

Sterling Highway Milepost 45–60 Project



MP 47

MP 46

Record of Decision

May 2018



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Record of Decision
Sterling Highway Milepost 45–60 Project

State Project No: 53014
Federal Project Number: STP-F-021-2(15)

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Record of Decision

Sterling Highway Milepost 45-60 Project

State Project No: 53014
Federal Project Number: STP-F-021-2(15)

I. Decision

A. The Selected Alternative

This Record of Decision (ROD) for the Sterling Highway Milepost (MP) 45–60 Project selects the Juneau Creek Alternative to design and construct. This alternative was identified as preferred in the Final Environmental Impact Statement and Final Section 4(f) Evaluation (Final EIS) (March 2018). This ROD was developed pursuant to 40 Code of Federal Regulations (CFR) §1505.2 and 23 CFR §771.127, and the decisions on the project were made in the best overall public interest, consistent with 23 United States Code (USC) §109(h). This document describes the basis for the Selected Alternative, other alternatives considered, the environmentally preferred alternative analysis, the consideration of public and agency comments, all practicable environmental mitigation commitments for the project, including practicable mitigation not selected, and a monitoring and enforcement program.

The Alaska Department of Transportation and Public Facilities (DOT&PF), in cooperation with the Federal Highway Administration (FHWA), proposes to improve the Sterling Highway from its intersection with Quartz Creek Road to its intersection with Skilak Lake Road in the vicinity of Cooper Landing, Alaska. The highway is classified as a rural principal arterial and is part of the National Highway System (NHS). The purpose of the project is to bring the highway up to current standards for a rural principal arterial to efficiently and safely serve through-traffic, local community traffic, and traffic bound for recreation destinations in the area. In achieving this transportation purpose, DOT&PF and FHWA recognize the importance of protecting the Kenai River corridor.

There are three interrelated needs this project will address:

- **Need 1: Reduce Highway Congestion.** The construction of multiple driveways and connecting side streets over time, combined with a curvy, constrained alignment with little passing opportunity and increasing traffic volumes, has led to considerable congestion that is forecast to worsen in future years. As a result, the highway performs below a desirable level of service for a rural principal arterial that is a component of the NHS.
- **Need 2: Meet Current Highway Design Standards.** Existing characteristics of the Sterling Highway do not meet current design standards for a rural principal arterial road.

The existing highway contains curves, shoulders, guardrail, and clear zones¹ that do not meet current design standards.

- **Need 3: Improve Highway Safety.** Due to the interrelated effects of highway congestion and outdated highway design characteristics, sections of the project area have a higher-than-average number of traffic crashes and a greater severity of crashes when compared to the statewide average.

Additional information about the project purpose and need is described in Chapter 1 of the Sterling Highway MP 45–60 Final EIS.

To address these needs, FHWA has selected the Juneau Creek Alternative to design and construct. The Juneau Creek Alternative will reconstruct the existing Sterling Highway from MP 44.5 to 46.3, construct a segment approximately 10 miles long on a new alignment skirting Cooper Landing and several Kenai River recreation destinations to the north, and reconstruct the existing alignment from MP 55.5 to 58.2. The alternative will include construction of one long bridge over Juneau Creek Canyon.

B. Project History

The Sterling Highway, located approximately 100 highway miles south of Anchorage in the Kenai Peninsula Borough (Borough) in Southcentral Alaska, is classified as a “Rural Principal Arterial” and is part of the Interstate Highway System (IHS), the National Highway System (NHS), and the Strategic Highway Network (STRAHNET).² The Sterling Highway was constructed starting in the late 1940s and opened in 1950. While the rest of the highway has seen major upgrades since the 1950s, the highway between MP 45 and 60 has not been substantially upgraded. This portion of the highway is located in the Kenai River Valley and is constrained by the Kenai River; steep mountainsides; salmon spawning areas; cultural resources; private property; and several trails, campgrounds, and other recreational features.

¹ FHWA defines a clear zone is an unobstructed, relatively flat area that runs the length of a highway beyond the outer edges of the outer lanes. Such an area allows a driver to stop safely or regain control of a vehicle that leaves the traveled way.

² **Interstate Highway System.** The Dwight D. Eisenhower National System of Interstate and Defense Highways “shall be located so as—(i) to connect by routes, as direct as practicable, the principal metropolitan areas, cities, and border points with routes of continental importance in Canada and Mexico” (23 United States Code [USC] 103(c)). The Interstate Highway System was designed to provide key ground transport routes for military supplies and troop deployments in case of an emergency or foreign invasion. Interstate highways are a subset of the broader NHS. Both are part of the Federal-Aid Highway Program that provides substantial funding to state transportation agencies (23 USC 103(b)).

National Highway System. The NHS shall: “(A) serve major population centers, international border crossings, ports, airports, public transportation facilities, and other intermodal transportation facilities and other major travel destinations; (B) meet national defense requirements; and (C) serve interstate and interregional travel” (23 USC 103(b)).

Strategic Highway Network. STRAHNET is a network of highways that is important to the United States' strategic defense policy and that provides defense access, continuity, and emergency capabilities for defense purposes.

As part of the NHS, the Sterling Highway is the only road connecting western Kenai Peninsula communities (Homer, Kenai, Soldotna, and others) with the rest of Alaska and the rest of the NHS. The NHS supports the statewide economy because it provides efficient overland travel between local communities, major cities, and ports and airports. The Sterling Highway also serves growing local traffic in Cooper Landing, including a large influx of summer visitors to the project area.

The project area encompasses many popular recreation sites, including fishing areas on the Kenai and Russian rivers, the Resurrection Pass National Recreation Trail, and the Russian River and Cooper Creek campgrounds. The community of Cooper Landing was founded during the 1898 gold rush, but as stated in the EIS, Alaska Natives used the Kenai River Valley for more than 1,500 years prior to the discovery of gold. Consequently, archaeologists and historians have identified many prehistoric and historic sites in the project area. In addition, the areas surrounding the highway provide habitat for numerous wildlife species, including moose, bald eagle, Dall sheep, and brown bears. Project area water bodies support a world-class fishery for five salmon species, rainbow trout, and Dolly Varden. The Sterling Highway, from the Seward Highway to the western terminus of Skilak Lake Road (MP 37–75), has been identified by the State of Alaska as a state scenic byway in recognition of its scenery, natural setting, recreational activities, historic significance, and wildlife viewing opportunities.

DOT&PF has been planning and studying improvements in the corridor since the 1970s. A Draft EIS and Section 4(f) Evaluation that assessed reconstruction of the Sterling Highway from the Seward Highway junction (MP 37) to the Skilak Lake Road intersection (MP 58), referred to as the Sterling Highway MP 37–60 Project, was approved by FHWA on June 29, 1982. At that time, the Draft EIS assessed reconstruction of the existing highway with three realignments that would have extended from MP 42.4 to 43.5, MP 49 to 49.5, and MP 50 to 52. All of the alternatives in the 1982 Draft EIS except for Alternative “B,” which followed the existing alignment, included new bridge crossings of the Kenai River. Because of agency opposition to these crossings and changes in the affected environment that occurred after the Draft EIS was issued, the project was not implemented and was put on hold. Changes to the affected environment included the discovery of important prehistoric sites within the construction limits of the preferred alternative and the creation of the Kenai River Special Management Area in 1984 as a unit of the Alaska State Park system.

In 1994, DOT&PF and FHWA issued a second Draft EIS for the Sterling Highway MP 37–60 Project that addressed the No Build Alternative; a new alternative that remained north of the Kenai River and crossed Juneau Creek; and a Resurfacing, Restoration, Rehabilitation (3R) Alternative that followed the existing alignment. After the 1994 Draft EIS was published, DOT&PF and FHWA decided to separate the Sterling Highway MP 37–60 Project into two distinct projects. The portion of the project from MP 45 to 60 examined in the 1994 Draft EIS, with multiple reasonable build alternatives, had more complex environmental and social issues than the portion of the project from MP 37 to 45, which had only one reasonable build alternative. In addition, each portion had logical endpoints and had independent utility, meaning that each would be an

improvement over the existing condition regardless of whether the other was constructed. The construction of the Sterling Highway project between MP 37 and 45, covered under a separate decision, was completed in 2001.

This current project (the subject of the March 2018 Final EIS and this ROD) evaluates the Sterling Highway between MP 45 and 60. DOT&PF and FHWA initiated a Draft Supplemental EIS and Draft Section 4(f) Evaluation (Draft SEIS) in 2000 to supplement the 1994 Draft EIS. FHWA issued its Notice of Intent to prepare the Draft SEIS in the *Federal Register* in May 2003. Public and agency outreach and formal scoping meetings were held between July 2000 and July 2003. Scoping activities are summarized in the *Scoping Summary Report* (October 2006). The Draft SEIS document was distributed for public review in March 2015. Public and agency review and input on the Draft SEIS was solicited during a 60-day comment period (March 27 – May 26, 2015) and through hearings held in Anchorage, Cooper Landing, Soldotna, and Washington, DC.

In December 2015, DOT&PF and FHWA identified the G South Alternative as the preferred alternative for the Sterling Highway MP 45–60 Project and publicized this decision. Further public and agency comments were received, and before issuing the Final EIS, DOT&PF and FHWA considered the full range of comments received, including new information, leading to a change of the preferred alternative. The Final EIS, published in March 2018, identified the Juneau Creek Alternative as the preferred alternative. Because of the change in preferred alternative, the Final EIS was released for a 30-day public comment period. DOT&PF and FHWA respond to those comments in this ROD (Appendix A). The Juneau Creek Alternative provides the best balance between meeting the project needs and minimizing impacts to the human and natural environments.

DOT&PF and FHWA completed the EIS in compliance with the National Environmental Policy Act of 1969, as amended (NEPA) (40 CFR Parts 1500–1508), and related FHWA regulations (23 CFR Parts 771, 772, and 777), and completed an evaluation in compliance with the U.S. Department of Transportation (USDOT) Act of 1966, Section 4(f) [Commonly referred to as a Section 4(f) Evaluation], as amended, and its implementing regulations (23 CFR Part 774).

All reasonable alternatives under consideration (including the No Build Alternative) were developed to a comparable level of detail in the EIS, and their relative merits have been evaluated. The reasonable alternatives evaluated were:

- No Build Alternative
- Cooper Creek Alternative
- G South Alternative
- Juneau Creek Alternative
- Juneau Creek Variant Alternative

DOT&PF and FHWA signed the Final EIS March 7, 2018. The Juneau Creek Alternative has been selected based on the analysis of alternatives presented in the Final EIS; public and agency input; and a balancing of the beneficial and adverse impacts on the natural, social, economic, and cultural environments, as further described below in Subsection I.C. and Section II.

C. Basis for the Decision

This subsection briefly describes the basis for the decision to select the Juneau Creek Alternative for design and construction. Section II, Alternatives Considered, summarizes each alternative and provides a full explanation of the balancing of values that formed the basis for the decision. The issues discussed in this section function as a brief overview, and the issues are organized more succinctly.

The decision to select the Juneau Creek Alternative is based on consideration of the entire contents of the Final EIS and supporting documents, including public and agency comments. As described further in Subsection II.E, Section 4(f) requires FHWA to select the alternative that is determined to have the least overall harm, as defined in FHWA regulations. Based on this requirement, the least overall harm analysis is key to the decision. Likewise, Section 1104 of the Alaska National Interest Lands Conservation Act (ANILCA) also requires FHWA to consider certain aspects that are fully described in the EIS. Several issues that emerged from the EIS impact analyses (Chapter 3), the Section 4(f) evaluation (Chapter 4), and comments and coordination (Chapter 5), including new information that arose between the Draft and Final EIS, were key topics in the decision making:

- Greater weight given to protection of the Kenai River
- Change in Wilderness impacts
- Avoidance of community impacts
- Avoidance of culturally important Alaska Native corporation lands
- Purpose and need
- Wetlands and waters mitigation
- Wildlife mitigation

The Section 4(f) least overall harm analysis incorporates all these topics. The complete least overall harm analysis is found in Section 4.8 of the Final EIS and summarized in this ROD.

DOT&PF and FHWA identified the preferred alternative in the context of a project area where all evaluated reasonable alternatives would have impacts to 4(f) protected properties—recreational, park, historic and archaeological, and/or wildlife refuge lands—and to wetlands and waters of the United States, including the Kenai River and associated wetlands and tributary streams. All alternatives would impact inventoried roadless areas. In addition, wildlife and habitat impacts are found in all the build alternatives. While there is no perfect or obvious solution, DOT&PF and FHWA have balanced all factors, taken into account public and agency comments, undertaken all

possible planning to minimize harm to 4(f) properties, and incorporated mitigation measures to other resources to identify a preferred build alternative.

The following points briefly present information on the key factors noted above, some of which are changes in the project area since the Draft SEIS was published in 2015. Key factors in the decision include:

- **Greater weight given to protection of the Kenai River.** The public, local governments, and agencies commented that protection of the Kenai River was of paramount importance. Consideration of these comments from managers of the river and its corridor and from Kenai Peninsula residents for whom the river is important caused DOT&PF and FHWA to give more weight to protecting the Kenai River:
 - Proximity of traffic to the Kenai River was a key consideration, particularly for the risk of catastrophic spills for hazardous materials.
 - The *Kenai River Comprehensive Plan* endorsed by all federal and state managing agencies calls for locating new roads away from the river and calls for placing no new bridges over the river.

The Juneau Creek Alternative would not place a new bridge over the Kenai River. It would route most traffic away from the river over the longest distance.

- **Change in Wilderness impacts.** The potential for a land exchange between Cook Inlet Region Inc. (CIRI), the regional Native corporation formed under the Alaska Native Claims Settlement Act, and the Department of Interior [Kenai National Wildlife Refuge (KNWR)], has been a background issue for much of the life of this EIS. An agreement among CIRI and federal land management agencies that included the ability to exchange lands was ratified by Congress in the Russian River Land Act (Public Law 107-362). After DOT&PF and FHWA identified the G South Alternative as the preferred alternative in 2015, CIRI and the Department of Interior formally stated intent to exchange lands in the project area that would remove KNWR and designated Wilderness lands that the Juneau Creek Alternative would have crossed. This change in land status is now reasonably foreseeable. Wilderness impacts and the associated process of approval for crossing designated Wilderness had been a substantial consideration weighing against the Juneau Creek Alternative. These issues have been removed.
- **Avoidance of community impacts.** The Cooper Creek Alternative, besides carrying all traffic close to the Kenai River over most of its length, was the only alternative to substantially impact the community of Cooper Landing, because the alignment would have passed through the portion of the community north of the Kenai River and portions south of the river, creating property, noise, and traffic impacts and providing less improvement to level of service on the highway (reducing the effectiveness of satisfying the project purpose and need). The Juneau Creek Alternative avoids these community impacts.

- **Avoidance of culturally important Native corporation lands.** The Juneau Creek Variant Alternative is identical to the Juneau Creek Alternative except for a 3-mile segment east of the KNWR boundary. The alternative is a variant of the Juneau Creek Alternative designed to avoid the KNWR and designated Wilderness at that boundary. Use of the Wilderness land is no longer an issue for the Juneau Creek Alternative because of the anticipated change in land status discussed above. To avoid the KNWR and Wilderness, however, the Juneau Creek Variant Alternative would bisect a 20-acre tract of land that CIRI selected as authorized by the Russian River Land Act agreement. The tract, now patented to CIRI, was selected as a sacred site, and its position overlooking the confluence of the Kenai and Russian rivers is unique and not replaceable. No other alternative affects this land. Agencies and Tribes considered this impact unmitigatable.
- **Purpose and Need.** The Juneau Creek Alternative best satisfies the purpose and need for the project, including solving congestion issues and improving safety better than other alternatives, while also better protecting the Kenai River.
- **Wetlands and Waters Mitigation.** The Juneau Creek Alternative would include more fill in wetlands but would move traffic away from the Kenai River over the longest distance. Both the wetlands and river are considered “waters of the United States” protected by the Clean Water Act. FHWA’s determination is that moving the highway further away from the Kenai River by selecting the Juneau Creek Alternative will result in less harm overall and be less environmentally damaging, despite the higher amount of fill in wetlands. FHWA is committed to mitigation for wetland impacts, to be finalized during permitting, for fill in waters of the United States with the U.S. Army Corps of Engineers (USACE).
- **Wildlife Mitigation.** The Juneau Creek Alternative would include more impact to vegetation and wildlife habitat than other alternatives. Again, the weighing of Kenai River protection balanced fish habitat against habitat for terrestrial mammals and birds. In recognizing these impacts, FHWA conducted a specific study requested and designed with direct involvement by biologists with jurisdiction over the wildlife and their habitat. The intent of the study was to identify appropriate locations to install crossings to maintain wildlife movement patterns to mitigate impacts of a new highway. The Final EIS includes commitments to extensive mitigation for wildlife movement, including Alaska’s first wildlife overpass of a highway and four dedicated underpasses. FHWA included one additional underpass in response to comments on the Final EIS. DOT&PF and FHWA are committed to working further with the wildlife agencies to finalize design of the wildlife crossings for the greatest effectiveness of the proposed mitigation.

As described in more detail in the Final EIS—particularly in Chapter 4 (Final Section 4(f) Evaluation), in Appendix G (*Draft Clean Water Act Section 404(b)(1) Guidelines Analysis*), and in Section 3.2.4.6 (Roadless Area Analysis)—these are the reasons DOT&PF and FHWA identified the Juneau Creek Alternative as the preferred alternative. As the Selected Alternative, the Juneau Creek Alternative is designed to avoid and minimize impacts to the Kenai River and the Cooper Landing community. It avoids the unmitigable use of key Native lands that lie within

the Sqilantnu Russian River Confluence Site, and it is anticipated to avoid use of federally designated Mystery Creek Wilderness lands of the KNWR. The values that were identified as important factors in the decision making process are discussed in greater detail within Section II of this ROD.

For FHWA, Section 4(f) is particularly determinative in reaching its decision; Subsection II.E. further explains Section 4(f). In brief, the law compels FHWA to select the alternative determined to have the least overall harm. Considering all impacts to properties protected under Section 4(f), including the Kenai River (state park unit), recreational trails and areas, the KNWR, a rich cultural landscape, and all non-Section 4(f) benefits and impacts addressed in the EIS, the Juneau Creek Alternative is identified as the alternative with least overall harm.

II. Alternatives Considered

A. Environmentally Preferable Alternative

FHWA and DOT&PF have identified the Final EIS preferred alternative, the Juneau Creek Alternative, as the Environmentally Preferable Alternative for the Sterling Highway Project because it causes the least damage to the natural and physical environment of all the reasonable build alternatives. The identification of the Environmentally Preferable Alternative may involve difficult judgments, particularly when one environmental value must be balanced against another.

To determine the Environmentally Preferable Alternative, all alternatives were compared to one another based on the benefits and impacts they will have to the biological and physical environment and the historic, cultural, and natural resources analyzed in the Final EIS. As shown later in this ROD, the Juneau Creek Alternative has the least amount of environmental impacts on the whole over the other build alternatives.

