ENVIRONMENTAL ASSESSMENT

FOR REHABILITATION OF THE PARK ROAD IN THE PORCUPINE FOREST AREA OF DENALI NATIONAL PARK

Prepared by
United States Department of the Interior
National Park Service
Denali National Park and Preserve

August 2010

Mention by the U.S. Department of the Interior, National Park Service of trade names or commercial products does not constitute endorsement or recommendation for use.

As the nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural and cultural resources. This includes fostering the wisest use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to assure that their development is in the best interests of all. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

The National Park Service, Alaska Regional Office, provided publication services.

Public comment on this document can be given at: http://parkplanning.nps.gov

TABLE OF CONTENTS

I. PURPOSE AND NEED 4
Background 4
Park Purpose and Significance 5
Legal Context 6
Relationship of Proposal to Other Planning Projects 6
Issues 7
Issues Dismissed from Analysis 7
Permits and Approvals Needed to Complete the Project 10

II. DESCRIPTION OF THE ALTERNATIVES 11
Alternative 1- Existing Conditions (No Action) 11
Alternative 2- Rehabilitation of the Park Road in the Porcupine Forest Area 11
Environmentally Preferred Alternative 19
Mitigation and Monitoring 20

III. AFFECTED ENVIRONMENT 23

IV. ENVIRONMENTAL CONSEQUENCESS OF THE ALTERNATIVES 26
Assumptions for Impact Analyses 26
Alternative 1- Existing Conditions (No Action) 26
Alternative 2- Rehabilitation of the Park Road in Porcupine Forest Area 28

V. CONSULTATION AND COORDINATION 34

VI. SELECTED REFERENCES 35

APPENDIX: ANILCA Subsistence 810(a) Evaluation and Findings 36

FIGURES
Figure 1 – Project Location 8
Figure 2 – Project Area 9
Figure 3 – Typical Sections 12
Figure 4 – Typical Underdrain Sections 13
Figure 5 – Typical Geogrid Sections 14
Figure 6 – Travel Way Dimensions 15
Figure 7 – Travel Way Dimensions 16

TABLES
Table 1 – Comparison of the Alternatives 22
Table 2 – Summary Impacts of the Alternatives 22

I. PURPOSE AND NEED

The National Park Service (NPS), in cooperation with the Federal Highway Administration (FHWA), is considering a road rehabilitation project in the MP 50.8 - 52.4 (Porcupine Forest) section of the Denali Park Road (park road) in Denali National Park and Preserve (the park). The NPS is proposing to improve and add intervisible pullouts, add a gravel surface wear layer, replace culverts and address drainage and subgrade issues.

The project is necessary because this section of road does not meet park standards for intervisible pullouts and has long been identified as having drainage problems and poor subgrade. Objectives of the project would be to make soft outside edges structurally sound without changing the surface look of the road, replace and resize culverts to fit standards, remove poor subgrade soils and install ditch underdrains to remove water from the subbase, and reduce saturation of the road prism.

This Environmental Assessment (EA) analyzes a No Action Alternative and one action alternative for the rehabilitation of an 8900 foot-long section of the Denali Park Road within Denali National Park and Preserve and has been prepared according to the National Environmental Policy Act of 1969 and regulations of the Council of Environmental Quality (40 CFR 1508.9).

Background

A single, 93-mile road serves Denali National Park and Preserve. The park road provides controlled vehicle access into the park for visitors, park administration, and inholders. The road begins at the junction with the George Parks Highway (Alaska Highway #3) and ends at the Kantishna airstrip (Figure 1).

The park road has an asphalt surface from Mile 0.0 at the George Parks Highway to the Savage River Bridge at Mile 14.9, where controlled access begins beyond the check station. The remainder of the road has a gravel surface. The road prism and surface condition vary considerably from the Savage River Bridge to the Kantishna Airstrip at Mile 92. The park road was built by the Alaska Road Commission and construction was funded by annual Congressional appropriations as road construction park road proceeded west from 1923 to 1938. The Porcupine Forest section was probably constructed in 1930-31.

Prior to the opening of the Denali Highway in 1957, there were very few private vehicles anywhere on the park road, and all traffic decreased the farther west one went on the road. Because most of the visitor and vehicular activity originates at the east end of the road – near the Alaska Railroad and the George Parks Highway – plans to improve the road have typically been based on a telescoping approach. Basically, the road gets more primitive the farther west one travels. The Mission 66 proposal of 1956-1966 to pave the road to MP 31 and to make it a uniform width (and “oiled”) from there to the Eielson Visitor Center (Eielson) at MP 66 was halted due to a national outcry over excessive improvements to a wilderness road.

A plan to improve the condition of the road was approved in 1982 (NPS, 1982). The road in the Porcupine Forest section was to get a new 4 - 6 inch wear layer of gravel. The new wear layer did not materialize in this section, except for spot placement, and no subexcavation took place. Routine grading since 1972, which can include pulling loose material out of the ditch and spreading it across the road, has likely widened the road structure by widening the uphill ditch and widening the downhill fill slope with uncompacted spill material.

