



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

# Environmental Assessment

## *Appendix D: Alternatives Development Memorandum*

**DRAFT**

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Prepared for:

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## Memorandum

**Date:** December 2025  
**Project Name:** Safer Seward Highway Project  
**To:** DOT&PF  
**From:** Project Team  
**Subject:** **Alternatives Development Memorandum**

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This memorandum describes the Safer Seward Highway Project (Project) alternatives, including alternatives considered and not advanced, and the Proposed Action and No Action alternatives.

### 1 Alternatives Considered and Not Advanced

This section describes alternatives that were considered and not advanced in the Project Environmental Assessment (EA). For each alternative considered, the defining features as well as the potential advantages and disadvantages of the alternative are described, followed by the reason that the Alaska Department of Transportation & Public Facilities (DOT&PF) chose not to advance the alternative further in the EA.

#### 1.1 Stacked Structure

DOT&PF considered a design alternative that would double stack portions of the highway. For example, the design could consist of northbound lanes on long bridges above the southbound lanes or Alaska Railroad Corporation (ARRC) tracks. Theoretically, this would increase safety by separating north- and southbound travel lanes while minimizing the highway footprint impacts outside the existing right-of-way (ROW), but miles of bridge structures would be extremely expensive in terms of construction and maintenance. Based on preliminary design (35 percent level design) and using 2024-unit prices, two lanes of bridge deck (i.e., two elevated lanes) would cost \$25,000 to \$30,000 per linear foot. In comparison, construction of a two-lane roadway, including reconstruction/blasting and rock stabilization, would cost \$7,250 per linear foot (\$14,500 per linear foot for reconstruction of four lanes).

Additionally, a stacked highway would have substantial adverse impacts on the highway's scenic quality, as the structure would be visually imposing from the adjacent lands, and scenery viewing would be limited in the southbound lanes under the structure. Such a structure would require ramps to exit and enter the upper lanes, which would require large footprints and likely affect Chugach State Park (CSP) and Waters of the United States (WOTUS). Generally, a ramp would be approximately 1,000 feet long, depending on the design speed, and offset approximately 150 to 300 feet from the mainline roadway, while looped ramps require approximately 450 feet of offset. Ramps may require additional CSP land to accommodate design and limit access points depending on design criteria; ramps would create an additional visual impact. A four-lane reconstructed roadway would not require such ramps and the resultant additional footprint.

DOT&PF determined that the costs of a stacked structure would be of an extraordinary magnitude, and the impacts to the scenic nature of the highway corridor would be substantial. According to the preliminary cost estimates, elevating two lanes in a stacked structure above the

existing roadway would result in a total Project cost of \$2.6 to \$3.1 billion (2024 dollars), compared to \$1.5 billion (2024 dollars) for reconstruction of four lanes. Therefore, DOT&PF is not considering a stacked structure a reasonable alternative and is not advancing it further in the EA.

## 1.2 Tunneling Through Curves

DOT&PF considered adding tunnels at tight curve locations within the Seward Highway corridor, specifically at Beluga Point (Milepost [MP] 110), Rainbow Point (MP 109), and Indian Point (MP 104). This would avoid some impacts to CSP and WOTUS by eliminating the need to move the highway and road into CSP and/or Turnagain Arm. However, similar to long bridges, tunnel costs are an extraordinary magnitude when full operation and maintenance considerations are included; in addition to the costs of boring a tunnel, tunnels require emergency egress, ventilation, and lighting infrastructure. This would require bringing power to the tunnel site(s) and result in increased ongoing operating expenses. Additionally, tunnel ventilation would create potential visual impacts.

Tunnel construction can generally be expected to cost at least three times more than traditional roadway construction. According to 2023 Class 5 cost estimates, which are dynamic and used for concept screening, a two-lane tunnel would cost \$45,000 per linear foot, not including additional costs for ventilation, fire suppression, emergency egress, and required in-depth geotechnical investigations. In comparison, four reconstructed roadway lanes would cost \$14,500 per linear foot. Additionally, the tunnels would have to be sized to accommodate oversized freight that travels the Seward Highway. Tunneling through curves would add approximately \$400 million in Project costs, at minimum, resulting in a total Project cost of at least \$1.9 billion (2024 dollars). Therefore, DOT&PF is not considering tunneling through curves a reasonable alternative and is not advancing it further in the EA.

## 1.3 Intermittent Passing Lanes (Three-Lane) Divided Highway

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

### 1.3.1 Crash Data and Safety

A traffic and safety analysis for this Project was conducted that calculated the potential reduction in crashes in a three-lane undivided, three-lane divided, and four-lane divided highway typical cross section (EA Appendix G Traffic and Safety Analysis). The analysis showed that a four-lane divided highway resulted in a much higher reduction of total as well as fatality and injury (FI) crashes (Table 1-1). This large reduction can be attributed to removing platoons of vehicles waiting for passing opportunities; better balancing the different needs of both slower local-access traffic and through traffic; and providing enhanced visibility and better sightlines, which is especially important in winter conditions.

**Table 1-1. Design concepts crash reduction.**

Design concept	Total crashes (percent reduction)	FI crashes (percent reduction)
Three-lane undivided highway	36	37
Three-lane divided highway	39	42
Four-lane divided highway	68	68

Note: Data shows the expected crash reduction per year by build concept (including intersection and roadway segment crashes) as compared to the No Build (No Action) condition.

