

3 Affected Environment and Environmental Consequences

Chapter 3 outlines the affected environment and environmental consequences for a wide range of resource categories spanning the human (social), physical, and biological environments. These environmental impact categories are subject to requirements specified in statutes, regulations, or executive orders, and are outlined within Federal Highway Administration (FHWA) Technical Advisory T6640.8a (1987) to be included in the analysis of an environmental impact statement (EIS). Each section includes a discussion of the affected environment to describe the base conditions and establish a baseline for analyzing the environmental impacts of the No Build Alternative and each build alternative.

Environmental consequences are outlined in terms of permanent direct and indirect impacts, temporary construction impacts, and cumulative impacts. Direct impacts are caused by the project and occur at the same time as project implementation, whereas indirect impacts are caused by the action but occur later in time or are farther removed in distance from the project. Construction impacts generally are temporary and occur solely because of construction activities. Cumulative impacts are the impacts on the environment that result from the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions (40 CFR Parts 1500-1508 2005).

These impacts are discussed for the No Build and the build alternatives. Often, environmental consequences of the build alternatives are similar in type and/or scope. Impacts common to all build alternatives are presented, and impacts specific to each build alternative follow. Chapter 3 tables and figures appear as they are cited in the text; maps follow each section. The project area is outlined on most of the maps referenced throughout Chapter 3 and is described in Chapter 1.

Certain resource categories are not addressed in this document either because they are not present or because their potential for impact is inconsequential. The following paragraphs summarize the resource categories that were deemed non-issues and the justification for removing them from further analysis.

Farmland. No prime farmland, unique farmland, or farmland of statewide importance has been designated in Alaska. Project alternatives would have no direct, indirect, construction, or cumulative impacts on farmlands or agriculture.

Joint Development. The proposed project would not be planned, developed, or constructed in conjunction with any other projects.

Wild and Scenic Rivers. No designated Wild and Scenic Rivers occur in the project area; however, portions of the Russian River have been recommended by the Forest Service, U.S. Department of Agriculture (Forest Service) for designation as a Recreational and Wild River as classified under the Wild and Scenic Rivers Act of 1968 (Johansen, personal communication 2011). None of the alternatives would affect the portions of the Russian River recommended as a Recreational and Wild River.

Coastal Barriers. No coastal barriers that provide protection for diverse aquatic habitats are located in Alaska. Project alternatives would have no impacts on coastal barriers.

Threatened and Endangered Species. No Federally designated threatened or endangered species of plants or animals occur in the project area. Further discussion of species of concern appears in Section 3.20, Wetlands and Vegetation, and Section 3.22, Wildlife.

3.1 Land Ownership and Land Use

Section 3.1 discusses land ownership and general land use patterns in the project area. More specific discussion of land use plans and policies appears in Section 3.2.

3.1.1 Affected Environment

3.1.1.1 Overview

The Kenai Peninsula Borough (Borough) is located in Southcentral Alaska. Cook Inlet is a major body of Pacific Ocean seawater that bisects the Borough and defines the northwestern side of the Kenai Peninsula (see Map 3.1-1). About 53 percent of the land within the Borough is on the Kenai Peninsula, and the remaining 47 percent lies on the west side of Cook Inlet. The majority of the population resides on approximately 20 percent of the land area and is concentrated primarily along the Kenai Peninsula coast and major river systems.

The Sterling Highway MP 45–60 project area is rural with low human population density. Land use on all lands, including Chugach National Forest (CNF) and Kenai National Wildlife Refuge (KNWR), is primarily undeveloped. Limited residential and commercial development occurs primarily near the outlet of Kenai Lake, between approximately Milepost (MP) 47 through 49 (Map 3.1-2). The undeveloped areas include subalpine forests, mountains, and rivers. The primary use of these undeveloped areas is recreational land uses and wildlife habitat (Forest Service 2002a). Residential development is limited almost exclusively to the unincorporated community of Cooper Landing. Commercial establishments cater primarily to tourism and recreational fishing. Minor logging and mining also occur on private property and CNF lands.

The total land area of the Borough is 10.5 million acres, and the Federal government owns 6.8 million acres, or 65 percent of that land. The State owns or will own 2.2 million acres, or 21.3 percent of Borough, and the State has designated 25 percent of State-owned land as State parks and game refuges or Critical Habitat Areas. The Borough owns 73,802 acres, or 0.7 percent of the land. In the private sector, village and regional Native corporations own approximately 1 million acres or 11 percent of the land and have title to 230,000 acres of the subsurface estate.

Approximately 95 percent of the 13,500 acres of land¹ situated within the Sterling Highway MP 45–60 project area is publicly owned. Five percent is privately owned. Map 3.1-3 and Table 3.1-1 show land ownership in the project area by government agency or private entity.

¹ The Borough parcel database includes data primarily for uplands. The total acreage of lands in the database is 13,500. Including the submerged lands of Kenai Lake and Kenai River and the acreage contained in the Alaska Department of Transportation and Public Facilities roadway easements, the total acreage within the project area is 14,961.

Table 3.1-1. Land ownership and land use in the project area

Land Ownership or Use	Acreage	Percent of Project Area (%)
Federal	9,046	66.8
Forest Service (CNF)	6,161	45.5
Institutional ^a	122	0.9
Vacant	6,039	44.6
USFWS (KNWR)	2,885	21.3
Vacant	2,885	21.3
State^b	1,722	12.7
Residential	38	0.3
Institutional ^a	9	0.1
Vacant	1,675	12.4
Borough	2,010	14.9
Residential	36	0.3
Institutional ^a	5	-
Vacant	1,969	14.6
Native (Cook Inlet Region, Inc.)	60	0.4
Vacant	60	0.4
Private	698	5.2
Commercial	103	0.8
Institutional ^a	23	0.2
Residential	476	3.5
Vacant	96	0.7
Total	13,537	100.0

Source: Kenai Peninsula Borough (2015). Geographic Information System (GIS) analysis by HDR.

^a Educational, religious, health, and government facilities

^b Acreage totals are based on 2015 Borough parcel data. Road easements and the Kenai River and Kenai Lake are not counted in this total; the project area is approximately 14,961 acres in total.

3.1.1.2 Federal Ownership and Land Uses

Federal lands in the project area are managed by two Federal agencies, the U.S. Department of Agriculture (USDA) and the U.S. Department of the Interior (DOI). USDA lands are managed by the Forest Service as CNF, and DOI lands are managed by the U.S. Fish and Wildlife Service (USFWS) as the KNWR (see Map 3.1-3). The CNF is the nation’s second-largest national forest, encompassing 5.6 million acres. The project area contains approximately 6,086 acres of CNF land. CNF extends from the Kenai Peninsula eastward to Cordova and the Copper River Delta. The Sterling Highway passes through CNF land in a right-of-way of highly variable width. In some areas, the United States reserved easements when transferring lands to the State of Alaska or Alaska Native corporations. These include West Juneau Creek Road (minimally improved

logging road) west of Juneau Creek, Bean Creek Trail and old logging road easements east of Juneau Creek, and a 50-foot-wide public access/public recreation easement along the Kenai River on CIRI Tract B (see also Section 3.1.1.5 below).

KNWR lands lie mainly on the western slopes of the Kenai Mountains and the forested lowlands bordering Cook Inlet. In the project area, the Sterling Highway lies within the KNWR between MP 55 and MP 58, within a right-of-way easement. The State of Alaska owns land rights for maintenance and operation of the Sterling Highway. The history of the establishment of the right-of-way is complex and the subject of a legal opinion from the Alaska Attorney General's office (Sullivan and Goldsmith 2014). The State and USFWS agree that a right-of-way exists and that it passed to the State of Alaska at statehood in 1959 (DOT&PF 2014a). There is a separate 1971 right-of-way agreement between USFWS and the State that provides additional information on rights and responsibilities to manage and approve transportation work within the right-of-way.

