Safer Seward Highway Project
Seward Highway MP 98.5 to 118,
Bird Flats to Rabbit Creek

Project No.: Z566310000/0A31034

Environmental Assessment

Appendix N: Visual Impact Assessment

DRAFT

December 2025

Prepared for:

Alaska Department of Transportation and Public Facilities

Prepared by:

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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 April 13, 2023, and executed by FHWA and DOT&PF.

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Acronyms and Abbreviations

3D	three-dimensional
ADF&G	Alaska Department of Fish and Game
ADNR	Alaska Department of Natural Resources
ARRC	Alaska Railroad Corporation
AVE	area of visual effect
CPP	Corridor Partnership Plan
CSP	Chugach State Park
CSPMP	*Chugach State Park Management Plan*
DOT&PF	Alaska Department of Transportation and Public Facilities
FHWA	Federal Highway Administration
GIS	geographic information system
Min	Minimum
MP	Milepost
NSBP	National Scenic Byways Program
Project	Safer Seward Highway Project, Seward Highway Milepost (MP) 98.5 to 118, Bird Flats to Rabbit Creek
VIA	visual impact assessment

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1 Introduction

Assessing impacts on visual quality involves understanding the relationship between viewers and the surrounding environment, including determining what views people like and dislike (FHWA 2015). Visual quality is different for every viewer, as they may evaluate visual resources differently. Additionally, views can include both built and natural environments. Impacts on visual quality include how well the project's impact can be absorbed within the existing viewshed; how sensitive viewers are to the change; the degree of the impact; and whether it is a beneficial, adverse, or neutral impact (FHWA 2015).

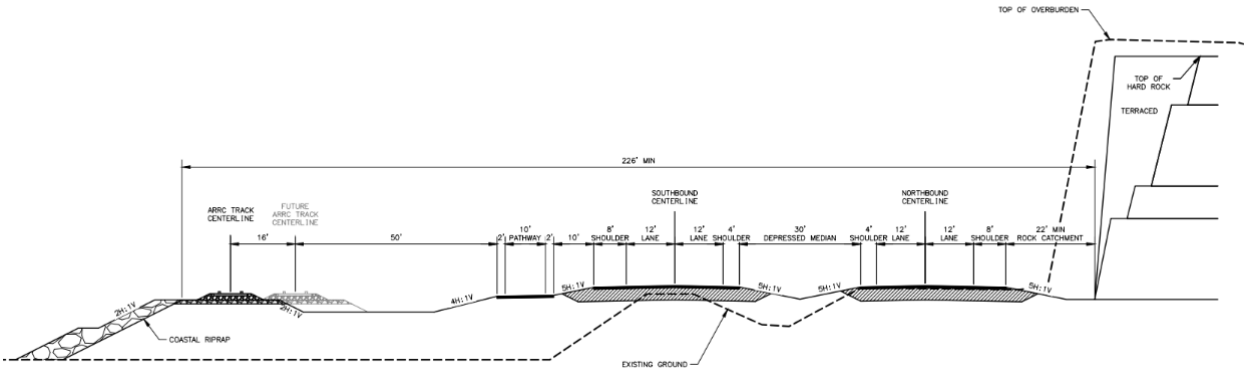
This report identifies the visual character of the Safer Seward Highway Project, Seward Highway Milepost (MP) 98.5 to 118, Bird Flats to Rabbit Creek (Project) study area as well as the affected viewers, and assesses potential impacts on visual quality from the Project's Proposed Action. This report also describes the mitigation measures that would be employed to reduce or avoid potential adverse effects.

1.1 Proposed Action

The Proposed Action would reconstruct the Seward Highway corridor to be a four-lane, divided highway with three typical road designs: a four-lane, median-divided highway; a four-lane, vertically separated highway; and a four-lane, barrier-divided highway. All typical road designs would include a separated, multi-use pathway generally adjacent to the highway.

The **four-lane, median-divided highway design** would include 12-foot travel lanes with 8-foot outside shoulders, 4-foot inside shoulders, and a 30-foot depressed median. A cable barrier may be installed in the grass median for additional safety at certain locations. The typical cross-section of the highway facility would be 148 feet wide (see Figure 1-1).

Figure 1-1. Four-lane, median-divided highway conceptual cross section.



Source: HDR 2024
Notes: Min = Minimum

The **four-lane, vertically separated highway design** would include 12-foot travel lanes with 8-foot outside shoulders, 4-foot inside shoulders, and a variable-width median. The southbound lanes would typically be at or near the current roadway elevation, and the northbound lanes would be constructed at a higher elevation to take advantage of favorable topography, such as

natural benches, to minimize rock cut impacts. The northbound lanes could be as much as 100 feet above the southbound lanes, with 200 feet separating their inner shoulders.

The **four-lane, barrier-divided highway design** would include 12-foot travel lanes with 8-foot outside shoulders, 4-foot inside shoulders, and a 4-foot barrier (12 feet between nearest opposing travel lanes). The typical barrier used would be a cast-in-place, concrete jersey barrier. Guardrail may be added within areas on the outside of the roadway when adequate space requirements cannot be met.

The Proposed Action would also flatten six curves between MPs 105 and 110: two at Windy Corner, three near Rainbow Point, and one just north of Beluga Point. Within areas where the highway would be widened toward the water side (toward Turnagain Arm), segments of the Alaska Railroad Corporation (ARRC) railroad track segments would be reconstructed to allow the space needed for improvements. Many existing pullouts used for scenic-viewing and rock-climbing access would be closed to vehicle access or destroyed by roadway improvements. Ingress and egress into the communities of Indian and Bird would be consolidated into frontage roads with turning lanes.

Appendix A provides visualizations of existing visual resources at selected locations as well as simulations of the Proposed Action at those locations.

2 Regulatory Context

This section discusses relevant federal, state, and local regulations, guidelines, and/or plans related to visual resources and the Seward Highway. Documenting regulatory context provides evidence of visual preferences (FHWA 2015).

2.1 Federal Guidelines

The Federal Highway Administration's (FHWA's) *Guidelines for the Visual Impact of Highway Projects* (FHWA 2015) is the guiding document for performing visual impact assessments (VIAs) for roadway projects. Visual impacts are among those that must be assessed under the National Environmental Policy Act and should be balanced against proposed project improvements. The VIA performed for the proposed Project follows FHWA's guidelines, with the research methodology described in Section 3 Analysis Approach.

Additionally, FHWA's (2015) guidelines note that visual quality preferences used in a VIA can be discerned or implied through documentation such as legislation, planning ordinances, or protected areas. The following sections describe the inferred preferences of affected viewers.

