

National Park Service
U.S. Department of the Interior

Denali National Park and Preserve
Alaska



C-Camp Improvements

Environmental Assessment

August 2006



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ACRONYMS AND ABBREVIATIONS

AAC	Alaska Administrative Code
ADEC	Alaska Department of Environmental Conservation
ADFG	Alaska Department of Fish and Game
ANHA	Alaska Natural History Association
ANILCA	Alaska National Interest Lands and Conservation Act of 1980
APE	area of potential effect
B&U	building and utilities
BMP	Best Management Practices
CAA	Clean Air Act of 1977
CADD	Computer-Aided Design and Drafting
CFR	Code of Federal Regulations
DCED	Department of Commerce, Community, and Economic Development
DCP	Development Concept Plan
Denali	Denali National Park and Preserve
EA	Environmental Assessment
EIS	Environmental Impact Statement
EMS	Emergency Management Service
EPA	Environmental Protection Agency
ESA	Endangered Species Act
ESB	Emergency Services Building
ft	feet
GMP	General Management Plan
MBTA	Migratory Bird Treaty Act
MP	mile post
NEPA	National Environmental Policy Act
NPS	National Park Service
Park Road	Denali Park Road
P.L.	Public Law
PMIS	Project Management Information System
RV	recreational vehicle
SHPO	State Historical Preservation Office
SOF	Statement of Findings
sq ft	square foot
SST	sweet smelling toilets
TBD	to be determined
The park	Denali National Park and Preserve
U.S.C.	United States Code
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UST	underground storage tank
VIP	Volunteer in Park

1.0 INTRODUCTION

The National Park Service (NPS) is proposing to:

- Construct a new Emergency Services Building (ESB) at the C-Camp area of Denali National Park and Preserve (Denali or the park).
- Upgrade employee housing, parking, and common facilities for residents in C-Camp.
- Separate the maintenance functions and traffic from housing areas.
- Expand the C-Camp maintenance area and improve maintenance, storage, and parking facilities.
- Replace the vehicle fueling system in the maintenance area of C-Camp and remediate source-contaminated soils. Provide capability for propane vehicle fueling.
- Upgrade utilities in the C-Camp area.
- Realign a section of the Rock Creek Trail to minimize intersections with an existing power line.

These projects have been identified in the Denali National Park and Preserve Entrance Area and Road Corridor Development Concept Plan (DCP) and Environmental Impact Statement (EIS) (NPS 1997), and would be implemented through the proposed action. This environmental assessment (EA) expands upon the DCP/EIS, due to changes in park operations, functions, funding, and staffing levels since 1997. Project construction is expected to begin in 2006.

This EA analyzes the proposed action and alternatives and their impacts on the environment. The EA has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969 and regulations of the Council on Environmental Quality (40 Code of Federal Regulations [CFR] 1508.9). The purpose and need for the project is described below in Section 1.1 and the complete proposed action and alternatives are described in Section 2 of this EA.

1.1 Purpose and Need for Action

The purpose of these projects is to improve the safety and efficiency of administrative and support facilities, improve operational efficiency of management and support functions, provide resource protection and comply with federal and state regulations.

The proposed projects would allow for more effective use of personnel and equipment, as well as improve safety in the C-Camp area and on the Rock Creek Trail. The proposed projects would also provide greater protection for water and soil resources, and reduce demands on historic structures.

The DCP/EIS identified the need to improve operational efficiency of management and support functions, as well as the need to provide administrative facilities that are necessary and appropriate for user enjoyment and effective park management. Since 1997, there have been changes in park operations and functions, including substantial increases in the park maintenance program to address the backlog of deferred maintenance. The maintenance program has accounted for approximately one half of the total park budget for the past four years. The Fire Management Program has also been more fully developed in recent years. There have been related increases in funding and permanent, non-permanent, and volunteer staffing. Thus, there

is a need to update the site plan to incorporate operational changes since the DCP/EIS was approved.

The project is also needed to bring the vehicle fueling system into compliance with Alaska Department of Environmental Conservation (ADEC) and Environmental Protection Agency (EPA) regulations.

1.2 Project Objectives

The improvement projects would implement objectives identified in the DCP/EIS, and would address additional safety, efficiency and resource protection needs identified subsequent to the DCP/EIS. These objectives are identified by topic:

1.2.1 Infrastructure

- Provide the type, number, and location of facilities and necessary infrastructure to adequately serve park visitor and administrative needs.
- Provide visitor and administrative facilities that are necessary and appropriate for user enjoyment and effective park management.
- Increase operational efficiency with adequate facilities and more effective location of management and support functions.
- Replace inadequate and below standard housing.
- Upgrade existing or provide new C-Camp housing facilities for winter seasonal use.
- Replace the vehicle fueling system in the maintenance area of C-Camp and remediate source-contaminated soils. Provide capability for propane vehicle fueling.
- Consolidate maintenance functions in the vicinity of the Auto Shop and building and utilities (B&U) maintenance pads.
- Reduce demands on historic structures in the Headquarters Historic District.
- Construct a new ESB in the C-Camp area.
- Upgrade utilities in the C-Camp area.
- Upgrade the existing septic tank and leach field that services the C-Camp residents and construct the initial infrastructure that can convey C-Camp sanitary waste to the headquarters area for treatment in the future.
- Realign the Rock Creek Trail.

1.2.2 Safety

- Separate the incompatible functions and traffic of maintenance, emergency services, and housing operations and relocate parking for private vehicles outside of the C-Camp maintenance area.
- Construct a new bus stop to improve traffic safety and provide a safe area for employees and visitors using the shuttle bus services.

- Minimize the number of times the Rock Creek Trail crosses the power line and direct trail traffic away from C-Camp maintenance area.
- Provide walk-in campus for C-Camp residential area by providing adequate parking outside of the residential area.
- Eliminate emergency response vehicles from the headquarters historic district.
- Construct a Physical Fitness facility for Law Enforcement and Fire Management personnel to meet their physical training requirements.

1.2.3 Efficiency

- Consolidate Emergency Management Services, Law Enforcement, and Fire Management operations in a single ESB, including the dispatch office, a communications center, incident command center, and related support facilities.
- Consolidate maintenance functions and material storage to the Auto Shop and B&U area of C-Camp.
- Construct trails operation facility to improve trails division efficiency.
- Provide adequate employee and equipment parking to improve maintenance efficiency.
- Construct Volunteer in Park (VIP) recreational vehicle pads where feasible to support growing VIP program, which supplements staffing shortfalls.

1.2.4 Resource Protection

- Bring the vehicle fueling system into compliance with ADEC and EPA regulations and remediate contaminated soils to reduce the impact to the groundwater.
- Relocate some administrative activities to the C-Camp area to reduce demands on historic structures in the Headquarters Historic District.
- Decrease administrative traffic from the Park Headquarters area and relocate it to the C-Camp area.

1.3 Background

1.3.1 History of the Site

The C-Camp area (Figure 1-1) has housed seasonal employees since it was constructed and used as a Civilian Conservation Corps encampment in 1938 and 1939. A 12,000 square foot (sq ft) Auto Shop and related 3-acre parking pad were established north of C-Camp in 1975. A 10,000 sq ft B&U shop was opened in 2000 on a 1.9-acre pad immediately north of the Auto Shop.

1.3.2 Park Purpose and Significance

In 1917, Congress established Mount McKinley National Park:

...as a public park for the benefit and enjoyment of the people... for recreation purposes by the public and for the preservation of animals, birds, and fish and for the preservation of the natural curiosities and scenic beauties thereof... said park shall be, and is hereby established as a game refuge (39 Statute 938).

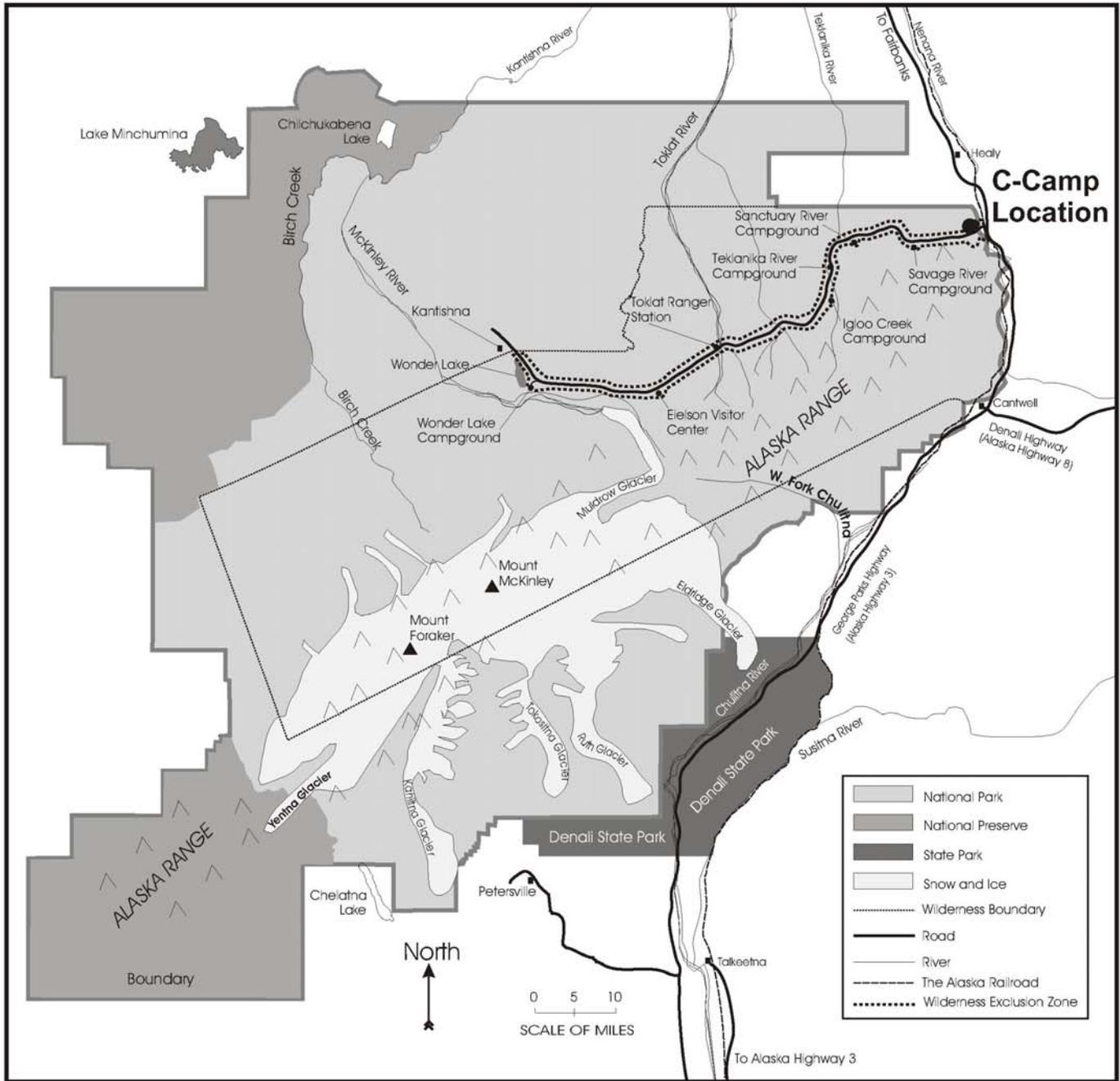


Figure 1-1
C-CAMP IMPROVEMENTS - PROJECT LOCATION
Denali National Park and Preserve
U.S. Department of the Interior • National Park Service

Figure 1-1 Project Location

Additions to the park were made in 1922 and 1932 to provide increased protection for park values and, in particular, wildlife. The 1932 addition moved the eastern park boundary from a north-south line near Park Headquarters to the western bank of the Nenana River.

The Alaska National Interest Lands and Conservation Act of 1980 (ANILCA) added approximately 2,426,000 acres of public land to Mt. McKinley National Park and approximately 1,330,000 acres of public land as Denali National Preserve and re-designated the entirety Denali National Park and Preserve. ANILCA directs the NPS to preserve the natural and cultural resources in the park for the benefit, use, education, and inspiration of present and future generations.

1.3.3 Laws, Regulations, and Policies

Organic Act

The 1916 NPS Organic Act directed the Secretary of the Interior and the NPS to manage national parks and monuments to:

...conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations (16 United States Code [U.S.C.] 1).

The NPS Organic Act also granted the Secretary the authority to implement “rules and regulations as he may deem necessary or proper for the use and management of the parks, monuments and reservations under the jurisdiction of the National Park Service” (16 U.S.C. 3). Amendments to the 1916 NPS Organic Act in 1978 and the 1970 NPS General Authorities Act expressly articulated the role of the National Park System in ecosystem protection. The amendments further reinforce the primary mandate of preservation by stating:

The authorization of activities shall be construed and the protection, management, and administration of these areas shall be conducted in light of the high public value and integrity of the National Park System and shall not be exercised in derogation of the values and purposes for which these various areas have been established, except as may have been or shall be directly and specifically provided for by Congress (16 U.S.C. 1-a1.).

The NPS Organic Act and the General Authorities Act prohibit impairment of park resources and values. The 2001 NPS Management Policies uses the terms “resources and values” to mean the full spectrum of tangible and intangible attributes for which the park is established and managed, including the Organic Act’s fundamental purpose and any additional purposes as stated in the park’s establishing legislation. The impairment of park resources and values may not be allowed unless directly and specifically provided by statute. The primary responsibility of the NPS is to ensure that park resources and values will continue to exist in a condition that will allow the American people to have present and future opportunities for enjoyment of them.

The evaluation of whether impacts of a proposed action would lead to an impairment of park resources and values is included in this EA. Impairment is more likely when there are potential impacts to a resource or value whose conservation is:

- necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park;

- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or
- identified as a goal in the park’s general management plan or other relevant NPS planning documents.

Other Laws and Regulations

The NPS Omnibus Management Act of 1998 (Public Law [P.L.] 105-391, 112 Statute 3497) addresses resource inventory and management in Title II. Section 201 defines the purposes of this title to enhance and encourage scientific study in National Park System units. Section 202 authorizes and directs the Secretary of the Interior to assure that management enhances National Park System units by a broad program of high quality science and information. Section 205 states the Secretary may solicit, receive, and consider requests from Federal and non-Federal agencies, and public or private entities for the use of National Park System units for scientific study. Such proposals must be consistent with applicable laws and the NPS Management Policies, and the study must be conducted in a manner as to pose no threat to park resources or public enjoyment of those resources.

1.3.4 Relationship of Proposal to Other Planning Projects

Many plans have been developed for Denali, including the 1986 General Management Plan (GMP) and the DCP/EIS (NPS 1997). The GMP is a broad planning document, setting general management direction for the park. The plan’s focus is on managing ever-increasing visitor use to ensure access to a high quality wilderness experience for visitors of all ages and abilities while ensuring that the natural and cultural values are not degraded. The DCP/EIS amended the 1986 GMP. The DCP/EIS provides analysis and management direction for the frontcountry of Denali, including direction for road management and facility development for the entrance area and road corridor. The projected duration of the DCP/EIS is 15-20 years.

This EA is a project-specific analysis tiered to the approved DCP/EIS. Tiering refers to a process of multiple levels of planning, from broad plans to site-specific plans. The specific plans implement the broad directions and general concepts identified in prior plans. This EA is an implementation plan for the DCP/EIS and GMP. This EA also notes and corrects errors in map detail for management zoning in the C-Camp area.

1.4 Issues

To focus this EA, the NPS selected specific issues for further analysis and eliminated others from evaluation. Issues brought forward for analysis in this EA were determined through conversations with the park and NPS Alaska Region staff.

1.4.1 Issues Selected for Detailed Analysis

Vegetation, Soils and Groundwater

Low and tall shrub vegetation, and mixed white spruce and hardwood forest vegetation, would be removed or disturbed during the construction of the access road and possibly the ESB in the C-Camp area, depending on the site chosen. Invasive plants could colonize bare soils that are exposed during the construction process.

Existing soil strata would be altered or removed, and land contours could be changed as a result of construction of the proposed building and access road.

Groundwater contamination has been documented at the existing C-Camp vehicle fueling system. A specific management objective of the DCP/EIS is to “identify resource protection needs in the entrance area and along the road corridor and to execute mitigation measures required to implement the plan fully.” Mitigating the contamination in the groundwater is needed to meet this management objective. Under all three action alternatives, the vehicle fueling system would be replaced with a new, code-compliant system. Remediation would be done to the extent feasible in all three action alternatives. NPS Civil Engineer Bill Heubner has been working with the park and Alaska Department of Environmental Conservation to characterize the contamination and carry out appropriate mitigation measures. Monitoring wells have been installed and show significant but deep contamination near the existing fueling station buried fuel tanks, with two feet of oil at 40 foot depth (pers. comm., 2006).

Wetlands

Wetlands would be filled or disturbed by the proposed access road and possibly by the ESB, depending on the site chosen for construction. A Wetlands Statement of Findings is attached as Appendix A.

Wildlife Habitat

Development of the access road could reduce wildlife habitat. Moose utilize the area along the road in the vicinity of the project area, and wolves are generally found wherever prey species, such as moose, are present. Construction activities associated with the proposed development would temporarily produce noise and activity levels that could disturb wildlife and cause the animals and birds to disperse from nearby areas during the construction period.

Visitor Use and Recreation

The re-routing of the Rock Creek Trail and addition of a new bus stop near the C-Camp access road would affect visitor use and recreation. While visitors themselves would be unlikely to visit the C-Camp area, the new bus stop would provide visitors and C-Camp residents with an additional access point for the path that follows the Denali Park Road (Park Road) in the entrance area. Improvements to the Rock Creek Trail, which leads visitors to the Park Headquarters and dog kennels, would also impact visitor use and recreation by relocating part of the trail from below the power lines and improving trail conditions.

Recreation opportunities could be temporarily affected by the construction of the new bus stop, which would interrupt visitor traffic along the Park Road near the Park Headquarters. In addition, the presence of construction equipment and the noise and dust associated with construction could impact the visitor experience.

Visual Resources

The visual resources within the project area could be altered by the new ESB if it is visible from the Park Road, the bus stop, local trails or from distant viewpoints such as the Mount Healy Overlook. There would likely be increased traffic and dust during the construction phase of the project, potentially impacting the visual resources in the vicinity of the site.

Local Communities/Socioeconomic Resources

Construction activities and costs associated with the proposed project could provide a short-term, temporary stimulus to the local economy.

1.4.2 Issues Dismissed From Detailed Analysis

The following issues have been considered but dismissed from detailed analysis. Issues dismissed from detailed analysis are not addressed further in this EA.

Threatened and Endangered Species

The Endangered Species Act (ESA) requires an analysis of impacts on all federally listed threatened and endangered species, as well as species of special concern listed by the State of Alaska (see Section 3.4). In compliance with Section 7 of the ESA, the U.S. Fish and Wildlife Service (USFWS) has been consulted. No federally designated threatened or endangered species are known to occur within the park (Swem 2000), and none are anticipated to be affected by this plan.

Air Quality

Both the Clean Air Act of 1977 (CAA) and NPS 2001 Management Policies (NPS 2000) require the NPS to consider air quality impacts from their projects. The park is a Federal Class 1 Air Quality Area under the CAA. Air quality is monitored near Park Headquarters and no exceedances of National Ambient Air Quality Standards have been documented within the park. Construction within the park associated with this project would result in short-term, negligible, adverse impacts on air quality. Therefore, air quality was dismissed from detailed analysis in this EA.

Water Resources

None of the action alternatives are located adjacent to surface water bodies (streams or lakes). Therefore there would be no direct impacts on water resources.

The impacts of existing fuel oil contamination are addressed in the “Vegetation, Soils and Groundwater” impact topic discussions and not separately in a “Water Resources” topic.

Environmental Justice

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations, requires all federal agencies to identify and address disproportionately high and adverse human health or environmental effects of their programs and policies on minorities and low-income populations and communities. This plan would not result in significant changes in the socioeconomic environment of the area, and therefore is expected to have no direct or indirect impacts to minority or low-income populations or communities.

Floodplains

C-Camp is not located in a high-hazard flood area.

Subsistence

Subsistence activities are not allowed in the project area. An ANILCA §810 evaluation is attached in Appendix B.

Cultural Resources

While one of the buildings in the C-Camp area is considered historic, the site is not considered an Historic District. Modifications to noted historic structures are not planned under this action.

Wilderness

All of the proposed alternatives would be built inside the roadside wilderness exclusion zone. No structures or fill areas would encroach upon the designated wilderness area.

1.5 Permits and Approvals Needed to Implement Project

1.5.1 Wetlands Fill

Discharge of fill material into wetlands could require a permit from the U.S. Army Corp of Engineers (USACE) under Section 404 of The Clean Water Act. However, according to a recent determination by USACE, the project would not affect wetlands under its jurisdiction. Wetlands impacts do require an NPS Statement of Findings (SOF) (see Appendix A) as well as mitigation by rehabilitating damaged wetlands in another area.

1.5.2 Underground Storage Tank Remediation and Closure

Closure of the three underground storage tanks (USTs) and associated appurtenances would follow the requirements of ADEC under 18 Alaska Administrative Code (AAC) 78. Installation of a new UST would also need to meet the requirements of 18 AAC 78.

1.5.3 Leach Field

The proposed upgrade to the existing septic tank and leach field would need a Permit to Construct and a Permit to Operate, both of which are issued by the ADEC.

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2.0 ALTERNATIVES

This section describes the range of reasonable alternatives, including a No Action Alternative and three action alternatives. Also discussed are any alternatives and actions that have been considered but dismissed from further analysis.

The three action alternatives were developed through an interdisciplinary team process that included tiering from earlier plans, especially the 1997 DCP/EIS, and considering regional and Park staff recommendations to Park management. Numerous internal staff discussions and scoping meetings lead to the project elements proposed, the range of alternatives considered, and the requests for project funding.

Table 2-1 summarizes the components and attributes of each alternative. Table 2-2 summarizes the predicted impacts for each alternative on the issues of concern.

2.1 Alternative 1: No Action

C-Camp presently has 33 cabins and three volunteer recreational vehicle (RV) sites for seasonal employees. These are located in a residential area (Figure 2-1). A 12,000 sq ft Auto Shop and related 3-acre parking pad are located north of the residential area in the maintenance and administration area (Figure 2-1). A 10,000 sq ft B&U shop is located on a 1.9-acre pad immediately north of the Auto Shop. These maintenance facilities share the service access road with the C-Camp housing area.

Under Alternative 1, the existing facilities, uses and activities at C-Camp would continue (Figure 2-1). C-Camp would continue to serve as the park's principal center for seasonal staff housing and maintenance operations. However, a new ESB would not be built, and all emergency services, fire and dispatch activities would remain at their existing locations. There would be no upgrades to C-Camp storage yards, no replacement or upgrade of the vehicle fueling system or mitigation of existing contamination. There would be no upgrades to C-Camp housing and no separation of the industrial and residential uses of C-Camp. Bus stops to serve the C-Camp residents and employees would not be built. There would be no need to alter the zoning configurations for this alternative (Figure 2-2). This alternative represents a continuation of the existing situation and provides a baseline for evaluating the changes and impacts of the action alternatives.

2.2 Actions Common to All Action Alternatives

Actions common to all action alternatives include building the following new facilities:

- A bus stop located on the north side of the Park Road, east of the existing C-Camp entrance. The bus stop would incorporate a large pullout to accommodate over sized vehicles requiring road permits.
- A bus stop on the south side of the Park Road at the C-Camp road intersection.
- Shower house to be built in the residential area for use by seasonal employees, the facility may include a fitness area.
- Trails shop and office building (1,500-2,000 sq ft), covered heated storage building (800-1,200 sq ft), and yard area (2,000-3,000 sq ft) to be located west of the Auto Shop pad.
- New parking area for 50 to 60 vehicles located to the west of the B&U building for maintenance employee parking.

- B&U cold storage building and lockable storage.
- Vehicle plugs for the B&U parking and Auto Shop parking areas.
- Fuel truck containment pad located on B&U pad.
- 80-foot expansion to the west of the C-Camp residential parking area. This expansion would accommodate C-Camp residential parking needs to enable C-Camp to become a walk-in campus facility.

The following existing facilities would be replaced with new buildings or facilities:

- Sand, gravel, garbage, and hazardous materials storage areas located between the B&U and Auto Shop pads.
- Pipe/lumber storage on the B&U pad relocated from the headquarters historical area.
- The Rock Creek Trail would be rerouted to the north and west of the C-Camp developed area (see Figure 2-3). A switch back in the trail would be removed, and the trail would only pass once under the existing overhead power lines. A new trail spur would be constructed to the B&U shop pad.
- The primary power feed from the overhead power lines to the C-Camp distribution system would be up-graded and relocated to the perimeter of the proposed development northwest of the B&U pad.