Source: EA Appendix G Traffic and Safety Analysis

DOT&PF’s analysis concluded that a divided highway also reduces cross-median and head-on collisions, which represent a substantial portion of FI crashes (EA Appendix G Traffic and Safety Analysis). Median separation also enhances roadway safety by providing recovery zones for errant vehicles and other operational benefits. Therefore, DOT&PF concluded that a division of the highway travel lanes was necessary to improve highway safety and reduce head-on collisions within the Project corridor. All undivided concepts are considered not reasonable and were removed from further analysis.

Based on the results of the crash analysis, DOT&PF determined both three-lane highway design concepts do not sufficiently reduce crash rates and severity compared to the four-lane divided highway concept (EA Appendix E *Highway Configuration Development and Selection Memorandum*). As such, the three-lane concepts would not adequately address the Project need for improving safety and are not considered reasonable alternatives.

### 1.3.2 Highway Capacity

DOT&PF analyzed the difference in highway capacity and level of service (LOS) between a three-lane divided highway concept and four-lane divided highway concept (EA Appendix G Traffic and Safety Analysis). The Seward Highway is recommended to provide LOS of B, based on American Association of State Highway and Transportation Officials’ *A Policy on Geometric Design of Highways and Streets* (or Green Book; AASHTO 2018). Based on DOT&PF’s analysis, the three-lane divided highway concept performed at an LOS of D and E. The four-lane divided highway concept performed at an LOS of A and B. See EA Appendices E *Highway Configuration Development and Selection Memorandum* and G Traffic and Safety Analysis for details. Based on its analysis, DOT&PF does not consider the three-lane divided highway concept to produce an acceptable LOS; therefore, it does not address this Project need and is not a reasonable alternative.

### 1.3.3 Reliability

The Seward Highway is the only surface connection to Girdwood, Whittier, and the entirety of the Kenai Peninsula. To maintain reliability, the Seward Highway must remain open. DOT&PF reviewed existing four-lane divided sections of the Glenn Highway (north of Eagle River) to determine the ability to keep the highway open during crashes and other types of events (EA Appendices E *Highway Configuration Development and Selection Memorandum* and G Traffic and Safety Analysis) when compared to a three-lane concept. If a crash or event were to occur in a segment with only a single lane of traffic, the highway would need to be closed in that direction. Based on this review, the three-lane concept does not provide a substantial increase in reliability, does not address this Project need, and is not a reasonable alternative.

### 1.3.4 Balancing Roadway Users

As an Alaska Scenic Byway, the Seward Highway often attracts tourists who may drive slower to enjoy the scenery in addition to the regular through traffic. Based on DOT&PF’s analysis (EA

Appendices E *Highway Configuration Development and Selection Memorandum* and G Traffic and Safety Analysis), the three-lane configuration results in bottlenecks and delays for through traffic, especially during peak tourist seasons. The *Highway Capacity Manual* (TRB 2000: Chapter 15) describes how some highways serve as scenic and recreational areas, and how passing delays distract from the scenic enjoyment of trips and should be minimized wherever possible. Therefore, DOT&PF considers the three-lane concept inadequate for balancing the different users of the Seward Highway within the Project area. The three-lane concept does not address this Project need and is not a reasonable alternative.

## **1.4 Improvements Solely within the Existing Right-of-Way**

DOT&PF considered whether improvements could be limited to the existing highway ROW, which would not require impacts on CSP or the ARRC ROW. The potential benefits of this concept are the reduced cost and environmental impacts of staying entirely within the existing DOT&PF ROW, as compared to concepts that extend outside the DOT&PF ROW. Insufficient space exists within the existing DOT&PF ROW to make highway geometric improvements, add additional vehicle lanes, include a separated multimodal pathway meeting current highway and non-motorized design standards, add a median or barrier between southbound and northbound travel lanes to reduce the risk of head-on collisions, and make other corridor improvements. The need for spot improvements for safety and to reduce the risk of rockfall onto the highway would likely continue under this option, as it would not address these concerns enough to alleviate the risks. Due to these factors, DOT&PF determined that no reasonable alternatives solely within the existing DOT&PF ROW meet the Project's purpose and need and, therefore, none have been carried forward in the EA.

## **1.5 Non-Construction Activities**

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

### **1.5.1 Transportation System Management and Operations, and Transportation Demand Management**

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

FHWA (2024b) describes TDM as follows:

Managing demand is about providing travelers, regardless of whether they drive alone, with travel choices, such as work location, route, time of travel and mode. In the broadest sense, demand management is defined as providing travelers with effective choices to improve travel reliability.

FHWA-described TDM and TSMO strategies that may be applicable to the Seward Highway are Traffic Incident Management (TIM), Road Weather Management (RWM), Freight Management, Traveler Information, Congestion Pricing, Active Transportation and Demand Management (ATDM), Integrated Corridor Management (ICM), and Expanding Multimodal Alternatives and Mobility Services. Of these strategies, DOT&PF and other agencies currently implement TIM, RWM, Freight Management, and Traveler Information within the Project corridor. DOT&PF

does not consider the potential expansion of the currently implemented strategies to be reasonable alternatives that would address the Project's purpose and need.

FHWA (2022a) states:

Congestion pricing—sometimes called value pricing—is a way of harnessing the power of the market to reduce the waste associated with traffic congestion. Congestion pricing works by shifting some rush hour highway travel to other transportation modes or to off-peak periods, taking advantage of the fact that the majority of rush hour drivers on a typical urban highway are not commuters.