The 1996 Entrance Area and Road Corridor Development Concept Plan/Environmental Impact Statement (DCP/EIS) describes the present view of the character of the park road past Mile 30:

> "West of the Teklanika River, the landscape and the road change. Rolling terrain gives way to steep mountains and rugged canyons. The park road changes from a uniform width, two-lane facility to a variable width one lane road with two-lane sections and pullouts. At this point, the landscape and the character of the road become integral parts of the park experience. The sinuous path emphasizes the dramatic terrain. Engineered structures such as bridges are used only as necessary to protect the resource or preserve the road. Signs and related items are kept to a minimum. The character of the road is in keeping with the character of the land: a primitive, low-speed road located in a wild and pristine land." (NPS, 1996)

To quantify the quality elements of the park road character as described in the DCP/EIS, a Road Design Standards (RDS) document (NPS 2007) was finalized in 2007. The document addresses the size, shape and strength of - and the footprint covered by - the road structure, as well as sight distance issues, drainage issues, roadside brushing, and the use of geotechnical products. As stated in the RDS, the continued preservation of the character of the Denali Park Road and the visitor experience it provides rests on many factors, including providing a structurally sound road, a limit to the size and weight of the design vehicle, a limit to the number of vehicles using the road, education so that drivers follow the Rules of the Road, and the maintenance or creation of safe passing situations through a series of intervisible passing pullouts.

In the summer of 1997 fourteen of the sight-distance/safe passing corners identified as examples of problem areas in the DCP/EIS were improved by park road crews. The main effort at these sites was to either cut back or reduce the verticality of the cut banks (backslopes). Another backslope in this project area, at MP 52.2, was shaved back in 1999. A project to rehabilitate over 4 miles of road in the MP 80-84 section of the park road, including formalizing about 73 intervisible passing pullouts, began during June 2010.

Park Purpose and Significance

In 1917, Congress established Mount McKinley National Park: "…as a public park for the benefit and enjoyment of the people... said park shall be, and is hereby established as a game refuge" (39 Statute 938). Additions to the park were made in 1922 and 1932 to provide increased protection for park values and, in particular, wildlife.

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. ANILCA also designated 99% of the former Mt. McKinley National Park as wilderness. In addition to wilderness exclusions at Wonder Lake, Toklat, some potential gravel sources, campgrounds, and the park entrance area, a 300 foot wide wilderness exclusion was centered on the park road.

Legal Context

The NPS Organic Act of 1916 and the General Authorities Act of 1970 prohibit impairment of park resources and values. The 2006 NPS Management Policies use 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 an unimpaired condition that will allow 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.

Relationship of Proposal to Other Planning Projects

A Vehicle Management Plan and Environmental Impact Statement are being prepared over the next two years, but no draft document is presently available.

Park Road repair projects are generally competitively funded by the Federal Highway Administration, Federal Lands Highway Program. Future park road projects could include bridge and culvert replacement, intervisible pullout construction in the Wonder Lake area, repaving the road between the entrance and Savage River, and subexcavation work wherever replacement of poor subgrade is necessary.

Issues

To focus this EA, the NPS selected specific issues (also called "Impact Topics") for further analysis and eliminated others from evaluation. Issues selected for analysis in this EA were determined through internal scoping with the park and NPS Alaska Region staff.

Vegetation, Wetlands, and Soils – Less than one-tenth acre of alder, willow and dwarf birch-dominated vegetation would be affected by the proposed road rehabilitation. Some soils would be removed from the backslopes where widening for pullouts would occur.

Wildlife and Habitat – Less than one-tenth acre of previously disturbed wildlife habitat next to the road would be removed.

Cultural Resources – The project would affect the some dimensions of the park road. The park road has been declared eligible for the National Register of Historic Places.

Visitor Use and Recreation - Recreation opportunities could be affected during the road project construction, including hiking along the road in the project area and wildlife and bird-watching from the road.

Park Management – The additional pullouts should make vehicular travel on the road safer, and the drainage improvements should reduce long-term maintenance needs.

Issues Dismissed from 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 of 1973 (ESA) requires an analysis of impacts on all federally listed threatened and endangered species. In compliance with ESA Section (§) 7, 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 project.

Air Quality - Both the Clean Air Act of 1977 (CAA) and NPS 2006 Management Policies (NPS 2006b) 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, minor, impacts on air quality. Class I air quality standards would not be exceeded by this project.