Accordingly, FHWA has identified the Juneau Creek Alternative as the Environmentally Preferable Alternative (40 CFR 1505.2(b)). Regarding only the natural environment impacts, the alternatives are very close, with decreases in impacts to habitat for terrestrial wildlife offset by increases in proximity of traffic to the Kenai River and increased risk to the river and salmon habitat.

Of the build alternatives, FHWA believes the Juneau Creek Alternative is the least environmentally damaging practicable alternative (LEDPA) to wetlands and waters of the U.S. pursuant to the Clean Water Act requirements. This view has been shared with the USACE.

DOT&PF and FHWA have found that the Juneau Creek Alternative has lower overall impact to protected cultural properties, the Kenai River and its fish habitat, and wildlife and terrestrial habitat. The elimination of use of CIRI's 20-acre Tract A and minimization of impacts to archaeological sites (least of all alternatives) weighed heavily in the decision-making process.

B. Background on Alternatives Considered

Federal regulations indicate this section is to “identify all alternatives considered by the agency in reaching its decision....An agency may discuss preferences among alternatives...and shall identify and discuss all such factors including any essential considerations of national policy which were balanced by the agency in making its decision and state how those considerations entered into its decision” (40 CFR 1505.2(b)). Subsection I.C., above, briefly outlined several key factors. This section discusses each of the alternatives and how FHWA balanced the values inherent in the various resources and how those considerations formed the basis for the decision to select the Juneau Creek Alternative. This section presents the issues in the context of Section 4(f) and Title XI of ANILCA.

Chapter 2 of the Final EIS presents detail about the alternatives selection process and the technical details of the alternatives analyzed in detail in the Final EIS.

Consistent with the intent of NEPA, a full range of alternatives to address the purpose of and need for the Sterling Highway MP 45–60 Project was identified and evaluated. A screening process evaluated the ability of potential project alternatives to meet the purpose and need and other evaluation criteria. The evaluation criteria were developed by DOT&PF and FHWA with input from agencies, members of the public, and interest-group stakeholders. This input was supplemented by communication with the broader community through specific outreach activities including an Internet-based survey. The evaluation criteria were made final after review and discussion by the project’s Agency Consultation Committee and Stakeholder Sounding Board. DOT&PF formed these groups, respectively composed of regulatory agency personnel and project stakeholders from the public, to help review the project during alternatives development. The evaluation criteria consisted of the following:

- Consistency with the project’s purpose and need;
- Potential physical environment effects, including impacts on natural resources (Kenai River, wetlands, fish, wildlife, vegetation, storm water runoff), aesthetics, and noise during project construction and operation;
- Potential social environment effects, including impacts to cultural and historical properties, trails, recreational properties, private properties, economics, and subsistence, and consistency with local, regional, statewide, and federal plans;
- Potential transportation-related effects, including impacts on vehicle traffic during construction and operation, freight movement, and the transportation system;
- Cost factors, including total project costs, annual operation and maintenance costs, and 20-year life-cycle³ costs; and

³ Life-cycle costs are defined as the overall estimated cost of a single alternative over the life of the project or a defined period, in this case 20 years after anticipated road opening. All of the expenses associated with the project that occur during its life are used to calculate

- Engineering feasibility.

DOT&PF and FHWA considered multiple alternatives derived from previous Draft EIS efforts in 1982 and 1994 and examined new alternatives. Although the Draft SEIS built on previous work and experience in the area, the development of alternatives and their evaluation largely started anew in 2000.

Existing alignment alternatives were considered. These would have used the existing alignment throughout without creating any segment on a new alignment. A 3R Alternative⁴ was considered to be a reasonable alternative when the 1994 Draft EIS was prepared. 3R projects are based on a safety analysis and generally consist of minor fixes to curves or intersections. 3R projects are focused on structural improvements within the context of the existing road design and can include other relatively minor upgrades, such as paving or re-paving. Typically, little or no new right-of-way is required. DOT&PF and FHWA determined that it was not possible to satisfy the purpose and need with the 1994 3R Alternative or with a variation on that alternative due to changes that had occurred since that time and refinement of the purpose and need. Closely related, use of the existing alignment was determined not feasible from an engineering standpoint, because to even partially meet current rural principal arterial standards for a reconstructed highway along the base of the steep bluffs immediately west of Cooper Landing, cuts into a substrate that geotechnical engineers had identified as being soils at risk of failure, collapse, or landslide would be required, which could create risk to the traveling public and to Kenai River habitat and water quality.

The Kenai River Walls Alternative was evaluated and would have met current rural principal arterial standards, but would have required extensive walls on these bluffs as high as some of the tallest buildings in Alaska—higher than any such walls that have been built. Maintenance of traffic on the Sterling Highway during such reconstruction was also considered a substantial impediment to this alternative. This alternative was determined not feasible as a matter of sound engineering judgment. Use of the existing alignment in this area was no longer considered reasonable because it did not meet the current project purpose and need of reducing congestion, improving highway geometrics to current standards, and adequately improving safety of the NHS in the Cooper Landing area. Specifically, there was no way to meet current standards for curves in the MP 49–50 area without requiring use of a structural wall system that had been determined not technically feasible.

Preliminary engineering and the alternatives screening process narrowed the potential build alternatives to four. The reasonable alternatives evaluated in the EIS were:

the life-cycle cost. Life-cycle costs took into consideration capital development costs as well as annual operations and maintenance costs, cost of major rehabilitation required during the life of the project, and the value of money over time.

⁴ A 3R project by definition is a “resurfacing, rehabilitation, and restoration” project, and should not be confused with a full reconstruction project.

- No Build Alternative
- Cooper Creek Alternative
- G South Alternative
- Juneau Creek Alternative
- Juneau Creek Variant Alternative

The EIS provides a detailed discussion of each reasonable alternative's direct, indirect, cumulative, and construction impacts on the natural and human environment. Subsection B, below, describes the No Build Alternative and the four build alternatives. Following the descriptions are sections that discuss principally Section 4(f) and ANILCA Section 1104 factors for each alternative. The discussion summarizes the distinguishing characteristics of the four build alternatives; their environmental, economic, social, and cultural impacts; and the balancing of these values that led to the selection of the Juneau Creek Alternative.

C. Description of Alternatives Analyzed in the EIS

No Build Alternative Description

NEPA regulations require an EIS to describe and analyze the impacts of taking no action (or the No Build alternative) as a benchmark that allows for comparison of the degree of environmental effects of the other project alternatives evaluated.

Under the No Build Alternative, the highway would remain much as it is today, but some major maintenance and work is assumed to occur:

- Pavement is assumed to be replaced twice during the lifetime of the project (by 2043).
- The three project-area bridges are assumed to be replaced because of age.

The highway under a No Build scenario would remain a winding narrow highway with 11-foot-wide lanes. Shoulders would remain 0 to 2 feet wide. Clear zones and slopes along the roadside would remain as they are—largely non-existent clear zones and side slopes that are often too steep. The road would not achieve current design standards for safety. Curves would not meet standards, and cautionary yellow speed limit signs would remain posted. Drivers would be subject to varying speed limits and driving conditions instead of consistent highway speeds and design elements that promote safety and efficiency. The existing road was repaved in the summers of 2013 and 2014, and this overlay has an expected life of 5 to 12 years. Normal highway maintenance would continue, and some major maintenance is assumed to occur as part of DOT&PF's asset management programs. This would include repaving and the assumed replacement of two bridges over the Kenai River and one bridge over Cooper Creek.

Cooper Creek Alternative Alignment Description

Under the Cooper Creek Alternative, approximately 10 miles of the existing highway would be rebuilt on its existing alignment to meet current rural principal arterial standards and to incorporate

passing and turning lanes—measures that would increase safety. The Cooper Creek Alternative would remain on the existing alignment through approximately one mile of the Cooper Landing community, from its eastern edge to Snug Harbor Road (MP 47.9). A segment of highway would be built on a new alignment for approximately 4 miles to skirt part of the community to the south. At Snug Harbor Road, the route would climb the hillside south of the existing highway to a maximum elevation of 716 feet. The alignment would cross Cooper Creek on a curved bridge and return to the existing highway alignment at MP 51.3, remaining on the existing highway alignment to the project’s west end. The alternative would replace two existing bridges over the Kenai River and also would include an additional new bridge over Cooper Creek. This alternative would provide an underpass for Cooper Lake Dam Road, with no direct connection between the highway and the road, and would provide three dedicated wildlife underpasses. For a more detailed alignment description of the Cooper Creek Alternative, refer to Chapter 2 of the Final EIS.

G South Alternative Alignment Description

Under the G South Alternative, approximately 8 miles of the existing Sterling Highway would be improved on the existing alignment to meet current rural principal arterial standards and to incorporate passing and turning lanes. The G South Alternative would include a segment approximately 5.5 miles long, built on a new alignment. This segment would skirt Cooper Landing to the north. One existing bridge over the Kenai River would be replaced, and separate major new bridges over the Kenai River and Juneau Creek valley would be constructed. This alternative would create an underpass for the existing Slaughter Ridge Road (Forest Service administrative road and route of the Bean Creek Trail) near a crossing of Bean Creek, without any connection between the two roads. It would include three dedicated wildlife underpasses. For a more detailed alignment description of the G South Alternative, refer to Chapter 2 of the EIS.

Juneau Creek Alternative Alignment Description

Under the Juneau Creek Alternative (the preferred and selected alternative), approximately 4 miles of the existing Sterling Highway would be improved on the existing alignment to meet current rural principal arterial standards and to incorporate passing and turning lanes. The Juneau Creek Alternative would include a segment built on a new alignment, approximately 10 miles long. This segment would skirt Cooper Landing to the north. This alternative would not replace any existing bridges but would construct one major new bridge over Juneau Creek Canyon. The Juneau Creek Alternative would create underpasses for Forest Service administrative roads west of Juneau Creek, with no connection between the highway and the roads being crossed.⁵ The alternative would include four dedicated underpasses for wildlife (including one added since publication of the Final EIS; see Subsection III.V., below) and one dedicated overpass for wildlife. For a more detailed alignment description of the Juneau Creek Alternative, refer to Chapter 2 of the EIS.

⁵ However, the opportunity for the Borough and Forest Service to pursue on and off ramps to from the highway to these roads is identified as a potential in the future.

Juneau Creek Variant Alignment Description

Under the Juneau Creek Variant Alternative, approximately 5 miles of the existing road would be improved on the existing alignment to meet current rural principal arterial standards and incorporate passing and turning lanes. The alternative would include a segment approximately 8.8 miles long, constructed on a new alignment. The Juneau Creek Variant Alternative is similar to the Juneau Creek Alternative over most of its length, but the Variant was created to avoid KNWR and its designated Mystery Creek Wilderness. The segment built on a new alignment would skirt Cooper Landing to the north. This alternative would not replace any existing bridges and would construct one new major bridge over Juneau Creek Canyon. The Variant would construct underpasses for two crossings of Forest Service administrative roads west of Juneau Creek.⁵ It would include four dedicated wildlife underpasses (including one added since publication of the Final EIS) and one dedicated wildlife overpass. At the western end of the segment built on a new alignment, near Sportsman's Landing, this alternative would bridge over the "old" highway to create an intersection on the north side of the new highway without impacting Sportsman's Landing, an important access point for the Kenai and Russian rivers. For a more detailed alignment description of the Juneau Creek Variant Alternative, refer to Chapter 2 of the EIS.

D. No Build Alternative Analysis

The No Build Alternative would result in minimal additional impacts to the natural environment. However, this alternative would not accomplish the project purpose and need to reduce highway congestion, meet current highway design standards, and improve highway safety, which is an impact to human safety and, because of inefficient transportation function, a socioeconomic impact. The highway would remain narrow and winding without adequate safety features, such as shoulders and clear zones with traversable side slopes that help prevent cars that leave the paved surface from hitting fixed objects or rolling over. Congestion would continue to occur and would worsen as traffic is projected to continue slow growth over time.

The build alternatives are analyzed through 2043, and the existing bridge and road surfaces for the No Build Alternative would have to undergo major maintenance in that time, so costs, traffic disruption, and impacts principally within the existing footprint would occur. The No Build Alternative assumes bridges would be replaced—two over the Kenai River and one over Cooper Creek. These replacements would disturb the stream beds. Overall, however, permanent impacts are anticipated to be low.

Section 4(f) considerations for the No Build Alternative dismissed the alternative because it would not satisfy the project purpose and need. Therefore, it was not considered a prudent and feasible avoidance alternative under Section 4(f).

DOT&PF and FHWA heard from multiple commenters, mostly from the general public, who wished to keep the highway on the existing alignment. These comments were not necessarily labeled as endorsements of the No Build Alternative, and many indicated a desire for some road

improvements to occur. However, the concerns often had to do with the impact differences related to the No Build Alternative in comparison to build alternatives. That is, people preferred the existing alignment because of impacts to natural vegetation (including wildlife habitat), scenery, and recreational opportunities such as trails that would occur under the build alternatives. Often, these commenters felt that efforts to maintain slower vehicle speeds, including better enforcement of existing speed limits, would suffice. FHWA understands this perspective. However, many other commenters noted that the road is too narrow, the guardrails replaced as part of the 2013–2014 repaving were immediately hit and scraped, and there is a history of crashes that indicates a risk of polluting the Kenai River. DOT&PF and FHWA have no control over the degree of highway enforcement that takes place in the corridor and cannot rely on enforcement to address highway design deficiencies. State highway design standards are meant to create a highway that safely meets drivers' needs and functions efficiently for highway travel. Because the No Build Alternative would not meet the project purpose and need, it was not selected.

E. Build Alternatives Analysis

Relationship of Section 4(f) and ANILCA Section 1104 Considerations

Two federal laws have substantive requirements and therefore particular relevance to FHWA's decision regarding selection among the four build alternatives: Section 4(f) of the USDOT Act and Title XI of ANILCA. Each of these laws require analysis and findings. The legal background of each are summarized below, and analysis and findings for each law are summarized for each alternative in Sections F through I.

Section 4(f). Each of the build alternatives would use properties protected by Section 4(f). Section 4(f) of the USDOT Act of 1966 protects certain parks, recreation areas, wildlife and waterfowl refuges, and historic properties from use by transportation projects. Section 4(f) alone can be determinative of the selected alternative, because the law requires FHWA to select the alternative that has the “least overall harm,” as defined in the law, when all of the alternatives would use properties protected by Section 4(f). Section 4(f) considerations are incorporated in the discussion of each alternative in Subsections E through H, below.

ANILCA Title XI. Likewise, the selected alternative is subject to Title XI of ANILCA. Title XI sets out a process for considering transportation and utility routes across conservation system units (CSUs), defined in ANILCA. The Juneau Creek Alternative and Juneau Creek Variant Alternative each would cross a CSU, as defined in ANILCA—namely, the Resurrection Pass National Recreation Trail. In addition, the Juneau Creek Alternative would cross land currently designated as a CSU, the KNWR. However, it is reasonably foreseeable that the KNWR land will be exchanged and will not be a CSU by the time DOT&PF would be ready to acquire it for highway right-of-way. Because of the use of land from the CSUs, ANILCA Section 1104(g)(2) requires each federal agency involved, including FHWA, to consider eight topics and make findings as part of its decision making process. As with the Section 4(f) factors, the eight ANILCA topics are incorporated into the discussion of each alternative in Subsections F through I, below.

Section 4(f) is the subject of Chapter 4 of the EIS, and ANILCA Title XI is the subject of Section 3.2.1.4 and 3.2.5 of the EIS.

Section 4(f) of the USDOT Act: Legal Background and Issues Applicable to all Alternatives

Section 4(f) of the USDOT of 1966 (49 United States Code [USC] 303) applies to significant publicly owned parks, recreation areas, and wildlife and waterfowl refuges and to publicly or privately owned significant historic properties. The requirements of Section 4(f) apply only to agencies within USDOT such as FHWA. Section 4(f) states:

The Secretary (of Transportation) may approve a transportation program or project (other than any project for a park road or parkway under section 204 of title 23) requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, State, or local significance, or land of an historic site of national, State, or local significance (as determined by the Federal, State, or local officials having jurisdiction over the park, area, refuge, or site) only if—

- (1) there is no prudent and feasible alternative to using that land; and
 - (2) the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use.
- 49 USC §303(c)

FHWA identified multiple Section 4(f) properties in the project area under this definition, and all four build alternatives were found to use Section 4(f) properties. FHWA determines whether the use of a property, including any measure(s) to minimize harm (e.g., any avoidance, minimization, mitigation, or enhancement measures) committed to by the applicant, will have a *de minimis* impact on the site. For historic sites, *de minimis* impact means that FHWA has determined, in accordance with 36 CFR Part 800, that no historic property will be affected by the project or that the project will have “no adverse effect” on the historic property in question. For recreational resources, a *de minimis* impact is made when an alternative involves a direct physical use of a Section 4(f) resource but there are no adverse effects on the activities, features, or attributes of the resource. If a finding of *de minimis* impact is made for a Section 4(f) resource, the requirements of Section 4(f) are satisfied, and an analysis of whether there are any “prudent and feasible avoidance alternatives” is not required for *de minimis* impacts.

Of the Section 4(f) properties that would be used by the project alternatives, FHWA made a *de minimis* impact finding for use of the Forest Service Kenai River Recreation Area, under the Juneau Creek Variant Alternative only. The officials with jurisdiction over this property concurred in writing that there would be no impacts that would adversely affect the activities, features, or attributes of the property (i.e., the anticipated impact would be *de minimis*; see Appendix F of the EIS and Section 4(f) Evaluation in Chapter 4), and the public was able to review and comment on this finding during the comment periods for the Draft and Final EIS documents.

The basis for Section 4(f) approval is described in Chapter 4 of the EIS and summarized below in Subsections E through H.

FHWA identified multiple properties in the project area protected by Section 4(f) and determined that all reasonable alternatives would use Section 4(f) properties. FHWA considered the potential for constructive uses of Section 4(f) properties and determined there would be no constructive use. FHWA determined there would be temporary occupancy of Sportsman's Landing to construct the new highway along the edge of the property, but that it qualifies under the temporary occupancy exception to the requirement for Section 4(f) approval pursuant to 23 CFR 774.13(d). Separately, FHWA determined that the temporary occupancy exception would not apply to the Cooper Creek Alternative's use of the Cooper Landing Boat Launch and Day Use Area. In several other instances, described in detail in Chapter 4 of the EIS, FHWA determined that project impacts to Section 4(f) properties would be large, important to the project, and not easily mitigated. These included the Juneau Creek Variant Alternative's impacts to the Russian River Confluence Site (EIS Section 4.5.4.7).

FHWA determined that there is no feasible and prudent avoidance alternative to use of land from Section 4(f) properties. Therefore, FHWA may only approve the alternative that causes the least overall harm. FHWA's regulations provide seven criteria for conducting a least-overall-harm analysis:

Least overall harm is determined by balancing the following factors:

- (i) The ability to mitigate adverse impacts to each Section 4(f) property (including any measures that result in benefits to the property)
- (ii) The relative severity of the remaining harm, after mitigation, to the protected activities, attributes, or features that qualify each Section 4(f) property for protection
- (iii) The relative significance of each Section 4(f) property
- (iv) The views of the official(s) with jurisdiction over each Section 4(f) property
- (v) The degree to which each alternative meets the purpose and need for the project
- (vi) After reasonable mitigation, the magnitude of any adverse impacts to resources not protected by Section 4(f)
- (vii) Substantial differences in costs among the alternatives

23 CFR §774.3(c)(1)

The preliminary least overall harm analysis was published in the Draft EIS and was updated and completed in the approved Final EIS based on comments received and new information. The decision expressed in this ROD combines the findings of the Final Section 4(f) Evaluation with the findings required under ANILCA Section 1104. These are discussed under headings for the build alternatives in Subsections E through H, below.

