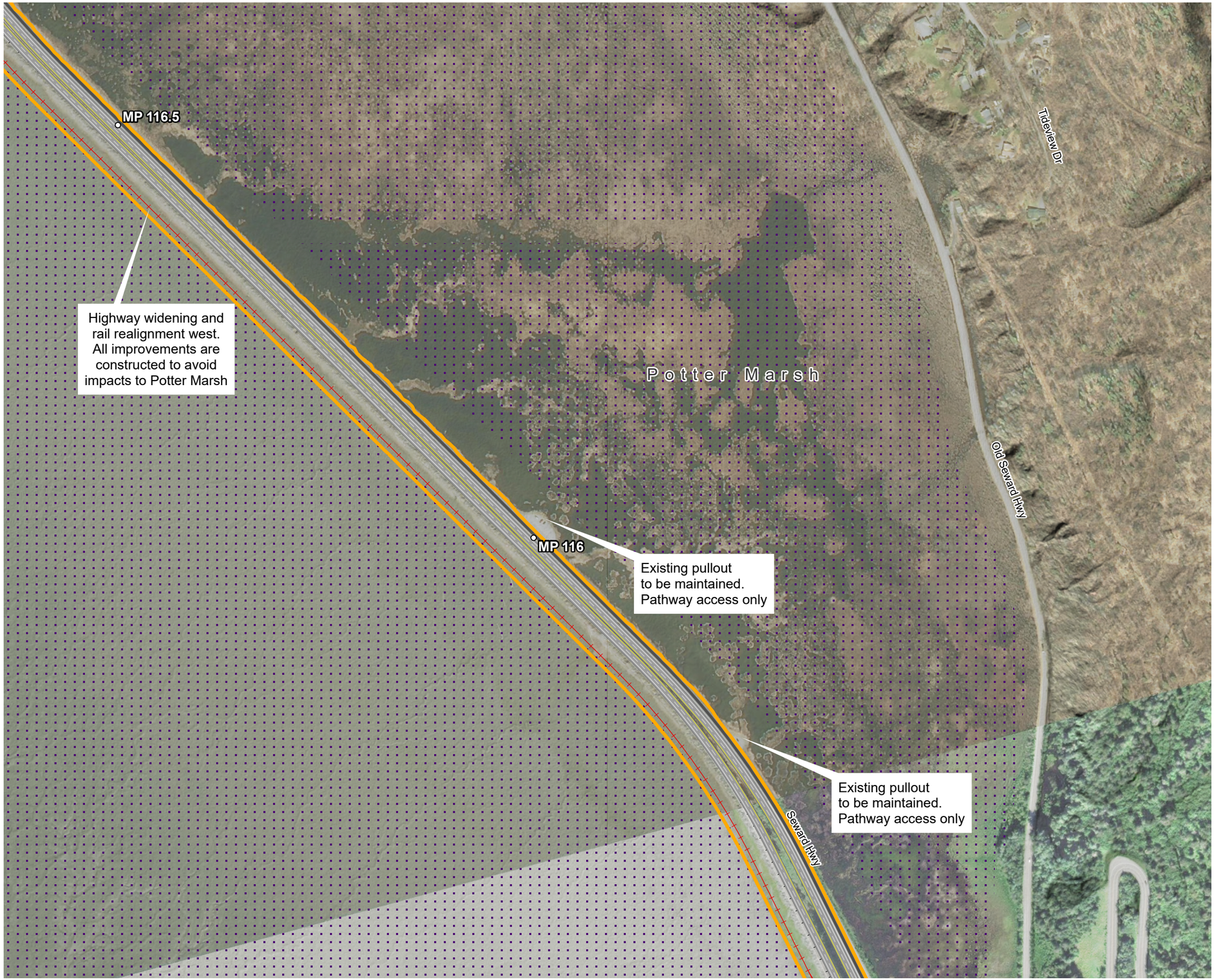

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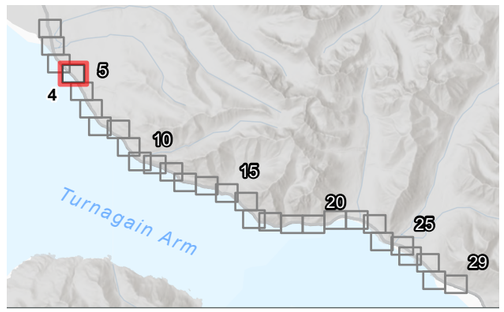

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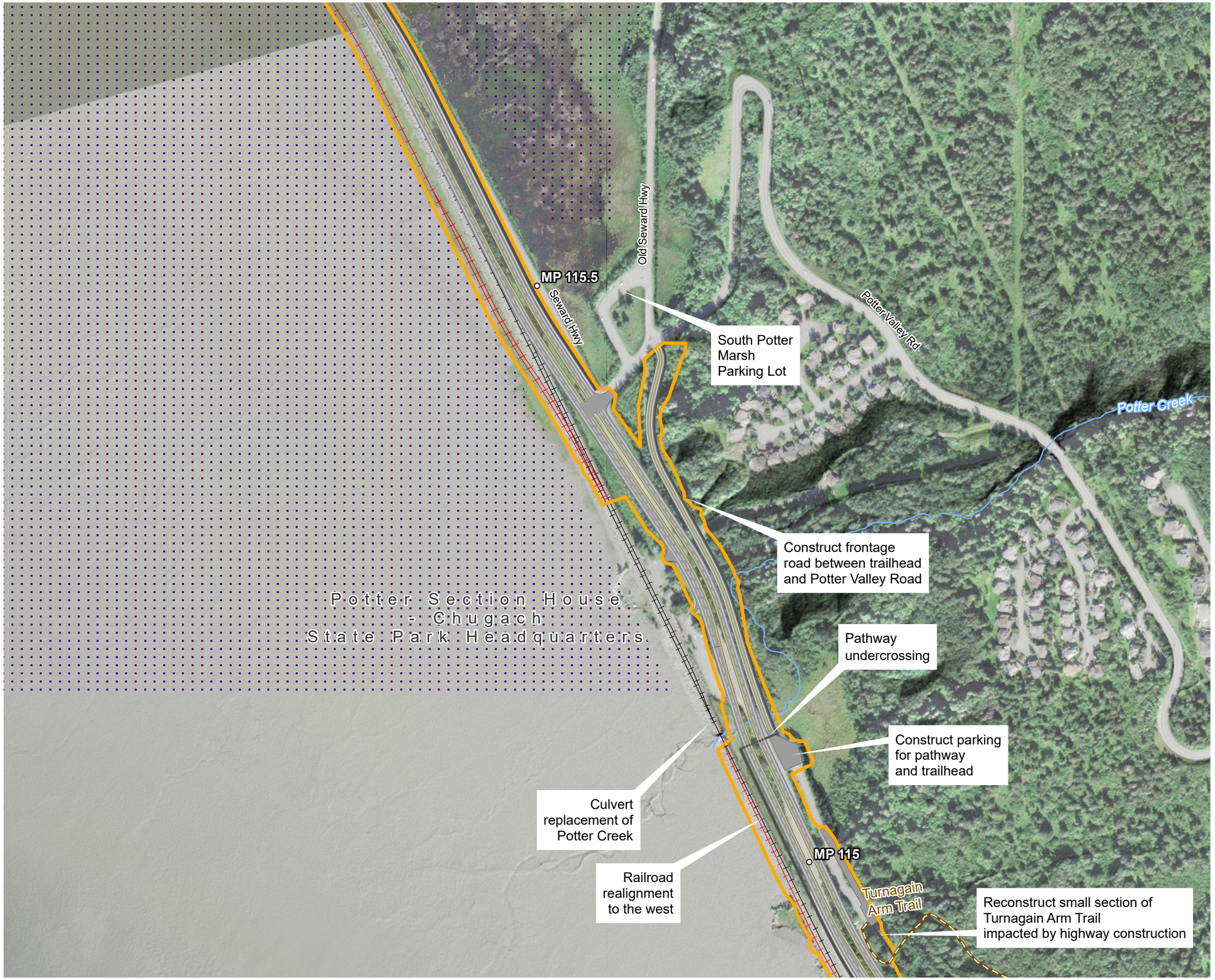

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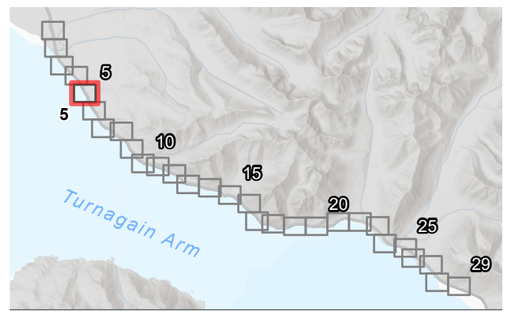

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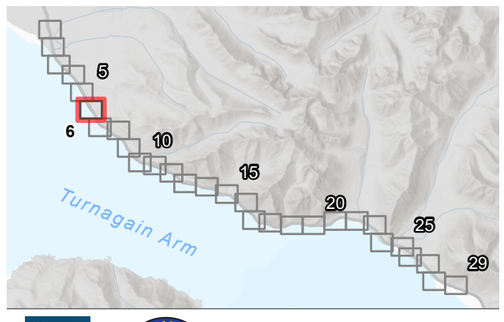

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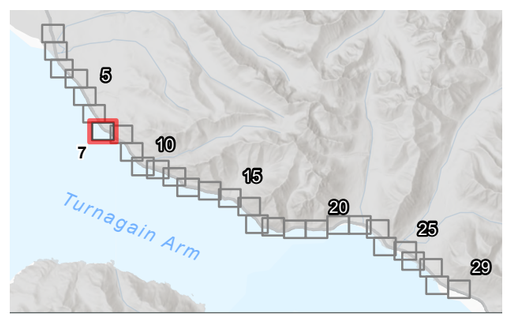

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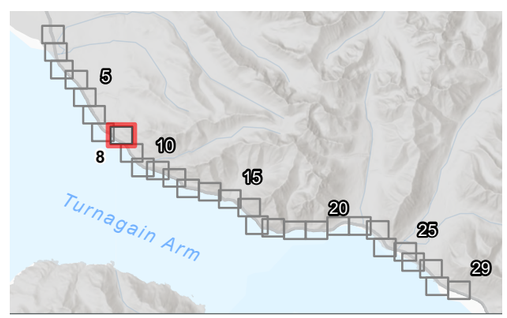

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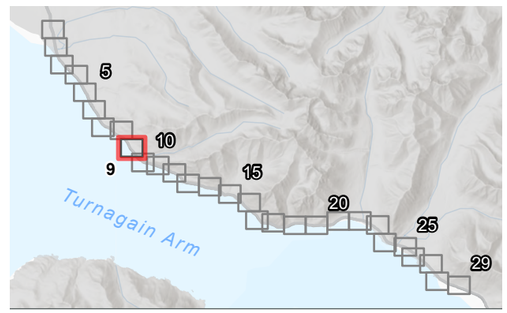