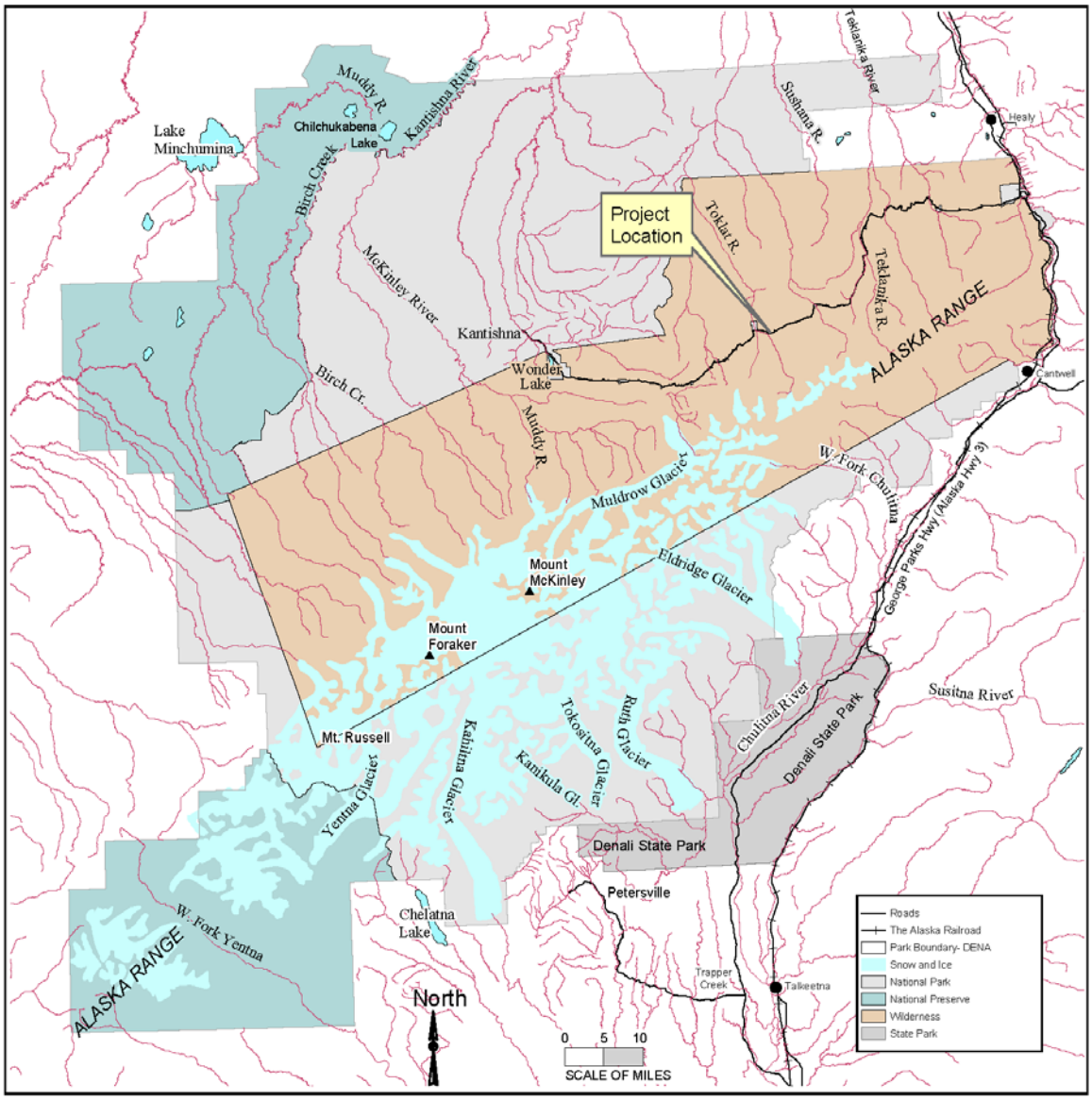
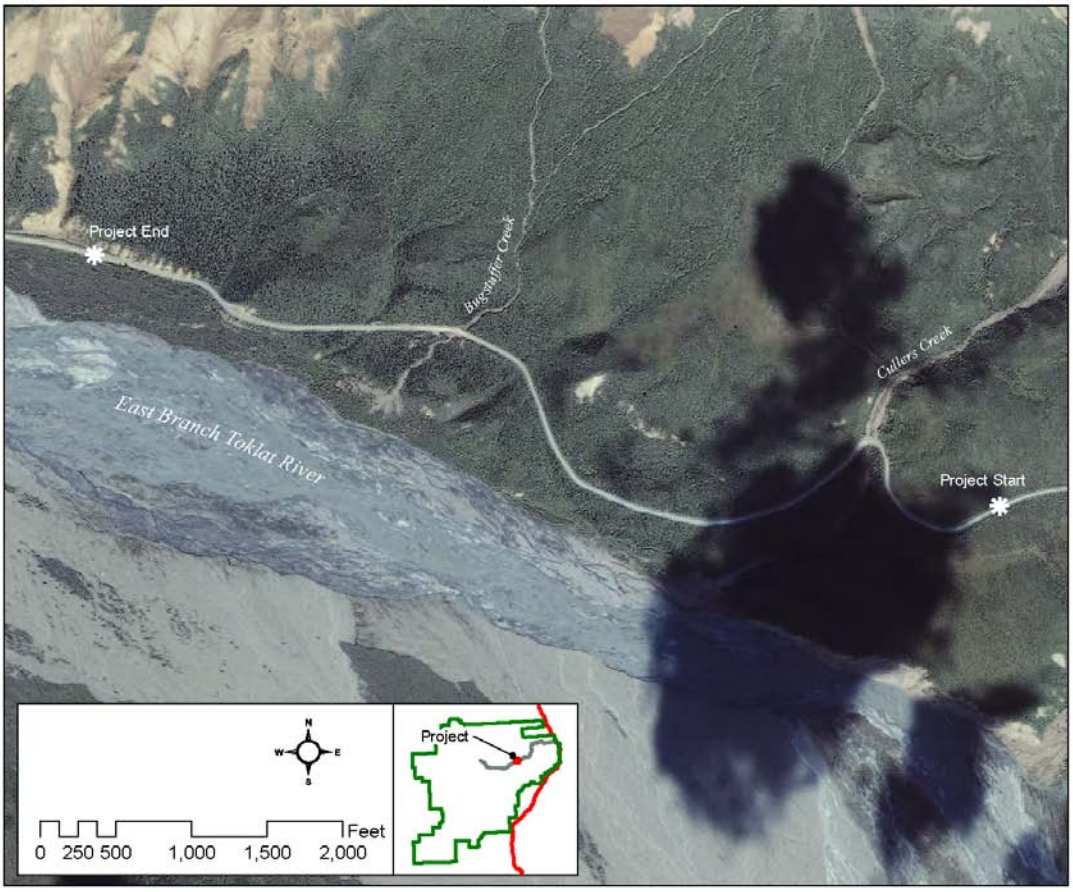