ANILCA Section 1104: Legal Background and Issues Applicable to all Build Alternatives

As stated previously, ANILCA established or expanded many units of the National Park System and National Wildlife Refuge System when it was signed into law in 1980. Title XI presents a process for approving a transportation or utility system across such CSUs. ANILCA Section 1104(g)(2) requires that:

The head of each Federal agency, in making a decision (about a transportation project), shall consider, and make detailed findings supported by substantial evidence, with respect to—

- (A) The need for, and economic feasibility of the transportation or utility system
- (B) Alternative routes and modes of access, including a determination with respect to whether there is any economically feasible and prudent alternative to the routing of the system through or within a conservation system unit, national recreation area, or conservation area and, if not, whether there are alternative routes or modes which would result in fewer or less severe adverse impacts upon the conservation system unit.
- (C) The feasibility and impacts of including different transportation or utility systems in the same area.
- (D) Short- and long-term social, economic, and environmental impacts of national, State, or local significance, including impacts on fish and wildlife and their habitat, and on rural, traditional lifestyles
- (E) Impacts, if any, on the national security interests of the United States, that may result from approval or denial of the application for a transportation or utility system
- (F) Impacts that would affect the purposes for which the Federal unit or area was established
- (G) Measures which should be instituted to avoid or minimize negative impacts
- (H) The short- and long-term public values which may be adversely affected ...versus the short- and long-term public benefits....

DOT&PF, as the applicant, submitted an application to several federal agencies, including FHWA, in February 2015, because the Juneau Creek Alternative and Juneau Creek Variant Alternative would cross CSUs. Neither the Cooper Creek Alternative nor the G South Alternative would cross or use land from any CSU. Because the Juneau Creek Alternative is identified as the preferred alternative, and because it would use land from Resurrection Pass Trail and KNWR, FHWA must make findings in this ROD regarding the eight topics (A through H) listed above. The topics, with a description of their applicability to this project, are summarized below. Detailed findings for the topics (A through H) are presented for each of the alternatives in Sections F through I and a summary finding is presented in Section J.

Topic A. Topic A, in part, addresses the need for the transportation system. The project purpose and need applies to all alternatives, is presented in full in Chapter 1 of the Final EIS, and is summarized in Subsection I.A. of this ROD. Therefore, this element does not favor one alternative.

Topic B. Topic B addresses whether there are alternatives to routing the transportation system through a CSU. Applicable to the project as a whole, it is important to note that the Juneau Creek Alternative and Juneau Creek Variant Alternative would cross the Resurrection Pass Trail, and the Cooper Creek and G South alternatives would not affect any CSU.

Topic C. Topic C addresses the potential for combining other transportation or utility systems in the same corridor, presumably to minimize impact to the CSU. Applicable to this project in general: (1) there is no indication of any need to combine other transportation or utility systems at this time; and (2) it would be possible to combine utility lines on the existing highway or the proposed new highway under any alternative (see notes below under the Juneau Creek Alternative in Subsection II.H.).

Topic D. Topic D addresses impacts in general, the primary focus of the EIS. ANILCA specifically mentions fish, wildlife, and rural traditional lifestyles. Rural traditional lifestyles are not explicitly defined in ANILCA but are generally understood to mean subsistence hunting, fishing, and gathering. Direct impacts to lifestyles within a rural community may also be considered. Cooper Landing is a rural community and is recognized under federal subsistence regulations as a subsistence community for fish and moose. The alternatives would have differing impacts to the community itself, depending on whether highway traffic was directed through the community or not, as described under each alternative, below. However, these impacts are not related to subsistence hunting and fishing. The subsistence evaluation in Section 3.10 and Appendix C of the EIS indicates the project under any alternative would have negligible impact to subsistence.

Topic E. Topic E addresses national security interests. For any alternative, there is no obvious national security interest related to the CSUs in the project area. The Sterling Highway is part of the NHS, Interstate Highway System, and STRAHNET. As stated in Chapter 1 and Section 3.2.5.5 of the Final EIS, STRAHNET is a network of highways that is important to the United States' strategic defense policy and that provides defense access, continuity, and emergency capabilities for defense purposes. Any of the build alternatives would substantially improve the highway between MP 45 and 60, the last stretch of the Sterling Highway that has not been substantially upgraded. The existing highway is the only highway to and from the western Kenai Peninsula; there is no redundant road route. The alternatives would provide varying lengths built on a new alignment, providing a minor alternative route (approximately 4–10 miles, depending upon the alternative) that could provide for redundancy if one bridge or road was damaged and the other available. Overall, this would not substantially alter the status of national security interests under any alternative and is not heavily weighted in the decision.

Topic F. Topic F addresses reasons the CSUs were established. The reasons the CSUs were established are the same regardless of the alternative. The Resurrection Pass Trail historically was a mining-related route between Cooper Landing and Hope. The route became a popular recreational trail, particularly after the Forest Service established a series of recreation cabins. Ultimately, the Forest Service nominated it as a National Recreation Trail. National Recreation Trails are part of the National Trails System, and ANILCA incorporated any existing unit of the National Trails System in its definition of a CSU. It is a premiere 38-mile-long trail, used for hiking and mountain biking in summer and for skiing and snowmobiling in winter.

The KNWR was established originally as the Kenai Moose Range to protect moose and their habitat. ANILCA renamed it as a wildlife refuge, enlarged it, and restated goals to accommodate a wide array of wildlife-compatible recreation.

Topic G. Topic G is related to mitigation for impacts of an alternative. Mitigation types for this project are similar across the alternatives, with specifics differing depending, for example, on whether a trail was impacted on the north side of the valley or the south side, or the specific natural areas or private properties affected. Mitigation for each build alternative was developed to a similar level.

Topic H. Topic H addresses public values that would be impacted and public benefits of an alternative. These apply regardless of the alternative. The values of a public highway system versus the values of public lands and waters are the primary values at issue, along with substantial values of a culturally rich area.

- The public values of the highway are for efficient and safe transportation for individuals; commerce of all kinds; government business at federal, state, and local levels; and national security. The project purpose is to bring the highway to current standards to ease congestion and enhance safety—essentially to serve and enhance the public values the highway provides.
- The public values of public lands, including the Kenai River (a unit of the state park system), KNWR (a CSU), and Chugach National Forest, are in providing for human needs and intrinsic values, including:
 - Habitat for the sustenance and continuity of many species of fish, terrestrial wildlife, birds, and plants.
 - A wide variety of outdoor recreation, including the solitude and quiet of Wilderness recreation, long distance trail experiences, and world-class sport fishing.
 - Scenic vistas and (in fall and winter) naturally dark night skies.
 - Support for the economic base of the local population (Cooper Landing and the Borough), including lands offered to private entities for settlement and development, lands offered for settlement of Native land claims, and use of public resources (e.g., guiding on public lands and waters, fishing, and minor timber harvesting).

- The public values of the Squalantnu Archaeological District and its thousands of years of history of use for daily life by different peoples, generally thought to center around the rich salmon resource of the confluence of the Kenai and Russian Rivers. This area continues to draw Dena'ina people, and people of all cultures from around the world, for much the same reasons.

F. Least Overall Harm and ANILCA Findings Analysis of the Cooper Creek Alternative

Section 4(f)

The Section 4(f) evaluation analyzed the seven least overall harm factors. The primary issues for the Cooper Creek Alternative in the least overall harm analysis were the relative significance of the properties; (factor iii) and views of officials with jurisdiction; (factor iv), the degree to which the alternative met the purpose and need (factor v), and the magnitude of impacts to non-Section 4(f) impacts (factor vi). For additional information supporting the least overall harm findings, see Chapter 4 of the Final EIS; in particular see Section 4.8 and the summary tables at the end of that chapter.

ANILCA Section 1104

Note, ANILCA Section 1104 would not apply to the Cooper Creek Alternative because it does not use land from a CSU. However, because the Final EIS did consider alternatives subject to ANILCA, required ANILCA findings are included for all alternatives.

(A) “The need for, and economic feasibility of the transportation or utility system”

Need. The purpose and need for the all alternatives is presented in Chapter 1 of the EIS. The EIS indicates that the Cooper Creek Alternative would not satisfy the purpose and need as well as the other alternatives. See also discussion immediately above under Section 4(f).

Economic Feasibility. The cost of each alternatives is detailed in the EIS in Section 3.5, Economic Environment. However, all build alternatives were determined economically feasible. The Cooper Creek Alternative, at \$332 million for cumulative construction costs and operating/maintenance costs over 20 years, was at the more expensive end of the spectrum, along with the G South Alternative. However, FHWA believes all of the alternatives are economically feasible given current state and federal funding levels. FHWA does not consider the alternatives’ cost differences of around 10% percent to be substantial enough to be determinative.

(B) “Alternative routes and modes of access, including a determination with respect to whether there is any economically feasible and prudent alternative to the routing of the system through or within a conservation system unit, national recreation area, or conservation area and, if not, whether there are alternative routes or modes which would result in fewer or less severe adverse impacts upon the conservation system unit.”

As indicated under A, the Cooper Creek Alternative is economically feasible, and it does avoid routing through or within a CSU. That is, it avoids use of KNWR outside the existing highway right-of-way, and it avoids crossing the Resurrection Pass Trail. ANILCA does not define “economically prudent.” However, FHWA in its least overall harm analysis has effectively addressed this topic. FHWA has determined that the Cooper Creek Alternative is not the most prudent expenditure of public transportation funds, given the full range of issues addressed in the least overall harm analysis and the Final EIS.

(C) “The feasibility and impacts of including different transportation or utility systems in the same area.”

This topic addresses whether alternatives that cross CSUs might be combined with other transportation and utility systems to consolidate impacts. This does not apply to the Cooper Creek Alternative, because the alignment would not cross CSUs.

(D) “Short- and long-term social, economic, and environmental impacts of national, State, or local significance, including impacts on fish and wildlife and their habitat, and on rural, traditional lifestyles”

The adverse impacts of greatest significance related to the Cooper Creek Alternative are the following:

- The alternative would remain on the existing alignment near the Kenai River over the longest distance and would replace two Kenai River bridges with wider bridges. While it would improve the highway to existing standards and would therefore improve safety, crashes still would be expected to occur, and proximity to the river and traffic crossing the river would mean greater risk of spills of hazardous material into the river. The Kenai River and its salmon is of great importance for recreation and tourism, for commercial fishing in Cook Inlet, for personal use dipnet fishing at the mouth of the river, for the livelihood of local residents, and as habitat and a food source for brown bears and other animals.
- The alternative would impact the community of Cooper Landing more than the other alternatives from noise, traffic, and community disruption.
- The subsistence evaluation in Section 3.10 and Appendix C of the EIS indicates the project would have negligible impact to subsistence under any alternative. See also the discussion above under Section 4(f) and in Subsection II.E. regarding rural subsistence lifestyles.

- The alternative would remain largely, but not entirely, within the existing right-of-way through the Sqiłantnu Archaeological District. While it would create relatively little change to the setting and feeling of the district and its contributing sites, the Cooper Creek Alternative would impact more individual archaeological sites than other alternatives. It would affect 28 archaeological sites total (about three times as many as the Juneau Creek Alternative). The Cooper Creek Alternative would impact two historic mining districts, crossing the Kenai Mining and Milling Historic District and eliminating three historic sites within the district and changing the setting with a large overhead bridge. It would be the only alternative that would impact the Kenai Mining and Milling District. The Cooper Creek Alternative would also impact six sites in the Charles G. Hubbard Mining Claims Historic District. It would truncate the historic Stetson Creek Trail and provide a new trailhead parking area. Overall, although the Juneau Creek Variant Alternative would have one area of impact that is of much higher cultural importance, the Cooper Creek Alternative would impact more historic properties than any of the other alternatives.

(E) “Impacts, if any, on the national security interests of the United States, that may result from approval or denial of the application for a transportation or utility system”

National security is addressed in Subsection II.D., above, as a topic generally applicable to all build alternatives. The Cooper Creek Alternative would result in two roughly parallel roads over about 3.5 miles, and this redundant segment could conceivably be useful for national security if one road were damaged in this particular area. Of all the alternatives, the segment built on a new alignment is least under the Cooper Creek Alternative and would provide the least amount of transportation redundancy.

(F) “Impacts that would affect the purposes for which the Federal unit or area was established”

The Cooper Creek would not use land from the KNWR or Resurrection Pass Trail CSUs and would not otherwise affect the purposes for these CSUs were established.

(G) “Measures which should be instituted to avoid or minimize negative impacts”

Because the Cooper Creek Alternative would not affect the CSUs in the project area, no measures to minimize harm related to such effects are proposed or needed. The EIS includes substantial other mitigation for the Cooper Creek Alternative that is equivalent to the measures to minimize harm collected and summarized in this ROD in Section III for the Juneau Creek Alternative. The impacts of the four alternatives are mitigated to similar levels. The Section 4(f) Least Overall Harm analysis assesses the ability to mitigate for impacts and analysis of impact remaining after mitigation. See Section 4.8 of the EIS. The noise and traffic impacts within the community of Cooper Landing would be effectively permanent without good mitigation options. The speed limit could be reduced within the community, but this would further impact the alternative’s ability to satisfy the project purpose and need so was not proposed.

(H) “The short- and long-term public values which may be adversely affected ...versus the short- and long-term public benefits....”

See Subsection II.E., above, for background information regarding the public values related to this project. The Cooper Creek Alternative would serve public highway values reasonably but not as well as the other alternatives. In analysis of congestion/highway level of service, the number of driveways and side roads, and other measures in Section 3.6 (Transportation) of the EIS, the Cooper Creek Alternative performs least well. It would have the least fill in wetlands and would result in the least loss of habitat but would continue to carry all traffic close to the Kenai River over most of its length, increasing the risks of spills into the river and its habitat – a value of clear importance expressed through comments.

FHWA finds that in balancing these public values, coupled with the impacts to private property and the community of Cooper Landing described above, the benefits of the highway values are not high enough to overcome the impacts to public land values, and the Cooper Creek Alternative is not selected.

G. Least Overall Harm and ANILCA Findings Analysis of the G South Alternative

Section 4(f)

The Section 4(f) evaluation analyzed the seven least overall harm factors. The primary issues for the G South Alternative in the least overall harm analysis were the relative significance of the properties (factor iii) and views of officials with jurisdiction (factor iv), and the magnitude of impacts to non-Section 4(f) impacts (factor vi). For additional information supporting the least overall harm findings, see Chapter 4 of the Final EIS; in particular see Section 4.8 and the summary tables at the end of that chapter.

ANILCA Section 1104

Note, ANILCA Section 1104 would not apply to the G South Alternative because it does not use land from a CSU. However, because the Final EIS did consider alternatives subject to ANILCA, required ANILCA findings are included for all alternatives.

(A) “The need for, and economic feasibility of the transportation or utility system”

Need. The purpose and need for all alternatives is presented in Chapter 1 of the EIS. The EIS indicates that the G South Alternative would satisfy the purpose and need better than the Cooper Creek Alternative but not as well as the Juneau Creek alternatives. This factors weighs against this alternative but is not determinative by itself.

Economic Feasibility. The cost of each alternatives is detailed in the EIS in Section 3.5, Economic Environment. However, all build alternatives were determined economically feasible. The G South

Alternative, at \$335.8 million for cumulative construction costs and operating/maintenance costs over 20 years, was the most expensive of the build alternatives, because of the extent of bridge and structure work. However, FHWA believes all of the alternatives are economically feasible given current state and federal funding levels. FHWA does not consider the alternatives' cost differences to be substantial enough to be determinative. In general, the costs of the G South Alternative weigh slightly against its selection.

(B) “Alternative routes and modes of access, including a determination with respect to whether there is any economically feasible and prudent alternative to the routing of the system through or within a conservation system unit, national recreation area, or conservation area and, if not, whether there are alternative routes or modes which would result in fewer or less severe adverse impacts upon the conservation system unit.”

As indicated under A, the G South Alternative is economically feasible, and it does avoid routing through or within a CSU. That is, it avoids use of KNWR outside the existing highway right-of-way, and it avoids crossing the Resurrection Pass Trail. ANILCA does not define “economically prudent.” However, FHWA in its least overall harm analysis has effectively addressed this topic. FHWA believes the G South Alternative is not the most prudent expenditure of public transportation funds, given the full range of issues addressed in the least overall harm analysis.

(C) “The feasibility and impacts of including different transportation or utility systems in the same area.”

This topic addresses whether alternatives that cross CSUs might be combined with other transportation and utility systems to consolidate impacts. This does not apply to the G South Alternative, because the alignment does not cross CSUs.

(D) “Short- and long-term social, economic, and environmental impacts of national, State, or local significance, including impacts on fish and wildlife and their habitat, and on rural, traditional lifestyles”

The adverse impacts of greatest significance related to the G South Alternative are the following:

- The alternative would remain on the existing alignment near the Kenai River over a long distance and would replace one Kenai River bridge with a wider bridge, and would introduce a new bridge on the upper river. While it would improve the highway to existing standards and would therefore improve safety, crashes still would be expected to occur, and proximity to the river and traffic crossing the river would mean greater risk of spills of hazardous material into the river. The Kenai River and its salmon is of great importance for recreation and tourism, for commercial fishing in Cook Inlet, for personal use dipnet fishing at the mouth of the river, for the livelihood of local residents, and as habitat and a food source for brown bears and other animals.

- The alternative would remain largely, but not entirely, within the existing right-of-way through the Sqiłantnu Archaeological District. While it would create relatively little change to the setting and feeling of the district and its contributing sites, the G South Alternative would impact more individual archaeological sites than other alternatives. It would affect 26 archaeological sites total (slightly less than the Cooper Creek Alternative but nearly three times as many as the Juneau Creek Alternative). The G South Alternative also would impact four sites in the Charles G. Hubbard Mining Claims Historic District. It would cross the historic Bean Creek Trail and effectively eliminate direct access from a Cooper Landing neighborhood to the trail. Overall, the G South Alternative would impact fewer historic properties than the Cooper Creek Alternative but more than the Juneau Creek Alternative.
- The alternative would route approximately 70 percent of traffic around the rural community of Cooper Landing, with less impact compared to noise, traffic, and community disruption than the Cooper Creek Alternative.
- The subsistence evaluation in Section 3.10 and Appendix C of the EIS indicates the project would have negligible impact to subsistence under any alternative. See also discussion above in Subsection II.E. regarding rural subsistence lifestyles.