2.2 Federal and State Scenic Byways Designations

The Seward Highway is designated as a National Forest Scenic Byway, All-American Road, and Alaska Scenic Byway. A National Forest Scenic Byway is an exceptional road that offers "regional distinct cultural, historic, natural, or other qualities" (Forest Service 2000). All-American Roads "provide motorists an exceptional traveling experience that makes the byway a primary reason for the trip" (Forest Service 2000). The Seward Highway was included as an All-American Road as it crosses the Chugach National Forest's diverse meadows and mountain vistas. Both National Forest Scenic Byways and All-American Roads are part of the National Scenic Byways Program (NSBP). An Alaska Scenic Byway recognizes Alaska's beautiful landscapes and the routes that provide access to scenic areas, cultural riches, and recreational resources (DOT&PF 2024).

Both the Alaska Scenic Byways program and NSBP support the development and management of scenic byways to serve the communities through which they pass. No State of Alaska restrictions or regulations apply to scenic byways (DOT&PF 2024). The only federal requirement of nationally designated byways is that new billboard construction is prohibited along nationally designated scenic byways that are Interstate, National Highway System, or Federal-aid primary highways (FHWA 2017). Billboards were banned in Alaska under the Alaska Prohibition of Billboards Initiative, or Measure 5, in 1998.

2.3 State Plans

2.3.1 Seward Highway Corridor Partnership Plan

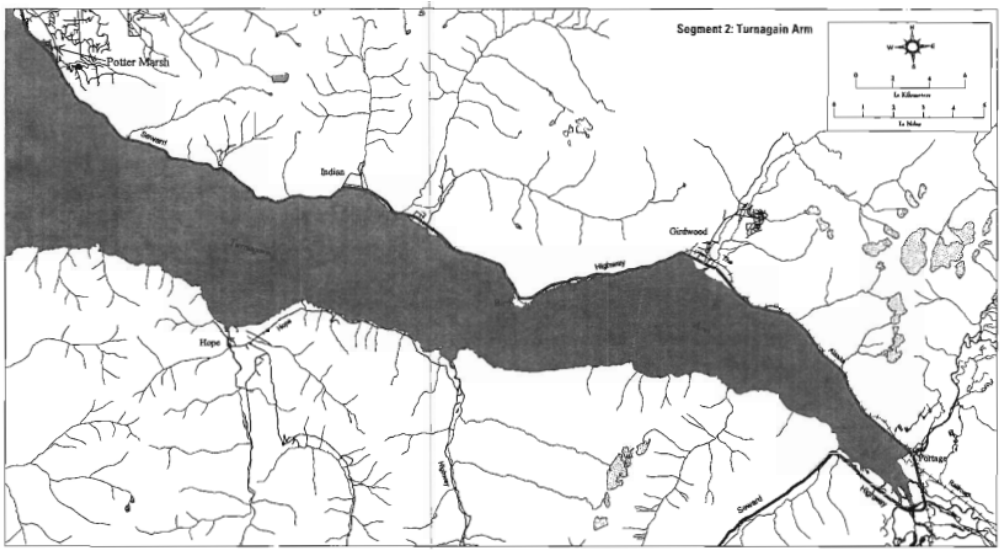
The *Seward Highway Corridor Partnership Plan* (CPP) was developed for the Alaska Department of Transportation and Public Facilities (DOT&PF) to aid it in managing the highway in a way that accommodates growth and development while preserving the physical,

recreational, and scenic attributes that earned the Seward Highway its NSBP National Forest Scenic Byways and All-American Road designations (National Trust 1998).

The CPP indicates the Seward Highway is composed of five district segments, with the Project study area within Segment 2: Turnagain Arm (National Trust 1998). Segment 2 traverses 41 miles, from Potter Marsh to the beginning of the Kenai Peninsula.

As Figure 2-1 shows, the CPP characterizes the Turnagain Arm segment of the Seward Highway as being surrounded by incredible natural landscapes with opportunities for travelers to pull out and view the surroundings, including wildlife. The CPP notes the road "narrows dramatically" within this segment, allowing drivers to be "suddenly embraced by the natural landscape" (National Trust 1998:19).

Figure 2-1. Turnagain Arm (Segment 2).



Map: courtesy Alaska Department of Transportation and Public Facilities

Segment 2: Turnagain Arm

It is at the Turnagain Arm segment where the natural beauty of the route becomes more than a distant view. The road narrows dramatically and the traveler finds him or herself suddenly embraced by the natural landscape with water to west and rock faces to the east. The distant profiles of the Kenai Peninsula's mountains become more intimate and mysterious as they slip in and out of view as the traveler winds along Turnagain Arm. The waters of the Arm are home to Beluga whales and an impressive bore tide, both of which can be viewed from numerous pullouts located directly above the water. The northern side of the highway is largely composed of the steep mountain slopes of Chugach State Park where Dall sheep routinely entertain both local residents and visitors.

The segment is approximately 41 miles long and extends from Potter Marsh to the beginning of the Kenai Peninsula. This area lies primarily within the Chugach State Park, but also includes the communities of Indian, Bird, Girdwood and Portage, as well as other public lands, including Anchorage Heritage Land Bank, DNR-Division of Land, Chugach National Forest, and other federal lands such as the Portage Glacier Visitors Center and U.S. Fish and Wildlife properties. The Alaska Railroad also parallels the highway through much of this segment.

Source: National Trust 1998:19

The CPP provides three management strategies to guide Seward Highway development while maintaining its NSBP designation: (1) protect the existing aesthetics of the corridor while providing a safe driving environment; (2) responsibly manage the growing tourism industry without causing negative long-term impacts on the highway; and (3) encourage only sustainable, well-planned development that supports the tranquil, scenic character of the roadway (National Trust 1998).

2.3.2 Chugach State Park Management Plan

The Alaska Department of Natural Resources (ADNR) developed the *Chugach State Park Management Plan* (CSPMP; ADNR 2016). The ADNR Division of Parks and Outdoor Recreation is authorized to manage Chugach State Park (CSP), as defined in Alaska Statue 41.21.122.

The CSPMP notes that vehicle turnouts in the Turnagain Arm Planning Unit, within which the Project study area is located, give viewers access to the park and "spectacular views of the mountains, inlet, and the famous bore tide" (ANDR 2016:109). Some key viewing areas described in the CSPMP include Beluga Point, for its views of beluga whales, and Windy Corner, for its panoramic views and Dall sheep sightings.