Figure 1
Project Location
Denali National Park and Preserve
U.S. Department of the Interior • National Park Service

Figure 2



Water Quality – Water will be pumped from the Toklat River and used by water trucks to keep the dust down or to be used in compacting lifts when rebuilding outside edges of the road. The amount of water to be pumped is negligible compared to the river discharge and the Toklat in summer is not fish habitat.

Local Communities/Socioeconomic Resources - Construction activities and costs associated with the proposed project would provide a temporary stimulus to the local or regional economy. Wages, overhead expenses, material costs, and profits would last only as long as the project, thus impacts to local communities and socioeconomic resources would be short-term. Travel delays during construction would be minimized. Specific work items in the contract that would close the road for hours would be done at night, in consultation with the businesses in Kantishna.

Environmental Justice - Executive Order (E.O.) 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. The proposed project would not result in significant changes in the

socioeconomic environment of the area, and is expected to have no direct or indirect impacts to minority or low-income populations or communities.

Floodplains - E.O. 11988, Floodplain Management, requires all federal agencies to take action to reduce the risk of flood loss, to restore and preserve the natural beneficial values served by floodplains, and to minimize the impact of floods on human safety, health, and welfare. The project site is not located in floodplains, so this impact topic does not apply.

Soundscapes - Natural soundscapes in the area would be impacted by construction activities over the length of the project, but these impacts would be temporary and would be similar in kind to those already occurring from routine road maintenance, such as dump truck and motor grader use.

Subsistence - Subsistence activities are not allowed in the project area, so this impact topic does not apply. An ANILCA §810 evaluation is included in Appendix A.

Wilderness - Project activities would not occur in designated or eligible wilderness. Construction would not directly encroach upon the designated wilderness area. Sounds from the project would temporarily be heard in adjacent wilderness. Much of the use of the wilderness area (to the north) would have topographic barriers attenuating or blocking the noise from the project equipment.

Permits and Approvals Needed to Implement the Project

A concurrence from the State Historic Preservation Officer will be required for the evaluation of the effects of this project on cultural resources.

No Wetlands Statement of Findings would be required because NPS policy allows up to a 0.1 acre loss of wetlands due to the renovation of a serviceable facility for safety improvements. [“Maintenance, repair, or renovation (but not full reconstruction or expansion) of currently serviceable facilities or structures…This exception allows for *minor* (total of 0.1 acre or less) deviations in the structure's configuration or fill footprint in wetlands due to subsequent changes in construction codes, methods, or safety standards…”]

No Section 404 permit would be required from the Corps of Engineers because the minor impacts to wetlands would occur in wetlands that are not jurisdictional, that is, they do not include a direct link to navigable waters.

Clean Water Act §402(p) - [33 U.S.C. 1342(p)] Construction projects that expose more than 1 acre of cleared land to erosion and runoff require a National Pollution Discharge Elimination System permit from the U.S. Environmental Protection Agency (USEPA). A Notice of Intent (NOI) would be provided to USEPA to use the Construction General Permit. A copy of the NOI would be provided to the ADEC for comment. The construction contractor would be required to prepare a Storm Water Pollution Prevention Plan for submission to ADEC.

II. ALTERNATIVES

Alternative 1 – No Action

Under the No Action Alternative, the NPS and FHWA would not complete the proposed road rehabilitation project in the Porcupine Forest area. Existing use and maintenance of the road would continue. Annual maintenance activities of adding crushed gravel or pit run material to maintain a safe driving surface would continue. Buses and other vehicles would follow the Rules of the Road regarding yielding in the Porcupine Forest area, so that one bus (usually eastbound) would have the right of way and the other vehicle would need to find a place to safely pull over to let the bus pass. Brush crews would continue to clear brush alongside the road according to the directions in the Denali Road Maintenance Standards (NPS 2006). Current structural issues such as slumps, soft ditches, soft subgrade, water upwelling into the road surface and other structural problems would remain.