(E) “Impacts, if any, on the national security interests of the United States, that may result from approval or denial of the application for a transportation or utility system”

National security is addressed in Subsection II.D., above, as a topic generally applicable to all build alternatives. The G South Alternative would result in two roughly parallel roads over about 5 miles, and this redundant segment could conceivably be useful for national security if one road were damaged in this particular area. The segment built on a new alignment is of greater length than the Cooper Creek Alternative but does not provide as much redundancy as the Juneau Creek Alternative.

(F) “Impacts that would affect the purposes for which the Federal unit or area was established”

The G South Alternative would not use land from the KNWR or Resurrection Pass Trail CSUs and would not otherwise affect the purposes for these CSUs were established.

(G) “Measures which should be instituted to avoid or minimize negative impacts”

Because the G South Alternative would not affect the CSUs in the project area, no measures to minimize harm related to such effects are proposed or needed. The EIS includes substantial other mitigation for the G South Alternative that is equivalent to the measures to minimize harm collected and summarized in this ROD in Section III for the Juneau Creek Alternative. The impacts of the four alternatives are mitigated to similar levels. The Section 4(f) Least Overall Harm Analysis assesses the ability to mitigate for impacts and analysis of impact remaining after mitigation. See Section 4.8 of the EIS.

(H) “The short- and long-term public values which may be adversely affected ...versus the short- and long-term public benefits....”

See Subsection II.E., above, for background information regarding the public values related to this project. The G South Alternative would serve public highway values better than the Cooper Creek Alternative but not as well as the Juneau Creek alternatives. In analysis of congestion/highway level of service, the number of driveways and side roads, and other measures in Section 3.6 of the EIS, Transportation, the G South Alternative performs reasonably well, but not as well as the Juneau Creek Alternative. Similarly, this alternative would have an intermediate level of fill in wetlands and an intermediate loss of habitat acreage but would continue to carry all traffic close to the Kenai River over most of its length, increasing the risks of spills into the river and its habitat compared to the Juneau Creek alternatives.

FHWA finds that in balancing these public values, including effects and risks to the Kenai River and the impacts in lower Juneau Creek Valley as described above, the benefits of the highway values do not sufficiently overcome the impacts to public land values, and the G South Alternative is not selected.

H. Least Overall Harm and ANILCA Findings Analysis of the Juneau Creek Alternative

Section 4(f)

The Section 4(f) evaluation analyzed the seven least overall harm factors. The primary issues for the Juneau Creek Alternative in the least overall harm analysis were the ability to mitigate impacts to certain Section 4(f) properties and the remaining harm after mitigation (factors i and ii), the relative significance of the properties (factor iii), the degree to which the alternative met the purpose and need (factor v), and the magnitude of impacts to non-Section 4(f) impacts (factor vi). For additional information supporting the least overall harm findings, see Chapter 4 of the Final EIS; in particular see Section 4.8 and the summary tables at the end of that chapter.

ANILCA Section 1104

(A) “The need for, and economic feasibility of the transportation or utility system”

Need. The purpose and need for all alternatives is presented in Chapter 1 of the Final EIS. The Final EIS indicates that the Juneau Creek Alternative would satisfy the purpose and need better than the other alternatives. This factor weighs in favor of the Juneau Creek Alternative.

Economic Feasibility. The cost of each alternative is detailed in the EIS in Section 3.5, Economic Environment. However, all build alternatives were determined economically feasible. The Juneau Creek Alternative, at \$304.3 million for cumulative construction costs and operating/maintenance costs over 20 years, was the least expensive of the build alternatives, mostly because it contains only one bridge. However, FHWA believes all the alternatives are economically feasible given

current state and federal funding levels. FHWA does not consider the cost differences to be substantial enough to be determinative in selecting an alternative for construction. In general, however, the cost of the Juneau Creek Alternative weighs slightly in favor of its selection.

(B) “Alternative routes and modes of access, including a determination with respect to whether there is any economically feasible and prudent alternative to the routing of the system through or within a conservation system unit, national recreation area, or conservation area and, if not, whether there are alternative routes or modes which would result in fewer or less severe adverse impacts upon the conservation system unit”

The Juneau Creek Alternative and Juneau Creek Variant Alternative would cross the Resurrection Pass Trail, a CSU, and the Juneau Creek Alternative would only use a small portion of the KNWR, a CSU. The Cooper Creek and G South alternatives would avoid the trail and the KNWR. As indicated under Subsection II.A., above, the Cooper Creek and G South alternatives are considered economically feasible. ANILCA does not define “economically prudent.” However, FHWA in its least overall harm analysis has effectively addressed this topic. FHWA believes the Juneau Creek Alternative represents the most prudent expenditure of public transportation funds, given the full range of benefits and impacts addressed in the least overall harm analysis.

(C) “The feasibility and impacts of including different transportation or utility systems in the same area”

This topic addresses whether alternatives that cross CSUs might be combined with other transportation and utility systems to consolidate impacts. The Resurrection Pass Trail corridor is considered to be 1,000 feet wide, 500 feet on each side of the centerline. The Juneau Creek Alternative’s crossing of the trail corridor would be on a bridge for approximately half that width, with the trail passing under the highway. It would be feasible and not uncommon to include utilities, such as buried or aerial transmission lines, in the same corridor as a highway. Because of the wide canyon and presence of the bridge, certain utilities might be attached to the bridge in the future (although none are reasonably foreseeable at this time). Pipelines may be less practical in the Juneau Creek Alternative corridor because it climbs approximately 500 feet in elevation, then descends again. At this time, there is no reasonably foreseeable need for a utility line crossing the southern end of the Resurrection Pass Trail. The “old” Sterling Highway has utility lines along it, and a larger power transmission line passes through the Kenai River Valley. Any additional utilities would be anticipated to follow the existing utility easements, which do not cross the trail.

(D) “Short- and long-term social, economic, and environmental impacts of national, State, or local significance, including impacts on fish and wildlife and their habitat, and on rural, traditional lifestyles”

The adverse impacts of greatest significance related to the Juneau Creek Alternative are those described above under the Section 4(f) heading regarding mitigation of Section 4(f) impacts and impacts to non-Section 4(f) resources, including:

- The alternative would be located away from the existing alignment along the Kenai River over the longest distance and would not bridge the Kenai River at all. It would route 70 percent of traffic away from the river over approximately 10 miles. This would lower risk of spills of hazardous material getting to the Kenai River and provide more time to clean up a spill should one occur before the material reach the river.
- The alternative would impact the fewest historic and cultural properties that contribute to the Sqilantnu Archaeological District and Confluence Site (nine), and the fewest overall. Substantial mitigation is proposed and has been agreed to in a signed Programmatic Agreement by consulting parties. The Kenaitze Indian Tribe and CIRI have stated their preference is the Juneau Creek Alternative.
- As stated above, FHWA has weighed the risks and impacts associated with the Kenai River and its fish habitat from other alternatives versus the risks and impacts to terrestrial wildlife and bird habitats associated with the Juneau Creek Alternative. While there are strong concerns for both, FHWA has given more weight overall to the more significant resource that is the Kenai River and finds it most prudent to direct the majority of traffic away from the river, reduce the risk of spills reaching the river, and avoid bridge construction over the river, all of which are associated with the other alternatives.
- Regarding rural traditional lifestyles, the alternative would route approximately 70 percent of traffic around the community of Cooper Landing, minimizing impact to noise, traffic, and community disruption compared to existing conditions and the Cooper Creek Alternative.
- The subsistence evaluation in Section 3.10 and Appendix C of the Final EIS indicates the project would have negligible impact to subsistence under any alternative. See also discussion above in Subsection II.E regarding rural subsistence lifestyles.

(E) “Impacts, if any, on the national security interests of the United States, that may result from approval or denial of the application for a transportation or utility system”

National security is addressed in Subsection II.D., above, as a topic generally applicable to all build alternatives. The Juneau Creek Alternative would result in two roughly parallel roads over approximately 10 miles, and this redundant segment could conceivably be useful for national security if one road were damaged in this particular area. Of all the alternatives, the segment built on a new alignment is longest under the Juneau Creek Alternative, offering greater redundancy.

(F) “Impacts that would affect the purposes for which the Federal unit or area was established”

The Juneau Creek Alternative would cross the Resurrection Pass Trail CSU and use a portion of the KNWR CSU. The trail impacts and mitigation are described above under the Section 4(f) heading. The impacts would permanently alter the use pattern. It is likely the trail use levels will remain steady or increase. The purpose for which the trail was established is to “provide a variety of outdoor recreation uses in or reasonably accessible to urban areas” (National Trails System Act,

Section 3(a)(1)). The trail provides for hiking, mountain running, mountain biking, winter biking, cross-country skiing, snowmobiling, horseback riding, cabin-to-cabin camping, and other outdoor recreation uses and is a premier trail for this mix of uses on the Chugach National Forest. There is no indication the trail would decrease the variety or level of use as a result of the project. The balance of uses is likely to shift to favor more day users in the area of Juneau Creek Falls, and opportunities for solitude in that area are likely to decrease. However, in a long consultation process for this project with the Forest Service and the public, indications have been that the trail will remain popular and well used. Its National Recreation Trail status is not at risk, and the alternative would not affect the purposes for which the trail was established.

The KNWR was established primarily to protect fish and wildlife and their habitat and also allows for recreation that is compatible with that protection. The refuge was created with an allowance for the highway, and the highway corridor is an “intensive management” zone. The use of KNWR land would occur within the “intensive management” area, which is understood to include evidence of human activity and allows for road construction. However, habitat values along the Kenai River are important both to fish in waterways and wetlands as well as terrestrial animals such as brown bears. FHWA committed to examining further design refinement during permitting and final design that would minimize use of KNWR land and minimize impacts to wetlands in this area. Loss of habitat, even compromised habitat in the intensive management zone already affected by adjacency to the existing highway, would be an impact that would affect the purposes for which the KNWR was established. However, the limited extent of new land use (14 acres acquired, footprint of approximately 5 acres) would be small compared to the thousands of acres away from the highway. The highway provides access for the KNWR recreation purpose, and KNWR has specifically requested parking for recreational access to the Kenai River within the area to be acquired, and the alternative will include such parking.

(G) “Measures which should be instituted to avoid or minimize negative impacts”

Because the Juneau Creek Alternative would affect the Resurrection Pass Trail CSU, this ROD commits to multiple measures to minimize harm and compensate for harm caused by the project. These are discussed generally under the Section 4(f) heading, above, under “i & ii.” Because of impact to KNWR, FHWA has committed to examining ways to minimize use of KNWR land and particularly impacts to the wetlands in the area affected. This would occur during the permitting and design processes. These mitigation measures are recorded in full in Subsection III.Y., below. Section III of this document also includes substantial other mitigation for the Juneau Creek Alternative for Section 4(f) and other resources.

(H) “The short- and long-term public values which may be adversely affected ...versus the short- and long-term public benefits....”

See Subsection II.E., above, for background information regarding the public values related to this project. The Juneau Creek Alternative would serve public highway values better than the other

alternatives. In analysis of congestion/highway level of service, including the number of driveways and side roads and other measures noted in Section 3.6 (Transportation) in the Final EIS, the Juneau Creek Alternative performs best at reducing congestion. The short- and long-term public land values would be compromised to an extent by routing a new linear, engineered facility through 10 miles of mostly undeveloped land that functions for wildlife habitat and dispersed recreation but would serve to reduce risk to the waters, habitat, and recreation venue that is the Kenai River. Public and agency comments led FHWA to determine that values associated with the river made it the most significant Section 4(f) property affected. The EIS states FHWA's belief that, considering all impacts and benefits in relation to the effects to waters of the United States, the Juneau Creek Alternative is the LEDPA; ultimately, this is a finding the USACE must make in its own balancing of values and impacts.

FHWA finds that in balancing these public values, including lower effects and risks to the Kenai River and the relatively low impacts to public cultural values compared to other alternatives and the higher benefits of the public highway values, the adverse impacts after mitigation to the other public values that would be affected by the Juneau Creek Alternative would be offset. Balancing the overall benefits and impacts (detailed in Section 4.8 of the Final EIS) has led FHWA to select the Juneau Creek Alternative for design and construction.

I. Least Overall Harm and ANILCA Findings Analysis of the Juneau Creek Variant Alternative

The Juneau Creek Variant Alternative is almost identical in alignment, benefits, and impacts to the Juneau Creek Alternative. It was designed to avoid impacts to KNWR and its Mystery Creek Wilderness by connecting with the existing Sterling Highway right-of-way east of the refuge's eastern border and remaining within the existing right-of-way across the refuge. The benefits and impacts described in Subsection II.G., above, apply equally to the Juneau Creek Variant Alternative; with a couple of notable exceptions. The exceptions relate to KNWR/Wilderness and Sportsman's Landing. The effects to the Resurrection Pass Trail would be identical, and reduction of risk to the Kenai River almost identical. The differences from the Juneau Creek Alternative are described in the following paragraphs.

Section 4(f)

The Section 4(f) Evaluation analyzed the seven least overall harm factors. The primary issues for the Juneau Creek Variant Alternative in the least overall harm analysis were the same as those for the Juneau Creek Alternative: mitigation of impacts to certain Section 4(f) properties and the remaining harm after mitigation (factors i and ii), the relative significance of the properties (factor iii), the degree to which the alternative met the purpose and need (factor v), and the magnitude of impacts to non-Section 4(f) impacts (factor vi). Differences are highlighted below. For additional information supporting the least overall harm findings, see Chapter 4 of the Final EIS; in particular see Section 4.8 and the summary tables at the end of that chapter.

ANILCA Section 1104

(A) “The need for, and economic feasibility of the transportation or utility system”

The project need and economic feasibility are the same as discussed above in Subsection II.G. for the Juneau Creek Alternative. The Juneau Creek Variant Alternative would cost somewhat more than the Juneau Creek Alternative, at \$312.6 for cumulative construction costs and operating/maintenance costs over 20 years.

(B) “Alternative routes and modes of access, including a determination with respect to whether there is any economically feasible and prudent alternative to the routing of the system through or within a conservation system unit, national recreation area, or conservation area and, if not, whether there are alternative routes or modes which would result in fewer or less severe adverse impacts upon the conservation system unit”

The Juneau Creek Variant Alternative and Juneau Creek Alternative and would cross the Resurrection Pass Trail, identically. The Variant Alternative would not use land from KNWR. Given the circumstances, FHWA believes the Juneau Creek Variant Alternative, along with the Cooper Creek and G South alternatives, are not the most prudent expenditure of public transportation funds. With similar impacts and benefits, except for substantially greater cultural resource impacts, the Juneau Creek Variant Alternative is not the better alternative as compared to the Juneau Creek Alternative.

(C) “The feasibility and impacts of including different transportation or utility systems in the same area”

The issues of co-location of other transportation or utility systems across the Resurrection Pass trail are identical for the Juneau Creek Variant Alternatives as for the Juneau Creek Alternative.

(D) “Short- and long-term social, economic, and environmental impacts of national, State, or local significance, including impacts on fish and wildlife and their habitat, and on rural, traditional lifestyles”

The adverse impacts of greatest significance related to the Juneau Creek Variant Alternative are largely the same as those for the Juneau Creek Alternative. The differences are:

- The Variant would bisect CIRI cultural lands overlooking the confluence of the Kenai and Russian Rivers, as described above under the Section 4(f) heading.
- The Variant would connect with the “old” Sterling Highway adjacent to Sportsman’s Landing and Russian River Ferry, an important river-access site for anglers using the ferry to reach the Russian River and floaters using rafts or drift boats on the Kenai River. Sportsman’s Landing is protected under Section 4(f). The alignment of the two highways

can be accomplished with only temporary use of Sportsman's landing property. The highway connection includes an underpass of the new highway by the old highway and conversion of a mostly natural appearing forested bluff to an engineered highway embankment, including bridge and retaining wall elements. These would constitute a visual impact from Sportsman's Landing and from common fishing areas in and across the river. These impacts would not change the function or usefulness of Sportsman's Landing but are a difference from other alternatives that weighs somewhat against the Juneau Creek Variant Alternative.

- The subsistence evaluation in Section 3.10 and Appendix C of the EIS indicates the project would have negligible impact to subsistence under any alternative.

(E) “Impacts, if any, on the national security interests of the United States, that may result from approval or denial of the application for a transportation or utility system”

National security is addressed in Subsection II.D., above, and issues are otherwise almost the same as discussed above in Subsection II.G. for the Juneau Creek Alternative. Of all the alternatives, the segment built on a new alignment is the second longest under the Juneau Creek Variant Alternative, providing greater redundancy compared to the G South and Cooper Creek alternatives, but slightly less than the Juneau Creek Alternative.

(F) “Impacts that would affect the purposes for which the Federal unit or area was established”

The effects of the Juneau Creek Variant Alternative on the Resurrection Pass Trail CSU would be identical to those of the Juneau Creek Alternative, discussed above in Subsection II.G. for the Juneau Creek Alternative. The alternative would not affect the purposes for which the trail was established.

(G) “Measures which should be instituted to avoid or minimize negative impacts”

Because the Juneau Creek Variant Alternative would affect the Resurrection Pass Trail CSU, the EIS proposed multiple measures to minimize and compensate for harm caused by the project. These measures are identical to those described in this document for the Juneau Creek Alternative, discussed generally under the Section 4(f) heading in Subsection II.G., above, and in full below in Subsection III.Y. The Final EIS also includes substantial other mitigation for the Juneau Creek Variant Alternative for Section 4(f) resources and other resources.

(H) “The short- and long-term public values which may be adversely affected ...versus the short- and long-term public benefits....”

See Subsection II.E., above, for background information regarding the public values related to this project. FHWA finds that in balancing public values, the Juneau Creek Variant is similar to the Juneau Creek Alternative except that it has substantially greater cultural resource impacts. The

Juneau Creek Variant Alternative would serve public highway values and benefit the Kenai River better than the Cooper Creek and G South alternatives but not as well as the Juneau Creek Alternative. While the impact to wildlife habitat and wetlands are slightly less than the Juneau Creek Alternative, there are also slightly less benefits related to protecting the Kenai River and to highway performance (public highway values). The unmitigatable impact to the heart of the Confluence Site and its public and Tribal cultural resource values is a substantial factor against selecting the Juneau Creek Variant Alternative.

J. Conclusion and Findings

Through analyzing the seven factors of the Section 4(f) least overall harm analysis and consideration of public and agency comments received on the Draft and Final EIS and Section 4(f) Evaluation, DOT&PF and FHWA determined the Juneau Creek Alternative to be the alternative with the least overall harm and in the best overall public interest.

Section 4(f) Findings: FHWA selected the Juneau Creek Alternative by analyzing seven required factors of a least overall harm analysis. FHWA has determined under Section 4(f) that there is no feasible and prudent avoidance alternative to use of land from Section 4(f) properties, and that all possible planning, as defined in 23 CFR 774.17, to minimize harm to Section 4(f) properties has been undertaken to mitigate impacts resulting from the use of the properties. Project planning and consultation resulted in the measures to minimize harm stated in Section III, and these are adopted and incorporated into the decision. The Final Section 4(f) Evaluation approved by FHWA March 7, 2018, determined that the Juneau Creek Alternative would have the least overall harm, and it is therefore the Selected Alternative. For additional information supporting the least overall harm findings, see Chapter 4 of the Final EIS; in particular see Section 4.8 and the summary tables at the end of that chapter.