Approximately 21 percent of the project area (2,885 acres) is KNWR lands. Outside the existing Sterling Highway right-of-way and parallel power transmission line, the portion of the project area within the KNWR is primarily undeveloped land. The KNWR area north of the power transmission line is the Mystery Creek Wilderness, a Federally designated Wilderness area. South of the highway and Kenai River is another KNWR Wilderness unit, the Andrew Simons Wilderness. The USFWS manages Wilderness to preserve the pristine and unmodified character of these areas under provisions of The Wilderness Act (16 USC 23) and the Alaska National Interest Lands Conservation Act (ANILCA).

3.1.1.3 State Ownership and Land Uses

Lands owned by the State of Alaska are shown on Map 3.1-3. In addition, there are lands selected by the State but not yet conveyed from the Federal government, and these are shown along with State-owned lands on Map 3.2-4, following Section 3.2, Land Use Plans and Policies. Various land management units are designated within the *Kenai Area Plan for State Lands* (DNR 2001), and larger units are shown on the maps. Based on Borough Geographic Information System (GIS) parcel data, approximately 1,722 acres of State-owned land are within the project area, and the majority of this land is undeveloped. The project area also contains the Kenai River and Kenai Lake, which the State of Alaska asserts are State-owned submerged lands, except within the KNWR boundary, where the United States owns submerged lands. A Federal court has not adjudicated title to the bed of the Kenai River and Kenai Lake within the CNF boundary. Unless a Federal court has adjudicated title to the bed of such a body of water and determined the bed to be in non-Federal ownership, Forest Service policy is to depict title to beds of water bodies in land status records as National Forest System submerged riparian land. These lands are not included in the Borough parcel records. The State considers the submerged lands to be among the most prominent State lands in the area, as the Alaska Legislature has designated them as a unit of the State park system called the Kenai River Special Management Area (KRSMA). The State also owns several other parcels dedicated to specific public uses, including the Cooper Landing and Sportsman's Landing public boat launch ramps on the Kenai River, several small recreation sites, and a 2,200-foot-long gravel runway (Unit 398) off Quartz Creek Road (Quartz Creek Airport; (DNR 2001)). The State owns land rights for transportation purposes within the existing Sterling Highway right-of-way on CNF and KNWR and on other lands in the project area.

The State of Alaska land holdings in the project area include Management Unit 395 (labeled on Map 3.2-4). Unit 395 is noted in the *Kenai Area Plan* as likely land for settlement (DNR 2001). Final disposition of this parcel to the Kenai Peninsula Borough for settlement is partly dependent on this project. The State also selected Unit 394B just west of Cooper Creek, but it remains Federally owned and managed by CNF. Sections 3.2.1.5 and 3.2.1.6, in Land Use Plans and Policies, further describe the planning intent related to Units 394B and 395.

Most other State lands are managed as if they were part of KRSMA and are recommended for addition to KRSMA. The Alaska Legislature to date has not acted to formally include these lands in KRSMA.

3.1.1.4 Kenai Peninsula Borough Ownership and Land Uses

Borough lands in the project area were acquired primarily from the State of Alaska under the Mandatory Borough Act of 1964 and the Municipal Land Entitlement Act of 1978. The Borough was able to select 156,000 acres of State land under these acts, and Borough selections include lands in and around the unincorporated community of Cooper Landing (KPB 2005b). The Borough currently owns about 15 percent (2,010 acres) of the land in the project area. See Map 3.1-3.

The Birch and Grouse Ridge Subdivision was developed as part of the 2005 Borough land sale and has increased residential housing in the Cooper Landing area (Map 3.1-4). Portions of this subdivision are platted for residential lots and access roads, but the Borough has not yet completed the road (Slaughter Ridge Road, Cecil Road) or offered the lots for sale. Other Borough land sales include the development of the Russian Gap Subdivision, just outside the project area to the east, in 2001.

3.1.1.5 Private Ownership and Land Uses, Including Native Corporation Lands

The project area contains 698 acres of private property, mostly clustered around the Cooper Landing Bridge and Bean Creek Road, and around Quartz Creek near the eastern end of the project area. Approximately 86 percent of the privately owned land within the project area contains some type of structure, primarily residences, and the remaining 14 percent is vacant.

The Alaska Native Claims Settlement Act (ANCSA) formed regional and village Native corporations across Alaska. Cook Inlet Region, Inc. (CIRI) is the regional corporation in the project area. Native corporation lands are private lands that warrant special mention.

CIRI lands within the project area, as shown on Map 3.1-3, include Tract A near MP 55 and Tract B near MP 53. Disputes over Native land claims—specifically, CIRI’s claims made under Section 14(h)(1) of ANCSA for “existing cemetery sites and historical places”—were resolved through the Russian River Land Act passed by Congress (Pub. L. 107-362 2002). Under an agreement ratified by the act, CIRI received a 42-acre parcel immediately north of Sportsman’s Landing (Tract A) and a 20-acre parcel immediately east of Schooner Bend Bridge (Tract B), as well as title to a broad area (approximately 500 acres) of the archaeological estate of the Sqilantnu Archaeological District. CIRI, the Kenaitze Indian Tribe, and the Forest Service have indicated Tracts A and B have very high cultural value as core lands of the Sqilantnu Russian River Confluence Site, treated as a Traditional Cultural Property, and as part of the broader Sqilantnu Archaeological District (see Section 3.9 and Map 3.9-1). The Russian River Land Act agreement provides for access easements across CNF lands to the 42-acre parcel from the existing Sterling Highway or a realigned Sterling Highway, or both (DOT&PF was not a party to

the agreement). As outlined in the agreement, CIRI has plans to develop an archaeology research center, visitor center (to operate jointly with the Forest Service and the KNWR), and lodge near the Russian River-Kenai River confluence on Tract A. No specific plans or timeline are known regarding development. On Tract B, the United States reserved a 50-foot-wide CNF easement along the Kenai River to allow for continued public access and river-oriented recreation.

The Russian River Land Act agreement provided for CIRI and the U.S. Secretary of Interior to undertake a land exchange of KNWR lands, including designated Wilderness lands, for CIRI lands valuable to the KNWR. No further Congressional action would be necessary to undertake such an exchange. The agreement identifies “lands within the Kenai National Wildlife Refuge located north of, and immediately bordering the Sterling Highway” as one of two possible areas for land exchange. Up to 3,000 acres may be exchanged. CIRI’s original selections in this area were at the far eastern edge of the KNWR and therefore effectively adjacent to the area of the 42-acre parcel on adjacent CNF land. According to the agreement, land added to the KNWR “must be found by the [US]FWS to be of higher value fish and wildlife habitat than those lands to be conveyed to CIRI in exchange.” The agreement also includes the authority “to remove lands conveyed to CIRI from the Kenai Wilderness Area and the Kenai National Wildlife Refuge” and to include qualifying lands acquired from CIRI in the Kenai Wilderness Area. The agreement ratified by Congress authorizes a change to the official boundary of the KNWR and Wilderness areas to include new areas acquired by DOI and to exclude lands acquired by CIRI. No exchange has occurred to date, although CIRI has requested in writing (CIRI 2017) that the land exchange be undertaken, and the DOI has indicated in writing (DOI 2017) a commitment to undertake the exchange if the Juneau Creek Alternative is selected. See also discussion in Section 3.27.4. Previously, CIRI had formally requested (Cunningham 2010) continued consideration of the Juneau Creek Alternative that would pass through a portion of the KNWR area identified as exchangeable lands.