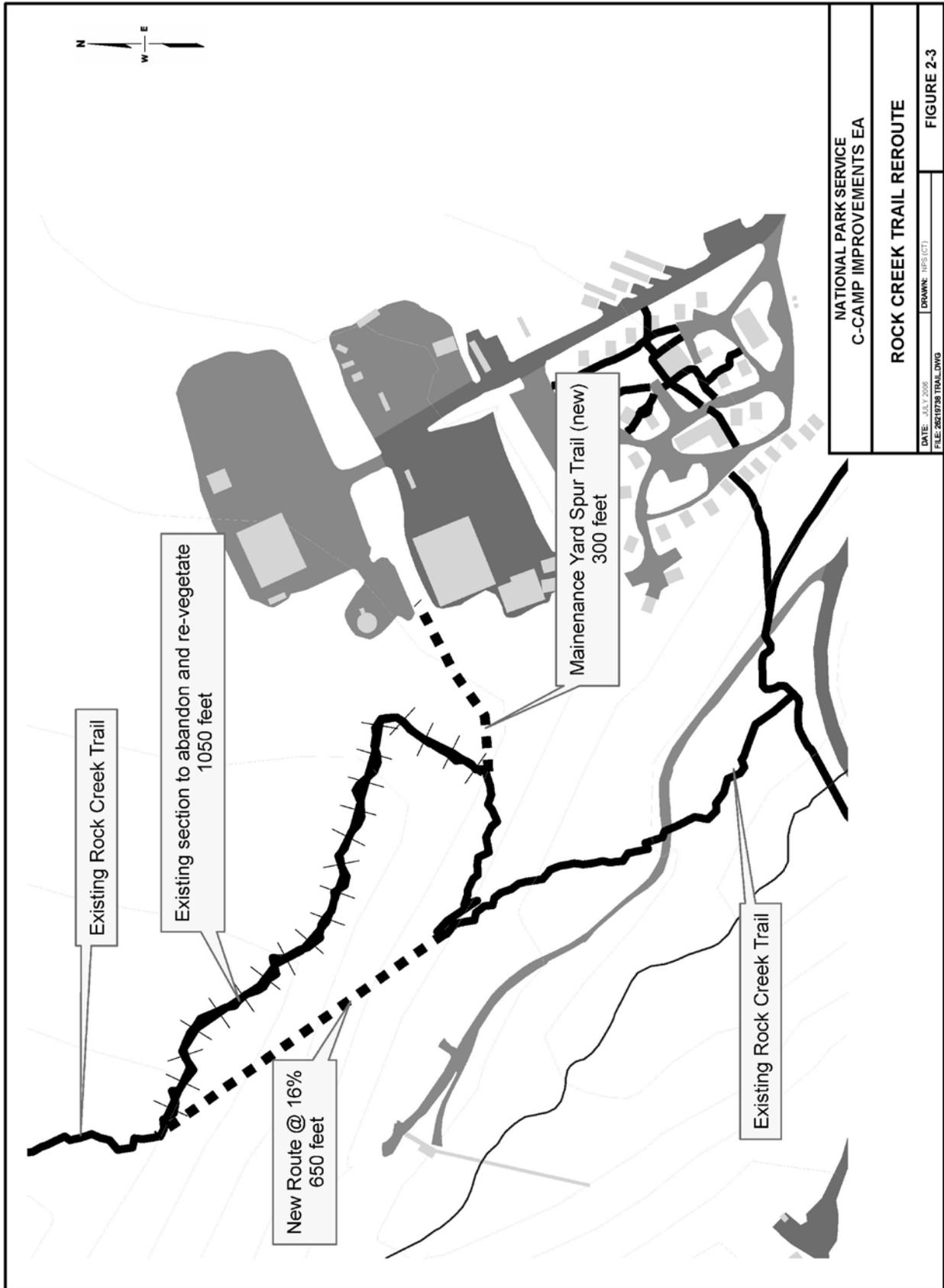


Figure 2-3 Rock Creek Trail Reroute

- Upgrade and/or rehabilitate the utility infrastructures for water, wastewater, electrical, propane, fire alarm, and telephone and data.
- Cabins in the C-Camp area would be converted/upgraded for seasonal winter use. The total number to be improved and their locations differ by alternative. Cabins would be replaced on a bed-for-bed basis with no net loss of beds.
- The septic tank and leach field for the C-Camp residential area would be enlarged to accommodate additional use projected with the addition of the ESB. Because a new treatment plant is planned for the headquarters area and would include treatment of the wastewater from C-Camp, the connections to the enlarged septic tank and leach field would be designed in such a way to accommodate the eventual connection to headquarters.
- The vehicle fueling system, including the fuel storage tanks, would be replaced and the capability for propane vehicle fueling would be provided.
- Widen the curve at intersection of the C-Camp road and the Park Road to provide for a safer turning radius.

The common actions also include consolidating or updating the following functions that presently occur on an existing C-Camp pad and do not have associated fixed facilities:

- Auto Shop Pad
 - Loading dock
 - Tire storage
 - Heavy equipment parking
 - Heavy equipment implement storage
 - Tool storage
 - Government vehicle parking for Auto Shop, shop vehicles, vehicles awaiting work, and vehicle parking for road crews.
 - Employee parking
 - Improve circulation and access to garage bays, storage bays, and Alaska Natural History Association (ANHA) warehouse.
- B&U Pad
 - Heavy equipment parking
 - Government vehicle parking
 - Improve circulation and access to garage bays, storage bays, park-wide shipping and receiving, and access to recycling shed and storage areas.
 - Construction staging area and material storage area.
 - Employee parking
 - Tool storage

2.3 Alternative 2: Parallel Access Road Alternative, NPS Preferred Alternative

This alternative accomplishes separation of administrative traffic from the residential area by building a short road parallel to the east side of the residential area. All traffic would access the C-Camp area at the existing intersection, but the parallel road (720 linear feet) would be built east of the new ESB facility. The new ESB would buffer the noise from maintenance vehicle traffic and would further separate the residence area from the maintenance function.

An ESB and separate Annex would be constructed near the existing C-Camp entrance, along with a parking lot for 29 vehicles (see Figure 2-4). This alternative provides a full program scope for the law enforcement and fire management divisions. The new vehicle fueling system would be located directly south of the Auto Shop pad along the new parallel road. Relocation of the vehicle fueling system off of the Auto Shop pad would require placing fill in a previously undisturbed area as well as incorporating some other pads; however, the relocation would enable the park to replace the existing USTs, remediate the contaminated soils and groundwater under the Auto Shop pad, and allow for more efficient use of the pad for the maintenance operation. The Auto Shop pad would be expanded to the east.

Within the residential area, one new cabin would be built to replace the cabin displaced by the physical fitness center/shower house. A new dorm or plexed units would replace the four cabins displaced by the ESB and new parallel road alignment, and the three cabins displaced by other improvements. These improvements consist of replacing the older tent frame style cabins on the west side with new cabins. The new cabin improvements would take up more room than the older cabins, thereby displacing some cabins. This alternative does not accommodate the VIP trailer pad program in the C-Camp area. The VIP trailer pad element of the purpose and need statement would be addressed at an alternate location in the park.

The new facilities and utilities would require a shift in zoning configurations in the frontcountry (see Figure 2-5). Approximately 2.7 acres of the Backcountry Day Use Zone would be converted to a Level 1 Development Zone; this area is contiguous with the existing development in the C-Camp area. Two bus stops, encompassing approximately 0.2 acres, would be constructed in the Motorized Sightseeing Zone 2; the area is adjacent to the Park Road.

2.4 Alternative 3: Existing Road Alternative

This alternative most closely reflects the intent of the DCP while attempting to satisfy the purpose and need described in Section 1.0. Access to all facilities would remain via the existing access road (Figure 2-6).

Under Alternative 3, a one-story ESB would be constructed in the C-Camp area. In addition, a one-story Annex building housing a reduced program scope (as compared to Alternatives 2 and 4) for the garage bays and storage space would also be constructed. Parking spaces for 29 vehicles would be developed near the ESB. The new vehicle fueling system would be located on the south edge of the existing Auto Shop pad. In order to accommodate the vehicle fueling system and maintenance circulation to the fueling area and other road crew functions, a 50-foot extension to the Auto Shop pad would be required. The USTs would be replaced, and the contaminated soils would be remediated such that all ADEC and NPS requirements are met; however, the amount of soil removed and remediation techniques would likely differ from the other action alternatives. The existing road through C-Camp would be used to access the ESB. The curve at the intersection of the C-Camp road to the Park Road would be widened to provide a safer turning radius.

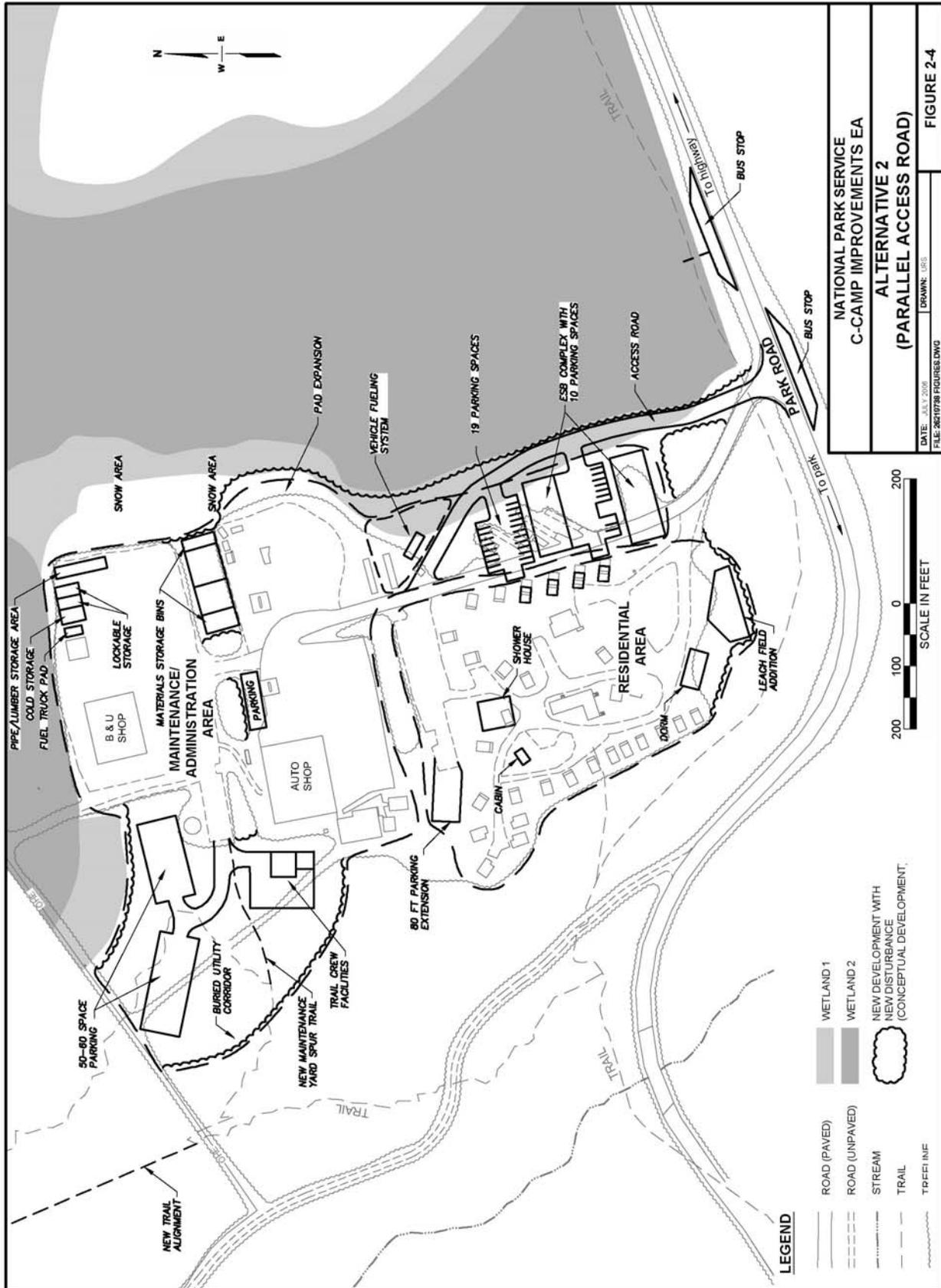


Figure 2-4 Alternative 2 – Parallel Access Road

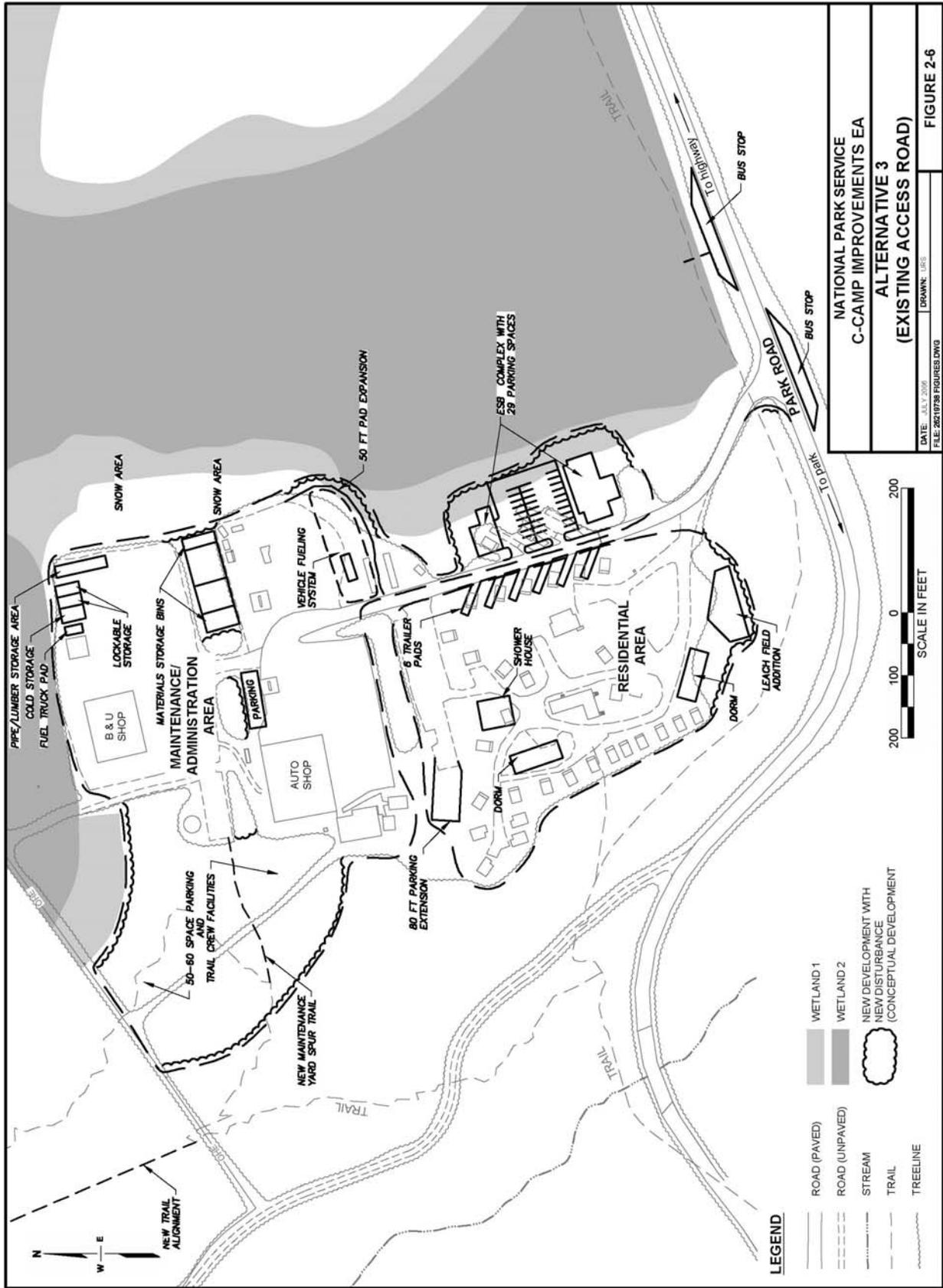


Figure 2-6 Alternative 3 – Existing Access Road

The objective to separate maintenance and emergency services traffic from housing operations would be accomplished by relocating all housing to the east of the access road. The six VIP trailer pads would be the only housing facilities adjacent to the entrance road and would act as a buffer between traffic and housing on the west side of the road. Within the residential area, two dormitories would be built to replace 12 of the two-bed cabins: three cabins displaced by west side improvements (these improvements consist of replacing old tent frame cabins with new 18 ft by 26 ft cabins spaced 30 ft apart; these improvements take up more room, thereby displacing some cabins), one cabin displaced by the physical fitness center/shower house, six cabins displaced by VIP trailer pads, and two cabins displaced by ESB.

The new facilities and utilities proposed under Alternative 3 would require a shift in zoning configurations in the frontcountry (see Figure 2-7). Approximately 2.2 acres of the Backcountry Day Use Zone would be converted to a Level 1 Development Zone; this area is contiguous with the existing development in the C-Camp area. Two bus stops, encompassing approximately 0.2 acres, would be constructed in the Motorized Sightseeing Zone 2; the area is adjacent to the Park Road.

2.5 Alternative 4: New Access Road Alternative

This alternative provides the full program scope to meet the needs identified by the park in 2005. Alternative 4 incorporates the requirements of the DCP, while adding additional elements that were not anticipated when the DCP/EIS was completed and approved. Access to the maintenance area and residential area would be via new access and spur roads, thereby separating the administrative traffic from traveling through the C-Camp residential area. Access to the ESB would be via the existing C-Camp/Park Road intersection (Figure 2-8).

Alternative 4 would involve construction of a one-story ESB. An ESB Annex would provide additional cold storage and vehicle shelter space. A 29-space vehicle parking lot would be developed adjacent to the ESB. All ESB-related facilities would be located near the existing C-Camp entrance, with access directly off of the Park Road (Figure 2-8). A new, 1,300 linear ft access road beginning approximately 0.2 miles east of the existing C-Camp entrance would provide a separate entrance to the maintenance and residential areas of C-Camp (see Figure 2-8). This access road would direct maintenance traffic to the shop areas, and would terminate at the east end of the Auto Shop area. A 300 linear ft C-Camp residential spur road would curve around to the southeast to the existing Auto Shop pad and connect the access road to the existing C-Camp road to the north of the existing VIP trailer pad area. The spur road would be for residential traffic and access to the vehicle fueling system. The new vehicle fueling area would be located on the north side of the spur road near the intersection with the existing entrance road. Relocation of the vehicle fueling system off of the Auto Shop pad would require placement of fill in an undisturbed area, but it also would enable the park to replace the USTs, remediate the contaminated soils and groundwater under the Auto Shop pad, and allow for more efficient use of the pad for maintenance operations.

Within the residential area, a dorm or plexed units would be built to replace cabins displaced by the physical fitness center/shower house (1 cabin), improvements to west side cabins (these include replacing old tent frame cabins with new 18ft by 26ft cabins spaced 30 ft apart, thereby displacing 3 tent cabins), and construction of the VIP trailer pads (2 cabins). Four VIP trailer pads would be constructed south of the fueling area and north of the ESB facility.

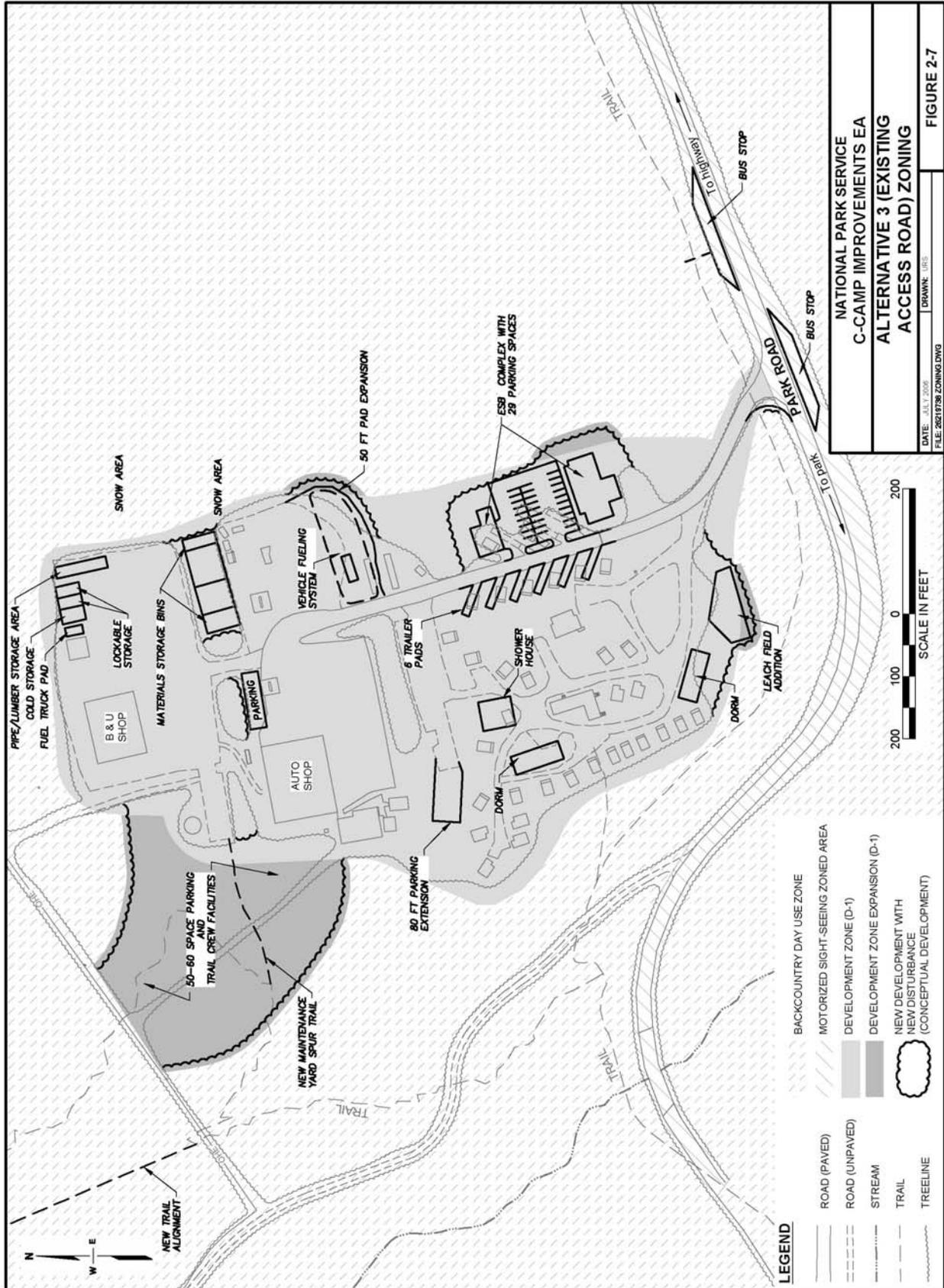


Figure 2-7 Alternative 3 – Zoning

The new facilities and utilities proposed under Alternative 4 would require a shift in zoning configurations in the frontcountry (see Figure 2-9). Approximately 3.8 acres of the Backcountry Day Use Zone would be converted to a Level 1 Development Zone. The majority of this area (approximately 3 acres) is contiguous with the existing development in the C-Camp area. The new access road (approximately 1 acre) is not immediately adjacent to the existing developments in C-Camp. An island would be created between the existing C-Camp developments and the new access road that would retain the Backcountry Day Use Zone designation. Two bus stops, encompassing approximately 0.2 acres, would be constructed in the Motorized Sightseeing Zone 2; the area is adjacent to the Park Road.

2.6 Mitigation and Monitoring

Mitigation measures are specific actions that when implemented reduce impacts, protect park resources, and protect visitors. The following mitigation would be implemented under each action alternative and are assumed in the analysis of impacts.