ANILCA Findings: Regarding the eight topics (A through H) in ANILCA Section 1104, FHWA finds as follows:

- (A) The Juneau Creek Alternative best meets the need for the project.
- (B) Economically feasible routes that would not require crossing the Resurrection Pass Trail or using land of KNWR outside the existing highway right-of-way exist but are not economically prudent, given the full mix of impacts and benefits of the various alternatives.
- (C) It is generally feasible to co-locate utilities in a crossing of the Resurrection Pass Trail, but given the presence of the existing highway and existing utility corridors, this is not anticipated. Similarly, the connection to the old highway proposed to occur on KNWR land is an isolated location along the existing right-of-way, and no use of it for another linear transportation or utility system is expected.
- (D) In a complex project area with many competing values and interests, the Juneau Creek Alternative best addresses the transportation needs and best addresses the array of social, economic, and environmental impacts presented by all of the alternatives.

- (E) National security interests addressed by the project are of relatively low importance; however, the Juneau Creek Alternative provides more redundancy of access than the other alternatives.
- (F) The Juneau Creek Alternative (after mitigation) would have negligible effect on the purposes for which the Resurrection Pass Trail was designated a National Recreation Trail or the purposes for which KNWR was designated a National Wildlife Refuge.
- (G) FHWA, and by extension the Alaska DOT&PF, are making substantial commitments in this document to minimize harm and compensate for impacts to the Resurrection Pass Trail CSU and KNWR CSU. Many other commitments are included to minimize harm to and compensate for an array of impacts to other resources.
- (H) The public values affected, including the values inherent in public highways, public lands, and the cultural landscape, are sometimes opposing values. However, the Juneau Creek Alternative best satisfies enhancement of highway values of travel efficiency and safety while protecting cultural and land values, especially those associated with the Kenai River.

For these reasons, in conjunction with the Section 4(f) least overall harm findings and ANILCA requirements, FHWA selects the Juneau Creek Alternative for design and construction.

III. Measures to Minimize Harm

All practicable means to avoid or minimize environmental harm have been adopted and incorporated into the decision pursuant to 40 CFR §1505.2(c). There was no practicable mitigation that was not adopted. The basis and context for the commitments presented here can be found in Chapter 3 of the Final EIS under “Mitigation” headings for each resource and in Chapter 4 under “Measures to Minimize Harm.” Reports that provide particularly pertinent background information and detail on mitigation commitments are in the following Final EIS appendices: the Draft Section 404(b)(1) Analysis (Appendix G), the Wildlife Mitigation Recommendations report (Appendix I), and the Programmatic Agreement for cultural resources (Appendix K). These reports are incorporated here by reference.

The following sections summarize the mitigation commitments in the Final EIS. Subsections III.A. through III.X. correspond to sections in Chapter 3 of the Final EIS and are presented in the same order, and Subsection III.Y. addresses Section 4(f) measures to minimize harm from Chapter 4. In some cases, when resources are related, a description of mitigation in one subsection may summarize or repeat information in another section. The environmental commitments described are to be taken as a whole. Any references to numbered sections, such as 3.x.x or 4.x, are references to the Final EIS.

A. Land Ownership Mitigation Measures

Permanent Impact Mitigation

Private and Borough land owners would be compensated at fair market value for land acquired by the project in accordance with the Uniform Relocation and Real Property Acquisition Policies Act of 1970, as amended. Connection under or over the new highway would be provided for existing Forest Service roads/access easements that pass through State Unit 395 to maintain access to Unit 395 and beyond to Chugach National Forest lands.

DOT&PF will reserve access rights along the highway segment built on new alignment and record the access limitation on official plats. Only the designated Resurrection Pass trailhead and entrances to pullouts east of the Juneau Creek Bridge will be constructed as part of this project. DOT&PF will provide for a single future connection from the new highway to access CIRI Tract A and for two potential ramp connections to the Unit 395 residential subdivision should the Forest Service and FHWA determine that such a connection would be in the best public interest.

During permitting and final design, the use of KNWR land south of the existing highway right-of-way will be re-examined to reduce use of land outside the existing right-of-way and especially to reduce impacts to wetlands in this MP 55.5 area, compared to what is described in the EIS.

B. Land Use Plans and Policies

Permanent Impact Mitigation

Public access to the Bean Creek Trail (an RS 2477 right-of-way recognized by the State of Alaska) would be maintained by rerouting a segment of the trail to the west of its historic alignment so that it would pass under the eastern end of the Juneau Creek Bridge. See detailed discussion in Chapter 4 (Sections 4.5.4 and 4.6.5, and Map 4-10).

C. Social Environment Mitigation Measures

Construction Impact Mitigation

Early notification, signage, and other necessary traffic control measures would be implemented during construction to minimize disruption to traffic patterns and access to the community as a whole.

Permanent Impact Mitigation

To direct and inform visitors of businesses and services in Cooper Landing, highway signs would be constructed at the intersections of the alternative with the “old” highway as a kind of gateway that would direct people to community services via the old highway.

A separated, multi-use, non-motorized path (conceptually 10 feet wide and nearly 2 miles long) would be constructed from Quartz Creek Road to the “old” Sterling Highway intersection area,

approximately MP 44.9 to 46.8. This would connect with an existing “safety trail” that leads to Cooper Landing along the “old” highway. The trail would be located on the south side of the Juneau Creek Alternative and would use curving portions of the abandoned existing highway. The path is anticipated to remain completely within the proposed highway right-of-way. The path could connect to the safety trail either via an at-grade crossing of the “old” Sterling highway (located several hundred feet west of the intersection of the new and “old” highways), or via a pedestrian tunnel located at the new intersection. These details would be resolved during final design. The surface could be paved or crushed aggregate/recycled asphalt, also to be determined during final design.

D. Housing and Relocation Mitigation Measures

The Juneau Creek Alternative would not require relocation of any residences or commercial properties, and therefore no housing or business mitigation is required. Should final design refinements identify the need for relocations, they would occur in accordance with the Uniform Relocation and Real Property Acquisition Policies Act of 1970, as amended.

E. Economic Environment Mitigation Measures

Construction Impact Mitigation

During construction, access to businesses that front on a construction zone would be maintained during normal business hours to the greatest extent possible, and signs would indicate access to specific businesses.

Permanent Impact Mitigation

A highway sign would be erected near each intersection of the Juneau Creek Alternative with the “old” highway that would indicate “Cooper Landing X miles” with symbols for available services and recreation/camping and trails.

F. Transportation Mitigation Measures

Construction Impact Mitigation

The contractor would consult with local businesses and land management agencies to create a Traffic Control Plan. The Traffic Control Plan would preemptively outline detours and other traffic modification strategies to ensure that access to businesses and government sites would be retained, delays would be minimized, and traffic flow would be maintained, to the extent practicable, during construction.

To further reduce construction impacts, construction activities that conflict with access would be scheduled outside high-use summer periods, to the extent possible. In addition, notification of construction activities and potential road closures would be given well in advance. Of particular concern is access to popular recreation sites in the area. DOT&PF would closely coordinate with

the land and resource management agencies during the design phase to ensure access and operational concerns associated with popular recreation sites, and associated administrative sites would be reflected in construction plans and specifications. For example, special attention would be given to minimizing impacts to access and use of the Sportsman's Landing-Russian River Ferry, the USFWS visitor contact station, the Fuller Lakes Trailhead, Forest Service campgrounds and trails, and the turn onto Skilak Lake Road/Jim's Landing during highway construction.

To ensure traffic patterns are settled and help encourage maximum use of the new highway by through-traffic, DOT&PF would examine the functional classification of the "old" highway and examine the appropriate speed limits for its segments. DOT&PF would undertake the road classification process so that it is complete by the time the new highway is open to traffic, and would undertake the speed study in the first year of operation and set new speed limits as warranted. The "old" highway segment is anticipated to be reclassified as a collector or minor arterial, and any speed adjustment would be to a lower speed limit.

Recreation Facilities. Access to Fuller Lakes Trail, the KNWR visitor contact station, and the turn onto Skilak Lake Road/Jim's Landing may be impacted during construction activities. To minimize impacts, primary construction activities that conflict with access would be scheduled outside high-use summer periods, to the extent possible. Access would be maintained except for short closures at less active times.

Forest Administrative Access. Access would generally be maintained to lower-use administrative sites, such as Broadview Guard Station. Any temporary closures would be coordinated with the Forest Service.

Permanent Impact Mitigation

The Juneau Creek Alternative would provide a pullout to access the Bean Creek Trail and a new trailhead for the Resurrection Pass National Recreation Trail. This new trailhead would be built in close coordination with the Forest Service (see Chapter 4 for details). An existing pullout within KNWR at approximately MP 55.6 would be reestablished with an equal amount of parking. This pullout would be located on the rerouted existing alignment.

G. River Navigation Mitigation Measures

The Juneau Creek Alternative would not include any new or replacement structures over any navigable waterways within the project area and, therefore, would have no impact to river navigation.

H. Parks and Recreational Resources Mitigation Measures

The Section 4(f) Evaluation (Chapter 4, Section 4.6) provides mitigation discussion for the following:

- Bean Creek Trail

- Resurrection Pass Trail
- Juneau Falls Recreation Area
- KNWR

These are addressed in this document below in Subsection III.Y. A description of other recreation-related mitigation measures is included below.

Construction Impact Mitigation

KNWR Facilities. DOT&PF would work with the KNWR regarding design and construction in the vicinity of the Fuller Lakes Trailhead and visitor contact station to minimize impact to recreational access. Construction contractors would not park vehicles or stage construction materials at the trailhead or visitor contact station during the busy summer visitor season and would not do so at other times of the year without an agreement with KNWR.

Art Anderson Slaughter Gulch Trail. Notice of construction and trail interruption would be posted near the trailhead for Slaughter Gulch and Birch Ridge trails (e.g., on a tree and at the school), and along the trail near the construction zone on both the uphill and downhill sides of the highway corridor.

Permanent Impact Mitigation

Pullouts and Parking. Pullouts would be retained/re-created near MP 55.6 and 57.2 (Fuller Creek Trail), both in KNWR, for recreational access. In general, to help control recreational parking on the new shoulders of the reconstructed highway in popular areas, DOT&PF would post enforceable no parking signs wherever reasonably requested by adjacent land management agencies.

KNWR Facilities. To retain as much visual buffer as possible, the trees that exist between the visitor contact station parking area and the highway would be retained to the extent possible, and replanting of trees or shrubs would occur where possible.

Art Anderson Slaughter Gulch Trail. A crossing underneath the highway embankment would be provided. Except to create a transition from the existing trail to the undercrossing, no further trail work would be part of this project. If safety hazards develop, DOT&PF would post no parking signs near the intersection of the trail with the highway.

I. Historic and Archaeological Preservation Mitigation Measures

DOT&PF and FHWA, in consultation with the State Historic Preservation Officer (SHPO), Tribal entities, USFWS, Forest Service, and other consulting parties, developed a Section 106 Programmatic Agreement to resolve adverse effects to cultural resources (Appendix K). The following is a summary of main mitigation topics for cultural sites. The Programmatic Agreement provides complete detail and governs mitigation for cultural resources. Further detail about the Programmatic Agreement can be found in Sections 4.6.1.3, 4.6.5, 4.6.6, and 4.6.9 through 4.6.12 and Appendix K of the Final EIS.

Construction Impacts Mitigation

The Programmatic Agreement includes:

- Refinement of final design to ensure the project avoids and/or minimizes impacts to historic properties, delineation of historic properties on plans and in the field as “environmentally sensitive,” and insertion of language prohibiting construction access into such areas.
- Preparation and implementation (during construction) of an archaeological monitoring plan, including monitoring of the construction process by both qualified archaeologists and observers from Kenaitze Indian Tribe and CIRI, and regular reporting.
- A Data Recovery/Historic Properties Treatment Plan for select locations, with data to be recovered prior to the start of construction in those locations.
- Treatment of inadvertent discoveries of human remains and previously unidentified cultural resources, and curation of items discovered, would be per specific terms addressed in the Programmatic Agreement.

Permanent Impacts Mitigation

The Programmatic Agreement includes:

- A professional publication compiling past and current research on the Sqilantnu Archaeological District.
- A public education booklet on Sqilantnu District archeological features and area historic features, intended for a general audience.
- A formal written nomination of the Sqilantnu Archaeological District for the National Register of Historic Places, to be submitted to the Forest Service, USFWS, and Tribal entities.
- For the historic Bean Creek Trail, documentation of the impacted historic route with Global Positioning System devices, photographs, and field notes. Also, DOT&PF would ensure public access and use during construction; ensure trail rerouting for permanent public access and use; and provide an interpretive display at the trailhead with an historic mining theme, in consultation with the managing agency and other consulting parties.
- Interpretive signs within the Sqilantnu Archaeological District; location and content to be determined in consultation with CIRI, Kenaitze Indian Tribe, and the appropriate land management agency.
- Compilation and preservation of existing Kenaitze oral histories into digital format.
- The historic trail mitigation measures noted in Section 3.9.2.2 would be implemented for Bean Creek Trail, including placing an interpretive sign near the pullout/trailhead to be built as part of this alternative just east of Juneau Creek Bridge.

J. Subsistence Mitigation Measures

No mitigation measures specific to subsistence are proposed for this alternative.

K. Utilities Mitigation Measures

Construction and Permanent Impact Mitigation

Utilities would be relocated, raised, or realigned within the Juneau Creek Alternative right-of-way. Notification would be given to users of the services that would experience temporary, short-term interruption in service. Construction activities would be coordinated with Chugach Electric Association and Homer Electric Association to minimize service disruptions. The project would pay for the necessary utility relocations.

L. Geology and Topography

No specific mitigation for impacts to the project area geology and topography is proposed for the Juneau Creek Alternative.

M. Water Bodies and Water Quality Mitigation Measures

Construction Impact and Permanent Impact Mitigation

Water quality impacts will be minimized by the use of best management practices (BMPs) and the implementation of an approved Storm Water Pollution Prevention Plan (SWPPP).

To minimize impacts to water bodies and water quality, all construction activities would comply with the Alaska Pollutant Discharge Elimination System Construction General Permit. The DOT&PF would prepare and provide the contractor with a project-specific Erosion and Sediment Control Plan. The contractor would be required to prepare a SWPPP and a Hazardous Material Control Plan (HMCP), which would be submitted to the DOT&PF for approval prior to construction. The SWPPP would identify all receiving waters and specify the structural and procedural BMPs to be used during construction to prevent erosion and untreated runoff from reaching nearby water bodies. BMPs would be developed in accordance with the DOT&PF's 2011 *Alaska Storm Water Pollution Prevention Plan Guide* and Alaska Department of Environmental Conservation's (ADEC) 2011 *Alaska Storm Water Guide*. The HMCP would establish procedures for responding to accidental spills. If leaks or spills should occur, contaminated material and soils would be contained and disposed of offsite in an approved DOT&PF/ADEC location. In general, to prevent sediment and chemical water quality impacts during construction, all vehicles, trucks, and heavy equipment would be kept within construction limits and operated in a manner that would limit unnecessary ground disturbance, and all equipment would be routinely inspected and serviced to prevent leaks and accidental spills. In addition, the following BMPs would be undertaken if deemed necessary and appropriate.

General construction-related BMPs to be employed:

- Clearing limits would be clearly demarcated prior to construction to ensure impacts would be confined within the project footprint for areas that are near water bodies and wetlands.
- Regular visual inspection of all slopes would be performed to monitor for slope erosion.

- No vehicles or equipment would be fueled or serviced within 100 feet of wetlands or fish-bearing streams, with the exception of “low-mobility” equipment used for pile driving, drilled shaft construction, or other bridge construction. A plan would be provided detailing the process for fueling this equipment within 100 feet of wetlands or fish-bearing streams. Fuel trucks and service vehicles would be equipped with adequate materials (e.g., absorbent pads, booms, etc.) to immediately contain and commence clean-up of spilled fuels and other petroleum products if necessary. Fuel would be stored a minimum of 100 feet from any wetland or water body.

Spill-response equipment would be readily available, and construction personnel would be trained in spill response and would be able to contain accidental leaks of oil or fuel from construction equipment.

To limit sediment disturbance from construction activities:

- BMP erosion and sediment control measures, such as furrow ditches, check dams, and detention basins, would be used.
- Cut and fill slopes would be seeded as soon as possible with fast-growing annual species (to establish root mass) and with native species (for long-term growth and soil stabilization).
- Topsoil would be applied to the surface of road slopes to aid in the reseeding process.

To minimize erosion, temporary water quality impacts from construction activities, and introduction of suspended sediment and siltation:

- Coarse rock rubble would be used to stabilize toes of slopes at stream crossings to prevent the erosion of fine-grained material into adjacent waters and wetlands.
- Roadside swales would be designed to detain surface water to allow sediment-laden water to clear before being discharged.

To mitigate the long-term impact of increased storm water runoff, the alternative would incorporate storm water design treatment features, and BMPs would be designed into the project. The Juneau Creek Alternative would be designed to maintain existing surface water courses and would incorporate grass-lined ditches and swales to reduce sediment. Alterations to surface drainage and hydrology that could adversely affect nearby water bodies would be avoided or minimized through incorporation of appropriately designed, sized, and constructed culverts under the roadway to maintain stream flows.

BMPs that would be employed to protect water quality include:

- Designing the Juneau Creek Bridge with sufficient slope to direct surface drainage off the bridge but not directly into the creek, with discharge to erosion-protected areas above

ordinary high water of the stream below, and with natural or constructed bio-filtration of discharged water where possible.

- Designing and constructing the roadway with a low-profile embankment to minimize the fill footprint.
- Using rocks to stabilize toes of slopes to limit the erosion of fine-grained material into adjacent waters and wetlands.
- Using plant species indigenous to the area for vegetating road slopes wherever possible to protect the integrity of the natural plant communities.
- Using non-invasive annual grasses (e.g., annual rye) to provide rapid, initial soil cover to prevent runoff of fine-grained material into adjacent wetlands.
- Designing roadside swales to keep surface water within the natural drainage basins to allow sediment-laden water to clear before it is discharge to downstream waters.
- Contouring reconstructed stream banks at stream crossings (both culverts and bridge crossings) to approximate original conditions.
- Reseeding reconstructed stream banks with native seed and annual rye to minimize erosion, as recommended in DNR's *A Revegetation Manual for Alaska*, and seeding topsoil that is to be stored beyond one growing season with such a seed mix.
- Protecting stored soil materials from erosion, degradation, and contamination.
- Considering placement of stockpiles of material to minimize disturbance during reclamation.

DOT&PF would consult with adjoining state and federal public land managers to develop a revegetation plan that was appropriate for stabilizing soils, minimizing impacts to water quality, retaining an appropriate native species mix, minimizing impact to wildlife, avoiding damage to cultural resources, minimizing long-term visual impacts, and providing standard clear zones for traffic safety. See related discussion in the Vegetation section, Subsection III.T. of this ROD or Section 3.20.2.3 of the EIS.