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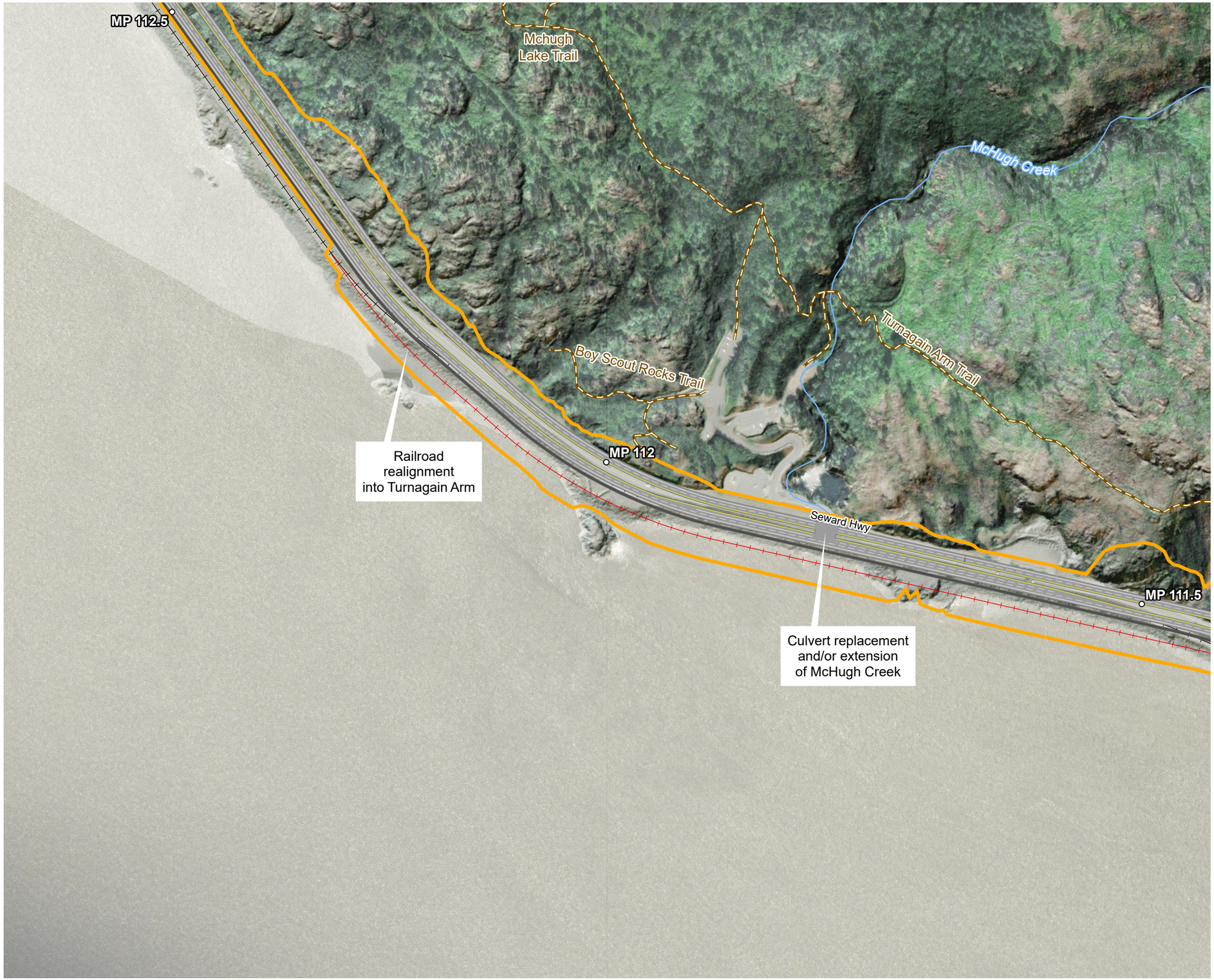

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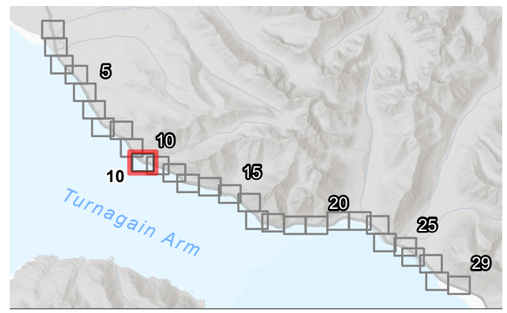

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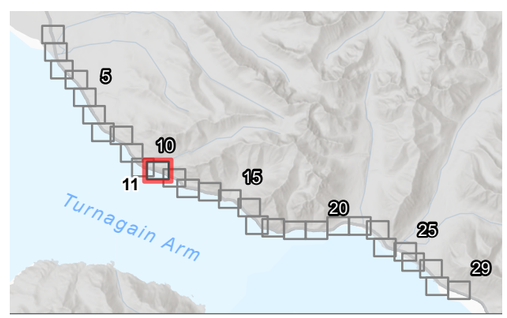
- Road Pavement
- Path
- Trail or Pathway
- Stream



SAFER Seward Highway

0 250 Feet

Seward Highway
Proposed Action

- Mileposts
- Project Footprint
- New Railroad
- Existing Railroad
- Road Pavement
- Path
- Trail or Pathway

MP 111

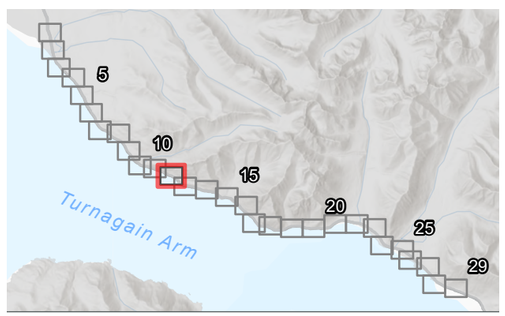
MP 110.5

Turnagain Arm Trail

Parking area to be removed after highway construction

Construct parking area at Beluga Point

Construct pedestrian overpass of railroad tracks



SAFER Seward Highway

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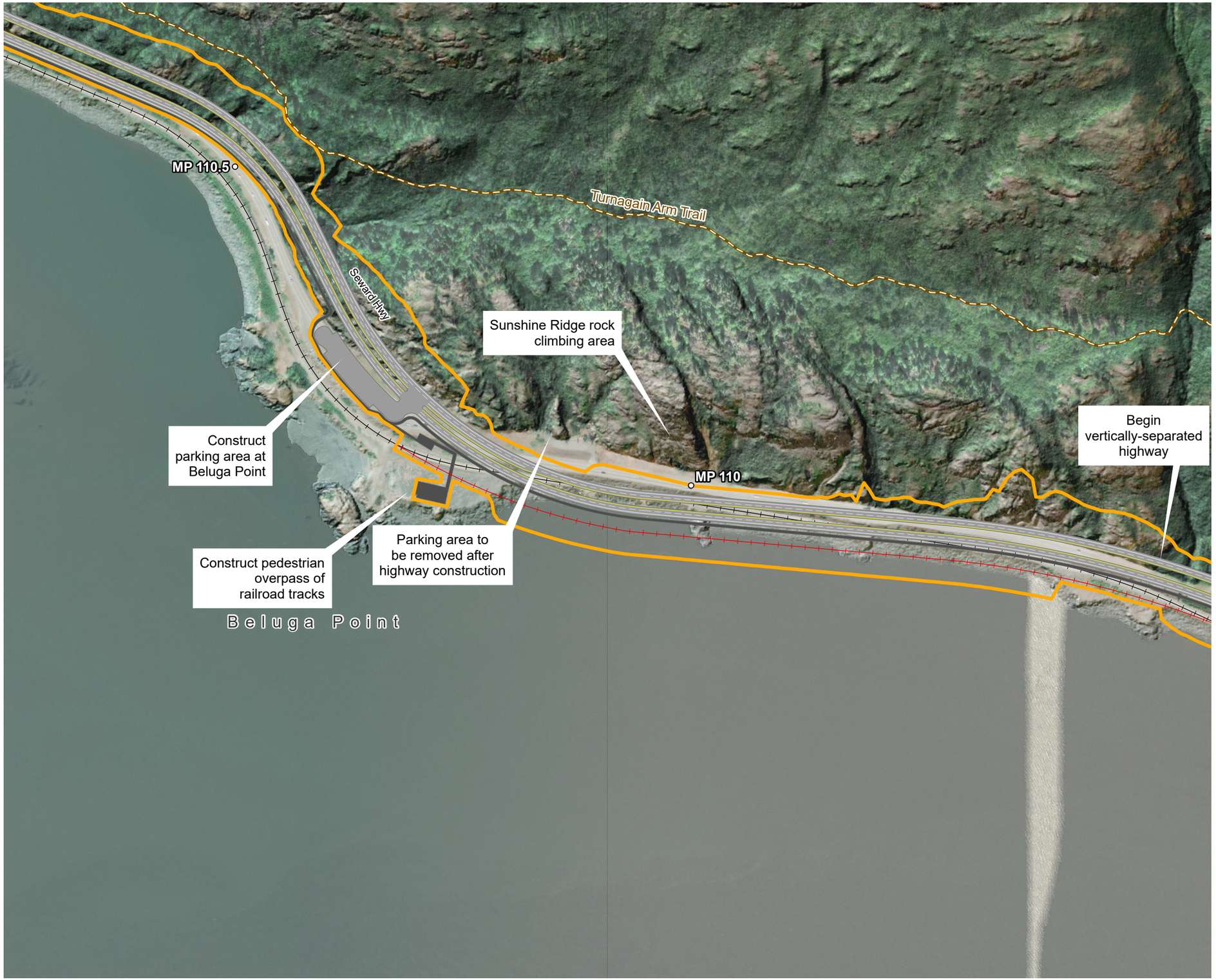
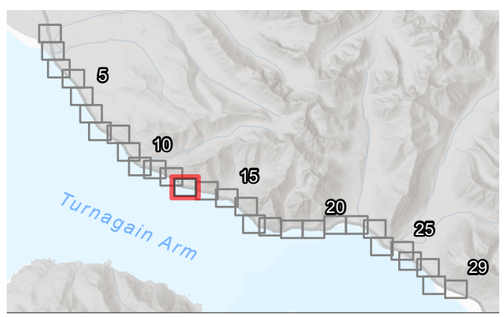
Seward Highway
Proposed Action



- Mileposts
- Project Footprint
- New Railroad
- Existing Railroad
- Road Pavement
- Path
- Trail or Pathway



SAFER Seward Highway

0 250 Feet

Rainbow Peak Trail

Turnagain Arm Trail

Begin vertically-separated highway

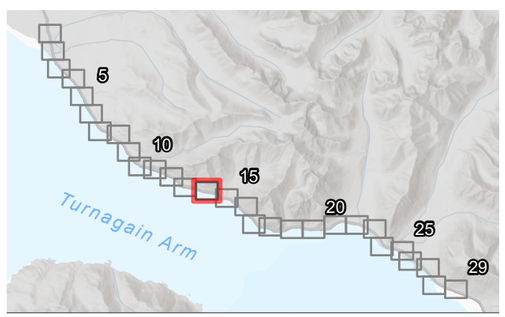
MP 109.5

Seward Hwy

MP 109

End vertically-separated highway

- Mileposts
- Project Footprint
- New Railroad
- Existing Railroad
- Road Pavement
- Path
- Trail or Pathway