2.6.1 Vegetation, Soils and Groundwater

Backslopes and fill slopes would be covered with coarse materials to discourage colonization by invasive plants. Disturbed sites within the project area would be replanted with native vegetation, following the Interior Alaska Revegetation Plan (U.S. Geological Survey [USGS] 1994). Measures to prevent invasive plant colonization would include: pressure washing construction equipment and vehicles prior to entering the park, any gravel or fill required would either come from a weed-free materials site (as verified by a park vegetation technician) or would be heated to kill any plant material or seeds, and continuation of the park's existing exotic plant eradication program. Soil and groundwater remediation of fuel oil contamination would be done to the extent feasible and to the satisfaction of ADEC.

2.6.2 Wetlands

Silt fences and other Best Management Practices (BMP) technologies would be used to protect any adjacent wetlands. As described in the Wetlands SOF (Appendix A), mitigation by rehabilitating wetlands in another area of the park would be accomplished.

2.6.3 Wildlife and Habitat

Under the Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703), it is illegal to "take" migratory birds, their eggs, feathers or nests. "Take" includes by any means or in any manner, any attempt at hunting, pursuing, wounding, killing, possessing or transporting any migratory bird, nest, egg, or part thereof. The MBTA does not distinguish between intentional and unintentional take. Vegetation clearing, site preparation, or other construction activities that may result in the destruction of active bird nests or nestlings would violate MBTA. In order to avoid violations of the MBTA, bird habitat (vegetation) would not be removed during the nesting season, April 1 through July 15. After completing all the nesting vegetation removal required for the project, there would be no seasonal restriction for construction activities, even during the following nesting seasons. If any active nest were encountered at any time, it would be protected from destruction. "Active" is indicated by intact eggs, live chicks, or presence of an adult on the nest. Eggs, chicks, or adults of wild birds would not be destroyed (Zelenak 2005).

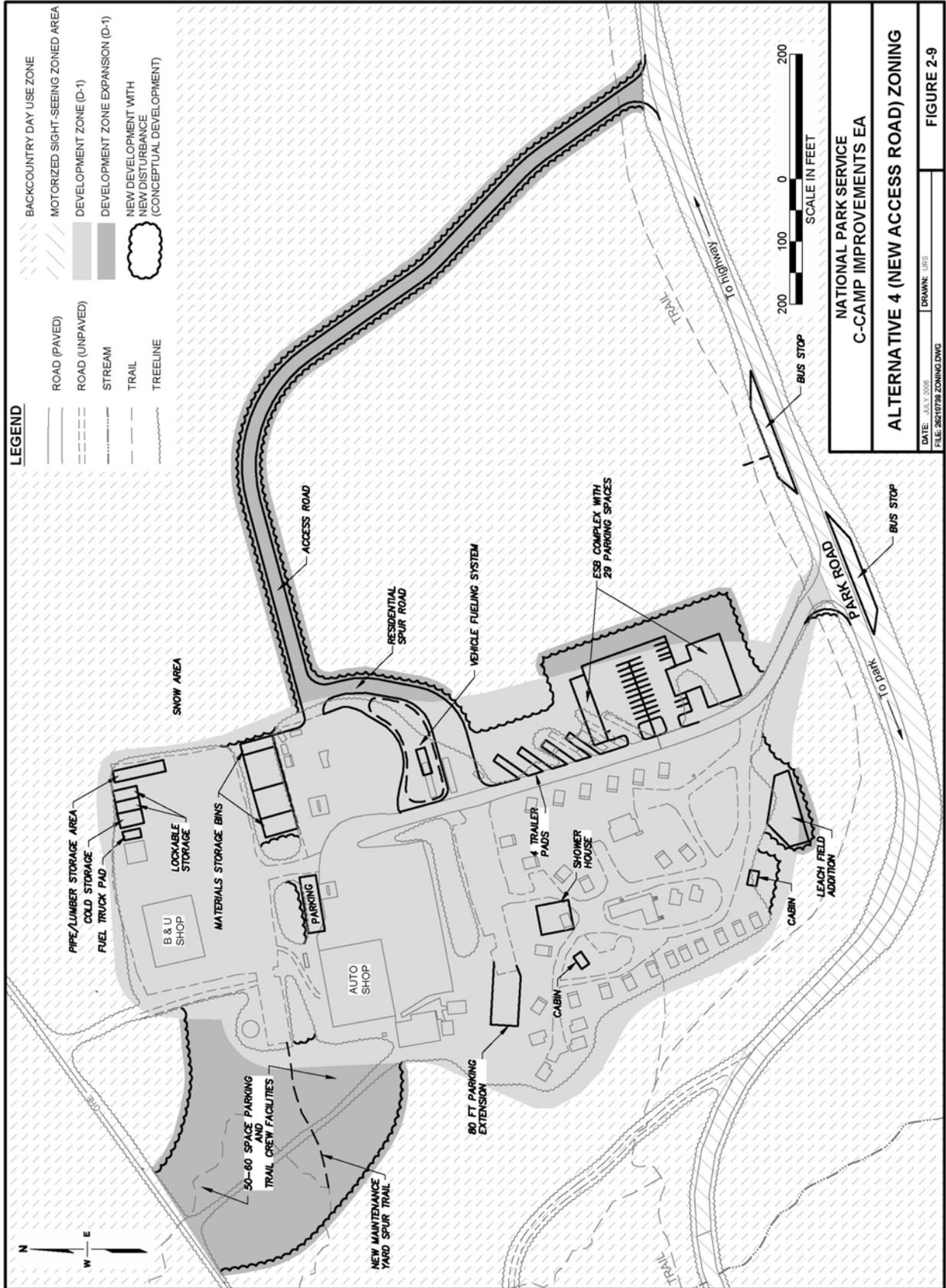


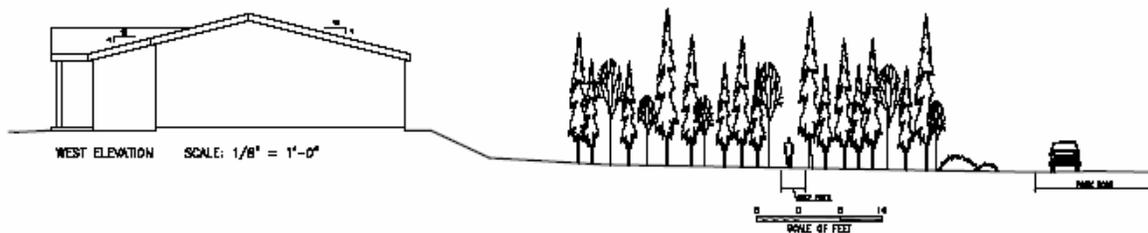
Figure 2-9 Alternative 4 – Zoning

2.6.4 Zoning

The DCP/EIS developed zoning for the frontcountry. One of the intents of the zoning was to constrain the expanse of development. While the zoning illustrations were conceptual in nature, the park staff made every attempt to meet the intent of the DCP/EIS. Although this project implements concepts proposed in the DCP/EIS, some of the proposed facilities and utilities would require shifts in the zoning configurations. The increase in the size of the Development Zone at C-Camp is mitigated by the recent decrease in the size of the Development Zone in the Savage Campground Area.

2.6.5 Visual Resources

The ESB would be designed to fit with the natural surroundings and sited to reduce its visibility from the Park Road. The design would take advantage of topography and existing vegetation to provide natural screening. Construction materials would be selected to complement the natural environment in color and texture.



Vegetation Buffer between the Park Road and the Emergency Services Building

2.6.6 Cultural Resources

Project excavations would be monitored by cultural resource staff. If previously unknown cultural resources are located during construction, the project would be stopped in the discovery area until cultural resource staff could determine the significance of the finding and recommend appropriate courses of action.

2.6.7 Local Communities/Socioeconomic Resources

No mitigation measures were developed for local communities and socioeconomic resources because the project impacts to these resources included small-scale stimuli to the local economy, consistent with historic limits and trends.

2.7 Environmentally Preferred Alternative

The environmentally preferred alternative is the alternative that will promote the national environmental policy expressed in NEPA Section 101(b). The environmentally preferred alternative means the alternative that causes the least damage to the biological and physical environment; it also means the alternative which best protects, preserves, and enhances historic, cultural, and natural resources.

Alternative 1, No Action, is the environmentally preferred alternative because it would have the least environmental impact. The developed area would not expand under the No Action, compared to 4.6, 3.7 and 5.6 acres of expansion under the action alternatives. Expansion of the developed area under the action alternatives would impact vegetation, soils, wetlands, wildlife habitat and visual resources.

In determining the environmentally preferred alternative, the lack of contamination remediation in the No Action Alternative was weighed against the predicted effectiveness of remediation in the action alternatives, and the lack of an increased development footprint in the No Action Alternative was weighed against the increase in development area in each of the action alternatives.

The action alternatives include mitigation measures to remediate existing contamination from oil products especially in the area of the underground storage tanks. The No Action Alternative does not include these mitigation actions, so more contamination of soils and groundwater would occur under No Action than under the action alternatives. The remediation actions in the action alternatives have not been planned in detail since planners are waiting for this C-Camp Improvements plan to determine where the new fueling station and fuel storage tanks would be located. In all action alternatives, adequate soil removal would be conducted to satisfy the Alaska Department of Environmental Conservation which regulates such facilities. At best, the remediation actions would not remove 100% of the soil and groundwater contamination.

NEPA Section 101 Goal Statements:

1. Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations; 2. Assure for all Americans safe, healthful, productive, and esthetically and culturally pleasing surroundings; 3. Attain the widest range of beneficial uses of the environment without degradation, risk to health and safety, or other undesirable and unintended consequences; 4. Preserve important historic, cultural, and natural aspects of our national heritage, and maintain wherever possible, an environment which supports diversity and variety of individual choice; 5. Achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities; and 6. Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources. (NEPA, 42 U.S.C. 4321-4347)

2.8 Description of Alternatives and Actions Considered But Eliminated from Detailed Study

- The DCP directs that “a new Emergency Management Service (EMS)/Fire Station (3,230 sq ft) will be constructed in the Auto Shop area with the East District protection offices consolidated there.” Locating the EMS/Fire station (now termed the ESB) at the Auto Shop area has been determined not feasible due to congestion and other designated uses of that pad. In addition, the 3,230 sq ft building would be too small to house the facilities and operations now required by the protection offices. Therefore, the DCP alternative location for and sizing of the ESB has been removed from further consideration.
- A two-story ESB and Annex was also considered in lieu of two one-story buildings. However, this option was rejected as a management decision following staff scoping recommendations. A two-story building requires additional square footage for vertical circulation and an elevator to meet barrier-free accessibility requirements. A two-story structure incorporating the Annex functions into the bottom level would also have less desirable traits for function such as noise and fumes being generated in close proximity to office space. There was also concern expressed due to the visual impact of a higher profile structure.

- Consideration was given to reducing the number of parking spaces adjacent to the ESB. However, internal staff scoping indicated that benefits of parking spaces near to the building complex for government vehicle and employee parking outweighed the potential cost and wetland impacts associated with providing sufficient parking spaces.
- Locating the ESB on a new pad to the west of the B&U pad was determined to be a safety issue of routing emergency response traffic through the entire maintenance operations area. In addition, areas to the west of the B&U pad would be the only logical locations for any future maintenance expansion.
- An alternate route for the primary power connection from the overhead power lines was considered and rejected. The only other potential route for the electrical line was situated in a utility corridor that is already full of essential utilities and would require excavating the B&U pad. Internal staff scoping determined that routing the electrical service adjacent to its current location was the most cost effective and least operationally disruptive option.
- Overhead power lines were rejected in favor of underground power lines due to visual concerns. Overhead power lines require a much larger disturbed area that must be kept clear of tree growth and require continuous maintenance. Also, NPS Management Policies (NPS 2000) state in Section 9.1.5.3 Utility Lines: “Where feasible, NPS utility lines will be placed underground...”
- Resident parking is currently over-crowded. Parking at the two shop pads (B&U and Auto Shop) is currently a mix of employee parking of personal vehicles, for employees living out of the C-Camp area, and government vehicles and equipment. Alternative actions that were considered but rejected would not expand this parking, or would expand it to a lesser extent than the alternatives brought forward for analysis.
- One of the objectives of the project is to provide the Maintenance Division with more “lay down area” at the two main pads. Alternatives that did not propose to move the vehicle parking to the new lots, thereby freeing up space for “lay down areas,” were rejected.
- Designing the ESB building or buildings so that their long axis was parallel to the access road was considered, thereby keeping the entire new ESB development out of the wetland (except for the required vegetation thinning under the hazard fuel reduction program). This configuration would use more of the access road frontage for the ESB. This alternative was determined to be impractical because:
 - 1) It would not allow space for a vehicle fuel island as in Alternative 2 and the fuel island would have to be moved to the Auto Shop pad as in Alternatives 3 & 4; the need for open lay-down space on the Auto Shop pad was determined to be of higher value than the small amount of wetland impact from the ESB.
 - 2) It would not allow space for the four volunteer trailer pads as in Alternative 4, and the volunteer trailer pads would have to be located outside of C-Camp in the Park Headquarters area as in Alternative 2; the need for the volunteer trailer pads at C-Camp was determined in

Alternatives 3 and 4 to be of higher value than the small amount of wetland impact from the ESB.

- 3) It would not allow the more compact construction and placement as seen in Alternative 3, and since the ESB site is on a slope (see Figure 2-1) it would require significantly more cut and fill to fit the ESB parallel to the access road and out of wetland; the need to minimize additional cut and fill construction costs was determined to be of higher value than the small amount of wetland impact from the ESB.

Table 2-1 Summary of Alternatives

	Alternative 1 No Action	Alternative 2 Preferred Parallel Access Road	Alternative 3 Existing Road	Alternative 4 New Access Road
Newly Disturbed Area	None	4.6 acres	3.7 acres	5.6 acres
Description	No new action. Existing facilities would remain and existing activities would continue. The mitigation actions in Section 2.6 would not be implemented.	A new road parallel to the east side of the residential area would be built. The ESB would be constructed near the C-Camp entrance. Utility, parking, cabin upgrades and mitigation measures are as described in Sections 2.2, 2.3 and 2.6.	Access to all facilities remains via the existing road. Other descriptions would be similar to Alternative 2.	A new road from the Park Road to the maintenance area would be built east of the existing C-Camp area. A spur road from the new road would provide separate access to the residence area. Other descriptions would be similar to Alternative 2.
Attributes	No new development	Vehicles would access the C-Camp area at the existing intersection. A new parallel road would be located east of the new ESB and serve to separate the developed area from the wetlands. The existing road would serve to separate the ESB from the residence area. This alternative would provide a full program scope for the law enforcement and fire management divisions. Contaminated soil remediation would be accomplished per ADEC and NPS requirements.	The existing road through C-Camp would be used to access the ESB and the maintenance and residence areas. The radius of the curve at intersection of the C-Camp road to the Park Road would be widened for safer site distance. The objective to separate maintenance and emergency services traffic from housing operations would be accomplished by relocating all housing to the east of the access road. Contaminated soil treatment would be similar to Alternative 2.	This alternative would provide a full program scope. It incorporates the requirements of the 1997 DCP/EIS while adding additional elements that were not envisioned in the DCP. Access to the maintenance area and residential area would be via new access and spur roads, thereby separating the administrative traffic from traveling through the C-Camp residential area. Contaminated soil treatment would be similar to Alternative 2.
Conflicts	Contaminated soils associated with the vehicle fueling system would not be treated.	ESB would be visible from the Park Road. Construction activities would be visible to the public.	Conflicts between residential and maintenance use of the existing road would remain. ESB and construction visibility would be similar to Alternative 2.	The new access road would traverse undeveloped area presently outside of the Development Zone. The new access road would encroach upon wetlands. ESB visibility would be greater than other alternatives.
Approximate Cost to Construct*	\$0	\$18,670,500	\$18,603,000	\$18,084,600.
Approximate Life Cycle Costs*	\$2,417,000	\$21,839,500	\$21,537,000	\$21,567,600

*A breakdown of the costs for each alternative is provided in Appendix C.

Table 2-2 Summary of Alternative Impacts

Impact Issue	Alternative 1 No Action	Alternative 2 Preferred Parallel Access Road	Alternative 3 Existing Road	Alternative 4 New Access Road
Vegetation, Soils and Groundwater	The No Action Alternative would not affect vegetation and soils. However, under the No Action Alternative the existing USTs and contaminated soil would not be removed and remediated. Continued leaking of fuel oil from contaminated soils into the groundwater would cause minor adverse long-term impacts to the groundwater.	About 4.6 additional acres of vegetation and soils would be disturbed. The impact in the project area from new developments and from housing and maintenance activities associated with these developments would be moderate . The fuel system would be relocated, allowing the park to replace the existing USTs and remediate the contaminated soils under the Auto Shop pad. Removing the contamination that is presently found within the soils and groundwater at the site would provide a beneficial long-term effect to natural resources in the vicinity of C-Camp.	About 3.7 acres of vegetation and soils would be impacted. The impacts in the project area would be similar to Alternative 2, moderate . The benefits of remediation of the contaminated soils would be the same as Alternative 2.	About 5.6 acres of vegetation and soils would be impacted. The impact in the project area would be similar to Alternative 2, moderate . The benefits of remediation of the contaminated soils would be the same as Alternative 2.
Wetlands	The No Action Alternative would not affect wetlands.	Approximately 0.7 acre of W-1 wetlands would be filled. No W-2 wetlands would be impacted. The level of this impact to wetland functions and values would be minor .	Approximately 0.3 acre of W-1 wetlands would be filled. No W-2 wetlands would be impacted. The level of this impact to wetland functions and values would be minor .	Approximately 1.2 acres of wetlands would be filled -- 0.7 acre of W-1 wetlands and 0.5 acre of W-2 wetlands. The level of this impact to wetland functions and values would be moderate .
Wildlife and Habitat	The No Action Alternative would not affect wildlife.	The developments proposed for Alternative 2 would impact about 4.6 acres of habitat in the vicinity of C-Camp. The impact on wildlife and habitat in the project area from these developments and from housing and maintenance activities associated with these developments would be moderate .	The developments proposed for Alternative 3 would impact about 3.7 acres of habitat in the vicinity of C-Camp. The impact on wildlife and habitat in the project area would be moderate as described for Alternative 2.	The developments proposed for Alternative 4 would impact about 5.6 acres of habitat in the vicinity of C-Camp. The impact on wildlife and habitat in the project area would be moderate as described for Alternative 2.
Visitor Use and Recreation	The No Action Alternative would not affect visitor use and recreation.	There would be minor impacts to visitor use and recreation due to the relocation of the Rock Creek Trail, and temporary disruptions	Impacts would be minor impacts to visitor use and recreation, the same as Alternative 2.	Impacts would be minor impacts to visitor use and recreation, the same as Alternative 2.

Table 2-2 (continued) Summary of Alternative Impacts

Impact Issue	Alternative 1 No Action	Alternative 2 Preferred Parallel Access Road	Alternative 3 Existing Road	Alternative 4 New Access Road
		to recreation activities due to road and facility construction and utility upgrades.		
Visual Resources	The No Action Alternative would not affect visual resources.	There would be minor impacts to visual resources due to the reroute of the Rock Creek Trail, road and facility construction and utility upgrades.	Impacts would be minor impacts to visual resources, the same as Alternative 2.	Impacts would be minor impacts to visual resources, the same as Alternative 2
Local Communities and Socioeconomic Resources	The No Action Alternative would not affect local communities and socioeconomic resources.	Alternative 2 would provide minor contributions to the local economy, having a minor beneficial impact on local communities and socioeconomic resources.	Impacts would be minor , the same as Alternative 2	Impacts would be minor , the same as Alternative 2

3.0 AFFECTED ENVIRONMENT

3.1 Project Area

Denali National Park and Preserve encompasses 9,419 square miles in central Alaska, with the main entrance along the George Parks Highway approximately 240 miles north of Anchorage and 12 miles south of Healy. Denali (Mt. McKinley), at an elevation of 20,320 feet, is the focal point of the park. The project area lies near mile post (MP) 3.0 of the 92-mile long Park Road.

3.2 Vegetation, Soils and Groundwater

3.2.1 Soils

Soils within the project area vary according to parent material, topography, and vegetation coverage. One of the major soil orders in the project area is inceptisols. These soils have undergone relatively minor modification of the soil parent material by soil-forming processes and are found on both well-drained upland areas and in wet lowland areas associated with permafrost. A majority of soil subgroups within the project area are classified as pergelic cryaquepts, which are characterized as being poorly drained gravelly soils that occupy high ridges, valleys, and foot slopes of steep north facing slopes (Reiger et al. 1979). These soils generally have permafrost at shallow depths. The other soil type found within the project area include histosols (peat), which are comprised of primarily organic material and are found in wet conditions in depressions or other low areas (Reiger et al. 1979).

3.2.2 Vegetation

The park as a whole is comprised of a mosaic of tundra, forest, shrubland and open meadow. The project area, located at an elevation of approximately 2,000 ft, lies within the northern boreal forest biome (taiga).

The taiga immediately surrounding C-Camp consists mostly of mixed needle leaf/deciduous forest of white and black spruce (*Picea glauca* and *P. mariana*) mixed with paper birch (*Betula papyrifera*) and some aspen (*Populus tremuloides*). White spruce occupy areas of well-drained soil, while black spruce are usually found in areas with poor drainage underlain by shallow permafrost. Common tall shrubs in this spruce-paper birch forest include alder (*Alnus crispa*), dwarf birch (*B. glandulosa*), and willows (including *Salix bebbiana*, *S. arbusculoides*, *S. glauca*, and *S. planifolia* spp. *pulchra*). The understory includes, prickly rose (*Rosa acicularis*), shrubby cinquefoil (*Potentilla fruiticosa*), Labrador tea (*Ledum groenlandicum*, *L. palustre*), bog blueberry (*Vaccinium uliginosum*), and high-bush cranberry (*Viburnum edule*). Ground cover typically consists of lichens mosses including thin feather mosses (*Hylocomium* spp.) (Viereck et al. 1992; NPS 1997; NPS 2005a; NPS 2005c).

Soils within the project area vary according to parent material, topography and vegetation coverage, and generally consist of three types. Sandy and silty soils underlay forested areas, and support moss and lichen groundcover. Wetland soils consist mostly of poorly-drained silts and glacial moraine materials, and typically possess a subsurface accumulation of organic matter and peat layers, with permafrost occasionally at depths less than 3 ft (NPS 1997). Permafrost has not been studied in the project area but can be continuous at higher elevations north of the Alaska Range (NPS 2004a).

3.2.3 Groundwater

Groundwater contamination exists below the Auto Shop pad as a result of past leaking from UST. Recent projects have remediated some of the soil and groundwater contaminated with heating oil and trichlorofluoromethane.

3.3 Wetlands

Wetlands are transitional areas between terrestrial and aquatic systems, where the water table is usually at or near the surface or the land is covered by shallow water (NPS 2003). Wetlands comprise a small portion of the project area. The project area wetlands are classified as Palustrine Forested, Needle-leaved Evergreen, saturated wetlands (PF04B) under the “Classification of Wetlands and Deepwater Habitats of the United States,” the Cowardin Classification System (Cowardin et al. 1979), and are therefore subject to NPS wetlands compliance procedures. These wetlands were further modified for mapping purposes according to their wetlands hydrology as “W-1 and W-2” wetlands. The W1 forested wetlands having a lower water table and drier soil conditions and W2 wetlands having high water table and saturated soils are closer to the surface.

Vegetation in the forested wetlands is typically dominated by black spruce/white spruce hybrids (Vioreck et al. 1992). The understory shrub layer consists of both low and tall shrubs of willow (*Salix* spp.) diamond leaf willow (*Salix planifolia*), Labrador tea (*Ledum* spp.) and bog blueberry (*Vaccinium uliginosum*). Common ground cover includes feather and sphagnum mosses (*Sphagnum* spp.), leaf lichens, lowbush cranberry (*Vaccinium vitisidaea*), crowberry (*Empetrum nigrum*) and a variety of forbs (Vioreck et al. 1992; NPS 2005c).

Wetlands soils within the project area are generally very thin and barely cover alluvial plains with a subsurface accumulation of organic matter and peat layers.

These wetlands function to attenuate snow melt surface flow during break-up and discharge during heavy rain events. These wetlands also provide habitat for small mammals, such as red squirrels, snowshoe hares, and porcupine; bird species, including gray jays, robins, thrushes, sparrows, and warblers. Moose frequent the area for forage, and it is considered potential moose calving area.

3.4 Wildlife Habitat

3.4.1 Mammals

Large mammal species such as moose (*Alces alces*), caribou (*Rangifer tarandus*), Dall sheep (*Ovis dalli*), brown bear (*Ursus arctos*), black bear (*Ursus americanus*), and gray wolf (*Canis lupus*) are found to the west of the project area, and are frequently seen along the Park Road or in the surrounding hillsides and mountains. Within the project area, moose would likely browse in the wetlands and black and brown bears might forage in the upland forested areas around C-Camp. Wolves are generally found wherever prey species, such as moose, are present, and therefore may be found in the area surrounding C-Camp.