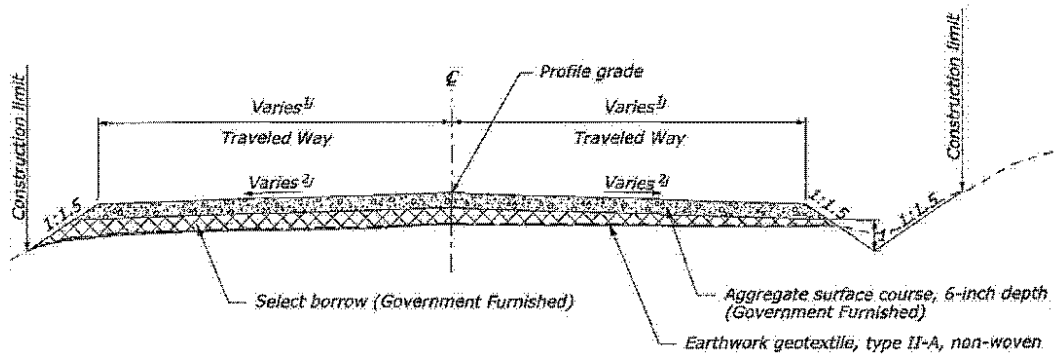
Alternative 2 – Rehabilitation of the Park Road in the Porcupine Forest Area, Mile 50.8 – 52.4, Proposed Action (NPS Preferred Alternative)

Under Alternative 2 the NPS and FHWA propose to rehabilitate the road prism, improve the drainage of water away from the road structure, and improve safety for all users of the park road in the Porcupine Forest section of the road through replacement of poor subgrade materials, replacing culverts, improving the road surface, and developing intervisible passing pullouts, (Figures 2-5). Improvements to the road are based on the park's Road Design Standards (RDS), which is a quantitative version of the Road Management summary given in the park's Entrance Area and Road Corridor Development Concept Plan/Environmental Impact Statement (NPS 1996a). The general concept is that the park road west of the Teklanika River would remain a variable width one lane rustic road with pullouts. Full dimensions of the project are displayed in a table included as Figures 6 and 7.

Of the one pulloff area and 16 intervisible passing pullouts proposed for the Porcupine Forest project, three would occur where there presently is no pullout. The others would be constructed at sites where there is a used existing pullout or where there is a widened spot. Some locations that are currently wider than standard may not be retained as wide spots.

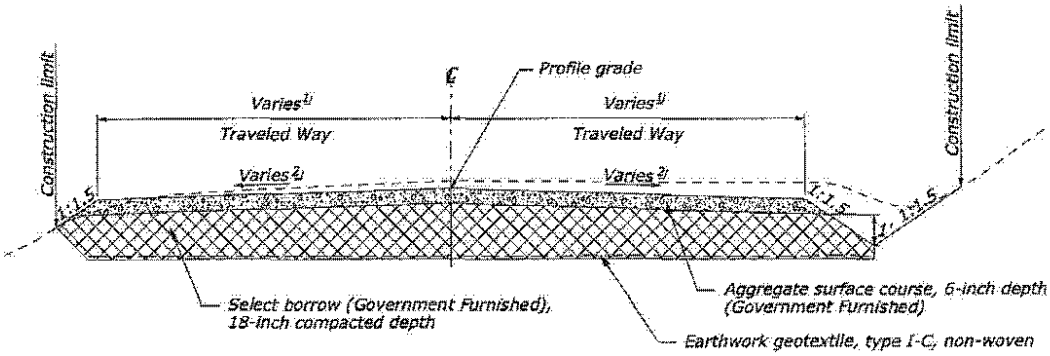
Of the 8,900 feet of road in the project area, approximately 4% is 18 feet wide, about 4% is 20 feet wide, about 65% is 22 feet wide, about 3% is 23 feet wide, and around 24% is 24 feet wide. The proposed pullouts would be mostly in the 22 foot wide areas.

Figure 3 - Typical Sections, Porcupine Forest Road Rehabilitation



TYPICAL SECTION

2679+66 to 2681+45
2684+40 to 2686+06
2704+66 to 2713+50
2718+10 to 2719+00
2720+40 to 2723+00
2723+80 to 2726+90
2729+00 to 2731+20
2743+45 to 2752+50
2753+20 to 2755+60
2764+00 to 2768+96.56