Congestion pricing projects can be grouped into two broad categories: (1) projects involving tolls, and (2) projects not involving tolls. DOT&PF does not consider instituting tolling on the Seward Highway a reasonable alternative, as no legal mechanism exists for DOT&PF to enact tolls, and there would be serious concerns about equity and access for Alaskans who wish to travel on the only highway connecting to Girdwood, Whittier, and the Kenai Peninsula. Non-tolling options are defined by FHWA as parking pricing, priced vehicle sharing and dynamic ridesharing, and pay as you drive. None of these options are immediately available to DOT&PF as potential solutions to the identified problems on the Seward Highway that make it a safety corridor and, therefore, it is not considered a reasonable alternative. Additionally, congestion pricing strategies are typically more appropriate for high-volume facilities in urban corridors with higher traffic levels than exist within the Project corridor.

FHWA (2022b) defines ATDM as:

...the capability of an agency to improve trip reliability, safety, and throughput of the surface transportation system by dynamically managing and controlling travel and traffic demand, and available capacity, based on prevailing and anticipated conditions, using one or a combination of real-time operational strategies.

FHWA (2023a) defines Active Traffic Management (ATM) as:

A suite of strategies that actively manage traffic on a facility. Examples include: variable speed limits, dynamic shoulder use, queue warning, and lane control.

The use of variable speed limits has been implemented elsewhere in Alaska and may be considered for the Project corridor as a tool to manage traffic safely during varying conditions. Dynamic shoulder use, queue warning, and lane control are ATM strategies that are more appropriate for high-volume, high-speed facilities within urban corridors that see more traffic and are less topographically confined than the Project corridor. Therefore, DOT&PF does not consider ATM a reasonable alternative.

FHWA (2023b) defines Active Demand Management (ADM) as using:

...information and technology to dynamically manage demand, which could include redistributing travel to less congested times of day or routes, or reducing overall vehicle trips by influencing a mode choice.

DOT&PF supports giving Alaskans modal choice, but no alternate surface travel routes exist between Anchorage, Girdwood, Whittier, and the Kenai Peninsula to which traffic could be rerouted. Traffic on the Seward Highway within the Project area is highly influenced by seasonal factors. DOT&PF considers FHWA-identified ADM strategies as being centered on managing large, high-volume, multi-lane facilities within urban environments, which are very different

than the Project corridor. Therefore, DOT&PF does not consider ADM to be a reasonable alternative.

FHWA (2018) defines ICM as an:

...approach designed to actively monitor for atypical recurring and nonrecurring events that impact traffic on the most visibly congested highways or freeways that define a corridor.

Response strategies (FHWA 2018) include:

...actively changing signal timings, promoting (and if need be, temporarily increasing) transit alternatives, providing bus bridges, modifying toll rates, changing ramp meters, and generally flexing the entire corridor to absorb the congestion...

DOT&PF considers FHWA-identified ICM strategies as being centered on managing large, high-volume, multi-lane facilities within urban environments, which are not similar to the Project corridor. Therefore, DOT&PF does not consider ICM a reasonable alternative.

FHWA (2024a) describes Expanding Multimodal Alternatives and Mobility Services as centering on three strategies: (1) Transit Management, (2) Improved Bicycle and Pedestrian Network, and (3) Mobility on Demand.

FHWA (2024c) defines Transit Management as:

...improvements in transit travel time, reliability (e.g., on-time performance), customer access to information about transit services, or other approaches that improve the performance of transit or of other modes through transit.

Transit management is not applicable to the Project area as no existing transit service occurs within the Project corridor. Improving the multimodal network is considered an integral component of this Project. Without construction of a separated, multimodal path to connect the existing network in Anchorage to the existing Indian to Girdwood Bike Path, no opportunities exist to expand the network within the Project area. DOT&PF supports construction of a separated, multi-use pathway to make this connection and has included it in the Proposed Action (see Section 2.1.3 Separated Multi-Use Pathway).

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

## **1.5.2 Expanded Public Transit**

Currently, no public transit occurs within the Project area. Private operators offer transportation to Girdwood, Whittier, and the Kenai Peninsula. Most of these travelers are cruise ship passengers traveling between Ted Stevens Anchorage International Airport and the cruise ship terminals in Seward and Whittier. DOT&PF considered whether expanded public transit within the Project area would be sufficient to address safety, mobility, and multimodal needs. DOT&PF determined that it is not feasible to expand transit sufficiently to reduce traffic within the corridor to a level that would address safety, mobility, and mixed user needs. Seward Highway users have

a diverse set of destinations and objectives. If expanded bus service was offered, some users may switch modes. However, the safety issues of the existing highway would remain. Therefore, DOT&PF does not consider expanded transit to be a reasonable alternative for this Project.

### **1.5.3 Commuter Rail Service**

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

## **1.6 Section 4(f) of the U.S. Department of Transportation Act Avoidance Alternatives**

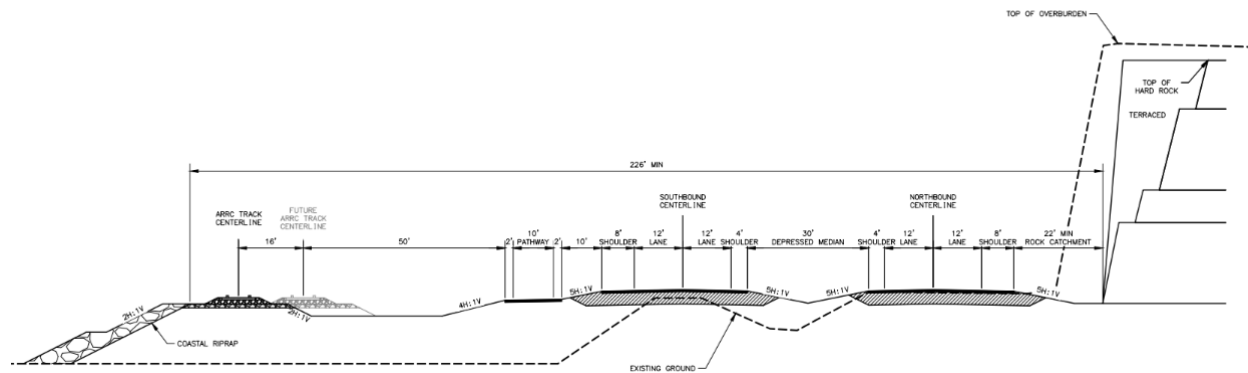
Section 4(f) of the USDOT Act of 1966 requires that DOT&PF consider alternatives that avoid all uses of Section 4(f) properties and determine if those alternatives are feasible and prudent; if an avoidance alternative is considered feasible and prudent, then it must be selected. Avoidance alternative determinations will be made in accordance with the Section 4(f) evaluation. See EA Appendix S Section 4(f) Evaluation for further discussion.

