

SEWARD HIGHWAY: MP 105 TO MP 107, WINDY CORNER IMPROVEMENTS

Environmental Assessment

DOT&PF Project No.: 0A31034/Z566310000

Prepared for:

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The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by DOT&PF pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated November 3, 2017, and executed by FHWA and DOT&PF.

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Federal Project Number: 0A31034
State Project Number: Z566310000

ENVIRONMENTAL ASSESSMENT

Submitted Pursuant to 42 USC 4332(2)(c)
By the State of Alaska Department of Transportation and Public Facilities

Cooperating Agency: U.S. Army Corps of Engineers, Alaska Railroad Corporation, Alaska Department of Fish and Game, and Alaska Department of Natural Resources

This action complies with:

Executive Order 11593, Protection and Enhancement of Cultural Environment; Executive Order 11988, Floodplain Management; Executive Order 11990, Protection of Wetlands; Executive Order 12898, Environmental Justice; Executive Order 13007, Indian Sacred Sites; Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks; Executive Order 13175, Consultation and Coordination with Indian Tribal Governments; and Executive Order 13112, Invasive Species.

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The Proposed Action includes: improving safety, improving roadway geometry, realigning the highway and railroad between MP 105 and MP 107, separating recreational uses in the highway right-of-way from through traffic, and providing parking and pedestrian improvements for wildlife viewing and access to Chugach State Park.

LIMITATIONS ON CLAIMS NOTICE

Per Section 1308 of the Federal Highway Administration Moving Ahead for Progress in the 21st Century Act (MAP-21), a Federal agency may publish a notice in the Federal Register, pursuant to 23 U.S.C. 139(1)(1), indicating that one or more Federal agencies have taken final action on permits, licenses, or approvals for a transportation project. If such notice is published, claims seeking judicial review of those Federal agency actions shall be barred unless such claims are filed within 150 days after the date of publication of the notice or within such shorter time period as is specified in the Federal laws pursuant to which judicial review of the Federal agency action is allowed. If no notice is published, then the periods of time that otherwise are provided by the Federal laws governing such claims will apply.

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ACRONYMS

ADCM	Anchorage Debit-Credit Methodology
AADT	Annual Average Daily Traffic
ADEC	Alaska Department of Environmental Conservation
ADF&G	Alaska Department of Fish and Game
ADNR	Alaska Department of Natural Resources
ADNR-DPOR	Alaska Department of Natural Resources, Division of Parks and Outdoor Recreation
APDES	Alaska Pollutant Discharge Elimination System
APE	area of potential effect
ARRC	Alaska Railroad Corporation
BA	Biological Assessment
BMPs	Best Management Practices
CAP	Chugach Access Plan
CE	Categorical Exclusion
CFR	Code of Federal Regulations
CGP	Construction General Permit
CIBW	Cook Inlet beluga whale
CPP	Corridor Partnership Plan
CSP	Chugach State Park
CWA	Clean Water Act
cy	cubic yard
CZMA	Coast Zone Management Act
DOI	Department of Interior
DOT&PF	Department of Transportation & Public Facilities
EA	Environmental Assessment
EFH	Essential Fish Habitat
E.O.	Executive Order
ESCP	Erosion and Sediment Control Plan
High severity	fatal and major injury
FHWA	Federal Highway Administration
LOS	Level of Service
LWCF	Land and Water Conservation Funds
MBPA	Migratory Bird Protection Act
MOA	Memorandum of Agreement
MP	Milepost
mph	miles per hour
NB	northbound
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NPS	National Park Service
NRHP	National Register of Historic Places
Project Area	Windy Corner Project
ROW	Right-of-Way
SB	southbound
SHPO	State Historic Preservation Officer
SSR	Scoping Summary Report
SWPPP	Stormwater Pollution Prevention Plan
TACC	Turnagain Arm Community Council

TAG..... Technical Advisory Group
U.S. United States
USACE..... United States Army Corps of Engineers
USCG..... United States Coast Guard
USFWS United States Fish and Wildlife Service
VE Value Engineering

EXECUTIVE SUMMARY

The State of Alaska Department of Transportation and Public Facilities is proposing to realign and construct safety improvements to the Seward Highway from Milepost 105 to Milepost 107.

The proposed project would realign the highway and railroad tracks, add auxiliary lanes to improve traffic operations, construct safety improvements, and construct a new and expanded scenic parking area and pedestrian facilities that improve sightseeing for scenery and wildlife and access to Chugach State Park.

The purpose of the proposed project is to improve traffic operations and implement safety upgrades between Milepost 105 and Milepost 107. Specifically, the project will:

1. Decrease major injury and fatal crashes by improving curves that do not meet current standards for 55 miles per hour design speed, improving access for vehicles entering or exiting the highway, and providing separation of northbound and southbound lanes to prevent head on crashes.
2. Improve traffic operations by adding an auxiliary lane in each direction and a southbound left-turn deceleration lane to access improved parking facilities. These features will improve the safe flow of traffic by separating recreational uses in the right-of-way from through traffic movements, reducing time spent following in an area of the highway with few passing opportunities, and reducing conflicts caused by motorists slowing and stopping along the highway shoulder to view wildlife.

The purpose of this Environmental Assessment is to present and analyze the environmental consequences of reasonable alternatives in accordance with the National Environmental Policy Act.

Existing Conditions

Seward Highway, between Potter Marsh and Girdwood, is constrained by the steep slopes of the Chugach Mountains on one side and the Alaska Railroad tracks and Turnagain Arm on the other. The existing highway is designated as a Rural Principal Arterial, consisting of two 12-foot-wide travel lanes and 8-foot-wide paved shoulders. The highway sits within a 300-foot-wide right-of-way, much of which overlaps the railroad's 200-foot-wide right-of-way. The posted speed limit is 55 miles per hour, with no passing lanes or zones within the project area.

The Annual Average Daily Traffic is 7,756 vehicles per day (2017) and the highway operates at a Level of Service D under current peak-hour conditions. Traffic demands vary significantly depending on the season of the year, with daily traffic volumes exceeding 22,000 vehicles during peak summer weekends. These seasonal fluctuations result in the highway frequently operating at a Level of Service E or F during the summer months.

Traffic operations are frequently disrupted by motorists slowing and stopping along the highway shoulder to view wildlife. This creates a high differential in speeds between motorists transiting through the corridor and those that are sightseeing. This differential in speeds and the uncontrolled movement of traffic entering and exiting the highway contributes to the elevated crash rate in the corridor.

The existing curves between Mileposts 105 and 107 do not meet the minimum radius for a posted or design speed of 65 miles per hour; some do not meet the minimum radius for a posted or design speed of 55 miles per hour. The substandard curve radii and closely spaced curves reduce the margin for driver error. The combined effects of the disrupted traffic operations and roadway geometry results in a two-mile segment of highway that has the second highest rate of high-severity crashes over the last forty years.

Alternatives Considered

The State of Alaska Department of Transportation and Public Facilities has evaluated options to improve traffic operations and safety along this part of the Seward Highway since 2004. Ultimately, the No Action and Proposed Action alternatives were evaluated for this Environmental Assessment. Additional alternatives have been considered and eliminated as part of the evaluation process under both the National Environmental Policy Act and Section 4(f) of the Department of Transportation Act, given the project's proposed use of parkland.

No Action

The No Action alternative consists of maintaining the existing roadway and railroad alignments.

Access to wildlife viewing and recreational parking would be unchanged as no improvements or modifications would be made under this alternative. Curves within the project area would not meet a design speed of 55 miles per hour, much less 65 miles per hour.

The highway is forecasted to operate at Level of Service D in 2035, and during seasonal fluctuations would continue to operate at a Level of Service E or F.

Proposed Action

The Proposed Action alternative consists of improving Seward Highway Milepost 105 to Milepost 107 to meet standards for a 65 mile per hour design speed. The typical highway section is a divided four-lane roadway consisting of a (in each direction):

- 12-foot-wide travel lane;
- 12-foot-wide auxiliary lane;
- 8-foot-wide outside shoulder; and
- 4-foot-wide inside shoulder.

The Proposed Action requires realignment of the Alaska Railroad Corporation track to make space for the highway alignment. The revised alignment creates space for and parking and trail features that would improve wildlife viewing and recreational access to Chugach State Park. It would require the extraction of nearly four million tons of aggregate, riprap, and armor stone proposed to come from areas near Milepost 109 and possibly Milepost 104 within Chugach State Park.

Environmental Consequences

Environmental impact categories are not evaluated in this environmental document because they are not present within the proposed project area or would not be affected by the proposed project include:

- Economics;
- Wetlands (other Waters of the U.S. are addressed);
- Alaska Coastal Management Program;
- Hazardous Waste;
- Air Quality;
- Floodplains;
- Noise;
- Farmland;
- Title VI and Environmental Justice; and
- Wild and Scenic Rivers and Wilderness Areas.

Table ES-1: Summary of Environmental Impact Category Effects

<i>Environmental Impact Category</i>	<i>No Action</i>	<i>Proposed Action</i>
Right-of-Way	No right-of-way acquisition needed.	Department of Transportation and Public Facilities and Alaska Railroad Corporation to acquire 26.30 acres of Chugach State Park and relinquish 14.70 acres of existing right-of-way to Chugach State Park.
Social Considerations	<p>Traffic and safety issues would persist:</p> <ul style="list-style-type: none"> • Curves do not meet 55 mile-per-hour design standard; • High differential speed between commuters, recreation, and tourist motorists; and • Access to recreational areas not improved. <p>Would continue adverse safety, reliability, and efficiency of commuter, freight, and emergency vehicle travel.</p>	<p>Traffic safety issues would improve by:</p> <ul style="list-style-type: none"> • Curves would meet 65 mile-per-hour design standard; • Addition of north and southbound auxiliary lanes; • Addition of right-turn pockets and left deceleration lanes; • Improvements to parking and recreational access and facilities; and • Separation of north and southbound traffic. <p>Addition of controlled-access emergency boat ramp access to Turnagain Arm improves public safety.</p> <p>Would improve safety, reliability, and efficiency of commuter, freight, and emergency vehicle travel.</p>

<i>Environmental Impact Category</i>	<i>No Action</i>	<i>Proposed Action</i>
	Would not provide emergency responder access to Turnagain Arm.	Would affect water recreation in the direct vicinity of the project where highway and railroad track are realigned onto mudflats.
Local Land Use and Transportation Plans	Would not meet goals for improved safety and transportation upgrades identified in local land use and transportation plans.	Would meet goals to improve safety and provide transportation upgrades identified in local land use and transportation plans.
Cultural Resources	Would not affect cultural resources.	Would not adversely affect cultural or historic properties.
Anadromous or Resident Fish and Essential Fish Habitat	Would not affect essential fish habitat.	With previously accepted mitigation, no additional essential fish habitat consultation required.
Wildlife and Birds	Would not affect wildlife or birds.	Would not fragment habitat, change migratory routes, or significantly diminish available wildlife or bird habitat.
Threatened and Endangered Species	Would not affect threatened and endangered species or their critical habitat.	With mitigation, would not adversely affect the Cook Inlet beluga whales or their critical habitat.
Waterbody Involvement and Water Quality	Would not affect waterbodies or stormwater flow paths. Culverts for three unnamed streams would remain at 24- and 36-inch diameters.	Would fill 26.30 acres of intertidal mudflats. Anticipated compensatory mitigation to purchase 21.52 credits from a mitigation bank to offset proposed project waterbody impacts. Increased impervious area contributing to stormwater flows. Culvert diameters for three unnamed streams would be increased to 36 and 42 inches.
Vegetation and Invasive Species	Would not affect vegetation and invasive species composition.	Would disturb 61.70 acres of undisturbed land, including intertidal areas. May increase the risk of introduction of invasive species and potentially change the composition of vegetation within or adjacent to the Project Area.
Bicycle and Pedestrian Issues	Would not improve access to recreational and wildlife viewing areas. Traffic safety issues would remain between commuters and recreationists/ tourists.	Would improve access to recreational and wildlife viewing areas.
Section 4(f)	Would not affect Section 4(f) resources.	Would require the acquisition of 26.30 intertidal acres of Chugach State Park along Turnagain Arm, and temporary use and conversion of 35.40 acres of undeveloped Chugach State Park lands.

<i>Environmental Impact Category</i>	<i>No Action</i>	<i>Proposed Action</i>
Section 6(f)	Would not affect Section 6(f) resources.	Would require the conversion of 35.40 acres of undisturbed parkland for material extraction, 3.97 acres of tideland outcrops for highway and railroad realignment, and 0.19 acres of tideland outcrops left as isolated remnants. Replacement lands of 14.70 acres would be provided for the new scenic parking area.
Visual Resources	Would not affect visual resources.	The Proposed Action would impact the sinuosity of the Turnagain Arm shoreline, and view of Gorilla Rock. Extraction of materials at Milepost 109 would expose a rock face approximately 220 feet tall by 600 feet long. To minimize the potential effects, a topographic buffer will be maintained so that only a portion of the rock face will be visible from most angles. Material extraction at Milepost 109 would be visible to southbound travelers on the highway for 0.5 miles and from across Turnagain Arm and material extraction at Milepost 104 would be visible to travelers in both directions for about 1.3 miles.
Irreversible and Irretrievable Commitment of Resources	Would not change the existing commitment of natural resources.	Would disturb 104.7 acres in total and require the extraction and placement of nearly 2,000,000 cubic yards of materials for project components.
Construction Impacts	Would not impact resources.	Construction impacts would temporarily: <ul style="list-style-type: none"> • Reduce water, stream, and air quality; • Disrupt traffic patterns; • Increase travel time; • Increase noise levels; and • Alter wildlife movements.

Permits and Authorizations

- Right-of-way permit administered by the Alaska Railroad Corporation.
- Clean Water Act Section 401 Certificate of Reasonable Assurance administered by the Alaska Department of Environmental Quality.
- Clean Water Act Section 404/10 Individual Permit administered by the United States Army Corps of Engineers.
- Clean Water Act Section 402 and 18 AAC 83 administered by the Alaska Department of Environmental Conservation.
- Special Use Permit administered by Alaska Department of Natural Resources.
- Non-Domestic Storm Water Disposal Plan Approval administered by Alaska Department of Environmental Conservation.

- Noise Permit administered by the Municipality of Anchorage.
- Conditional Use Permit administered by the Municipality of Anchorage.
- Endangered Species Act, Section 7 Consultation administered by National Marine Fisheries Service.
- Magnuson Stevens Fishery Conservation and Management Act, Essential Fish Habitat Consultation administered by National Marine Fisheries Service.
- Section 106 National Historic Preservation Act and the Alaska Historic Preservation Act administered by Alaska Department of Natural Resources, State Historic Preservation Officer.
- Alaska Department of Natural Resources Commissioner's Finding
- Section 4(f) administered by the official having jurisdiction of Chugach State Park lands, Alaska Department of Natural Resources.
- Section 6(f) LWCF Program administered by the Department of Interior.
- Bald and Golden Eagle Protection Act administered by United States Fish and Wildlife Service.

Public Involvement and Agency Coordination

Public involvement and agency coordination for the proposed project began in 1998 in preparation of the 2004 Categorical Exclusion, continued throughout the design process for the 2013 Categorical Exclusion Re-evaluation, and since 2015 for the draft 2019 Environmental Assessment. Public outreach has included participation at community planning meetings, holding public open houses, attending transportation fairs, sending project updates through mailers, and hosting a dedicated project website. An agency technical advisory group was created in 2013 to maintain a consistent exchange of pertinent information with agencies. The public and agency meetings resulted in changes to the design of the proposed action, most notably around the proposed parking areas and viewing platforms.

1.0 INTRODUCTION

1.1 Introduction

The State of Alaska Department of Transportation and Public Facilities (DOT&PF) is proposing to realign and construct safety improvements to the Seward Highway from Milepost (MP) 105 to MP 107. The proposed project is in Sections 2 and 3, Township 10 North, Range 2 West, Seward Meridian; Latitude 60.986° North, Longitude 149.552° West, within the Municipality of Anchorage, between the communities of Indian and Rainbow, Alaska (Figure 1). The proposed project is being developed with a combination of DOT&PF and Federal Highway Administration (FHWA) funds.

The purpose of this Environmental Assessment (EA) is to present and analyze the environmental consequences of reasonable alternatives in accordance with the National Environmental Policy Act (NEPA). **The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being carried out by DOT&PF pursuant to 23 United States (U.S.) Code 327 and a Memorandum of Understanding dated November 3, 2017 and executed by FHWA and DOT&PF.**



Figure 1: Proposed Project Location

1.2 Background

1.2.1 Seward Highway

Originally completed in 1951, the Seward Highway extends north from Seward, Alaska approximately 127 miles to Anchorage, Alaska. Posted speeds vary between Anchorage and Girdwood from 55 to 65 miles per hour (mph). The Seward Highway is recognized for its scenic, natural, historical, and recreational values, and it has been designated as a National Scenic Byway, U.S. Department of Agriculture Forest Service Scenic Byway, Alaska Scenic Byway, and All-American Road (Photograph 1).

In addition to the scenery, it frequently provides motorists with views of local wildlife, such as beluga whales (*Delphinapteras leucas*) and Dall sheep (*Ovis dalli*) (Photograph 2).



Photograph 1: Seward Highway near MP 106.7



Photograph 2: Dall sheep near Windy Corner

The Seward Highway is the only highway transportation route providing access between Anchorage and communities to the south along Turnagain Arm, the Kenai Peninsula, and the Alaska Marine Highway System ports at Whittier, Seward, and Homer. As such, the Seward Highway supports recreational, industrial, commercial, and residential traffic and vehicle types range from passenger cars to slow moving recreational vehicles to commercial freight vehicles.

1.2.2 Project History

To improve vehicular and pedestrian safety along the Seward Highway, in 2004, DOT&PF proposed design improvements to a problematic segment of the highway from MP 105 to MP 115 (DOT&PF 2004a). A Categorical Exclusion (CE) was signed and approved by DOT&PF and FHWA in 2004; however, design and permitting efforts for the 2004 project were suspended due to lack of available construction funding.

In 2006, Governor Murkowski designated the Seward Highway from MP 90 to MP 117.5 as the state’s first safety corridor due to the elevated rate of fatal and major injury (high severity) crashes (Figure 2). Nearly all (28 of 31) fatal crashes prior to 2005 and involving two vehicles were the result of head-on collisions. In 2007, the safety corridor designation was extended to MP 87. Since 2007, DOT&PF has embarked on efforts to provide physical safety improvements along segments of the corridor with historically higher rates of high severity crashes (DOT&PF 2017d). Many factors affect the severity of a crash, including roadway geometry, road conditions, speed, seatbelt use, vehicle type, impairment, fatigue, driver attitude, and emergency response resources. Since 2006, safety improvement projects have targeted the segment between MP 99 and MP 111, due to the higher frequency and severity of accidents in this section (Figures 2 and 3).