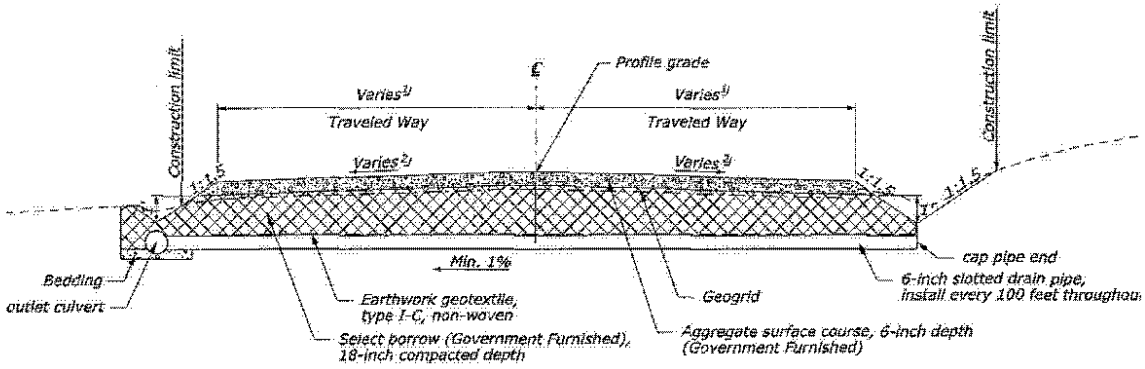


SUBEXCAVATION SECTION

2681+45 to 2684+40
2713+50 to 2718+10
2719+00 to 2720+40
2723+00 to 2723+80
2726+90 to 2729+00
2731+20 to 2735+10
2736+60 to 2743+45
2752+50 to 2753+20

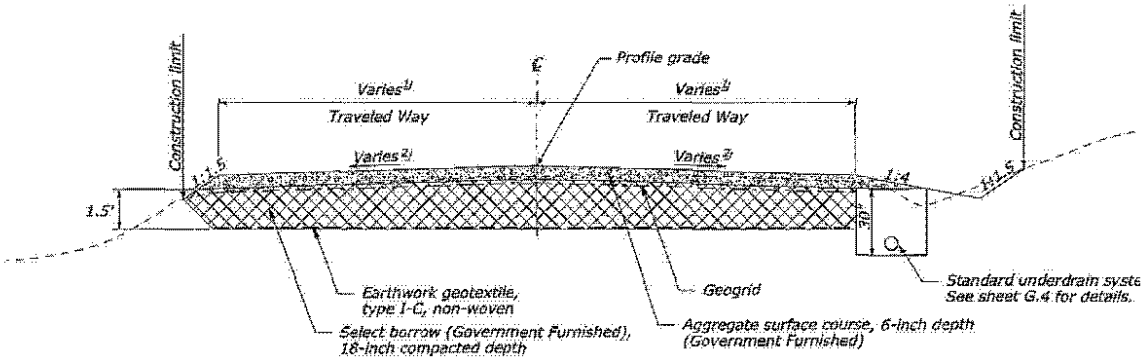
Not to scale

Figure 4 - Typical Underdrain and Blanket Drain Sections, Porcupine Forest Road Rehabilitation



BLANKET DRAIN SECTION

2686+06 to 2699+47



STANDARD UNDERDRAIN SECTION

2692+06 to 2699+24
2699+30 to 2704+66

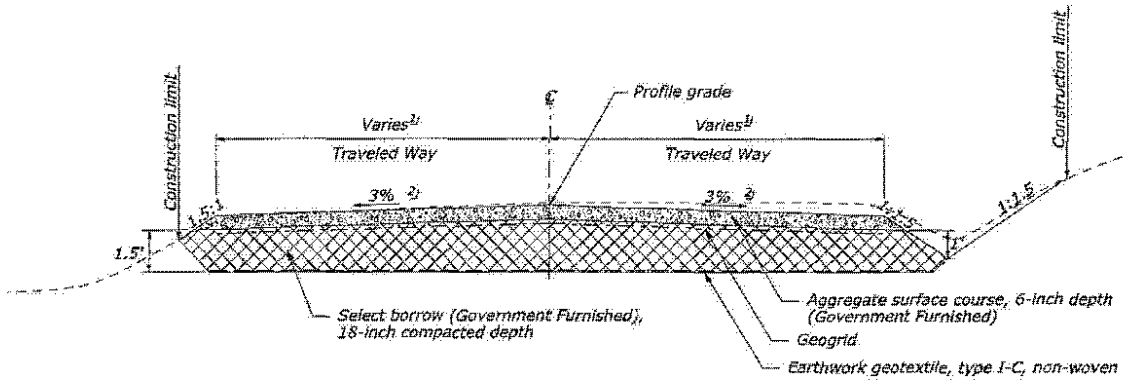
FOOTN

1/ Road wid

2/ Superele
in the cu

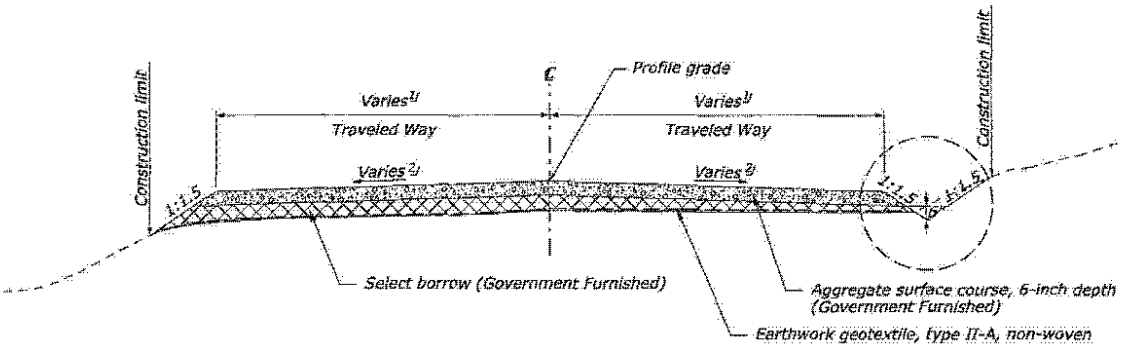
Not to scale

Figure 5 - Typical Geogrid and Special Ditch Sections, Porcupine Forest Road Rehabilitation