3.1.2 Environmental Consequences

3.1.2.1 No Build Alternative

Direct and Indirect Impacts

Under the No Build Alternative, no land acquisition for right-of-way would be necessary (land acquisition as a result of the routine maintenance actions is discussed in Section 3.27, Cumulative Impacts). This alternative would not directly affect any private land use or development, and no acquisition of public lands would be required. Other regional transportation improvements in the Borough, such as the improvements to the Sterling Highway between MP 58 and 79, would be expected to be implemented as programmed in the Statewide Transportation Improvement Program. Due to population growth and transportation projects occurring in the future, land ownership and land use patterns would continue to change according to adopted local land use plans under the No Build Alternative.

No change in ownership is expected under the No Build Alternative, and no land use changes would be induced by selection of the No Build Alternative.

3.1.2.2 Issues Applicable to the Build Alternatives

This section describes impact issues common to all build alternatives. Although the actual impacts may differ among the build alternatives, as described in the following alternative-

specific sections, this section presents a summary of acreages of impact by land owner and presents common background.

Federal, State, Borough, and Private Land Ownership

All build alternatives would directly incorporate private and public lands into a new and expanded highway right-of-way, conferring an interest in land ownership to the Alaska Department of Transportation and Public Facilities (DOT&PF) and in many cases converting land use to a transportation use instead of another use, such as recreation, wildlife habitat, or residential development. The project alternatives would require 2–3 percent of the **over** 13,500 acres of land in the area (see Map 3.1-3).

Table 3.1-2 shows the acreage of land under each build alternative that would be acquired for highway right-of-way, and the type of land owner impacted. Federal land used would remain under Federal ownership, and a highway easement would be conveyed to the State. The DOT&PF would acquire the non-Federal lands needed for the right-of-way. Private land owners and the Borough would be compensated for lands required for highway right-of-way at fair market value in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended.

Table 3.1-2. Lands required for build alternatives

Ownership (approximate project area acreage ^a)	Land Required (acreage, % of total by ownership)							
	Cooper Creek		G South		Juneau Creek		Juneau Creek Variant	
Federal (9,046)	54	<1%	88	1%	165	2%	125	1%
Forest Service	54	<1%	88	1%	132	1%	125	1%
USFWS	-	-	-	-	33	<1%	-	-
State (1,722)	7	<1%	42	3%	89	5%	91	5%
Borough (2,010)	95	5%	127	6%	130	6%	130	6%
Native—CIRI (60)	-	-	-	-	-	-	12	19%
Private (698)	53	8%	1	<1%	1	<1%	1	<1%
Total (13,537)^b	209	2%	259	2%	385	3%	360	3%

^a Borough parcel data do not align perfectly with project aerial photography and project engineering, which have a higher level of accuracy. For this reason, GIS analysis that compares the project right-of-way with Borough parcels is approximate in this table and has been modified to align with preliminary engineering data. Acquisition data by parcel are presented in Appendix B of this EIS.

^b Table updated to reflect changes from the Draft SEIS to include impacts due to mitigation commitments, minor errors, and/or additional avoidance measures. Acreage numbers are rounded and therefore may not sum to total.

As indicated in Table 3.1-2, all alternatives would use National Forest System lands. FHWA has a nationwide agreement with the Forest Service for appropriation of National Forest System lands. Such appropriation of land is subject to conditions the Forest Service deems necessary for use and adequate protection of these lands and for protection of the public interest. See also Permits, in Section 3.24. Mineral, vegetation, and other unusable resources removed from CNF lands and intended for disposal would be subject to Forest Service conditions even if the project proposes to dispose of the materials on lands owned by others.

Table 3.1-3 presents, by land use, the amount of land that would be converted to transportation use within the project area. As indicated in the table, most of the acreage required for any of the alternatives is vacant. Section 3.4 discusses housing and relocation associated with private land impacts, and Section 3.5 discusses commercial property/business (economic) impacts.

Table 3.1-3. Land uses converted to transportation use

Land Use (approximate project area acres)	Right-of-Way Acquired (acres, project area %)							
	Cooper Creek		G South		Juneau Creek		Juneau Creek Variant	
Commercial (103)	<1	1%	-	-	-	-	-	-
Institutional (159)	<2	1%	-	-	-	-	-	-
Residential (550)	38	7%	<3	<1%	<3	<1%	<3	<1%
Vacant (12,724)	169	1%	256	2%	381	3%	357	3%
Total (13,537)^a	209	2%	259	2%	384	3%	360	3%

^a Acreage numbers are rounded and therefore do not sum to total.

State Land Use

A State land issue applicable to all alternatives, but in different ways, is the disposition of Management Unit 395. As described in Section 3.1.1 and mapped in Section 3.2 as Map 3.2-4, this unit has been identified in the *Kenai Area Plan* as a potential settlement area (DNR 2001). As a cooperating agency for this project, the Department of Natural Resources (DNR) indicated that its Final Finding and Decision conditionally approved conveyance of the 1,087-acre Unit 395 to the Kenai Peninsula Borough (Borough), but postponed transferring management authority to the Borough until the alignment of this project is determined and a specific route identified. The *Kenai Area Plan* is quoted and thoroughly discussed in Section 3.2.1.5 of Land Use Plans and Policies. The *Kenai Area Plan* assumed that this project would provide improved access to the property, and thereby could influence residential growth on Unit 395.

However, DOT&PF proposes to reserve roadway access rights by creating a controlled access facility on all new segments of all build alternatives. Ingress/egress would be regulated, and any new access points would need to address regional transportation needs. No driveways or side roads would be allowed direct access to the new highway (except for those planned as mitigation as a part of this project, such as trailhead access).

Under any alternative, the intention is that the DNR or the Borough could apply for a driveway permit for connection to the “Old Sterling Highway” or to a segment of the selected alternative that was built on new alignment using ramps, and this would allow access to Unit 395. Development of Unit 395 may occur depending on DNR, the Forest Service, and Borough actions independent of this project, and these reasonably foreseeable scenarios are addressed under Section 3.27, Cumulative Impacts.

Private and Native Corporation Lands (Russian River Land Act)

A second issue broadly applicable to all build alternatives is the potential interplay between CIRI lands and the project. The Russian River Land Act resulted in CIRI taking ownership of a 42-acre parcel (Tract A) and a 20-acre parcel (Tract B) of CNF land near the CNF’s western boundary. Map 3.1-3 shows the locations of these parcels, near MP 55 and MP 53, respectively.

Under any alternative, including the No Build Alternative, the provisions of the Russian River Land Act could lead to CIRI's planned development of an archaeological research center and visitors' center, and possibly a lodge on the bluff above Sportsman's Landing near MP 55 on Tract A. CIRI's development may affect the final design of this project, or the project may affect the access and site layout for the CIRI development, as further described under each alternative, below.