As it pertains to visual resources, the management intent for the Turnagain Arm Planning Unit is to preserve scenic sites along the transportation corridor as well as ensure corridor development creates access, recreation, enjoyment, and safety opportunities. This intent includes protecting Turnagain Arm's historic, archaeological, and natural values. Special management considerations note that motorists often only experience CSP visually as they travel the Seward Highway; as such, any changes to the highway corridor should only improve and harmonize with the existing visual experience.

2.4 Local Plans

2.4.1 Turnagain Arm Comprehensive Plan

The Municipality of Anchorage's *Turnagain Arm Comprehensive Plan* states that Turnagain Arm communities developed initially as rural enclaves along the Seward Highway, but the highway has transformed to become a popular route for tourist travel (MOA 2009). According to the plan, while residents expressed uncertainty about development, they acknowledged the growing population and tourism industry would likely impact the area (MOA 2009:36-37). The plan notes that Turnagain Arm communities are interested in preserving the rural character of communities and the scenic nature of the area through intentional development.

An overarching goal and value related to Turnagain Arm area aesthetics, which was derived from public involvement and plan development, was to "Preserve the scenic quality, the natural environment, and open spaces" (MOA 2009:39). This includes protecting and enhancing the diverse vegetation, fish and wildlife, and scenic views. The plan provided the following policies to guide actions in pursuit of this goal (MOA 2009:43):

- Adequately address or offset impacts of development on the environment, scenic views, and local natural systems, including streams and forests;
- Limit disturbances on steep slopes to prevent soil erosion and drainage problems to the maximum extent possible; and

- Apply the following basic standards to discretionary reviews for Turnagain Arm projects:
    - Retain natural vegetation on development sites to the extent practicable to provide screening, protection of native trees, and minimize runoff and erosion; and
    - Design and site projects to minimize offsite light impacts on residences, the night sky, and viewsheds.

3 Analysis Approach

This VIA was based on FHWA's *Guidelines for the Visual Impact of Highway Projects* (FHWA 2015). These guidelines describe four phases to performing a VIA:

1. **Establishment phase:** Involves defining the area of visual effect (AVE), or study area, including assessing the landscape and visibility of the area as well as determining the overall visual character.
2. **Inventory phase:** Involves assessing the visual quality, or what people like to see, including understanding the relationship between the affected environment and population.
3. **Analysis phase:** Involves assessing impacts from a proposed project on visual quality, including impacts on both the visual resources and viewers.
4. **Mitigation phase:** Involves identifying efforts to mitigate adverse impacts on visual resources and viewers.

In determining visual quality, FHWA guidelines recognize three types of visual perceptions for a scene (FHWA 2015):

1. **Natural harmony** is a viewer's evaluation of whether the natural environment is harmonious or inharmonious.
2. **Cultural order** describes whether the viewer experiences orderly or disorderly composition of the scene.
3. **Project coherence** evaluates if viewers determine the project composition to be coherent or incoherent.

3.1 Methodology

The Project team reviewed various planning documents as well as federal and state recognition programs regarding the Seward Highway to understand the general visual resources the Project corridor provides (see Section 2 Regulatory Context). The Project team identified scenic viewpoints important to the highway's character using planning documents as well as existing pullout and scenic viewing facility information.

The AVE contains the areas where changes to visual character and quality from the Proposed Action would likely be apparent to viewers. The viewshed includes both foreground and background views, and was developed using geographic information system (GIS) analysis of bare earth elevation data, which assumes the Seward Highway sits directly on the analyzed surface.

The Project team identified affected viewers, as well as the relationship between viewers and visual resources in the Seward Highway corridor, through the qualities and character described in the Seward Highway CPP (National Trust 1998); CSPMP (ADNR 2016); *Turnagain Arm Comprehensive Plan* (MOA 2009); and the National Forest Scenic Byway, All-American Road, and Alaska Scenic Byway designations. The Project team also collected visual perception of the AVE as well as concerns over impacts on visual character and quality through comments received during the Project's scoping period, public meetings, and public survey (see

Environmental Assessment Appendix P Stakeholder Engagement (Public and Agency Coordination)).

The AVE includes both dynamic and static viewsheds to characterize the views of all affected viewers, including viewers traveling the corridor, those parked at various vehicle pullouts and trailheads on the highway, and residents in the Indian and Bird communities. The Project team captured these static and dynamic viewsheds through photographs taken while driving the Seward Highway and pulled over at the identified scenic pullouts, and used visual imagery from Google Maps Street View to supplement visual data gathered from these photographs. The Project team grouped landscape units according to the visual character observed from photographs and known physical features, such as structures or pullouts.

By identifying the visual character, viewshed, affected viewers, and landscape units that comprise the study area, analysts could make a determination regarding the existing visual resources and viewers' (of all types) perception of them. The Project team then identified how the Proposed Action would impact the existing visual resources and how compatible these changes would be with the existing environment. Measuring the level of compatibility along with viewers' sensitivity to these changes allowed for the characterization of impacts as beneficial or adverse, as well as the measurement of the degree of the impact as none, minimal, minor, moderate, or substantial.

The VIA was aided by the visualization software Autodesk 3ds Max, a three-dimensional (3D) modeling and animation software, with V-Ray 3D rendering software, as well as Adobe's Photoshop and After Effects software. Appendix A (Visual Resources – Existing Views and Visualizations) provides photographs of key viewing scenes on the Seward Highway within the AVE, as well as visual simulations that show how the Proposed Action would change these scenes.

Finally, the Project team developed mitigation measures to mitigate any potential adverse effects.