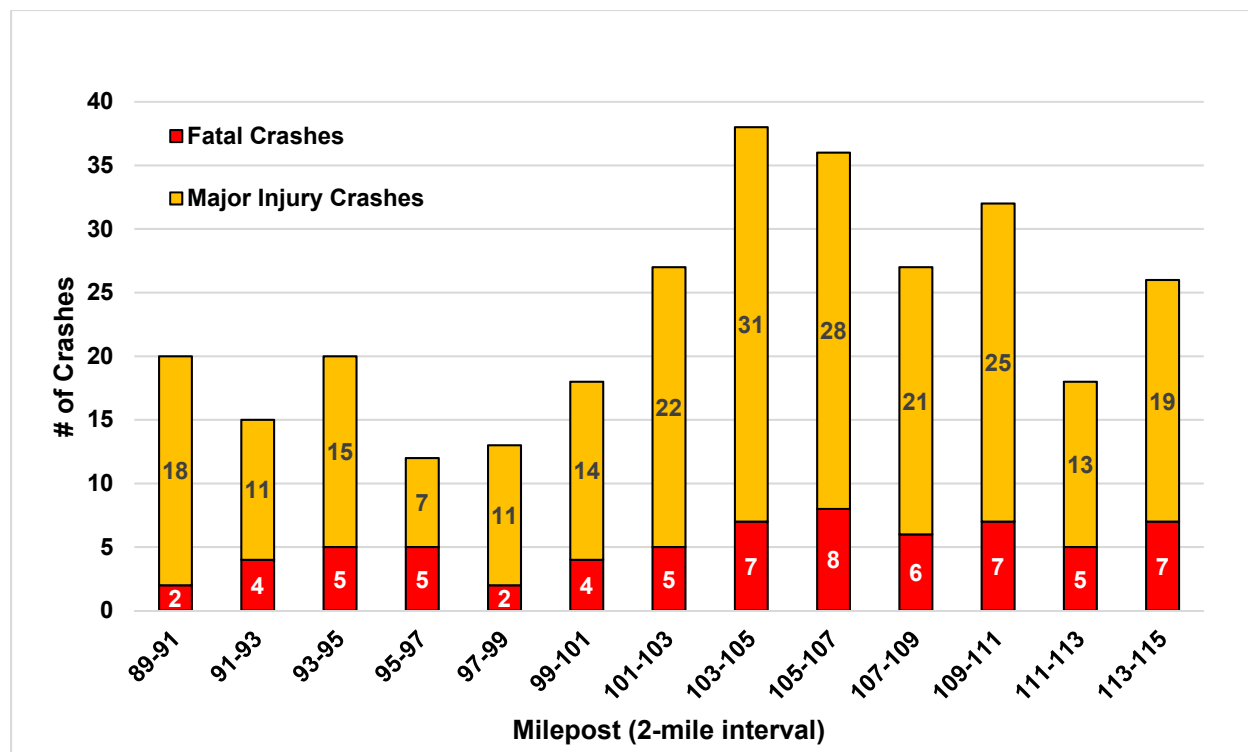


Figure 2: Seward Highway Fatal and Major Injury Crashes, 1977 to 2015 (DOT&PF 2018b)

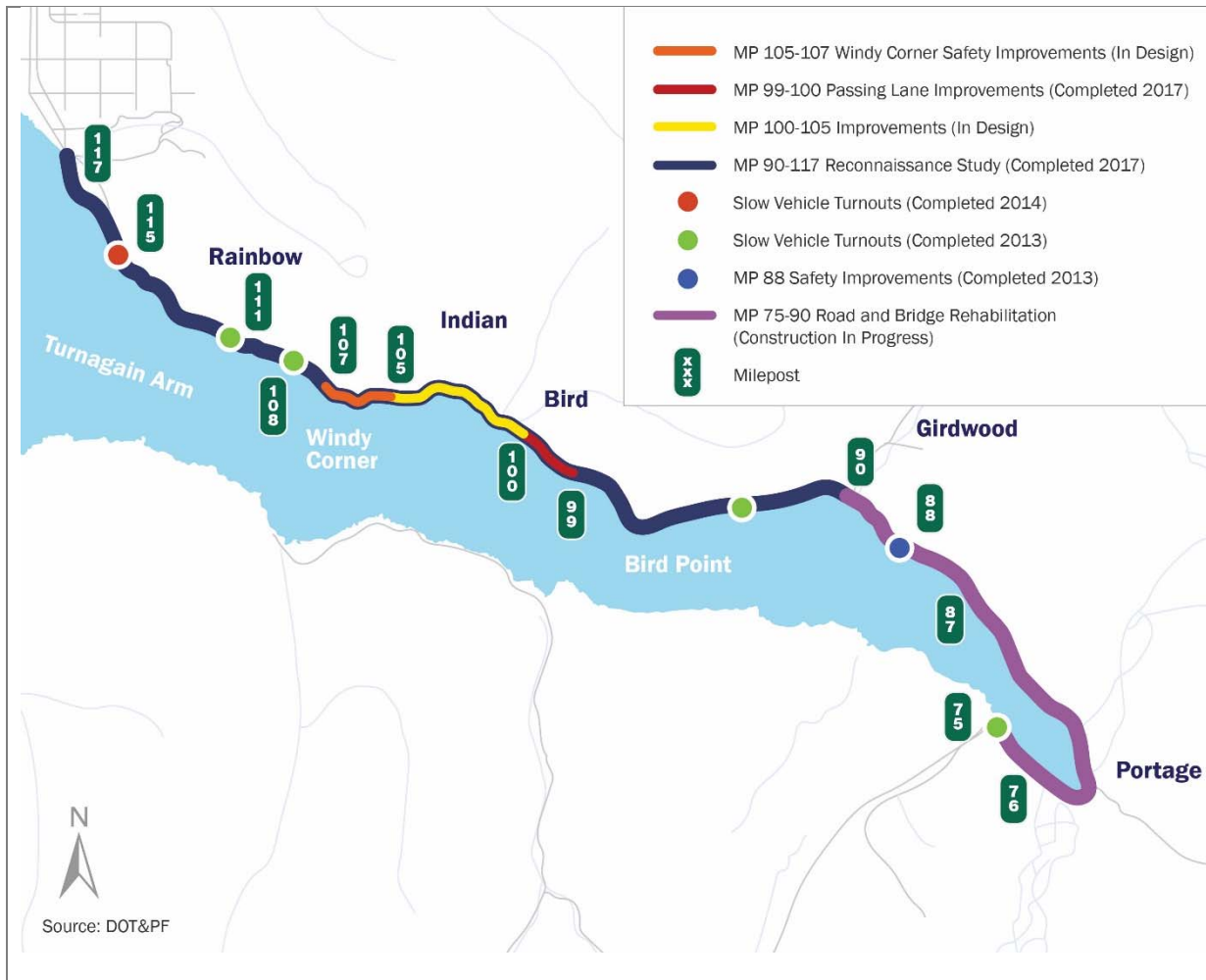


Figure 3: Seward Highway Safety Improvement Projects Along Turnagain Arm, 2012 - 2018

In 2011, DOT&PF commissioned a value engineering (VE) study of the conceptual improvements between MP 105 and MP 107. To the extent practicable, the proposed project design incorporated the approved VE recommendations. One significant environmental change has occurred since the 2004 CE and subsequent VE Study, which led to changes in the design proposed in those documents. In 2008, the Cook Inlet population of beluga whales (CIBW) were listed as endangered by National Marine Fisheries Service (NMFS) under the Endangered Species Act of 1973, and in 2011, upper Cook Inlet including Turnagain Arm was designated as critical habitat. The design previously avoided impacts to Gorilla Rock in accordance with public and agency input; however, since NMFS designated Turnagain Arm as critical habitat, DOT&PF has shifted the alignment landward to reduce fill in the inlet, thereby impacting Gorilla Rock.

The 2017 Safety Corridors Audit compared the 10 years prior to the 2006 safety designation with the 10 years following it for Seward Highway MP 87 to MP 117 (DOT&PF 2017d). The audit indicated a nearly 40 percent decrease in high severity crashes since 2006. However, this reduction has been evidenced primarily by a reduction in major injury crashes, while fatal crashes have increased 23 percent (Table 1).

Table 1: Seward Highway MP 87-MP 117 Safety Corridor Performance (DOT&PF 2017d)

Seward Highway MP 87-117; 3.0 Miles South of Girdwood to Potter Rifle Range	Before (1/1/1996 to 5/26/2006)	After (5/27/2006 to 5/31/2017)	Change
	Crashes per Year	Crashes Per Year	
Fatal	1.9	2.4	+23%
Major Injury	7.0	3.2	-55%
Serious Crashes (Total)	8.9	5.5	-38%

Crashes are difficult to predict. Whether someone is injured, or even killed, in a crash is influenced by a variety of factors, some of which are random. At least 10 years of data are needed to identify statistically significant trends. Fatal crashes appear to have persisted at or above the rate prior to the safety corridor designation, but overall major severity accidents are about 40 percent lower. From this we can begin to draw the conclusion that enforcement and education can serve as effective means of lowering crashes, as long as the campaign is sustained until more permanent engineering measures are implemented.

1.2.3 Alaska Railroad

The Alaska Railroad Corporation (ARRC) completed a mainline track in 1923, stretching 470 miles from Seward to Fairbanks. The segment from Anchorage to Seward affords views of picturesque landscapes along Turnagain Arm and through the backcountry of the Kenai Peninsula (ARRC 2017). From MP 100 to MP 115, the rail line is located on the southwest side of the Seward Highway, between the highway and Turnagain Arm (Photograph 3).



Photograph 3: Alaska Railroad track along Turnagain Arm

1.2.4 Chugach State Park

Chugach State Park (CSP) was established by the State of Alaska in 1970 (Alaska Statute 41.21.120-41.21.125), and was designated a special purpose area in accordance with Article 8, Section 7 of the Alaska Constitution (State of Alaska Department of Natural Resources [ADNR]

2011). Containing approximately 495,000 acres, CSP is one of the largest state parks in the U.S. The park contains diverse land forms and rugged topography with mountains, ocean shoreline, rivers, lakes, glaciers, and ice fields. CSP is one of Alaska's most accessible parks, with the western boundary adjacent to the State's largest city. ADNR manages CSP through the Division of Parks and Outdoor Recreation (ADNR-DPOR).

1.2.5 Cook Inlet

Cook Inlet is a tidal estuary approximately 220 miles in length, located in southcentral Alaska. The tidal fluctuation is the fourth largest in the world, with a differential as great as 39.4 feet (National Oceanic and Atmospheric Administration [NOAA] 2018). Large areas of mudflats are exposed at low tide. Tidally-driven turbulence suspends large volumes of sediment in the water from glacial outflow and coastal erosion. Ice presence in Cook Inlet is typically from January to March and is particularly concentrated in areas such as Knik Arm and Turnagain Arm due to the freshwater input from the numerous rivers in the area. NMFS has listed CIBW as endangered and upper Cook Inlet is identified as critical habitat for the whales.

1.3 Existing Conditions within the Project Area

The project area is situated on the southern terrestrial boundary of CSP, between MP 105.5 and MP 107.5 (Figure 4). This area is characterized by steep mountain slopes to the north and east of the Seward Highway and ARRC rail line, and Turnagain Arm (Cook Inlet) on the south and west (Photograph 4).

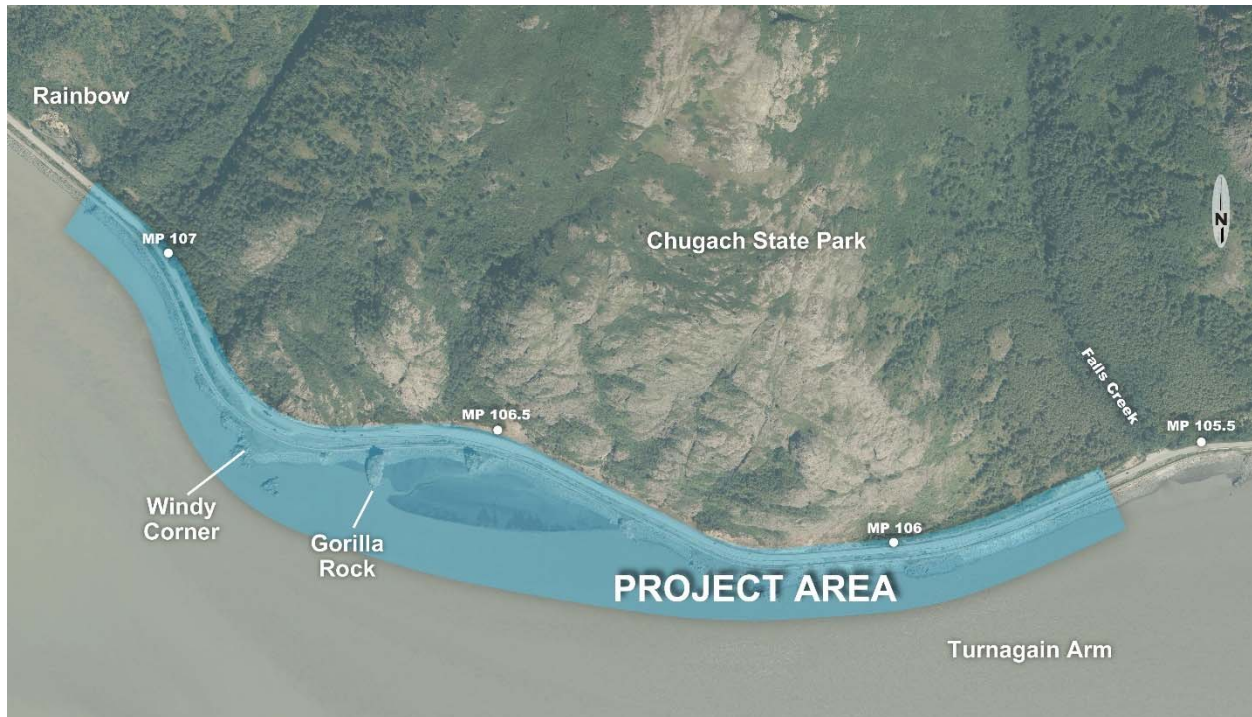


Figure 4: Proposed Seward Highway Project Area



Photograph 4: View southeast from Windy Corner above Seward Highway

1.3.1 Seward Highway

The existing highway is designated as a Rural Principal Arterial roadway, consisting of two 12-foot-wide travel lanes and 8-foot-wide paved shoulders with rumble strips (Figure 5). Parking and pedestrian facilities along the highway provide access to recreational activities including photography, hiking, rock climbing, and watersports (Photograph 5).

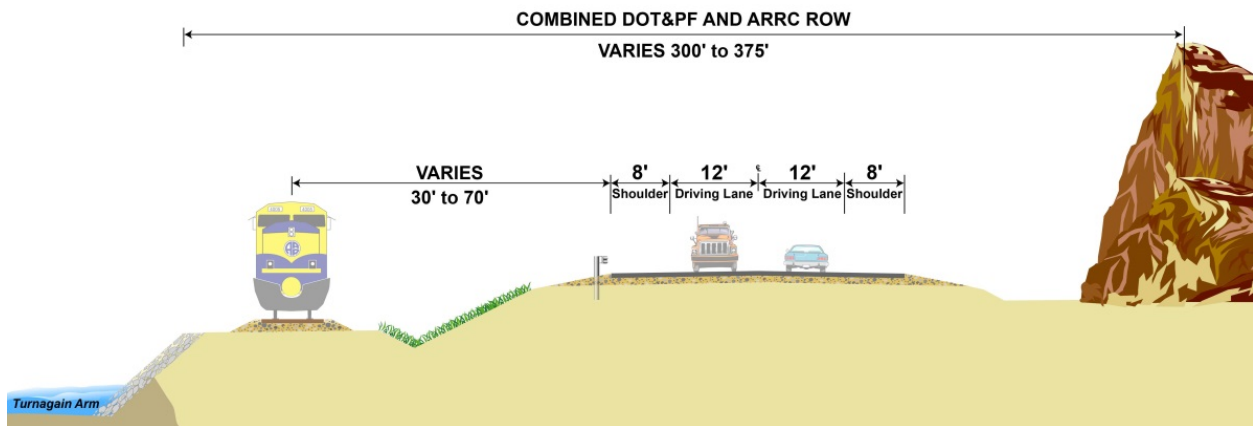


Figure 5: Existing Typical Section



Photograph 5: Windy Corner Trailhead for Turnagain Arm Trail

Generally, the highway is located within a 300-foot-wide highway right-of-way (ROW), adjacent to and frequently overlapping the ARRC 200-foot-wide ROW. The project area lies within the Seward Highway Safety Corridor and has a posted speed limit of 55 mph with no passing lanes or zones.

Existing geometry of curves within the project area do not meet the minimum radius for a design speed of 55 mph. A speed study was not conducted for this project, but recent Seward Highway projects south of Anchorage trend toward a 65-mph design speed to accommodate 85th percentile speeds that are typically between 60 and 65 mph.

This project also uses the 65-mph design speed to increase safety and traffic efficiency by allowing traffic to flow more freely by eliminating traffic backups caused by vehicles slowing for lower speed curves.

1.3.1.1 Traffic

The current (2017) Annual Average Daily Traffic (AADT) is 7,756 vehicles per day and the highway operates at a Level of Service (LOS) of D. During peak summer periods, increased volumes regularly result in LOS E or F as daily traffic volumes range between 6,000 and 22,000 vehicles (Photograph 6).



Photograph 6: Seward Highway Summer Traffic at Windy Corner

Traffic operations in the project area are frequently disrupted by motorists slowing and stopping along the highway shoulder to view wildlife. This creates a high speed-differential between motorists traveling through the corridor and those that are sightseeing (Photograph 7). This speed differential and the uncontrolled movement of traffic entering and exiting the drive lanes both contribute to the elevated rate and severity of crashes.



Photograph 7: Wildlife Viewers on Seward Highway Shoulder at Windy Corner, with Traffic

1.3.1.2 Parking and Pedestrian Facilities

Parking and pedestrian use within or adjacent to the project area is indicated in Figure 6.

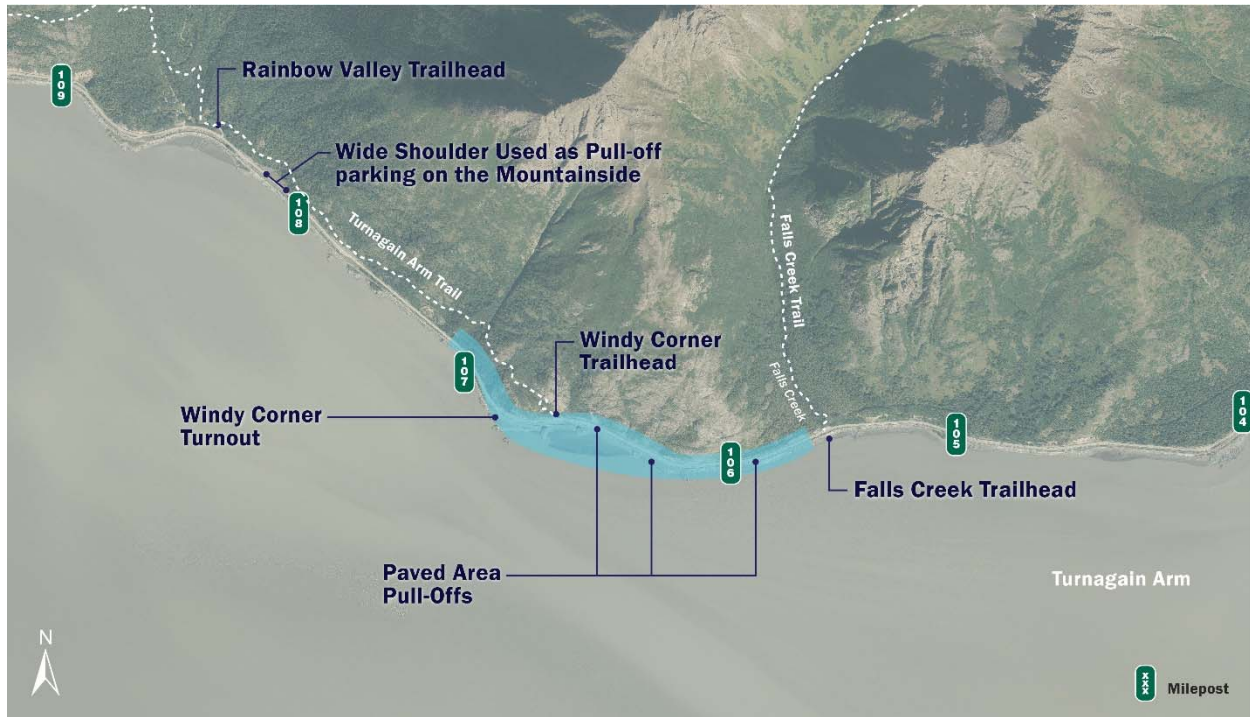


Figure 6: Existing Parking and Pedestrian Facilities in the Vicinity of Windy Corner

- The Rainbow Valley trailhead parking, located near MP 108.2, consists of a 54-foot by 160-foot parking area, separated from the highway by a vegetated strip between 70 and 105 feet in width, and with a 150-foot driveway connection to the highway. The trailhead provides access to the Turnagain Arm Trail. The trail is primitive with no state park facilities (e.g. toilets, etc.).
- The Falls Creek trailhead parking, located near MP 105.5, consists of a 40-foot by 200-foot asphalt area with no defined parking spaces and is immediately adjacent to the shoulder of the Seward Highway. The trail is primitive with no state park facilities (e.g. toilets, etc.). The trailhead is not connected with any other pedestrian facilities along the highway.
- The Windy Corner trailhead parking, located near MP 106.7, consists of a 30-foot by 220-foot asphalt area with no defined parking spaces and is immediately adjacent to the shoulder of the Seward Highway. The trail is primitive with no state park facilities (e.g. toilets, etc.). The trailhead is the southernmost terminus for the Turnagain Arm Trail.
- The Windy Corner turnout, located on the south side of the highway near MP 106.8, consists of a 350-foot-long asphalt vehicle turnout with no defined parking. It is separated from the highway by an approximately 30-foot-wide median.

- Widened shoulders (three locations) – Widened shoulders occur near MP 105.9 southbound (SB), MP 106.3 northbound (NB), and MP 106.5 SB. Each consists of shoulder widths of either 18 feet or 30 feet, with lengths of 230 feet to 550 feet.