The Russian River Land Act also provided for CIRI and USFWS to conduct a land exchange of Federal Wilderness lands to the west of Tract A on KNWR land without further Congressional approval if the exchange was beneficial to both parties and there was no net loss of Wilderness lands and values. CIRI and DOI have indicated the exchange would take place if the Juneau Creek Alternative were selected. Nothing prevents the land exchange from occurring if other alternatives are identified as the preferred alternative. Under any alternative, including the No Build Alternative, an exchange would alter the land ownership pattern and would change KNWR land status from Federally designated Wilderness (with the protections that designation affords) to more easily developable private land. This potential change in status has had Congressional approval since 2002. This project has spurred the two parties to address the land exchange. The change could affect the potential for land development near one of the most popular recreation points along the Kenai River and highway (Sportsman's Landing/Russian River Ferry), where the Russian and Kenai rivers meet, but CIRI and DOI have indicated in project meetings that the land trade would be intended only to accommodate the project and not to provide CIRI with other developable lands.

The impact analyses presented in Sections 3.1 through 3.26 are based on current land status in the KNWR. Section 3.27, Cumulative Impacts, addresses the land swap as a reasonably foreseeable future action for the Juneau Creek Alternative only (see in particular 3.27.4.3 and 3.27.7). Chapter 4, which considers KNWR as a Section 4(f) property, takes the exchange of KNWR land for CIRI land into account.

Resolution of Land Use Issues

Another general land use topic applicable to all build alternatives is resolution of land use issues. Like the *Kenai Area Plan* and *Russian River Lands Act* discussed above, many of the local, State, and Federal land use plans for the project area hinge in part on whether and where any new sections of the Sterling Highway MP 45–60 Project will be built. Under any alternative, a project decision would help reduce the uncertainty in the area regarding land use, particularly on State, Borough, and CIRI lands. With a Sterling Highway decision, land managers could manage and plan for use of their lands accordingly. See the discussion of specific land use plans in Section 3.2.

Construction Impact Issues Applicable to All Build Alternatives

Table 3.1-4 indicates acreage of lands needed from the various owners of public land for construction related activity. This is for construction staging areas, temporary access roads, and material disposal sites (for vegetation, organic soils, and other soils not soil and material not useful in construction). While parts of some of these areas would overlap the project right-of-way, these areas would be principally outside the proposed project right-of-way for each of the build alternatives. These areas would be located on public lands and would change the appearance of and later use potential or use pattern of the lands. Important impacts to land use

are noted under discussion of each alternative in the sections below. Map 2.5-7 in Chapter 2, Alternatives, illustrates these areas.

Table 3.1-4. Estimated land use construction impacts

Alternative	Total Area^a (acres)	Number of Staging Areas, Acreage	Disposal Sites^b Acreage, Ownership	Temporary Access Road (acres)
No Build	0	NA	NA	NA
Cooper Creek	62.9	8 areas, 11.1 acres	5.1, Forest Service 43.9, Borough	2.8
G South	79.8	9 areas, 19.9 acres	30.2, Forest Service 27.2, State	2.5
Juneau Creek	73.3	4 areas, 22.1 acres	19.9, State 27.2, State	4.1
Juneau Creek Variant	73.3	4 areas, 22.1 acres	19.9, State 27.2, State	4.1

^a Construction area totals include sites located both within and outside of proposed rights-of-way.

^b Disposal areas are for cleared vegetation and soils that cannot be used for construction.

3.1.2.3 Cooper Creek Alternative

Direct and Indirect Impacts

The amount of land by ownership that would be acquired for the highway right-of-way for the Cooper Creek Alternative is presented in Table 3.1-2. Land that would be acquired for right-of-way associated with the segment built on a new alignment is split between Borough lands, with the most acreage, followed by private lands, and then by Federal lands. A small amount of State land would be used. The other segments of the Cooper Creek Alternative, where it would follow the existing alignment, would use relatively small amounts of public and private lands for widening and realigning.

Public access to lands along the segment built on a new alignment would be limited to a new pullout trailhead at Stetson Creek Trail (see Section 3.8, Park and Recreation Resources, and Chapter 4, Section 4(f) Evaluation). In portions of the reconstructed Sterling Highway, access to existing driveways and side streets would be maintained and adjacent properties could develop new access points, just as they can today or under the No Action Alternative.

Federal Lands. As indicated in Table 3.1-2, CNF lands would be overlain with a DOT&PF transportation easement, and land use would convert to transportation. FHWA has a nationwide agreement with the Forest Service for appropriation of national forest lands; see also Permits (Section 3.24). Effects to land management plans and policies are addressed in Section 3.2. The 50-foot-wide public access easement along the Kenai River held by the Forest Service on CIRI Tract B would not be affected.

State Lands. This alternative would require sliver acquisitions along State lands on the north shoreline of Kenai Lake (identical for all build alternatives), a partial acquisition of the parcel on

the northwest side of the existing Cooper Landing Bridge, and partial acquisition of a parcel adjacent to Cooper Creek.

Borough Lands. A 43.9-acre disposal area for vegetation and soils that cannot be used in the road construction would be located on vacant Borough land classified in part for potential future residential use. This disposal area would be located just east of the proposed Cooper Creek Bridge (see Map 2.6-8, following Chapter 2, and Map 3.2-6, following Section 3.2). A permit would be necessary to dispose of earth materials at this location, but DOT&PF would not acquire the property. While land ownership would not be expected to change, the planned land use pattern likely would change, which could have an adverse effect on planned community growth and development. Use of a large area of reasonably flat land for disposal of unusable material could make it difficult to later use the land for roads and residences or other community purposes. Use of these lands for transportation-related material disposal would require some re-planning by the Borough and could slightly limit the overall growth potential of Cooper Landing.

Because DOT&PF would reserve roadway access rights along the segment of the Cooper Creek Alternative built on a new alignment, the alternative would not indirectly induce community growth and land use changes in the project area because access to previously inaccessible land would not be provided.

Private and Native Corporation Lands. As indicated in Table 3.1-2, the Cooper Creek Alternative would use private land within Cooper Landing. Right-of-way requirements for the Cooper Creek Alternative would result in 38 private parcel acquisitions: 16 parcels with full acquisitions and 22 parcels with partial acquisitions. Two partial private parcel acquisitions at the east end of the alignment, on the north side of Kenai Lake, are common for all build alternatives. The associated housing and economic impacts are discussed in Sections 3.4 and 3.5, respectively. Early designs of the Cooper Creek Alternative used slivers of land from CIRI Tract A and CIRI Tract B. Design modifications have eliminated any impact to these lands.

Construction Impacts

A temporary access road and bridge construction staging area would be necessary in the Cooper Creek valley and would be removed and replanted following construction. See Table 3.1-4.

Other minor land impacts are likely to occur in limited locations during construction where construction may need to occur outside the new highway right-of-way, usually immediately adjacent to the right-of-way. For all such areas, DOT&PF or the construction contractor typically would negotiate a temporary construction easement or permit from the land owner.

Mitigation

Private and Borough land owners would be compensated at fair market value for land and residences acquired by the project. See the discussion under Section 3.4, Housing and Relocation.

3.1.2.4 G South Alternative

Direct and Indirect Impacts

The amount of land by ownership that would be acquired for the highway right-of-way for the G South Alternative is presented in Table 3.1-2. It is comprised of Borough lands (with the most acreage), followed by Federal lands, and then by State lands. This would result in a change in

public land ownership from current uses to transportation uses. Few private lands and no Native corporation land would be acquired.

Public access to lands along the segment built on a new alignment would be limited to a new trailhead for the Bean Creek Trail (see Section 3.8, Park and Recreation Resources, and Chapter 4, Section 4(f) Evaluation). In segments of the alternative built on the existing alignment, access to existing driveways and side streets would be maintained, and adjacent properties could develop new access points, just as they can today or as they could under the No Build Alternative.