GEOGRID SECTION

2735+10 to 2736+60



SPECIAL DITCH SECTION, RT

2755+60 to 2764+00

Not to scale

Figure 6 - Porcupine Forest Road Rehabilitation Widths and Tapering

TRAVELED WAY								
STATION TO STATION			ROADWAY WIDTH FROM CENTERLINE (FT)					REMARKS
			LEFT		RIGHT			
			Start Value	Stop Value	Start Value	Stop Value		
2679+66.00	to	2679+86.00	-12		12			
2679+86.00	to	2680+46.00	-12	-9	12	9		Road width transition LT & RT
2680+46.00	to	2682+70.00	-9		9			
2682+70.00	to	2683+30.00	-9	-12	9	12		Road width transition LT & RT
2683+30.00	to	2683+80.00	-12	-22	12			Road width transition LT
2683+80.00	to	2684+36.00	-22		12			
2684+36.00	to	2684+86.00	-22	-12	12			Road width transition LT
2684+86.00	to	2688+76.00	-12		12			
2688+76.00	to	2688+96.00	-12	-11	12	11		Road width transition LT & RT
2688+96.00	to	2692+16.00	-11		11			
2692+16.00	to	2692+36.00	-11	-13	11			Road width transition LT
2692+36.00	to	2693+36.00	-13		11			
2693+36.00	to	2693+56.00	-13	-11	11			Road width transition LT
2693+56.00	to	2696+86.00	-11		11			
2696+86.00	to	2697+06.00	-11	-12	11	12		Road width transition LT & RT
2697+06.00	to	2705+00.00	-12		12			
2705+00.00	to	2705+20.00	-12	-11	12	11		Road width transition LT & RT
2705+20.00	to	2706+90.00	-11		11			
2706+90.00	to	2707+10.00	-11	-12	11	12		Road width transition LT & RT
2707+10.00	to	2710+85.00	-12		12			
2710+85.00	to	2711+05.00	-12	-11	12	11		Road width transition LT & RT
2711+05.00	to	2714+00.00	-11		11			
2714+00.00	to	2714+20.00	-11	-13	11			Road width transition LT
2714+20.00	to	2714+80.00	-13		11			
2714+80.00	to	2715+00.00	-13	-11	11			Road width transition LT
2715+00.00	to	2717+00.00	-11		11			
2717+00.00	to	2717+20.00	-11	-13	11			Road width transition LT
2717+20.00	to	2719+70.00	-13		11			
2719+70.00	to	2719+90.00	-13	-11	11			Road width transition LT
2719+90.00	to	2721+00.00	-11		11			
2721+00.00	to	2721+20.00	-11	-13	11			Road width transition LT
2721+20.00	to	2721+80.00	-13		11			
2721+80.00	to	2722+00.00	-13	-11	11			Road width transition LT
2722+00.00	to	2725+70.00	-11		11			
2725+70.00	to	2725+90.00	-11	-13	11			Road width transition LT
2725+90.00	to	2726+50.00	-13		11			
2726+50.00	to	2726+70.00	-13	-11	11			Road width transition LT
2726+70.00	to	2728+80.00	-11		11			
2728+80.00	to	2729+00.00	-11	-13	11			Road width transition LT
2729+00.00	to	2729+60.00	-13		11			