1.3.1.3 Emergency Access

During public involvement and agency meetings, commenters noted that Turnagain Arm has seen an increase in the number of recreational users (e.g., paddle boarders, wind and kite surfers, kayaking, etc.) in the past 10 years, leading to an intensified desire for improved access to Turnagain Arm. Of concern with the increasing use of Turnagain Arm, is that emergency responders have no access (e.g. ramps or boat launches) to Turnagain Arm between Anchorage and Bird Point. Existing access points (Twenty-Mile River and Port of Anchorage) are influenced by the dynamic tidal conditions and channel fluctuations in Turnagain Arm and response times are delayed and unpredictable as emergency responders maneuver up or down Turnagain Arm. As recreation use of Turnagain Arm increases, a constructed access ramp is needed for emergency responders to safely access Turnagain Arm.

1.3.2 Alaska Railroad Corporation

The ARRC track structure consists of continuously welded rail, type 115RE rail, which indicates a rail weight of 115 pounds per linear yard. The RE denotes a specific rail cross-section developed by the American Railway Engineering and Maintenance-of-Way Association. The ballast is 10 feet wide and the sub-ballast is 24 feet wide. Track grades are generally flat (0.00 to 0.10 percent). The ARRC rail line is in a 200-foot-wide ROW and is adjacent to and typically overlapping the DOT&PF 300-foot-wide ROW. The ARRC and DOT&PF ROWs typically have more than 100 feet of overlap from MP 104 to MP 114. Due to issues of overlapping ROW and maintenance needs, in 1989, ARRC issued a Blanket Permit to DOT&PF for highway use and maintenance. This Blanket Permit was extended to 2036 under a 2001 Memorandum of Agreement (MOA) between DOT&PF, ADNOR, and ARRC (Appendix A).

1.3.3 Chugach State Park

CSP is within the Chugach-St. Elias ecoregion and consists of terrestrial and marine ecosystems. A range of habitats may be found along the north side of Turnagain Arm, located within or adjacent to the Project Area. Riparian corridors along upper perennial streams, intertidal mudflats, subtidal marine, scrub-shrub upland, rock outcrops, and forested uplands are all found near the project area.

The entire project area lies within the Turnagain Arm Unit of CSP. The highway is located between steep mountainous terrain to the north and limited vegetation or Turnagain Arm mudflats that are heavily influenced by fluctuating tides to the south. Dall sheep are frequently spotted near the highway at Windy Corner, presenting viewing and photo opportunities for tourists that often pull onto highway shoulders to access.

The Turnagain Arm Unit provides local residents and tourists with diverse recreational opportunities like hiking, skiing, camping, wildlife viewing, rock and ice climbing, fishing, hunting, and water activities (i.e., wind and kite surfing, bore tide surfing, kayaking). Rock climbers pull their vehicles off on the shoulder of the highway in the project area where they can access a climbing face known as Goat's Head Soup; this hosts several climbing routes near MP 106.8 (Sieling 1998).

The Seward Highway and ARRC corridors are located within the boundaries of CSP. Within the project area, the total DOT&PF/ARRC ROW width ranges from 310 to 375 feet wide. The 2001 MOA established the desire of these three agencies to work together in planning, developing, and operating the transportation facilities within the Seward Highway corridor for public benefit, while recognizing the diverse missions of each entity.

Importantly, the three entities recognized the essential role of the Seward Highway and the ARRC rail line as critical state transportation infrastructure, the purposes of CSP, and the importance of consideration of CSP purposes and policies in the design and construction of transportation projects in the corridor. The agreement also recognized that realignment of the highway and rail line was needed to improve traffic operations, congestion, and public safety, and that changes in land ownership and/or management authority would be needed to accommodate realignment.

1.3.4 Turnagain Arm

Turnagain Arm is about 30 miles long and three to four miles wide at the project area. Two main, deep-water channels are located along the north and south shores of the arm. Glacial silt and sand compose the Turnagain Arm seafloor. Tidal range is the largest in the U.S. and fourth highest in the world, with a mean of 30 feet. This tidal fluctuation produces a tidal phenomenon called a tidal bore, which may be more than 6 feet high and travel at 15 mph on high spring tides (ADNR 2011; Seward Highway All-American Road Partnership 2017).

1.3.5 Material Source

No developed material sources are located within the project corridor. DOT&PF has conducted a number of geotechnical investigations evaluating potential material sources along the Seward Highway but there are no material sites in operation currently.

1.4 Purpose of the Proposed Project

The purpose of the proposed Seward Highway: MP 105 to MP 107, Windy Corner project is to improve traffic operations and implement safety upgrades within this two-mile stretch of Seward Highway.

1.5 Need for the Proposed Project

1.5.1 Need 1: Decrease High-Severity Crashes

The Seward Highway is one of five designated safety corridors in Alaska, due to its elevated rate of high severity motor vehicle crashes. The Seward Highway between MP 105 to MP 107 has the highest number of fatal crashes and the second highest number of major injury crashes of any two-mile segment between Potter Station and Girdwood over the past 40 years (see Figure 2). Since the safety corridor designation in 2006, fatal crashes have increased by 23 percent, while major injury crashes have decreased by 55 percent. Uncontrolled movement of traffic entering and exiting the highway and curve spacing and geometry contribute to this elevated crash rate. Existing geometry of curves at MP 106.7 and MP 107 do not meet current standards for a 55-mph design speed. The substandard curve radii and closely spaced curves reduce the margin for driver error.

1.5.2 Need 2: Improve Traffic Operations

Free-flow conditions for the 85th percentile speed through the Project Area is likely 60 mph to 65 mph, exceeding the posted speed of 55 mph. Furthermore, traffic operations are frequently disrupted by motorists slowing to enter or exit parking facilities, or stopping along the highway shoulder, to access recreation activities or to view sheep and other wildlife and scenery (Photographs 7 and 8).



Photograph 8: Seward Highway, Windy Corner Wildlife-Traffic Issues

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2.0 ALTERNATIVES

Reasonable alternatives carried forward for analysis need to meet the project's purpose and need; to improve safety and traffic operations between MP 105 to MP 107 of the Seward Highway.

This section discusses alternatives and the process used to determine which alternatives are carried forward or dismissed from further analysis. The No Action alternative must be carried forward for analysis under NEPA regulations.

2.1 Logical Termini

The proposed project is part of the Seward Highway Safety Corridor from MP 87 to MP 117.5. The section between MP 105 to MP 107 was chosen to improve multiple curves and to eliminate another curve in a stretch of the highway with the most fatal accidents and second most major injury accidents between 1977 and 2012. The southern terminus was selected at MP 105 as it ties into an existing project to improve the Seward Highway from MP 100 to MP 105. MP 107 was selected as the northern terminus as it is north of the two curves not meeting the 55-mph design standard.

2.2 History of Alternatives

In 2004, DOT&PF looked at alternatives to improve safety from MP 105 to MP 115 and a CE was prepared (Table 2).

Table 2: 2004 CE Alternatives Considered

	Alternative	Description	Status
A	No-Build	Leave and repair as needed.	Dismissed
B	Park Avoidance	Avoid CSP slopes and terrestrial lands by moving railroad and highway onto Turnagain Arm mudflats	Dismissed
C	65-mph Divided 4-Lane	Reconstruct the highway to a 65-mph design speed, provide four lanes (two north and south), median separating north and south bound traffic. Continuous parallel pathway Windy to Beluga Point.	Dismissed
D	65-mph 3R with Alternating Passing Lanes	Rehabilitation of the highway to a 65-mph design speed. Construct alternating passing lanes. Improve pedestrian facilities at Windy Corner, Rainbow, and Beluga Point.	Dismissed
E	55-mph 3R with Alternating Passing Lanes	Rehabilitation of the highway to a 55-mph design speed. Construct alternating passing lanes. Add turn lanes at McHugh Creek recreation area. Shift highway offshore into Turnagain Arm. Shift railroad offshore. Construct 8-foot-wide shoulders. Improve recreational areas at Windy and Rainbow Point.	2004 CE approved

Construction funding was not available to pursue the preferred alternative. In 2007, improvements to address the most urgent safety needs were evaluated for the segment between MP 105 and MP 107. In 2011, a VE study was conducted to identify opportunities to improve safety by further evaluating options 2, 5 (modified), and 10 (Table 3). Option 10 was rated highest as shown in Table 4.

Table 3: 2007 Evaluated Safety Improvement Options (DOT&PF 2011b)

Options	Descriptions	Status
1	60-mph design speed. Shift alignment from MP 106.33 to MP 107. NB passing lane (2,300 feet). Pullout (570 feet) on the NB and SB side of the highway. Separated turnout to the pullout.	Dismissed
2	<i>60-mph design speed. Shift alignment from MP 106.33 to MP 107 with 85-foot-wide flat-bottom ditch. SB passing lane (2,745 feet). Pullout (600 feet) north and south. Separated turnout to the pullout.</i>	<i>Evaluated in VE study</i>
3	55-mph design speed. Shift alignment from MP 106.25 to MP 107. SB passing lane (1,515 feet). Pullout for 14 or 15 vehicles on NB side of highway.	Dismissed
4	55-mph design speed. Shift alignment from MP 106.25 to MP 107. SB passing lane (1,515 feet). Pullout for 14 to 15 vehicles on NB side of highway, with room to expand pullout to 30 vehicles.	Dismissed
5	60-mph design speed. Shift alignment from MP 105 to MP 107 with 85-foot-wide flat-bottom ditch. SB passing lane (6,200 feet). Pullout for 30 vehicles on NB side of highway.	Dismissed
<i>5 Modified</i>	<i>60-mph design speed. Shift alignment from MP 105 to MP 107 with a 40-foot-wide flat-bottom ditch. Provide a separated pullout, number of vehicles not determined. Leave room for a SB passing lane to be built in the future between MP 105 and MP 106.</i>	<i>Evaluated in VE study</i>
6	60-mph design speed. Shift alignment from MP 105.5 to MP 107. Pullout for 30 vehicles on NB side of highway. Leave room for potential SB passing lane between MP 105 to MP 106.	Dismissed
7	60-mph design speed. Shift alignment from MP 106.33 to MP 107. Separated pullout, undetermined number of vehicles. Leave room for potential SB passing lane between MP 105 and MP 106.	Dismissed
8	Phased construction of Options 4-5 hybrid.	Dismissed
9	Phased construction of Options 2-4-5 hybrid.	Dismissed
10	<i>Phased construction of Option 5. Provide SB direction with a left-turn lane and NB direction with an acceleration lane. Flat-bottom ditch.</i>	<i>Evaluated in VE study</i>

Table 4: Options 2, 5 (Modified), and 10 Ratings

<i>Option</i>	<i>Score</i>				<i>Overall</i>
	Maximizes Safety	Minimizes Impacts to Environment	Accommodates ARRC	Reduces Future Impacts	
2	16	8	8	8	40
5 (Modified)	16	8	12	8	44
10	36	12	12	16	76
Max Available	36	16	12	16	80

In 2012, DOT&PF began design and environmental documentation for the No Action alternative and the Proposed Action alternative, incorporating recommendations from the VE study (Option 10) for a 4-lane divided highway with a design speed of 65 mph. Option 10 has evolved into the proposed project design.

In 2017 and 2018, as DOT&PF was preparing the Section 4(f) analysis documentation, additional questions arose regarding the material needs and the limited documentation of the material source options that had been evaluated. These questions led to additional analysis to determine if there were any other reasonable alternatives that would meet the project’s purpose and need while reducing potential impacts to CSP (Table 5).

Table 5: Alternatives Reviewed for Section 4(f) Documentation

Alternative	Description	Status
1	This alternative would construct improvements within existing ROW: Section 4(f) impact avoidance. Design speed would be 55 mph for curve 4 and would be 60 mph for curves 2, 3, and 5.	Dismissed
2a	Proposed Action: Combination of Option 10 and Alternative C	Preferred Alternative
2b	Maintains the same design criteria and location as 2a but evaluates multiple material source locations within DOT&PF Seward Highway ROW as close as possible to project area. These material sources would replace the material sources proposed within CSP at MP 109 and MP 104.	Dismissed
2c	Maintains the same design criteria and location as 2a but imports materials from outside the project corridor and outside of CSP lands.	Dismissed
3	Maintains the same design criteria as 2a, while shifting the roadway alignment inland at Windy Corner to balance cut and fill quantities.	Dismissed
4	This alternative moves the roadway alignment inland and includes the construction of a 2,250-foot long tunnel through Windy Corner.	Dismissed

Alternatives and options were dismissed based on the ability to meet the project purpose and need, how each alternative would impact the environment, and the effect of ARRC and CSP design constraints on the project (See Appendix E).

2.2.1 Material Source

Production and transport of aggregate material to a project site is typically one of the most expensive components of a road construction project. The cost of materials for this project may vary by as much as threefold depending on which source and delivery method is selected. The substantial costs of some options could result in the project being abandoned.

Prior to initiation of this project, DOT&PF had conducted preliminary geotechnical investigation of potential material sources within three miles of the project area. As part of the project process, DOT&PF prepared a preliminary cost comparison for transporting approximately 2.2 million tons of borrow material from four potential locations by truck or train, as appropriate. This comparison is summarized in Table 6.

Table 6: 2013 DOT&PF Internal Borrow Transportation Estimate

Borrow Material Source	Mode of Transport	Estimated Haul Cost
Palmer	Train	\$26.6M
Portage Area	Truck	\$25.3M
Create new source within 3 miles of project	Truck	\$5.7M
Create new source within 3 miles of project	Train	\$5.3M
On-site within Project Area	Truck	\$2.4M

Source: 2013b DOT&PF Memorandum of Cost Comparison of Borrow Material Sources

In 2013 and 2014, DOT&PF conducted additional geotechnical investigation to evaluate the types and quality of materials available in the area for their suitability in construction of the proposed project. In 2017, DOT&PF hired a third-party contractor to provide a cost estimate for obtaining and transporting approximately 3.9 million tons of materials (aggregate, riprap, and armor stone) to the project area (Table 7). This estimate was prepared to validate, refine, or correct the earlier internal cost estimate, as well as to add a further array of potential material source options.

Table 7: 2017 Cost Estimate for Material Acquisition and Transport (Granite 2017)

Source Name	Distance (miles)	Transportation Option			Estimated Cost	
		Truck	Train	Barge	Truck	Train/Barge
MP 109	3	Yes	Yes	No	\$24.1M	\$31.3M
Portage Area	30	Yes	Yes	No	\$62.5M	62.2M
Eklutna	30	No	Yes	No	--	\$50.3M
Skookum Quarry	36	Yes	No	No	\$90.8M	--
Granite Cove	270	No	No	Yes	--	\$110.4M
Diamond Point	170	No	No	Yes	--	\$78.8M

MP 104 was not evaluated in the Granite evaluation, but it is located similarly to MP 109 in relation to the project area and costs are assumed to be similar to MP 109.

2.2.2 Engineering

Throughout the design process, DOT&PF followed engineering design standards, guidelines, and relevant resource studies to develop the proposed project, including:

- Value Engineering Study Report (HDR 2011);

- DOT&PF Policy and Procedure(s) (DOT&PF 2017c);
- Biological Assessment of the Cook Inlet Beluga Whale (LGL Alaska Research Associates, Inc. 2015); and
- Land and Water Conservation Fund Section 6(f) Environmental Assessment, Seward Highway Mileposts 105-107 (ADNR 2017b).

Considerations influencing the design process include:

- Designing to accommodate highway speeds up to 65 mph;
- Providing separation between NB and SB highway lanes;
- Providing an appropriate clear zone and rock catchment area;
- Minimizing impacts to environmentally sensitive areas;
- Minimizing ROW impacts;
- Maintaining horizontal and vertical minimum sight distances;
- Adhering to DOT&PF and ARRC design criteria;
- Maintaining compatibility with potential future four-lane expansion (north or south of project area);
- Providing access to CSP lands (wildlife viewing and recreational areas); and
- Minimizing overall project cost.

2.3 Evaluated Alternatives

2.3.1 No Action

The No Action alternative consists of maintaining the existing roadway and railroad alignments.

Access to wildlife viewing and recreational parking would be unchanged as no improvements or modifications would be made under this alternative. Curves within the project area would not meet 55-mph design speed.

The highway is forecast to operate at LOS D in 2035 and will continue to operate at LOS E or F with seasonal high-traffic fluctuations.

2.3.2 Proposed Action

The Proposed Action alternative consists of improving Seward Highway from MP 105.5 to MP 107.5 to meet 65-mph design criteria (Figure 7). The typical highway section is for a two-lane divided highway consisting of (in each direction) (Figure 8):

- 12-foot-wide travel lanes,
- 12-foot-wide auxiliary lanes,
- 24-foot-wide vegetated median,
- 8-foot-wide outside shoulders, and
- 4-foot-wide inside shoulders.

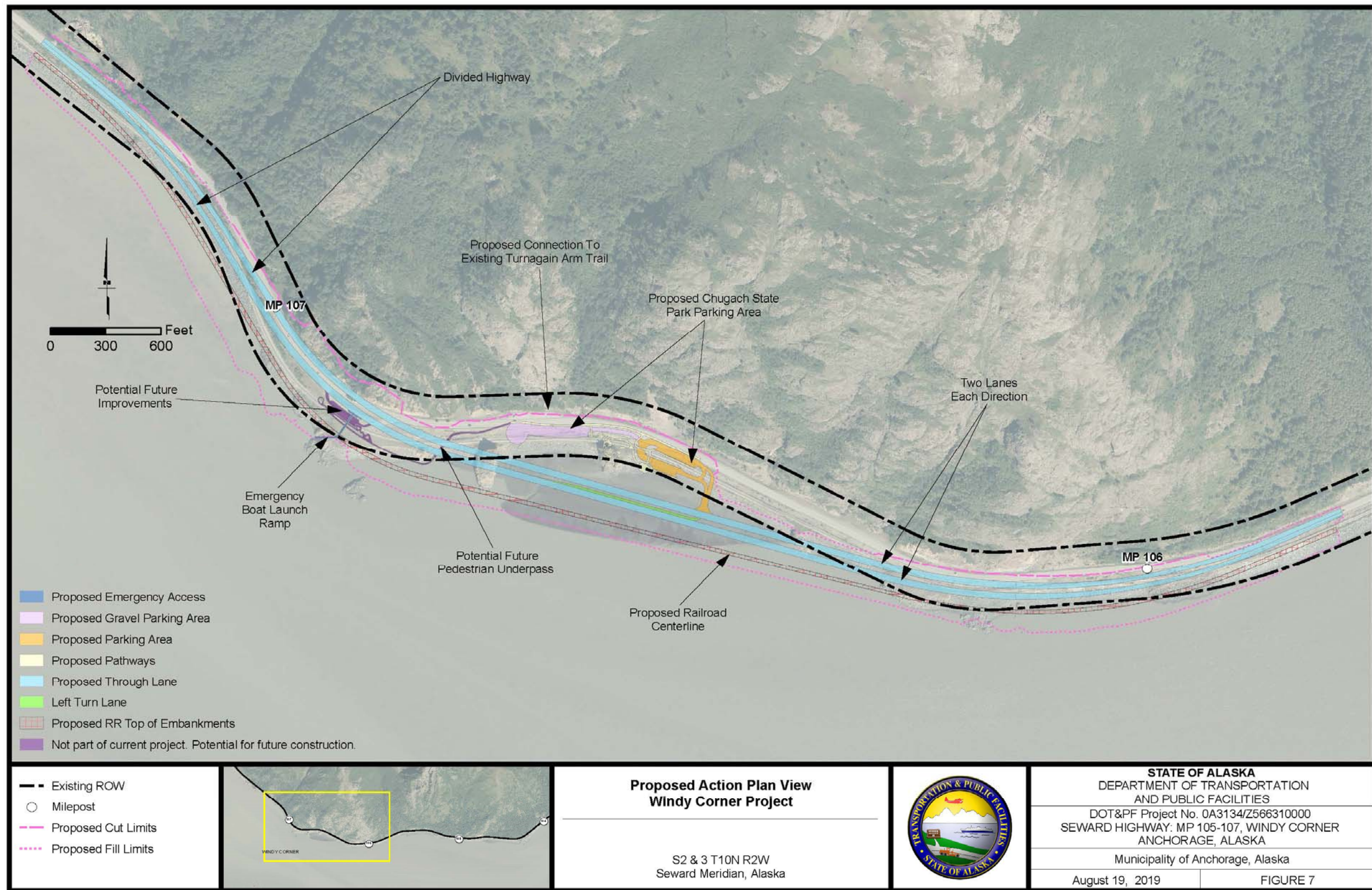


Figure 7: Proposed Action Plan View Windy Corner Project

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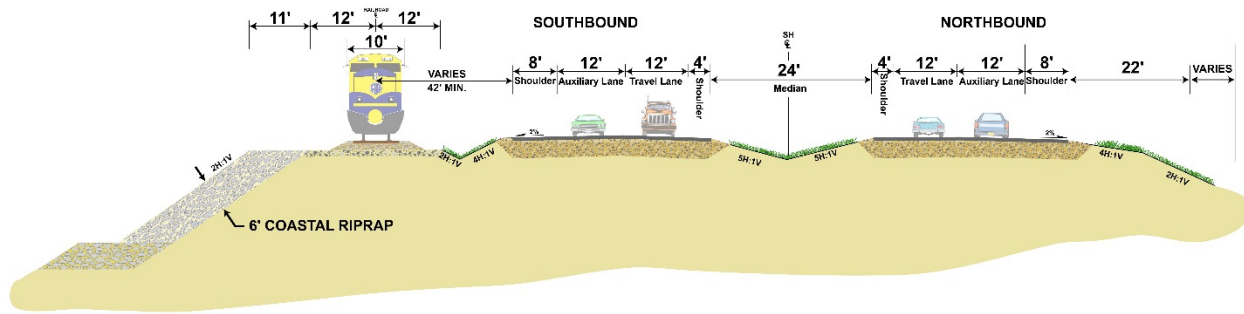


Figure 8: Proposed Action Typical Section

The Proposed Action would include the realignment of the ARRC rail line¹ to maintain a minimum of 42 feet from the track centerline and the new edge of highway pavement, similar to the existing alignment. This would maintain ARRC's ability to install a future second track without having to revise either the rail or highway alignments. The design accommodates 16 feet from the existing track centerline to a second track centerline with 26 feet remaining between the second track centerline and the new edge of highway pavement. The railroad structural section includes:

- 10-foot top width for ballast; and
- 24-foot top width for sub-ballast.