Federal Lands. As indicated in Table 3.1-2, CNF lands would be overlain with a DOT&PF transportation easement, and land use would convert to transportation. FHWA has a nationwide agreement with the Forest Service for appropriation of national forest lands; see also Permits (Section 3.24). Lands in the lower Juneau Creek area are of concern to the Forest Service as bear habitat, discussed below under Construction Impacts and in more detail in Section 3.22, Wildlife. Effects to land management plans and policies are addressed in Section 3.2. The 50-foot-wide public access easement along the Kenai River held by the Forest Service on CIRI Tract B would not be affected. This alternative would cross an easement held by the Forest Service for Bean Creek Trail on State lands; see Mitigation, below.

State Lands. This alternative would require sliver acquisitions of State lands along the north shoreline of Kenai Lake (identical for all build alternatives) and would use State lands around Juneau Creek that are proposed additions to KRSMA.

Borough Lands. A platted cul-de-sac and two platted lots (not yet sold) at the Birch and Grouse Ridge Subdivision would be acquired for the project and could not be developed. Also, the platted northern extension of Slaughter Ridge Road would be bisected and likely could not be completed as planned. About five lots would be halved and might need to be re-platted to keep them from being too small for practical development. Reservation of access rights (no driveway or side road connections) on the segment of this alternative built on a new alignment also would mean that lots with highway frontage could not get access from the new highway segment. See Map 3.1-4 for an overview of the location of these impacts. Additional details can be found in the *Conceptual Stage Relocation Study* (Appendix B of the EIS) and the *Preliminary Engineering Report* (HDR 2014a). The use of these lands for the G South Alternative may require re-platting and would reduce lot sizes and the number of lots available. The lots would be adjacent to the main highway instead of rural lots near the end of Slaughter Ridge Road (access still would be from Slaughter Ridge Road). Because DOT&PF would reserve access rights along the segment of the G South Alternative built on a new alignment, the alternative would not induce community growth and land use changes in the project area because access to previously inaccessible land would not be provided.

Private and Native Corporation Lands. The G South Alternative would use about 1 acre of private land. Right-of-way requirements for the G South Alternative would include portions of two private parcels on the east end of the alignment that are common to all build alternatives and portions of two additional private parcels as the alternative swings north of the community. Early designs of the G South Alternative used slivers of land from CIRI Tract A and CIRI Tract B. Design modifications have eliminated any impact to these lands.

Construction Impacts

As indicated a few paragraphs above, land along lower Juneau Creek managed mostly by the Forest Service and in part by the State would be used for construction of the Juneau Creek Bridge. This would include a temporary construction access road, a bridge construction staging area at the creek, and a large area for disposal of vegetation and soils not useable in road construction (see Map 2.5-7). Land outside the proposed highway right-of-way would be expected to remain in Federal ownership, but the surface appearance and land use pattern may change. This area is of concern to the Forest Service and the Alaska Department of Fish and Game as important bear habitat, as further discussed in Section 3.22, Wildlife.

Other minor land impacts are likely to occur in limited locations during construction where construction may need to occur outside the new highway right-of-way, usually immediately adjacent to the right-of-way.

For all such areas, DOT&PF or the construction contractor typically would negotiate a temporary construction easement or permit from the land owner.

Mitigation

Private and Borough land owners would be compensated at fair market value for land acquired by the project. Mitigation of impact to CNF lands west of Juneau Creek is discussed in Section 3.22, Wildlife. Mitigation for crossing a CNF easement for the Bean Creek Trail would be provided for continued trail use via an undercrossing of the highway. See also Section 3.8, Parks and Recreation, and Section 4.6 of the Section 4(f) Evaluation.

3.1.2.5 Juneau Creek Alternative

Direct and Indirect Impacts

The amount of land by ownership that would be required for the highway right-of-way for the Juneau Creek and Juneau Creek Variant alternatives is presented in Table 3.1-2. Land that would be required is comprised of Federal lands, with the most acreage, followed by Borough lands, and then by State lands. The Juneau Creek Alternative (the preferred alternative) would require about 1 acre of private land.

Public access to lands along the segment built on a new alignment would be limited to a new trailhead for the Resurrection Pass Trail and a pullout east of Juneau Creek Canyon (see Section 3.8, Park and Recreation Resources, and Chapter 4, Section 4(f) Evaluation).

Federal Lands. As indicated in the table, Forest Service and USFWS lands would be overlain with a DOT&PF transportation easement, and land use would convert to transportation. FHWA has a nationwide agreement with the Forest Service for appropriation of national forest lands; see also Permits (Section 3.24). Use of KNWR lands, including designated Wilderness, were it to be needed, would require following the authorization process promulgated under ANILCA Title XI. The same process is assumed for use of the Resurrection Pass Trail on CNF lands. See the discussion of Title XI in Section 3.2. See Section 3.2 also for land management plan implications in general. Land use patterns on CNF lands likely would change, particularly regarding the Resurrection Pass Trail. See the Parks and Recreation section (3.8) and Chapter 4, Section 4(f). This alternative would cross Forest Service logging road easements across State lands west of Juneau Creek (see Mitigation, below).

State Lands. The Juneau Creek Alternative would require sliver acquisitions of State lands on the north shoreline of Kenai Lake (identical for all build alternatives). In addition, this alternative would pass through and use land from State Management Unit 395. A disposal site is proposed in this area for vegetation and soils that cannot be used in project construction. The highway right-of-way and the separate disposal site would reduce the amount of land available for potential residential development within Unit 395. The alternative would not provide access directly to this area of State land; access potential would remain as it is today from the existing (“old”) Sterling Highway. This is consistent with the intent of the *Cooper Landing Land Use Classification Plan*, which calls for “NO access to or from the new alignment other than the departure from the existing road at either end of the bypass” (CLAPC 1996); emphasis in the original document). DOT&PF would build a bridge or use a large culvert to separate traffic on the Forest Service’s West Juneau Creek Road from the highway traffic, with no direct connection between the two, thereby maintaining existing conditions. The Forest Service, in its capacity as a cooperating agency, indicated a better Forest management decision might be to allow a direct connection from either of the Juneau Creek alternatives to Unit 395. It would be possible in the future for DNR or the Borough to request such a connection. At the Forest Service’s request, provision of access consistent with controlled access is evaluated as a reasonably foreseeable future action and therefore cumulative impact. See Section 3.27.

Borough Lands. A platted cul-de-sac and two platted lots (not yet sold) at the Birch and Grouse Ridge Subdivision would be acquired for the project and could not be developed. Also, the platted northern extension of Slaughter Ridge Road would be bisected and likely could not be completed as planned. About five lots would be halved and might need to be re-platted to keep them from being too small for practical development. Reservation of access rights (no driveway or side road connections) on the segment of this alternative built on a new alignment also would mean that lots with highway frontage could not get access from the new highway segment. Map 3.1-4 provides an overview of the location of these impacts. Additional details can be found in the *Updated Conceptual Stage Relocation Study* (Appendix B of this EIS) and the *Preliminary Engineering Report* (HDR 2014a). The use of these lands may require re-platting and would reduce lot sizes and the number of lots available. The lots would be adjacent to the main highway instead of rural lots near the end of Slaughter Ridge Road (access still would be from Slaughter Ridge Road). Because DOT&PF would reserve access rights along the segment built on a new alignment, the alternative would not indirectly induce community growth and land use changes in the project area because access to previously inaccessible land would not be provided.