Smaller mammals present within the project area include red fox (*Vulpes vulpes*), snowshoe hare (*Lepus americanus*), ermine (*Mustela erminea*), and red squirrel (*Tamiasciurus hudsonicus*) (NPS 2005a). Red fox are common and very visible along the Park Road whereas snowshoe hares and red squirrels are commonly found in forested areas. Other small mammal species include shrews (*Sorex* spp.), several species of voles, and lemmings.

3.4.2 Birds

The resident bird species common to the project area include spruce grouse (*Dendragapus canadensis*), willow ptarmigan (*Lagopus lagopus*), common raven (*Corvus corax*), black-billed magpie (*Pica pica*), boreal chickadees (*Poecile hudsonica*), common redpolls (*Carduelis flammea*), and three-toed woodpeckers (*Picoides tridactylus*). The great-horned owl (*Bubo virginianus*) and boreal owls (*Aegolius funereus*) are the most common resident owl species in Denali, while great gray owls (*Strix nebulosa*), and the northern hawk owls (*Surnia ulula*) occur at very low densities (NPS 2005b).

The numerous migratory species found in the project area include ruby-crowned kinglets (*Regulus calendula*), sparrows (American tree sparrow [*Spizella arborea*], savannah sparrow [*Passerculus sandwichensis*], fox sparrow [*Passerella iliaca*], white-crowned sparrow [*Zonotrichia leucophrys*]), warblers (yellow-rumped warbler [*Dendroica coronata*] and orange-crowned warbler [*Vermivora celata*], Wilson's warbler [*Wilsonia pusilla*]), violet green swallow (*Tachycineta thalassina*), dark-eyed junco (*Junco hyemalis*), American robin (*Turdus migratorius*), and several species of thrush (*Catharus* spp.) (NPS 2005b). Other common migrants include northern harrier (*Circus cyaneus*), mew gull (*Larus canus*), and golden eagle (*Aquila chrysaetos*). Wetland-nesting shorebirds include lesser yellowlegs (*Tringa flavipes*), common snipe (*Gallinago gallinago*), solitary sandpiper (*T. solitaria*), and wandering tattler (*Heteroscelus incanus*) (NPS 2005b).

Although currently no ESA-listed bird species occur in Denali, one federal species of concern, the olive-sided flycatcher (*Contopus cooperi*), is found within the general project area. This bird nests in open coniferous forests with bog ponds and marshy streams, and in woodland/dwarf forests (NPS 2005b).

The State of Alaska maintains a "species of special concern" list. Species on this list that occur within the park boundaries include the American peregrine falcon (*Falco peregrinus anatum*), olive-sided flycatcher, gray-cheeked thrush (*Catharus minimus*), and blackpoll warbler (*Dendroica striata*). All of these species are found in suitable habitats, although little is known about population abundance or distribution (Alaska Department of Fish and Game [ADFG] 1996 in NPS 2005b).

3.5 Visitor Use and Recreation

3.5.1 Visitor Use

Approximately 400,000 people visit the park annually, primarily during the months of June, July, and August (NPS 2005c). The primary visitor activity at Denali is a shuttle or tour bus ride along the Park Road, which stretches from the Parks Highway for 90 miles into the park interior, ending at Kantishna. Annually, about 280,000 visitors embark upon a shuttle bus trip or tour beyond the Savage River checkpoint for travel into the park interior (NPS 2004). The remaining visitors stay in the frontcountry and explore this area of the park via the Savage River Shuttle bus, tour bus, private car, bicycle, or on foot. All types of visitation to the park of are expected to continue to increase over the next 10-15 years.

Within the project area, visitor use is generally limited to foot traffic from hikers along the Rock Creek Trail, which connects with the Roadside Trail, Visitor Center Complex, Denali Kennels, and Park Headquarters. During the peak visitation season, pedestrians frequently walk the trails connecting entrance area facilities, especially the Roadside Trail. Day-use visitors are the primary trails users, in addition to use by park staff. Bicycle use on roadways within and around

the project area consists of visitors, local residents or employees going to the post office, depot, or other nearby destinations.

3.5.2 Recreation

Common recreation activities in the park include viewing scenery and wildlife, photography, driving for pleasure, hiking on nature trails, and picnicking. The NPS provides interpretive programs at the campgrounds, the Denali Visitor Center theater, and at various other sites in the entrance area (NPS 2004). The NPS contracts with a concessionaire to provide public services in the frontcountry area to assist visitors; concession services include: transportation, bus and campground reservations, food services, merchandise sales, and showers.

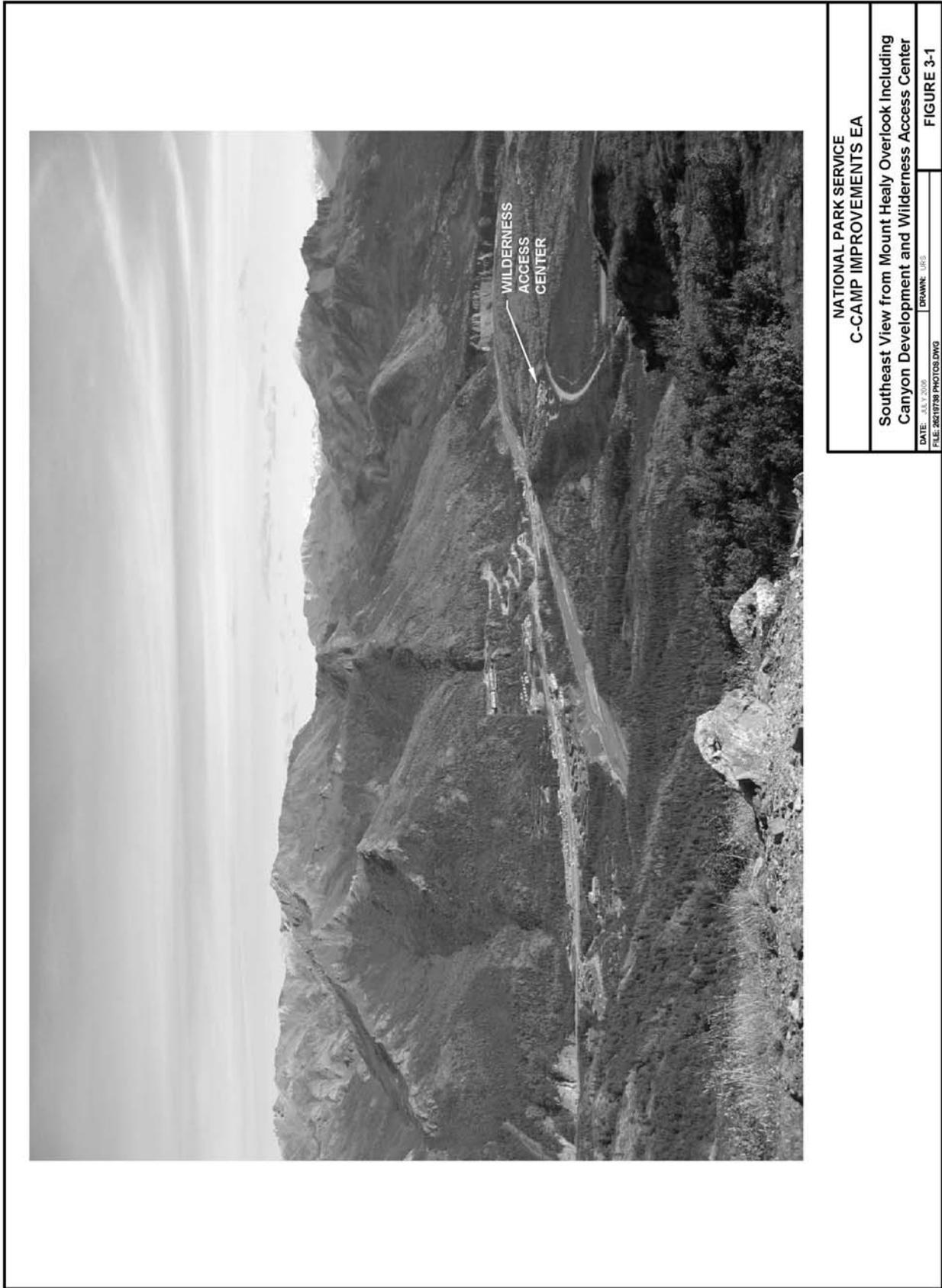
In contrast to the diverse recreation activities in the park, the project area is primarily an administrative use site, with few public recreation activities in the area. The primary public recreation activities are an upland forest hike on the 2.3-mile (one way) Rock Creek Trail and by passers on the Roadside Trail. Park staff that reside in the C-Camp area also use the adjacent trails, engaging in walking, hiking, and nature viewing.

3.6 Visual Resources

Facilities in and around the entrance area of the park have steadily expanded since the completion of the George Parks Highway in 1971. The Wilderness Access Center is visible to most visitors entering the park because it protrudes above treetops, but most entrance facilities are not readily visible unless the visitor hikes to higher elevations, such as the Mount Healy Overlook.

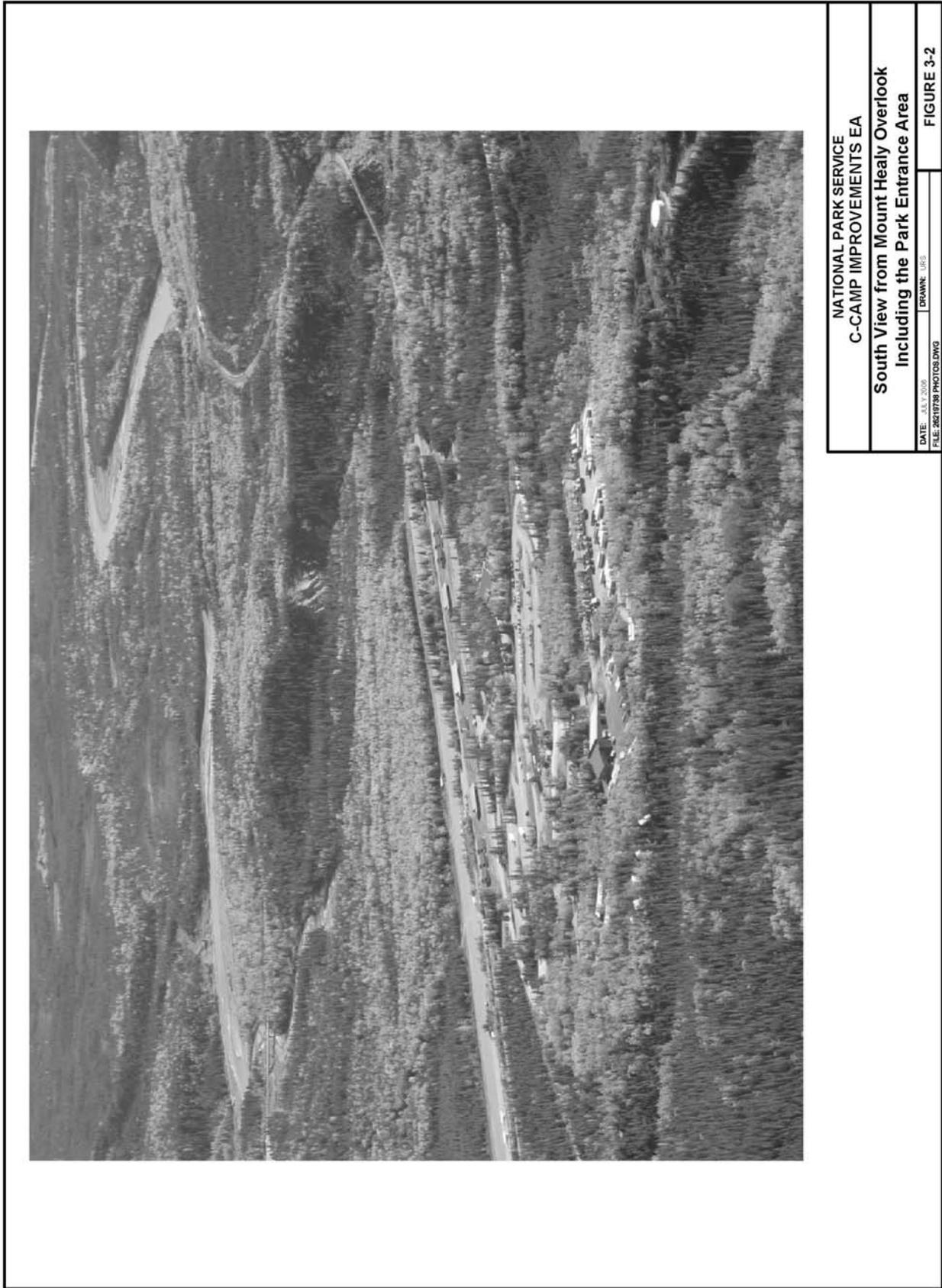
Figure 3-1 displays the view to the southeast from the Mount Healy Overlook, with the canyon development dominating the view. The Wilderness Access Center is located in the mid-ground of the photo to the right side. The color and design of the park entrance facilities mimic natural features. Figure 3-2 is a southern view from the overlook, focusing on the entrance area facilities, including the railroad depot, new Visitor Center Complex, and a maintenance area. These facilities are apparent from the overlook, but (with the exception of the royal blue railroad depot roofs) they incorporate natural colors and design techniques, in an effort to conform to the surrounding environment. Figure 3-3 is a view to the southwest from the overlook, with C-Camp centered in the mid-ground. The C-Camp facilities are visible from the overlook, but natural features dominate this view. The more recent additions to the C-Camp area, including the B&U and Auto Shop buildings, are more visible than the older areas of C-Camp and the park headquarters.

Existing development in the C-Camp area is well screened from most areas commonly used by visitors; native vegetation dominates the view from common vantage points in the entrance area. There are limited views from the Park Road, Rock Creek Trail, and the Mount Healy Overlook. Landscaping with native species in the C-Camp area mimics the surrounding natural environment and improves the visual aesthetics of the built environment. Figure 3-4 displays the intersection of the Park Road and the C-Camp access road.



NATIONAL PARK SERVICE C-CAMP IMPROVEMENTS EA	
Southeast View from Mount Healy Overlook Including Canyon Development and Wilderness Access Center	
DATE: 11.19.2006	DRAWN: URS
FILE: 2621728 PHOTO.DWG	FIGURE 3-1

Figure 3-1 Views to the Southeast from the Mount Healy Overlook



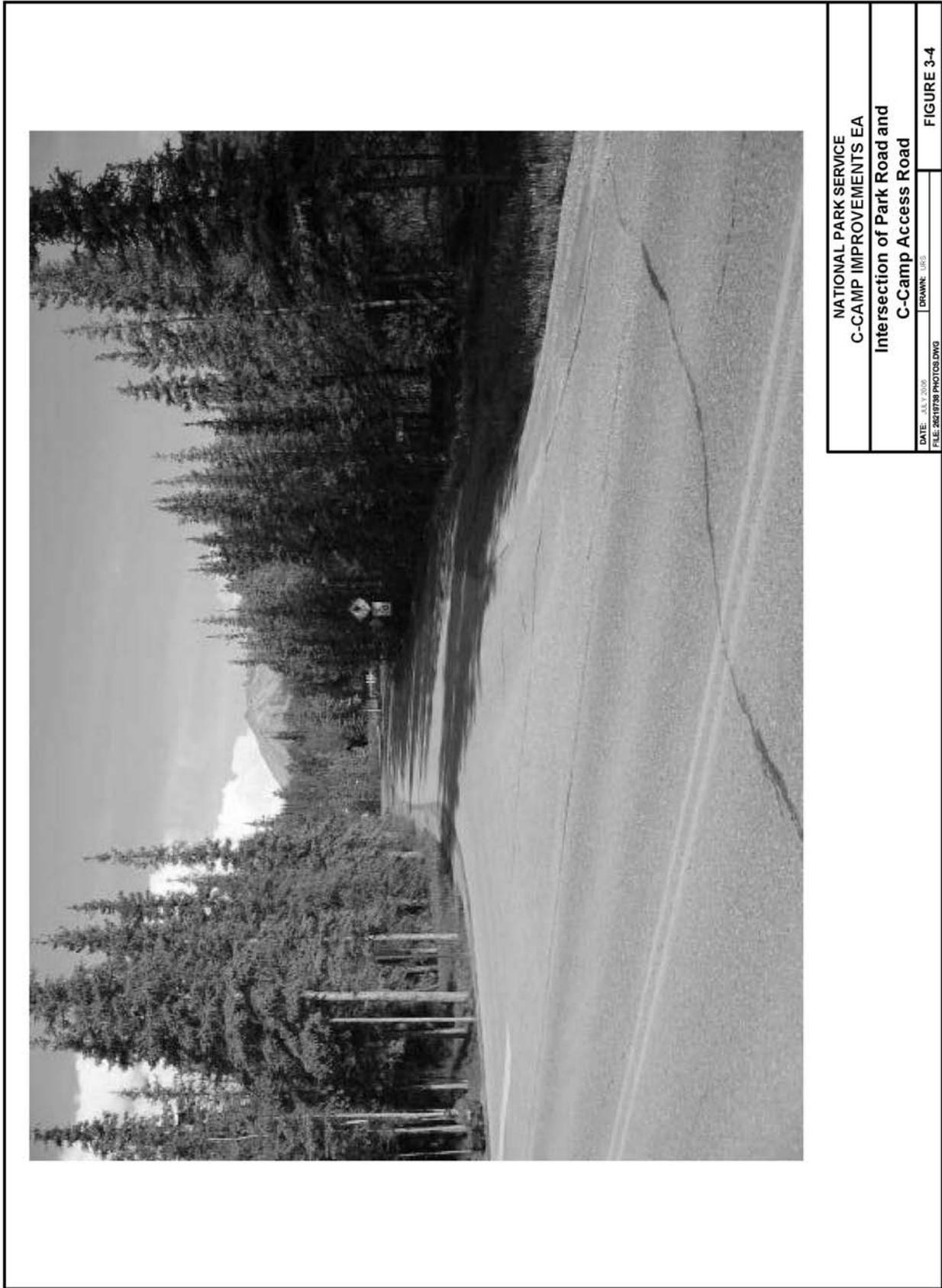
NATIONAL PARK SERVICE	
C-CAMP IMPROVEMENTS EA	
South View from Mount Healy Overlook Including the Park Entrance Area	
DATE: 03.29.2006	DRAWN: 1005
FILE: 2621725 PHOTO.DWG	
FIGURE 3-2	

Figure 3-2 Views to the South from the Mount Healy Overlook



NATIONAL PARK SERVICE C-CAMP IMPROVEMENTS EA	
Southwest View from Mount Healy Overlook Including C-Camp Facilities	
DATE: 03.20.06	DRAWN: JDS
FILE: 262175B PHOTO.DWG	FIGURE 3-3

Figure 3-3 Views to the Southwest from the Mount Healy Overlook



NATIONAL PARK SERVICE	
C-CAMP IMPROVEMENTS EA	
Intersection of Park Road and C-Camp Access Road	
DATE: 03.09.2006	DRAWN: JDS
FILE: 2621729 PHOTO.DWG	
FIGURE 3-4	

Figure 3-4 Intersection of the Park Road and the C-Camp Access Road

3.7 Local Communities/Socioeconomic Resources

The social and economic environment for the Denali frontcountry is described in detail in the DCP/EIS (1997). Population growth in the Denali Borough is considered slow, and lags the state, although some communities like Cantwell and Healy show rapid growth rates comparable to those in Matanuska-Susitna Borough (Department of Commerce, Community, and Economic Development [DCED] 2005). Generally, rural communities such as Anderson, Ferry, and McKinley Park show population losses. By conservative estimates, the population of the Denali Borough at least triples during the busy summer season, which is roughly mid-May to mid-September. Ethnically, the population of the area is heavily dominated by Caucasians as compared to the state as a whole or the nearby urban centers.

Employment in the Denali Borough is strongly seasonal because of the importance of the tourism industry in the local economy compared to the other industries. The tourism industry is the driving force behind employment growth in the Denali Borough, although the growth is scattered among several different economic sectors. Hotels, restaurants, transport services, retail shops, gas stations, and guide services are among the many services available for people coming to visit the park. To illustrate the growth, the NPS counted just 133 hotel rooms near the park's entrance in 1980. By 2000, there were 1,800 hotel or bed and breakfast rooms, plus 339 cabins and 569 RV spaces (excluding campsites and RV spots in the park). The total number of accommodations in the area between Cantwell and Healy is now over 2,000 rooms and cabins.

Employment in the hotel and visitor services sector has continued to grow with the addition of the new private facilities. None of the hotels or restaurants near the park entrance remain open during the winter, but a few restaurants and overnight accommodations in the Healy and Cantwell areas do remain open year-round.

4.0 ENVIRONMENTAL CONSEQUENCES

4.1 Introduction

This section provides an evaluation of the impacts or potential impacts of each of the alternatives on the resources described in the issue statements presented in Section 1, Purpose and Need for Action.

4.2 Methodology

4.2.1 Impact Criteria and Assessment

The impact analysis was conducted in a consistent manner based on standardized impact definitions. For each issue selected for detailed analysis (see Section 1.4.1) direct, indirect, and cumulative impacts have been described. Impacts identified for each issue brought forward are based on the duration, extent, and intensity of the impact. Summary impact levels (characterized as negligible, minor, moderate, or major) are given for each impact topic (issue). Impact level thresholds are defined in Table 4-1.

The proposed development areas are shown conceptually on Figures 2-4, 2-6, and 2-8 for the action alternatives. As the designs for the facilities are finalized, the actual area of disturbance may be less, depending on how the new pads or buildings are designed to fit within the conceptual area. The area of potential effect (APE) of the proposed actions was calculated for each alternative using the conceptual areas. Therefore, the APE is the entire conceptual area, while the actual footprint would likely be less.

Table 4-1 Resource Assessment Impact Levels

Impact Level	Negligible	Minor	Moderate	Major
Intensity	Little or no impact to the resource would occur; any change that might occur may be perceptible but difficult to measure.	Change in a resource would occur, but no substantial resource impact would result; The change in the resource would be perceptible but would not alter the condition of the resource.	Noticeable change in a resource would occur and this change would alter the condition or appearance of the resource, but the integrity of the resource would remain.	Substantial impact or change in a resource area would occur that is easily defined and highly noticeable, and that measurably alters the condition or appearance of the resource.
Extent	None	Localized – Impact would occur only at alternative site or its immediate surroundings, and would not extend into the region.	Wide Area of Park – Impact would affect the resource on a regional level or in the park as a whole, extending well beyond the immediate alternative site.	Parkwide – Impact would affect the resource on a national level, extending well beyond the region or park as a whole.
Duration	None	Temporary – Impact would occur only during construction. After construction, the resource conditions would return to pre-construction conditions.	Short-term – Impact would extend beyond the time of construction, but would not last more than two years.	Long-term – Impact would likely last more than two years and may continue beyond the lifetime of the project.

4.2.2 Cumulative Impacts

As defined in 40 CFR 1508.7, cumulative impacts are the incremental impacts on the environment resulting from adding the proposed action to other past, present, and reasonably foreseeable future actions. Cumulative impacts were assessed by combining the potential environmental impacts of the alternatives with the impacts of projects that have occurred in the past, are currently occurring, or are proposed in the future within the entrance area. In the past, these cumulative impacts have mainly been due to increased visitor use along the Park Road, and development and improvement of administrative and visitor services in the entrance area (defined as the area along the Park Road from the intersection with the George Parks Highway to the Park Headquarters situated at about MP 3.4).

Implementation of the DCP/EIS is continuing with general programming for all facilities and the design of several development components. Facilities and services in the park entrance area currently include:

- Visitor Center Complex, completed in 2005 with a bookstore/gift shop and cafeteria/deli,
- Murie Science and Learning Center Complex,
- Wilderness Access Center,
- Riley Creek Campground, rehabilitation and expansion completed in 2002,
- Railroad Depot,
- Post Office,
- Airstrip,
- A network of hiking trails that connects the Nenana Canyon to the entrance area and the entrance area to the C-Camp/Headquarters Area,
- Sled dog kennels at Park Headquarters,
- Riley Creek Mercantile, with camper convenience services such as a general store and showers,
- Support facilities for the concessionaire (including a housing area) and NPS interpretive programs, and
- A bus barn to support bus maintenance activities.