The proposed track configuration features horizontal curves which will allow track speeds up to 50 mph through the project area. To limit or deter pedestrians from accessing or trespassing on ARRC property, the proposed project would also include (Figure 9):

- A drainage swale between the tracks and the highway;
- An abrupt elevation change between rail line and highway, with a 42-inch barrier rail and wall; and
- A controlled-access emergency access parking area and boat launch ramp to Turnagain Arm.

The Proposed Action also includes features intended to improve CSP access and facilities in this area. These features include:

- At least 30 feet of separation between NB scenic parking areas and highway;
- Walkways connecting the parking area to wildlife viewing areas;
- Appropriately-sized rock catchment widths based on wall heights for the NB edge of pavement and toe of slope, and;
- Adequate space to allow a future 10-foot-wide multi-use pathway on the north side of the highway.

¹ Realignment would include any utilities located within the ARRC rail alignment.

Additional amenities that were previously discussed and are not proposed for construction at this time, but which could be accommodated in the future, include a pedestrian underpass from north of the highway to south of the highway and an improved parking area and viewing area for SB traffic. These were eliminated from the project to improve safety and reduce access issues associated with trespass on the ARRC ROW.

Figure 9 provides a conceptual cross-section of these facilities.

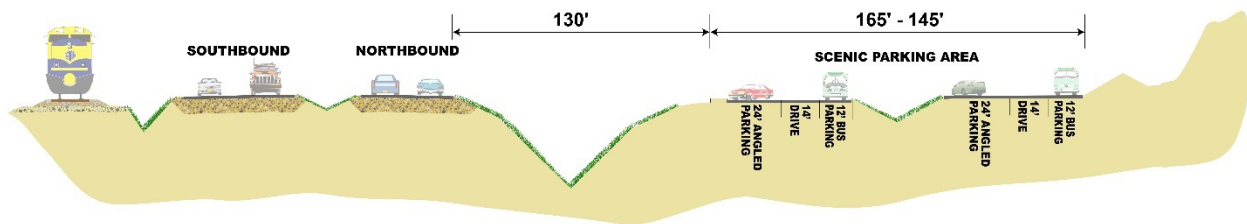


Figure 9: Northbound Parking Area Typical Section

The Proposed Action would require the extraction of nearly four million tons of material (aggregate, riprap, and armor stone). Proposed extraction areas are located at MP 109 and MP 104 (Figure 10). Blasting is anticipated to extract the necessary material. The extraction area at MP 109 is expected to produce sufficient quality and quantity of materials for this project. Material extraction at MP 104 would only occur if the Construction Contractor demonstrates that material available at MP 109 is not sufficient in quantity or quality. Given the reconnaissance done at MP 109, this situation is unlikely, but possible. If required, extraction would occur at MP 104 to obtain the remainder of material needed to construct the Proposed Action. Material extraction at these sites would be limited to material needed for this improvement project only. The Construction Contractor would submit a reclamation plan consistent with AS 27.19 to ADNR for review prior to material excavation.



Figure 10: Proposed Material Extraction Areas in Relation to Proposed Improvements

3.0 ENVIRONMENTAL CONSEQUENCES

This section briefly describes the affected environment and details the anticipated environmental effects, including direct and indirect effects, of the Proposed Action and the No Action alternatives. DOT&PF guidance recommends 17 main impact categories to be analyzed (DOT&PF 2014). In addition to these, FHWA NEPA guidance recommends several additional impact categories be analyzed (FHWA 2018). This is an issue-based EA, which means that only the environmental impact categories applicable to the project have been addressed, as summarized in Table 8.

Table 8: Affected Environmental Impact Categories

Environmental Impact Categories	Affected	Environmental Impact Categories	Affected
Right-of Way	Yes	Visual Resources	Yes
Social Considerations	Yes	Construction Impacts	Yes
Bicycle and Pedestrian Issues	Yes	Cumulative Impacts	Yes
Local Land Use and Transportation Plan	Yes	Title VI & Environmental Justice	No
Threatened and Endangered Species	Yes	Wild & Scenic Rivers and Wilderness Areas	No
Anadromous or Resident Fish and Essential Fish Habitat	Yes	Wetlands	No
Waterbody Involvement and Water Quality	Yes	Floodplains	No
Section 4(f)	Yes	Noise	No
Section 6(f)	Yes	Farmland	No
Irreversible and Irrecoverable Commitment of Resources	Yes	Economic Considerations	No
Vegetation and Invasive Species	Yes	Alaska Coastal Management Program	No
Permits and Authorizations	Yes	Hazardous Waste	No
Cultural Resources	Yes	Air Quality	No
Wildlife and Birds	Yes		

3.1 Environmental Impact Categories Not Affected

The following environmental impact categories are not present within the proposed project area or would not be affected by the proposed project. Therefore, these impact categories are briefly described below but not otherwise addressed in the EA.

3.1.1 Economic Considerations

There are no established businesses or business districts within the project area. Within the project area, the Seward Highway and ARRC ROW, is bordered on either side by CSP and is

not near established businesses or a business district; no businesses or commercial interests will be directly affected.

The new pedestrian and recreational facilities within CSP would require additional maintenance expenditures by ADNR. The final maintenance agreement between DOT&PF and ADNR is being developed. Initial discussions indicate that ADNR will be responsible for maintenance and operations of the scenic pullouts, vault toilets, trash receptacles, and other amenities not related to Seward Highway.

The proposed project design will not have any further adverse economic impacts on the regional or local economy or established businesses.

3.1.2 Wetlands

Wetlands are, by definition, a “Water of the U.S.” and are protected under the Clean Water Act (CWA) Section 404. Executive Order (E.O.) 11990, sets for policy for directing the Federal agencies to avoid, to the extent possible, any adverse impacts associated with the destruction or modification of wetlands, and to avoid new construction in wetlands whenever there is a practicable alternative.

The proposed project does not affect wetlands, as defined by the U.S. Army Corps of Engineers (USACE). However, it does affect other Waters of the U.S. (Turnagain Arm and unnamed streams). These effects are discussed in Section 3.9. A Department of the Army Section 404/10 Individual Permit is required for this project.

3.1.3 Alaska Coastal Management Program

The federally approved Alaska Coastal Management Program expired on July 1, 2011, resulting in a withdrawal from participation in the Coastal Zone Management Act (CZMA) National Coastal Management Program. The CZMA Federal consistency provision, section 307, no longer applies in Alaska.

3.1.4 Hazardous Waste

An initial site assessment queried the Alaska Department of Environmental Conservation (ADEC) Contaminated Sites Database (ADEC, 2018). The nearest known contaminated site is located at Indian, approximately MP 103. The query did not identify contamination or a “high” potential for contamination (e.g. businesses such as service stations, dry cleaners, or buildings or residences with asbestos) within or in close proximity to the project area.

3.1.5 Air Quality

The proposed project is located on Turnagain Arm between Anchorage and Girdwood; this area is considered to be in attainment the National Ambient Air Quality Standards. Thus, the State Implementation Plan for air quality does not contain any transportation control measures applicable to the project area and the conformity procedures in 40 Code of Federal Regulations (CFR) 93 do not apply.

3.1.6 Floodplains

E.O. 11988, directs Federal agencies to reduce the risk of flood loss, minimize the impacts of floods on human safety, health, and welfare, and to restore and preserve the natural and beneficial values served by floodplains. The Project Area is within Zone D; “areas in which flood hazards are undetermined, but possible” (Federal Emergency Management Agency 2009). Follow-up conversations with Municipality of Anchorage Watershed Management personnel indicate that the area is not considered to be within a regulated floodplain above the mean high tide.

The proposed project will require placement of approximately 1,800,000 cubic yards (cy) of fill on 26.30 acres of intertidal mudflats, with much of this fill falling below the mean high tide line. The Municipality of Anchorage has indicated this fill would not change the tidal floodplain elevation and that they do not require a flood hazard permit for this project (Steve Ellis, Municipality of Anchorage, personal communication). Per 23 CFR Part 650, Subpart A the No Action and Proposed Action alternatives would not significantly encroach on the floodplain.

3.1.7 Noise

The proposed project would involve both “substantial alteration in vertical and horizontal alignment” and “addition of an auxiliary lane.” Due to the proposed project, the ARRC rail line requires realignment. Each of these is sufficient to require a noise analysis.

DOT&PF conducted a noise analysis for the proposed project using FHWA’s Traffic Noise Model version 2.5. The analysis found that the proposed project would not result in highway traffic noise impacts (Appendix B). Predicted future noise levels would not approach or exceed the FHWA Noise Abatement Criteria, or substantially exceed existing highway traffic noise levels.

3.1.8 Farmland

There is no ‘prime or unique farmland’, ‘farmland of statewide importance’, or ‘farmland of local importance’ within the proposed Project Area under the Federal definitions (Natural Resources Conservation Service 2018).

3.1.9 Title VI & Environmental Justice

E.O. 12898, Federal Actions to Address Environmental Justice in Minority and Low-Income Populations (February 11, 1994), requires each Federal agency to “make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.” DOT Order 5610.2(a), Department of Transportation Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, sets forth procedures and guidance to implement E.O. 12898.

The lands adjacent to the Project Area are mostly undeveloped CSP lands. The project area occupies part of Census Tract 29, which ranges from south of Potter Marsh through to Portage. Focusing on the nearby communities of Rainbow, Indian and Bird, the project area has a population of approximately 400 people, of which 294 (74 percent) are non-minority

(Caucasian). Per capita income in this area is listed as \$37,256, and 67 percent of households earn \$50,000 or more (U.S. Environmental Protection Agency 2017a, 2017b).

No minority or low-income populations have been identified that would be adversely impacted by the proposed project as determined above. Therefore, in accordance with the provisions of E.O. 12898 and FHWA Order 6640.23, no further environmental justice analysis is required.

3.1.10 Wild & Scenic Rivers and Wilderness Areas

The Project Area neither contains nor is adjacent to designated Wild & Scenic Rivers or Wilderness Areas (U.S. Fish and Wildlife Service [USFWS] 2018).

3.2 Environmental Impact Categories Affected

3.2.1 Right-of-Way

3.2.1.1 Affected Environment

Land ownership and associated ROW within the project area consists of DOT&PF, ARRC, and ADNR. Seward Highway lies within a 300-foot ROW (150 feet to either side of centerline), dating back to the highway's construction and completion in 1951 by Federal authorities. The highway ROW overlaps with ARRC's 200-foot ROW and both traverse the Turnagain Arm Unit of CSP.

3.2.1.2 Environmental Consequences

3.2.1.2.1 No Action

The No Action alternative would not affect existing ROW. The Seward Highway and ARRC track would remain within their present ROW.

3.2.1.2.2 Proposed Action

The Proposed Action extends outside of the existing DOT&PF and ARRC ROW into ADNR lands within Turnagain Arm (Figure 11). The realignment of the highway will require the ARRC track and any collocated utilities to be realigned. The Proposed Action will require the acquisition of 26.30 acres from CSP. A portion of these lands (3.97 acres) are protected under Section 6(f) of the Land and Water Conservation Fund Act (LWCF). This act requires that protected parklands converted from recreational use to a different use be replaced with property that is of at least equal fair market value and equivalent recreation utility as the property that was converted.

To mitigate the ROW acquisition from CSP, the proposed project calls for relinquishment of 14.70 acres of DOT&PF and ARRC ROW to provide access for outdoor recreation in CSP. The acquisition, conversion, and mitigation of lands and ROW is discussed in Sections 3.12 and 3.13.

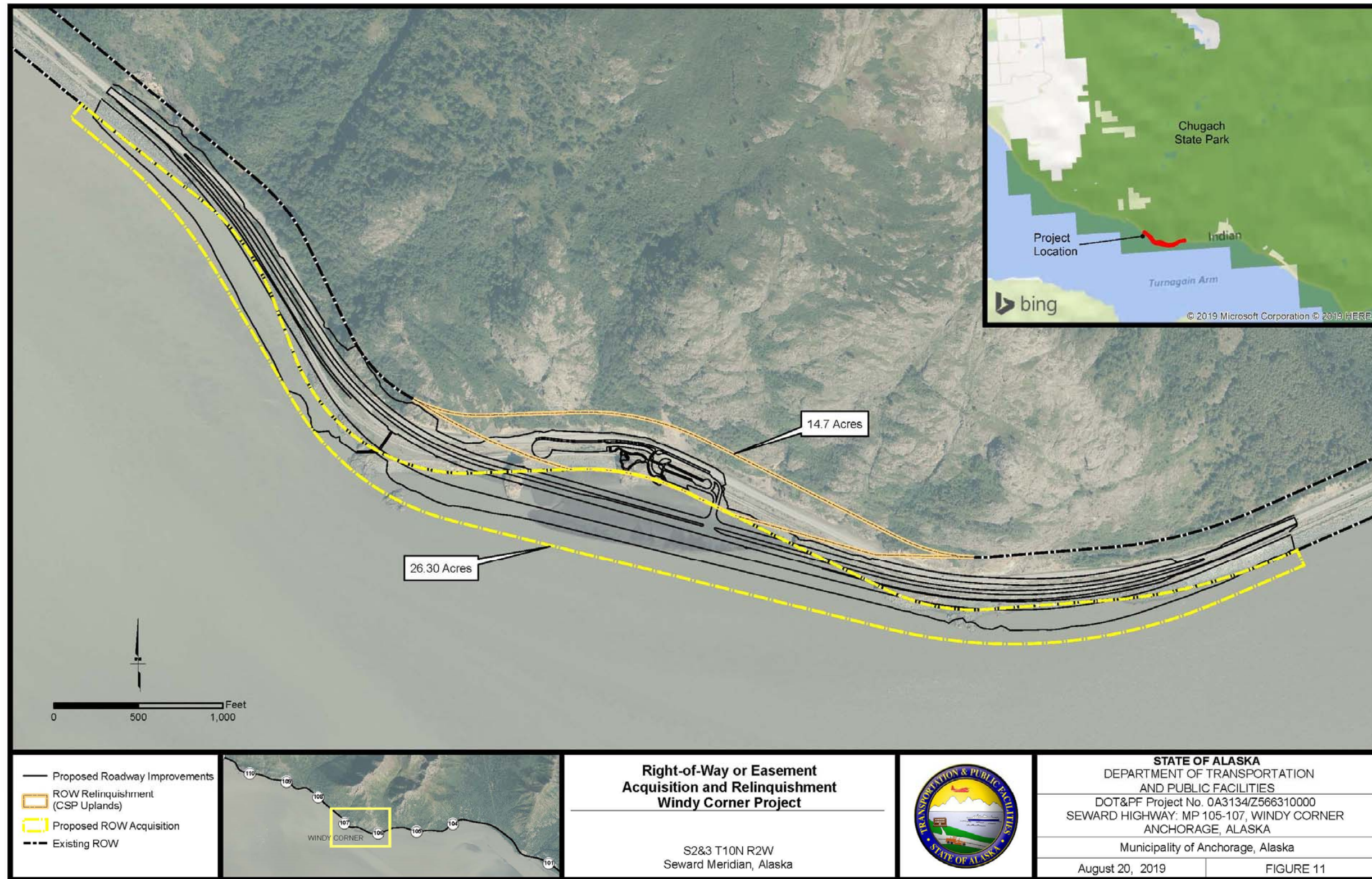


Figure 11: Right-Of-Way or Easement Acquisition and Relinquishment Windy Corner Project

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An additional 35.40 acres of CSP lands located outside the project area, near MP 104 and MP 109, are proposed for material extraction. It is likely that the project would only require material extraction at MP 109 (19.60 acres); however, use of an area at MP 104 (15.80 acres) is being evaluated and permitted in the unlikely event that additional material is required. DOT&PF is proposing to construct a new parking and wildlife viewing area on the NB side of the highway to mitigate for the conversion of the MP 109 and MP 104 areas. This proposed mitigation is consistent with CSP Management Plan recommendations to enhance the wildlife viewing opportunities in this area (DNR 2011, 2016).

3.2.2 Social Considerations

The Council on Environmental Quality regulations require federally-funded projects to address potential social impacts. This section describes social characteristics of the project area in terms of neighborhood and community cohesion, recreation resources, community facilities, travel patterns, and public safety.

3.2.2.1 Affected Environment

3.2.2.1.1 Neighborhoods and Community Cohesion

The project area is located within the Municipality of Anchorage, in Census Tract 29, block group 020200029001. There are no neighborhoods or communities within the project area, although the community of Rainbow is near the proposed MP 109 material site. The nearest residence is approximately 400 feet from the proposed material site, and the next closest home is approximately 1,900 feet away. The community of Indian is near the proposed MP 104 material site. The nearest residence is greater than 900 feet from the proposed material site.

3.2.2.1.2 Recreational Resources

Recreational resources within or adjacent to the project area include the Windy Corner turnout, Windy Corner Trailhead, Goat's Head Soup rock-climbing area, and three pull-off areas. These areas are used to view and photograph scenery and wildlife, to access the climbing area, and to access Turnagain Arm trail (connecting to Rainbow, McHugh Creek, and Potter Creek).

There are no developed facilities for recreational access to Turnagain Arm for water activities. This currently requires trespass across ARRC property.

3.2.2.1.3 Community Facilities

Community facilities generally include, but are not limited to, schools, parks, trails, law-enforcement facilities, fire stations, and government offices. The only such facilities within the project area are CSP, and more specifically the Windy Corner Trailhead which provides access to the Turnagain Arm Trail.

3.2.2.1.4 Travel Patterns

Seward Highway is the sole road connecting Turnagain Arm communities (Rainbow, Indian, Bird, Girdwood and Portage), Whittier, and the Kenai Peninsula with Anchorage. Annual average daily traffic is 9,283 vehicles, while peak-season traffic can exceed 22,000 vehicles per

day. Congestion in the summer months leads to conflicts with commuters, recreationists, freight transport, and wildlife viewers, as travel speeds vary greatly between these groups.

3.2.2.1.5 Public Safety

There are no locations providing emergency access to Turnagain Arm between MP 92 and Potters Marsh (MP 115). The Anchorage Fire Department maintains rescue vessels at the Port of Anchorage and access to Turnagain Arm requires a lengthy trip around the west side of Fire Island, or otherwise driving to and launching from the access ramp at Twentymile River.

3.2.2.2 *Environmental Consequences*

3.2.2.2.1 No Action

The No Action alternative would not change the current social conditions in the area. Seward Highway would retain its current configuration between MP 105 and MP 107. Adverse safety and traffic operation issues would persist. Access to recreational resources would not be improved. Conflicts between recreationists, wildlife viewers, commuters, and freight operations would persist. Curves would not meet the 55-mph design standard.

3.2.2.2.2 Proposed Action

Implementation of the Proposed Action would change social conditions in the area. It would improve traffic safety and operations through the area. It would improve access to recreational trails and parking facilities for wildlife viewers on the northbound side of the highway and would improve emergency services by providing controlled-access emergency response staging area and a boat launch ramp on the southbound side (Figures 12 and 13). Changes on the southbound side of the highway would eliminate public parking and partially fill a mudflat area used by some for water recreation in Turnagain Arm. ARRC's concerns regarding public access across the rail line drives the desire to limit public access across the rail line.

The Proposed Action would result in elimination of two widened shoulders and one turnout in the project area but would replace these with a new improved parking and wildlife viewing area at the Windy Corner Trailhead.

Some residents of Rainbow and Indian closest to the material excavation areas at MP 109 and MP 104 would experience short-term construction-related effects from material production. These effects include noise and possibly decreased air quality from fugitive dust during rock blasting and excavation. Any such effects would be temporary. The Proposed Action would not affect community cohesion in Rainbow or Indian.