SAFER Seward Highway

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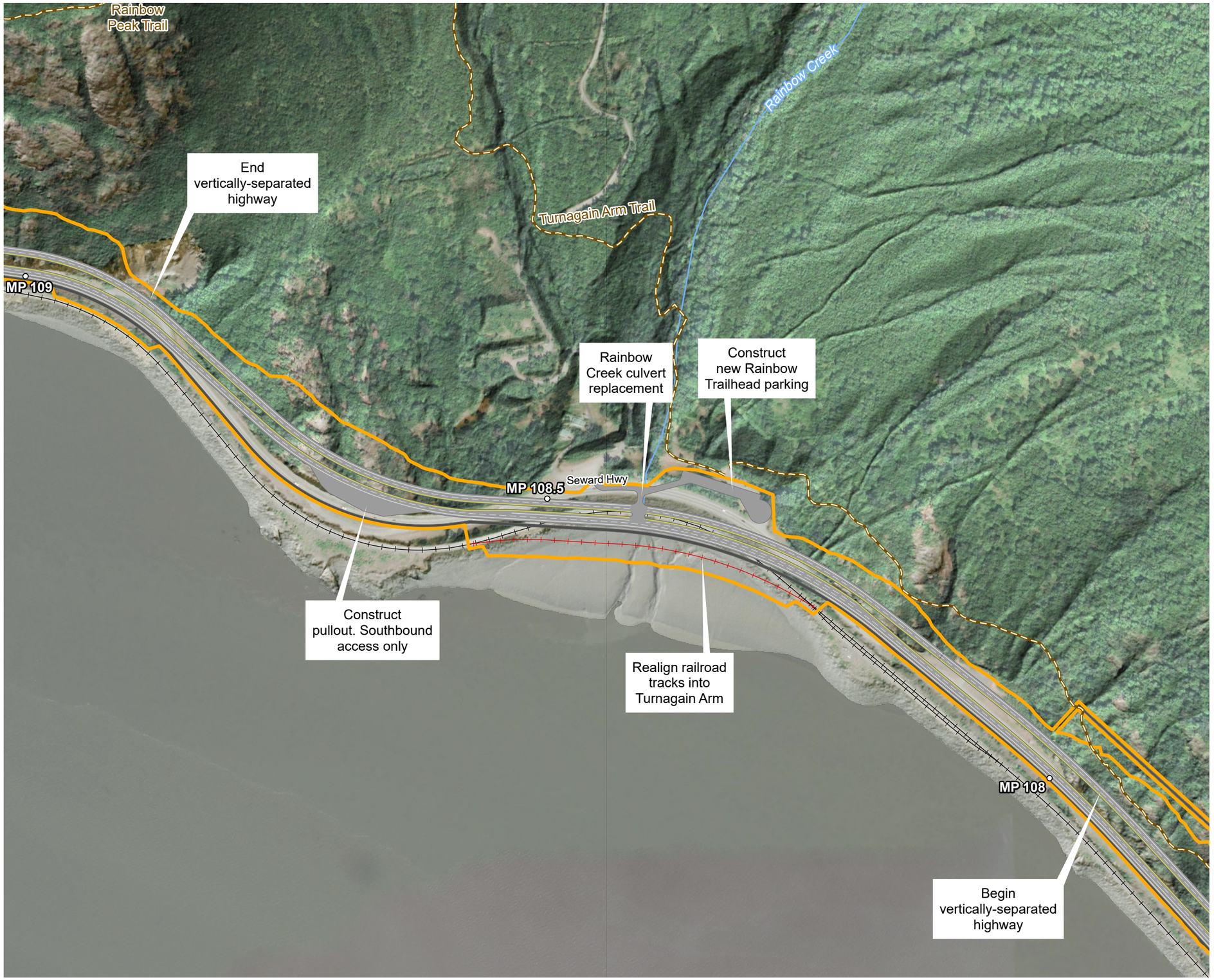
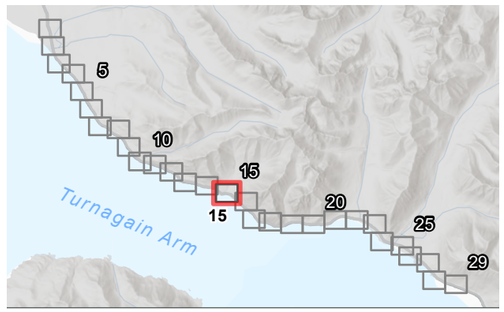
Seward Highway
Proposed Action



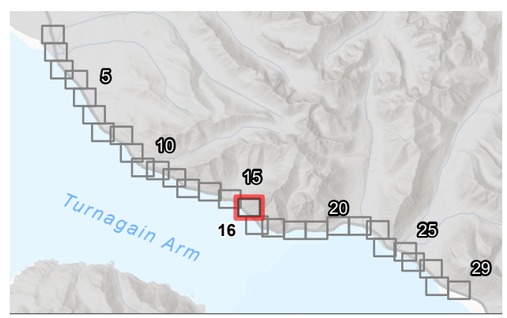
- Mileposts
- Project Footprint
- New Railroad
- Existing Railroad
- Road Pavement
- Path
- Trail or Pathway
- Stream



SAFER Seward Highway

0 250 Feet

- Mileposts
- Project Footprint
- Existing Railroad
- Road Pavement
- Path
- Trail or Pathway



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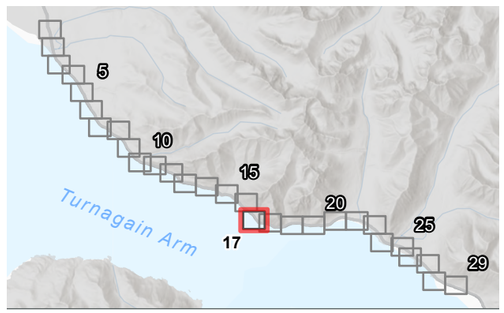
Seward Highway
Proposed Action

- Mileposts
- Project Footprint
- New Railroad
- Existing Railroad
- Road Pavement
- Path
- Trail or Pathway



SAFER Seward Highway

0 250 Feet

Seward Highway
Proposed Action

Turnagain Arm Trail

Construct Windy Corner parking. Southbound access only

Windy Corner culvert replacement

Construct Windy Corner parking. North and southbound access.

MP 106.5

Seward Hwy

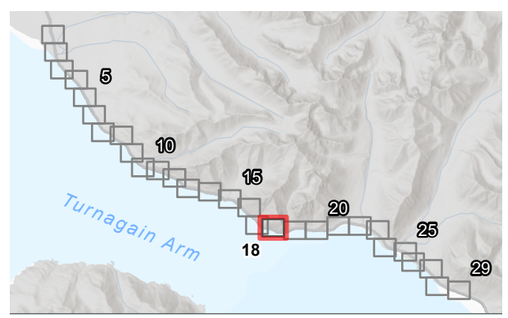
Existing highway and railroad embankment to be reclaimed after construction

Construct pathway undercrossing from parking area to pathway

Construct emergency vehicle only water access

MP 106

- Mileposts
- Project Footprint
- New Railroad
- Existing Railroad
- Road Pavement
- Path
- Trail or Pathway



SAFER Seward Highway

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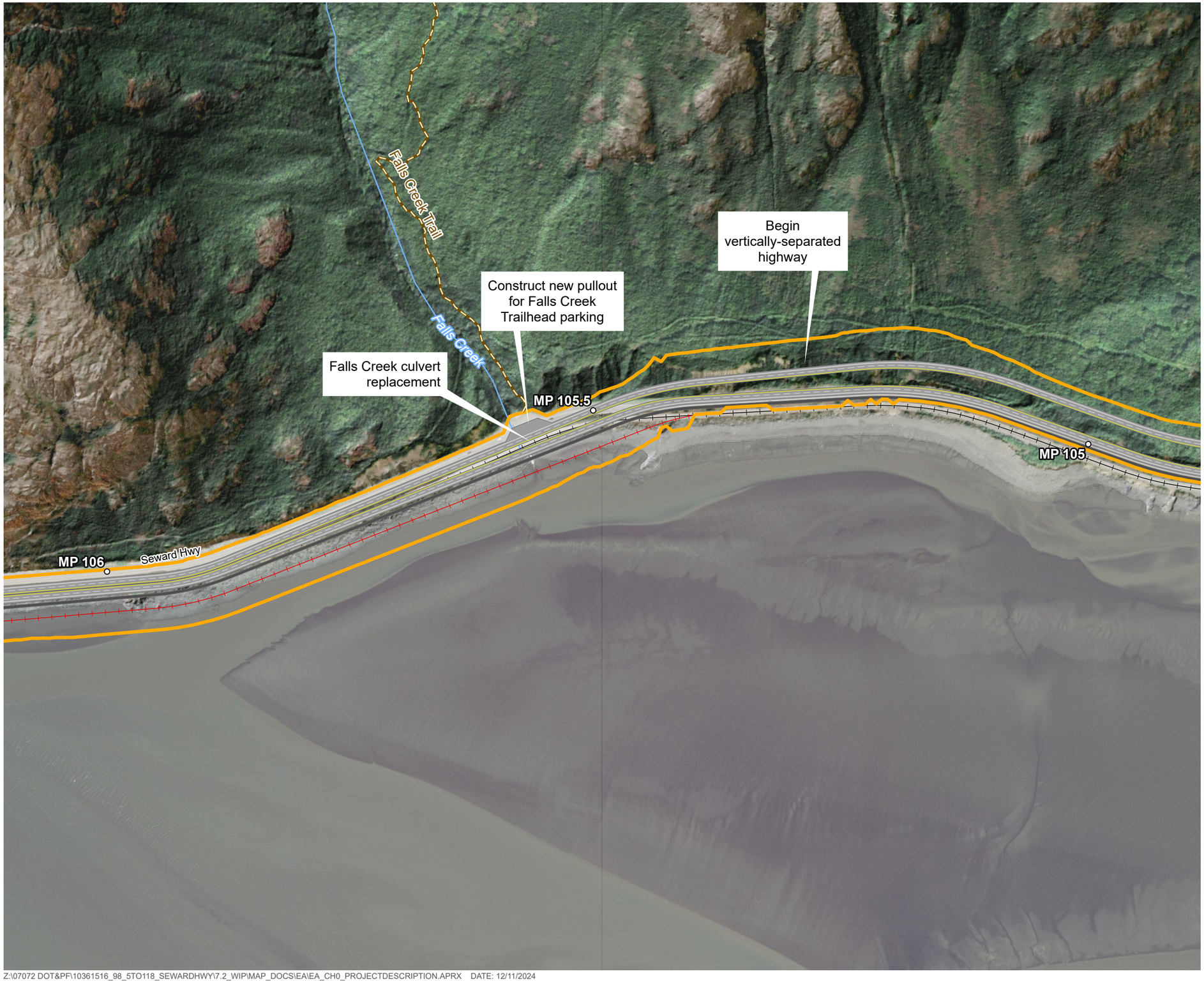
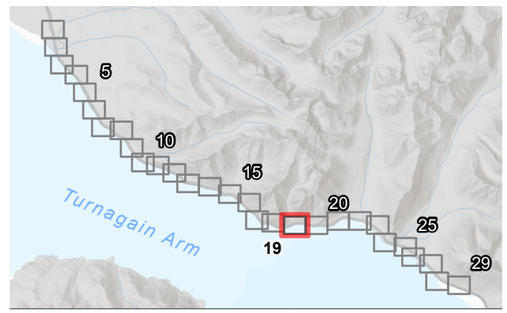
Seward Highway
Proposed Action



- Mileposts
- Project Footprint
- New Railroad
- Existing Railroad
- Road Pavement
- Path
- Trail or Pathway
- Stream