In addition to the projects described above for visitor services in the entrance area, several additional projects have been completed at or near C-Camp:

- Park Road resurfacing (1989-1990),
- Constructing the B&U pad and building (1997-1999),
- Adding 18-ft to the Auto Shop for ANHA offices and warehouse,
- Restoring the shower house,
- Adding a leach field below the Auto Shop pad,
- Improving C-Camp housing: replacing two 3-bedroom mobile homes with cabins; three canvas tents with cabins; and two travel trailers with cabins. This

work was conducted under the NPS trailer replacement program, while the other replacement cabins were constructed under the NPS cooperative School-to-Work program.

- Correcting deficiencies in the C-Camp heating oil distribution System (Project Management Information System [PMIS] 44509) and converting C-Camp units to an alternative fuel system (PMIS 79834) – all facilities in C-Camp were converted from fuel oil to propane. Associated piping and tanks associated with the fuel oil system were removed and contaminated soil was remediated.
- Completing a Site Assessment at C-Camp shop injection wells (PMIS 82387) – the assessment detected some soil contamination by trichlorofluoromethane, but no groundwater contamination. The site is proposed for administrative closure.
- C-Camp water system upgrades (PMIS 55250) – added a water tank for fire suppression storage and year-round domestic services to the Auto Shop and B&U buildings (2002-2003).
- Conducted Site Assessment and evaluation of groundwater contamination associated with the vehicle fueling system (PMIS 100626).

The Park has completed several components described in the DCP/EIS for the Headquarters area including:

- Rerouting the sled dog demonstration trail,
- Installing Sweet Smelling Toilets (SST) for the dog demonstration area, and
- Restoring most of the historic structures in the Headquarters Historic District.

The park has plans in the near future to implement other items in the DCP/EIS that include:

- Removing the old concession dorm near the parking lot of the new Denali Visitor Center,
- Completing the proposed trail projects in the Nenana Corridor,
- Rehabilitating the wastewater treatment facility and collection system,
- Constructing an entrance station,
- Bringing the water treatment system into compliance with new regulations,
- Completing the historic structure rehabilitation and restoring the historic landscape,
- Constructing additional parking and administrative space,
- Repairing or rehabilitating the utility infrastructure,
- Converting from steam to propane as a heat source,
- Mitigating radon exposure, and
- Completing Park Road safety enhancements such as correction of site distance at MP 3 and MP 4.

Other future and ongoing projects in the Entrance Area that were not specifically addressed in the DCP/EIS include:

- Cyclically removing brush from beneath the overhead power line,
- Repairing roads and trails,
- Replacing the Auto Shop roof and correcting building code deficiencies,
- Correcting B&U building foundation issues,
- Continuing remediation of contaminated soils and groundwater at various locations,
- Replacing Rock Creek Bridge located near MP 3 (PMIS 91093) – project consists of constructing a by pass road for detouring traffic, demolition and removal of the existing bridge and construction of a new structure,
- Periodic resurfacing of Park Road in the entrance area, and
- Converting to natural gas as a heat source.

4.3 Impacts of Alternative 1: No Action

4.3.1 Vegetation, Soils and Groundwater

Alternative 1, No Action, would result in no new ground disturbance from development. Therefore, no new impacts would occur on vegetation, soils or groundwater.

Contamination from the vehicle fuel UST would remain beneath the Auto Shop pad. The existing USTs and contaminated soil would not be removed and remediated. The presence of heating oil and fuel contaminated soils and groundwater would cause adverse long-term impacts to the soil and groundwater resources in the vicinity of C-Camp.

Cumulative Impacts

Past activities that have impacted or would continue to impact vegetation, soils and groundwater in the entrance area and vicinity of C-Camp have included employee lodging and local trails.

There have also been projects conducted to investigate and remediate contaminated soils and groundwater, and to upgrade fuel distribution systems within C-Camp.

The existing development in the entrance area includes areas cleared of vegetation for the Visitor Center Complex, the Murie Science and Learning Center complex, the Wilderness Access Center, the Riley Creek Campground, the Riley Creek Mercantile, the water treatment plant, the airstrip, the railroad depot and the park road. The total acreage of existing disturbance to vegetation and soils in the entrance area is about 83 acres (NPS 2005a). Indirect impacts on vegetation and soils from these past and ongoing activities include creation of social trails and trampling of vegetation, filling of vegetated areas, and introduction of invasive species. Other indirect impacts include channelization of runoff from paved areas and footpaths and subsequent erosion of soils. These past and present impacts can be seen at many of the developed sites in the entrance area, and could be considered moderate impacts on vegetation and soils (see Table 4-1).

Reasonably foreseeable future activities that could occur within the vicinity of C-Camp are described in Section 4.2.2. Of these future activities, the replacement of the Rock Creek Bridge, rehabilitation of the Rock Creek water system, cyclic brush removal beneath power lines, and the connection of C-Camp wastewater to the Park Headquarters wastewater system have the highest potential to impact vegetation and soils. Impacts would be highest during the construction

phases for these projects and when considered together, overall impacts on vegetation and soils would be moderate.

Alternative 1, No Action, would have no contribution to cumulative impacts on vegetation in the project area. However, due to the continued presence of the soil and groundwater contamination and the scope of the projects described in Section 4.2.2, overall, cumulative impacts on vegetation, soils and groundwater resulting from past, present, and reasonably foreseeable future actions would be moderate (see Table 4-1).

Conclusion

Alternative 1, No Action, would have a moderate impact on vegetation, soils and groundwater in the project area. Impacts to vegetation, soils and groundwater would not result in impairment of park resources or values as a result of the actions proposed under this alternative.

4.3.2 Wetlands

The analysis below indicates that because no new development would occur under Alternative 1, there would be no direct or indirect impacts on wetlands.

Cumulative Impacts

About 4 acres of wetlands have been impacted by previous road, trail and building construction in the park entrance area. The area contains about 25 acres of similar non-jurisdictional wetlands and over 100 acres on the slopes surrounding the C-Camp area (NPS 2005a). Most of the areas developed have occurred in wetland types that are common throughout the eastern area of the park and no sensitive areas have been impacted; therefore, the extent of past and existing impacts on wetlands can be considered minor (see Table 4-1).

Reasonably foreseeable future activities that could occur within the C-Camp vicinity are described in Section 4.2.2. Impact to wetlands from existing soil contamination is too speculative for analysis at this time. Monitoring wells indicate gasoline contamination is 40 feet below the surface. No down-gradient wetlands are near this contamination. It is unknown if, when or where the plume might reach the surface or if it might contaminate wetlands. The replacement of the Rock Creek Bridge, rehabilitation of the Rock Creek water system, cyclic brush removal beneath power lines, and the connection of C-Camp wastewater to the Park Headquarters wastewater system have the highest potential to impact wetlands. Impacts would be highest during the construction phases for these projects. However, carefully locating project actions to avoid W-2 wetlands and adherence to BMPs to protect wetlands during construction would serve to mitigate potential impacts. Therefore, overall impacts on wetlands by future projects in the C-Camp area would be minor.

Alternative 1, No Action, would have no contribution to cumulative impacts on wetlands in the project area. However, as described in the preceding paragraphs, the projects described in Section 4.2.2 could induce minor cumulative impacts on wetlands (see Table 4-1).

Conclusion

Alternative 1 would have no impact on vegetation and soils in the project area. Therefore, no impairment of wetlands would occur as a result of the actions proposed under the No Action Alternative.

4.3.3 Wildlife and Habitat

The analysis below indicates that Alternative 1, No Action, would result in no direct or indirect impacts on wildlife and habitat. There would be no construction of new facilities or upgrade of existing facilities under the No Action Alternative.

Cumulative Impacts

As described in Section 4.3.1 for Vegetation and Soils, past actions have impacted about 83 acres of wildlife habitat in the entrance area of the park. Because thousands of acres of similar habitat exist in the vicinity, these past and ongoing activities would have had a minor cumulative impact on the wildlife and their habitat in the park entrance area.

Reasonably foreseeable future activities that could occur in the vicinity of C-Camp are described in Section 4.2.2. The replacement of the Rock Creek Bridge, rehabilitation of the Rock Creek water system, cyclic brush removal beneath power lines, and the connection of C-Camp wastewater to the Park Headquarters wastewater system have the highest potential to impact habitat. However, because most of the areas potentially impacted in the C-Camp vicinity include common habitats such as open mixed forest, low and tall shrub communities, overall past present and future impacts on wildlife and habitat in the project area can be considered minor (see Table 4-1).

Alternative 1, No Action, would have no contribution to cumulative impacts on wildlife and habitat and soils in the project area. Because there are no sensitive habitats within the immediate vicinity of the road corridor in the entrance area, overall cumulative impacts on wildlife and habitat from the projects described in Section 4.2.2 would be minor (see Table 4-1).

Conclusion

Alternative 1 would have no impact on wetlands in the project area. Therefore, no impairment of wildlife and habitat would occur as a result of the No Action Alternative.

4.3.4 Visitor Use and Recreation

The analysis below indicates there would be no impacts to visitor use and recreation due to implementation of Alternative 1. Under Alternative 1, there would not be new facility construction in the C-Camp area and the Rock Creek Trail would not be relocated. Existing uses and trends would likely continue. Therefore, there would be no direct or indirect impacts to visitor use and recreation.

Cumulative Impacts

As discussed in Section 4.2.2, there have been multiple past actions in the entrance area due to increased visitor use, as well as changes to administrative and visitor services. Actions include closing the park hotel and McKinley Mercantile, construction of visitor and education centers, and providing several visitor service support facilities. Impacts to visitor use and recreation have included temporary disruptions in services due to construction activities, a redistribution of accommodation services to surrounding communities, and greater convenience and access to visitor information from new facilities in the entrance area. Past actions in the immediate vicinity of C-Camp have included routine maintenance actions, such as road resurfacing and upgrades to fuel distribution systems. These activities have had minor, temporary effects to visitor use and recreation, such as disruptions in traffic flow during project construction.

Reasonably foreseeable future actions in the immediate vicinity of C-Camp include further improvements to administrative sites, involving actions such as brush removal under power lines,

correction of building code deficiencies, water system upgrades, and other routine maintenance activities. Section 4.2.2 provides a complete list of reasonably foreseeable activities. Effects on visitor use and recreation could include minor, temporary effects such as noise and dust during project construction.

The cumulative impact to visitor use and recreation in the C-Camp area is minor. With no direct or indirect impacts, Alternative 1 would not contribute to cumulative impacts on visitor use and recreation.

Conclusion

Alternative 1 would have no impact on visitor use and recreation in the project area. Therefore, no impairment of visitor use or recreation would occur as a result of the actions proposed under this alternative.

4.3.5 Visual Resources

The analysis below indicates there would be no impacts to visual resources due to implementation of Alternative 1, No Action. Under Alternative 1, there would be no changes to the constructed or natural environments in the C-Camp area. Existing landscapes and viewpoints would not be altered. Therefore, there would be no direct or indirect impacts to visual resources.

Cumulative Impacts

As discussed in Section 4.2.2, multiple past actions have altered the constructed environment, natural landscapes, and viewpoints in the entrance area. These actions include removing the park hotel and McKinley Mercantile, construction of visitor and education centers, and construction and maintenance of administrative facilities. Impacts to visual resources have included temporary disturbances due to construction activities and long-term changes in the viewed landscape in the entrance area. Constructed facilities have been designed to mimic features of the natural landscape, incorporating natural colors and textures and landscaping with native materials. Past actions in the immediate vicinity of C-Camp have included routine maintenance actions, such as road resurfacing and upgrades to fuel distribution systems. These activities have had minor, temporary effects to visual resources, such as dust disturbance during project construction. Many of the past projects in the vicinity of C-Camp were administrative and were not readily visible from important viewpoints in the entrance area.

Reasonably foreseeable future actions in the immediate vicinity of C-Camp include further improvements to administrative sites, involving actions such as brush removal under power lines, correction of building code deficiencies, water system upgrades, and other routine maintenance activities; refer to Section 4.2.2 for a complete list of reasonably foreseeable activities. These reasonably foreseeable actions would have minor, temporary effects such as visual intrusion of equipment during project construction.

The cumulative impact to visual resources in the C-Camp area is minor. With no direct or indirect impacts, Alternative 1 would not contribute to cumulative impacts on visitor use and recreation.

Conclusion

Alternative 1 would have no impact on visual resources in the project area. Therefore, no impairment of these resources would occur as a result of implementing the No Action Alternative.

4.3.6 Local Communities/Socioeconomic Resources

The analysis below indicates there would be no impacts to local communities and socioeconomic resources due to implementation of Alternative 1, No Action. Under Alternative 1, there would not be new facility construction, utility upgrades, or hazardous site remediation in the C-Camp area. Existing services and economic impacts would likely continue. Therefore, there would be no direct or indirect impacts to local communities and socioeconomic resources.

Cumulative Impacts

As discussed in Section 4.2.2, multiple past actions have occurred in the park entrance area, which have affected local communities and socioeconomic resources. These actions include removing the park hotel and McKinley Mercantile, construction of visitor and education centers, and construction and maintenance of administrative facilities. Impacts to local communities and socioeconomic resources have included temporary contributions to local economies due to construction activities and long-term economic stimuli due to changes in facilities provided in the entrance area. Past actions in the immediate vicinity of C-Camp have included routine maintenance actions, such as road resurfacing and upgrades to fuel distribution systems. These activities have provided minor, temporary contributions to local economies during project construction, but have not likely had long-term impacts to local communities or socioeconomic resources.

Reasonably foreseeable future actions in the immediate vicinity of C-Camp include further improvements to administrative sites, involving actions such as brush removal under power lines, correction of building code deficiencies, water system upgrades, and other routine maintenance activities; refer to Section 4.2.2 for a complete list of reasonably foreseeable activities. These reasonably foreseeable actions would provide minor, temporary contributions to local economies during project construction.

The cumulative impact to local communities and socioeconomic resources due to activities in the C-Camp area is minor. With no direct or indirect impacts, Alternative 1 would not contribute to the cumulative impacts.

Conclusion

Alternative 1 would have no direct or indirect impacts on local communities and socioeconomic resources.

4.4 Impacts of Alternative 2: Parallel Access Road Alternative (Preferred Alternative)

Alternative 2 includes all of the improvement actions and upgrades of the C-Camp area that are common to all action alternatives. In addition, Alternative 2 proposes to build a new access road situated parallel to the east side of the residential area. Under Alternative 2, an ESB and a separate Annex would be constructed near the existing C-Camp entrance, along with a parking lot for 29 vehicles (see Figure 2-4). The new vehicle fueling system would be located directly south of the Auto Shop pad along the new parallel road.

4.4.1 Vegetation, Soils and Groundwater

The analysis below indicates there would be moderate impacts to vegetation, soils and groundwater due to implementation of Alternative 2. Under The impact of the development of Alternative 2 on terrestrial vegetation would include: direct loss of habitat, direct loss of native plant cover, and a potential reduction in function such as biomass production. The impacts on soils would include exposure of local soils to potential erosion, and invasive plant species. The

loss of terrestrial vegetation as it pertains to wildlife and habitat is discussed in more detail in Section 4.3.3.

Common Actions

Most of the common actions, such as the utility upgrades, 80-ft expansion of C-Camp parking, the several new dorms or cabins and a shower house, the B&U cold storage building and lockable storage, and the VIP trailer pads (Alternatives 3 and 4 only), would occur on existing pads or in areas that are already disturbed. However, a few of the common actions such as the new bus stops/pullout, trail shop and crew facilities, materials storage bins, new parking area west of the B&U, sewage leach field extension, the new dorm or cabin west of the leach field, and rerouting of the Rock Creek trail would have impacts extending into undisturbed areas.

Because much of C-Camp has been previously disturbed and is located in a developed area, the construction of new cabins and upgrades to existing infrastructure within the housing and industrial areas of C-Camp would affect the area's vegetation, soil and groundwater to a moderate extent. Small amounts of vegetation existing in the developed area may be disturbed or cleared, but this clearing would be kept to a minimum, likely just removing a few shrubs or trees.

Under the common actions, some of the build-outs, parking areas, increases in pad sizing and trail reroute would encroach on previously undisturbed areas. The largest area would be the 50-60 space parking area situated to the west of the B&U building (see Figure 2-5). Based on the conceptual design areas shown on Figure 2-4, the total undisturbed vegetation that could be impacted by the common actions (the APE) would be about 2.9 acres. As described in Section 4.1, the actual footprints of the common actions would likely be less than the conceptual areas. While the APE is the entire conceptual design area, it is likely that due to facility placement, the actual footprint could be less. The APE also considers areas potentially disturbed by clearing for Hazard Fuel Reduction (30 ft from burnable structures), drainage, and unknown design details such road cross section and culverts. Therefore, the APE could be considered the worst-case scenario for impacts.

In addition to the 30 ft clearing for hazard fuel reduction, which is calculated in the APE, the NPS routinely removes or thins vegetation within about 70 to 100 ft of burnable structures. Following NPS Fire Wise Concepts, the areas are not clear cut, but a majority of the trees are removed, generally providing at least 20 ft spacing between remaining trees. Clumps of two to four trees may be left, and the NPS favors leaving hardwood such as paper birch and aspen and removing conifers. For trees that are left, ladder fuels are trimmed, and no branches are allowed to touch the ground.

There is some potential for invasive plant species to colonize bare soils that are exposed during the construction process, but mitigation measures and BMPs that would be implemented would serve to minimize the effect over the small areas of disturbance. Construction would occur such that clearing activities would not alter surface drainage. Because this area has been previously disturbed, is located in a developed area, and the extent of new disturbance (2.9 acres) is limited, the impact of these common actions on vegetation, soils and groundwater would be moderate.

Parallel Access Road, New ESB and Annex, and Vehicle Fuel System

The direct impacts of the proposed project on vegetation were determined through review of the conceptual engineering drawings and calculated APE areas. In addition to the common actions described above, Alternative 2 would include additional cleared areas for the parallel access road

and extension of the existing pads to accommodate the new buildings. Conceptual design areas for these facilities that are unique to Alternative 2 in design are shown on Figure 2-4. As described for the common actions, the APE of the proposed parallel access road, new ESB and Annex, and new vehicle fueling system, was calculated using these conceptual design areas. The APE is the entire conceptual design area, while the actual footprint would likely be less. Therefore, the APE for the actions unique to Alternative 2 is about 1.7 acres.

Potential direct impacts associated with the construction of a paved access road and larger pads would include the loss of vegetation. As described above for the common actions, the development would affect the area's vegetation, soil and groundwater to a moderate extent, due to the small area impacted and the developed nature of the C-Camp area. Considering that the vegetation types affected by the proposed project are common in the surrounding area and within the general region, the loss of 1.7 acres is considered to be a moderate impact on vegetation in the project area.

Potential indirect impacts associated with the construction of an access road include sedimentation of adjacent habitats and pollutants introduced from road runoff, and potential introduction of invasive species, subsequently reducing ecological diversity. BMPs and design standards can minimize contaminant introduction from road runoff. Indirect impacts associated with construction of gravel trails and paths include habitat fragmentation and increased edge effects, and potential introduction of exotic species, and subsequent reduction of ecological diversity.

Contamination has been documented in the soil and groundwater at C-Camp. Several recent projects have remediated soil and groundwater contaminated with heating oil and trichlorofluoromethane (see Section 4.2.2). Alternative 2 provides for a relocation of the vehicle fueling system allowing the park to replace the existing USTs and remediate the contaminated soils under the Auto Shop pad to the extent required by the ADEC. The soil remediation would be conducted in coordination with the State regulator, until the State and the NPS are satisfied with the results and the site is declared adequately cleaned up. Removing the contamination that is presently found within the soils and groundwater at the site would provide a beneficial long-term effect to these resources in the vicinity of C-Camp.

Cumulative Impacts

As described in Section 4.3.1, past, on-going, and reasonably foreseeable future activities have impacted and will continue to impact vegetation, soils and groundwater in the vicinity of C-Camp and in the entrance area as a whole. Past and present development in the entrance area has disturbed about 83 acres of vegetation and soils. Reasonably foreseeable future activities such as the brush removal, replacement of the Rock Creek Bridge and rehabilitation of the Rock Creek water system have the potential to impact additional vegetation and soils near C-Camp. However, as described for Alternative 1, the cumulative impacts of these projects on vegetation, soils and groundwater would be moderate in this already developed area.

The overall contribution of Alternative 2 (impacting about 4.4 acres) to the cumulative impacts on vegetation, soils and groundwater in the project area would be moderate.

Conclusion

The APE for the developments proposed for Alternative 2 would be about 4.6 acres of vegetation and associated soils in the vicinity of C-Camp (2.9 acres for the common actions and 1.4 acres for the actions designed unique for the alternative). The impact on vegetation, soils and

groundwater in the project area from these developments and from housing and maintenance activities associated with these developments would be moderate. No impairment of these resources would occur as a result of the actions proposed under this alternative.

4.4.2 Wetlands

The analysis below indicates there would be minor impacts to wetlands due to implementation of Alternative 2.

Common Actions

As described in the SOF provided as Appendix A, the upgrades of facilities and infrastructure that are common to all alternatives would not impact any wetlands. The area of overlap with W-1 and W-2 wetlands is shown on Figure 2-4. The figure indicates that the common actions would impact neither W-1 nor W-2 wetlands in the vicinity of C-Camp.

Parallel Access Road, New ESB and Annex, and Vehicle Fuel System

W-1 and W-2 wetlands are defined and described in details in Appendix A, the Wetlands SOF. As described Section 4.1.1, the conceptual design areas for the designs unique to Alternative 2 were used to calculate the APE for the alternative. The calculations determined that approximately 0.7 acre of W-1 wetlands would be directly impacted by the Alternative 2 designs for the parallel access road, the new ESB and Annex, and the new vehicle fueling system (see Figure 2-4). No W-2 wetlands would be impacted. W-1 wetlands impacted by Alternative 2 are common throughout the eastern areas of the park, as well as being locally common to the project area. Indirect impacts would include potential disturbance of wetland vegetation by foot and vehicle traffic due to increased use of C-Camp for housing, maintenance and administration functions.

Wetlands are associated with various ecological functions and social values. For wetlands in the project area, some of these more important functions include support of surface water quality, including sediment control and water purification, wildlife habitat, and recreational opportunities. The area of wetlands that would be filled in relation to the total amount of palustrine scrub shrub wetlands throughout the project area would be relatively small, and the extent localized, although the loss would be permanent. The impact of this small loss of these wetland functions and values under Alternative 2, considering the small area impacted and the limited importance of these wetlands within the region is considered minor. BMPs and design standards would minimize the potential for indirect impacts of lateral flow disruption and contaminant introduction from road runoff.

Cumulative Impacts

As described in Section 4.3.1, past, on-going, and reasonably foreseeable future activities have impacted and will continue to impact wetlands in the vicinity of C-Camp and in the entrance area as a whole. Past and present development in the entrance area has disturbed about 4 acres of wetlands. Most of the areas developed have occurred in wetland types that are common throughout the eastern area of the park and no sensitive areas have been impacted; therefore, the extent of past and existing impacts on wetlands can be considered minor.

Impacts of the reasonably foreseeable future actions on wetlands could be mitigated by carefully locating project actions to avoid W-1 and W-2 wetlands as much as possible, and adherence to BMPs to protect wetlands during construction. Therefore, overall impacts on wetlands by future projects in the C-Camp area would be minor.

The overall contribution of Alternative 2 (about 0.7 acre of W-1 wetlands) to the cumulative impacts on wetlands in the project area would be minor, and no W-2 wetlands would be impacted.

Conclusion

The developments proposed for Alternative 2 would impact about 0.7 acre of W-1 wetlands in the vicinity of C-Camp; no W-2 wetlands would be impacted by either the common actions or the unique actions. Overall, the impact on wetlands in the project area from these developments and from housing and maintenance activities associated with these developments would be minor. No impairment of wetlands functions or values would occur as a result of the actions proposed under this alternative.

4.4.3 Wildlife and Habitat

The analysis below indicates there would be moderate impacts to wildlife and habitat due to implementation of Alternative 2.

Common Actions

Due to the presence of humans and the maintenance and operations function of C-Camp, the wildlife and habitat surrounding C-Camp is not considered to be sensitive. The direct impact of the small habitat loss associated with the common actions (an APE of about 2.9 acres; see Section 4.4.1 Vegetation and Soils) would not affect the overall availability of these habitats to wildlife, especially considering the existing disturbance near this location. Overall, the common actions at C-Camp would have moderate impacts on wildlife and habitat.