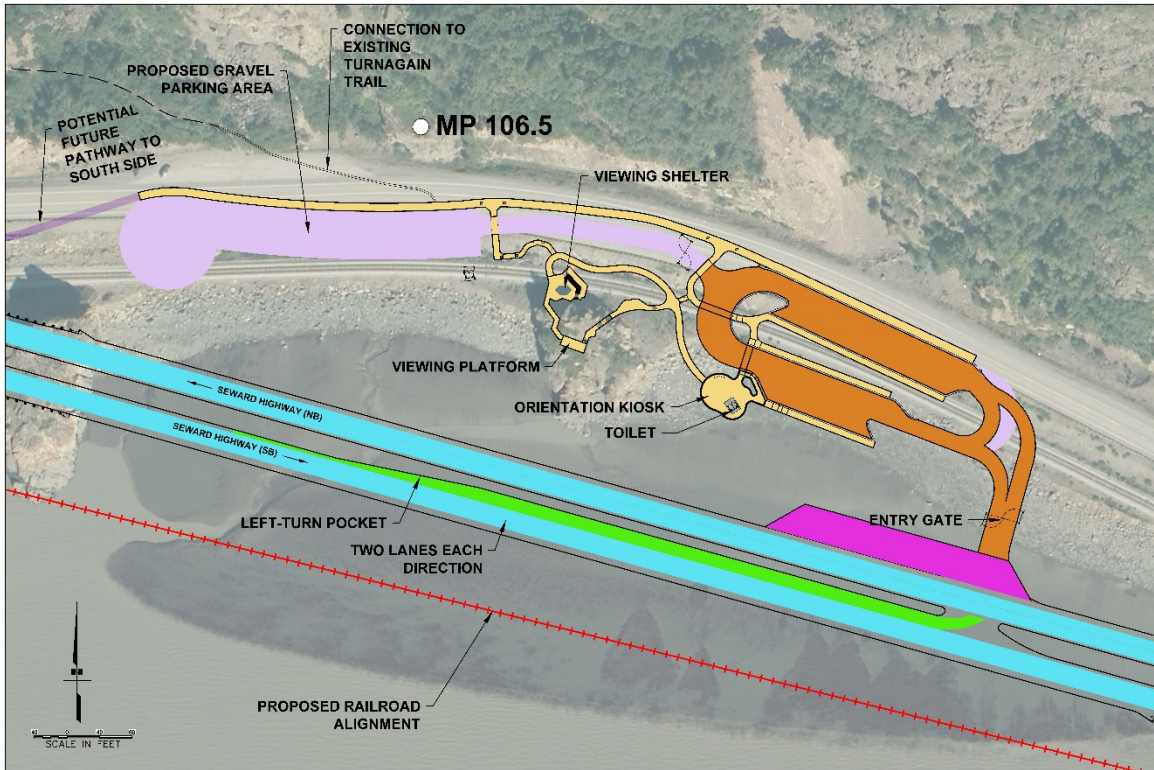


Figure 12: Proposed Northbound Scenic Parking Area and Facilities

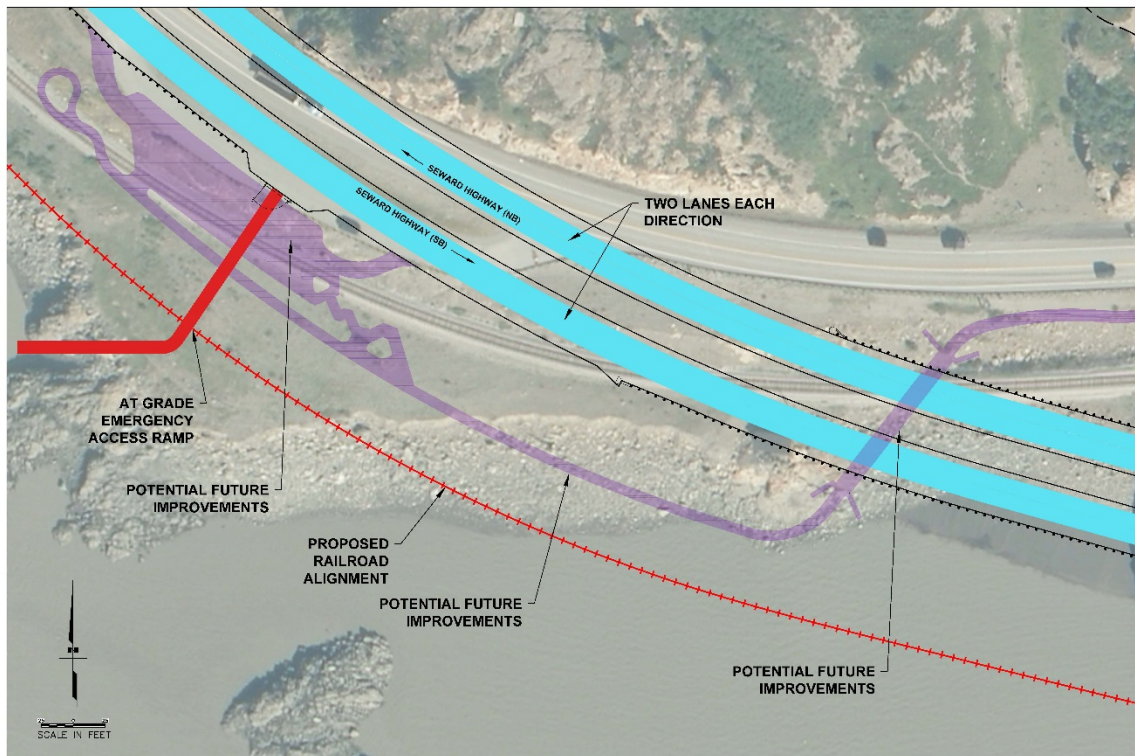


Figure 13: Proposed Southbound Emergency Staging Area and Boat Ramp Facilities

3.2.3 Local Land Use and Transportation Plans

3.2.3.1 *Affected Environment*

Several entities have management directives or jurisdiction over land and water within the project area and have developed specific plans and goals to manage land use and transportation therein. The predominant land use is public recreation on dedicated public parkland, as CSP occupies land and water on either side of the Seward Highway. The other major land use in the project area is transportation use, as represented by both the highway and the ARRC rail line. The Seward Highway Corridor Partnership Plan (CPP) also provides guidance for development along the National Scenic Byway to encourage growth and development that enhances and sustains its physical, recreational, and scenic features (DOT&PF 1998).

3.2.3.1.1 Land Use Plans

ADNR-DPOR published a revised CSP Management Plan in 2011. The revised plan specifies a management strategy of coordinating transportation issues and integrated facilities between ADNR-DPOR and DOT&PF. In addition, the revised plan denotes areas within the designated Recreation Development Zone where highway safety improvements are anticipated and expected and proposes management of the park facilities based on proposed highway improvements (Table 9).

Table 9: Chugach State Park Management Plan Facility Recommendations

ID	Proposal	Scope/Management Objective	Justification
94	Seward Highway Mile 107 Pullout-Mountainside	Depending on the highway upgrades and reclamation area at this site, the area could be suitable to relocate the current Windy Corner mountainside trailhead and trail from the sheep habitat area.	This area may be used as a materials site for highway upgrades to the Windy Corner area. If so, the reclamation area could serve to provide trailhead parking to the current trail.
95	Windy Corner Sheep Viewing Area	Upgrade existing pullout to create a safe sheep viewing area. Expand parking to a large lot with a <i>buffer</i> between the highway and parking area. Include interpretive displays and spotting scopes. Coordinate development with highway upgrades. <i>Consult with ADF&G on wildlife viewing areas along the highway corridor.</i>	This area of the highway poses safety concerns as visitors try to view the sheep that congregate in the area. Parking is limited and there is significant traffic congestion when animals are present.

ADNR-DPOR has produced a CSP Trail Management Plan, which went out to public review in 2009. The Public Review Draft along with the List of Recommended Revisions make up the final plan adopted by the ADNR Commissioner on February 29, 2016. This plan designates the Turnagain Arm Trail between Windy Corner Trailhead and Potter Creek Trailhead a Class 4 trail, managed primarily for pedestrian use. A new Class 3 pedestrian trail is proposed to connect Windy Corner and Falls Creek.

ADNR-DPOR also produced a draft Chugach Access Plan (CAP) which went out to the public for comment in 2010. The draft CAP calls out three areas with specific management goals within the project area (Table 10).

**Table 10: Chugach Access Plan Management Goals within Project Area
 (ADNR-DPOR 2010)**

ID	Name	Use	Recommended Action
T11	Seward Highway MP 107 Pullout	Site provides parking and access for climbing and bouldering within the park	Work with DOT&PF to ensure climbing access continues when this portion of Seward Highway is improved
T12	Windy Corner - Oceanside	Site provides one of the best sheep viewing opportunities in Alaska, as well as opportunities for sightseeing and scenic viewing of Turnagain Arm, Chugach Mountains and wildlife	Work with DOT&PF to enlarge and build a safer facility in this area for wildlife viewing when this portion of Seward Highway is improved
T13	Windy Corner Trailhead	Site provides one of the best sheep viewing opportunities in Alaska, and also provides access to Turnagain Arm Trail	Work with DOT&PF to enlarge and build a safer facility in this area for wildlife viewing when this portion of Seward Highway is improved

The **Municipality of Anchorage** produced an updated Turnagain Arm Comprehensive Plan in 2009, to replace the 1987 plan. The 2009 plan indicates Municipality of Anchorage support for Seward Highway upgrades, although it does specify that highway improvements should not negatively impact current or future adjacent land use.

ADNR's Division of Mining, Land and Water produced a Turnagain Arm Management Plan for State Lands, which has not been updated since the 1994 version in use during the original CE for the proposed project.

DOT&PF produced a Seward Highway CPP in 1998. This plan was created as a requirement for the highway's nomination to the National Scenic Byways Program. This plan does not require, mandate, or regulate actions along the Seward Highway, but outlines the nature of the corridor and strategies for collaboratively addressing future growth and development while maintaining the highway's scenic values. A keystone strategy of the CPP is to provide a safe,

aesthetic, and world-class driving experience. Critical actions associated with this strategy include developing a design theme for the highway, establishing a greater role for landscape architects early in the design process, and avoiding Jersey barrier medians or similar highway structures that would detract from the scenic nature of the highway.

3.2.3.1.2 Transportation Plans

The **Municipality of Anchorage** is currently producing the Anchorage Non-Motorized Plan, which will eventually replace the Areawide Trails Plan from 1997. However, this revision or replacement is still in production. The 1997 plan recommends a separated multi-use trail along this segment of Seward Highway, as well as new parking and pedestrian facilities at Windy Corner (Municipality of Anchorage 1997).

3.2.3.2 Environmental Consequences

3.2.3.2.1 No Action

The No Action alternative would not change the existing land use within the project area. This alternative does not meet the proposed goals and objectives of many of the land use and transportation plans. The safety issues and roadway deficiencies would remain, and would not address the safety, transportation, and recreational upgrades identified in these plans.

3.2.3.2.2 Proposed Action

The Proposed Action alternative would improve safety and provide transportation upgrades and is consistent with state and local land use and transportation plans. Specifically, the Proposed Action:

- Complies with the 2011 and 2016 CSP Management Plans, which anticipated Seward Highway improvements in this area and the potential for material excavation areas to be converted to recreational use areas, and which called for improvements to parking and visitor amenities and improved safety for wildlife viewers;
- Complies with the CSP Trail Management Plan, and includes trailhead improvements, including expanded parking and signage, at the southern terminus of the Turnagain Arm Trail at Windy Corner;
- Complies with the CAP management goals for this area by:
 - Addressing the safety and operational hazards of differential speeds between wildlife viewers, recreationalists, and through traffic,
 - Improving trail and rock-climbing access within the Project Area, and
 - Coordinating with CSP on design of scenic pullouts and safety improvements;
- Complies with the Municipality of Anchorage's Areawide Trails Plan, as the proposed design includes capacity to add a future separated multi-use trail;
- Complies with the Seward Highway CPP by incorporating a landscape architect into improvement development and designing improvements to enhance the scenic values of the highway;
- Does not conflict with the recommendations of ADNR's Turnagain Arm Management Plan for State Lands; and

- Does not conflict with the Municipality of Anchorage's Turnagain Arm Comprehensive Plan, which includes highway improvements.

Land use itself would change within the project area, as some areas would no longer be parkland, while 14.70 acres of highway ROW would become new parkland with developed facilities. CSP lands are Section 4(f) and 6(f) resources and would be converted from recreational use to natural resource extraction use or relinquished to DOT&PF and ARRC as ROW for transportation use. See Sections 3.12 and 3.13 for more detail on these effects.

3.2.4 *Cultural Resources*

3.2.4.1 *Affected Environment*

A review of the Alaska Heritage Resource Survey and field studies, including those conducted for the 2004 CE, identified two historic sites and four prehistoric sites adjacent to the project corridor. These include:

- Indian Valley Mine (SEW-412);
- Falls Creek Camp (SEW-113);
- Windy Point (SEW-131);
- McHugh Wasteflake Site (ANC-124);
- MP 112.3 (ANC-078);
- Beluga Point (ANC-054); and
- MP 104 Can Dump (SEW-1579).

Efforts in 2015 identified one additional resource, the 36.6-mile Turnagain Arm District of the Alaska Railroad (ANC-04057). The project's area of potential effect (APE) includes ANC-04057, SEW-131, SEW-113, and SEW-1579. The State Historic Preservation Officer (SHPO) concurred (February 6, 2015) with the DOT&PF's finding of no historic properties adversely affected regarding ANC-04057, SEW-131, and SEW-113. SHPO concurred (January 4, 2016) with DOT&PF's finding of no historic properties adversely affected for the expansion of the APE to include a potential material site at MP 104 regarding SEW-1579. Appendix C contains DOT&PF's initiation and findings letters, and SHPO concurrence letters.

3.2.4.2 *Environmental Consequences*

3.2.4.2.1 *No Action*

The No Action alternative would not impact cultural resources.

3.2.4.2.2 *Proposed Action*

The proposed project would realign approximately 2.0 miles of the 36.6 miles of historic railbed, shifting the corridor up to 425 feet from its current alignment near MP 106.5 (Figure 7). The grade of the railroad would remain below and parallel to the existing highway, and continue along the shoreline of Turnagain Arm. The reconstructed single-track railroad would contain the same basic features as before, with replacement of in-kind materials.

DOT&PF has found that the Seward Highway MP 105 to MP 107, Windy Corner Improvements project will have no adverse effect on historic properties. DOT&PF's findings were submitted to

SHPO on January 15, 2015. SHPO concurred with the findings on February 6, 2015 (Appendix C).

3.2.5 Anadromous or Resident Fish and Essential Fish Habitat

3.2.5.1 *Affected Environment*

According to Alaska Department of Fish and Game's (ADF&G) online database, there are no anadromous streams in or adjacent to the project area, and the waterways are too steep for resident fish habitat (ADF&G 2018). Approximately 26.30 acres of intertidal mudflats and embankment are located within the project area (Figure 14).

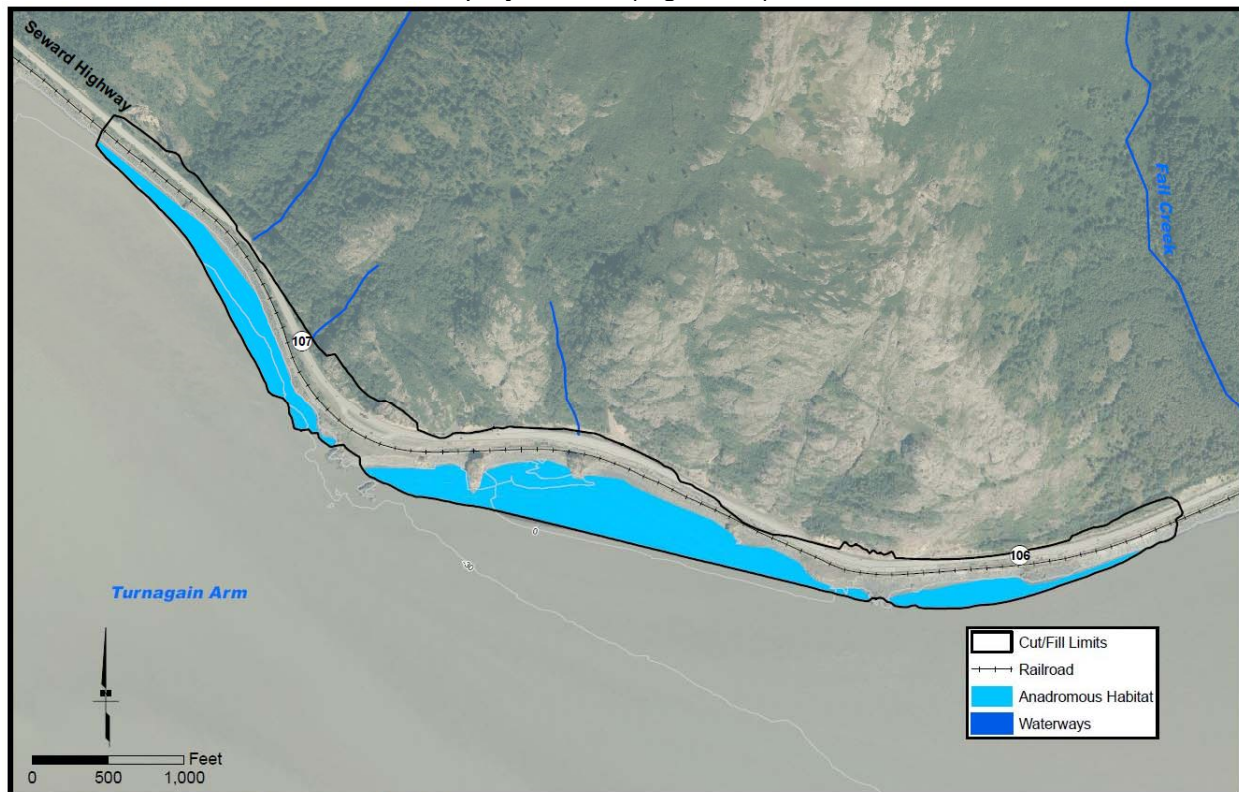


Figure 14: Anadromous Fish Habitat in Project Area

Young salmonids are known to use the shoreline, where present, as forage and shelter on their way out to the ocean. Shoreline areas within the Project Area are listed by NMFS as Essential Fish Habitat (EFH) for all five species of Pacific salmon.

3.2.5.2 *Environmental Consequences*

3.2.5.2.1 *No Action*

The No Action alternative would not affect anadromous waterways or intertidal mudflats, determined to be EFH.

3.2.5.2.2 Proposed Action

The Proposed Action will not affect anadromous freshwaters. However, it will require fill in approximately 26.30 acres of intertidal mudflats in Turnagain Arm.

While the proposed project will place fill in EFH areas along the existing shoreline, it will also recreate similar habitat by placing coastal armor stone and riprap on the new embankment.

Discussions with NMFS regarding potential effects to EFH indicate that no further consultation is required should DOT&PF abide by the conservation recommendations agreed to in the original 2004 CE (Matthew Eagleton, NMFS, personal communication), specifically:

1. DOT&PF should provide compensatory mitigation for the permanent loss of EFH in Turnagain Arm (79.5 acres²). DOT&PF should coordinate with NMFS and other applicable agencies to develop its mitigation plans;
2. In-water construction work will be avoided from April 1 through June 15 to avoid disturbance of out-migrating salmonid fry and smolts;
3. In-water and intertidal work will be conducted at low tide to the extent possible, to reduce sedimentation in the water column;
4. All dredge and/or fill material must be free of contaminants prior to disposal within the proposed fill area or any offsite location; and
5. Fill below the high tide line will be clean shot rock and will be placed when the site is dewatered by lower tide stages. During construction, the fill site will be graded to prevent ponding on the fill surface that could trap fishes between high tides.

3.2.6 Wildlife and Birds

3.2.6.1 *Affected Environment*

3.2.6.1.1 Habitat

A range of habitats are located within the project area, including riparian corridors along steep, upper perennial streams, intertidal mudflats, subtidal marine, scrub-shrub upland, rock outcrops, and forested uplands. In the 2004 CE, high-value lambing and mineral licks for Dall sheep were identified within the project area.

3.2.6.1.2 Wildlife

Habitats in or adjacent to the project area provide shelter, food, and water for wildlife. Wildlife either reside atop the steep Turnagain hillside or traverse through the area moving between habitats. Terrestrial mammals include: moose, brown bear, black bears, mountain goats, and Dall sheep.

² The acreage referenced was based on an earlier design that impacted more tidelands.

3.2.6.1.3 Birds

Migratory birds are protected under the Migratory Bird Protection Act (MBPA). The project area may provide nesting, rearing, wintering, and migratory habitat for a variety of waterbirds and land birds (USFWS 2016) as shown in Table 11.