SAFER Seward Highway

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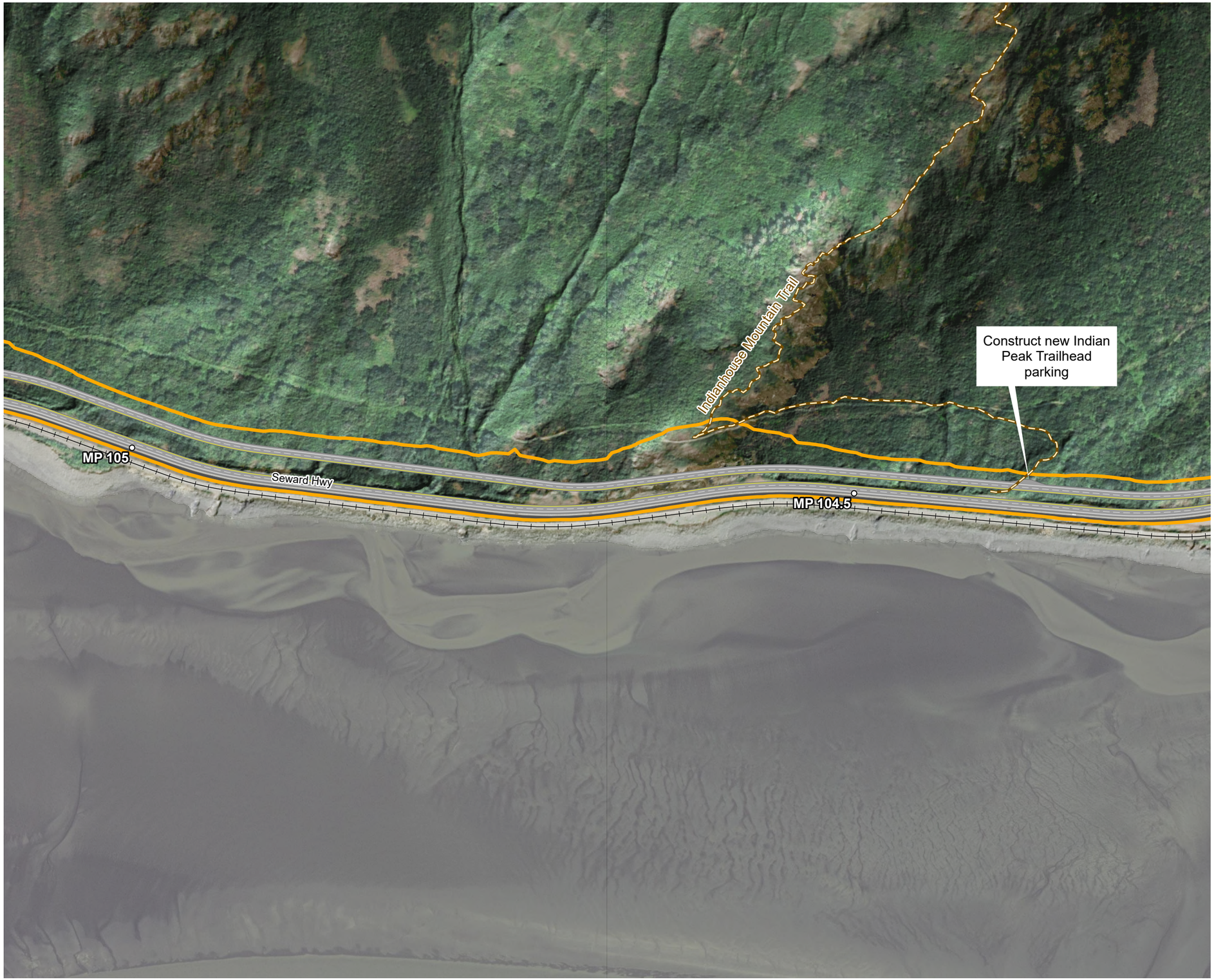
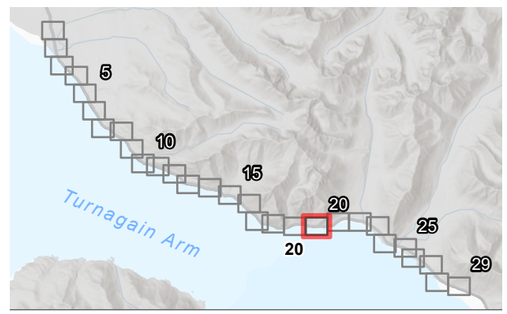


Seward Highway
Proposed Action

- Mileposts
- Project Footprint
- Existing Railroad
- Road Pavement
- Path
- Trail or Pathway



SAFER Seward Highway

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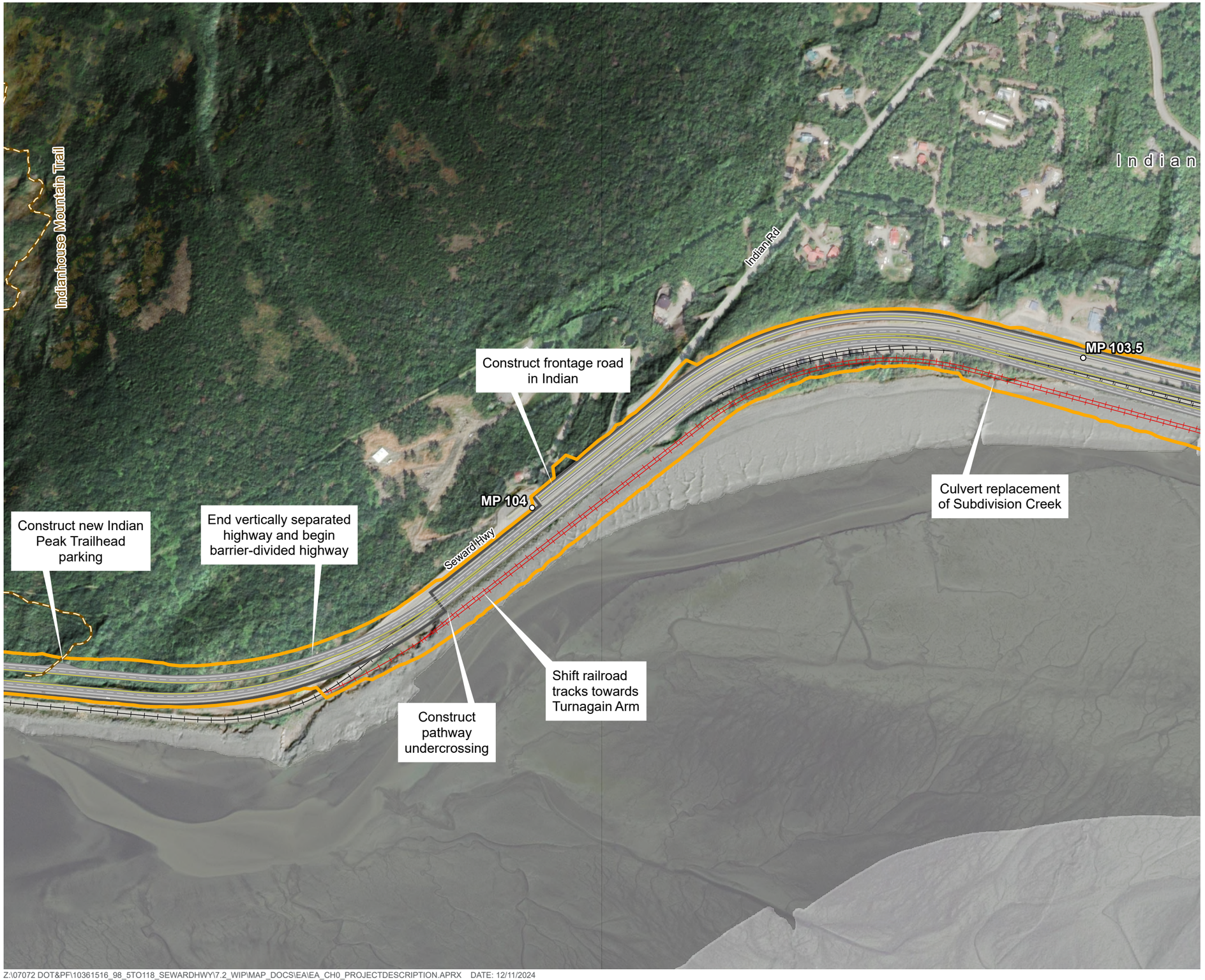
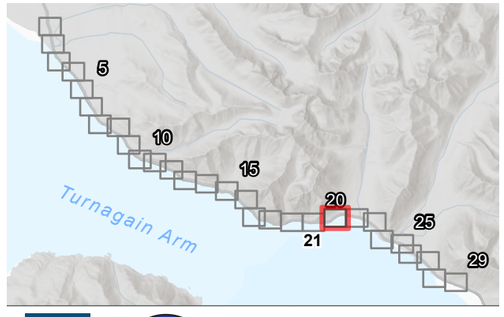
Seward Highway
Proposed Action



- Mileposts
- Project Footprint
- New Railroad
- Existing Railroad
- Road Pavement
- Path
- Trail or Pathway



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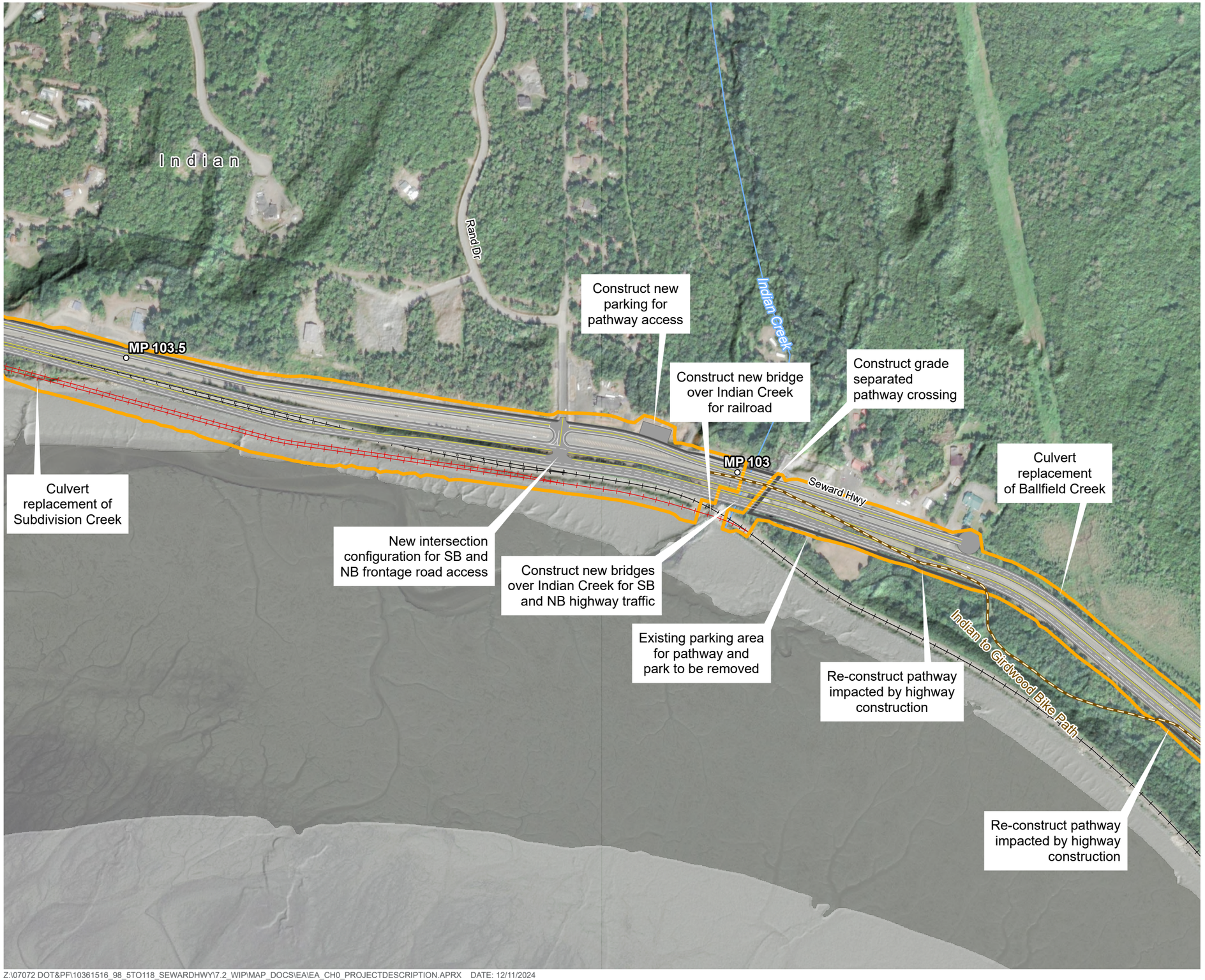
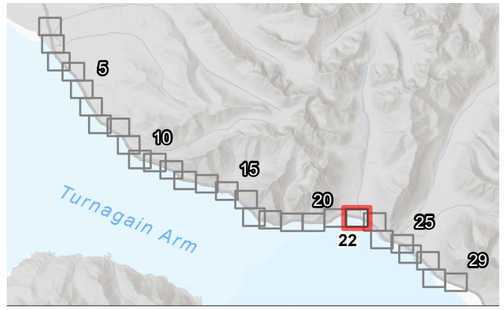
Seward Highway
Proposed Action