Birds and small mammals commonly occur in the forest and shrub communities surrounding C-Camp, but larger mammals such as caribou, bear, moose, and wolves that tend to avoid high human use areas are uncommon. Temporary construction noise, although perceptible by wildlife above the background noise, would likely cause only the temporary displacement of small mammals and birds, which would return to the area after noise has ceased. Therefore, the common actions would have moderate impacts on wildlife.

Parallel Access Road, New ESB and Annex and Vehicle Fuel System

The direct impact of the new parallel road, and the ESB and vehicle fuel system pads on wildlife and habitat would include loss of approximately 1.7 acres of forest and shrub habitat as a result of clearing vegetation, and developing the access road and building pad extensions. Other direct impacts include disturbance due to construction and road/facility maintenance and operation activities. Indirect impacts to wildlife would include increased disturbance due to an increase in human activities in the surrounding areas as a result of increased administrative activities at C-Camp.

Development of the parallel road and associated ESB facilities under Alternative 2 would have localized, temporary, and therefore, minor impacts on wildlife and habitat. As described in Section 4.4.1, up to approximately 1.7 acres of habitat for small mammals, birds, and large mammals could be lost to new development unique to the alternative. Similar habitat is present within the project area and along the Park Road corridor. Some habitat fragmentation could occur on a very small scale. Increased edge effects would result from vegetation clearing and could increase habitat diversity in the immediate area. Because the vegetation clearing would occur in an open forested area, which is adjacent to a developed area, the impacts of both habitat fragmentation and edge effects would be moderate.

Small mammals would be displaced from the immediate area of vegetation clearing and disturbance during construction. Displaced animals would occupy adjacent areas of similar habitat, which is common throughout the immediate C-Camp area. Although large mammals such as bear and moose utilize roadside habitats within the project area, they generally avoid the C-Camp area due to existing human activity and disturbance and traffic and disturbance on the Park Road.

Resident and migrant bird species would also be displaced from the area of disturbance to some degree although many would likely use similar habitats in adjacent areas. One federal species of concern, the olive-sided flycatcher, is found within the project area, nesting in open coniferous forests with bog ponds and marshy streams, and in woodland/dwarf forests. Disruptions of nesting would be avoided by restricting vegetation-clearing activities during the nesting season (refer to Section 2.6.3). Therefore, impacts to birds would be minor.

Operations associated with the proposed construction and development would temporarily produce noise and activity levels that could cause localized displacement and disturbance of resident wildlife. However, some birds and small mammals within the park that utilize habitats near C-Camp and the Park Road may have become habituated to some degree to noise and human activity. There would continue to be activity-avoidance of the general area by large mammals; new construction at C-Camp is not likely to increase this impact. Movement of animals through the area would not be any more obstructed due to the additional parallel road, than is the present case at C-Camp. For these reasons, any disturbance of wildlife from an increase in activity or operation of the proposed facilities would be minor.

Some small mammals, such as snowshoe hare and Arctic ground squirrels, could potentially experience direct mortality during construction activities. However, given the relatively small amount of habitat involved, the low numbers of affected individuals, and that small mammals would likely occupy adjacent habitats, the impacts of mortality on wildlife would be considered minor.

Cumulative Impacts

As described in Section 4.3.1, past, on-going, and reasonably foreseeable future activities have impacted and will continue to impact wildlife habitat in the vicinity of C-Camp and in the entrance area as a whole. Past and present development in the entrance area has disturbed about 83 acres of habitat. Reasonably foreseeable future activities such as the brush removal, replacement of the Rock Creek Bridge and rehabilitation of the Rock Creek water system have the potential to impact additional habitat near C-Camp. However, as described for Alternative 1, the cumulative impacts of these projects on wildlife and habitat would be moderate in this already developed area. Because there are no sensitive habitats within the project area (and immediate vicinity of the road corridor), overall, cumulative impacts on wildlife and habitat resulting from past, present, and reasonably foreseeable future actions would be moderate (see Table 4-1).

The overall contribution of Alternative 2 (disturbance to about 4.6 acres) to the cumulative impacts on wildlife and habitat in the project area would be moderate.

Conclusion

The developments unique to Alternative 2 would impact 1.7 acres of habitat at C-Camp, plus an additional 2.9 acres for the common actions, for a total of 4.6 acres. Overall, the impact on wildlife and habitat in the project area from these developments and from housing and

maintenance activities associated with these developments would be moderate. No impairment of these resources would occur as a result of the actions proposed under this alternative.

4.4.4 Visitor Use and Recreation

The analysis below indicates there would be minor impacts to visitor use and recreation with implementation of Alternative 2, due to the relocation of the Rock Creek Trail, and temporary disruptions to recreation activities due to road and facility construction and utility upgrades in the C-Camp area.

Rock Creek Trail Realignment

Under all action alternatives, the Rock Creek Trail would be realigned to intersect the overhead power line corridor only once and eliminate a switchback. Hiking activities on the Rock Creek Trail would be temporarily adversely impacted during the construction season. Since the Rock Creek Trail connects with the Roadside Trail, which serves as a travel route between the Visitor Center Complex, Park Headquarters and kennels, hiking activities adjacent to the project area could decrease during the construction season. However, there would be no discernible impact to overall visitor use in the park entrance area.

During the operation phase of the reconstructed trail, there would be no impacts to visitor use in the project area or park entrance area. Existing uses and trends would likely continue. Impacts to recreation would be beneficial, but minor. The recreation setting on the Rock Creek Trail would be improved with fewer power line crossings and an improved trail alignment.

Road and Facility Construction and Utility Upgrades in C-Camp Area

All action alternatives propose construction activities in the C-Camp area. While the location and intensity of construction activities vary by alternative, the impact to visitor use and recreation is very similar across alternatives. There is little visitor use in the project area since a large portion of it contains an administrative site; construction activities in the C-Camp area would not have a discernible impact to overall visitor use in the project area or the park entrance area.

Recreation activities, such as hiking and viewing wildlife, could have a minor, temporary adverse impact during the construction season, due to noise, dust, and detours. During the operations phase of the project, there would be a minor beneficial impact to recreation by reducing administrative traffic in the entrance area and providing more efficient recreation maintenance.

Cumulative Impacts

As discussed in Sections 4.2.2 and 4.3.4, there have been multiple past actions in the entrance area due to increased visitor use, as well as changes to administrative and visitor services. These activities have had minor, temporary effects to visitor use and recreation, such as disruptions in traffic flow during project construction. Reasonably foreseeable future actions in the immediate vicinity of C-Camp generally include further improvements to administrative sites. The reasonably foreseeable actions in the C-Camp area would have little effect on visitor use and recreation; effects could include minor, temporary effects such as noise and dust during project construction.

The cumulative impact to visitor use and recreation due to implementation of Alternative 2 is minor. With no direct or indirect impacts to visitor use and minor beneficial impacts to

recreation, Alternative 2 would have a minor contribution to cumulative impacts on visitor use and recreation.

Conclusion

Alternative 2 would have a minor impact on visitor use and recreation during project construction and operation. The impacts of construction would generally be temporary and localized, or minor impacts. The positive impacts of operation would be long-term and localized. No impairment of visitor use and recreation would occur as a result of the actions proposed under this alternative.

4.4.5 Visual Resources

The analysis below indicates there would be minor impacts to visual resources with implementation of Alternative 2, due to the relocation of the Rock Creek Trail, and road and facility construction and utility upgrades in the C-Camp area.

Relocation of Rock Creek Trail

Under all action alternatives, the Rock Creek Trail would be relocated to minimize crossings with the power line. There would be localized, temporary impacts to visual resources during the construction phase of the trail relocation project, due to equipment, dust, fresh cut banks, and revegetation projects on the existing trail alignment. During the operations phase of the project, there would be minor, beneficial impacts to visual resources resulting from the elimination of the second power line crossing.

Road and Facility Construction and Utility Upgrades in C-Camp Area

The activities proposed in Alternative 2 would generate localized, temporary impacts to visual resources observed from the Park Road during the construction phase of the project due to vegetative clearing, equipment operation, and dust. Once constructed, the new access road would have a perpendicular intersection to the Park Road; while the intersection would have adequate visibility, the orientation of the intersection and access road could provide better screening of the C-Camp facilities from passing vehicle traffic. However, existing rooflines and structures would still be visible from the park road as well as some of the proposed structures. The new ESB could add to the visual profile of the C-Camp developments from higher vantage points, such as the Mount Healy Overlook. However, facility design would mimic natural features and utilize native materials for landscaping to reduce visual impact.

Cumulative Impacts

Alternative 2 could create temporary and localized impacts to visual resources during project construction (e.g. equipment operation). The impacts of operation would be long-term and localized (e.g. view of facilities).

As discussed in Sections 4.2.2 and 4.3.5, multiple past actions have altered the constructed environment, natural landscapes, and viewpoints in the entrance area. Past actions in the immediate vicinity of C-Camp have generally included routine maintenance actions, which have had minor, temporary effects to visual resources.

Reasonably foreseeable future actions in the immediate vicinity of C-Camp include further improvements to administrative sites. These actions would have little effect on visual resources; effects could include minor, temporary effects such as visual intrusion of equipment during project construction.

The cumulative impacts to visual resources in the C-Camp area are localized, or minor. Alternative 2 would have a minor contribution to cumulative impacts on visual resources in the C-Camp area.

Conclusion

Alternative 2 could create minor temporary and localized impacts to visual resources during project construction. The impacts of operation would be long-term and localized, but minor. No impairment of visual resources would occur as a result of the actions proposed under this alternative.

4.4.6 Local Communities/Socioeconomic Resources

The analysis below indicates there would be minor impacts to local communities and socioeconomic resources with implementation of Alternative 2, due to the relocation of the Rock Creek Trail, and road and facility construction and utility upgrades in the C-Camp area.

Relocation of Rock Creek Trail

Under all action alternatives, the Rock Creek Trail would generate a minor level of economic activity. During the construction phase, there could be a temporary stimulus to the local economy due to construction employment. Operations of the trail would have minor, beneficial impacts to local communities and socioeconomic resources due to enhanced recreation opportunities in the frontcountry area.

Road and Facility Construction and Utility Upgrades in C-Camp Area

All action alternatives propose construction activities in the C-Camp area. While the location and intensity of construction activities vary by alternative, the impact to local communities and socioeconomic resources is very similar across alternatives.

During the construction phase of the project, there could be increased construction employment and a minor contribution to the local economy. The operations phase could also have a continued minor contribution to the local economy, due to staff employment.

Cumulative Impacts

As discussed in Sections 4.2.2 and 4.3.6, multiple past actions have occurred in the park entrance area, which have affected local communities and socioeconomic resources. Impacts to local communities and socioeconomic resources have included temporary contributions to local economies due to construction activities and long-term economic stimuli due to changes in facilities provided in the entrance area. Past actions in the immediate vicinity of C-Camp have generally included routine maintenance actions. These activities have provided minor, temporary contributions to local economies during project construction.

Reasonably foreseeable future actions in the immediate vicinity of C-Camp include further improvements to administrative sites. Effects could include minor, temporary contributions to local economies during project construction.

The cumulative impacts to local communities and socioeconomic resources could include contributions to the local economy; however impacts would be minor and generally localized. The overall contribution of Alternative 2 to the cumulative effects on local communities and socioeconomic resources would be minor.

Conclusion

Alternative 2 could provide minor contributions to the local economy, having a minor beneficial impact on local communities and socioeconomic resources.

4.5 Impacts of Alternative 3: Existing Road Alternative

Alternative 3 includes all of the improvement actions and upgrades of the C-Camp area that are common to all action alternatives. Under Alternative 3, an ESB and separate Annex would be constructed near the C-Camp entrance, along with a parking lot for 29 vehicles (see Figure 2-6). The existing road through C-Camp would be used to access the ESB. The curve at the intersection of the C-Camp road to the Park Road would be widened to provide a safer turning radius. The new vehicle fueling system would be located on the south edge of the existing Auto Shop pad. In order to accommodate the vehicle fueling system and maintenance circulation to the fueling area and other road crew functions, a 50-ft extension to the Auto Shop pad would be required. The objective to separate maintenance and emergency services traffic from housing operations would be accomplished by relocating all housing to the east of the access road.

4.5.1 Vegetation, Soils and Groundwater

The analysis below indicates there would be moderate impacts to vegetation, soils and groundwater with implementation of Alternative 3. The impact of the development of Alternative 3 on terrestrial vegetation would include: direct loss of habitat, direct loss of native plant cover, and a potential reduction in function such as biomass production. The impacts on soils would include exposure of local soils to potential erosion, and invasive plant species. The loss of terrestrial vegetation as it pertains to wildlife and habitat is discussed in more detail in Section 4.5.3.

Common Actions

As described in Section 4.4.1, the construction of the common actions would impact about 2.9 acres of vegetation, soils and groundwater. Because this area has been previously disturbed, is located in a developed area, and the extent of new disturbance is limited, the impact of these common actions on vegetation, soils and groundwater would be moderate.

New ESB and Annex and Vehicle Fuel System

As described in Section 4.4.1, the direct impacts of the proposed project on vegetation were determined through review of the conceptual engineering drawings and calculated APE areas. In addition to the common actions described above, Alternative 3 would include additional cleared areas for the extension of the existing pads to accommodate the new buildings and the vehicle fuel system. Conceptual design areas for these facilities that are unique to Alternative 3 in design are shown on Figure 2-6. The APE for the actions unique to Alternative 3, as calculated from the conceptual design areas, is about 0.8 acre. The APE is the entire conceptual design area, while the actual footprint would likely be less.

Potential direct impacts associated with the development of larger pads with buildings and paved areas would include the loss of vegetation. As described above for Alternative 2 (see Section 4.4.1), the development would affect the area's vegetation and soil to a moderate extent, due to the small area impacted and the developed nature of the C-Camp area. Considering that the vegetation types affected by the proposed project are common in the surrounding area and within the general region, the loss of 0.8 acre is considered to be a minor impact on vegetation in the project area.

Potential indirect impacts associated with the construction of the buildings and parking lot include sedimentation of adjacent habitats and pollutants introduced from parking lot runoff, and potential introduction of invasive species, subsequently reducing ecological diversity. BMPs and design standards can minimize contaminant introduction from road runoff. Indirect impacts associated with construction of roads and paths include habitat fragmentation and increased edge effects, and potential introduction of exotic species, and subsequent reduction of ecological diversity.

Contamination has been documented in the soil and groundwater at C-Camp. Several recent projects have remediated soil and groundwater contaminated with heating oil and trichlorofluoromethane (see Section 4.2.2). Under Alternative 3, the new vehicle fueling system would be located on the south edge of the existing Auto Shop pad, requiring a 50-ft extension to that pad. While the existing USTs would be replaced, the contaminated soil and groundwater associated with the current fueling system would be remediated to the extent required by ADEC. The site would receive full legal, feasible and adequate contamination remediation action. The soil and groundwater remediation would continue, in coordination with State regulators, until the State and the NPS were satisfied with the results and the site was declared adequately cleaned up. Remediation of the contaminated soil and groundwater would provide a beneficial impact to soils in the vicinity of C-Camp.

Cumulative Impacts

As described in Section 4.3.1, past and on-going actions have impacted about 83 acres of vegetation and soils in the entrance area. Reasonably foreseeable future activities will continue to impact vegetation, soils and groundwater in the vicinity of C-Camp and as a whole. As described for Alternative 1, the cumulative impacts of these projects on vegetation, soils and groundwater would be moderate in this area.

The overall contribution of Alternative 3 (impacting about 3.7 acres) to the cumulative impacts on vegetation, soils and groundwater in the project area would be moderate.

Conclusion

The unique developments proposed for Alternative 3 would impact about 0.8 acre of vegetation and soils in the C-Camp area, plus an additional 2.9 acres for actions common to all action alternatives for a total of about 3.7 acres. The impact on vegetation, soils and groundwater in the project area from these developments and from housing and maintenance activities associated with these developments would be moderate. No impairment of these resources would occur as a result of the actions proposed under this alternative.

4.5.2 Wetlands

Common Actions

As described in the SOF provided as Appendix A, the upgrades of facilities and infrastructure that are common to all alternatives would not impact any wetlands. The area of overlap with W-1 and W-2 wetlands is shown on Figure 2-6.

New ESB and Annex and Vehicle Fuel System

W-1 and W-2 wetlands are defined and described in details in Appendix A, the Wetlands SOF. As described Section 4.1.1, calculations determined that approximately 0.3 acres of W-1 wetlands would be directly impacted by the Alternative 3 designs for the new ESB and Annex pads, and the new vehicle fueling system (see Figure 2-6). No W-2 wetlands would be impacted.

Wetlands impacted by Alternative 3 are common throughout the eastern areas of the park, as well as being locally common to the project area. Indirect impacts would include potential disturbance of W-1 wetland vegetation from additional foot traffic due to increased use of C-Camp for housing, maintenance and administration functions.

As described in section 4.4.1 and Appendix A, wetland functions and values in the project area support surface water quality, including sediment control and water purification, wildlife habitat, and recreational activities. The impact of this small loss of these wetland functions and values under Alternative 3, considering the very small area impacted and the limited importance of these wetlands within the region, is considered minor. BMPs and design standards would minimize the potential for indirect impacts of lateral flow disruption and contaminant introduction from road runoff.

Cumulative Impacts

As described in Section 4.3.1, past and on-going activities have impacted about 4 acres of wetlands in the entrance area. Most of the areas developed have occurred in wetland types that are common throughout the eastern area of the park and no sensitive areas have been impacted; therefore, the extent of past and existing impacts on wetlands can be considered minor.

Reasonably foreseeable future actions will continue to impact wetlands in the vicinity of C-Camp and the entrance area as a whole. Impacts of the reasonably foreseeable future actions on wetlands could be mitigated by carefully locating project actions to avoid wetlands and adherence to BMPs to protect wetlands during construction. Therefore, overall impacts on wetlands by future projects in the C-Camp area would be minor.

The overall contribution of Alternative 3 (0.3 acre of W-1 wetlands) to the cumulative impacts on wetlands in the project area would be minor.

Conclusion

The developments proposed for Alternative 3 would impact about 0.3 acres of W-1 wetlands in the C-Camp area. No W-2 wetlands would be impacted by either the common actions or the unique actions. Overall, the impact on wetlands in the project area from these developments and from housing and maintenance activities associated with these developments would be minor. No impairment of wetlands functions or values would occur as a result of the actions proposed under this alternative.

4.5.3 Wildlife and Habitat

The analysis below indicates there would be moderate impacts to wildlife and habitat with implementation of Alternative 3.

Common Actions

As described for Alternative 2 (Section 4.4.3), due to the presence of humans and the maintenance and operations function of C-Camp, the wildlife and habitat surrounding C-Camp is not considered to be sensitive. The direct impact of the habitat loss associated with the common actions (an APE of about 2.9 acres) would not affect the overall availability of these habitats to wildlife, especially considering the existing disturbance near this location. Overall, the common actions at C-Camp would have moderate impacts on wildlife and habitat.

New ESB and Annex and Vehicle Fuel Facility

The direct impact of the pad extensions for the ESB, Annex, and vehicle fuel system on wildlife and habitat would include loss of approximately 0.8 acres of forest and shrub habitat as a result of clearing vegetation placing fill for the extensions (see Section 4.5.1). Other direct impacts include disturbance due to construction and facility maintenance and operation activities. Indirect impacts to wildlife would include increased disturbance due to an increase in human activities in the surrounding areas as a result of increased administrative activities at C-Camp.

As described for Alternative 2 in Section 4.4.3, development of the associated ESB facilities and fuel system under Alternative 3 would have localized, temporary, and therefore, minor impacts on wildlife and habitat. Similar habitat is present within the project area and the impacts of both habitat fragmentation and edge effects would be minor. Impacts to small mammals and birds would be minor because displaced animals would occupy adjacent areas of similar habitat, which is common throughout the immediate C-Camp area. Disruptions of nesting birds would be avoided by restricting vegetation-clearing activities during the nesting season (refer to Section 2.6.3). Large mammals such as bear and moose generally avoid the C-Camp area due to existing human activity, disturbance, and traffic and on the Park Road.

Operations associated with the proposed construction and development would temporarily produce noise and activity levels that could cause localized displacement and disturbance and possible mortality of resident wildlife. However, as described in Section 4.4.3, any disturbance or mortality of wildlife from an increase in activity either due to construction or operation of the proposed facilities would be minor.

Cumulative Impacts

As described in Section 4.3.1, past and on-going activities have impacted about 83 acres of habitat in the entrance area of Denali. Reasonably foreseeable future activities will continue to impact wildlife habitat in the vicinity of C-Camp and in the entrance area as a whole. However, as described for Alternative 1, the cumulative impacts of these projects would be moderate in this already developed area. Because there are no sensitive habitats within the project area (and immediate vicinity of the road corridor), overall, cumulative impacts on wildlife and habitat resulting from past, present, and reasonably foreseeable future actions would be moderate.

The overall contribution of Alternative 3 (disturbance to about 3.7 acres) to the cumulative impacts on wildlife and habitat in the project area would be moderate.

Conclusion

The development actions unique Alternative 3 would impact about 0.8 acres of habitat at C-Camp, plus an additional 2.9 acres for the common actions. Overall, the impact on wildlife and habitat in the project area from these developments and from housing and maintenance activities associated with these developments would be moderate. No impairment of these resources would occur as a result of the actions proposed under this alternative.

4.5.4 Visitor Use and Recreation

The analysis below indicates there would be minor impacts to visitor use and recreation with implementation of Alternative 3, due to the relocation of the Rock Creek Trail, and temporary disruptions to recreation activities due to road and facility construction and utility upgrades in the C-Camp area.

Relocation of Rock Creek Trail

As described in Section 4.4.4 relocation of the Rock Creek Trail would have minor impacts on visitor use and recreation.

Road and Facility Construction and Utility Upgrades in the C-Camp Area

Refer to Section 4.4.4 for impacts to visitor use and recreation due to the C-Camp improvements. Construction activities in the C-Camp area would not have a discernible impact to overall visitor use in the project area or the park entrance area. Construction noise, dust, and detours could have minor, temporary adverse impacts on recreation activities such as hiking and viewing wildlife.

Cumulative Impacts

As described in Section 4.4.4, the overall cumulative impact to visitor use and recreation is minor. With no direct or indirect impacts to visitor use and minor beneficial impacts to recreation, Alternative 3 would have a minor contribution to cumulative impacts on visitor use and recreation.

Conclusion

Alternative 3 would have a minor impact on visitor use and recreation during project construction and operations. The impacts of construction would generally be temporary and localized, or minor impacts. The positive impacts of operation would be long-term and localized. No impairment of visitor use or recreation would occur as a result of the actions proposed under this alternative.

4.5.5 Visual Resources

The analysis below indicates there would be minor impacts to visual resources with implementation of Alternative 3, due to the relocation of the Rock Creek Trail and road and facility construction and utility upgrades in the C-Camp area.

Relocation of Rock Creek Trail

As described in Section 4.4.5, impacts to visual resources due to relocation of the Rock Creek Trail would be localized and temporary during construction and revegetation. Minor, beneficial impacts to visual resources would result from the elimination of the second power line crossing.

Road and Facility Construction and Utility Upgrades in the C-Camp Area

There would be localized, temporary impacts to visual resources from the Park Road during the construction phase of the project, due to vegetative clearing, equipment operation, and dust. Alternative 3 would utilize the existing access road, minimizing the amount of vegetative clearing and fresh cut banks visible from the park road. Existing rooflines and structures would still be visible from the park road as well as some of the proposed structures. However, facility design would mimic natural features and utilize native materials for landscaping to reduce visual impact. The new ESB could add to the visual profile of the C-Camp developments from higher vantage points, such as the Mount Healy Overlook.

Cumulative Impacts

As discussed in Section 4.4.5, the cumulative impacts to visual resources in the C-Camp area are localized, or minor. Alternative 3 would have a minor contribution to cumulative impacts on visual resources in the C-Camp area.

Conclusion

The developments proposed for Alternative 3 could impact visual resources during project construction and operation. The impacts during construction would generally be temporary and localized. The impacts during operation would be long-term and localized. No impairment of visual resources would occur as a result of the actions proposed under this alternative.

4.5.6 Local Communities/Socioeconomic Resources

The analysis below indicates there would be minor impacts to local communities and socioeconomic resources with implementation of Alternative 3, due to the relocation of the Rock Creek Trail, and road and facility construction and utility upgrades in the C-Camp area.

Relocation of Rock Creek Trail

As discussed in Section 4.4.6 relocation of the Rock Creek Trail would generate a minor impact to local communities and socioeconomic resources.