## **2 Proposed Action**

The Proposed Action would reconstruct the Seward Highway corridor along the entire 20-mile Project length to be a four-lane divided highway with a 55-mile-per-hour (mph) design speed. The Proposed Action includes 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.

The four-lane, median-divided highway design would include 12-foot travel lanes with 4-foot inside shoulders, 8-foot outside shoulders, and a 30-foot depressed median. A cable barrier may be installed at certain locations in the grass median for additional safety. The typical cross-section of the highway facility would be 148 feet wide (see Figure 2-1).

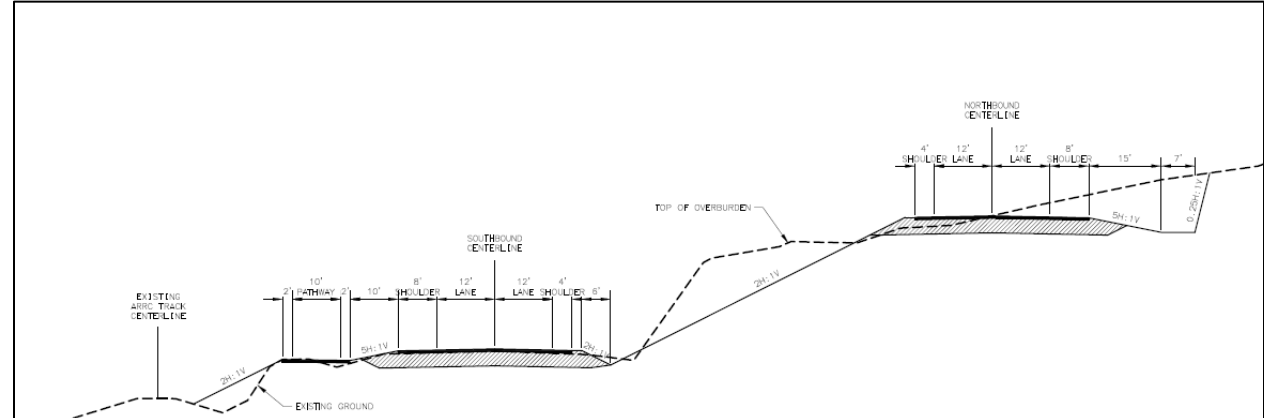
**Figure 2-1. Four-lane, median-divided highway conceptual cross section.**



Source: HDR 2024

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 (Figure 2-2). 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. This results in an overall road footprint of 370 feet. Northbound grades would be kept at or below 4 percent to avoid mandatory inclusion of truck climbing lanes.

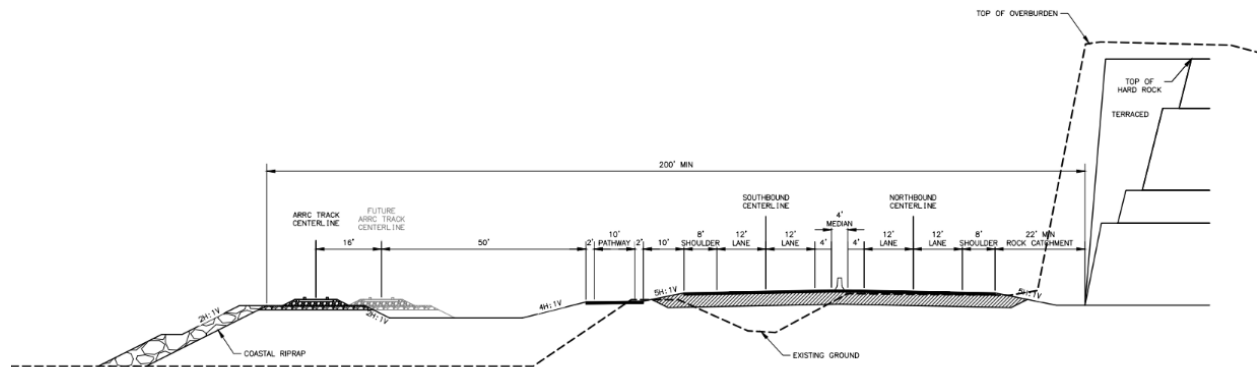
**Figure 2-2. Four-lane, vertically separated highway conceptual cross section.**



Source: HDR 2024

The four-lane, barrier-divided highway would include the same 12-foot travel lanes with 8-foot outside shoulders, 4-foot inside shoulders, and a minimum 2-foot area for a barrier (10 feet between nearest opposing travel lanes). The typical cross section of the highway facility would be 120 feet wide (see Figure 2-3). The typical barrier used would be a cast-in-place, concrete jersey barrier. A guardrail may be added within areas on the outside of the roadway when adequate space requirements cannot be met.