Private and Native Corporation Lands. The Juneau Creek Alternative would use about 1 acre of private land. Right-of-way requirements for the alternative would impact a small portion of four individual private parcels. Two of the four parcels are located at the eastern end of the alignment, north of the Kenai River, and are common with all build alternatives. The other two parcels are located where the alternative heads north to route around the community. The Juneau Creek Alternative would not require any acquisition of Native corporation lands.² The new highway would run immediately adjacent to the northern boundary of CIRI Tract A (see Map 3.1-3). There would be no change in CIRI’s ability to get access to the parcel from the existing

² Note that a pending land trade between CIRI and DOI is reasonably foreseeable if the Juneau Creek Alternative is selected. This would change the land ownership patterns. This change is evaluated as a cumulative impact. See Section 3.27 for more information.

“old”) highway. The RRLA grants access to CIRI to the new highway alignment. Such access would need to be done in accord with DOT&PF design standards through their driveway permitting process. The access would need to secure its own environmental/permit approvals.

Construction Impacts

Estimated impacts are presented in Table 3.1-4, above. A material disposal site on State land about 2 miles west of Juneau Creek and another located east of Juneau Creek would change the surface appearance of the land but not land ownership, and there would be no substantial change in land use in these mostly undeveloped areas. A staging area within several hundred feet west of Juneau Creek is proposed to be moved into the Juneau Falls Recreation Area and combined with development of a new trailhead there to avoid clearing, development, and wetland impacts in two locations—see the mitigation discussion in Section 4.6.8.

Other minor land impacts are likely to occur in limited locations during construction where construction may need to occur outside the new highway right-of-way, usually immediately adjacent to the right-of-way.

For all such land uses, DOT&PF or the construction contractor typically would negotiate a temporary construction easement or permit from the land owner.

Mitigation

Private and Borough land owners would be compensated at fair market value for land acquired by the project. 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 CNF lands.

3.1.2.6 Juneau Creek Variant Alternative

Direct and Indirect Impacts

The amount of land by ownership that would be required for the highway right-of-way for the Juneau Creek Variant Alternative is presented in Table 3.1-2. Land that would be required is comprised of Borough lands, with the most acreage, followed by Federal lands, and then State lands. The Juneau Creek Variant Alternative would require approximately 13 acres of land under private or Native ownership, 12 acres of which would be acquired from the CIRI-owned Tract A parcel near existing MP 54.5 (see Map 3.1-3).

Public access to lands along the segment built on a new alignment would be limited to a new trailhead for the Resurrection Pass Trail and a pullout east of Juneau Creek Canyon (see Section 3.8, Park and Recreation Resources, and Chapter 4, Section 4(f) Evaluation).

Federal Lands. As indicated in Table 3.1-2, CNF lands would be overlain with a DOT&PF transportation easement, and land use would convert to transportation. FHWA has a nationwide agreement with the Forest Service for appropriation of national forest lands; see also Permits (Section 3.24). Use of the Resurrection Pass Trail on CNF lands would follow the authorization process under ANILCA Title XI. See the discussion of Title XI in Section 3.2. There would be no use of USFWS land outside the existing highway right-of-way, and therefore no land ownership or land use impact. This alternative would cross Forest Service logging road easements across State lands east and west of Juneau Creek (see Mitigation, below).

State Lands. The Juneau Creek Variant Alternative would require sliver acquisitions of State lands on the north shoreline of Kenai Lake (identical for all build alternatives). In addition, this alternative would pass through and use land from State Management Unit 395. A disposal site also is proposed in this area for vegetation and soils that cannot be used in project construction. The highway right-of-way and the separate disposal site would reduce the amount of land available for potential residential development within Unit 395. The alternative would not provide access directly to this area of State land; access potential would remain as it is today from the existing (“old”) Sterling Highway.

This is consistent with the intent of the *Cooper Landing Land Use Classification Plan*, which calls for “NO access to or from the new alignment other than the departure from the existing road at either end of the bypass” (CLAPC 1996) (emphasis in the original document). DOT&PF would build a bridge or use a large culvert to separate traffic on the Forest Service roads from the highway traffic, with no direct connection between the two, thereby maintaining existing conditions. The Forest Service, in its capacity as a cooperating agency, indicated a better Forest management decision might be to allow a direct connection from either of the Juneau Creek alternatives to Unit 395. It would be possible in the future for DNR or the Borough to request such a connection. At the Forest Service’s request, provision of access, consistent with controlled access is evaluated as a reasonably foreseeable future action and therefore cumulative impact. See Section 3.27.

Borough Lands. A platted cul-de-sac and two platted lots (not yet sold) at the Birch and Grouse Ridge Subdivision would be acquired for the project and could not be developed. Also, the platted northern extension of Slaughter Ridge Road would be bisected and likely could not be completed as planned. About five lots would be halved and might need to be re-platted to keep them from being too small for practical development. Reservation of access rights (no driveway or side road connections) on the segment of this alternative built on a new alignment also would mean that lots with highway frontage could not get access from the new highway segment. Map 3.1-4 provides an overview of the location of these impacts. Additional details can be found in the *Updated Conceptual Stage Relocation Study* (Appendix B of this EIS) and the *Preliminary Engineering Report* (HDR 2014a). The use of these lands may require re-platting and would reduce lot sizes and the number of lots available. The lots would be adjacent to the main highway instead of rural lots near the end of Slaughter Ridge Road (access still would be from Slaughter Ridge Road). Because DOT&PF would reserve access rights along the segment built on a new alignment, the alternative would not induce community growth and land use changes in the project area because access to previously inaccessible land would not be provided.

Private and Native Corporation Lands. The Juneau Creek Variant Alternative would use about 1 acre of private land. Right-of-way requirements for the alternative would impact a small portion of four individual private parcels. Two of the four parcels are located at the eastern end of the alignment, north of the Kenai River, and are common with all build alternatives. The other two parcels are located where the alternative heads north to route around the community. On CIRI Tract A, the Juneau Creek Variant Alternative would acquire approximately 12 acres of the 42-acre parcel as well as bisect it into two 15-acre parcels. Because CIRI has no publicly available layout of proposed facilities, it is not known how these plans may be affected, but it is reasonable to assume adverse impacts to these plans would occur. The Kenaitze Indian Tribe has defined portions of Tract A as sacred and spiritual; see Sections 3.9.2.6 and 4.5.4.7 for more detail about project impacts on the cultural importance of this area. See also the discussion of

development of this area as a reasonably foreseeable future action under Section 3.27, Cumulative Impacts.

Construction Impacts

Estimated impacts are presented in Table 3.1-4, above. A material disposal site on State land about 2 miles west of Juneau Creek and another located east of Juneau Creek would change the surface appearance of the land but not land ownership, and there would be no substantial change in land use in these mostly undeveloped areas. A staging area within several hundred feet west of Juneau Creek is proposed to be moved into the Juneau Falls Recreation Area and combined with development of a new trailhead there to avoid clearing, development, and wetland impact in two locations—see the mitigation discussion in Section 4.6.8.