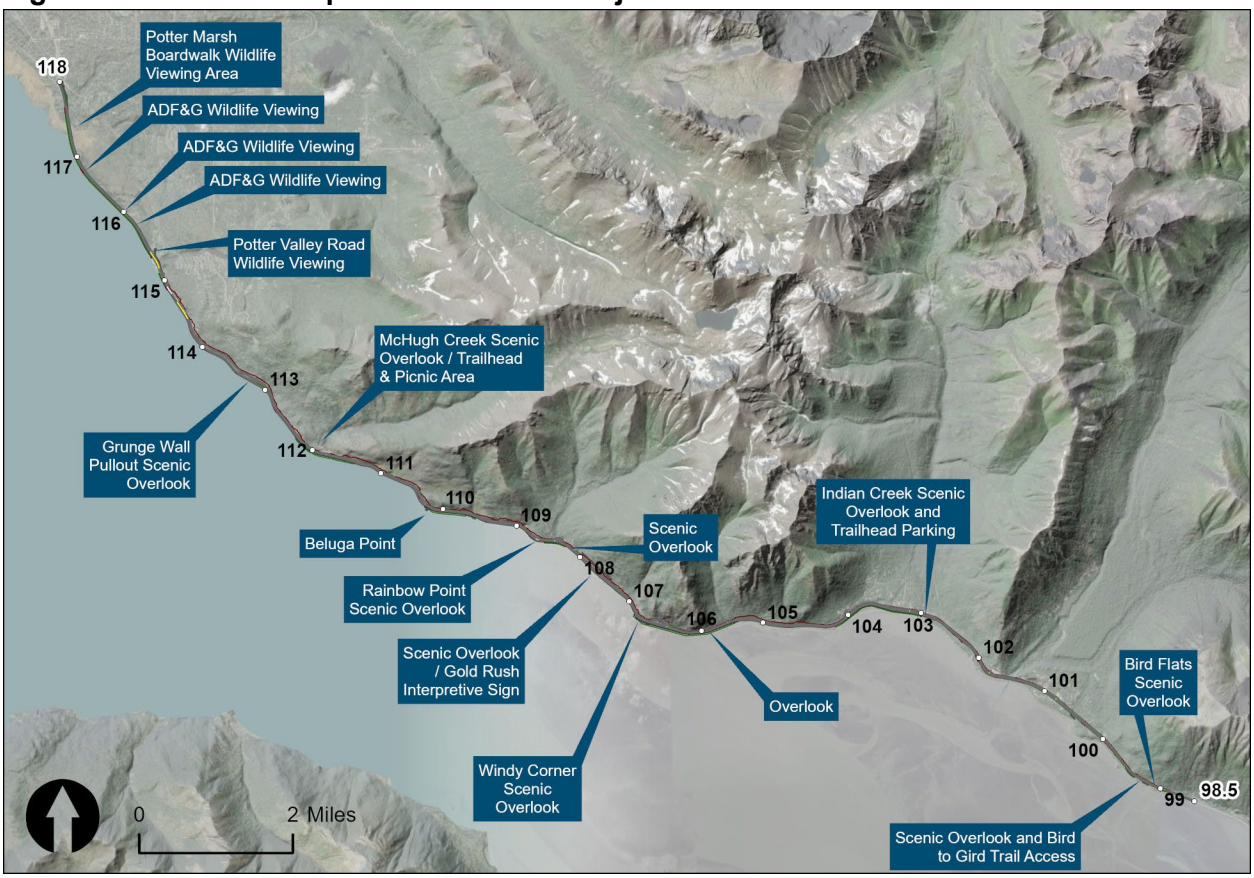
3.2 Affected Environment

The affected environment refers to the AVE's existing visual conditions. This section provides an overview of the affected environment and visual character, affected viewers, and visual quality. This section also describes the existing viewshed and landscape units within the Project area.

3.2.1 Visual Character

The Project corridor is known for its scenic qualities, and travelers frequently stop at pullouts throughout the Project area to view the natural features and wildlife. Due to its unique natural qualities and scenic landscapes, the Seward Highway is designated as a National Forest Scenic Byway, All-American Road, and Alaska Scenic Byway. Figure 3-1 shows the scenic viewpoints that currently exist within the Project area.

Figure 3-1. Scenic viewpoints within the Project area.



Notes: ADF&G = Alaska Department of Fish and Game

Overall, visual features within the Project area are largely undeveloped natural settings with small amounts of residential and commercial development, mostly near the communities of Bird and Indian. Previous construction projects have excavated and blasted the natural rock face within some sections of the highway (Figure 3-2). Much of the blasted rock faces have weathered over time and assumed a more natural appearance. The Seward Highway corridor is generally lined with trees and grass on the mountain side of the highway, and lined with grass, railroad tracks, and water views on the Turnagain Arm side of the highway.

Background views throughout the entire Project corridor include Turnagain Arm waters as well as the Kenai and Chugach Mountains. Pullouts are used to access trailheads and rock-climbing areas as well as to enjoy views of Turnagain Arm, Dall sheep, bore tides, and beluga whales.

Figure 3-2. Example of previously blasted, weathered rock face.

Source: HDR 2023

The following describes the visual character from north to south along the Project corridor. At the Project's northern terminus (MP 118), the visual character is defined by transportation elements, including the Seward Highway and Rabbit Creek overpass.

Moving southward, the mountain side of the highway is dominated by Potter Marsh, an undeveloped wetland area that begins at approximately MP 117.5. Visible on the water side of the highway are the Rabbit Creek Shooting Range parking area and ARRC tracks.

Near MP 115.25, the CSP headquarters building (Potter Section House) and parking area can be seen on the southwestern/water side of the highway.

Near MP 114.75, the DOT&PF Weigh Station is visible on the mountain side of the highway. Between the DOT&PF Weigh Station and Indian (approximately MPs 114.75 to 104.25), the visual character is defined by the Seward Highway and ARRC tracks. Developed features are generally not visible within this section. Natural features include trees and grasses, with Turnagain Arm waters as well as the Kenai and Chugach Mountains visible in the background (Figure 3-3).

Figure 3-3. Example view just past Beluga Point showing the Chugach and Kenai Mountains, a two-lane highway, the railroad tracks, and Turnagain Arm waters.

Source: HDR 2023

The visual section between the DOT&PF Weigh Station and Indian consists of numerous pullouts, including:

- The McHugh Creek Trailhead, which is dominated by a paved parking lot with trails into CSP
- Beluga Point, which is dominated by a paved parking area and is primarily used for viewing Turnagain Arm
- Windy Corner trailhead is a small, paved parking area that provides access to the Turnagain Arm Trail
- Windy Corder turnout is a small, paved parking area that provides views of Turnagain Arm and also a popular Dall sheep viewing area
- Rainbow Trailhead, which is a small parking area providing access to CSP trails
- Falls Creek Trail, which is a small parking area providing access to CSP trails.

Within the Indian area (approximately MPs 104.25 to 102.75), the visual character is largely defined by the Seward Highway, ARRC tracks, and the Indian to Girdwood Bike Path (commonly referred to as the “Bird to Gird” Trail). Small amounts of development features are visible, mainly on the mountain side of the highway. Notable buildings in Indian include the Indian Valley Mine, Birch & Alder, Brown Bear Saloon, and Valley Bible Chalet. On the Turnagain Arm side of the community, near MP 103, are a small, paved parking area (CSP Indian Creek) and a community ballfield.