- Mileposts
- Project Footprint
- New Railroad
- Existing Railroad
- Road Pavement
- Path
- Trail or Pathway
- Stream



SAFER Seward Highway

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Existing parking area for pathway and park to be removed

Culvert replacement of Ballfield Creek

Re-construct pathway impacted by highway construction

Indian to Girdwood Bike Path

MP 102.5

Re-construct pathway impacted by highway construction

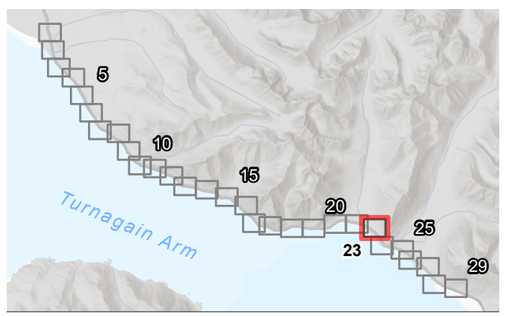
Seward Hwy

Northbound access to trailhead parking to be maintained

Reconstruct pathway impacted by highway consruction

Bird Ridge Trail

- Mileposts
- Project Footprint
- Existing Railroad
- Road Pavement
- Path
- Trail or Pathway
- Stream



SAFER Seward Highway

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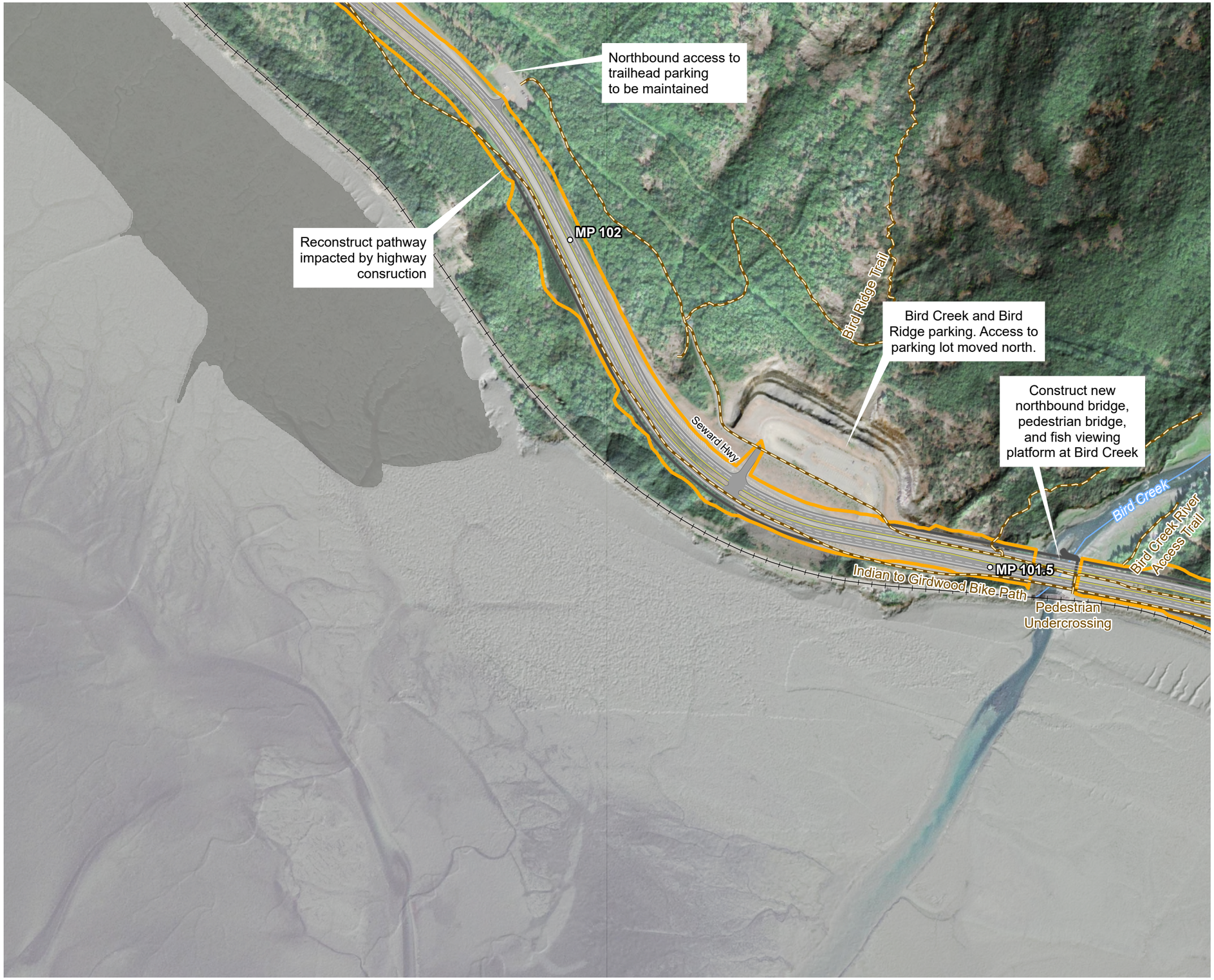
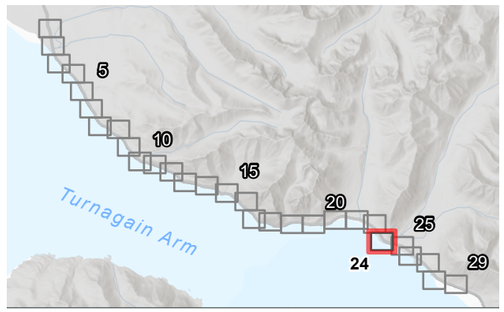
Seward Highway
Proposed Action



- Mileposts
- Project Footprint
- Existing Railroad
- Road Pavement
- Path
- Trail or Pathway
- Stream



SAFER Seward Highway

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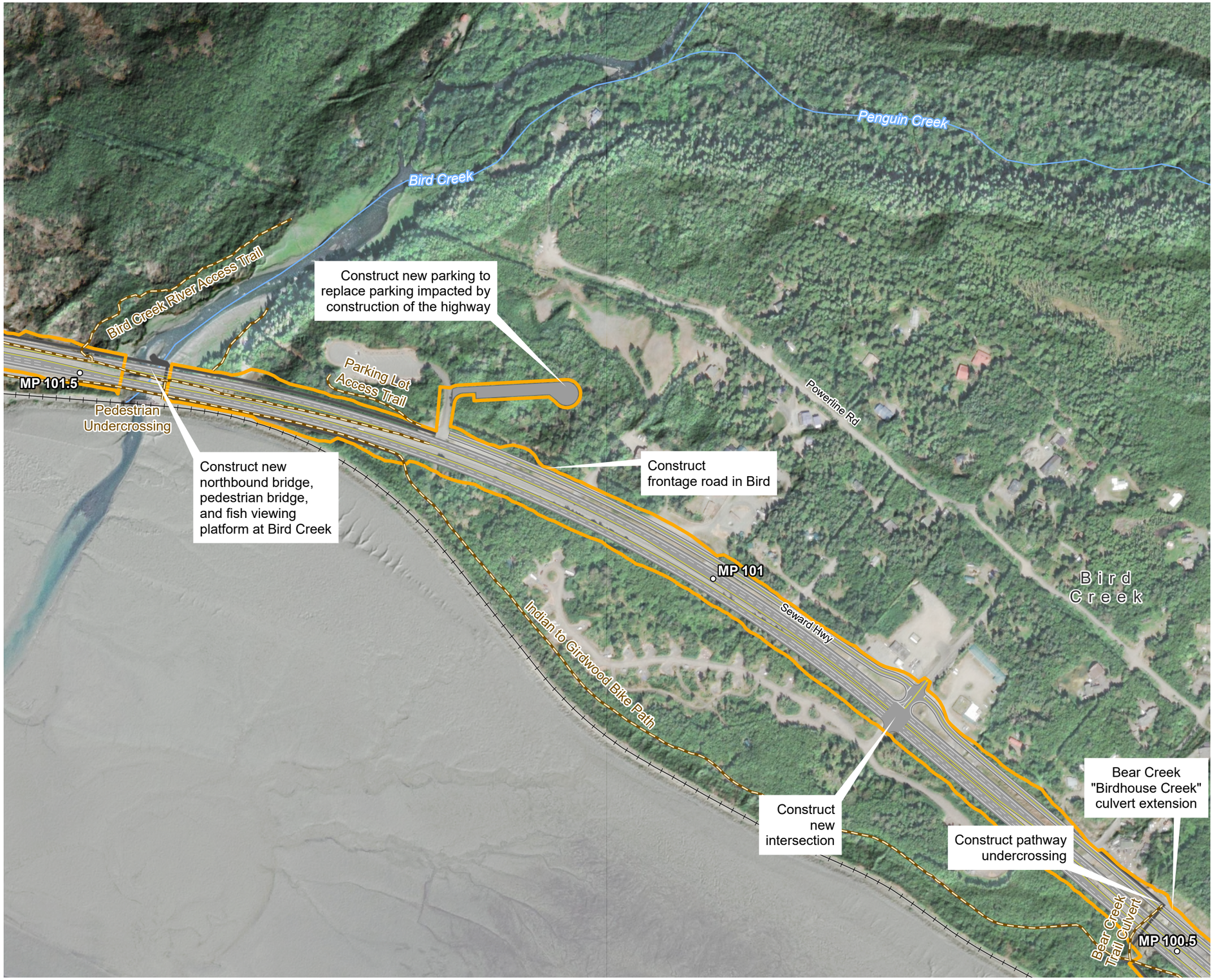
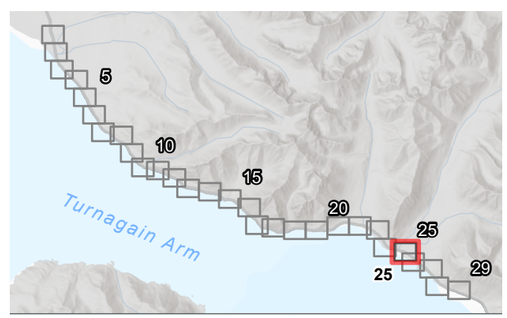
Seward Highway
Proposed Action



- Mileposts
- Project Footprint
- Existing Railroad
- Road Pavement
- Path
- Trail or Pathway
- Stream



SAFER Seward Highway

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Seward Highway
Proposed Action

Construct frontage road in Bird

MP 101

Seward Hwy

Bird Creek

Powerline Rd

Construct new intersection

Indian to Girdwood Bike Path

Construct pathway undercrossing

Bear Creek "Birdhouse Creek" culvert extension

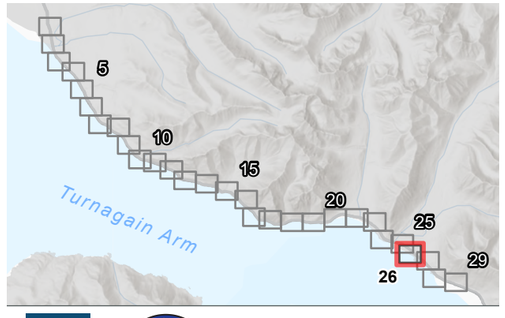
Bear Creek Trail Culvert

MP 100.5

Reroute pathway affected by highway construction

Median-divided highway

- Mileposts
- Project Footprint
- Existing Railroad
- Road Pavement
- Path
- Trail or Pathway



SAFER Seward Highway

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Seward Highway
Proposed Action