Road and Facility Construction and Utility Upgrades in C-Camp Area

As discussed in Section 4.4.6, during the construction phase of the project, there could be increased construction employment and a minor contribution to the local economy. The operations phase could also have a continued minor contribution to the local economy, due to staff employment.

Cumulative Impacts

As discussed in Sections 4.4.6, the cumulative impacts to local communities and socioeconomic resources in the C-Camp area could include contributions to the local economy; however impacts would be minor and generally localized. The overall contribution of Alternative 3 to the cumulative effects on local communities and socioeconomic resources would be minor.

Conclusion

Alternative 3 could provide minor contributions to the local economy, having a minor beneficial impact on local communities and socioeconomic resources.

4.6 Impacts of Alternative 4: New Access Road Alternative

Alternative 4 includes all of the improvement actions and upgrades of the C-Camp area that are common to all action alternatives. In addition, a new access road beginning east of the existing C-Camp entrance would provide a separate entrance to the maintenance and residential areas of C-Camp (see Figure 2-8). A residential spur road would connect the access road to the existing C-Camp road. The new vehicle fueling and dispensing system would be located on the north side of the spur road near the intersection with the existing entrance road. Under Alternative 4, an ESB and separate Annex, along with a parking lot for 29 vehicles, would be located near the existing C-Camp entrance, with access directly off of the Park Road.

4.6.1 Vegetation, Soils and Groundwater

The analysis below indicates there would be moderate impacts to vegetation, soils and groundwater with implementation of Alternative 4. The impact of the development of Alternative 4 on terrestrial vegetation would include: direct loss of habitat, direct loss of native plant cover, and a potential reduction in function such as biomass production. The impacts on soils would include exposure of local soils to potential erosion, and invasive plant species. The

loss of terrestrial vegetation as it pertains to wildlife and habitat is discussed in more detail in Section 4.6.3.

Common Actions

As described in Section 4.4.1, the construction of the common actions would impact about 2.9 acres of vegetation and soils. Because this area has been previously disturbed, is located in a developed area, and the extent of new disturbance is limited, the impact of these common actions on vegetation, soils and groundwater would be moderate.

New Access Road, ESB and Annex and Fuel System

In addition to the common actions described above, Alternative 4 would include additional cleared areas for the new access and spur roads and for the extension of the existing pads to accommodate the new buildings and the vehicle fuel system. Conceptual design areas for these facilities that are unique to Alternative 4 in design are shown on Figure 2-8. The APE for the actions unique to Alternative 4, as calculated from the conceptual design areas, is about 2.7 acres. The APE is the entire conceptual design area, while the actual footprint would likely be less.

Potential direct impacts associated with the development of the longer access road and larger pads with buildings and paved areas would include the loss of vegetation. Because the area is more extensive and the new road extends into undeveloped areas to the east of the existing C-Camp development, vegetation and soils would be impacted to a moderate extent. Although the impacts would be localized, the intensity could be considered moderate because a noticeable change in the resource would occur and this change would alter the appearance of the resource (see Table 4.1). Due to the topography in the vicinity of the new access road, soil erosion could be an issue that would have to be mitigated during and after construction.

Potential indirect impacts associated with the construction of the access and spur roads and buildings and parking lot include sedimentation of adjacent habitats and pollutants introduced from road and parking lot runoff, and potential introduction of invasive species, subsequently reducing ecological diversity. BMPs and design standards can minimize contaminant introduction from road runoff. Indirect impacts associated with construction of roads and trails include habitat fragmentation and increased edge effects, and potential introduction of exotic species, and subsequent reduction of ecological diversity. The indirect impact of the new access road would be moderate because it would bisect a presently undisturbed area potentially inducing habitat fragmentation and edge effects and also allowing for the introduction of invasive species along the road corridor.

Contamination has been documented in the soil and groundwater at C-Camp. Several recent projects have remediated soil and groundwater contaminated with heating oil and trichlorofluoromethane (see Section 4.2.2). Contamination has been documented in the soil and groundwater at C-Camp. Several recent projects have remediated soil and groundwater contaminated with heating oil and trichlorofluoromethane (see Section 4.2.2). Under Alternative 4, the new vehicle fueling area would be located on the north side of the spur road near the intersection with the existing entrance road. Relocation of the vehicle fueling system off of the Auto Shop pad would require placement of fill in an undisturbed area, but it also would enable the park to replace the UST and remediate the contaminated soil and groundwater under the Auto Shop pad to the extent required by the ADEC. Removing the contamination that is presently found within the soils and groundwater at the site would provide a beneficial long-term effect to natural resources in the vicinity of C-Camp.

Cumulative Impacts

As described in Section 4.4.1, past and on-going activities have impacted about 83 acres of vegetation and soils in the entrance area. Reasonably foreseeable future activities have the potential to impact additional vegetation, soils and groundwater near C-Camp. However, as described for Alternative 1, the cumulative impacts of these projects on vegetation, soils and groundwater would be moderate in this area.

The overall contribution of Alternative 4 (impacting 5.6 acres) to the cumulative impacts on vegetation and soils in the project area would also be moderate.

Conclusion

The unique developments proposed for Alternative 4 would impact about 2.7 acres of vegetation and soils in the C-Camp area, plus an additional 2.9 acres for the common actions for a total APE of about 5.6 acres. The impact on vegetation, soils and groundwater in the project area from these developments and from housing and maintenance activities associated with these developments would be moderate. However, no impairment of these resources would occur as a result of the actions proposed under this alternative.

4.6.2 Wetlands

The analysis below indicates there would be moderate impacts to wetlands with implementation of Alternative 3.

Common Actions

As described in the SOF provided as Appendix A, the upgrades of facilities and infrastructure that are common to all alternatives would not impact any wetlands. The area of overlap with W-1 and W-2 wetlands is shown on Figure 2-8.

New Access Road, ESB and Annex and Vehicle Fuel System

W-1 and W-2 wetlands are defined and described in details in Appendix A, the Wetlands SOF. Based on the conceptual designs, approximately 0.7 acre of W-1 wetlands would be directly impacted by the actions unique to Alternative 4 (see Figure 2-8). About 0.5 acre of W-2 wetlands would be impacted by the construction of the new access road, spur road and building pad extension. Indirect impacts would include potential disturbance of W-1 wetland vegetation from increased use of C-Camp for housing, maintenance and administration functions, and increased disturbance of W-2 wetlands due to use of the road. These impacts to W-2 wetlands could occur from road runoff, introduction of invasive species, and increased human access and off-trail use causing trampling and disturbance of the wetlands and vegetation adjacent to the access road.

As described in section 4.4.3 and in Appendix A, important functions for these wetlands include support of surface water quality, including sediment control and water purification, wildlife and habitat. The area of wetlands that would be filled in relation to the total amount of palustrine scrub shrub wetlands throughout the project area would be relatively small, and the extent localized, although the loss would be permanent. BMPs and design standards would minimize the potential for indirect impacts of lateral flow disruption, contaminant introduction from road runoff, and introduction of exotic and invasive species.

Cumulative Impacts

As described in Section 4.4.2, the extent of past and existing impacts on wetlands can be considered moderate. Impacts of the reasonably foreseeable future actions on wetlands could be mitigated by carefully locating project actions to avoid W-2 wetlands and adherence to BMPs to protect wetlands during construction. Therefore, overall impacts on wetlands by future projects in the C-Camp area would also be moderate.

However, the overall contribution of Alternative 4 (0.7 acre of W-1 wetlands and 0.5 acre of W-2 wetlands) to the cumulative impacts on wetlands in the project area would be moderate because it would add 1.2 acres of disturbance, thereby increasing the existing wetland disturbance by 30%. In addition, W-2 wetlands would be impacted by the proposed development.

Conclusion

The developments proposed for Alternative 4 would impact about 0.7 acres of W-1 wetlands and 0.5 acres of W-2 wetlands. Overall, the impact on wetlands in the project area from these developments and from housing and maintenance activities associated with these developments would be moderate. However, no impairment of wetlands would occur as a result of the actions proposed under this alternative.

4.6.3 Wildlife and Habitat

The analysis below indicates there would be moderate impacts to wildlife and habitat with implementation of Alternative 3.

Common Actions

As described for Alternative 2 (Section 4.4.3), the direct impact of the small habitat loss associated with the common actions (an APE of about 2.9 acres) would not affect the overall availability of these habitats to wildlife. Overall, the common actions at C-Camp would have moderate impacts on wildlife and habitat.

New Access Road, ESB and Annex, and Fuel System

The direct impact of the new access and spur roads, and pad extensions for the ESB, Annex, and vehicle fuel system on wildlife and habitat would include loss of approximately 2.7 acres of forest and shrub habitat as a result of clearing vegetation placing fill for the extensions (see Section 4.6.1). Other direct impacts include disturbance due to construction or the road and pads, and facility maintenance and operation activities. Indirect impacts to wildlife would include increased disturbance due to an increase in human activities in the surrounding areas as a result of increased administrative activities at C-Camp. The access road would provide entry to undisturbed areas, which could then be impacted by off-trail human use.

Development of the ESB facilities and fuel system, and the access road in particular would have generalized moderate impacts on wildlife and habitat. As described in Section 4.6.1 above, up to approximately 2.7 acres of habitat for small mammals, birds, and large mammals could be lost to new development unique to the alternative. Although similar habitat is present within the project area and along the Park Road corridor, habitat fragmentation could occur on a relatively small scale along the new access road. Increased edge effects would result from vegetation clearing and could increase habitat diversity in the immediate area. Because the vegetation clearing would occur in an open forested area, which is adjacent to a developed area, these impacts of both habitat fragmentation and edge effects would be moderate. As described in section 4.4.6,

impacts to large and small mammals, and birds would be moderate. Any disturbance of wildlife from an increase in activity either during construction or operation of the proposed facilities would also be minor.

Cumulative Impacts

As described in Section 4.4.1, past and present development in the entrance area has disturbed about 83 acres of habitat. Reasonably foreseeable future activities have the potential to impact additional habitat near C-Camp. However, as described for Alternative 1, the cumulative impacts of these projects on would be moderate in this already developed area. Because there are no sensitive habitats within the project area (and immediate vicinity of the road corridor), overall, cumulative impacts on wildlife and habitat resulting from past, present, and reasonably foreseeable future actions would be moderate. The overall contribution of Alternative 4 (disturbance of about 5.6 acres) to the cumulative impacts on wildlife and habitat in the project area would be moderate.

Conclusion

The development actions unique Alternative 4 would have an APE of about 2.7 acres of habitat at C-Camp, plus an additional 2.9 acres for the common actions for a total of 5.6 acres of disturbance. Overall, the impact on wildlife and habitat in the project area from these developments and from housing and maintenance activities associated with these developments would be moderate. However, no impairment of these resources would occur as a result of the actions proposed under this alternative.

4.6.4 Visitor Use and Recreation

The analysis below indicates there would be minor impacts to visitor use and recreation with implementation of Alternative 4, due to the relocation of the Rock Creek Trail, and temporary disruptions to recreation activities due to road and facility construction and utility upgrades in the C-Camp area.

Relocation of Rock Creek Trail

As described in Section 4.4.4 relocation of the Rock Creek Trail would have minor impacts on visitor use and recreation.

Road and Facility Construction and Utility Upgrades in the C-Camp Area

Refer to Section 4.4.4 for impacts to visitor use and recreation due to the C-Camp improvements. Construction activities in the C-Camp area would not have a discernible impact to overall visitor use in the project area or the park entrance area. Construction noise, dust, and detours could have minor, temporary adverse impacts on recreation activities, such as hiking and viewing wildlife.

Cumulative Impacts

As described in Section 4.4.4, the cumulative impact to visitor use and recreation is minor. With no direct or indirect impacts to visitor use and minor beneficial impacts to recreation, Alternative 4 would have a minor contribution to cumulative impacts on visitor use and recreation.

Conclusion

Alternative 4 would have a minor impact on visitor use and recreation during project construction and operations. The impacts of construction would generally be temporary and localized, or minor impacts. The positive impacts of operation would be long-term and

localized. No impairment of visitor use or recreation would occur as a result of the actions proposed under this alternative.

4.6.5 Visual Resources

The analysis below indicates there would be minor impacts to visual resources with implementation of Alternative 4, due to the relocation of the Rock Creek Trail and road and facility construction and utility upgrades in the C-Camp area.

Relocation of Rock Creek Trail

As described in Section 4.4.5 impacts to visual resources due to relocation of the Rock Creek Trail would be localized and temporary during construction and revegetation. Minor, beneficial impacts to visual resources would result from the elimination of the second power line crossing.

Road and Facility Construction and Utility Upgrades in the C-Camp Area

Alternative 4 would construct a new access road, to the east of the existing access road; the existing access road would also remain open. The impacts to visual resources from the implementation of Alternative 4 would include localized, temporary impacts to visual resources observed from the Park Road during the construction phase of the project, due to vegetative clearing, equipment operation, and dust. Localized, long-term impacts to visual resources would include the new clearing right of way and an additional road intersection with the Park Road.

Existing rooflines and structures would still be visible from the Park Road, as well as some of the proposed structures. However, facility design would mimic natural features and utilize native materials for landscaping to reduce visual impact. The new ESB could add to the visual profile of the C-Camp developments from higher vantage points, such as the Mount Healy Overlook.

Cumulative Impacts

As discussed in Sections 4.2.2 and 4.3.5, multiple past actions have altered the constructed environment, natural landscapes, and viewpoints in the entrance area. Past actions in the immediate vicinity of C-Camp have generally included routine maintenance actions, which have had minor, temporary effects to visual resources.

Reasonably foreseeable future actions in the immediate vicinity of C-Camp include further improvements to administrative sites. These actions would have little effect on visual resources; effects could include minor, temporary effects such as visual intrusion of equipment during project construction.

The cumulative impacts to visual resources in the C-Camp area are localized, or minor. Alternative 4 would have a minor contribution to cumulative impacts on visual resources in the C-Camp area.

Conclusion

Alternative 4 could impact visual resources during project construction and operation. The impacts during construction would generally be temporary and localized. The impacts during operation would be long-term and localized. No impairment of visual resources would occur as a result of the actions proposed under this alternative.

4.6.6 Local Communities/Socioeconomic Resources

The analysis below indicates there would be minor impacts to local communities and socioeconomic resources with implementation of Alternative 4, due to the relocation of the Rock Creek Trail, and road and facility construction and utility upgrades in the C-Camp area.

Relocation of Rock Creek Trail

As discussed in Section 4.4.6 relocation of the Rock Creek Trail would generate a minor impact to local communities and socioeconomic resources.

Road and Facility Construction and Utility Upgrades in C-Camp Area

As discussed in Section 4.4.6, during the construction phase of the project, there could be increased construction employment and a minor contribution to the local economy. The operations phase could also have a continued minor contribution to the local economy, due to staff employment.

Cumulative Impacts

As discussed in Sections 4.4.6, the cumulative impacts to local communities and socioeconomic resources in the C-Camp area could include contributions to the local economy; however impacts would be minor and generally localized. The overall contribution of Alternative 4 to the cumulative effects on local communities and socioeconomic resources would be minor.

Conclusion

Alternative 4 could provide minor contributions to the local economy, having a minor impact on local communities and socioeconomic resources.

5.0 CONSULTATION AND COORDINATION

5.1 Agency Consultation and Coordination

There are no cooperating agencies identified for this action. The NPS has determined that there are no Threatened and Endangered Species expected in the project area; therefore Section 7 consultation with the USFWS is not required. In addition the NPS has determined that potential cultural resource impacts will not require consultation with State Historical Preservation Office (SHPO) or with tribal entities.

5.2 List of EA Preparers

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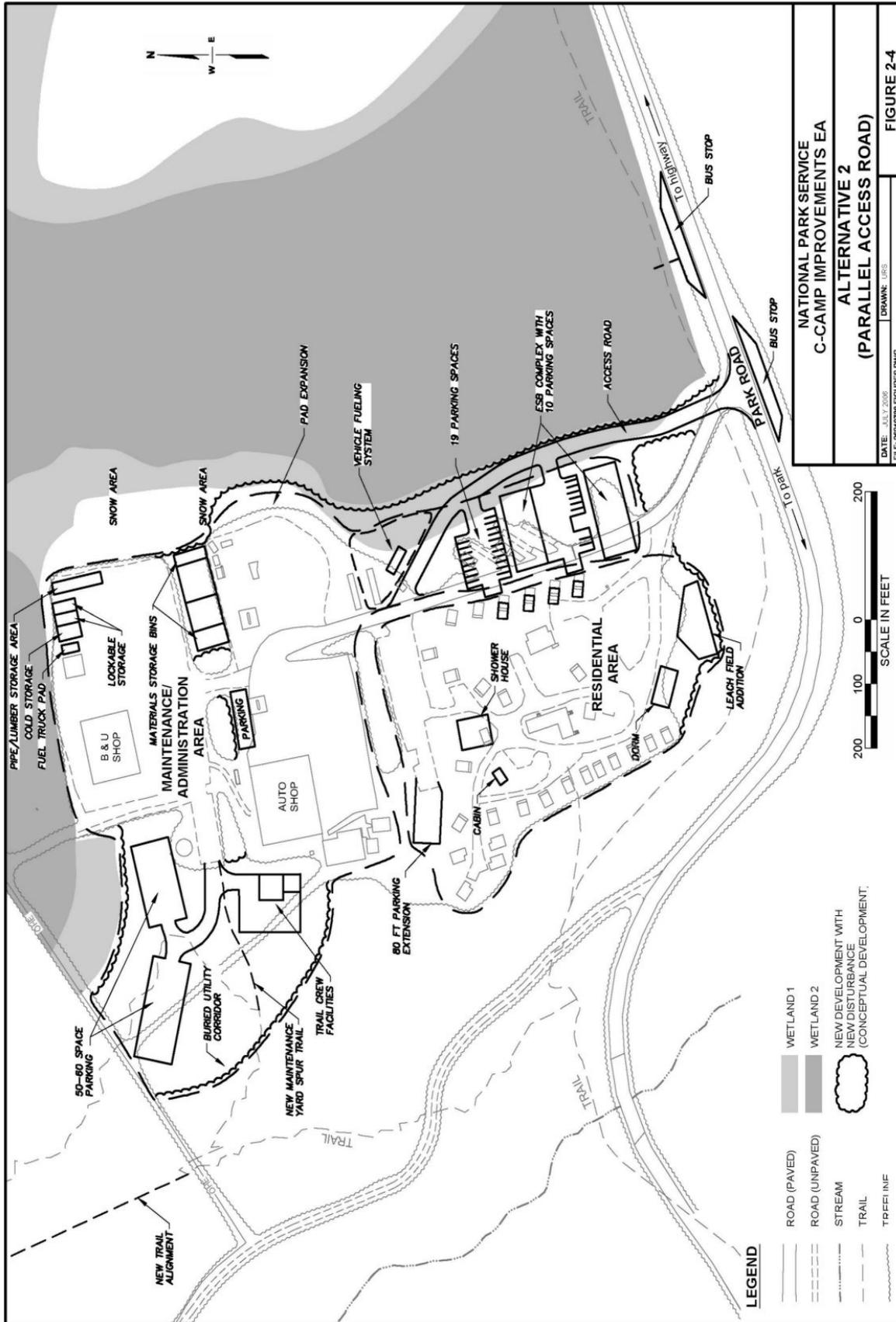
6.0 REFERENCES

- Cowardin, L.M., et al. (1979). Classification of wetlands and deepwater habitats of the United States. FWS/OBS 79/31. U.S. Fish and Wildlife Service. Washington, D.C.
- Department of Commerce, Community, and Economic Development (DCED). (2005). Alaska Community Database. Alaska Department of Commerce, Community and Economic Development. Accessed on June 2005, from http://www.commerce.state.ak.us/dca/commdb/CF_COMDB.htm.
- National Park Service (NPS). (1997). Development Concept Plan Environmental Impact Statement - Entrance Area and Road Corridor, Denali National Park and Preserve. USDO National Park Service, Denali National Park and Preserve. Denali Park, Alaska.
- NPS. (2000). United States Department of the Interior, National Park Service. 2001 Management Policies. December 8.
- NPS. (2001). Environmental Assessment for Construction of New Visitor Facilities in the Entrance Area of Denali National Park. Implementation of Park Entrance Area and Road Corridor Development Concept Plan (Frontcountry Plan). December. Accessed on 2005 from <http://www.nps.gov/dena/home/planning/>.
- NPS. (2003). Environmental Assessment for a Gravel Acquisition Plan. Denali National Park. May.
- NPS. (2004). Environmental Assessment for the Construction of a New Eielson Visitor Center and a Permanent Toklat Rest Stop. Denali National Park. Accessed on April 2005 from <http://www.nps.gov/dena/home/planning/>.
- NPS. (2005a). Environmental Assessment for Geotechnical Investigations near C-Camp and in the Park Entrance Area. USDO National Park Service, Denali National Park and Preserve. March.
- NPS. (2005b). Birds of Denali, Checklist of Avian Species.
- NPS. (2005c). Denali National Park and Preserve Revised Draft Backcountry Management Plan, General Management Plan Amendment, and Environmental Impact Statement. Denali National Park and Preserve, National Park Service, U.S. Department of the Interior. Denali Park, AK. April.
- Reiger, S., et al. (1979). Exploratory Soil Survey of Alaska. U.S. Department of Agriculture, Soil Conservation Service.
- Swem, T. (2000). Personal communication. USFWS. Fairbanks, AK. June 9.
- United States Geological Service (USGS). (1994). Interior Alaska Revegetation Plan. Roseanne Densmore-Ecologist. Alaska Science Center. Anchorage, AK.

Viereck, L.A., et al. (1992). The Alaska Vegetation Classification. General Technical Report PNW-GTR-286. USDA Forest Service, Pacific Northwest Research Station. Portland, OR.

Zelenak, J. (2005). Personal communication, Biologist, USFWS, Project Planning Division. Fairbanks Field Office. September 22.

Appendix A – Wetlands Statement of Findings



PURPOSE AND NEED FOR ACTION

The National Park Service (NPS) has prepared and made available for public review an environmental assessment (EA) to evaluate the impacts of construction of new administrative facilities and improvements at C-Camp near park headquarters in Denali National Park and Preserve.

The approved 1996 Entrance Area and Road Corridor Development Concept Plan for Denali National Park and Preserve (DCP/EIS) identified the need to construct an Emergency Services Building/Fire Station (ESB) in the C-Camp area, to remove most of the maintenance facilities and activities from the Headquarters Historic District, to separate maintenance and administrative activities from the C-Camp housing area, to improve operational efficiency of management and support functions, as well as the need to provide administrative facilities that are necessary and appropriate for user enjoyment and effective park management. The current facilities do not provide enough space for vehicle circulation and parking, offices, indoor and outdoor storage, and heated ambulance space for park management, and the fueling facilities need to be upgraded to meet applicable codes.

The NPS is proposing to construct a new Emergency Services Building, access road, Auto Shop pad expansion, and fueling facility in the C-Camp area (Figure 2-4). Other improvements to the C-Camp area that would not affect wetlands would include housing upgrades, utility upgrades, additional parking areas, a new shop and yard for the Trail Crew, a leach field addition, and additional storage bins for sand, gravel, lumber and garbage.

Executive Order 11990, *Protection of Wetlands*, requires the NPS, and other federal agencies, to evaluate the likely impacts of actions in wetlands. The executive order requires that short and long-term adverse impacts associated with occupancy, modification or destruction of wetlands be avoided whenever possible. Indirect support of development and new construction in such areas should also be avoided wherever there is a practicable alternative.

To comply with these orders, the NPS has developed a set of agency policies and procedures which can be found in Director's Order 77-1, *Wetland Protection*, and Procedural Manual 77-1, *Wetland Protection*. The policies and procedures related to wetlands emphasize: exploring all practical alternatives to building on, or otherwise affecting, wetlands; reducing impacts to wetlands whenever possible; and providing direct compensation for any unavoidable wetland impact by restoring degraded or destroyed wetlands on other NPS properties.

The purpose of this Statement of Findings (SOF) is to present the NPS rationale for its proposed plan to construct portions of the C-Camp facilities project in the wetland area. This SOF also documents the anticipated effects on these resources.

WETLANDS WITHIN THE PROJECT AREA

Wetland boundaries were identified in the field by NPS personnel (Carwile and Rice) in September 2005, transcribed onto air photos and converted to a GIS layer to determine wetland acreage. Of the 4.6 acres that would be newly disturbed by the proposed action, 0.7 acres (Figure 2-4) were classified as wetlands under the "Classification of Wetlands and Deepwater Habitats of the United States," the Cowardin Classification System (Cowardin et al. 1979), and

are therefore subject to NPS wetlands compliance procedures. Of the 4.6 acres that would be newly disturbed, 3.9 acres are upland, as evidenced by the white spruce associations, the lack of hydrologic indicators, and the presence of well-draining soils.