Between Indian and Bird Creek (approximately MPs 102.75 to 101.5), the visual character is largely defined by the Seward Highway, ARRC tracks, and the Indian to Girdwood Bike Path. This section contains the Bird Ridge Trailhead (MP 102.25), which has a small parking area. This section also contains the Bird Creek Trailhead (MP 101.75), which has a large parking area providing access to the popular Bird Creek fishing area (Figure 3-4). Bird Creek waters are visible on the mountain side of the highway at approximately MP 101.5, while the water side of the highway shows the creek feeding into Turnagain Arm. During fishing season, anglers are visible on both sides of the highway.

Figure 3-4. View of the Seward Highway from the Bird Creek Trailhead.

Source: HDR 2023

Similar to Indian, the visual character in the community of Bird is largely defined by the Seward Highway, ARRC tracks, and the Indian to Girdwood Bike Path (Figure 3-5). This section runs from approximately MPs 101.5 to 100. A small number of development features are visible on the mountain side of the highway within the community. Bird Creek Campground lies along the water side of the highway, while access for campground overflow parking is visible on the mountain side of the highway at approximately MP 101.25. Notable buildings within the Bird community include the Essential One gas station and the Bird Creek Motel & RV Park located at approximately MP 100.75.

Figure 3-5. View from the Indian to Girdwood Bike Path before crossing Bird Creek.

Source: HDR 2023

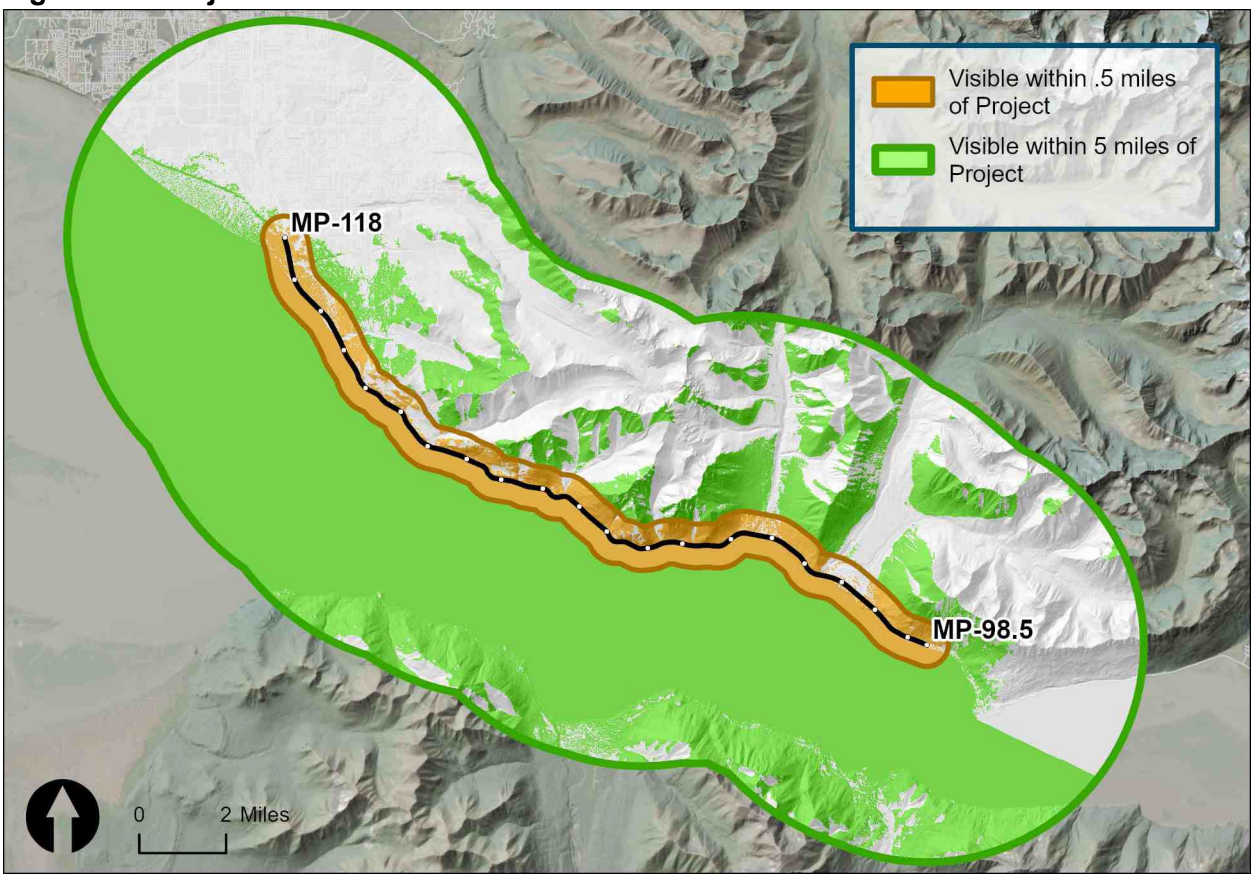
Between the Bird community and the Project's southern terminus (MPs 100 to 98.5), the visual character is largely defined by the Seward Highway, ARRC tracks, and Indian to Girdwood Bike Path.

The visual character of the highway and surroundings differs between summer and winter. During winter, the highway pavement, as well as distant mountains, are typically covered in snow and ice, and portions of the Turnagain Arm waters freeze over. During the short summer season, as well as some of spring and fall, views include clear pavement, ice-free waters, and greener scenery.

3.2.2 Viewshed

The Project viewsheds are both static and dynamic. A static viewshed is what viewers can see from a stationary location, while a dynamic viewshed is what viewers can see as they travel through the corridor (FHWA 2015). The viewshed is divided into foreground and background. Foreground includes all areas visible from the Project within 0.5 mile. Background includes all areas visible from the Project between 0.5 and 5 miles away. Figure 3-6 shows the Project viewshed. The Project team developed the viewshed using GIS analysis. The viewshed represents visible areas based on topography. It does not account for views obstructed by buildings or other structures, or views from across Turnagain Arm.

Figure 3-6. Project viewshed.