Construct pathway undercrossing

Powerline Rd

Bear Creek "Birdhouse Creek" culvert extension

MP 100.5

Median-divided highway

Reroute pathway affected by highway construction

Indian to Girdwood Bike Path

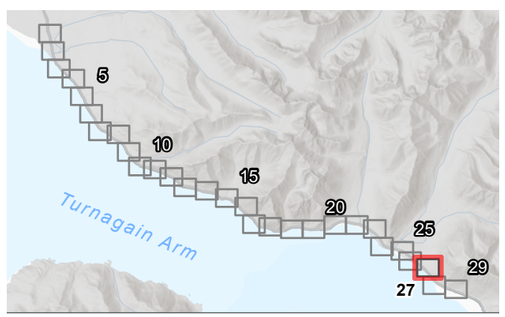
Seward Hwy

MP 100

Begin barrier-divided highway

Reroute Pathway affected by highway construction

- Mileposts
- Project Footprint
- Existing Railroad
- Road Pavement
- Path
- Trail or Pathway



SAFER Seward Highway

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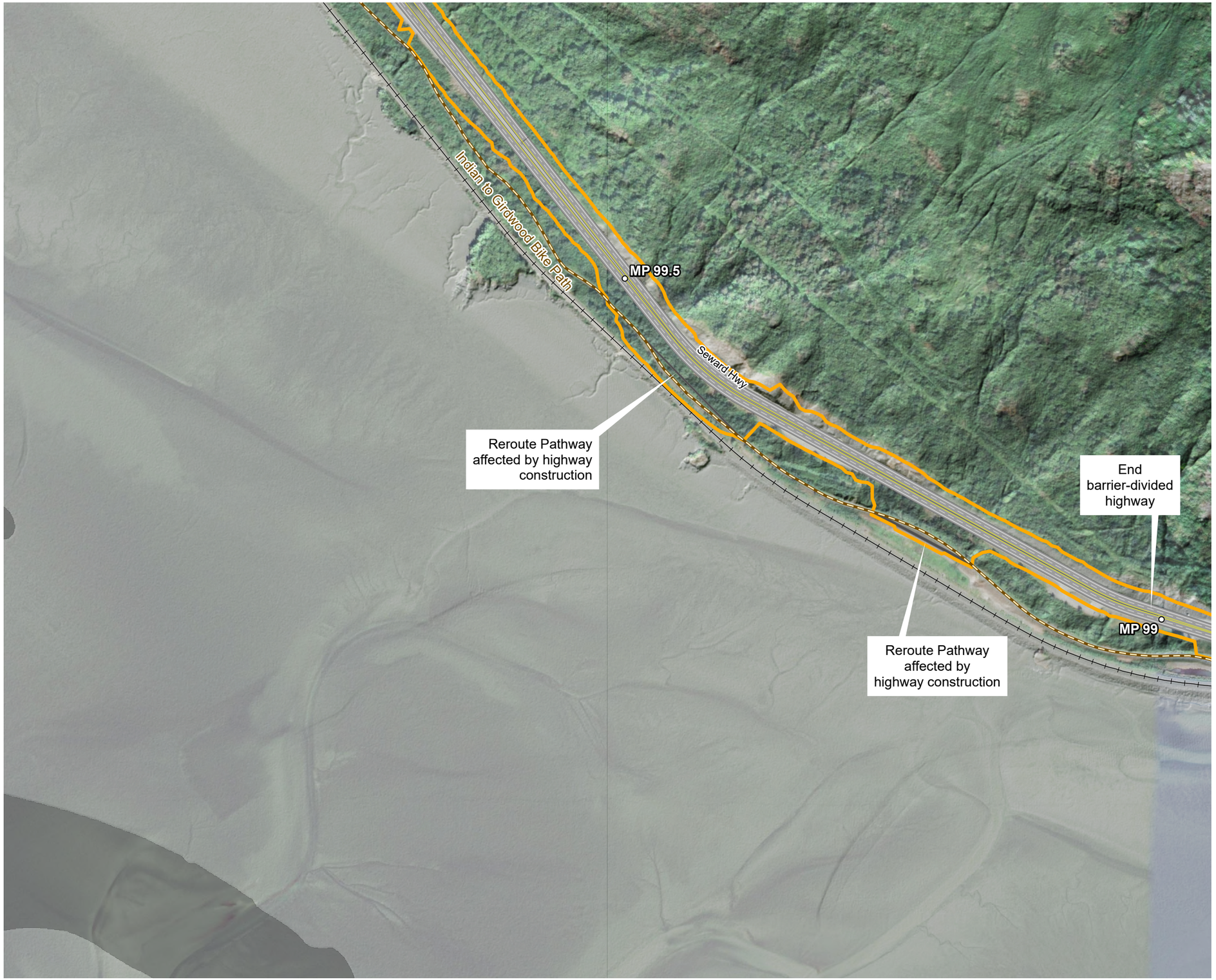
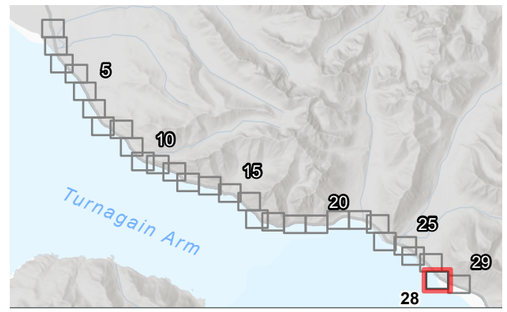
Seward Highway
Proposed Action



- Mileposts
- Project Footprint
- Existing Railroad
- Road Pavement
- Path
- Trail or Pathway



SAFER Seward Highway

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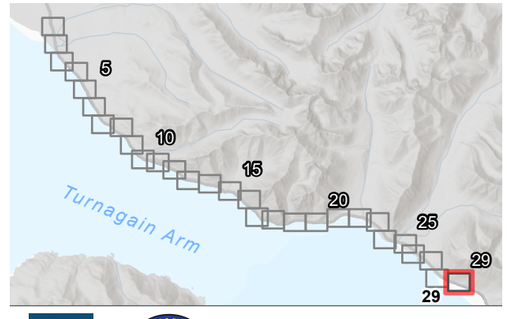
- Mileposts
- Project Footprint
- Existing Railroad
- Road Pavement
- Path
- Trail or Pathway



SAFER Seward Highway

0 250 Feet

Appendix B – Highway Configuration Development and Selection Management

Safer Seward Highway Project | Seward Highway MP 98.5 to 118,
Bird Flats to Rabbit Creek
Project No.: Z566310000/0A31034

Memorandum

Date: 12/31/2024
Project Name: Safer Seward Highway Project
To: DOT&PF
From: HDR
Subject: **DRAFT** Highway Configuration Development and Selection Memorandum

1 Introduction

This technical memorandum (memo) describes the screening process used to support concept development and selection for the Safer Seward Highway, Seward Highway Mileposts (MP) 98.5 to 118 Project (Project). This memo is intended to address the configuration of the highway: four-lane divided, three-lane divided, and three-lane undivided. The analysis will focus on crash data and safety, reliability, and mobility within the Project corridor.

When determining the typical section of the Project's Proposed Action, there are many factors to consider. The first would be to determine if the northbound and southbound lanes should be separated, either with a grass median or a physical concrete type barrier, or if they should remain unseparated. The second would be to determine the number of lanes, based on capacity needs, traffic projections, Level of Service (LOS), maintenance, and other qualitative measures.

2 Divided Versus Undivided

The major benefit of dividing a highway is the reduction or removal of head-on collisions between vehicles. When median separated, the increased width between lanes provides a greater clear-zone for a run-off-the-road vehicle to recover. It also provides an increased snow storage area. Based on the crash data from 2016 to 2021 within the Project area, of the 236 total crashes, 11.0 percent were head-on collisions. Of the 76 fatality and injury (FI) crashes, 12 resulted in severe injury or fatality, and of these 12 crashes, 50 percent were head-on collisions. Four fatalities occurred during that period, two in 2018, one in 2019, and one in 2021. Three of the four fatalities (75 percent) resulted from head-on crashes that occurred between MPs 102 and 104. Head-on collisions represent a substantial portion of FI crashes, making the division of northbound and southbound lanes with a median a critical safety improvement. Median separation not only reduces the risk of head-on collisions but also enhances roadway safety by providing recovery zones for errant vehicles and other operational benefits.

The winter months pose the largest risk for vehicles losing control and crossing into oncoming traffic due to slippery conditions and the tightness of curves along the route. Within this corridor, 40 percent of the total crashes occur during December, January, and February, highlighting the critical need to separate northbound and southbound traffic. Additionally, there are far more curves within this corridor as compared to the sections immediately south, including reverse

curves that can be difficult to navigate during wintertime conditions. Therefore, any Build alternative should include physical separation, either in the form of a depressed median or a physical barrier.

Further discussion regarding the typical sections below assumes this separation of northbound and southbound traffic.

3 Three-Lane Versus Four-Lane

3.1 Reduction in Crashes

Reducing crashes on the Seward Highway is critically important for several reasons:

1. **High-Risk Area**: As a designated Safety Corridor, the highway has been identified as a stretch of road that has a higher-than-average rate of serious crashes, often involving fatalities or severe injuries. Reducing crashes within these areas directly addresses the heightened risk and saves lives.
2. **Public Safety:** The primary goal of designating a Safety Corridor is to enhance public safety. Reducing crashes minimizes the risk to drivers, passengers, and pedestrians, contributing to safer travel for everyone using the highway.
3. **Economic Impact:** Crashes, especially severe ones, lead to substantial economic costs, including emergency response, medical expenses, vehicle repair, and traffic delays. Reducing crashes in Safety Corridors helps to lower these economic burdens on communities and governments.
4. **Public Perception and Trust:** Effective reduction in crashes within a Safety Corridor can build public trust in transportation authorities and their ability to create safer road environments. This trust is essential for public cooperation with safety measures and enforcement.

The Traffic and Safety Report evaluated crash reductions for a three-lane (undivided), three-lane divided, and four-lane divided typical roadway section.

The three-lane undivided concept had a 36 percent reduction in total crashes, as well as a 37 percent reduction in FI crashes. An improved alignment that flattens curves and the addition of passing lanes are key drivers of the predicted reduction in crashes.

The three-lane divided concept had a 39 percent reduction in total crashes, as well as a 42 percent reduction in FI crashes. Similar to the three-lane undivided concept, passing lanes and curve flattening are major drivers of the predicted crash reduction. The increase in reduction from the three-lane undivided concept comes from dividing the lanes.

The four-lane divided concept was higher, with a 68 percent reduction in both total crashes and FI crashes. This large reduction can be attributed to a combination of factors. The first would be to remove any platoons of vehicles waiting for passing opportunities, and provide the best

benefit for balancing slower, local-access traffic (including sightseeing traffic) and through traffic. Additionally, this option provides enhanced visibility from the wider overall roadway and better sightlines, which makes for a safer driving experience, especially in winter conditions.

Figure 3.1shows expected crash reduction per year by Build concept (including intersection and roadway segment crashes) as compared to the No Build condition.