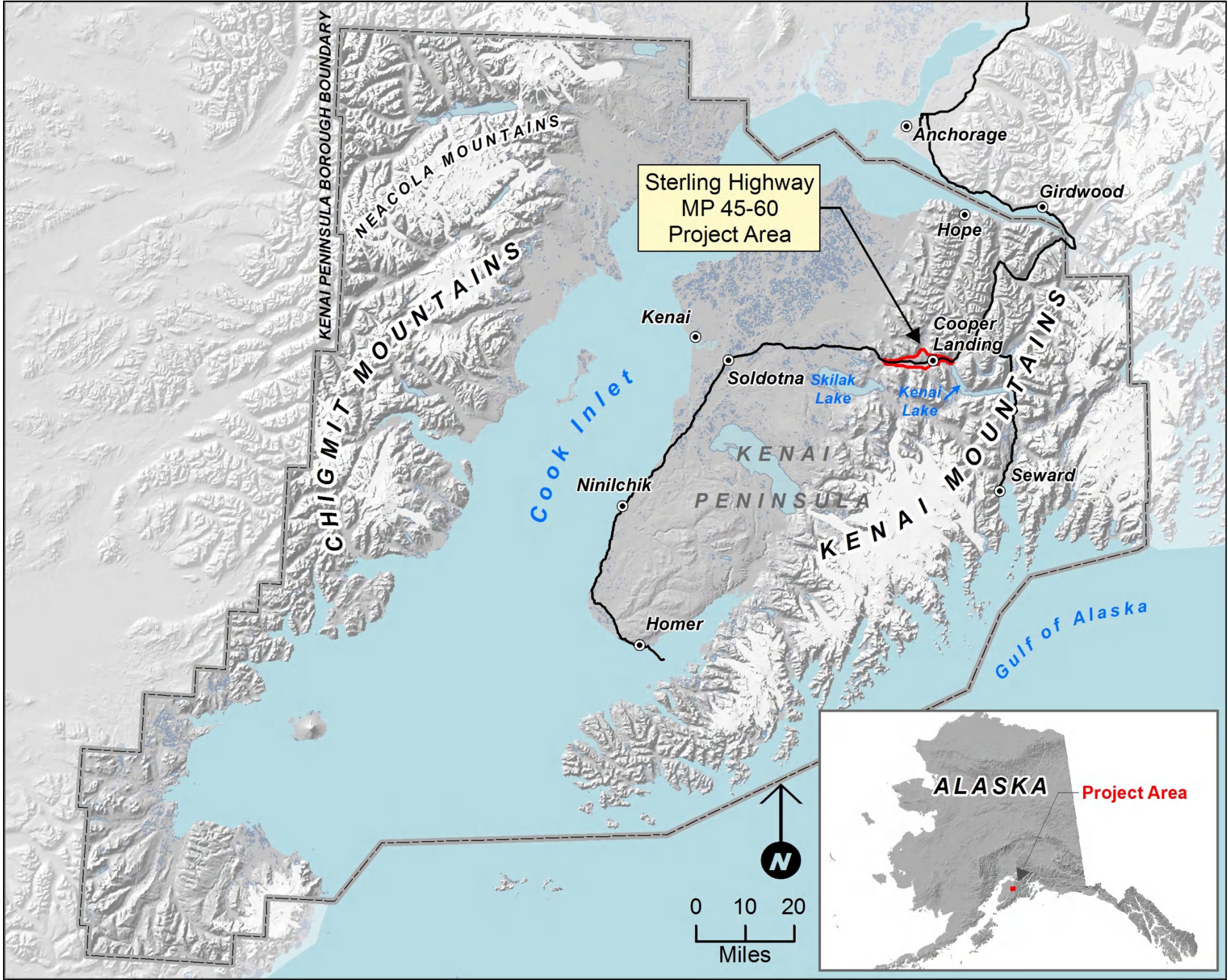
Other minor land impacts are likely to occur in limited locations during construction where construction may need to occur outside the new highway right-of-way, usually immediately adjacent to the right-of-way.

For all such areas, DOT&PF or the construction contractor typically would negotiate a temporary construction easement or permit from the land owner.

Mitigation

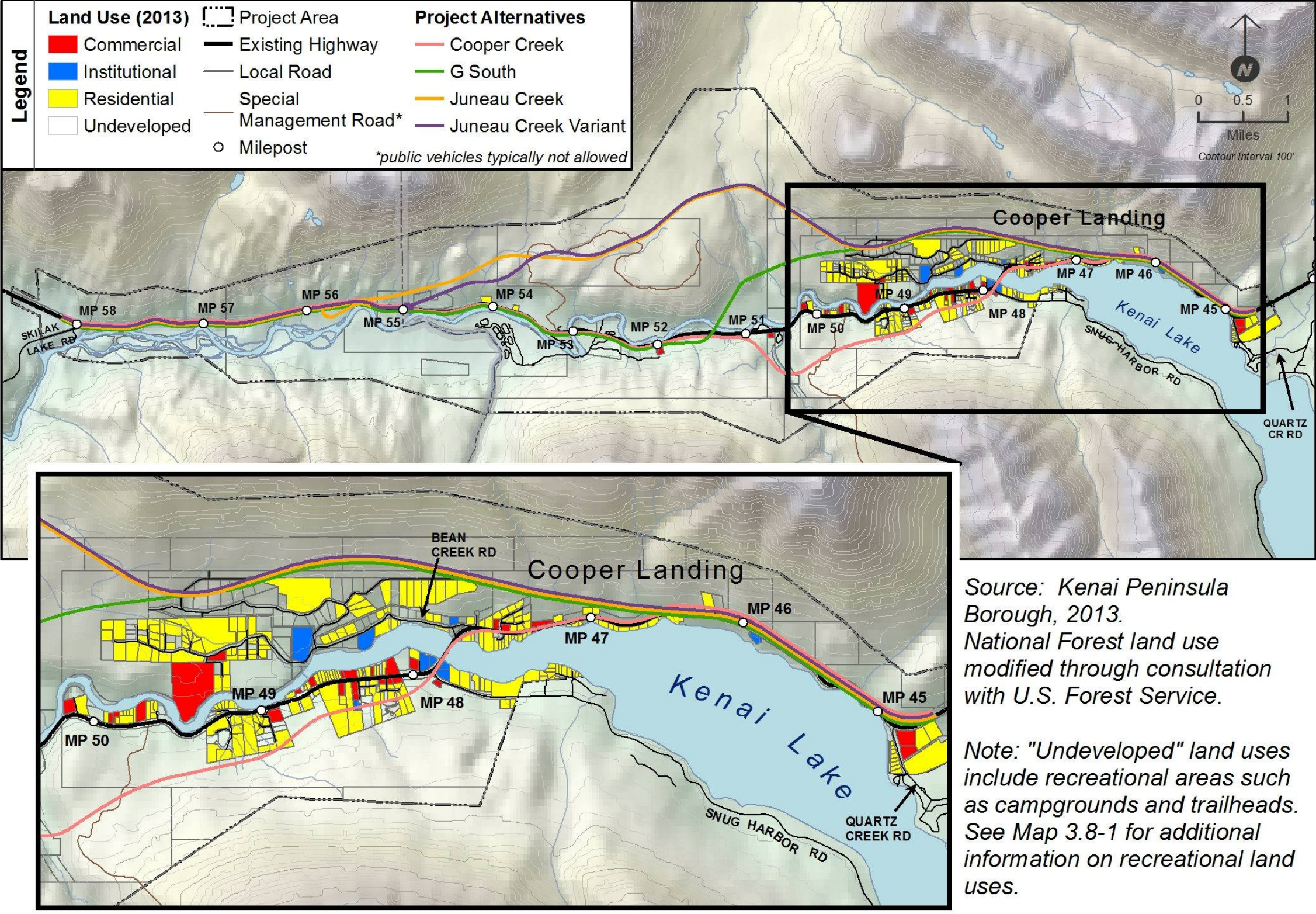
Private and Borough land owners would be compensated at fair market value for land acquired by the project in accordance with the Uniform Relocation and Real Property Acquisition Policies Act of 1970, as amended. The determination of fair market value for the Native corporation lands considered culturally significant would be difficult, if not impossible (see Section 3.9 and Chapter 4 for additional detail). 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 CNF lands.