Where Juneau Creek Alternative would pass locations with formal surface water rights, specific attention would be given during design to ensure that drainage and culvert crossings would avoid and minimize storm water impacts to drinking water sources.

Impacts to water bodies and water quality would likely result from in-water construction in the Kenai River. During construction, standard best practices and supplementary permit stipulations would be followed to prevent stream bank erosion, siltation or pollution of water, and disruption of Kenai River recreation. These would include measures such as:

- Keeping tracked or wheeled equipment out of the Kenai River.
- Stabilizing exposed earthwork during construction, protecting vegetation to the extent possible, and revegetating exposed or damaged areas following construction.

- Ensuring that any imported rock material for placement in and along the Kenai River was clean.
- Fueling and servicing equipment only at distances of more than 100 feet from wetlands and waters, except for low-mobility equipment such as pile drivers, and specifying detailed fueling procedures and spill contingency plans.
- Retaining adequate spill containment and cleanup equipment and supplies on site.
- Avoiding use of preservatives or chemicals that could pollute the Kenai River.

DOT&PF has committed to building the new bridge over Juneau Creek without access into the base of the canyon. Specifically, in Section 2.6.5 of the Final EIS, DOT&PF made a commitment that no structure or work would occur in the Juneau Creek canyon below elevation 1,060 feet in this area. This is in part to protect Juneau Creek from temporary or permanent fill or channel realignment.

At streams where water rights exist for drinking water, highway drainage would be designed to route storm water flows into ditches or swales before flowing into surface water bodies. Near MP 47, where the footprint of the Juneau Creek Alternative would lie between two private parcels and the withdrawal location for their surface drinking water, DOT&PF would coordinate with the owners to accommodate their water systems across the DOT&PF right-of-way.

N. Air Quality and Climate Change Mitigation Measures

Construction Impact Mitigation

Airborne dust would be minimized by applying water during construction, sweeping periodically, disposing of solid waste properly, and stabilizing all disturbed soils as soon as possible. The specific proposed BMPs and their frequency of use would be determined by the contractor and outlined in the project SWPPP. Additional BMPs typically identified in the SWPPP that may minimize air quality impacts during construction include maintaining routine maintenance and servicing schedules of construction equipment, and identifying contractor operating procedures to avoid unnecessary idling by vehicles, trucks, and heavy equipment.

Additional hydraulic and hydrologic studies will be performed during the design process of any build alternatives. Compliance with Executive Order 11988 (Floodplain Management) would occur as part of the Borough and Kenai River Center Multi-Agency permit process (see Section 3.24.2.2, Permits) during design. New and replacement bridges would be designed to avoid encroachments into floodplains, as identified using climate change models.

Permanent Impact Mitigation

The Juneau Creek Alternative would not cause air quality to approach or exceed the U.S. National Ambient Air Quality Standards. No mitigation is necessary to abate long-term impacts to air quality.

O. Noise Mitigation Measures

Construction Impact Mitigation

Mitigation would include implementation of measures needed to minimize or eliminate adverse construction noise impacts. In accordance with DOT&PF's 2011 Noise Policy, construction noise abatement measures are determined in final project plans and specifications, which include consideration of overall benefits, adverse effects, and costs. Abatement measures may include scheduling pile driving or blasting to avoid periods of noise annoyance or adverse impacts to fish and wildlife, routing trucks and heavy equipment entering and exiting the project site away from residential areas to the extent practicable, and maintaining muffler systems on construction equipment. The public and land managers would be notified in advance about the hours of operation for particularly loud construction activities such as blasting and pile driving.

Construction noise impacts associated with blasting and pile driving would be limited to typical waking hours (e.g., 8 am–8 pm). When no alternatives to conducting construction activities during nights, weekends, or holidays exist, DOT&PF would notify the public prior to conducting these activities and facilitate public involvement throughout construction.

Permanent Impact Mitigation

DOT&PF has been experimenting with rubberized asphalt as a way to increase durability to wear from studded tires, and a benefit is sound reduction. Efforts to date have had mixed results. USFWS requested that DOT&PF consider using rubberized asphalt, but currently DOT&PF has placed a moratorium on its use until researchers from DOT&PF and the University of Alaska have determined the problems and perfected the application. DOT&PF will consider using rubberized asphalt for sound reduction on the Sterling Highway MP 45–60 project if the moratorium is lifted.

P. Visual Mitigation Measures

Construction Impact Mitigation

As part of the standard design, all cuts and fills would be constructed with care, and bare soils would be seeded with a native seed mix to promote return to a mostly natural visual environment and for quick greening of the landscape. The cleared area for the major staging area to be used for construction of the Juneau Creek Bridge would be reseeded with a native seed mix. The staging area west of the Juneau Creek Bridge would be used for a new formal trailhead parking area for the Resurrection Pass Trail. If needed, additional vegetation screening would be planted between the highway and the new trailhead using native tree seedlings. A specific revegetation plan for the entire project, covering areas of disturbance, would be the subject of consultation with land management agencies during project design.

Permanent Impact Mitigation

The Juneau Creek Bridge would be designed with aesthetics in mind, as seen by recreationists passing near or under the bridge on trails. Consultation would be undertaken with the Forest Service during design regarding bridge aesthetics and the development of a revegetation plan for the Juneau Creek Alternative.

Intersection lighting would be the minimum necessary in terms of number of poles and light lumens for highway safety. Fixtures would be shielded and directional to minimize light spilling beyond the intersections and to reduce any greater than necessary visual impact.

Q. Hazardous Waste Sites and Spills Mitigation Measures

Construction Impact Mitigation

Construction contractors would be required to meet all federal, state, and local regulatory requirements regarding the discovery and use of hazardous materials. These regulatory requirements include worker right-to-know and safety training for the use of hazardous materials, as well as the recognition and reporting of hazardous materials discovery.

DOT&PF would undertake a Phase I Environmental Site Assessment (ESA) for the selected highway corridor. If the Phase I ESA were to identify a likely presence of hazardous material, a Phase II site investigation would be undertaken.

Should the Phase I ESA indicate risk of soil contamination around chemically treated power poles that must be relocated, DOT&PF would prepare a contaminant sampling and analysis plan, developed and agreed to by affected land management agencies, ADEC, DOT&PF, and the utility company that owns the poles. The plan likely would specify soil testing for contaminants around poles that would be removed. If testing indicated contamination, a contaminated materials management plan agreed upon by these entities would specify proper excavation and treatment/disposal of contaminated soils.

Hazardous materials used during project construction would be stored and handled according to state and federal regulations. As part of standard specifications for highway construction, the contractor would develop a HMCP and Spill Prevention, Control, and Countermeasure Plan. Detailed BMPs and housekeeping measures regarding hazardous materials would be outlined in a site-specific HMCP, which is a required part of the contractor's SWPPP. The contractor would be required to practice proper hazardous material storage and handling and adhere to the DOT&PF emergency response procedures, which stipulate that all work must stop immediately and the site be secured to prevent unauthorized access if hazardous materials are encountered. The contractor would be expected to isolate the area and prevent migration of any contaminants. In addition, the contractor would be required to notify the appropriate regulatory authorities immediately.

R. Energy Mitigation Measures

Construction Impact Mitigation

DOT&PF would require the contractor to produce a traffic management plan to address operational traffic delays and detours during construction that would make more efficient use of construction operations time and energy. Construction equipment and material, such as batch plants and aggregate, would be located close to the project construction site to reduce hauling distance and energy consumption.

S. Floodplains Mitigation Measures

Permanent Impact Mitigation

During design, longitudinal floodplain encroachments occurring in areas where the alignment footprint is wider than the existing highway footprint would be minimized, when possible, and in many cases may be avoided by a slight alignment shift or other engineering solution. All proposed stream or drainage crossings would have new or replaced culverts that would be sized to accommodate the design flood and avoid impacts during flood events.

Additional measures would be implemented during the project design phase, including hydraulic and hydrologic analyses needed to comply with FHWA, DOT&PF, and Borough floodplain regulations and policies that exist at the time of the design. Compliance with Executive Order 11988 would occur as part of the Borough and Kenai River Center multi-agency permit process (see Section 3.24.2.2 in Permits) during design.

T. Wetlands and Vegetation Mitigation Measures

Wetlands – Construction Impact Mitigation

The following BMPs would be used to mitigate construction-related impacts to wetlands:

- Erosion control measures and best practices would be developed as part of the required SWPPP, developed in accordance with DOT&PF's 2011 *Alaska Storm Water Pollution Prevention Plan Guide* and ADEC's 2011 *Alaska Storm Water Guide*, to control erosion and capture sediment that is moved by storm water. These stipulations, typically enforceable under the project's Section 404 permit, would be required in the construction contract.
- Cleared vegetation and unusable soils would not be permanently located in wetlands.
- To the extent practicable, staging areas and temporary construction roads would be located in uplands; however, it may be necessary to locate staging areas required for river or creek crossings in wetlands. Temporary fill may be required at these sites. Where temporary fill would be required, the construction contractor will be required to place temporary fill on geotextile mats or other suitable materials of sufficient thickness to facilitate the removal of the fill when no longer needed for construction. Wetlands would be stabilized against

erosion once protective mats were removed. Wetlands that had been temporarily filled would be restored by reseeded and revegetating the disturbed areas as necessary with native plant materials.

- Erosion and sedimentation control measures would be employed prior to ground disturbing activity. Permanent erosion control measures would be employed as early in construction as practical. Only clean fill material would be used for the roadway embankment.
- Construction limits would be clearly staked prior to construction to ensure that ground disturbing impacts were limited.
- Appropriate-sized riprap (generally, the smallest effective size) would be used where necessary to stabilize toes of slopes where erosion and siltation are likely (e.g., at stream crossings).
- Riprap would incorporate vegetation where practicable.
- Road slopes would be revegetated. Topsoil would be applied to the surface of road slopes to promote revegetation. Native plant species would be used for vegetating road slopes to protect the integrity of the existing plant communities, except non-native annual grasses would be used to provide initial soil stabilization.
- No grubbing would be done outside of the construction footprint.
- Silt fences would be used adjacent to waterways just beyond the estimated toe of fill.
- Ditch check-dams would be used to reduce erosion during construction.
- Sedimentation basins would be used, as necessary, during construction.
- Roadside swales would be designed to keep surface water within the natural drainage basins.
- Culverts would be installed through fill slopes in appropriate locations to maintain existing flow patterns for surface water. The KNWR has specifically suggested such culverts be installed near MP 56.6 to restore connection between wetlands on both sides of the highway.
- No vehicles or equipment would be fueled or serviced within 100 feet of wetlands or fish bearing streams, with the exception of “low-mobility” equipment used for pile driving, drilled shaft construction, or other bridge construction. A plan would be provided detailing the process for fueling this equipment within 100 feet of wetlands or fish-bearing streams. Fueling and service vehicles would be equipped with adequate materials (e.g., sorbent pads, booms, etc.) to immediately contain and commence clean-up of spilled fuels and other petroleum products. Fuel would be stored a minimum of 100 feet from any wetland or water body.
- Spill response equipment would be readily available and construction personnel would be trained in spill response to contain accidental leaks of oil or fuel from construction equipment.
- DOT&PF will require the contractor to follow BMPs during project construction, including using weed-free products (when available and feasible), coordinating with local weed prevention groups, and adhering to the DOT&PF *Integrated Vegetation Management Plan*

to reduce the introduction and spread of invasive species. Maintenance to prevent the long-term spread of invasive species goes beyond the timeline of the project and would become the responsibility of the DOT&PF Maintenance and Operations (M&O) division. See Section 3.20.2 for more detail.

A construction staging area for the Juneau Creek Bridge was deliberately shifted to overlap with the proposed trailhead parking area for Resurrection Pass Trail to minimize overall wetland impacts. While this location contains some wetlands, it was identified in consultation with the Forest Service as preferable due to its proximity to the existing trail and Juneau Creek Falls.

Wetlands – Permanent Impact Mitigation

Where avoidance of wetlands and waters is not practicable, the following general design commitments are proposed:

- During final design, DOT&PF would investigate additional measures—including making small alignment modifications, steepening side slopes, and refining where passing lanes begin and end—to reduce the roadway footprint in wetlands and other waters.
- The roadway will be constructed using the minimum-width fill footprint necessary to provide a stable road base while meeting safety standards.
- The roadway will be constructed with a low-profile embankment to limit the fill footprint.
- DOT&PF will consult with KNWR or Chugach National Forest regarding ways to minimize the project footprint in sensitive habitats as part of the final design and permitting process.

During permitting and final design, the use of KNWR land south of the existing highway right-of-way will be re-examined to reduce impacts to wetlands in this MP 55.5 area, compared to what is described in the EIS.

In addition, based on comments from the USFWS in its capacity as a cooperating agency, DOT&PF is committed during final design to re-evaluating the design of the passing lanes in the MP 55 to 58 area. This refined design would be an effort to reduce the highway footprint, if it can be done without unduly compromising the safe flow of traffic. It is part of the purpose and need for the project to address congestion and safety, and passing lanes address those needs. However, as USFWS has indicated, passing lanes would exist a short distance to the west as part of the adjacent MP 58–79 project and to the east as part of this project. Shorter turning and acceleration lanes may meet the need for safety and congestion relief without the longer passing lanes. During design, greater information will be known, and information about the function of the new MP 58–79 project (and its passing lanes) will be available. If the footprint can be narrowed without compromising the safe flow of traffic and while still meeting the purpose and need, DOT&PF would change the design.

As compensation for wetland impacts, DOT&PF is committed to paying a fee to a qualified conservation organization to fund appropriate wetland conservation or enhancement activity instead of completing such a project itself. This action would compensate for the unavoidable impacts to wetlands and waters of the United States to offset wetland loss remaining after all appropriate and practicable steps have been taken. At this time, there is no approved provider of in-lieu fee mitigation. Should this remain the case and wetland mitigation is deemed necessary, DOT&PF would work with local land managers and organizations to identify and fund wetland enhancements. Such enhancement would be within the project area, if possible.

Final calculations of a fee would be completed during project permitting to ensure that compensatory mitigation was proportionate to the proposed loss or degradation of aquatic resources.

Vegetation – Construction Impact Mitigation

Loss of vegetative cover would be mitigated primarily through native plant revegetation, while the composition of vegetation would be maintained through invasive plant prevention measures employed during construction (see Invasive Species, below). DOT&PF would consult with adjoining state and federal public land managers during final design to develop a vegetation plan that would use a native species mix and would address appropriate vegetation to stabilize soils, minimize impact to wildlife, minimize damage to cultural resources, minimize long-term visual impacts, minimize introduction of invasive plants, maximize ability to maintain desired conditions, and provide standard clear zones for traffic safety. The plan also would address treatment of the existing landscape and vegetation (e.g., preserving trees and natural rock outcrops where possible). Mitigation proposed for vegetation applies to reclamation along the highway alignment and to other areas associated with the project, such as temporary access roads and staging areas. See also mitigation proposed in Section 3.13.2.2 (in Water Bodies and Water Quality) for more specifics about BMPs proposed for revegetation that would function to protect water quality. The vegetation plan would address BMPs related to maintaining water quality and to avoiding invasive species.

A construction access road is proposed where the Bean Creek Trail currently crosses the creek to deliberately have access where there is already a disturbed area to minimize overall construction impact on the stream. The Bean Creek Trail area would be reseeded following construction wherever embankment material is removed or trailside vegetation disturbed.

The Juneau Creek Bridge drainage could deflect rainwater away from vegetation. To mitigate this potential impact, the bridge drainage would be designed to direct rainwater runoff beneath the bridge and promote retention of natural vegetation buffer between the Resurrection Pass National Recreation Trail and the bridge abutment.

Sensitive Species

No Forest Service listed sensitive plant species are expected to be affected.

Invasive Species – Construction Impact Mitigation

DOT&PF addresses the Alaska Highway System as a vector for the spread of invasive plants through the DOT&PF *Integrated Vegetation Management Plan* (IVMP), which is usable by DOT&PF and other agencies on state-owned airports and highway rights-of-way. DOT&PF also addresses these issues by coordinating with local weeds groups, implementing construction BMPs during project work, and implementing BMPs during M&O activities.

For this project, as described above under the Vegetation subheading, DOT&PF has committed to preparing a vegetation plan in coordination with the adjacent land management agencies. The plan would apply BMPs meant to avoid introduction and spread of invasive species for the Juneau Creek Alternative. Weed BMPs that would be included in the plan and implemented during construction include:

- Wash and clean vehicles, equipment, and tools prior to entering/exiting the site or moving to another site.
- Minimize clearing and grading.
- Clear with a hydroaxe to minimize soil disturbance where it is otherwise unnecessary.
- Use fill material from weed-free material sites, if available and feasible.
- Use certified invasive-free mulches, topsoils, or seeds purchased from a local provider
- Use only Alaska native plant species for landscaping, per DNR's *A Revegetation Manual for Alaska* for reseeding and vegetating of disturbed areas.
- Gate all minor access roads (e.g., Forest roads and powerline access roads) not generally open to public vehicles to limit tracking of invasive species into new areas.

In addition, the following BMPs will be discussed with the land managing agencies as part of the vegetation plan, and some level of implementation is expected:

- Eradicate existing infestations prior to construction.
- Clear areas in winter to minimize spreading of invasive weed seeds and vegetative propagules (i.e., a bud or other offshoot that aids in dispersal of the species).
- Sequence reseeding efforts to begin with areas uninfested by invasive plant species and work towards area infested by invasive plant species to minimize spread of invasives.
- Educate workers about management practices to reduce spread of weeds.

As part of design, DOT&PF will negotiate an agreement to provide funding to the USFWS and/or Forest Service for post-construction monitoring and control of invasive species.

The revegetation plan discussed above under the Vegetation heading would apply these practices where practicable.

Invasive Species – Permanent Impact Mitigation

Once the project is constructed, the DOT&PF M&O division would become responsible for all aspects of the project area, including vegetation control. The M&O division would continue to address the preservation of natural vegetation in this highway segment, as well as adjoining segments. To monitor and manage the spread of invasive plant species along the highway during road maintenance activities such as mowing in the summer and applying sand and gravel in the winter, M&O BMPs are anticipated to include:

- Cleaning vehicles and equipment regularly.
- Revegetating disturbed areas with native, local, and/or non-invasive plant species.
- Avoiding known contaminated areas, if practicable.
- Managing uninfested areas before moving toward infested areas.
- Coordinating with local groups that are managing invasive species.
- Timing mowing to prevent seed production of invasive plants, as practicable.
- Using certified weed-free materials whenever possible.
- Identifying locations of known invasive plant infestations.
- Recording and reporting locations of invasive plants to the University of Alaska entity that tracks non-native plants.

U. Fish and Essential Fish Habitat Mitigation Measures

Construction Impact Mitigation

Specific timing windows for in-water work and pile driving would be established during permitting to avoid critical salmon life cycle impacts.

Impacts would be minimized through installation criteria, BMPs, and the proposed mitigation measures listed below. These measures were developed in consultation with the National Marine Fisheries Service. These are general measures that may be modified to specifically address details of the Juneau Creek Alternative through additional consultation with the agencies during final design and permitting. Additional details on the effects to Essential Fish Habitat and proposed conservation measures can be found in the project's 2013 *Essential Fish Habitat Assessment*.