Table 11: Migratory Birds of Conservation Concern Occurring Near the Project Area

Common Name	Scientific Name	Season
Aleutian Tern	<i>Sterna aleutica</i>	Breeding
Fox Sparrow	<i>Passerella iliaca</i>	Breeding
Kittlitz's Murrelet	<i>Brachyramphus brevirostris</i>	Breeding
Lesser Yellowlegs	<i>Tringa flavipes</i>	Breeding
Olive-sided Flycatcher	<i>Contopus cooperi</i>	Breeding
Pink-footed Shearwater	<i>Puffinus creatopus</i>	Year-round
Rufous Hummingbird	<i>Selasphorus rufus</i>	Breeding
Short-eared Owl	<i>Asio flammeus</i>	Breeding
Solitary Sandpiper	<i>Tringa solitaria</i>	Breeding

Bald eagles are protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. Bald eagles forage along the shorelines of Turnagain Arm and occasionally perch on rock outcrops or dead or dying snags adjacent to the project area. A nest survey conducted in 2013 found no bald eagle nests within the project area. Another bald eagle nest survey would be conducted prior to construction.

3.2.6.2 Environmental Consequences

3.2.6.2.1 No Action

The No Action alternative would not impact wildlife, birds, or habitat in the project area.

3.2.6.2.2 Proposed Action

The Proposed Action would move the highway and railroad away from high-value Dall sheep habitat on the hillside above Windy Corner. Construction would impact:

- Approximately 43.00 acres of developed or disturbed habitat (existing highway, highway embankment, railroad embankment, and the rock face at Windy Corner);
- 26.30 acres of intertidal mudflats; and
- Up to 35.40 acres of forest and shrub habitat (19.60 acres of uplands from material extraction at MP 109 and, if needed, material extraction on 15.80 acres at MP 104).

One of the primary design features of the Proposed Action involves providing improved parking and amenities on the NB side of the highway for those who wish to stop and view the local wildlife, such as the iconic Dall sheep. The existing highway footprint would be reclaimed as a multi-purpose facility offering parking, rest stops, improved trailhead access, and signage. The

design would maintain a more appropriate distance between wildlife and those interested in watching and photographing the wildlife.

The Proposed Action would not fragment habitat, change migratory routes, or significantly diminish available wildlife or bird habitat. The proposed project is consistent with the Migratory Bird Treaty Act; vegetative clearing will be conducted outside of the bird nesting window as described by USFWS for this region.

3.2.7 Threatened and Endangered Species

3.2.7.1 *Affected Environment*

In 2008, NMFS listed the CIBW as an endangered species. Upper Cook Inlet, including Turnagain Arm, was identified as critical habitat for this species in 2011. Critical habitat for the CIBW is located within and adjacent to the proposed project (Figure 15).

A biological assessment (BA) was prepared to determine the potential effects of the proposed project on the CIBW population (LGL Alaska Research Associates, Inc. 2015). The BA indicated that the project area is within and adjacent to Critical Habitat 1, described as an area of seasonal use from April to November.

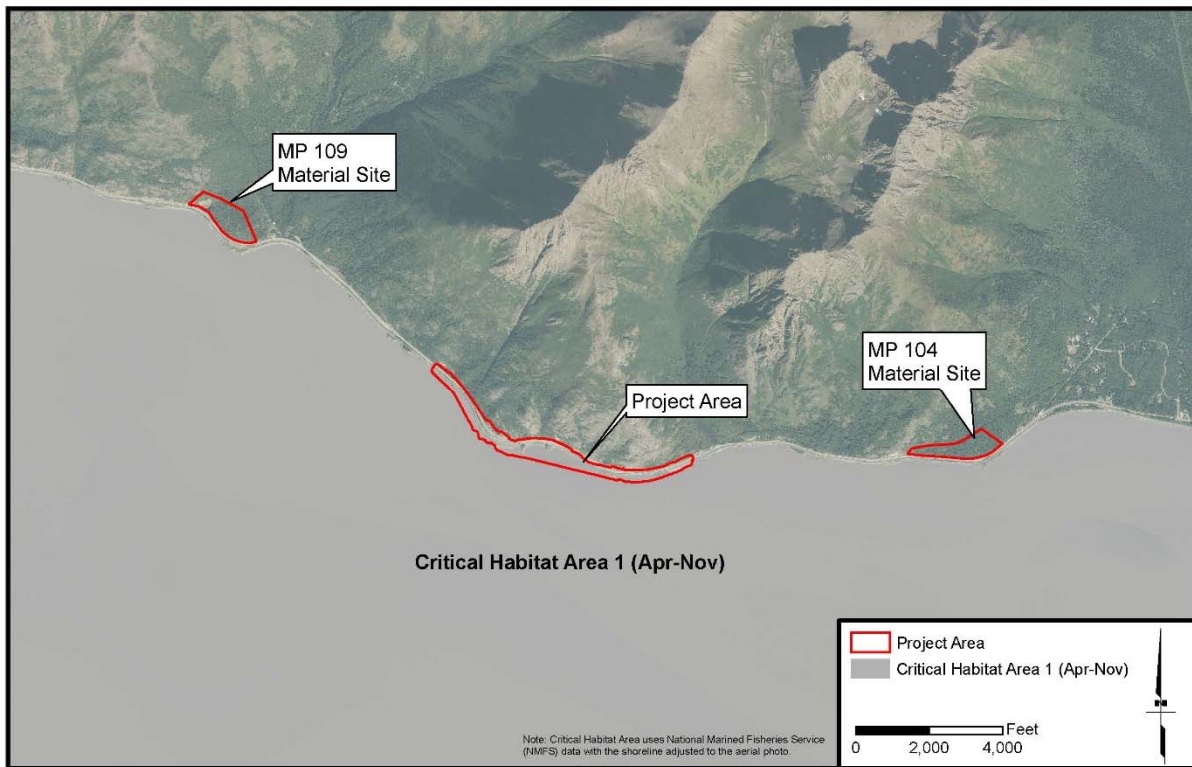


Figure 15: Cook Inlet Beluga Whale Critical Habitat (NMFS 2011)

3.2.7.2 *Environmental Consequences*

3.2.7.2.1 No Action

The No Action alternative would not impact threatened and endangered species or their critical habitat, including the CIBW.

3.2.7.2.2 Proposed Action

The Proposed Action would involve placement of approximately 1,800,000 cy of fill in 26.30 acres of intertidal mudflats within CIBW critical habitat. It would also involve rock blasting and demolition to produce the raw material required for the fill placement. NMFS initially indicated some concern about the potential for blasting noise to affect the CIBW in Turnagain Arm. Following these concerns, a baseline in-water acoustic assessment was conducted to understand background noise levels in Turnagain Arm. DOT&PF then directed modeling to be conducted to simulate percussive noise from rock blasts. Together, these studies provided a spatial range of anticipated in-water noise effects from blasting.

Blasting noise will be mitigated through use of observers to determine presence of beluga whales within a 4,800-foot radius of a blast location. Should observers notice beluga whales within this range prior to a blast, blasting activities will be paused until the whales are outside of the 4,800-foot radius. Additional mitigation is listed in Appendix D.

The BA found that, with appropriate mitigation, the Proposed Action is not likely to adversely affect the CIBW. NMFS concurred with this finding on October 28, 2015. The BA and Letter of Concurrence from NMFS may be found in Appendix D.

3.2.8 *Waterbody Involvement and Water Quality*

3.2.8.1 *Affected Environment*

Waters of the U.S. are protected under multiple Federal regulations, including Section 10, and Section 404 of the CWA, and Section 9 of the Rivers and Harbors Act. Waters of the U.S. are waterbodies and wetlands as defined in 40 CFR 230.3. Waterbodies within the project area include Turnagain Arm and three unnamed streams (see Figure 14). These waterways flow through 24-inch or 36-inch culverts under the Seward Highway and ARRC rail line.

Navigable waters are defined by the U.S. Coast Guard (USCG) and USACE as: 'those which are subject to the ebb and flow of tides or which are presently or susceptible to use in interstate and/or foreign commerce.' Authorization to impact navigable waters requires the authorization of the USCG (Section 9) and the USACE (Section 10 and 404). Turnagain Arm is the only navigable water within the project area.

Stormwater from impervious surfaces can carry debris, sediment, and chemicals into waterbodies, diminishing their water quality. Construction and maintenance activities have the potential to affect nearby waterbodies. Water Quality is regulated by the U.S. Environmental Protection Agency through the CWA Sections 401, 402, and 404. Water quality is also regulated by the ADEC Division of Water and Division of Environmental Health. Projects discharging into Waters of the U.S. must obtain a Section 401 certification, Section 402 Alaska Pollutant Discharge Elimination System (APDES) Construction General Permit (CGP), and a Section 404 Department of the Army Permit.

The CWA mandates each state characterize the quality of all waterbodies within the state and compile a 303(d) list of all waterbodies that do not meet specified water quality standards (ADEC 2010). There are no waterbodies on the 303(d) list within or adjacent to the project area.

The Safe Drinking Water Act protects public drinking water supplies. ADEC manages a database of drinking water protection areas (ADEC 2017). There are no community water systems or identified drinking water protection areas within or adjacent to the project area.

3.2.8.2 *Environmental Consequences*

3.2.8.2.1 No Action

The No Action alternative would not affect any of the three unnamed streams under the Seward Highway and ARRC rail line. The existing 24-inch and 36-inch culverts would remain. There would be no direct impacts to Waters of the U.S. or navigable waters, and stormwater flow paths would be unchanged.

3.2.8.2.2 Proposed Action

The Proposed Action would involve disturbance of up to approximately 104.70 acres of developed land, undeveloped forest and shrub, and tidelands; this includes 43.00 acres of developed highway footprint. It would also include replacement of culverts along all three unnamed waterways.

Construction activities would include placement of fill on 26.30 of intertidal mudflats in Turnagain Arm. The Proposed Action includes replacing and improving the culverts for the three unnamed streams. Existing 24-inch culverts would be replaced with 36-inch culverts, and 36-inch culverts with 42-inch culverts to address potential icing issues and peak flow water movement.

The proposed project would discharge stormwater to Waters of the U.S. in compliance with the APDES CGP requirements. Water quality impacts to Turnagain Arm are expected to be negligible. Due to the high energy system and silty substrate, Turnagain Arm has naturally high levels of background sediment. The proposed project design has been revised to reduce the amount of disturbance to the intertidal mudflats by shifting the southbound alignment inland.

DOT&PF will prepare an Erosion and Sediment Control Plan (ESCP) as part of the construction contract package. Prior to commencement of construction activities, the Construction Contractor will prepare and submit a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP will identify best management practices (BMPs) including erosion prevention and control measures, and a schedule for earth-disturbing activities. The project will be constructed in compliance with the ADEC's APDES CGP. Section 10, 401, 402, and 404 authorizations would be required.

The Anchorage Debit-Credit Methodology (ADCM) was applied to calculate the impacts in terms of debits and provide a guide to the mitigation required to offset the impacts. The ADCM indicates that 21.52 credits are needed to offset proposed project impacts. The wetland mitigation bank has sufficient credits available. DOT&PF has submitted a USACE Section 10/404 permit application for the Proposed Action, indicating that DOT&PF proposes to offset unavoidable impacts to 26.30 acres of intertidal mudflats through permittee-responsible mitigation or an approved mitigation bank, subject to USACE approval.

3.2.9 Vegetation and Invasive Species

3.2.9.1 *Affected Environment*

3.2.9.1.1 Vegetation

Vegetation along Turnagain Arm includes a range of habitat types between sea level and lower elevations of the surrounding mountain slopes. Vegetation in this area transitions from a coastal forest mix represented by Sitka spruce, hemlock, and cottonwood towards a spruce-birch-poplar mix more closely associated with interior ecosystems (ADNR 2011). Spruce, birch and poplar form the majority of tree cover in the Project Area. Shrub habitat occurs either at elevations above the forested zone, or where natural disturbance such as avalanche, landslide, or fire has created an opening for vegetation succession. The shrub layer is dominated by alder and willow species. Herbaceous and low-growing species are widely varied, and include dwarf dogwood, bluejoint reedgrass, and lowbush cranberry. Mosses and lichens are also prevalent.

3.2.9.1.2 Invasive Plant Species

E.O. 13112 sets for the policy for Federal agencies to prevent and control the introduction of invasive species to minimize economic, ecological, and human health effects that invasive species may cause.

Invasive species are defined as:

“With regard to a particular ecosystem, a non-native organism whose introduction causes or is likely to cause economic or environmental harm, or harm to human, animal, or plant health.” (E.O. 13112)

Typically introduced from another continent or region, invasive species may become established, outcompete native species for resources, and diminish habitat values for wildlife. Highway corridors provide opportunities for the movement of invasive plant species from region to region. Invasive plant species are opportunistic and often establish after disturbance to the soil (e.g. fire, vegetation removal, etc.).

A review of the Alaska Exotic Plant Information Clearinghouse database indicates at least nine invasive or nonnative plant species occur within or adjacent to the Project Area (Table 12). The most invasive species occur in previously disturbed areas along the highway or pullouts.

Table 12: Invasive, Nonnative Plant Species Observed within or Adjacent to the Project Area

Scientific Name	Common Name	Invasiveness Category
Tragopogon dubius	Yellow salsify	Modest Invasive
Trifolium repens	White clover	Modest Invasive
Taraxacum officinale	Common dandelion	Modest Invasive
Linaria vulgaris	Butter and eggs	Moderate Invasive
Trifolium pretense	Red clover	Modest Invasive
Elymus repens	Quackgrass	Modest Invasive
Plantago major	Common plantain	Weak Invasive
Astragalus cicer	Chickpea milkvetch	Not Yet Ranked
Silene vulgaris	Bladder campion	Weak Invasive

3.2.9.2 Environmental Consequences

3.2.9.2.1 No Action

The No Action alternative would not change the vegetation or invasive species composition within or adjacent to the Project Area.

3.2.9.2.2 Proposed Action

The Proposed Action would disturb up to approximately 104.70 acres, of which approximately 43.00 acres is previously disturbed highway footprint, 26.30 acres are intertidal mudflats and 35.40 acres are undeveloped and vegetated. All of the vegetation affected is common in the area.

Construction activities could potentially provide disturbed areas where invasive species could be introduced. The contractor will prepare a SWPPP in accordance with obtaining an APDES CGP. The SWPPP will identify BMPs to minimize disturbance areas, and stabilize disturbed areas as soon as practicable, reducing the risk of introducing or spreading invasive species. Hydroseed and mulch, Clean fill material, native plants, and certified native seed mixes meeting DOT&PF's Standard Specifications would be used where appropriate.

Areas proposed for material excavation at MP 109 and if necessary, MP 104, would be reclaimed to ADNR's specifications. Exposed rock faces are expected to remain; however, soils may be stabilized upon reclamation. Rock faces are not expected to facilitate propagation or spread of invasive species.

3.2.10 Bicycle and Pedestrian Issues

3.2.10.1 Affected Environment

Bicycle use in the area is typically limited to recreational and transportation use on the Seward Highway itself. Pedestrian use in the area is limited to existing facilities for wildlife viewing, or access to recreational areas within or adjacent to the Project Area. Parking and pedestrian facilities are located at Falls Creek Trailhead, Windy Corner Trailhead, Turnagain Arm Trail, Windy Corner turnout, one 350-foot-long vehicle pullout, and three areas with widened

shoulders. As no formal or designated bicycle facilities exist within the project area, bicyclists typically use the 8-foot-wide shoulders of the Seward Highway.

The Falls Creek Trailhead, located near MP 105.5, consists of a 40-foot by 200-foot asphalt area, with no defined parking spaces, adjacent to the shoulder of the Seward Highway. Falls Creek Trail is approximately 1.9 miles long and is not connected with any other pedestrian facilities along the highway.

The Windy Corner Trailhead, located near MP 106.7, consists of a 30-foot by 220-foot asphalt area, with no defined parking spaces, adjacent to the shoulder of the Seward Highway. The Windy Corner Trailhead is the southernmost terminus of the Turnagain Arm Trail, extending approximately 9.4 miles from Potter Creek Trailhead to Windy Corner.

The existing 350-foot-long Windy Corner vehicle turnout, located on the SB side of the highway near MP 106.8, is separated from the highway by a 30-foot-wide median.

The three areas with widened shoulders have shoulder widths of either 18 or 30 feet and lengths of 230 to 550 feet. These occur at MP 105.9, MP 106.3, and MP 106.5. The existing pullouts have limited horizontal visibility. To mitigate the limited sight distance, some of the pullouts have “No Left Turn” restrictions/signage for traffic on the north legs of the pullouts on the inside of the curve.

The closest Seward Highway pedestrian pathway outside the project area is a 10-foot-wide paved asphalt trail (Indian to Girdwood National Recreation Trail) on the south side of the highway, starting at Indian Creek Bridge (MP 103) and continuing to Girdwood (MP 90).

3.2.10.2 Environmental Consequences

3.2.10.2.1 No Action

The No Action alternative would not improve bicycle or pedestrian access to existing facilities for wildlife viewing or access to recreational areas. Conflicts would continue to occur near the Windy Corner vehicle turnout and Windy Corner Trailhead, as motorists slow and park along the highway and walk along the shoulders when sheep and other wildlife are present.

3.2.10.2.2 Proposed Action

The Proposed Action would provide new pedestrian access and facilities at Windy Corner (MP 106.5). The new scenic parking area would be accessible to both NB and SB traffic, and would replace the existing Windy Corner Trailhead parking area, two of the three areas with widened shoulders (MP 106.3 and MP 106.5), and the existing vehicle turnout on the SB side. SB traffic would decelerate in a left-turn lane prior to entering the parking area. A paved parking area would accommodate 26 cars and seven oversized vehicles, and a gravel parking area would accommodate an additional 29 cars and six oversized vehicles. The parking areas will be separated from the highway by a 130-foot-wide median. Pedestrian facilities would connect the parking area to the main wildlife viewing area with seating, scenic overlooks, an interpretive Americans with Disabilities Act-compliant trail, and access to the Windy Corner Trailhead. An earthen berm would also be installed at the base of the two rockslide areas to prevent falling rocks from reaching the pedestrian paths or parking area.

No bicycle facilities are included with this project; however, the proposed design includes space to add a future multi-use path on the NB side without having to again realign the road or railroad. The separated multi-use path would allow cyclists to transit the area without using the highway shoulders.

3.2.11 Section 4(f)

3.2.11.1 *Affected Environment*

Section 4(f) of the U.S. Department of Transportation Act of 1966 prohibits use of certain parks, recreation areas, wildlife refuges, or historic properties for transportation projects unless there is “no prudent and feasible alternative” and the project includes “all possible planning to minimize harm”, or the impacts to these resources are “de minimis.” CSP is eligible for protection under Section 4(f) and DOT&PF has conducted a Section 4(f) Programmatic Evaluation for the proposed project (Appendix E).

As stated in Section 3.5, a determination of eligibility has been prepared for the Turnagain Arm District of the Alaska railroad (ANC-04057).

3.2.11.2 *Environmental Consequences*

3.2.11.2.1 No Action

The No Action alternative would not impact Section 4(f) resources.

3.2.11.2.2 Proposed Action

The proposed project would require the change in use of **61.70** acres of CSP lands outside of existing highway and ARRC ROW from recreational use to transportation or natural resource extraction uses, as follows:

- The acquisition and conversion of **26.30** acres of mudflats and rocky outcrops within CSP for permanent transportation use;
- The conversion and use of up to **35.40** acres of undeveloped vegetated parkland adjacent to the highway for material extraction at MP 109 and MP 104.

However, DOT&PF will relinquish 14.70 acres of ROW to CSP which will convert from transportation to recreational use as mitigation for material extraction at MP 109 and MP 104.

The Section 4(f) Programmatic Evaluation found that there is no feasible or prudent alternative to the use of CSP land and ADNDR has concurred (Appendix E). This project meets the criteria and conditions for use of the Final Nationwide Section 4(f) Evaluation and Approval for Federally-Aided Highway Projects with Minor Involvements with Public Parks, Recreation Lands, and Wildlife and Waterfowl Refuges.

DOT&PF has determined that the 36.6-mile segment from Portage to Potter is eligible for the National Register of Historic Places (NRHP), under Criterion A. DOT&PF has found that the proposed project will have No Adverse Effect on historic properties. SHPO concurred with DOT&PF’s findings on February 6, 2015. The concurrence may be found in Appendix C. 23 CFR 774.13 exception for use of historic transportation facilities applies to the realignment of

the railroad as it would not adversely affect the historic qualities of this segment of the railroad that caused it to be eligible for the National Register.