3.2.3 Affected Viewers

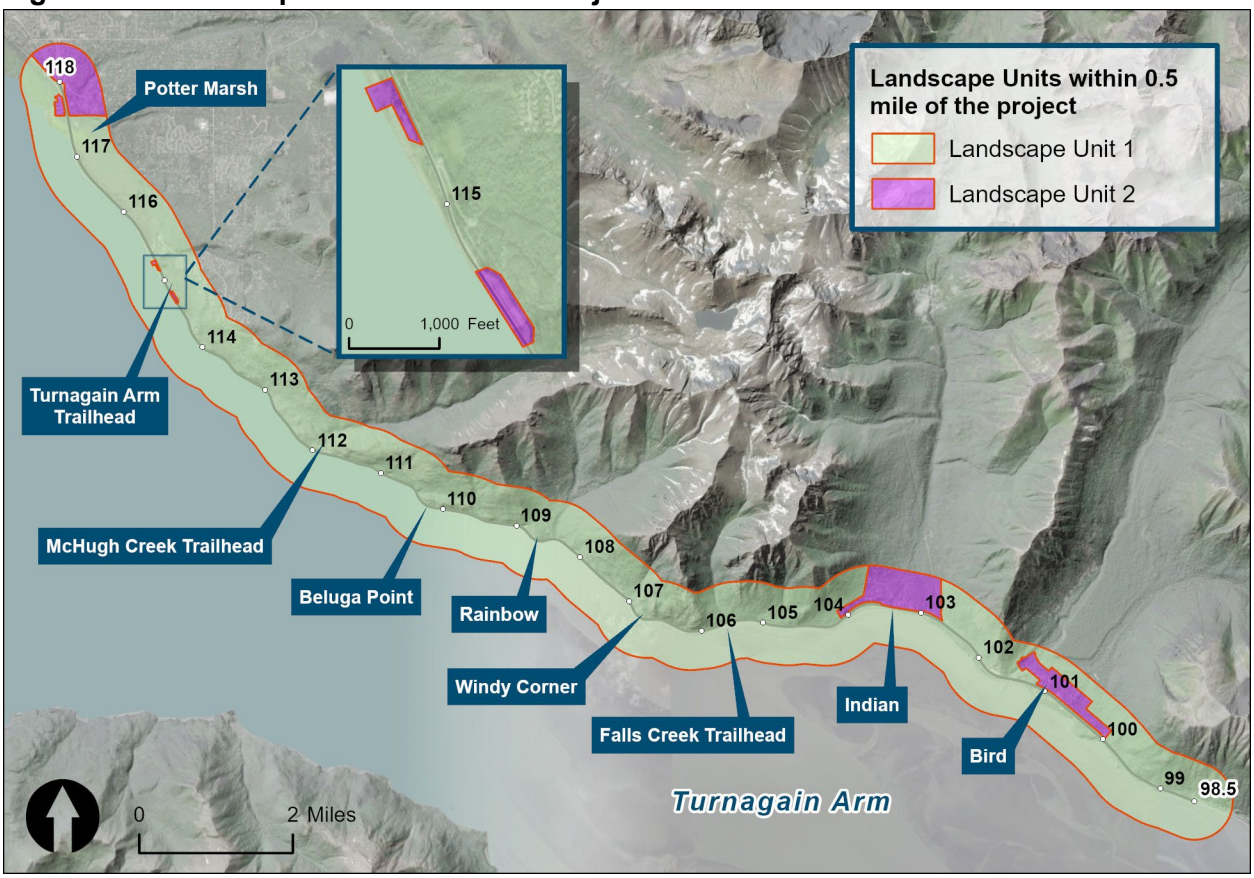
The corridor is used by many different types of viewers. The primary viewers are those who are traveling on the Seward Highway by automobile. Other viewers include local residents; passengers and employees on ARRC trains that travel though the Project area; viewers traveling in recreational vehicles; drivers of commercials vehicles; and recreationists using local trails, parks, and Turnagain Arm waters.

The Project team identified viewers' visual preferences using federal and state scenic byway designations as well as state and local planning documents, including the Seward Highway CPP (National Trust 1998), CSPMP (ADNR 2016), and *Turnagain Arm Comprehensive Plan* (MOA 2009). The visual preferences are described in detail in Sections 2.2 Federal and State Scenic Byways Designations, 2.3 State Plans, and 2.4 Local Plans.

3.2.4 Landscape Units

Landscape units are geographic areas that have similar visual features; a homogeneous visual character; and, frequently, a single viewshed. Given the visual quality of the Project corridor, the Project team identified two landscape units for this analysis. Figure 3-7 provides an overview of the landscape units within the Project area.

Figure 3-7. Landscape units within the Project area.



3.2.4.1 LANDSCAPE UNIT 1

Landscape Unit 1 consists mainly of recreational and natural areas. Water features (Turnagain Arm) and the Chugach Mountains dominate views within this unit. Most of this landscape unit's development is highway pullouts, rest areas, or trailheads.

Visual Character and Quality

As seen in Figure 3-7, Landscape Unit 1 includes most of the Project area. The foreground consists of trees, grass, and rockfaces from previously blasted areas that have weathered over time and regained a natural appearance. Background views within this unit consist of the Chugach Mountains on the mountain side of the Seward Highway as well as Turnagain Arm and the Kenai Mountains across the water on the water side of the highway.

This landscape unit would be considered to have high natural harmony; travelers may choose to travel to Landscape Unit 1 with the intent to appreciate the scenic views and natural landscape. It also has a relatively moderate degree of cultural order due to the consistency of mountain and water views in the background as well as the relatively consistent foreground views of weathered rockface, grass, and trees, with some interruptions from pullouts and Landscape Unit 2 areas (Figure 3-7). These attributes contribute to a desirable coherence and a relatively high degree of landscape composition from the scenic, cohesive landscape present in the foreground and background views.

3.2.4.2 LANDSCAPE UNIT 2

Landscape Unit 2 (Figure 3-7) is generally defined by small-scale commercial and residential development.

Visual Character and Quality

Most of the development within Landscape Unit 2 occurs near the communities of Bird and Indian. Additional areas of development within Landscape Unit 2 include the CSP headquarters building and parking area (MP 115.25, water side); DOT&PF Weigh Station (MP 114.75, mountain side); and the Rabbit Creek Shooting Range, residential/commercial development, and Seward Highway and Rabbit Creek overpass (MPs 117.75 to 118, both sides; Figure 3-7). Foreground views within this landscape unit are dominated by these developments.

Similar to Landscape Unit 1, background views for Landscape Unit 2 consist of Turnagain Arm and the Chugach Mountains, with the Kenai Mountains visible across the water.

Landscape Unit 2 would be considered to have medium natural harmony; viewers are unlikely to travel to Landscape Unit 2 with the specific intent to appreciate the views due to area development, but natural elements such as mountains still exist in the background views. This area would have an average degree of cultural order, which is impacted by inconsistency in the development type and architecture, but that viewers experience at a small scale. These attributes contribute to a somewhat desirable coherence and a medium degree of landscape composition due to the small-scale, inconsistent style of commercial and residential developments in the foreground surrounded by a scenic, cohesive background landscape.