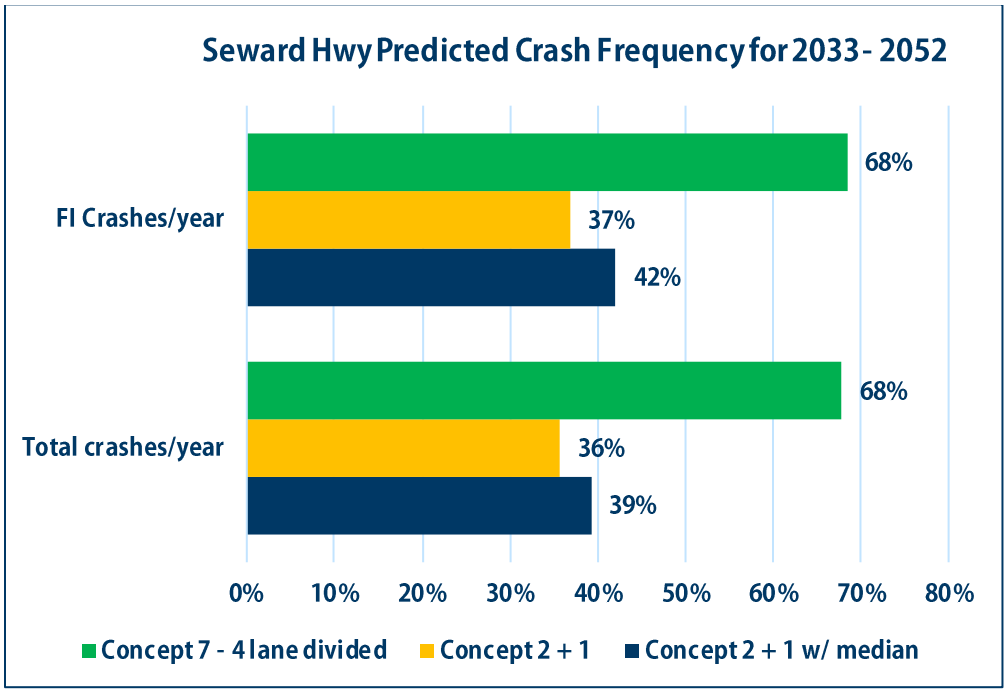


Figure 3.1. Seward Highway expected crash reduction (crashes/year) for 2033–2052.

The four-lane concept provides a reduction of 67 percent; with the 20-year design life, this corresponds to a reduction of approximately 3.4 percent per year. The three-lane concept achieves only 1.8 percent reduction per year.

The *Alaska Strategic Highway Safety Plan 2023-2027*[1] has a particular emphasis on Safety Corridors. The plan's vision is "Towards zero deaths and serious injuries so all surface transportation users arrive safely at their destination."[2] The plan also provides goals of reducing fatalities from 75 to 57 in a 7-year period, and serious injuries from 335 to 253 in that same period. This is a 4.5 percent per year decrease.

Based on the goals for the State of Alaska, outlined in the Safety Initiative, and the larger crash reductions, the four-lane concept should be advanced as the Project's Proposed Action.

[1] https://dot.alaska.gov/stwdplng/shsp/assets/Alaska-SHSP-2023-2027-Updated-Aug-2024.pdf
[2] https://dot.alaska.gov/stwdplng/shsp/assets/Alaska-SHSP-2023-2027-Updated-Aug-2024.pdf

4 Mobility

The *Highway Capacity Manual* (HCM)*: A Guide for Multimodal Mobility Analysis*[3] states the capacity of a two-lane highway facility is 1,700 vehicles per hour for passing zones and passing constrained segments. For sections where a passing lane is provided, the capacity is dependent on several variables, including the roadway's horizontal geometry and gradient. At the point capacity is reached along a two-lane highway, passing opportunities are theoretically impossible due to the density and platooning of the peak directional volume as well as the high opposing directional volumes. This results in a substantial reduction in travel speeds; an increase in time spent following other vehicles; potentially undesirable driver behavior, such as higher risk maneuvers; and an inability to turn onto the highway from minor approaches, turnouts, pullouts, and driveways.

The HCM uses Foller Density (FD) as a service measure to establish LOS values when evaluating two-lane highways. FD is the calculated number of vehicles following a lead vehicle and is measured in followers per mile per lane (followers/mile/lane).

Per the *Alaska Preconstruction Manual*[4], the 2011 American Association of State Highway and Transportation Officials' *A Policy on Geometric Design of Highways and Streets*[5] provides recommendations for appropriate LOS thresholds for this Project. They are based on functional classification and area/terrain types shown in Table 4.1. The Seward Highway is recommended to provide a LOS B.

Table 4.1. LOS based on terrain and functional class.

Functional Class	Appropriate LOS for Specified Combinations of Area and Terrain Type			
	Rural Level	Rural Rolling	Rural Mountainous	Urban and Suburban
Freeway	B	B	C	C
Arterial	B	B	C	C
Collector	C	C	D	D
Local	D	D	D	D

4.1 Three-Lane Divided Capacity Analysis

Table 4.2 provides the segment capacity performance metrics for the three-lane divided concept. Service measures that exceed the target LOS threshold are shown in red-shaded cells.

[3] https://nap.nationalacademies.org/catalog/26432/highway-capacity-manual-7th-edition-a-guide-for-multimodal-mobility
[4] https://dot.alaska.gov/stwddes/dcsprecon/preconmanual.shtml
[5] https://bookstore.transportation.org/collection_detail.aspx?ID=110

Table 4.2. 2052 concept three-lane divided segment capacity results.

Seward Highway Location	Segment	MP Range	Performance Measures				Service Measures		LOS
			ATS (mph)		PF (%)		FD (followers/mile/lane)		
			NB	SB	NB	SB	NB	SB	
South of Community of Bird Creek – Boretide Road	1	98.7–103.1	53.5	52.0	79.6	74.7	15.3	11.9	E/D[a]
Boretide Road – Indian Road	2	103.1–103.8	53.5	52.0	79.6	74.7	15.3	11.9	E/D[a]
Indian Road – Rainbow Valley Road	3	103.8–108.4	57.3	55.4	68.3	76.8	9.2	13.0	D/E[a]
Rainbow Valley Road – Potter Valley Road	4	108.4–115.4	56.9	56.5	71.4	75.9	10.0	12.5	D/E[a]
Potter Valley Road – Potter Marsh	5	115.4–117.6	56.4	56.3	76.7	81.5	12.9	15.7	E

Notes: NB = northbound; SB = southbound; ATS = Average Travel Speed; PF = Percent Followers; service measures that do not meet the recommended LOS are shown in red-shaded cells.
[a] Northbound/Southbound

4.2 Four-Lane Divided Capacity Analysis

For the four-lane divided concept, the HCM uses a different methodology to determine the capacity as compared to a two-lane highway since passing opportunities are theoretically infinite, negating any percent following and FD as useful performance metrics. Free-flow speed (FFS) plays a critical role in the capacity of multi-lane highways. The HCM states the capacity of a multi-lane highway with an FFS of 60 miles per hour (mph) is 2,200 passenger cars per hour per lane. At 55 mph, the capacity is reduced to 2,100 passenger cars per hour per lane.

LOS for a multi-lane highway is based on the segment density, which is a measurement of the proximity of vehicles to each other along the roadway segment. As density increases and the distance between vehicles decreases, speed also decreases, resulting in a degradation of LOS. Table 4.3 provides the HCM LOS density thresholds for a multi-lane highway.

Table 4.3. Multi-lane LOS based on FFS and density.

LOS	FFS (mph)	Segment Density (passenger car/mile/lane)
A	All	≥0–11
B	All	>11–18
C	All	>18–26
D	All	>26–35

LOS	FFS (mph)	Segment Density (passenger car/mile/lane)
E	60 55 50 45	>35–40 >35–41 >35–43 >35–45
F	Demand Exceeds Capacity or 60 55 50 45	Demand Exceeds Capacity or ≥40 ≥41 ≥43 ≥45

Table 4.4 provides the segment capacity performance metrics. Service measures that meet or exceed the LOS are shown in green-shaded cells.

Table 4.4. Four-lane divided segment capacity results.

Seward Highway Location	Segment	MP Range	FFS (mph)		Segment Density (passenger car/mile/lane)		LOS
			NB	SB	NB	SB	
South of Community of Bird Creek – Boretide Road	1	98.7–103.1	56.0	56.1	10.6	13.3	A/B[a]
Boretide Road – Indian Road	2	103.1–103.8	56.0	56.1	10.6	13.3	A/B[a]
Indian Road – Rainbow Valley Road	3	103.8–108.4	56.7	56.9	9.9	13.0	A/B[a]
Rainbow Valley Road – Potter Valley Road	4	108.4–115.4	56.7	56.7	10.3	11.9	A/B[a]
Potter Valley Road – Potter Marsh	5	115.4–117.6	56.6	56.4	12.3	14.6	B

Notes: NB = northbound; SB = southbound; service measures that meet or exceed the LOS are shown in green-shaded cells.

Based on the metrics above, the four-lane concept meets the LOS requirements for the Project, and the three-lane alternate passing concept does not.

In addition to the LOS metrics above for the four-lane concept, there has also been research on the performance of a three-lane (2+1) alternate passing roadway section with respect to volume. The HCM states the capacity of a two-lane highway facility is 1,700 vehicles per hour for passing zones and passing constrained segments. National Cooperative Highway Research Program's (NCHRP's) *Application of European 2+1 Roadway Designs* (Research Results Digest Number 275, April 2003)[6] provided recommendations for the use of 2+1 roadways in the

[6] https://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rrd_275.pdf

United States. It was recommended that a 2+1 roadway *not* be considered where current or projected flow rates exceed 1,200 vehicles per day directionally.

Table 4.5 shows the projected 2052 traffic volumes by segment. Three of the five segments exceed the NCHRP-recommended 1,200 vehicles per day threshold for the corridor. The remaining two segments are just below the 1,200 vehicles per day threshold. To maintain consistency for the driver and lane continuity it makes sense to maintain the four-lane section for the entirety of the Project.

Table 4.5. 2052 (design year), adjustment factors, and growth rate.

Seward Highway Location	Segment	MP Range	2052 Projected Design ADT_{2052} (2024 Design ADT x Gr)	2052 DHV ($AADT_{2052}$ x K)	DDHV ($AADT_{2052}$ x K x D)
South of Community of Bird Creek – Boretide Road	1	98.7–103.1	14,607	2,191	1,183
Boretide Road – Indian Road	2	103.1–103.8	14,740	2,211	1,194
Indian Road – Rainbow Valley Road	3	103.8–108.4	15,040	2,256	1,218
Rainbow Valley Road – Potter Valley Road	4	108.4–115.4	15,520	2,328	1,257
Potter Valley Road – Potter Marsh	5	115.4–117.6	18,153	2,723	1,469

Notes: AADT = annual average daily traffic; ADT = annual daily traffic; D = peak directional; Gr = Growth; K = peak hour

5 Reliability

As the only surface connection to Girdwood, Whittier, and the entirety of the Kenai Peninsula, the reliability of the Seward Highway is extremely important. This highway provides connection for recreational uses; tourism access to the Kenai; and more importantly, a way for Kenai residents to access hospitals, large grocery options, and Ted Stevens Anchorage International Airport. Without the Seward Highway, the Kenai Peninsula would be isolated.

Key to reliability is the Seward Highway's ability to remain open. Through discussions with the Anchorage Police Department, HDR determined that, since July 2023, the highway between Anchorage and Bird has been fully closed on four separate occasions, two of which were due to responding to fatality accidents. HDR reviewed existing four-lane divided sections of the Glenn Highway (north of Eagle River) to determine the ability to keep the highway open during these

types of events. Since January 1, 2019, three fatal collisions have occurred between the South Eagle River exit and the Knik River on the Glenn Highway. None of these collisions resulted in a full closure in both directions. Two collisions resulted in northbound lanes being closed, and one resulted in the southbound lanes being closed. A substantial increase in reliability of the highway occurs when a four-lane divided section can be provided.

6 Roadway Use

6.1 Balancing Users within the Corridor

As a Scenic Byway, the Seward Highway often attracts not only regular traffic but also tourists who may drive slower to enjoy the scenery. A four-lane highway, with two lanes in each direction, allows faster-moving vehicles to pass slower vehicles safely without causing congestion. In contrast, the three-lane configuration can still lead to bottlenecks and delays for through traffic, especially during peak tourist seasons.