3.2.12 Section 6(f)

3.2.12.1 *Affected Environment*

Section 6(f) of the Land and Water Conservation Act requires the conversion of lands or facilities that have previously been acquired or improved with LWCF be coordinated with the Department of Interior (DOI). The DOI database identifies CSP as a Section 6(f) resource, having received LWCF grant funding for improvements within the park (Figure 16). National Park Service (NPS) is the lead agency for Section 6(f) processes and approvals for CSP (ADNR 2017b).

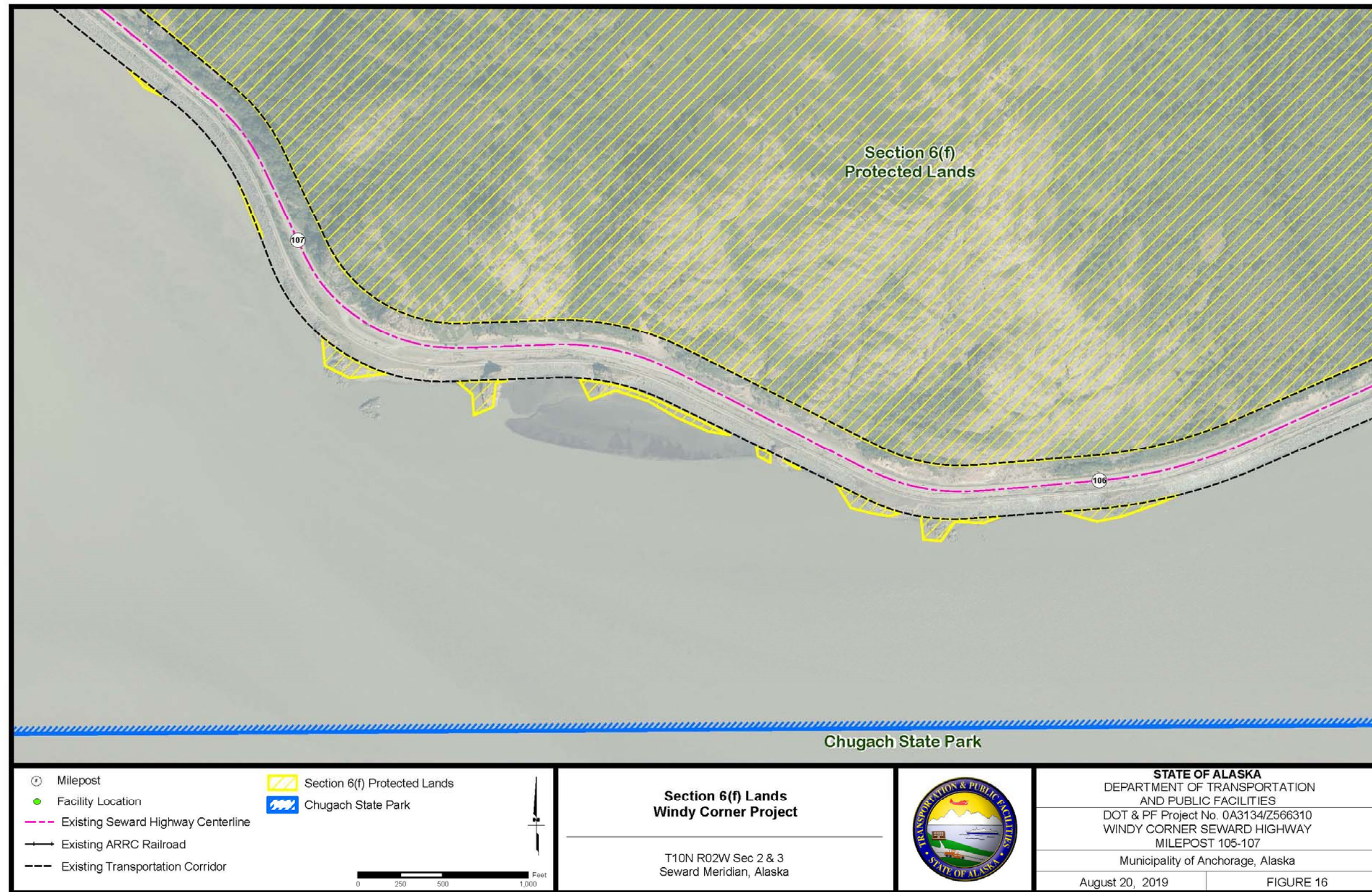


Figure 16: Section 6(f) Lands Windy Corner Project

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3.2.12.2 Environmental Consequences

3.2.12.2.1 No Action

The No Action alternative would not impact Section 6(f) resources.

3.2.12.2.2 Proposed Action

The Proposed Action would require the conversion of 39.56 acres of CSP lands protected under Section 6(f) to construct the proposed project and to extract natural resources from the proposed material sites (Figure 17). CSP conversion lands consist of:

- 35.40 acres of upland habitat for material excavation areas at MP 109 and MP 104;
- 3.97 acres of rocky outcrops; and
- 0.19 acres of rocky outcrops left as remnants following conversion.

DOT&PF would replace the converted lands with property and/or improvements of at least equal fair market value and equivalent recreational utility. The proposed replacement consists of 14.70 acres of lands within the abandoned DOT&PF and ARRC ROW on the north side of the Seward Highway MP 105 to MP 107 improvements and construction of the parking area and amenities at the Windy Corner Trailhead.

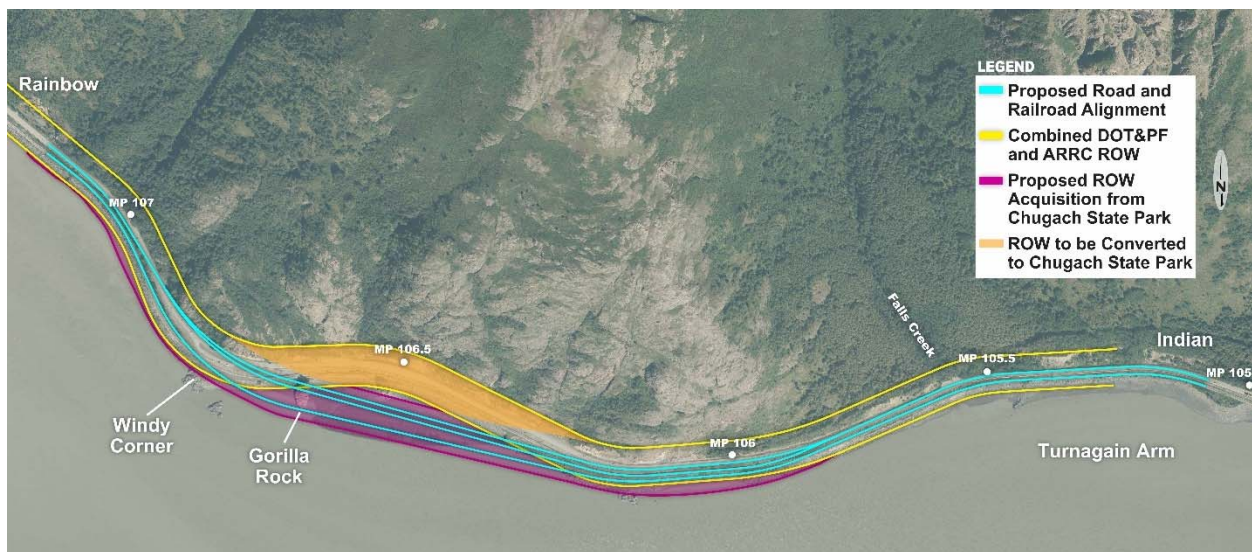


Figure 17: Proposed Acquisition and ROW Changes

NPS issued a Finding of No Significant Impact (date) confirming that DOT&PF's proposed replacement parcel (14.70 acres) provides at least equal fair market value and equivalent recreational utility for the LWCF protected parcels (39.56 acres) being converted from recreational use to material extraction or transportation use (See Appendix F).

3.2.13 Visual Effects and Aesthetics

3.2.13.1 *Affected Environment*

The Seward Highway is recognized for its scenic and natural beauty. It supports breathtaking views of Turnagain Arm, and the Kenai and Chugach Mountains. Motorists traveling the Seward Highway stop at Windy Corner for its unique opportunity to view wildlife and bore tides. This scenery is part of the reason for the Seward Highway's designation as an Alaska Scenic Byway, a U.S. Department of Agriculture Forest Service Scenic Byway, and an All-American Road. The highway offers a blend of natural Chugach Mountain slopes, Turnagain Arm, and the Kenai Mountains across the inlet, and rock faces excavated and blasted during prior highway construction, most of which have 'naturalized' with weathering and vegetation over the years. Examples of this may be found in Photographs 9 and 10.



Photograph 9: Former Construction Cut Face on Seward Highway, MP 113



Photograph 10: Former Construction Cut Faces on Seward Highway, MP 111

Visual impacts related to highway projects typically occur within the highway's existing viewshed. Anticipated impacts are determined by selecting locations to describe the changes to the view because of the Proposed Action. Selected locations include the material excavation areas at MP 109 and MP 104, the Windy Corner vehicle turnout, and the Windy Corner Trailhead.

3.2.13.2 *Environmental Consequences*

3.2.13.2.1 No Action

The No Action alternative would have no visual impacts. Motorists would still have opportunities to view nature, wildlife, and bore tide. Conflicts would continue between motorists traveling through the project area and those slowing and stopping along the highway to view scenery or wildlife.

3.2.13.2.2 Proposed Action

The proposed project would provide motorists with improved facilities for viewing nature, wildlife, and bore tides in the project area. Visual changes would occur in the vicinity of the project area, including at the Windy Corner Trailhead and areas near MP 109 and MP 104. The Proposed Action would impact the sinuosity of the Turnagain Arm shoreline, and view of Gorilla Rock. The highway and railroad would be more visible from the southern extent of the Turnagain Arm Trail, as they are realigned further from shore and away from the base of the hill slopes. Gorilla Rock would be removed as part of the Proposed Action, changing some views from the highway and CSP.

Material extraction at MP 109 would expand a historic quarry by approximately 19.60 acres. The quarry plan would include an intact buffer, approximately 100 feet wide, between the material extraction area and the highway to help maintain the existing natural view along the Chugach Mountains (Figure 18). Extraction of materials at Milepost 109 would expose a rock face approximately 220 feet tall by 600 feet long. To minimize the potential effects, a topographic buffer will be maintained so that only a portion of the rock face will be visible from most angles. The buffer would obscure the view of the extraction area from the highway except for 0.5 miles, primarily in the southbound direction, west of the quarry driveway and will reduce visual impacts to views from across Turnagain Arm. Turnagain Arm Trail users may occasionally be able to view the extraction area at MP 109 from some off-trail viewpoints.

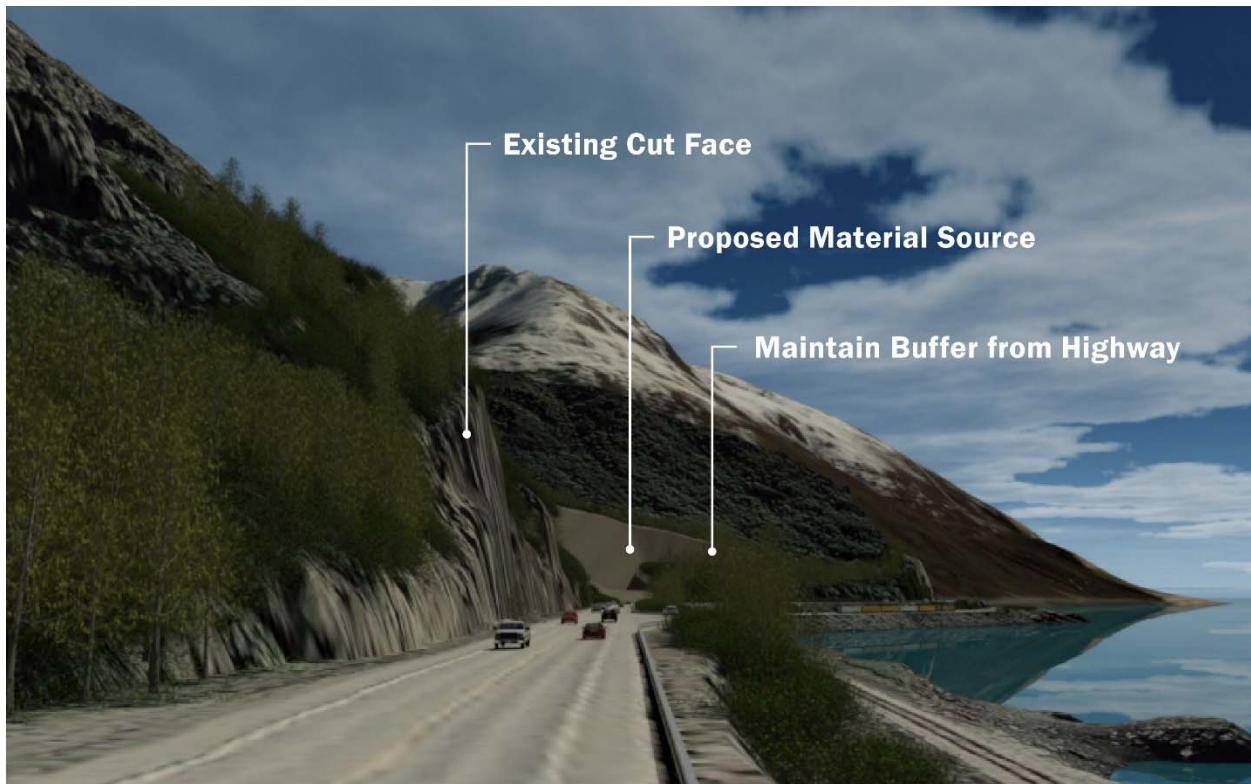


Figure 18: Visual Simulation of Proposed MP 109 Material site from Southbound Seward Highway

Material extraction at MP 104 would only occur if the Construction Contractor demonstrates that materials at MP 109 are insufficient in quantity or quality of materials for the proposed project. Extraction at MP 104 would potentially impact 15.80 acres of undeveloped land. Due to the geometry of the proposed MP 104 location, a topographic screen would not be possible at this location. The material site would be fully visible from the Seward Highway for approximately 1.3 miles in both traffic directions.

3.2.14 Irreversible and Irretrievable Commitment of Resources

3.2.14.1 *Affected Environment*

NEPA requires a review of irreversible and irretrievable commitments of resources from the development of the Proposed Action. Irretrievable effects apply to losses of production, use, or

commitment of renewable natural resources. Irreversible effects apply primarily to the use of nonrenewable resources, such as minerals or cultural resources, or to those factors only renewable over long periods of time, such as soil productivity. Irreversible effects also include the loss of future options.

3.2.14.2 Environmental Consequences

3.2.14.2.1 No Action

The No Action alternative would not change the existing commitment of natural resources.

3.2.14.2.2 Proposed Action

The Proposed Action would involve disturbance of up to 104.70 total acres and require the commitment of natural resources to construct the Seward Highway MP 105 to MP 107 and ARRC rail line alignments. Disturbance consists of:

- 43.00 acres of developed and disturbed lands to construct the highway and ARRC rail line;
- 26.30 acres of intertidal mudflats to construct the highway and ARRC rail line; and
- 35.40 acres of undeveloped, vegetated habitat for material extraction at MP 109 and, if necessary, MP 104.

Table 13 indicates estimated quantities of materials needed for construction of the proposed improvements.

Table 13: Quantities of Materials Needed for Seward Highway and ARRC Rail Alignments

Material Type	Quantity (tons)	Quantity (cy)
Borrow Type C	3,316,000	1,637,531
Borrow Type E	280,000	138,272
D-1 Base	9,900	4,889
ATB	15,955	7,879
Railroad Ballast	30,200	14,914
Rip Rap Class I	134	66
Coastal Rip Rap/Armor	267,000	184,138
Asphalt	9,011	4,450
Total	3,928,200	1,992,138

The proposed project would require the conversion of CSP lands from recreational use to transportation or natural resource extraction uses, as discussed in Sections 3.13 and 3.14.

The material extraction at MP 109 would require expansion of an area previously used as a material site. This site is anticipated to produce both the quality and quantities of material necessary to construct the proposed improvements. Material extraction from near MP 109 would impact up to 19.60 acres. If material extraction at MP 109 proves insufficient, DOT&PF proposes to extract material from MP 104. This which would impact an additional 15.80 acres.

The material extraction areas would remain CSP land, and upon closure and reclamation could be redeveloped for park use.

3.3 Permits and Authorizations

Construction of the Proposed Action would require the permits and authorizations identified in Table 14.

Table 14: Permits and Authorizations Required for Proposed Project

Permit	Agency	Purpose
ROW Permit	ARRC	Provides authorization to work within the ARRC ROW, to ensure safety and to minimize impact to rail operations. 2001 MOA extended a blanket permit for DOT&PF to conduct work on the Seward Highway located within the ARRC ROW
Section 401 Certificate of Reasonable Assurance	ADEC	Provides the certification for the placement of dredged or fill material in waters of the U.S. from the Proposed Action complies with applicable CWA Section 401 and 18 AAC 70 Alaska Water Quality Standards
Section 404/10 Individual Permit	USACE	Requires authorization to discharge dredge or fill material into Waters of the U.S.
CWA Section 402	ADEC	Authorizes the discharge of storm water associated with construction activities to waters of the U.S. Permit coverage is required from the “commencement of construction activities” until “final stabilization”. APDES CGP is required with the development and implementation of a SWPPP
Special Use Permit	ADNR-DPOR	Provides authorization for planned activity within or use of CSP
Non-Domestic Storm Water Disposal Plan Approval	ADEC	Authorizes the discharge of storm water
Noise Permit	Municipality of Anchorage	Authorizes a temporary increase in allowable noise levels for construction and extraction of resources using explosives
Conditional Use Permit	Municipality of Anchorage	Authorizes the use of MP 109 and MP 104 as “Natural Resource Extraction, Organic and inorganic” within the PLI zoned district
Endangered Species Act, Section 7 Consultation	NMFS	Requires the consultation with NOAA NMFS to determine if the Proposed Action would result in “taking” of a listed species or adversely affecting its habitat
Magnuson Stevens Fishery Conservation and Management Act, EFH Consultation	NMFS	Requires the consultation with NOAA NMFS to determine if the Proposed Action would result in “taking” of a listed species or adversely affecting its habitat
Section 106 National Historic Preservation Act;	ADNR-SHPO	Requires Federal agencies to avoid and minimize impacts to properties on or eligible for the NRHP
ADNR Commissioner’s Finding	ADNR	DNR Commissioner’s determination that conveyance of land for relocation or widening of portions of the Seward Highway and relocation of railroad facilities within Chugach State Park would not significantly adversely affect the purpose for which the park was established, per Section 6, Chapter 116, SLA 2000.

Section 4(f), Department of Transportation Act	FHWA, ADNR	Requires DOT&PF to avoid use of parks, recreation areas, wildlife/waterfowl refuges, and historic sites, unless there is no feasible and prudent alternative, or the impacts are found to be de minimis or of net benefit
Section 6(f), Land and Water Conservation Act	NPS	Requires that areas receiving LWCF assistance are continually maintained in public recreation use, unless DOI approves substitution property of reasonably equivalent usefulness and location and of at least equal fair market value
Bald and Golden Eagle Protection Act	USFWS	Requires a permit be obtained to “take” bald eagles, including their parts, nests, or eggs. “Take” is defined as “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb

As stated in Section 3.1 Floodplains, the Municipality of Anchorage has indicated that they will not require a Flood Hazard Permit.

Other Federal, State, or Municipality of Anchorage permits and authorizations may be obtained by the contractor to address conditional land use, tidelands, material extraction, temporary water use, noise, and air quality permits associated with construction activities.

3.4 Construction Impacts

Construction of the Proposed Action is anticipated to lead to temporary degradation of water quality, air quality, traffic delays and detours, and noise impacts. BMPs are proposed to reduce impacts and are identified in Table 15.

Material extraction at MP 109, and possibly MP 104, would result in additional short-term noise, dust, water quality, air quality, and traffic impacts from both production and transport of material. BMPs are proposed to reduce impacts related to noise, storm water discharges, water quality, and air quality. A traffic control plan will be developed to address congestion of through-traffic during construction.