The 0.7 acres of wetlands located within the proposed project area are classified as palustrine forested, needle-leaved evergreen, saturated wetlands – PF04B. The PF04B wetlands have been further divided into W-1 and W-2 regimes (Figure 2-4). The wetter W-2 regime shows vegetation adapted to soils significantly colder during the growing season. W-2 regime soils also showed significantly more gleying, and investigation holes dug in September filled with water. Holes dug in the W-1 wetlands were wet at the bottom but did not fill with water.

These wetlands provide habitat for small mammals, such as red squirrels, snowshoe hares, and porcupine; bird species, including gray jays, robins, thrushes, sparrows, and warblers. Moose frequent the area for forage, and it is considered potential moose calving area.

The major plant species on the wetland sites include willow spp., including *Salix planifolia*, blueberry, and black spruce-white spruce hybrids. Common ground cover includes feather and sphagnum mosses, leaf lichens, crowberry and a variety of forbs. No threatened or endangered animal or plant species are found in the area and no research or reference sites have been developed in the project area.

There is a water well located above the project area. No water supply points or wells are located downhill between the project site and the park entrance area water supply wells and stream galleries, approximately 7,000 feet away. No floods are known from the site, as forests and open wetlands cover most of the adjacent land and gravelly layers which absorb the rainfall are below the surface soils. The wetlands function to attenuate snow melt surface flow during break-up and discharge during heavy rain events.

The wetland type described above is common throughout the eastern areas of Denali National Park and Preserve. The park has determined that the potential wetlands located at the project site are a relatively minor part of the fringe of large acreages of wetlands, are locally common, and that removing the wetlands would have a minor impact on surface water quality, including sediment control and water purification, animal habitat, and cultural resources.

THE PROPOSAL IN RELATION TO WETLANDS

The proposal and alternatives are described in detail in the project EA.

The construction of a new ESB and related facilities would impact a maximum of 0.7 acres of wetlands. The extent of disturbance is shown on Figure 2-4. Most of the wetland disturbance would be to allow a new parallel access road. This new access road would re-define the east edge of the C-Camp development area.

In addition to constructing up-to-date facilities for emergency operations, ranger operations and fire management operations, a major purpose of the project is to separate, as much as possible, the heavy maintenance functions located in the C-Camp area since 1975, and expanding ever since, from the housing function located on the site since 1938. The new access road would help to isolate the employee housing area from heavy vehicular traffic.

Part of the expansion into wetlands would be to provide a convenient but segregated place for vehicle fueling that also does not interfere with vehicular circulation. The new access road would be placed within the (W-1) wetlands, but inside a line parallel to the local drainage where the vegetation, soils and hydrology indicate a significantly wetter regime (W-2).

The wetland soils include up to three feet of colluvium over gravelly glacial till. The construction of the new access road, ESB and related parking would be accomplished by removing the colluvium and replacing it with clean fill on top of the glacial till to the depth necessary to support a paved road for vehicular traffic. Extensions of the Auto Shop pad east into wetlands would only include placing fill on top of the ground.

Discharge of dredged or fill material into jurisdictional wetlands is regulated by the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act. According to a recent determination by Corps personnel, the project would not affect wetlands under the jurisdiction of the Corps (Don Rice, pers. comm.).

MITIGATION PROPOSED

Federal and NPS policy is to avoid siting projects in wetlands whenever possible. If circumstances make it impracticable to avoid wetlands, then mitigation of unavoidable impacts must be planned. An NPS wetlands no-net-loss policy requires that wetland losses be compensated for by restoration of wetlands, preferably of comparable wetland type and function and in the same watershed if possible.

Of the 4.6 acres affected by the proposed action, 0.7 acres are classified as wetlands. This SOF commits to 2:1 compensation for the 0.7 acres of disturbed wetlands.

On-Site Rehabilitation

As much as possible, disturbance of wetlands in and around the project area would be avoided. Silt fences would be set up to define construction impact limits. Any areas disturbed by construction activities would be restored to as near natural conditions as possible. Prior to the start of construction activities, the NPS would salvage as much topsoil, organic matter and vegetation as necessary for later use in site revegetation or for use in revegetating other local sites. Salvaged material would be stockpiled separately and would be placed in the disturbed areas following construction.

Off-Site Compensation (Wetland Restoration)

Compensation, by restoration of previously disturbed degraded wetlands, is required under the NPS no-net-loss policy for projects involving disturbance or loss of wetlands. Compensation will occur for the loss of 0.7 acres of palustrine forested wetland. Two-for-one compensation will be completed within the park, rather than one-for-one, because the wetland type being lost are different from the type being restored. By restoring a riverine and palustrine wetland in the Kantishna Hills region at a two-for-one compensation rate, it is anticipated that the wetland functions and values lost at the project site will be balanced by those functions and values regained at a restored former placer mine site. The project site and the compensation site are

separated by about 65 miles but are both within Denali National Park. They have different wetland values and functions. The wetlands impacted by the project are described above as a PF04B type. The wetlands to be restored at the compensation site are described below as a R3USJ/PUS1D type.

A Federal Highways Administration-funded project to remove gravel from former placer mined areas in Kantishna (Figure A-1) is scheduled for 2007-2008. A 1.4 acre portion within the park's Eldorado Creek floodplain has been selected for restoration (Figure A-2) within the scope of this mitigation, for compensation for this C-Camp improvements project. These disturbed sites are going to be restored to wetlands classified as riverine upper perennial unconsolidated shore with intermittent flooding – R3USJ, and palustrine unconsolidated shore cobble gravel seasonally flooded/well-drained – PUS1D. Restoration plans at the Eldorado Creek site include removing and disposing of debris; stabilizing the channel and floodplain; stabilizing the access road; and revegetating the stripped areas. Preliminary work will include water and soil sampling and an engineering survey of the existing stream channel, floodplain and upland topography. Discharge measurements will be collected to aid in stream channel design. Soil sampling will assess the geo-chemistry of the upper watershed, and determine the soil's potential for revegetation efforts. Surveys, both cross-sectional and topographical, will be conducted to supplement site data on the NPS topographic maps. This information will be used to locate and estimate material amounts for use in re-contouring the site and reconstructing the stream channel and floodplain.

Cost estimate for this compensation project is approximately \$17,000 per acre, based on an unpublished report, "Cost Estimation for Reclamation, National Park Service, Alaska Regional Office, January 1994." This report reviewed three separate mining reclamation projects that were conducted on abandoned claims in Denali National Park and Preserve.

Stream channel and floodplain restoration will be based on the techniques of the Glen Creek restoration project at Denali. Project design requirements will include a channel capacity for a 1.5-year (bank full) discharge and a floodplain capacity for up to a 100-year discharge. The project design will include the use of bio-revetment, located on meanders, to encourage channel stabilization using natural methods. Brush bars, located in areas of little or no fines, will be employed to dissipate floodwater energy and encourage sediment deposition. Riparian areas will be revegetated with willow cuttings and other appropriate vegetation. Depending on the results from the soils nutrient analysis, fertilizer will be used to ensure a quick start for new vegetation.

Monitoring of the stream channel and riparian areas will occur to determine the success of the reclamation efforts. Vegetation plots and permanently mounted cross-sections will be surveyed and measured again after the first year. Additional seeding and revegetation will occur on areas not vegetated during the first year. It is anticipated that the site will be a functional wetland within 3-5 years after treatment, and will be fully-functioning within 15 years.

ALTERNATIVES CONSIDERED

Alternative 1 describes the existing conditions, No Action, in the C-Camp area. No additional facilities would be constructed in the C-Camp area but normal activities and operations would continue.

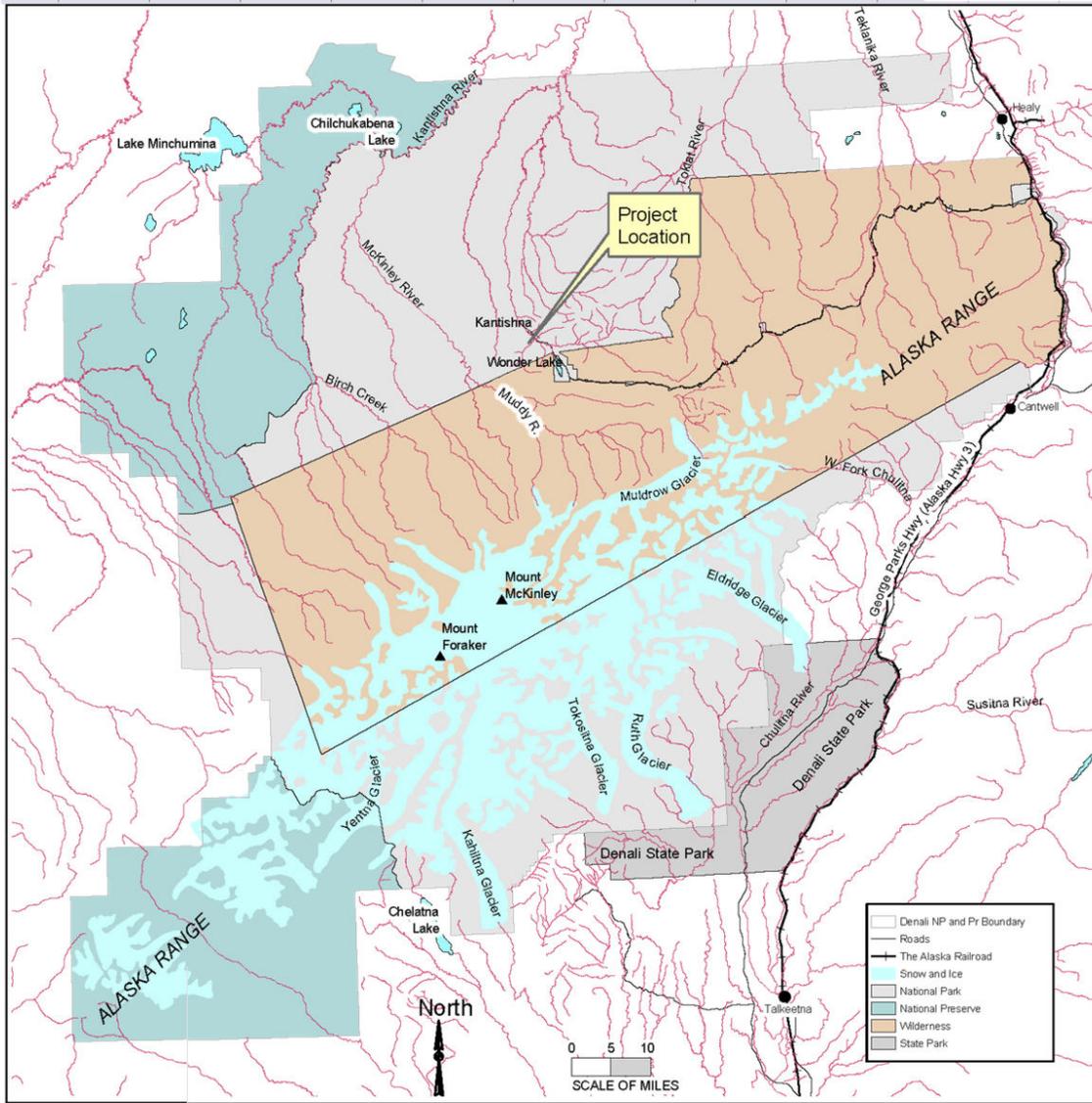


Figure 1
 Project Location
 Denali National Park and Preserve
 U.S. Department of the Interior • National Park Service

Figure A-1 – Wetlands Compensation Project, General Location



Figure A-2 – Wetlands Compensation Project, Specific Location

Alternative 2 describes the NPS Preferred Alternative to construct a new C-Camp access road parallel to the existing road and an ESB and related facilities, adversely impacting 0.7 acres of wetlands.

Alternative 3 describes a similar construction project, but no new access road would be built. Heavy vehicular use on the existing access road would continue. Construction of the ESB and related facilities would adversely impact 0.3 acres of wetland.

Alternative 4 describes a similar construction project, but the new access road from the Park Road would enter the C-Camp Auto Shop pad from the east. Construction of the ESB and related facilities would adversely impact 1.2 acres of wetland.

The NPS Preferred Alternative is Alternative 2, the Parallel Access Road Alternative. This has a greater impact to wetlands than the Alternative 1 -- the No Action Alternative, or Alternative 3 -- the Existing Road Alternative. The reason for selecting Alternative 2, with a greater wetland impact, is that it better serves the purpose and need of the project. These are described in detail in the project environmental assessment, which is incorporated into this Statement of Findings by reference.

Several other alternatives were discussed during the project scoping process but were eliminated from further evaluations. These are briefly explained in the EA.

SUMMARY OF ENVIRONMENTAL CONSEQUENCES ASSOCIATED WITH THE PROPOSED ACTION

The potential environmental consequences of the proposed action and alternatives are fully described in the EA.

CONCLUSION

The NPS concludes that there are no practicable alternatives to disturbing 0.7 acres of wetlands and building facilities within wetlands for the construction of an ESB and related facilities, and for other facilities that contribute to an enhanced separation of the maintenance and administrative function from the employee housing function within C-Camp, including a new access road, Auto Shop pad expansion, a new fueling facility and related utility upgrades. Wetlands would be avoided to the maximum extent practicable. The wetland impacts that could not be avoided would be minimized. The NPS acknowledges that some natural localized wetlands processes would be lost by the C-Camp Improvements project. Impacts on the 0.7 acres of wetlands would be compensated for, on a minimum 2-for-1 acreage basis, by restoring riverine and palustrine wetland habitat and associated riparian habitat, in the Kantishna Hills region of the park (formerly a placer-mined stream and riparian habitat). The NPS finds that this project is consistent with the Procedural Manual #77-1, *Wetland Protection*, and with NPS Director's Order #77-1, *Wetland Protection*. The NPS finds that this project is in compliance with Executive Order 11990, *Wetland Management*.

Appendix B – ANILCA 810 Evaluation

SUBSISTENCE – SECTION 810(a) OF ANILCA SUMMARY EVALUATION AND FINDINGS

I. INTRODUCTION

This section was prepared to comply with Title VIII, Section 810 of the Alaska National Interest Lands Conservation Act (ANILCA) of 1980. It summarizes the evaluation of potential restrictions to subsistence uses in Denali National Park and Preserve that could result from the proposed improvements at C-Camp.

II. THE EVALUATION PROCESS

Section 810(a) of ANILCA states:

In determining whether to withdraw, reserve, lease, or otherwise permit the use, occupancy, or disposition of public lands . . . the head of the Federal agency . . . over such lands . . . shall evaluate the effect of such use, occupancy, or disposition on subsistence uses and needs, the availability of other lands for the purposes sought to be achieved, and other alternatives which would reduce or eliminate the use, occupancy, or disposition of public lands needed for subsistence purposes. No such withdrawal, reservation, lease, permit, or other use, occupancy or disposition of such lands which would significantly restrict subsistence uses shall be effected until the head of such Federal agency -

(1) gives notice to the appropriate State agency and the appropriate local committees and regional councils established pursuant to section 805;

(2) gives notice of, and holds, a hearing in the vicinity of the area involved; and

(3) determines that (A) such a significant restriction of subsistence uses is necessary, consistent with sound management principles for the utilization of the public lands, (B) the proposed activity will involve the minimal amount of public lands necessary to accomplish the purposes of such use, occupancy, or other disposition, and (C) reasonable steps will be taken to minimize adverse impacts upon subsistence uses and resources resulting from such actions.

ANILCA created new units and additions to existing units of the National Park System in Alaska. Denali National Park and Preserve was created by ANILCA Section 202(3)(a):

The park additions and preserve shall be managed for the following purposes, among others: To protect and interpret the entire mountain massif, and additional scenic mountain peaks and formations; and to protect habitat for, and populations of, fish and wildlife, including, but not limited to, brown/grizzly bears, moose, caribou, Dall sheep, wolves, swans and other waterfowl; and to provide continued opportunities, including

reasonable access, for mountain climbing, mountaineering, and other wilderness recreational activities.

Title I of ANILCA established national parks for the following purposes:

. . . to preserve unrivaled scenic and geological values associated with natural landscapes; to provide for the maintenance of sound populations of, and habitat for, wildlife species of inestimable value to the citizens of Alaska and the Nation, including those species dependent on vast relatively undeveloped areas; to preserve in their natural state extensive unaltered arctic tundra, boreal forest, and coastal rainforest ecosystems to protect the resources related to subsistence needs; to protect and preserve historic and archeological sites, rivers, and lands, and to preserve wilderness resource values and related recreational opportunities including but not limited to hiking, canoeing, fishing, and sport hunting, within large arctic and subarctic wildlands and on free-flowing rivers; and to maintain opportunities for scientific research and undisturbed ecosystems.

. . . consistent with management of fish and wildlife in accordance with recognized scientific principles and the purposes for which each conservation system unit is established, designated, or expanded by or pursuant to this Act, to provide the opportunity for rural residents engaged in a subsistence way of life to continue to do so.

The potential for significant restriction must be evaluated for the proposed action's effect upon “. . . subsistence uses and needs, the availability of other lands for the purposes sought to be achieved and other alternatives which would reduce or eliminate the use. . . .” (Section 810(a))

III. PROPOSED ACTION ON FEDERAL LANDS

Alternatives are described in detail in the EA. Customary and traditional subsistence use on NPS lands will continue as authorized by federal law under all alternatives. Federal regulations implement a subsistence priority for rural residents of Alaska under Title VIII of ANILCA.

The NPS proposes to make improvements to the C-Camp administrative area – construct a new emergency services building and a new access road to the maintenance areas, upgrade employee housing, parking and common facilities for residents in C-Camp, separate maintenance functions and traffic from employee housing areas, expand maintenance areas and improve maintenance, storage and parking facilities, replace the vehicle fueling system and remediate contaminated soils, provide capability for propane vehicle fueling, upgrade utilities, and realign the Rock Creek Trail.

The site is in the former Mount McKinley National Park wherein subsistence activities are not allowed.

IV. AFFECTED ENVIRONMENT

Subsistence uses within Denali National Park and Preserve are permitted in accordance with Titles II and VIII of ANILCA. Section 202(3)(a) of ANILCA authorizes subsistence uses, where traditional, in the northwestern and southwestern preserves of Denali National Preserve. Lands within former Mount McKinley National Park are closed to subsistence uses.

A regional population of approximately 300 eligible local rural residents qualifies for subsistence use of park resources. Resident zone communities for Denali National Park and Preserve are Cantwell, Minchumina, Nikolai and Telida. By virtue of their residence, local rural residents of these communities are eligible to pursue subsistence activities in the new (1980) park additions. Local rural residents who do not live in the designated resident zone communities, but who have customarily and traditionally engaged in subsistence activities within the park additions, may continue to do so pursuant to a subsistence permit issued by the park superintendent in accordance with state law and regulations.

The NPS realizes that Denali National Park and Preserve may be especially important to certain communities and households in the area for subsistence purposes. The resident zone communities of Minchumina (population 22) and Telida (population 11) use park and preserve lands for trapping and occasional moose hunting along area rivers. Nikolai (population 122) is a growing community and has used park resources in the past. Cantwell (population 147) is the largest resident zone community for Denali National Park and Preserve, and local residents hunt moose and caribou, trap, and harvest firewood and other subsistence resources in the new park area.

The main subsistence species, by edible weight, are moose, caribou, furbearers and fish. Varieties of subsistence fish include coho, king, pink and sockeye salmon. Burbot, dolly varden, grayling, lake trout, northern pike, rainbow trout and whitefish are also among the variety of fish used by local people. Beaver, coyote, land otter, weasel, lynx, marten, mink, muskrat, red fox, wolf and wolverine are important furbearer resources. Rock and willow ptarmigan, grouse, ducks and geese complete the park/preserve subsistence small game list.

The NPS recognizes that patterns of subsistence use vary from time to time and from place to place depending on the availability of wildlife and other renewable natural resources. A subsistence harvest in any given year may vary considerably from previous years because of such factors as weather, migration patterns and natural population cycles. However, the pattern is assumed to be generally applicable to harvests in recent years with variations of reasonable magnitude.

V. SUBSISTENCE USES AND NEEDS EVALUATION

To determine the potential impact on existing subsistence activities, three evaluation criteria were analyzed relative to existing subsistence resources that could be impacted. The evaluation criteria are:

- the potential to reduce important subsistence fish and wildlife populations by (a) reductions in numbers; (b) redistribution of subsistence resources; or (c) habitat losses;
- the affect the action might have on subsistence fishing or hunting access; and
- the potential to increase fishing or hunting competition for subsistence resources.

The potential to reduce populations:

Land use activities could have temporary and/or long-term impacts on wildlife habitat, depending on the nature and extent of the disturbance.

The alternatives would not adversely affect the distribution or migration patterns of subsistence resources. Therefore, no change in the availability of subsistence resources is anticipated as a result of the implementation of this proposed action.

Restriction of Access:

All rights of access for subsistence harvests on NPS lands are granted by Section 811 of ANILCA. Denali National Park and Preserve is managed according to legislative mandates, NPS management policies and the park's General Management Plan. No actions under the alternatives described in the EA should affect the access of subsistence users to natural resources in the park and preserve.

Increase in Competition:

The alternatives should not produce any increase in competition for resources to subsistence users.

If, and when, it is necessary to restrict taking, subsistence uses are the priority consumptive users on public lands of Alaska and will be given preference on such lands over other consumptive uses. (ANILCA, Section 802(2))

Continued implementation of provisions of ANILCA should mitigate any increased competition, however significant, from resource users other than subsistence users. Therefore, the proposed action would not adversely affect resource competition.

VI. AVAILABILITY OF OTHER LANDS

Choosing a different alternative would not decrease the impacts to park resources for subsistence. The preferred alternative is consistent with the mandates of ANILCA, including Title VIII, and the NPS Organic Act of 1916.

VII. ALTERNATIVES CONSIDERED

The alternatives considered for this project were limited to 1) a No Action Alternative, 2) the several actions to improve C-Camp, including a new access road parallel to the existing access road (this is the Preferred Alternative), 3) the several actions to improve C-Camp, including the use of the existing access road, and 4) the several actions to improve C-Camp, including a new access road from the east from the Park Road.

VIII. FINDINGS

This analysis concludes that the preferred alternative would not result in a significant restriction of subsistence uses.

Appendix C – Cost Comparison

C Camp Improvements Cost Matrix

4/24/2006 Class-C Estimate

Feature	EA Alternatives			
	Alt 1 No Action	Alt 2 Parallel Road	Alt 3 No Road	Alt 4 By-Pass Road
ESB		\$3,750,000	\$3,250,000	\$3,500,000
Road		\$250,000	\$100,000	\$500,000
Utilities Upgrade		\$4,000,000	\$4,000,000	\$4,000,000
Soil Remediation		\$500,000	\$500,000	\$500,000
Vehicle Fueling		\$500,000	\$500,000	\$500,000
Housing Repair/Replacement		\$1,500,000	\$2,000,000	\$1,000,000
Shower House		\$1,000,000	\$1,000,000	\$1,000,000
Trail Shop		\$1,000,000	\$1,000,000	\$1,000,000
Staff Parking		\$100,000	\$100,000	\$100,000
Resident Parking		\$50,000	\$50,000	\$50,000
Auto Shop Pad Bins		\$500,000	\$500,000	\$500,000
B & U Shop Bins		\$500,000	\$500,000	\$500,000
Trailer Pads		\$0	\$100,000	\$66,000
Trail Realignment		\$100,000	\$100,000	\$100,000
Pad parking and vehicle plug ins		\$80,000	\$80,000	\$80,000
Net Construction Total	\$0	\$13,830,000	\$13,780,000	\$13,396,000
Contract	\$0	\$2,489,400	\$2,480,400	\$2,411,280
Administration/Contingency (18%)				
Design (17%)	\$0	\$2,351,100	\$2,342,600	\$2,277,320
Total Construction	\$0	\$18,670,500	\$18,603,000	\$18,084,600
Annual Operation and Maintenance (1%) (w/o road)	\$150,000	\$184,205	\$185,030	\$175,846
Annual Operation and Maintenance (road)	\$14,000	\$30,750	\$14,000	\$60,450
Total O & M	\$164,000	\$214,955	\$199,030	\$236,296
Life Cycle Cost	\$2,417,000	\$21,839,500	\$21,537,000	\$21,567,600