**Figure 2-3. Four-lane, barrier-divided highway conceptual cross section.**



Source: HDR 2024

The Proposed Action would flatten six curves between MPs 105 and 110 (two at Windy Corner, three near Rainbow Point, and one just north of Beluga Point) to reduce curve radii, thereby meeting current design standards for a 55-mph design speed. Turn-lane pockets would be constructed where warranted to provide breaks in the divided highway, allowing left-turning movements. Improvements to intersections, culverts and drainage, parking and recreational access, and signage would all occur.

Within areas where the highway would be widened toward the water side (toward Turnagain Arm), segments of the ARRC track would need to be reconstructed to allow the space needed for improvements. Within these areas, the standard offset between the separated pathway and new ARRC track would be 50 feet (see Figure 2-1 and Figure 2-3).

Additional information about this highway design is available in Appendix E. *Highway Configuration Development and Selection Memorandum*.

### **2.1.1 Culverts and Bridges**

The Proposed Action would replace and extend highway bridges and culverts throughout the highway corridor. All culverts in fish-bearing streams would be designed to meet Alaska Department of Fish and Game (ADF&G) standards for fish passage. All large-diameter culverts would be constructed from marine-tolerant materials. The culverts at Rabbit Creek (north Potter Marsh) would be designed to maintain current water levels in Potter Marsh. Other culvert needs and modifications would be identified in final design.

### **2.1.2 Turnouts and Parking Areas**

Throughout the corridor, certain pullouts and parking areas would be closed to consolidate parking and highway access, and parking would be allowed at the designated locations listed below. Consolidating access enables better management of access control; improves safety by minimizing crossing movements; and provides improved, purpose-built access.

Within the Anchorage Coastal Wildlife Refuge (ACWR)/Potter Marsh area, the existing vehicle pullouts at MPs 115.75, 116, and 116.75 along the marsh would no longer be accessible by vehicles. These locations would instead be accessible via the separated, paved pathway.

Within CSP (MP 115 to the southern end of the Project corridor at MP 98.5), vehicle parking to access scenic viewing, trails, and rock climbing would be located at:

- Potter Section House/CSP Headquarters, MP 115.2
- Potter Creek Trailhead
- McHugh Creek Day Use Area, MP 111.8
- Beluga Point, MP 110.25
- Rainbow Point (water side), MP 108.7
- Rainbow Trailhead and Rainbow Valley Road, MP 108.4
- Windy Corner Scenic Overlook (water side), MP 106.75
- Windy Corner Trailhead, MP 106.5
- Falls Creek Trailhead, MP 105.6
- Indian Peak Trailhead (Indianhouse Mountain Trail), MP 104.5
- Indian Community Ballfield (proposed), MP 102.8
- Bird Ridge Trailhead, MP 102.1
- Bird Creek Parking, MP 101.7
- Bird Creek Overflow Parking, MP 101.25
- Bird Creek Campground/Trailhead, MP 100.8

Many existing pullouts used for scenic-viewing and rock-climbing access would be closed to vehicle access or destroyed by roadway improvements construction. Visitors would be expected to park at the main recreation facility parking areas and use the separated multi-use pathway to access other park amenities. Parking on the shoulder of the highway would be prohibited except for emergency purposes.

### **2.1.3 Separated Multi-Use Pathway**

The Proposed Action would include a separated, paved, multi-use pathway for non-motorized users from Rabbit Creek Road to the existing Indian to Girdwood Bike Path (MPs 90 to 104). This would result in a continuous, paved pathway from South Anchorage to Girdwood. In general, the paved pathway would be 10 feet wide with 2-foot gravel shoulders on each side. It would be separated from the highway shoulder by a minimum of 10 feet. Where corridor space permits, the pathway could be set farther from the roadway and/or at a different elevation to enhance the user experience. Where the pathway would be constructed on the outside of the southbound lanes (water side), fencing may be required to deter trespass from the pathway toward the ARRC tracks. Final placement of the pathway would be determined during final design, when opportunities to route segments of the pathway to enhance connectivity with recreational facilities can be explored in detail.

Some segments of the existing Indian to Girdwood Bike Path may need to be relocated. The existing pathway at the southern end of the Project area would remain open during construction to the maximum extent possible; intermittent closures may be required. Once the pathway is complete, DOT&PF and the Alaska Department of Natural Resources may enter into an agreement for its maintenance and management.

### **2.1.4 Railroad Realignment**

The Proposed Action would include shifting approximately 7 miles of ARRC alignment and tracks to accommodate the widened highway and straightened highway curves. ARRC facilities would be relocated between (approximate highway MPs):

- MPs 117.7 to 115.3 (Rifle Range to Potter Section House; approximately 12,300 feet)
- MPs 115.1 to 114.9 (south of Potter Creek; approximately 1,300 feet)
- MPs 112.25 to 111.5 (McHugh; approximately 4,700 feet)
- MPs 110.25 to 109.5 (south of Beluga Point; approximately 3,700 feet)
- MPs 108.6 to 108.3 (Rainbow; approximately 1,600 feet)
- MPs 106.8 to 105.4 (Windy Corner to Falls Creek; approximately 7,700 feet)
- MPs 104.25 to 103 (Indian Peak to Indian Creek; approximately 6,500 feet)

Existing sidings (double track) and access points for ARRC maintenance vehicles would be maintained. Additionally, one railroad bridge (Indian Creek) and culverts would be extended, replaced, or upgraded as needed to meet current standards. All relocated or reconstructed sections of track would include coastal armoring and expanded embankment width to allow room for a second track to be added in the future.