The HCM (Chapter 15) describes how some highways serve as scenic and recreational areas, and how passing delays distract from the scenic enjoyment of trips and should be minimized wherever possible. The Seward Highway was designated a Scenic Byway in 1998, meeting six intrinsic qualities set by the Federal Highway Administration (FHWA). In 2000, the Seward Highway was given the highest honor of Scenic Byways and designated as an All-American Road. Reducing time spent following and minimizing passing delays is important to provide safe and reliable access to the scenic and recreational areas along the corridor.

6.2 Maintenance of Traffic During Construction

The 4-lane options offers substantial advantages in maintaining traffic flow during construction. The contractor can first construct two lanes, allowing traffic to be shifted onto the completed section while the remaining two lanes are built. Since the northbound and southbound directions are divided, it becomes easier for the contractor to work alongside traffic as well. This phased approach ensures that the roadway remains operational throughout the construction period, substantially reducing inconvenience for motorists and ensuring smoother traffic flow.

In contrast, the 3-lane configuration presents challenges in maintaining traffic during construction due to its asymmetrical design. The lack of a balanced lane layout complicates staging, often requiring more closures requiring pilot cars to move traffic through one direction at a time.

6.3 Routing Maintenance After Construction

Post-construction, the 4-lane configuration continues to provide benefits with regards to maintenance activites. Divided 4-lane roadways enable routine maintenance activities—such as restriping, pothole repairs, or guardrail replacement—to occur while still providing space for

traffic to move around the maintenance equipment. This design accommodates lane shifts, minimizing the need for full closures or lengthy detours.

The 3-lane divided roadway substantially complicates routine maintenance. In single-lane sections there is no room to shift traffic during repairs. As a result, even minor maintenance activities require lane closures, disrupting traffic flow and increasing delays.

Appendix C – Design Criteria

PROJECT DESIGN CRITERIA

Project Name: Seward Highway MP 98.5 – 118, Bird Flats to Rabbit Creek

State Project No.: Z566310000 Federal Project No.: 0A31034

Functional Classification: Interstate (Rural) Terrain: Rolling

Present ADT (2022): See DD Mid-Design ADT (2037): See DD Design ADT (2052): See DD

DHV (%): See DD Trucks (%): See DD Directional Split (%/%): See DD

Pavement Design Year: 2052 Pavement Design ESAL: See DD

Design Turning Vehicle: See DD

Project Type: New Construction/Reconstruction NHS: ☒ Non-NHS: ☐

FHWA 10 CONTROLLING DESIGN CRITERIA		SOURCE	STANDARD	AS PROPOSED	EXCEPTION[1]
Design Speed[1]		GB, 2018: Sect 7.2.2.1, p.7-3	50-65 mph	55 mph	No
Lane Width	Travel	GB, 2018: Sect 7.2.11.2, p.7-15	12 ft	12 ft	No
	Auxiliary	GB, 2018: Sect 4.3, p.4-9 to 4-10	12 ft	12 ft	No
Shoulder Width	Outside	GB, 2018: Sect 7.2.11.4, p.7-16	8 ft min	8 ft	No
	Inside	GB, 2018: Sect 7.2.11.4, p.7-16	4 ft min	4 ft	No
	Auxiliary	GB, 2018: Sect 7.2.8, p.7-10	4 ft	4 ft	No
Horizontal Curve Radius, min		GB, 2018: Sect 3.3.5, Table 3-9, p.3-43	1060 ft	>1060 ft	No
Superelevation Rate, e, max		GB, 2018: Section 8.2.6, p.8-4	6%	6%	No
Stopping Sight Distance (SDD), min		GB, 2018: Sect 3.2.2.2, Table 3-1, p.3-4	495 ft	>495 ft	No
Grade	Min.[2]	GB, 2018: Sect 3.4.2.2.2, p.3-130	0.5%	0.5%	No
	Max.	GB, 2018: Sect 7.2.2.6, Table 7-2, p.7-6	4%	4%	No
Cross Slope		HPCM: Sect 1130.1.2, p.1130-1	2%	2%	No
Vertical Clearance, Overhead Utilities / Sign Bridges		HPCM: Sect 1130.3, Table 1130-1, p.1130-5	20.5 ft/ 18.5 ft	20.5 ft/ 18.5 ft	No
Design Loading Structural Capacity[1]		GB, 2018: Sect 7.3.5.1, p.7-50	HL 93	HL 93	No

[1] On low speed roadways (<50 mph) on the NHS, only Design Speed and Design Loading Structural Capacity require a Design Exception; all other criteria require a Design Waiver. For projects off the NHS, all criteria require a Design Waiver.

[2] Minimum grade is not one of the FHWA 10 Controlling Design Criteria and will require a Design Waiver for any variance.

OTHER DESIGN CRITERIA		SOURCE	STANDARD	AS DESIGNED	WAIVER
Superelevation Transition, Δ		GB, 2018: Sect 3.3.8.2.3, p.3-70 to 3-72	70-90%	70%	No
Bridge Clear-Roadway Width		GB, 2018: Sect 7.2.5, p.7-9/ Sect 10.8.3.2, p.10-21/ Sect 10.8.4.1, p.10-22 to 10-24	66 ft* min	Single structure = 102 ft* Dual Structure	No
Vertical Curvature (min)	K (crest)	GB, 2018: Sect 3.4.6.2, Table 3-35, p.3-170	114	>114	No
	K (sag)	GB, 2018: Sect 3.4.6.3, Table 3-37, p.3-176	115	>115	No
Lateral Offset to Obstruction		RDG, 2015: Sect 10.0, p.10-1 to 10-2	4-6 ft	4 ft	No
Surfacing Material		HPCM: Sect 1080.3.1, p.1180-1	HMA	HMA	No
Clear Zone	Slope (fill)	HPCM: Sect 1130.3, Table 1130-2, p.1130-6 RDG, 2015: Sect 3.1, Table 3-1, p.3-3	4:1	4:1	No
	Width (fill)		30 ft	30 ft	No
	Slope (cut)		4:1	4:1	No
	Width (cut)		22 ft	22 ft	No
Bicycle Lane Width		HPCM: Sect 1210.3.1, p.1210-1	N/A	N/A	No
Sidewalk/Pathway Width		HPCM: Sect 1210.4.3, Table 1210-1, p.1210-4	8 ft min	12 ft	No
Intersection Sight Distance*, Passenger Car	Left Turn (GB Case B1)	GB, 2018: Sect 9.5.3.2.1, p.9-43 to 9-47	647 ft*	>647 ft	No
	Right Turn (GB Case B2)	GB, 2018: Sect 9.5.3.2.2, Table 9-9, p.9-48	530 ft*	>530 ft	No
	Crossing (GB Case B3)	GB, 2018: Sect 9.5.3.2.3, p.9-48 to 9-50	647 ft*	>647 ft	No
Passing Sight Distance		HPCM: Figure 1120-1, p.1120-3	1985 ft	>1985 ft	No
Degree of Access Control		GB, 2018: Sect 7.2.13, p.7-29 to 7-30/ HPCM: Sect 1120.2.4, p.1120-1	Partial		No
Median (EOT to EOT)	Treatment	HPCM: Sect 1150.2.2, p.1150-1/ Sect 1150.2.2, Table 1150-2, p.1120-2	Depressed		No
	Width		4-30 ft	38 ft*	No
Illumination		LSG, 2020: Pg. 3 RPRL 8-14: Sect 2.1, p.3 to 4	Isolated Intersection, Delineation, Tunnel Lighting		No
Curb Type		HPCM: Sect 1190.4.6, p.1190-3	Sloping		No

* Attach calculations

Notes:

- DD = Design Designation
- ESAL = Equivalent Single Axle Load
- GB = A Policy on Geometric Design of Highways and Streets
- HPCM = Alaska Highway Preconstruction Manual
- RDG = Roadside Design Guide
- LSG = Highway Lighting and Electrical Billing Guidance – Central Region 2020 Revisions (Memo from FTP site)
- RPRL = Illumination Engineering Society Roadway Lighting 2014
- "Median Width" refers to the distance from edge of traveled way to edge of traveled way.

Bridge Clear-Roadway Width:

Minimum:

4' Shoulder + 12' Lane + 12' Lane + 4' Shoulder + 2' Median Barrier + 4' Shoulder + 12' Lane + 12' Lane + 4' Shoulder = **66'**

Proposed Single Structure Bridge:

8' Shoulder + 12' Lane + 12' Lane + 4' Shoulder + 30' Median + 4' Shoulder + 12' Lane + 12' Lane + 8' Shoulder = **102'**

Dual Structures Bridge: 8' Shoulder + 12' Lane + 12' Lane + 4' Shoulder = **36' each**

Intersection Sight Distance:

EQUATIONS:

1.) $t_g = t_g + (n - 1) * (0.5)$, *if* $n > 2$

t_g = time gap for minor road vehicle to enter the major road (s)

t_g = time gap at design speed of major road (s)

n = number of lanes to cross

2.) $ISD = 1.47 * V_{major} * t_g$ *(from Green Book, pg. 9-45, Equation 9-1)*

ISD = Intersection Sight Distance (length of the leg of sight triangle along the major road) (ft)

V_{major} = design speed of the major road (mph)

CASE B1: Left Turn from the Minor Road *(Green Book, pg. 9-43)*

Given: n = 2.5 lanes, V_{major} = 65 mph, t_g = 7.5 s *(from Green Book, pg. 9-44, Table 9-6);*

$t_g = 7.5 + (2.5) * (0.5) = 8.75$ s

ISD = 1.47 * 65 * 8.75 = 836.1 ft = > **use 837 ft**

Median – Width:

4' Inside Shoulder + 15' wide 5:1 slope + 15' wide 5:1 slope + 4' Inside Shoulder = **38' Wide Median**

General: purpose statement / DC prepared for preliminary design / environmental purposes.

Proposed by: _____ Date: _____
Designer (Consultant or Staff)

Recommended by: _____ Date: _____
Engineering Manager

Accepted by: _____ Date: _____
Regional Preconstruction Engineer

Appendix D – Design Designations

DESIGN DESIGNATION

State Route Number: 130000 Route Name: Seward Highway

Project Limits: MP 98.5-118, Bird Flats to Rabbit Creek

State Project Number: Z566310000 Federal Aid Number: 0A31034

Project Description: New Construction / Reconstruction

Design Functional Classification: Urban Arterial □ Rural Arterial □ Interstate ☑
Major Collector □ Minor Collector □ Local □ Other □

New Construction – Reconstruction (4R) ☑ Rehabilitation (3R) □ Other: □ _____

Project Design Life (years): 5 □ 10 □ 20 ☒ 25 □ Other: _

	Existing Year 2024	Construction Year 2032	Mid–Life Year 2042	Future Year 2052
Jun-Aug ADT*:	13,740	14,818	16,165	17,512
DHV:	2,061	2,223	2,425	2,627
Peak Hour Factor:	0.88	0.88	0.88	0.88
Direction Distribution:	46/54	46/54	46/54	46/54
Percent Recreational Vehicles:	NA	NA	NA	NA
Percent Commercial Trucks:	8.3	8.3	8.3	8.3
Compound Growth Rate:	1.0 %	1.0 %	1.0 %	1.0 %
Pedestrians (Number/Day):	NA	NA	NA	NA
Bicyclists (Number/Day):	NA	NA	NA	NA

*a Seasonally adjusted ADT was used, additional information is provided on subsequent pages

Design Vehicles for Turning: WB-120, Double Trailer Combination with Conventional Tractor (119.33')

Design Vehicle Loading: HS15 □ HS20 □ HS25 □ HL93 ☑ Other: □ _____

Equivalent Axle Loads (EALs): _____

Reviewed: _____ Date _____
Traffic Data Collection Manger

Reviewed: _____ Date _____
Area Planner

Approved: _____ Date _____
Regional Preconstruction Engineer