Table 15: Construction Impacts and Mitigation

Resource	Expected Effect & Duration	Mitigation
Water Quality	Temporary water degradation from disturbance to mudflats during construction. Minimal effect, given background turbidity and sediment loads in Turnagain Arm. Will continue until riprap base is placed (approximately 4 months).	The contractor will implement BMPs in accordance with both an ESCP and a SWPPP, to be developed and approved by DOT&PF.
Stream Diversion	Three stream diversions will occur during culvert replacement. Each waterway is expected to be diverted for approximately 2-3 days, depending upon the construction method and sequencing.	There are no known resident or anadromous fish species in the waterways. Stream diversion will be limited to the time required to replace the existing culverts with the new, larger culverts.
Air Quality	Impacts to air quality are expected to be minimal. Dust emissions may increase during construction operations, particularly during dry months. Blasting and excavation of the material site is likely to generate fugitive dust.	The contractor will implement BMPs in accordance with both an ESCP and a SWPPP, to be developed and approved by DOT&PF.
Traffic Delays / Detours	Traffic delays are likely during the entire highway construction phase, as well as during blasting operations.	A traffic control plan will be developed to address access, congestion, and construction scheduling.
Noise	Construction and blasting activities are expected to increase local noise levels. Blasting and material excavation are likely to be audible for some of the residences at Rainbow and possibly Indian. Blasting is expected to occur once per day until sufficient material is generated.	The contractor will follow the stipulations of the Municipality of Anchorage Noise permit. The contractor will also use observers to monitor for CIBW within 4,800 feet prior to blasting operations. If whales are detected within 4,800 feet, blasting will be paused until the whales exit the 4,800-foot radius clear zone. Blasting operations will not be allowed between May 10 th and July 15 th to protect Dall sheep during lambing. Observers will also be used to monitor for Dall sheep within 0.25 miles prior to blasting operations.

Wildlife	With increased activity and noise, wildlife movements are anticipated to be altered.	The contractor will use observers to monitor for CIBW within 4,800 feet prior to blasting operations. If whales are detected within 4,800 feet, blasting will be paused until the whales exit the 4,800-foot radius clear zone. Blasting operations will not be allowed between May 10 th and July 15 th to protect Dall sheep during lambing. Observers will also be used to monitor for Dall sheep within 0.25 miles prior to blasting operations, blasting will be paused until sheep are greater than 0.25 miles from blasting operations.
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4.0 CUMULATIVE IMPACTS

Per 40 CFR 1508.7, cumulative impacts result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

4.1 Method for Determining Cumulative Impacts

Analyzing cumulative impacts is based on defined spatial (geographic) and temporal (time frame) boundaries. The geographic area of the analysis includes the Project Area (Section 1.3, Figure 4), as well as three miles in either direction along Seward Highway, thus extending from Seward Highway MP 102 to MP 110. The time frame used for the cumulative impact analysis is 1970, which includes the creation of CSP and the timeframe used for safety corridor crash data and extends to 2023 to include proposed developments in the reasonably foreseeable future.

4.1.1 *Past Actions*

Existing facilities within the Project Area include: CSP, the Seward Highway, the ARRC rail line, overhead utility lines, Windy Corner vehicle turnout, Windy Corner Trailhead, Turnagain Arm Trail, and multiple vehicle pull-outs. Routine maintenance of existing facilities includes removal of trash and clearing of vegetation within ROW and utility corridors.

Highway traffic in 1977 was approximately 3,500 AADT; it grew to approximately 9,000 AADT in 2002. It has remained near 9,000 AADT since 2002. The highest number of recorded fatalities and major injury crashes were reported in 1977 and 1979.

Past actions include:

- Creation of CSP: CSP was created in 1970; lands and waters to either side of the highway and rail corridor ROWs became part of the newly created park. This has likely reduced potential development along the highway, and in inhaling communities of Indian, Bird, and Rainbow.
- The 2001 MOA between CSP, DOT&PF, and ARRC (Appendix A): The MOA between the three parties has served to improve coordination of maintenance and management of the highway, railway, and state park facilities.
- Designation of CIBW as Endangered, and designation of critical habitat: The CIBW population was listed as an endangered species in 2008. The designation of upper Cook Inlet, including Turnagain Arm, as critical habitat for the CIBW population occurred in 2011.
- Designation of the Seward Highway from MP 90 to MP 117.5 as a safety corridor: The Seward Highway Safety Corridor was extended in 2007 to include MP 87 to MP 90. Since the designation, the Seward Highway has had a decrease of nearly 40 percent in high severity crashes; most of the decrease can be attributed to a reduction in major injury crashes as the fatality rate has increased over that same period. No new development has occurred within the project area since 1977.

- Slow Vehicle Turnouts (MP 94, MP 108, MP 111, MP 115), completed 2013 to 2014: Construction of additional slow vehicle turnouts, including one within a mile of the project area, have expanded the physical footprint of the highway facility marginally. These turnouts are likely to have provided incremental reductions in vehicle delays and traffic, as each provides an additional opportunity for slow vehicles to exit the drive lane to allow faster vehicles to safely pass.

4.1.2 Present Actions

Other than the Proposed Action, there are no state, federal, or other development actions proposed. Additional DOT&PF design and construction efforts are underway on the Seward Highway; however, these are outside the cumulative impacts area.

4.1.3 Reasonably Foreseeable Future Actions

Reasonably foreseeable future actions include those actions which are planned, designed, or budgeted for construction within the next five years. Natural occurrences typical for this area are rock falls and would require maintenance as needed.

The only reasonably foreseeable future action includes the Seward Highway MP 100 to MP 105 Improvements design and construction project. This project would provide highway improvements along approximately five miles of Seward Highway, including its frontage through the communities of both Bird and Indian.

4.1.4 Resources Assessed for Cumulative Impacts

Resources assessed for Cumulative Impacts include:

- Aesthetic Effects;
- Threatened and Endangered Species; and
- Social Considerations.

The remaining resources discussed in Chapter 3 do not have any identifiable cumulative effects in the area defined or within the timeframe described in Section 4.1

4.1.4.1 Aesthetic Effects

Cumulative impacts to aesthetics since 1970 are minimal. The Seward Highway and ARRC rail line track were already present in something close to their current alignment. Additional cuts to the steep, close faces along the highway have been conducted in the intervening years, for both minor road realignment and to reduce the risk of rockfall damage to the public.

The aesthetic effects of the Proposed Action would contribute slightly to the cumulative changes since 1970. Other than the Proposed Action, there are no present or reasonably foreseeable future projects expected to affect aesthetics in the area.

4.1.4.2 Threatened and Endangered Species

Cumulative impacts to threatened and endangered species since 1970 include the designation of upper Cook Inlet as critical habitat for the CIBW population. The population was first listed by NMFS as endangered in 2008 and the critical habitat was designated in 2011.

Prior to this designation, there are likely to have been very minor highway and rail maintenance, reconstruction and realignment efforts in the project area. The designation of all surrounding land and waters as state parkland likely reduced additional land and infrastructure development and disturbance.

The effects of the Proposed Action contribute to the cumulative effects on CIBW. However, the NMFS has indicated that with the proposed conservation recommendations implemented, the Proposed Action is not likely to adversely affect CIBW.

Although reasonably foreseeable future effects may occur, with the proposed design and construction of the Seward Highway MP 100 to MP 105 improvements. However, should this project involve realignment requiring fill in Turnagain Arm, NMFS would have to review a biological opinion and concur with a finding that the project is not likely to adversely affect the CIBW population prior to permitting the proposed effort.

4.1.4.3 Social Considerations

Social considerations include socioeconomics, public health and safety, recreation, and access. Designation of 495,000 acres as state parkland in 1970 improved recreation opportunities in the area. Incremental improvements by ADNR-DPOR in the intervening years, such as trail construction, trailhead improvements, parking, and other amenities, have also increased recreational opportunities and access.

Highway improvements, including pullouts, passing lanes, and parking areas within the highway ROW, have improved recreational access. Improvements to Seward Highway also contributed positively to socioeconomics and public health and safety, by improving crash-prone curves and providing passing areas and turnouts to relieve traffic congestion due to speed differentials.

The Seward Highway MP 100 to MP 105 Improvements project is also expected to improve socioeconomics and public health and safety, by relieving traffic flow and congestion related to access and egress issues in the Bird and Indian communities and businesses. The MP 100 to 105 project may also provide improvements to recreational access, such as at the Falls Creek Trailhead. Thus, the cumulative social effects of this project with previous and future projects would be beneficial.

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5.0 COMMENTS AND COORDINATION

Public and agency scoping is a critical part of project development and environmental documentation under NEPA. Federal, State, and local agencies, and the public were consulted to obtain pertinent information used in developing reasonable alternatives and identifying issues. This section summarizes the information obtained and issues raised by the public and government agencies. A scoping summary report was prepared in 2013 to document public and agency outreach efforts conducted in preparation of a CE Re-Evaluation. Since this time, DOT&PF and FHWA have concurred that the changes in the project and the public concern regarding the environmental impacts warrant the preparation of an EA.

5.1 Public and Agency Scoping

DOT&PF has conducted considerable public and agency coordination for the proposed project, dating back to as early as 1998.

5.1.1 Scoping Summary for 2004 CE

Agency and Public meetings include:

- August 6, 1998 (multiple agencies);
- June 21, 2001 (SHPO);
- July 2, 2001 (Turnagain Arm Community Council [TACC]);
- July 13, 2001 (ADNR);
- July 18, 2001 (SHPO);
- July 19, 2001 (ARRC);
- August 22, 2001 (multiple agencies);
- September 26, 2001 (TACC)
- June 14, 2002 (ARRC);
- June 18, 2002 (multiple agencies);
- June 25, 2002 (ADNR);
- March 14, 2003 (SHPO);
- April 29, 2003 (ADNR); and
- June 25, 2003 (multiple agencies).

Prominent issues raised by the public and affected agencies include:

- The purpose and need for the project have been well acknowledged, and safety improvements are considered a high priority. Specific safety issues included high vehicle speeds; lack of enforcement; confusion over lane configurations; inability to see lane-line separations during rainy, snowy, or dark road conditions; a variety of traffic users (local, tourist, etc.); and illegal passing maneuvers.
- Concern was expressed over the long-term transportation needs of the corridor: how long will the preferred alternative meet the needs of the highway, and what are the

expenses involved with addressing long-term needs (e.g., four-lane vs. alternating passing lanes) now rather than later?

- Suggestions were made to build a tunnel through the mountainside at Windy Corner, with additional suggestions for improvements at other locations; however, concerns were expressed regarding costs and impacts.
- Visual and scenic qualities are highly valued. These qualities need to be closely analyzed and designed into the project. The natural character of the roadway and adjoining land, vegetation, and shore/water features need to be maintained or enhanced (avoid continuous rock cuts and blast scars, maintain natural vegetation, preserve viewshed, etc.).
- Concerns were expressed about substantial additions of riprap into Turnagain Arm that may replace the natural shoreline sinuosity with a straight shoreline. Opinions were expressed that a straighter shoreline will increase current velocities, destroy natural shoreline recesses, and diminish the viewshed.
- Traffic control and delays during construction were an important concern. Public notification of, and traffic control during, construction activities need to be well coordinated.
- Mitigation of environmental impacts will be required for the project. Assessment of project induced impacts to aquatic resources and hydrological features was considered important.
- Concern was expressed over impacts to CIBW in Turnagain Arm.
- Preservation and enhancement of recreational areas/opportunities within the project corridor (the Grotto at MP 104.8, rock climbing areas, windsurfing access points, etc.) were a very high priority.
- Safety and operations of ARRC need to be comprehensively addressed in project design.
- Turnouts, pullouts, access, connections, and parking were considered important to incorporate into the highway design. Additionally, designing safer turnouts, pullouts, access points and parking (e.g., more tapered driveways, deceleration/acceleration lanes, etc.) was a priority.
- Continued coordination with CSP to protect scenic values and incorporate enhancement projects into the project design was considered important.
- Concern was expressed over the safety of students at school bus stops along the highway.

5.1.2 Scoping Summary Post-2004 CE

In 2013, DOT&PF conducted additional public and agency coordination with interested stakeholders to inform them of the changes to the project including the scope and potential environmental impacts. Agency scoping letters were sent to relevant resource agencies on March 5, 2013. A Scoping Summary Report (SSR) documenting public and agency comments and coordination are included in Appendix G. Agency and Public meetings included in the SSR are listed below.

- February 18, 2013 (Girdwood Board of Supervisors)

- March 4, 2013 (Girdwood Community Center, Public Meeting #1)
- March 20, 2013 (multiple agencies)
- April 15, 2013 (Girdwood Board of Supervisors)
- May 9, 2013 (TACC)

DOT&PF continued to engage the public and agencies throughout the design process from 2013 to 2018. An agency technical advisory group (TAG) was established to maintain a consistent exchange of pertinent information with agencies during the design process. Agency and Public Meetings not included in the SSR include:

- May 28, 2013 (TAG Meeting #1);
- August 8, 2013 (TAG Meeting #2);
- November 1, 2013 (TAG Meeting #3);
- December 16, 2013 (ARRC);
- December 19, 2013 (Girdwood Rotary);
- April 9, 2014 (TAG Meeting #4);
- April 24, 2014 (Girdwood Community Center, Public Meeting #2);
- May 8, 2014 (TACC);
- May 21, 2014 (GBS);
- February 4, 2015 (Anchorage Transportation Fair);
- March 18, 2015 (ADNR);
- June 4, 2015 (TAG Meeting #5);
- October 15, 2015 (ADNR);
- February 4, 2016 (Anchorage Transportation Fair);
- February 19, 2016 (Municipality of Anchorage and ADNR);
- April 01, 2016 (ARRC);
- April 05, 2016 (Online Open House);
- April 19, 2016 (Anchorage Open House);
- April 20, 2016 (Girdwood Open House);
- April 26, 2016 (ADNR);
- August 01, 2016 (Municipality of Anchorage);
- September 22, 2016 (Anchorage Transportation Fair);
- February 22, 2017 (USACE);
- June 01, 2017 (ADNR); and
- June 24, 2017 (USACE and ARRC).

These public and agency meetings have resulted in a number of changes to the design of the proposed project, most notably around the proposed parking areas, access locations and auxiliary lanes, and the design of the proposed material source at MP 109.

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7.0 REFERENCES

Alaska Department of Environmental Conservation

- 2010 *Alaska's Impaired Waters – 2010.*
- 2017 Division of Water. *Alaska DEC Drinking Water Protection Areas Mapper*, accessed on December 19, 2017:
<http://www.arcgis.com/home/webmap/viewer.html?webmap=13ed2116e4094f9994775af9a62a1e85>
- 2018 Division of Spill Prevention and Response. *Alaska DEC Contaminated Sites Mapper* accessed on January 2, 2018:
<http://www.arcgis.com/home/webmap/viewer.html?webmap=315240bf84aa0b8272ad1cef3cad3>

Alaska Department of Fish and Game

- 2018 *Anadromous Waters Catalog Interactive Mapping* accessed on January 2, 2018:
<http://extra.sf.adfg.state.ak.us/FishResourceMonitor/?mode=awc>

Alaska Department of Natural Resources

- 1994 *Turnagain Arm Management Plan for State Lands.*
- 2009 *Public Review Draft Chugach State Park Trail Management Plan.*
- 2010 *Chugach Access Plan: Public Review Draft.*
- 2011 *Public Review Draft Chugach State Park Management Plan.*
- 2016 *Recommended Revisions to the Public Review Draft Chugach State Park Management Plan.*
- 2017a *Public Review Draft Chugach State Park Management Plan.* Accessed December 19, 2017:
<http://dnr.alaska.gov/parks/units/chugach/manageplanchug.htm>
- 2017b *Environmental Assessment Seward Highway Mileposts 105-107, Windy Corner Improvements, 0A3134/AK 56631.*

Alaska Department of Transportation and Public Facilities

- 1998 *Seward Highway Corridor Partnership Plan, A Strategy for Management, Economic Development, and Conservation.* Prepared by the National Trust for Historic Preservation, Rural Heritage and Heritage Tourism Programs, with Whiteman and Taintor, Planning Consultants
- 2004 *Categoric Exclusion Checklist for Seward Highway Safety Improvements Indian to Potter Marsh, MP 105 to MP 115.*
- 2006 *Seward Highway: Girdwood to Potter Marsh Fatal Collision & Possible Mitigation Strategies for Collisions Involving Vehicles Traveling in Opposite Directions*
- 2009 *Seward Highway Corridor Partnership Plan.*
- 2011a *2011 Alaska Traffic Crashes.*
- 2011b *Historic Windy Corner Options DOT&PF Evaluation 2006-2011.*
- 2011c *Value Engineering Study Report. Prepared for the Department of Transportation and Public Facilities.*

- 2013a *Scoping Summary Report for Seward Highway MP 105 – 107, Windy Corner.*
- 2013b *Memorandum of Cost Comparison of Borrow Material Sources*
- 2014 *Alaska Environmental Procedures Manual.*
- 2016 *Draft Section 404 Permit Application.*
- 2017a *Design Study Report for Seward Highway: MP 105-107, Windy Corner Anchorage, Alaska*
- 2017b *Draft Seward Highway Milepost 105-107 Windy Corner Special Use Permit Application for Material Development and Use.*
- 2017c *Policy and Procedure(s).*
- 2017d *Safety Corridors Audit 2017.*
- 2017e *Revised Environmental Assessment Seward Highway Milepost 75-90 Road & Bridge Rehabilitation.*
- 2017f *Traffic Noise Analysis Report.*
- 2018a *Alaska's Scenic Byways: Seward Highway All American Road* accessed on January 5, 2018: <http://www.dot.state.ak.us/stwdplng/scenic/byways-seward.shtml>
- 2018b Seward Highway MP 99-115 accident data, 2013-2015 (unpublished)

Alaska Department of Transportation and Public Facilities, Alaska Department of Natural Resources, and Alaska Railroad Corporation

- 2001 *Memorandum of Agreement.*

Alaska Exotic Plants Information Clearinghouse

- 2018 *Alaska Exotic Plants Information Clearinghouse Data Portal* accessed on January 5, 2018: <http://aknhp.uaa.alaska.edu/apps/akepic/>

Alaska Railroad Corporation

- 2017 *Coastal Classic.* Accessed December 5, 2017: <https://www.alaskarailroad.com/ride-a-train/route-map/coastal-classic>

Anchorage Daily News

- 2017 *Seward Highway reopened after landslide.* Published December 18, 2017.

DOWL

- 2013 *Bald Eagle Survey Letter.*

Federal Emergency Management Agency

- 2009 *Flood Insurance Rate Map 0200051500D.*

Federal Highway Administration

- 2018 *Environmental Review Toolkit* accessed on January 17, 2018 https://www.environment.fhwa.dot.gov/about/topic_list.aspx

Granite Construction

- 2017 Cost Analysis for Seward Highway MP 105 to MP 107 Material site and Transport Options

LGL Alaska Research Associates, Inc.

- 2015 *Biological Assessment of the Cook Inlet Beluga Whale (Delphinapterus leucas) for the Seward Highway MP 105—107 Windy Corner Project, Municipality of Anchorage, Upper Cook Inlet, Alaska.* Prepared for the Department of Transportation and Public Facilities.

Municipality of Anchorage

- 1997 *Areawide Trails Plan.*
2009 *Turnagain Arm Comprehensive Plan.*

National Marine Fisheries Services

- 2008 *Conservation Plan for the Cook Inlet Beluga Whale.*
2011 *Final Rule to Designate Critical Habitat for the Cook Inlet Beluga Whale.*

National Oceanic Atmospheric Administration

- 2008 Federal Register Document E8-25100 filed October 17, 2008. 73 Federal Register 62919. Published October 22, 2008.
2011 Federal Register Document 2011-16987 filed July 6, 2011. 76 Federal Register 39857. Published July 7, 2011.
2018 *FAQ – Tide Predictions and Data.* 9. Where are the highest tides? Accessed on February 26, 2018: <https://tidesandcurrents.noaa.gov/faq2.html>

Natural Resources Conservation Service

- 2018 *Prime and Important Farmlands NRCS Alaska.*

Sieling, Kristian.

- 1998 *The Scar: Southcentral Alaska Rock Climbing.*

Seward Highway All-American Road Partnership

- 2017 *The Seward Highway Road Guide: Journey Deep into Alaska & Out of This World.*

United States Environmental Protection Agency

- 2017a *EJSCREEN ACS Summary Report.*
2017b *EJSCREEN Census 2010 Summary Report.*

United States Fish and Wildlife Services

- 2017 *Timing Recommendations for Land Disturbance & Vegetation Clearing, Planning Ahead to Protect Nesting Birds.*
2016 *Windy Corner IPaC Trust Resource Report.*
2018 *National Wild and Scenic Rivers System Mapper* accessed on January 4, 2018: <https://www.rivers.gov/alaska.php>

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APPENDIX A: 2001 MEMORANDUM OF AGREEMENT

APPENDIX B: TRAFFIC NOISE ANALYSIS

APPENDIX C: CULTURAL RESOURCE CONSULTATION

**APPENDIX D: THREATENED AND ENDANGERED SPECIES
CONSULTATION**

APPENDIX E: SECTION 4(F) CONSULTATION

APPENDIX F: SECTION 6(F) CONSULTATION

APPENDIX G: DRAFT PERMITS AND AUTHORIZATIONS

APPENDIX H: AGENCY AND PUBLIC COMMENTS AND COORDINATION

H1	2004 CE Comments and Coordination
H2	Post 2004 CE Comments and Coordination