4 Impacts on Visual Quality

The Project would result in visual impacts for motorists along the entire length of the corridor as a result of changes to the Seward Highway alignment and construction of new roadway elements. Expanding the highway from two to four lanes would increase the width of the highway corridor and the amount of pavement visible. Additionally, a 22- to 30-foot catchment area would be located within areas where the road shoulder is located next to a rock face.

The Proposed Action would change the elevation of highway lanes within some sections and may require the use of retaining walls. Use of retaining walls would decrease encroachment into the Turnagain Arm mudflats and CSP, reducing the overall impact on the visual environment.

In the foreground, the Proposed Action would create new, steep, rockfaces to accommodate the new northbound lanes of the Seward Highway, showing unweathered, human-made surfaces in close proximity to the highway. Approximately 0.72 mile of the rock cut would exceed 210 feet in height, while approximately 4.13 miles of the rock cut would be between 30 and 90 feet in height. The Proposed Action would result in approximately 7.72 miles of total rock cut along the Project's length, amounting to 41.1 percent of the Project's 18.8-mile construction length. Visual impacts would result from these rock cuts, which would be highly visible, especially to northbound motorists. The rock cuts would become less noticeable over time as the rock weathers and gains a more natural appearance, just as the existing human-made rock cuts have changed over time along the Seward Highway within the Project area.

Foreground views from elevations above the existing highway, such as from trails or mountain peaks on the CSP mountain side, would change as there would be a wider cut through the mountains and vegetated areas, a wider paved area, and larger cuts into the mountain side. Background views of Turnagain Arm and the surrounding mountains would not change from existing conditions as a result of the Proposed Action.

In the foreground, people would continue to see a non-motorized trail (the Indian to Girdwood Bike Path), although the trail length would increase due to a 14-mile extension of its current 14-mile length (MPs 90 to 104), totaling 28 miles (MPs 90 to 118). The new sections of this trail would be constructed on the mountain and water sides of the Seward Highway, likely alternating sides over the Proposed Action's length. This is not anticipated to impact the visual quality of the Project area. However, it would allow non-motorized users to experience the visual aspects of the corridor along new pathway segments rather than the current shoulder configuration, which would be a benefit to users. Extending the pathway would make the visual aspects of the corridor more accessible to a larger segment of users.

People using the trail would see higher rockfaces—rock cuts 300 to 400 feet high in several locations—in the foreground on the mountain side, and ARRC tracks would be realigned and visible farther into Turnagain Arm within some sections of the Project area. Background views would not change.

Local travelers, including those who live within the Project area or frequently travel through it, are more likely to be impacted by the Proposed Action because they would see the Project more frequently, including during construction. Residents of the Rainbow, Bird, and Indian

communities are anticipated to be the most sensitive to changes in the appearance of the Project area, but they also represent the smallest number of viewers. Visitors to the area are less likely to be impacted because they would be less familiar with the area prior to the Proposed Action being constructed. People recreating in Turnagain Arm or the Kenai Mountains are likely to see the rock cuts. However, the impact would be mitigated due to the distance (nearly 5 miles) they are from the cuts.

The ARRC embankment would also be wider in rail sections that are realigned because it would accommodate a future double track. A fence separating the railroad tracks from the highway is anticipated to reduce trespass on the ARRC tracks. Figure 4-1 shows an existing fence separating the railroad track from the Seward Highway. The fence is anticipated to extend along the Project corridor's length. The exact location and design of the fencing would be determined later in the design process and in discussions between DOT&PF and ARRC; however, it is likely to be similar to the existing fencing. The fence would partially obstruct views of Turnagain Arm but would not completely block them. The amount of obstruction would vary depending on the type of fence installed and its location. The fence would be more noticeable if it is constructed at the same elevation as the railroad tracks or roadway, or higher. Where the fence can be constructed below drivers' or train riders' line of sight, the fence would have less impact on the visual environment. Train riders would experience a change in visual quality as a result of the Proposed Action, as the newly constructed, wider highway would be visible by riders on the mountain side of the train. Riders on the water side would likely experience little change in visual quality.

Figure 4-1. Example of a fence separating ARRC tracks from the Seward Highway.

Source: HDR 2023

Within certain sections of the Proposed Action, where the lanes are separated and elevated, people recreating in Turnagain Arm are more likely to notice the Seward Highway because the northbound lanes would be at a higher elevation than the existing highway. However, this is not likely to substantially change their enjoyment of the area because the visible improvements would be similar to the existing condition. The rock cuts, in which steep, forested slopes would be removed and replaced with bare rock, are likely to result in a minor decrease in visitors' enjoyment of the scenery until the cuts have sufficiently weathered. These changes are likely to be less obvious during winter because the study area typically has snow cover that obscures the underlying features.

The Proposed Action would not result in a change to the Seward Highway's designation as an Alaska Scenic Byway, National Forest Scenic Byway, or All-American Road. The Proposed Action would be expected to continue to provide travelers with outstanding scenic views in line with the goals of the scenic byways programs. The Proposed Action would improve the safety and quality of the highway as well as certain pullouts and scenic viewing areas within the Project area. The Proposed Action would provide a more enjoyable driving experience that would allow drivers who wish to enjoy the scenery do so more easily. With the addition of more travel lanes, drivers who wish to traverse the Project area quickly could use the left travel lane, while drivers enjoying the scenery could use the right travel lane, thus reducing user conflict and enhancing the scenic enjoyment of the Project area.

4.1 Operational Impacts

Operational impacts on the visual quality of each landscape unit are discussed below. Operational impacts are those impacts from the Proposed Action on visual quality that people would experience when Project construction is complete, and the highway and railroad resume normal operation. Overall, the impacts would be low to medium because the visual quality within each landscape unit would be generally maintained.

4.1.1 Landscape Unit 1

The Proposed Action would result in permanent changes to the visual environment within Landscape Unit 1 for people who travel the Project corridor. Travelers would experience an increase in the paved area and scale of the highway. Viewers would see fewer pullouts; however, the Proposed Action would enlarge those that remain. Visual impacts would result from rock cuts, which would be highly visible, especially to northbound travelers. Rock cut heights would range from 30 to 300 feet in elevation above the travel lanes. The tallest rockface is located near MP 109 and reaches 390 feet. The Proposed Action would result in approximately 7.72 miles of total rock cut along the Project's length. The rock cuts would become less noticeable over time as the rock weathers and gains a more natural appearance, similar to the existing human-made rock cuts that have weathered over time. The rock cuts are likely to result in a minor decrease in the enjoyment of the scenery until the cuts have sufficiently weathered.