### **2.1.5 Utilities**

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

### **2.1.6 Right-of-Way**

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

### **2.1.7 Construction**

Construction is anticipated to begin in spring 2026 and is anticipated to take 15 to 20 years until Project completion. The Proposed Action would be completed in phases. The end points of each phase would be chosen to manage and balance material cuts and fill quantities as well as to ensure highway and rail connectivity during and after each phase. Phases would be opened to the public as they are completed. It is anticipated that the Proposed Action's initial construction phase would focus on the McHugh Creek through Windy Corner area.

To construct new road and rail embankment, including fill into Turnagain Arm, the Proposed Action is anticipated to generate approximately 18 million cubic yards of cut material and require approximately 5.8 million cubic yards of fill. Most construction fill materials would be obtained from rock blasting and excavation activities within the Project footprint. Aside from intermittent closures for blasting, the highway and railroad traffic would be maintained throughout the Proposed Action construction activities, as well as access to businesses and residences. Existing or temporary bridges would be used to maintain traffic flows while new bridges are constructed.

During construction of the Proposed Action, there would be lane closures and traffic control measures for work along and adjacent to the highway as well as full road and track closures during blasting and other major construction events. Because no alternative route options exist to provide a traffic detour route during blasting, it is anticipated that blasting would occur no more than once per day, and most likely with intermittent days between; this would minimize disruptions to the traveling public during construction. The blasting frequency contributes to the

duration of Project construction. Emergency response vehicles would be guided through the work area during closures, as needed.

Construction equipment would include cranes, backhoes, excavators, front loaders, bulldozers, compactors, drilling equipment, pile drivers, side dumpers, and other trucks. These vehicles would be present in the work zones and as part of the general highway traffic.

Approximately 18 million cubic yards of material would be excavated within the Project area; therefore, the Proposed Action would not require the development of additional material sites within the corridor to provide construction materials. Should additional or specialized construction materials not be obtained from roadway excavations (e.g., riprap for coastal armoring), it would be imported from outside the Project corridor. Excess material would be hauled off site by truck or rail. Material and equipment storage as well as haul routes would be located within the existing DOT&PF and ARRC ROWs.

### **2.1.8 Cost**

The Proposed Action is anticipated to cost approximately \$1.3 billion in 2024 dollars.

### **2.1.9 Detailed Description of the Proposed Action (North to South)**

The Proposed Action is described below in seven segments. Note that these seven segments are for illustrative purposes only, used to describe the long, linear, Project area in discrete sections. They do not represent the actual future construction phases. Construction phases would be selected with intent to balance material cuts and fill quantities, and to ensure highway and rail connectivity during and after each phase.

#### **2.1.9.1 Potter Marsh Area: Rabbit Creek to Potter Creek (MPs 118–115)**

Along Potter Marsh (MPs 118 to 115), the Proposed Action generally follows the existing road alignment. To limit impacts on the high-value marsh habitat, constructed improvements would widen into the ACWR mudflats adjacent to Turnagain Arm. More than 2 miles of ARRC tracks (MPs 117.5 to 115.2) would be reconstructed within this area.

A break would be included in the divided highway at the Potter Valley Road-Seward Highway intersection at the southern end of Potter Marsh. Northbound and southbound traffic on Potter Valley Road entering the Seward Highway would continue to be stop-sign controlled. A left-turn deceleration lane from the Seward Highway leading to the intersection would be constructed.

A two-way frontage road would be constructed between the Potter Creek Trailhead parking lot (northernmost access to the Turnagain Arm Trail) and Potter Valley Road. Access to the trailhead and neighboring properties would be via the new frontage road, which would connect to Potter Valley Road at the existing intersection with the Old Seward Highway. Direct access from the Potter Creek Trailhead to the Seward Highway would be eliminated; all access would be via the new frontage road.

Access to ARRC and ENSTAR Natural Gas Company facilities, CSP Headquarters, and the Potter Section House visitor entrance would be restricted to right-turn, southbound traffic only. Northbound drivers would exit the highway at Potter Valley Road and turn around. Similarly, drivers leaving these facilities wishing to head northward would travel southward to the DOT&PF Weigh Station and then turn around.

The new separated multi-use pathway would start at Rabbit Creek Road and run adjacent to the northbound traffic lanes for much of this section of the Proposed Action. The pathway would follow the western edge of Potter Marsh. At the connection of the pathway to Potter Valley

Road, pedestrians and bicyclists would use the road shoulders to connect to the Potter Marsh South Viewing Area and travel across Potter Valley Road to connect to the pathway constructed alongside the new frontage road to the Potter Creek Trailhead. An undercrossing for the pathway would be constructed at the trailhead across to the waterside of the highway and the Potter Section House historical site.

The existing ADF&G Potter Marsh wildlife viewing areas near MPs 116.75, 116, and 115.75 would be accessible only by the pathway; no motorized access would be allowed. Drivers would park at the south or north parking areas and use the pathway to reach the middle viewing areas of the marsh. Potter Creek (stream) would be realigned to accommodate the highway and frontage road.

Railroad track realignment would start south of Potter Creek, leaving the existing railroad bridge in place; new fish-passage culverts would be installed for the highway.

The Potter Creek Trailhead parking, pavilion, and a segment of the Turnagain Arm Trail access would be reconstructed to allow space for the widened highway. Segments of streams near the upper Potter Creek Trailhead parking lot would be realigned.

### **2.1.9.2 South of Potter Creek to McHugh Creek (MPs 115–111.5)**

South of the Potter Creek area, approximately 1,300 feet of railroad would be realigned to accommodate the widened highway. The new highway would generally widen into the mountain side to avoid fill in Turnagain Arm. The southbound lanes would remain on the existing highway alignment, and the proposed northbound lanes between MPs 114.5 and 112 would be constructed at a higher elevation to take advantage of natural topography, reducing the height and volume of rock cuts. The northbound lanes would be constructed to a height of approximately 100 feet above the southbound lanes, with horizontal separation of approximately 200 feet between them. Guardrail will be installed as warranted based on slopes, clear zone, proximity to waterbodies, and other hazards.