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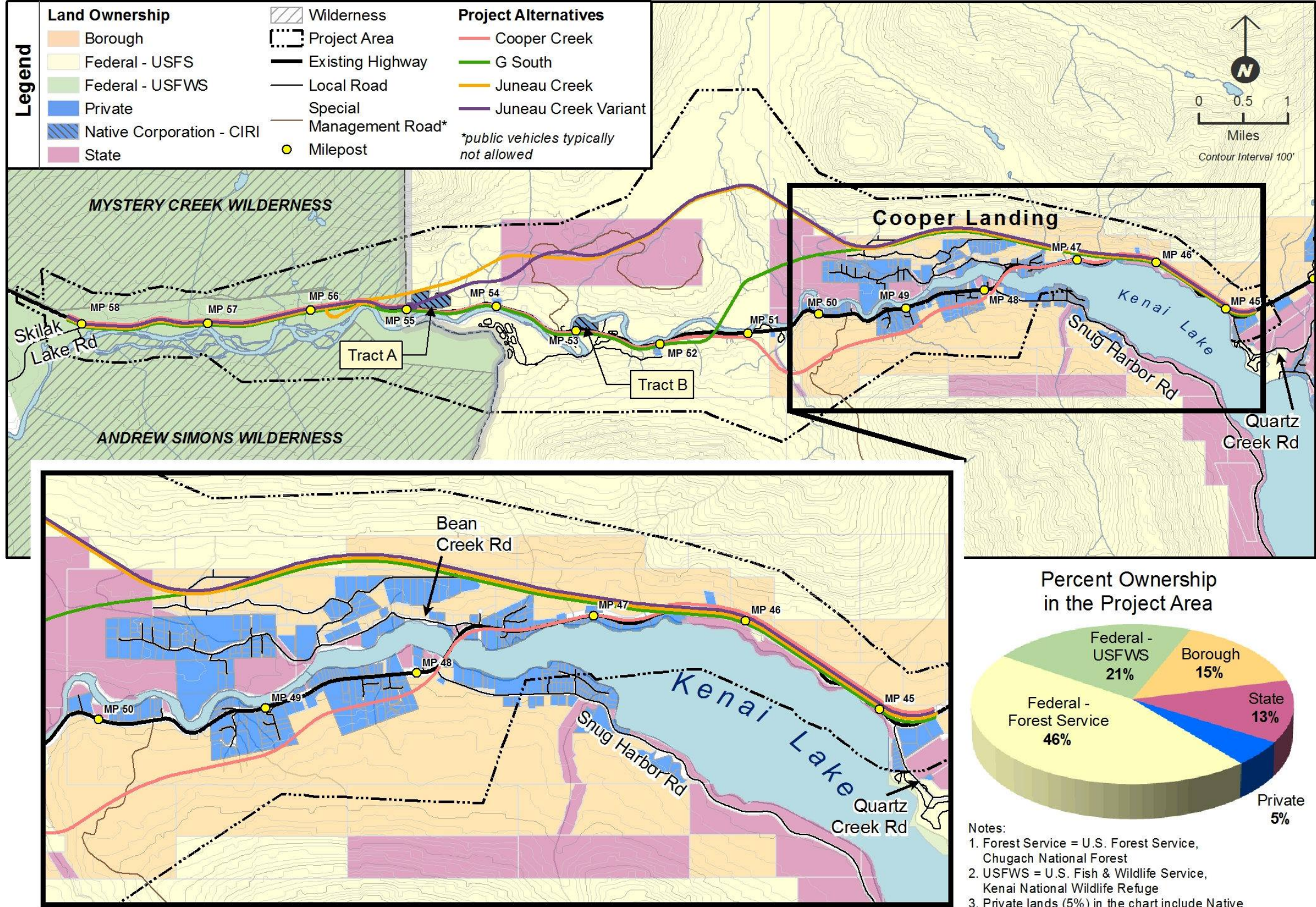
Map 3.1-1. Kenai Peninsula Borough and the project area

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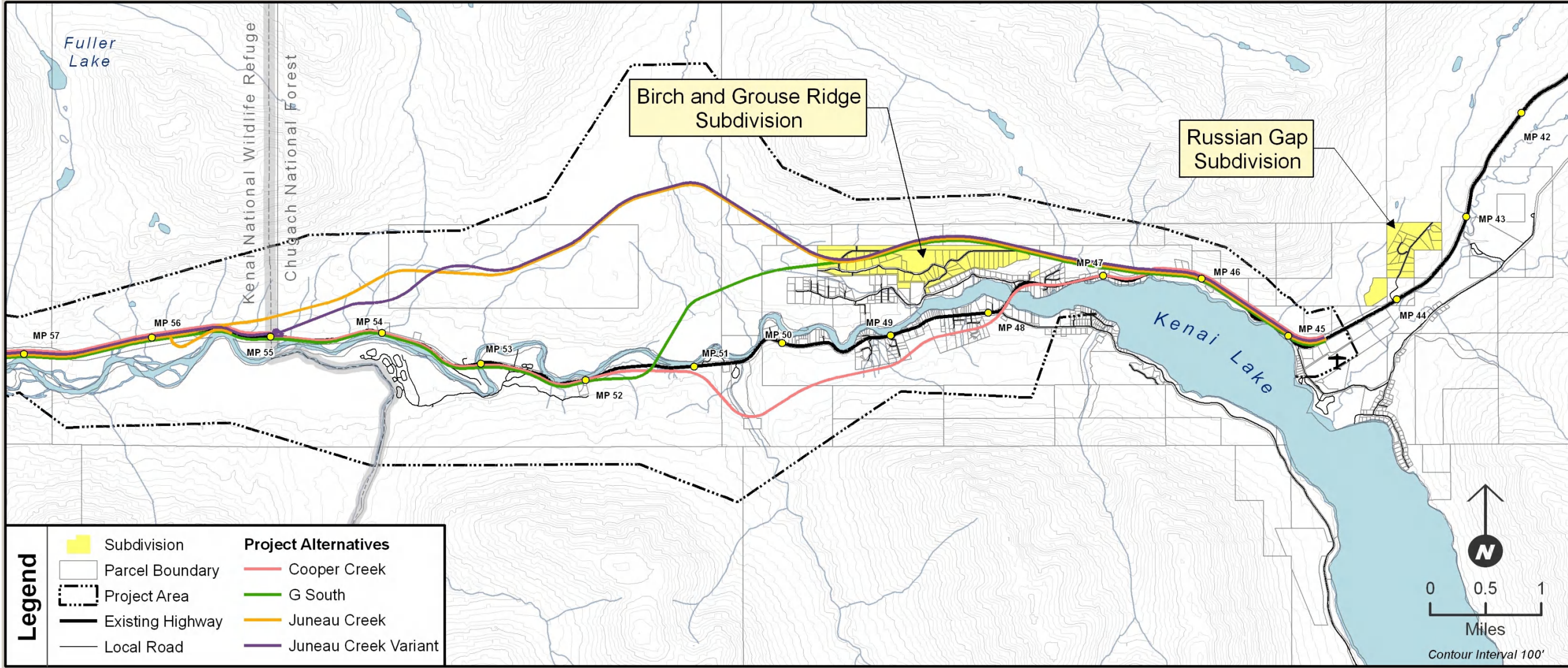
Map 3.1-2. Land use in the project area [Updated]

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Map 3.1-3. Land ownership in the project area [Updated]

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Map 3.1-4. Subdivisions in the project area

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