- If pile driving in the Kenai River is necessary (including temporary or permanent sheetpile), appropriate mitigation would be developed with the regulatory agencies to minimize impacts. Pile driving may be limited to late October through the end of December to avoid most spawning impacts. If possible and necessary, there may be deviations to the proposed timing windows, which would be coordinated in consultation with the National Marine Fisheries Service and ADF&G.
- All anadromous fish stream crossings would be designed to minimize impacts on stream function and hydrology, and to provide passage to both anadromous and resident fish. All road structures crossing anadromous fish habitat would be designed to meet the ADF&G-

DOT&PF memorandum of agreement requirements for fish passage. For example, stream culverts would be bottomless arch culverts or would be fully embedded with streambed material where possible.

- At no time would the construction activities result in a migration barrier for adult or juvenile salmonids. Construction would be timed to avoid critical fish spawning and migration. Specific timing windows for in-water work and pile driving would be established during permitting.
- During construction, the contractor may use other methods to reroute streams such as a bypass culvert or pumping for smaller anadromous streams. Temporary diversions within fish-bearing streams would be subject to permitting stipulations and designed so that stream flow would not be impeded and fish passage would not be compromised. Stream diversions may be limited to a specific work window depending on species present in the stream and spawning habitat in the vicinity. Any kind of in-stream diversion would be limited to late October through December to avoid salmon spawning and rearing life cycles, although this timing window may be adjusted in permit stipulations. Following completion of construction, all streams would be restored to natural conditions.
- To minimize and prevent spills or leakage of hazardous materials during construction, standard spill-prevention measures would be implemented in accordance with the contractor's approved Spill Prevention, Control, and Countermeasures Plan.
- No vehicles or equipment would be fueled or serviced within 100 feet of wetlands or fish bearing streams with the exception of "low-mobility" equipment used for pile driving, drilled shaft construction, or other bridge construction. A plan would be provided detailing the process for fueling this equipment within 100 feet of wetlands or fish-bearing streams. Fueling and service vehicles would be equipped with adequate materials (e.g., sorbent pads, booms, etc.) to immediately contain and commence clean-up of spilled fuels and other petroleum products. Fuel would be stored a minimum of 100 feet from any wetland or water body.
- The contractor would use contaminant-free embankment and surface materials in construction.
- Stream banks at all culverts and bridge crossings would be recontoured to approximate original conditions and reseeded with native vegetation to minimize erosion. Seeding of the disturbed areas would conform to Section 618 of the DOT&PF *Standard Specifications for Seeding*.
- Temporary material storage piles would not be placed in the 100-year floodplain during the rainy season unless the following conditions are met: (1) storage does not occur when flooding is imminent; and (2) if storage piles consist of erosive material, they are to be covered with plastic tarps (or similar) and surrounded with compost berms or other erosion control devices.
- Slopes with the potential to impact the Kenai River would be stabilized as soon as practicable.

- BMPs developed in accordance with DOT&PF's 2011 *Alaska Storm Water Pollution Prevention Plan Guide* and ADEC's 2011 *Alaska Storm Water Guide* would be employed to control erosion and capture sediment that is moved by stormwater before it leaves the site into project area streams. Specific BMPs related to anadromous fish habitat would include installing temporary erosion and sediment control measures (e.g., minimizing the amount of soil exposed during construction by preserving native topsoil or phasing construction, maintaining natural buffer areas, controlling storm water discharges and flow rates, and protecting steep slopes until revegetated plants can bind the soil and stabilize it), and sustaining predevelopment flow rates to protect stream habitat.

Permanent Impact Mitigation

- A number of existing undersized or perched culverts identified during a field investigation of small streams and drainages in the project area (as summarized in the project's 2006 *Hydrology and Hydraulics Summary*) would be replaced to improve fish passage to upstream habitat on portions of the highway that are reconstructed.
- DOT&PF would work with ADF&G to incorporate vegetation, to the extent practicable, into any areas along anadromous fish streams that would require riprap, with the aim of minimizing long-term habitat loss.
- Design would include standard engineering considerations to avoid and minimize the potential for erosion near surface drainages.
- Grassy swales would be part of the roadway design to accept storm water runoff to help maintain water quality in fish habitat by filtering sediments, road salts, and oil residue before entering streams or the Kenai River.

V. Wildlife Mitigation Measures

Mammals – Permanent Impact Mitigation

Wildlife Mitigation Study

To identify the best locations for mitigation measures that would help to retain wildlife movement patterns, DOT&PF sponsored a wildlife mitigation study in collaboration with wildlife management agencies. The scope of the study (the study plan) was developed in consultation with an interagency wildlife team (USFWS, Forest Service, and ADF&G). The results of the study, initiated in 2014, have been used to refine the location of wildlife crossing structures (further addressed below) to accommodate wildlife movement for brown bears and moose, as well as for black bear, Dall sheep, wolverine, and Canadian lynx.

Wildlife Crossing Structures

EIS Appendix I, *Wildlife Crossings – Analysis and Recommendations*, provides detail about wildlife mitigation.

During design, a memorandum of understanding (MOU) will be developed with wildlife agencies to document agreements about crossing location refinements as well as design and methodology of a monitoring study.

The primary mitigation proposal is to provide dedicated wildlife crossings under or over the highway. The Juneau Creek Alternative would use crossing structure types that would provide sufficient openings that wildlife would be likely to use. Crossing structures would be designed to facilitate wildlife movement based on topography and other specific characteristics of each crossing site. The FHWA Central Federal Lands Highway Division, in a 2011 *Wildlife Crossing Structure Handbook*, provides guidance for basic structure dimensions for large mammal underpasses and overpasses that would be appropriate for brown bear and moose crossings.

Based on this guidance, several structure types are possible. The Final EIS indicated that the Juneau Creek Alternative would include three dedicated large mammal underpasses and one dedicated large mammal overpass. In response to comments from the wildlife agencies and the public on the Final EIS, a fourth dedicated wildlife underpass is added at Site #10, identified in Appendix I of the EIS.

The following bulleted items apply to the Juneau Creek Alternative:

- Provide four dedicated large mammal underpasses, preliminarily identified as Sites #9, 10, 22, and 24 in Appendix I, with clearance for wildlife of 23 to 32 feet horizontally and, unless topography makes it unreasonable, 18 feet vertically where feasible (round steel pipe partly filled, with ends cut to match the fill slope, and with partial wing walls, or similar, to be determined in consultation with wildlife agencies). DOT&PF commits to refining the exact location, size, and structure type in coordination with the wildlife agencies during final design.
- Provide dedicated large mammal overpasses with a width of approximately 130 feet.
- Modify the design of the Juneau Creek Bridge as needed to provide adequate clearance for wildlife passage along each bank.
- Add small-diameter wildlife crossings (less than 23 feet), principally intended for black bear, wolf, wolverine, and other smaller animals, with the number and placement informed by results of the wildlife mitigation/movement study. Where possible, this would be accomplished by “oversizing” drainage culverts.
- Add natural barriers such as boulders, as a first choice, or fencing as determined necessary to reasonably direct animals to the wildlife crossings and bridge underpasses without unreasonably limiting current popular access for people to the Kenai River, trails, and other recreation sites.
- Install wildlife crossing caution signs for drivers in areas where the wildlife mitigation study and previous collision history suggest higher expected use by wildlife, on both the “old” highway (if not already signed) and new highway.

DOT&PF, FHWA, and the wildlife agencies (USFWS, Forest Service, and ADF&G) would agree during final design on the details for wildlife crossing structures, based on the information in Appendix I and the MOU. Field visits also would be scheduled for USFWS, Forest Service, and ADF&G wildlife biologists as part of final design. Criteria to be used in determining which specific types of crossings and locations, specific extent of fencing, and other exact mitigation measures to implement include:

- Expected effectiveness (or use by species)
- Concentration of use by multiple species/usefulness of the measure for multiple species
- Technical feasibility and terrain
- Current and projected land use and ownership
- Cost and prudent expenditure of public funds
- Consideration of input from the public and other agencies

The process to be used to make final wildlife mitigation decisions is anticipated to be a continuing cooperative effort and negotiation among ADF&G, USFWS, Forest Service, DOT&PF, and FHWA through the final design process. DOT&PF commits to reexamining passing lanes during design to adjust where they occur to minimize the crossing width for wildlife.

The Juneau Creek Alternative includes a large mammal underpass at Fuller Creek, near MP 57.2. Preliminary design indicates that 15 feet of clearance is possible at this location, but 18 feet may not be possible because of roadway geometry issues and the need to mesh with existing riverbank erosion protection near MP 57 and the entrance to the Fuller Creek Trail parking lot. In final design, the crossing clearance height would be re-examined to determine if it would be possible to make the clearance higher, as close to 18 feet as is reasonable. DOT&PF would work with the USFWS regarding limits on impact to the trailhead for Fuller Lakes Trail (protected under Section 4(f)) versus limits on clearance at the wildlife crossing.

Mitigation commitments are binding, and mitigation funding will be allocated. Wildlife mitigation measures will be designed, constructed, and maintained as primary components of the new highway, not as “enhancements” that could be cut later if funding shortfalls were to occur. Project construction cost estimates in Sections 3.5.2.2 and 3.27.7.5 include wildlife mitigation.

Wildlife Corridor/Habitat Preservation and Restoration

- The proposed dedicated wildlife underpasses and overpass would be located adjacent to KNWR and Chugach National Forest lands. The underpass located east of Bean Creek would be located on the border of Chugach National Forest and State of Alaska lands. State lands in this area currently are managed under the Kenai Area Plan for habitat and dispersed recreation, and specifically are managed as if they were part of the Kenai River Special Management Area (State Park unit); however, they have not been formally protected by legislation.

- The Juneau Creek Alternative contributes to a wildlife movement constriction at MP 57, where a bend of the Kenai River touches the highway. At this location, in final design, DOT&PF would examine the potential of moving the highway farther north to provide a narrow strip of land between the highway and the river that wildlife could use to reach areas of habitat east and west without crossing the highway. The mountain slope north of the highway may not allow for highway movement, but the potential will be examined.
- All areas affected by construction activities would be revegetated with native species following construction. Vegetation on temporary access road corridors would be restored through seeding with native seed mix. Temporary access roads would be removed and the corridors blocked with a barrier and signed to minimize the chance that these areas would become off-road vehicle or pedestrian trails, which would effectively increase road density and provide increased access for hikers and hunters that could lead to increased human-bear encounters.
- At the time of final pavement design, DOT&PF will consider traffic noise abatement through the use of rubberized asphalt throughout, if the testing that has been ongoing in recent years shows it is durable and if DOT&PF approves it for use (currently it is in testing and not approved for use).

Other Wildlife Mitigation Measures

As part of the project, FHWA and DOT&PF would:

- Fund a wildlife agency effort to conduct a camera trap study to refine wildlife crossing locations, fencing, and related measures prior to finalizing design.
- Fund agency monitoring of wildlife crossing structures in the post-construction period, with details to be determined during the design phase.
- Install bear resistant trash containers, where trash containers are requested by agencies that will be managing pullouts or parking areas established as part of the project. The final decisions about locations for such trash containers will be identified during design coordination with these agencies.
- Install bear-awareness signs at two locations within each DOT&PF pullout established as part of the project—conveying clear, concise, consistent, and motivating messages regarding food storage regulations and proper human behavior, to be developed with the land management and wildlife agencies.
- Develop mitigation measures specific to fish and Essential Fish Habitat that would benefit bears by reducing impacts related to food availability. Timing windows for construction activities near and within anadromous fish streams would avoid and minimize displacing bears and other wildlife foraging for these food sources. These measures are discussed above in Subsection III.U. (Fish and Essential Fish Habitat Mitigation Measures).

Birds/Eagles –Construction Impact Mitigation

To meet requirements of the Migratory Bird Treaty Act, clearing of vegetation on lands for project-related development would occur before or after the nesting season (from May 1 to July 15 in Southcentral Alaska).

During the final design and permitting phase of the project, DOT&PF would consult with USFWS to develop measures to avoid, minimize, and mitigate impacts to bald eagle nests to ensure compliance with the Bald and Golden Eagle Protection Act. As part of consultation, USFWS will determine the need for DOT&PF to obtain an eagle disturbance permit. The permit application, if required, would be submitted prior to the start of construction for disturbance to nests within 660 feet of the cut and fill limits of the Juneau Creek Alternative that cannot otherwise be avoided, minimized, or mitigated.

The following conservation measures, some of which are based on the USFWS's 2007 *National Bald Eagle Management Guidelines*, would avoid, minimize, and mitigate impacts to bald eagles. These are general measures that will be modified to specifically address details of the Juneau Creek Alternative through further coordination with USFWS during design and permitting:

- Prior to construction, a survey would be conducted to reassess the activity of the nests in the project area and determine whether new nests have been constructed.
- Construction activities adjacent to any known nests would occur, to the greatest extent practicable, only during mid-September through February, when eagles would not be nesting.
- If determined necessary, DOT&PF and USFWS would assess the risk for tree blow-down with known nest trees and adjacent trees.
- DOT&PF would work with USFWS to develop a detailed nest monitoring plan to mitigate disturbance from construction activities in the primary and secondary buffer zones. Depending on the magnitude of the anticipated disturbance, this may include providing post-construction monitoring to determine whether the nest sites, communal roosts, or important foraging areas continue to be used by eagles for up to 3 years following completion of the permitted activity.

Birds/Eagles – Permanent Impact Mitigation

Project lighting at the intersections of the alternative and the “old” highway would incorporate shielded and directional lighting fixtures to direct most light downward. During final design, DOT&PF would consult with the wildlife agencies regarding the potential use of long-wavelength tinted lights, to meet both wildlife mitigation needs and standards for highway safety at intersections outside the community of Cooper Landing.

Wood Frog – Permanent Impact Mitigation

New and replacement culverts at fish streams would meet requirements for fish passage noted in a 2002 ADF&G-DOT&PF memorandum of agreement, which is also intended to help improve habitat and passage for wood frogs.

W. Coastal Zone Management

Mitigation for impacts to Coastal Zone resources are incorporated in other subsections, such as Waterbodies and Water Quality, Parks and Recreation, etc.

X. Cumulative Impacts

Cumulative Greenhouse Gas Emissions – Construction Impacts Mitigation

See also Air Quality and Climate Change Mitigation, Subsection III.N., above. The following project level measures during construction will have the effect of minimizing greenhouse gas emissions:

- To minimize impacts associated with construction delays and changes in traffic flow, the contractor would be required to create and execute a Transportation Management Plan (TMP), which would minimize construction-related congestion and maintain traffic flow throughout the construction site.
- To minimize impacts associated with construction equipment, unnecessary idling of construction vehicles, trucks, and heavy equipment would be prohibited.
- The construction contractor would be required to routinely maintain and service all construction vehicles, trucks, and equipment to ensure they are in proper working condition, and therefore running as efficiently as possible.
- To reduce energy used to retrieve construction materials, construction equipment and material would be located as close to project construction sites as possible to reduce hauling distances and energy consumption.

Y. Section 4(f) Evaluation – Measures to Minimize Harm to Section 4(f) Properties

Note that the following subsections combine mitigation also found above under other sections, such as Visual, Water Bodies and Wetlands, Transportation, or River Navigation and largely repeats that material as it relates to the Section 4(f) properties. However, for these specific properties, the discussion below provides the most detailed explanation of mitigation regarding Parks and Recreation resources and is not duplicated above.

Kenai National Wildlife Refuge

The Juneau Creek Alternative would have a Section 4(f) use of KNWR lands. The use of KNWR would be for the short connecting road south of the existing highway. To minimize harm, the following design and construction measures are proposed:

- Mitigation regarding access to KNWR facilities is addressed above in Subsection III.F. and III.H., above.
- Mitigation regarding wildlife movement in and out of KNWR, as described in Section 4.5.4.1, is addressed above in Subsection III.V.

Resurrection Pass Trail, Bean Creek Trail, and Juneau Falls Recreation Area

The Resurrection Pass Trail, Bean Creek Trail, and Juneau Falls Recreation Area overlap, and impacts are concurrent or interrelated. This section presents all measures to minimize harm to all three properties. The proposed mitigation was developed in consultation with the Forest Service. Mitigation measures are depicted on Map 4-10 and Map 4-13 in the EIS and include the following:

- The proposed highway bridge over the Juneau Creek Canyon would be designed to span completely over the Resurrection Pass Trail, although it would not span the entire 1,000-foot width of the recreation buffer associated with the trail. The western bridge abutment would be placed as far as practical from the existing trail. Bridge design features such as height above the trail and finished appearance would be reviewed with the Forest Service during the final design phase.
- The Bean Creek Trail would be rerouted approximately 450 feet to the west of its current location to pass under the Juneau Creek Bridge at its eastern abutment. The length of rerouted trail would be approximately 2,900 feet. The abandoned section of the historic trail would be documented with Global Positioning System devices (surveyed), photographs, and field notes. Bridge design features such as height above the trail and finished appearance would be reviewed with the Forest Service during the final design phase. The rerouted trail alignment would be subject to an archaeological survey to ensure no archaeological sites would be impacted; if such sites were discovered, the trail would be routed to avoid them. The trail would be routed close to the bridge abutment to leave as much space as possible between the trail and canyon rim for wildlife movement.
- A formal trailhead for Resurrection Pass Trail would be constructed on the north side of the highway west of the Juneau Creek Bridge. The Forest Service has stated that placement of the trailhead inside the Juneau Falls Recreation Area would cause less harm to the recreation area than placement outside the recreation area. A bridge construction staging area is proposed just outside the western edge of the Juneau Falls Recreation Area. Based on direction from the Forest Service, this staging area would be co-located with the new Resurrection Pass trailhead site to minimize vegetation clearing and wetland impact in the area, and the staging area would be partially converted to a trailhead when staging was complete. The trailhead would be built by DOT&PF but owned and operated by the Forest Service. It would have parking for 45 standard vehicles plus four pull-through spaces for buses or large campers and four spaces for vehicles with trailers, an improvement in capacity and layout over the trailhead on the existing Sterling Highway, which is designed for approximately 24 standard vehicles. Trailhead development would include a pit toilet and a kiosk for posting maps, trail information, and interpretive displays (see below).

Associated development would include a walking trail and a horse trail, each connecting the parking area to the existing Resurrection Pass Trail. The trailhead parking area would not be plowed by DOT&PF in winter and is expected to be closed by the Forest Service in winter.