Overall, the visual quality of the AVE would be consistent with the overall character of this landscape unit.

4.1.2 Landscape Unit 2

Several Project components are located within Landscape Unit 2. New frontage roads would be constructed within Indian and Bird. In Indian, access to the community would be via Boretide Road instead of Indian Road. This would result in a relocation of the intersection lighting. A new frontage road would be constructed within Bird.

Near all frontage roads, viewers would see an increase in paved area, which would have a minor adverse impact on visual quality.

In several locations, the highway would be closer to developed areas, and vehicle traffic would be more visible. This may reduce the number of trees and vegetated areas separating the highway from development areas. This reduction in the visual buffer is likely to be noticed the most at the Bird Creek Campground, but this impact is anticipated to be minor because trees and undergrowth would remain between the highway and campground. Campground users would likely be impacted more because of the duration of their stay within the Project area, compared to people who are only traveling through.

The Proposed Action would relocate the DOT&PF Weigh Station and demolish the existing weigh station, which is not anticipated to noticeably impact the visual environment.

4.2 Construction Impacts

Construction activity for the Proposed Action would be visible throughout the Project area. It would temporarily reduce visual quality because the following features would be visible to viewers within the area:

- Staging area and material stockpiles
- Construction equipment and vehicles
- New bridges, ARRC track, road, and trails
- Short-term, local detours
- Increased dust
- Light and glare from construction equipment

Construction of the Proposed Action would occur in phases, so parts of each landscape unit would experience a change in visual quality while the other parts would not. This means that views would only be impacted for a portion of the total construction period. Construction is anticipated to last 15 to 20 years.

Viewers would have less ability to appreciate the scenery or engage in wildlife viewing because some pullouts would be temporarily closed to accommodate construction.

4.3 Avoidance, Minimization, and Mitigation Measures

Impacts on the visual environment will be managed throughout the design process. As part of the standard design:

- Cuts and fills will be constructed with care, and bare soils will be seeded for quick greening of the landscape.

- New and replacement bridges will be designed with aesthetics in mind, as seen by viewers passing near or under the bridge on trails.
- Where possible, the fence will be constructed in a location that reduces its visibility from the roadway and pathways.
- Vegetation and topography will be used to screen rock cuts where possible. Removal of existing vegetation will be minimized where possible.
- Consultation with land managers will be undertaken during design regarding the development of a vegetation plan for the Proposed Action.
- Staging and other construction areas will be revegetated once decommissioned. Native vegetation will be used. Staging areas will be located within areas where no vegetation exists and will be screened to reduce their visibility to travelers in the corridor if possible.
- A Context Sensitive Design model will be used to preserve the scenic and aesthetic value of the area. This will include using consistent design types, textures, colors, and materials throughout the Project area.
- The need for additional lighting will be evaluated, and lighting will be installed where required.

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Appendix A. Visual Resources – Existing Views and Visualizations

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1 Introduction

The following figures show the existing views on the Seward Highway from various scenic viewpoints. The Project team took photographs onsite in October 2023 from scenic overlooks and pullouts identified as locations where motorists would pull over to view the scenery or drivers would experience views.

The caption of each photograph describes the area captured, approximate location, and direction the camera operator was facing. Following the existing visual resource's photograph is a visual simulation of the same location. The Project team developed visualizations using Autodesk 3ds Max, a three-dimensional (3D) modeling and animation software, with V-Ray 3D rendering software, as well as Adobe's Photoshop and After Effects software.

The selected locations include:

- Potter Marsh, from approximately Seward Highway Milepost (MP) 116.75, facing north. Potter Marsh was selected because it is an important scenic milestone on the highway as part of the Alaska Department of Fish & Game's Anchorage Coastal Wildlife Refuge viewing area.
- Potter Section House, from approximately MP 115.25, facing north. This view shows the addition of a frontage road connecting the Potter Creek Trailhead parking lot and Potter Valley Road.
- Beluga Point, from approximately MP 110.25, facing north. Beluga Point is a commonly used scenic pullout where viewers search for beluga whales.
- Beluga Point, from approximately MP 110.25, facing south. This view shows how the pedestrian overpass would appear in this popular scenic viewing area.
- Windy Corner Scenic Overlook area, from approximately MP 106.75, facing south. Windy Corner is another popular scenic pullout that provides viewers with panoramic views of the surrounding environment and opportunities to spot Dall sheep.
- Pullout near Windy Corner, from approximately MP 106, facing north. This location provides an additional view of the Windy Corner area.
- Bird Creek Bridge, from approximately MP 101.25, facing north. Bird Creek is a popular fishing area; creek waters and Turnagain Arm are visible while crossing the bridge. Anglers are also visible during the fishing season.
- Bird Creek, from approximately MP 100.75, facing north. This area was selected due to the introduction of a frontage road at the intersection.

Figure A-1. Existing view of Potter Marsh, from MP 116.75, facing north.

Figure A-2. Visual simulation of Potter Marsh, from MP 116.75, facing north.

Figure A-3. Existing view of the Potter Section House area, from approximately MP 115.25, facing north.

Figure A-4. Visual simulation of the Potter Section House area, from MP 115.25, facing north.

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Figure A-5. Existing view of Beluga Point, from MP 110.25, facing north.

Figure A-6. Visual simulation of Beluga Point, from MP 110.25, facing north.

Figure A-7. Existing view of Beluga Point, from MP 110.25, facing south.

Figure A-8. Visual simulation of Beluga Point, from MP 110.25, facing south. Note that the rendering shows the ability of a double-stacked train to travel under the pedestrian overpass.

Figure A-9. Existing view of the Windy Scenic Overlook area, from MP 106.75, facing south.

Figure A-10. Visual simulation of the Windy Scenic Overlook area, from MP 106.75, facing south.

Figure A-11. Existing view of the pullout near Windy Corner, from MP 106, facing north.

Figure A-12. Existing view of the pullout near Windy Corner, from MP 106, facing north.

Figure A-13. Existing view of Bird Creek Bridge, from approximately MP 101.25, facing north.

Figure A-14. Visual simulation of Bird Creek Bridge, from approximately MP 101.25, facing north.

Figure A-15. Existing view of Bird Creek, from approximately MP 100.75, facing north.

Figure A-16. Visual simulation of Bird Creek, from approximately MP 100.75, facing north.