The existing DOT&PF Weigh Station would be reconstructed at a location farther into the hillside at a location near the existing weigh station. A break in the divided highway would allow northbound and southbound traffic to access the new weigh station.

From MPs 112.3 to 111.4, approximately 4,700 feet of ARRC embankment and track would be shifted into Turnagain Arm to provide adequate space for the widened roadway, which would widen into the mountain and water sides through this segment. A break in the divided highway would allow southbound access into the McHugh Creek Day Use area. The Proposed Action would include a grade-separated pedestrian crossing of the highway; this could be a grade-separated crossing for a spur trail or for the main pathway.

### **2.1.9.3 South of McHugh Creek to Rainbow (MPs 111.5–108.75)**

Between MPs 111.5 to 108.75, the Proposed Action would widen the highway into the mountain side, with rock cuts reaching between 350 to 400 feet high.

A break in the divided highway would allow access to Beluga Point from both travel directions. Access would be consolidated into one entrance located near the southern edge of the parking area, and the paved area would be expanded to provide additional parking and turnaround space. Northbound traffic turning left into the Beluga Point Scenic Overlook pullout would have a dedicated left-turn pocket.

Just south of the Beluga Point Scenic Overlook pullout, the highway and ARRC alignment would shift toward the water side to flatten curves and minimize impacts on the Sunshine Ridge climbing area within CSP. The northbound highway lanes between approximately MPs 111.5 and 110.5 would be elevated. An Americans with Disabilities Act-compliant, grade-separated, pedestrian crossing structure would be constructed across the ARRC tracks at the Beluga Point parking area to reduce trespassing on the tracks. The new multiuse pathway would be located on the water side for this segment of the Proposed Action. The Proposed Action includes a pedestrian underpass of the highway to connect the Sunshine Ridge area on the mountain side of the highway to the Beluga Point Scenic Overlook on the water side. This could be a grade-separated crossing for a spur trail or for the main pathway.

South of Sunshine Ridge, the highway would widen into the mountain side from MP 109.8 to Rainbow Point (MP 108.8), with the northbound lanes elevated to reduce rock-cut volumes.

#### **2.1.9.4 Rainbow to Windy Corner (MPs 108.75–105.5)**

The tight curves surrounding Rainbow would be flattened to meet 55-mph design standards, shifting the highway alignment into the mountain side as it passes Rainbow Point, then shifting toward the water. A 1,500-foot section of ARRC tracks would be moved toward the water to allow the highway curves to be flattened. The existing small scenic pullout and parking area located at Rainbow Point would be retained, accessible to southbound vehicle traffic only. Non-motorized access would be provided via the newly constructed multi-use path. The Rainbow Trailhead and Rainbow Valley Road driveways would be consolidated into one access location; these driveways would be accessible for both northbound and southbound traffic. The Rainbow Trailhead parking area would be expanded, and the Proposed Action would rebuild the trailhead parking and connect the Turnagain Arm Trail to the parking area.

The highway alignment would widen again into the mountain side between approximately MPs 108 and 107, with the northbound lanes elevated higher than the southbound lanes to reduce the rock-cut volumes and minimize water side impacts. Overhead power lines would be relocated to accommodate the widened highway corridor between MPs 108 and 107. A 0.5-mile segment of the Turnagain Arm Trail would be rerouted farther up the hillside to provide room for the widened highway from approximately MPs 108 to 107.5.

As the highway passes Windy Corner, the two tight curves would be flattened by shifting the highway and 5,700 feet (1.1 miles) of ARRC tracks toward the water. The existing Windy Corner water-side scenic overlook would remain accessible to southbound vehicles, with right-turn in, right-turn out access. A new trailhead and large parking area would be constructed where the current highway embankment is at the Windy Trailhead, with a break in the divided highway providing access for northbound and southbound traffic. A highway undercrossing for pedestrians would connect the new trailhead to the multi-use pathway. A boat launch ramp would be constructed for emergency services to launch rescue boats into Turnagain Arm.

South of Windy Corner, the highway alignment would be shifted toward the mountain side at approximately MP 105.5.

#### **2.1.9.5 Falls Creek to Indian (MPs 105.5–102.5)**

The highway generally would shift to the mountain side to accommodate the widened highway. The northbound lanes would be benched higher to reduce rock-cut volumes. The highway pullouts that serve as the Falls Creek Trailhead and Indianhouse Peak Trailhead would be relocated farther up the hillside, and pullouts would be accessible to northbound traffic as right-

turn in, right-turn out only. Southbound travelers would proceed to the median break at Indian (approximately 2.5 miles south of Falls Creek) to turn around and reach the trailheads, and exiting vehicles would head northward to Windy Corner (1 mile north) to turn around. This segment would require limited relocations of overhead power lines.

As the highway approaches the community of Indian (MP 103), it would widen toward Turnagain Arm. Approximately 2.5 miles of ARRC alignment would need to be realigned, and a new ARRC bridge would be constructed over Indian Creek.

A new two-way, two-lane frontage road would be constructed between the community of Indian and the highway, from approximately MPs 104 to 102.8. A new intersection at Boretide Road would provide the only direct access between the highway and community. Indian Road would no longer have direct access to the Seward Highway. Parcels that currently have direct access onto the Seward Highway would access the frontage road and use the Boretide Road intersection to access the highway.