- For skiers in winter, a long pullout would be located east of the new bridge within the highway right-of-way. It would be plowed by DOT&PF road crews and designed for efficient plowing. It would be located north of the highway to eliminate the need for skiers to pass under a bridge without snow cover. A simple connecting trail would be built to connect the pullout to the Bean Creek Trail in summer, but no formal trailhead sign or accommodations would be established on this side of the canyon, based on consultation with the Forest Service. To minimize or avoid vehicles that park on the highway shoulder west of the bridge in winter to access the old logging roads that provide snowmobile access to the Resurrection Pass Trail, no parking signs and signs directing such traffic to the existing winter trailhead would be installed.
- To mitigate the potential impacts of pedestrians walking onto the highway bridge to see views from the bridge, a set of trails and viewing areas would be constructed to accommodate the public desire to view the falls and minimize pedestrians crossing the traffic lanes. These trails and viewing areas would include:
 - A formalized canyon overlook constructed near the falls, with an Americans with Disabilities Act-accessible trail to connect the trailhead to the overlook. Safety features, as needed, would be incorporated in the overlook at the canyon edge. Signs would direct people to the viewpoint.
 - A separate horse trail from the trailhead to the Resurrection Pass Trail, connecting north of the falls overlook, to separate horses from the busiest pedestrian segment of trail.
 - A pedestrian walkway on the south side of the new highway bridge, connected to both the Resurrection Pass Trail and Bean Creek Trail to provide passage across the highway and beneath the bridge. A safety barrier would separate traffic from the pedestrian walkway.
 - Full highway shoulders to accommodate bicyclists on the bridge.
 - Signs posted to direct pedestrians to safely access the bridge walkway, to indicate Juneau Creek Falls viewing access via the trail and overlook, and to indicate that there is no view of the falls from the bridge.
- The Juneau Creek Bridge would be designed in consultation with landscape architects for aesthetics, with the views from both trails in mind. As a major element in the down-valley view from the falls area, the bridge would be designed to be aesthetically pleasing.
- A basic sign interpreting mining history and Bean Creek Trail and Resurrection Pass Trail history would be placed at the new trailhead parking lot west of Juneau Creek and on the trail near the pullout/trailhead located east of Juneau Creek, or at locations preferred by the Forest Service. Any interpretive material would be developed in consultation with the Forest Service and other consulting parties.

- Bridge drainage design would direct storm water runoff beneath the bridge to the extent possible to promote retention of a natural vegetation buffer between the trails and the bridge abutments.

The following measures to minimize harm would occur as part of the construction process:

- For some periods during construction of the bridge over Juneau Creek, when it would be necessary to temporarily reroute the Resurrection Pass Trail for safety, trail users would be directed onto a detour trail that would cross the highway alignment to the west. The Resurrection Pass Trail would never be closed to public use; either its established route or a detour route would always be available. The final temporary detour route would be constructed by the contractor in a location determined in coordination with the Forest Service. For the Bean Creek Trail, users may be able to use the permanently rerouted trail during most of the construction process. Bean Creek Trail users would not need to be detoured until the bridge was complete enough for safe passage on the new trail alignment. In both cases, a safe designated trail crossing site would be established across the construction zone. Any temporary detour trail created would be removed and revegetated when no longer needed. Notice of the reroute and construction zone crossings would be provided to land managers and trail users and posted well in advance at trailheads for the Resurrection Pass Trail (both ends), Bean Creek Trail, Summit Creek Trail, Devils Pass Trail, and area campgrounds and public buildings. Notices also would be published in Anchorage and Kenai Peninsula newspapers.
- Use of the Resurrection Pass Trail for construction would be minimized. Construction access along the trail would not be allowed except for construction of trail improvements. Understory vegetation would be left undisturbed within the 1,000-foot-wide trail corridor, to the extent possible, to preserve the natural appearance of the corridor. Use of the trail corridor by vehicles would be minimized, and damaged areas would be replanted with native species seed mix and native trees after construction. Such restoration planning would take place in conjunction with the Forest Service.
- Where a construction access road between the new highway alignment and material extraction and overburden disposal sites would overlap a 1,600-foot stretch of the southern Bean Creek Trail, the construction contractor would provide a temporary, rerouted trail alignment for recreation users to separate them from truck traffic. The rerouted trail would make use of existing old logging roads and portions of loop trails on the east side of Bean Creek, and would include a new bridge crossing of the creek to connect with the historic Bean Creek Trail alignment. The temporary trail would be rehabilitated in conjunction with the Forest Service when construction was completed and it was no longer needed. DOT&PF would coordinate and develop a construction traffic management plan with the Forest Service to best accommodate summer and winter trail users crossing the construction access road. A portion of the road embankment would be left after construction as the trail surface, and the road culvert/bridge over Bean Creek would be

designed to be left in place for trail use following construction, or would be replaced with a footbridge. The main Bean Creek Trail would be rerouted back onto its historic alignment at the end of construction. The area would be revegetated following construction where embankment material was removed or trail-side vegetation was disturbed.

Compensatory Mitigation for Resurrection Pass Trail outside the Project Area

To compensate for the break in the long-distance character of the Resurrection Pass Trail, DOT&PF would fund construction of an important link in another long-distance trail nearby—the Iditarod National Historic Trail. The applicable Iditarod Trail segment is illustrated on an inset on Map 4-13 of the EIS.

DOT&PF would provide a pedestrian walkway on the Snow River bridges (Snow River West Channel: 188 feet long, and Snow River Center Channel: 649 feet long) near MP 17 of the Seward Highway. This link would serve to connect existing and planned portions of the “Iditarod National Historic Trail – Southern Trek” route, a trail segment approved in the Forest Service’s Seward to Girdwood Iditarod National Historic Trail Environmental Assessment (2003) but not yet built. To the extent that segments of the Iditarod National Historic Trail would need to be placed within the Seward Highway right-of-way in the Snow River area, DOT&PF would agree to Forest Service construction of trail segments in the right-of-way on the condition that 1) the trail would meet current highway and trail safety and design standards, and 2) DOT&PF would have the ability to relocate the trail within the right-of-way as needed to accommodate highway transportation needs in the future.

DOT&PF and FHWA would ensure that providing pedestrian walkways for the Snow River West and Snow River Center Channel Bridges would be completed by the time the Sterling Highway Project construction is completed.

Sqilantnu Archaeological District

Measures formalized in a Section 106 Programmatic Agreement among consulting parties would be implemented. Subsection III.I., above, summarizes the mitigation measures. EIS Appendix K contains the full text of the Programmatic Agreement and attachments. DOT&PF would examine small design shifts, steepening side slopes, or narrowing of the embankment width at contributing features during final design to further minimize harm.

Confluence Site

The Confluence Site is a sub-set of the greater Sqilantnu Archaeological District. The mitigation measures developed with the consulting parties in the Programmatic Agreement address the issues for the Sqilantnu District and the Confluence Site. Subsection III.I., above, summarizes the mitigation measures that would apply. EIS Appendix K contains the Programmatic Agreement.

IV. Monitoring or Enforcement Program

FHWA regulations at 23 CFR 1505.2(c) state: “A monitoring and enforcement program shall be adopted and summarized where applicable for any mitigation.”

A. Monitoring and Enforcement During Construction

The following is repeated from Subsection III.I. (Historic and Archaeological Preservation), above. Monitoring and enforcement related to historic and archaeological sites includes:

- Preparation and implementation (during construction) of an archaeological monitoring plan, including monitoring of the construction process by both qualified archaeologists and observers from KIT and CIRI, and regular reporting.
- Treatment of inadvertent discoveries of human remains and of previously unidentified cultural resources, and curation of items discovered, would be per specific terms addressed in the Programmatic Agreement (Appendix K).

The following is repeated from Subsection III.M. (Water Bodies and Water Quality), above: Regular visual inspection of all slopes would be performed to monitor for slope erosion.

The following is repeated from Subsection III.V. (Wildlife), above. To refine and assess wildlife mitigation:

- During design, a MOU will be developed with wildlife agencies to document agreements about design and methodology of a monitoring study.
- DOT&PF would work with USFWS to develop a detailed bald eagle nest monitoring plan to mitigate disturbance from construction activities in the primary and secondary buffer zones if a nest survey during the design period indicated nest disturbance would be likely to occur.

B. Monitoring and Enforcement Following Construction

The following is repeated from Subsection III.H. (Parks and Recreational Resources), above. If safety hazards developed, DOT&PF would post no parking signs near the intersection of the trail with the highway.

The following is repeated from Subsection III.T. (Invasive Species), above: As part of design, DOT&PF will negotiate an agreement to provide funding to the USFWS and/or Forest Service for post-construction monitoring and control of invasive species.

The following is repeated from Subsection III.V. (Wildlife), above. Post-construction monitoring includes:

- DOT&PF would fund agency monitoring of wildlife crossing structures in the post-construction period, with details to be determined during the design phase.

- If bald eagle nests are determined to be near the alignment, DOT&PF would work with USFWS to develop a detailed nest monitoring plan, which may include providing post-construction monitoring to determine whether the nest sites, communal roosts, or important foraging areas continue to be used by eagles for up to 3 years following completion of the permitted activity.

V. Comments on the Final EIS

It is not typical for FHWA to conduct a formal comment period and public meetings on a final EIS. Because of the change in preferred alternative (announced in the Final EIS) to the Juneau Creek Alternative, FHWA decided to take comments on the Final EIS during a 30-day public comment period. The Final EIS was signed on March 7, 2018, and uploaded to the EPA's e-NEPA site on March 9, 2018. A notice of availability was published in the *Federal Register* on March 16, 2018. A public comment period ran to April 16, 2018. Public meetings were held in Cooper Landing, Soldotna, and Anchorage on March 27, 28, and 29, 2018, respectively. The Final EIS was available at libraries and the project web site. Public meetings and notice of availability were publicized through newsletters, online and published advertisements, on the project web site, and via email, postcards to residents, and press releases.

Appendix A contains public, agency, and non-governmental organization comments on the Final EIS and responses to those comments. Where comments have prompted a need for substantive clarification or correction, or changes in what is proposed for the alternatives, such changes are noted in this section. FHWA has considered all comments and has (1) added wildlife and pedestrian pathway mitigation, and (2) included clarifications and corrections where most needed. FHWA has determined that these adjustments were necessary but that, overall, the analysis in the EIS that led to identifying the Juneau Creek Alternative as the preferred alternative was not substantively changed by the comments. The main issues and changes, based on the comments follow.

Wildlife Crossings. DOT&PF has committed to adding a fourth dedicated wildlife underpass for the Juneau Creek Alternative. Because the Bean Creek Trail would be rerouted to pass under the Juneau Creek Bridge, the agencies have indicated the bridge's value for wildlife passage would be diminished. To help wildlife cross the highway corridor in this area, site #10 in EIS Appendix I has been added, subject to refinement of location and further discussion during final design regarding the entire package of wildlife mitigation.

KNWR Lands. DOT&PF and FHWA have committed to further examination of design options to reduce use of KNWR lands at the western intersection of the Juneau Creek Alternative and the "old" highway, with particular emphasis on reducing wetland impacts in that area.

Pathway. DOT&PF and FHWA have committed to construction of a separated roadside pathway on the downhill side (south side) of the highway between Quartz Creek Road and the eastern

intersection of the “old” highway. The precise terminus at the path’s western end and its connection to the existing route, called a “safety trail” by community members, will be determined during design, with potential options of an at-grade crossing set back from the intersection or an underpass at the intersection. Conceptually, the trail would be 10 feet wide and nearly 2 miles long. The final trail surface and width will be determined in design.

Wildlife Collisions. The USFWS commented that a statement was conjecture and should be removed. On page 3-476, the EIS reads, “Bear-vehicle collisions likely also would be reduced on any ‘old’ highway segments not incorporated into a build alternative because those segments would become a local road with only about 30 percent of the total traffic volume.” USFWS commented:

Local traffic along the existing Sterling Highway during the summer and fall months will continue to occur at high levels as the major recreational attractions along the Kenai River will continue to be the destinations of many travelers to the area. This statement is conjecture without sufficient supporting data or evidence and should be removed.

DOT&PF and FHWA considered this comment and believe the EIS language is reasonable, given that 70 percent of all traffic is expected to use the new highway, leaving 30 percent on the “old” highway. While DOT&PF and FHWA believe it is reasonable to state that such substantial reductions in traffic would “likely” result in reductions in wildlife collisions, this ROD reflects that this agency, which has special expertise in wildlife management, believes otherwise.

Land Exchange. The USFWS commented about the EIS’s reported assumptions of acreage for the land exchange between KNWR and CIRI, as follows: “All reference to acreages other than the location and acreage needed for highway construction should be removed from the FEIS. The land exchange and lands to be identified for such would occur under the auspices of the original Settlement Agreement.” The USFWS acknowledged that the EIS states that the actual area and acreage of the lands to be exchanged would be determined through negotiations between the USFWS and CIRI. This ROD recognizes that the USFWS is in no way bound by the acreage statement given in the EIS and that the land exchange is taking place per the terms of the Settlement Agreement ratified by the Russian River Land Act. DOT&PF and FHWA are not parties to that negotiation.

Passing Lanes Error. The Final EIS in Chapter 2 includes Maps 2.6-2, 2.6-3, 2.6-4, and 2.6-6 illustrating the alignments of each of the build alternatives, including color coding to indicate where passing lanes occur. These maps show the highway as two-lanes (no passing lanes) in the MP 56 area. This does not match a description in Appendix I, the Wildlife Crossings memorandum, for wildlife crossing site #22 (page 23 of Appendix I), which indicates the highway in this location would be three lanes wide. Further, a plan and profile image for crossing site #22 attached to the Wildlife Crossings memorandum shows the highway as two lanes wide. The plan set, which is the

most definitive document, indicates in this area that the westbound lane is just beginning to widen (taper) for a westbound passing lane. At the location of the wildlife crossing, the highway is, in fact three lanes wide. The site #22 plan and profile sheet in the Wildlife Crossings memorandum is in error, and the maps in chapter 2 are in error. The exact size and shape of the wildlife crossings and the exact location of passing lanes is to be determined during final design, as stated in the EIS. DOT&PF and FHWA are committed to working with the wildlife agencies to ensure the greatest usability of the dedicated wildlife crossings and will consider refinement to the design to minimize the distance the wildlife need to cross (by shifting the taper or using wing walls or other design techniques).

Chugach National Forest Management Plan. The Forest Service commented that Section 3.2 of the EIS is not fully accurate regarding a Standard in the Chugach National Forest’s Land and Resources Management Plan. Specifically, the Final EIS states in Section 3.2.4 (p. 3-66, third paragraph, under discussion of the Roadless Rule): “None of the alternatives is completely consistent with the specific management prescriptions of the Forest Plan. The prime example, as discussed above in Section 3.2.3.2., is that none of the build alternatives (or the existing highway) meets a Forest Plan standard for separation from identified brown bear management areas.” The Forest Service commented that the Standard in question applies only to “new road construction,” as is quoted in Section 3.2.3. It in no way applies to the existing highway, which is the No Build Alternative. This ROD acknowledges the correction by the Forest Service (the agency with jurisdiction over the plan). Other locations in the EIS similarly may be read to imply the Standard applies to the existing highway or No Build Alternative. It is FHWA’s intention in this ROD to clarify that nowhere in its pages should the EIS make this implication, and that this potential for confusion in no way influenced the decision in this ROD.

No Parking Monitoring and Enforcement Clarification. The Final EIS indicates in certain sections that “DOT&PF would monitor use of the highway shoulder for parking by recreationists” accessing certain trailheads (e.g., p. 3-203, 3-210, 3-219). As clarification, DOT&PF will install “No Parking” signs in accordance with the commitments established in the Final EIS, but monitoring and enforcement of banned parking locations would be the responsibility of Alaska State Troopers.

Bean Creek Trail Impacts. The Section 4(f) Evaluation presents impacts to the Bean Creek Trail in Tables 4.1-1 and 4.5-1, and the Forest Service indicated that the tables did not appear to be consistent. Because of the continued confusion on this topic, Geographic Information System analysts re-examined this area with results as indicated in the following table. The corridor used in the Section 4(f) Evaluation for width of the trail “property” was 100 feet. Based on this land area:

- The historic-only segment of the trail terminating at the edge of private property west of Bean Creek is 1.43 acres.

- The recreation-only segment terminating at the extension of Slaughter Ridge Road east of Bean Creek is 5.93 acres.
- The combined historic-and-recreation segment from the junction of the other two segments north to the Resurrection Pass Trail is 24.44 acres.
- The totals are 31.81 acres for all segments, 30.37 acres for the recreation segments, and 25.87 acres for the historic segments.

The table below indicates the Section 4(f) use of these segments (overlap of anticipated highway right-of-way and trail corridor). Regarding the two Section 4(f) Evaluation tables, the acreages presented below are rounded differently but are the same totals as given in those tables. This information is meant to clarify use of the trail by the build alternatives. Map 4-5 in Chapter 4 of the EIS, the Final Section 4(f) Evaluation, may be useful in understanding the trail segments discussed here.

Acreage of Use of Bean Creek Trail by the Build Alternatives

	Cooper Cr. Alt.	G South Alt.	Two Juneau Cr. Alts.	Notes
Historic-only trail segment	0.00	0.00	0.00	Trail segment terminating at neighborhood/private property
Recreation-only trail segment	0.00	2.41	0.00	Trail segment terminating at extension of Slaughter Ridge Rd.
Historic & recreation trail segment	0.00	0.70	1.06	Trail segment “terminating” at Resurrection Pass Trail*
Totals	0.00	3.11	1.06	

* The trail continues but is called Resurrection Pass Trail. From the junction northward, the Resurrection Pass Trail also is subject to Section 4(f) protections as both an historic site and a recreation area.

Effectiveness of Wildlife Mitigation. The USFWS commented that wildlife mitigation efforts may reduce impacts to wildlife movement but will not fully mitigate impacts, and that increased levels of habitat fragmentation, habitat loss, and animal mortality from vehicle-animal collisions would remain for the Juneau Creek Alternative at a higher level than exists today. This ROD acknowledges that the wildlife mitigation proposed will not reduce wildlife impacts to zero and acknowledges USFWS’s professional opinion as managers of wildlife resources. DOT&PF and FHWA clarify for this ROD their belief that providing dedicated wildlife crossings will improve wildlife *movement* for the following reasons: the overall traffic levels in the project area will not change substantially, the “old” highway will carry substantially less traffic than it does today, the segment built on a new alignment will carry less traffic than the existing highway does today, and the new highway as a whole will have multiple dedicated wildlife crossings, which are not provided in the project area at all today. The EIS discloses that the Juneau Creek Alternative will result in permanent habitat losses and permanent new habitat fragmentation that does not exist

today. For the reasons stated above, DOT&PF and FHWA do not believe that wildlife mortality on average will be higher than today.

VI. Conclusion

This document is in conformance with applicable provisions of 23 CFR 771.127 and 40 CFR 1505.2. The EIS for the project satisfactorily addresses the anticipated environmental impacts of the project, with modest modifications as described in Section V, above. FHWA has reviewed all comments received on the Final EIS and has responded in Appendix A to substantive comments raised.

As identified in this document, all practicable means to avoid or minimize environmental harm from the Juneau Creek Alternative have been adopted. The measures to minimize harm, and the monitoring and enforcement of those commitments, will be funded and implemented.

This ROD, presents conclusions about the build alternatives and findings related to Section 4(f) and ANILCA Section 1104. Based on the analysis and evaluation contained in this project's EIS and above in this document, and after careful consideration of all social, economic, and environmental factors and input from government agencies, Tribes, and the public, I hereby select the Juneau Creek Alternative for design and construction.

May 31, 2018
Sandra A. Garcia-Aline

Date *Sandra A. Garcia-Aline, FHWA Alaska Division Administrator*