The new multiuse pathway would cross under the highway at approximately MP 104.1 and be located adjacent to the frontage road until crossing back to the water side under the highway bridges at Indian Creek (MP 103). Portions of the existing Indian to Girdwood Bike Path would be relocated near Indian Creek, and MPs 102.6 and 101.4.

The existing Indian Creek Scenic Overlook and Trailhead Parking and baseball/community park would be relocated by the highway improvements just south of its current location. Additional parking for the recreational facilities would be constructed adjacent to the frontage road just north of Indian Creek.

Two new highway bridges would be constructed over Indian Creek. Both bridges would be two spans, with each span approximately 200 feet long and 32 feet wide. The existing highway bridge would be repurposed for the new community frontage road and non-motorized pathway.

The ARRC tracks between MPs 104.25 and 103 would be shifted toward Turnagain Arm. The ARRC tracks would keep the existing configuration. A new ARRC bridge would be constructed over Indian Creek and would be approximately 120 feet long.

#### **2.1.9.6 South of Indian to Bird (MPs 102.5–100)**

The highway within this section of the Proposed Action generally stays on the existing alignment with some widening.

The existing Bird Ridge Trailhead at MP 102.2 would no longer be accessible from the southbound lanes; drivers would either use the break in the highway median to turn around at the Bird Creek parking area (MP 101.6) or park there to access the trail via the existing alternate trailhead.

A new two-span bridge (approximately 200 feet long by 36 feet wide) with approximately 100-foot retaining walls on either side would be constructed over Bird Creek for northbound traffic. Southbound traffic would use the existing bridge. The fish-viewing platform currently located north of the existing bridge would be reconstructed upstream of the new northbound bridge. The pedestrian pathway would be reconstructed along the northbound bridge, and the existing multi-use pathway would continue to be located on the southbound bridge. The Proposed Action would not affect the railroad bridge.

The highway would widen toward the Turnagain Arm within the existing highway ROW, and a new two-way, two-lane frontage road would be constructed within the community of Bird, with a

highway intersection at Sawmill Road and the driveway to the Bird Creek Campground (MP 100.8). The frontage road would be constructed from the Bird Creek Overflow Camping area (MP 101.3) northward to the private parcels at MP 100 to the south. Short segments of the existing Indian to Girdwood Bike Path would be rebuilt at MPs 100.5 and 100.

The Proposed Action would reconstruct the impacted trails and observation platform at Bird Creek and the Bird Creek Overflow Parking and Campground. At the Bird Creek Campground, the Proposed Action would electrify the campsites and pave the roadways and camping parking sites, as designed by Chugach State Park.

#### **2.1.9.7 South of Bird to End of the Project (MPs 100–98.5)**

This section of the Proposed Action would remain within the existing DOT&PF ROW. Impacts would be minimized by dividing the highway using a barrier between the northbound and southbound travel lanes. Pullouts within this section would be closed. Short segments of the existing Indian to Girdwood Bike Path would be rebuilt at MPs 99.2 and 99.4. The pathway underpass at MP 99 would be maintained. All improvements would match the existing highway at MP 98.9.

### **3 No Action Alternative**

In the No Action alternative, the Project corridor would not be reconstructed to improve safety, increase mobility, and accommodate mixed uses within the corridor, as described in the purpose and need statement (EA Section 1.2 Purpose of and Need for Action). It is reasonable to expect that DOT&PF would continue to make highway improvements in discrete locations as needs are identified and funding is available; however, a corridor-wide safety improvement project would not occur. Currently programmed state and federal-aid projects with independent utility within the corridor would be constructed, including adding a southbound, left-turn lane into McHugh Day Use Area (MP 112) and additional rockfall mitigation between MPs 112.5 and 113.2 (Grunge Wall/ice fall area; see Table 3-1 for details).

It is reasonable to assume that crash rates would continue on similar trends, as presented in EA Appendix G Traffic and Safety Analysis, without improvement. No improvements would be made to access the highway, and crash clusters around certain areas within the corridor would remain. Parking and access to trailheads and viewpoints would not be improved. No multimodal pathway would be constructed along the corridor length; pedestrians and bicyclists would have to use the highway shoulder to traverse the corridor until they reach the existing Indian to Girdwood Bike Path. Because these improvements would not occur, there would not be environmental impacts. Impacts from the projects listed in Table 3-1 would occur.

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

**Table 3-1. Planned projects within the Project corridor.**

Project name – funding (project number)	Mileposts	Description
Sign Upgrades – State Funds (CSHWY01203)	116.5–94.6	Replace signs and increase size readability; increase size of recreational and cultural interest area signs for wayfinding; add MP markers in the pullouts so people calling for emergency response correctly identify their location; add additional signs in advance of pullouts/recreational signs to improve wayfinding; add curve warning signs; repair the speed feedback signs.
McHugh Creek Turn Lane – State Funds (CSHWY01279)	112.5–111	Construct left-turn lane; all widening would occur to the mountain side; guardrail length of need would be required; scope includes pavement removal, grading, paving, ditching, rock removal, signing, striping, and roadside hardware; shoulders in the interim would be 4 feet on the mountain side, 8-foot shoulders would remain on the water side.
HSIP Rockfall Mitigation – Federal Aid (CFHWY01239)	113.2–112.5	Stabilize the rock face and address the drainage conditions that are resulting in large ice buildup during winter; geotechnical and hydrologic explorations to identify solutions to stabilize the rock face and address drainage that is causing glaciation; rock blasting, scaling, and/or stabilization; widening of the catchment to meet current standards; minor lane shifts, signing, striping, paving, guardrail, ditching, culverts, and/or other drainage hardware/measures.

Sources: DOT&PF n.d.

Notes: HSIP = Highway Safety Improvement Program

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