Figure 7 - Porcupine Forest Road Rehabilitation Widths and Tapering

STATE	PROJECT
AK	PRA-DENA 10(31

2729+60.00	to	2729+80.00	-13	-11	11		Road width transition LT
2729+80.00	to	2731+40.00	-11		11		
2731+40.00	to	2731+60.00	-11	-13	11		Road width transition LT
2731+60.00	to	2732+20.00	-13		11		
2732+20.00	to	2732+40.00	-13	-11	11		Road width transition LT
2732+40.00	to	2733+50.00	-11		11		
2733+50.00	to	2733+70.00	-11	-12	11	12	Road width transition LT & RT
2733+70.00	to	2734+40.00	-12		12		
2734+40.00	to	2735+00.00	-12	-9	12	9	Road width transition LT & RT
2735+00.00	to	2736+50.00	-9		9		
2736+50.00	to	2737+10.00	-9	-15	9		Road width transition LT
2737+10.00	to	2737+54.00	-15		9		
2737+54.00	to	2738+14.00	-15	-11	9	11	Road width transition LT & RT
2738+14.00	to	2739+60.00	-11		11		
2739+60.00	to	2739+80.00	-11	-13	11		Road width transition LT
2739+80.00	to	2740+40.00	-13		11		
2740+40.00	to	2740+60.00	-13	-11	11		Road width transition LT
2740+60.00	to	2742+80.00	-11		11		
2742+80.00	to	2743+00.00	-11		11	13	Road width transition RT
2743+00.00	to	2744+20.00	-11		13		
2744+20.00	to	2744+40.00	-11		13	11	Road width transition RT
2744+40.00	to	2749+10.00	-11		11		
2749+10.00	to	2749+30.00	-11	-13	11		Road width transition LT
2749+30.00	to	2749+90.00	-13		11		
2749+90.00	to	2750+10.00	-13	-11	11		Road width transition LT
2750+10.00	to	2752+40.00	-11		11		
2752+40.00	to	2752+60.00	-11	-13	11		Road width transition LT
2752+60.00	to	2753+20.00	-13		11		
2753+20.00	to	2753+40.00	-13	-11	11		Road width transition LT
2753+40.00	to	2754+40.00	-11		11		
2754+40.00	to	2754+60.00	-11	-13	11		Road width transition LT
2754+60.00	to	2755+20.00	-13		11		
2755+20.00	to	2755+40.00	-13	-11	11		Road width transition LT
2755+40.00	to	2755+60.00	-11	-10	11	10	Road width transition LT & RT
2755+60.00	to	2758+00.00	-10		10		
2758+00.00	to	2758+40.00	-10	-14	10		Road width transition LT
2758+40.00	to	2758+80.00	-14		10		
2758+80.00	to	2759+00.00	-14	-11	10	11	Road width transition LT & RT
2759+00.00	to	2760+80.00	-11		11		
2760+80.00	to	2761+00.00	-11		11	13	Road width transition RT
2761+00.00	to	2761+40.00	-11		13		
2761+40.00	to	2761+60.00	-11		13	11	Road width transition RT
2761+60.00	to	2766+50.00	-11		11		
2766+50.00	to	2766+60.00	-11	-11.5	11	11.5	Road width transition LT & RT
2766+60.00	to	2768+96.56	-11.5		11.5		

Not to scale

TYPICAL SECTIONS

Intervisible Passing Pullouts

The NPS would rehabilitate the park road for 1.7 miles (8,900 feet), from MP 50.8 to MP 52.4 (see Figures 3 and 4 for typical design). Approximately 16 intervisible passing pullouts would be formalized, most of them on top of existing wide spots. The pullouts would include a middle section typically 45 feet long at 24 feet wide. Pullouts would be intervisible, so that buses and other vehicles travelling the road up to the speed limit have a sufficient safety margin when meeting and yielding to or passing other vehicles. In many cases the sight distance issues for a west-bound bus are different than those for an east-bound bus, so that a standard distance between pullouts could not be used.

The road sections tapering into and out of the pullouts would generally change width at a 1 foot in 10 foot ratio. Thus, if the existing road segment is 18 feet wide, a pullout would start with a 60 foot long taper into a 45 foot long, 24 foot wide passing area and continue with a 60 foot long taper back to the existing 18 foot width. The existing road in the Porcupine Forest area is never narrower than 18 feet, so the longest individual pullout widening should be 165 feet, including tapers, unless topographic limitations suggest otherwise. Pullouts can also safely be used for wildlife and scenery stops.

Pullouts and other improvements would be constructed with heavy equipment, such as 10 and 18 ton end-dumps and belly dumps, motor graders, and either large excavators, backhoes, or front-end loaders to excavate for culvert replacement and spill slope reconstruction and to feed material into the screening and crushing plants. The road work and associated gravel processing is scheduled for the summer of 2012.

Approximately 4,200 cubic yards (cy) of surfacing material (D-1 gravel) would be needed for the project, as would about 10,200 cy of select borrow (subbase), although these quantities may change somewhat with further refinements in design. This material would be loaded into dump trucks at the Toklat Road Camp and trucked to the project site. Reusable subexcavated material from the roadbed would be backhauled to the Toklat Road Camp for recycling and possible use as select borrow, surfacing binder additive, or topsoil for reclamation. Material determined as unusable would be hauled to an old pit at 56 mile and used to rehab and re-contour the pit. Excess reject material may be hauled to the 70 mile pit for reclamation of that pit or backhauled out of the park by trucks delivering riprap to the Toklat Road Camp for a separate project. Some reject material may be used in pit rehab work at the Teklanika Pit.

Approximately 2000 cy of material previously pushed off to the side of the road during flood events on Bugstuffer Creek will be hauled back to the Toklat Road Camp for further processing.

Interpretive Pulloffs

As part of the project one additional interpretive pulloff would be created along the road. Pulloffs are defined as widened road sections onto which a bus can pull and be completely off the road travel surface. The pulloff would be at MP 50.8, where there is already a wide spot used as a hiker drop-off point and which provides a good view of the East Branch of the Toklat River and tributaries. The pulloff dimension would be 34 feet wide by fifty-six feet long.

Road Grader Pullouts

Two existing road grader pullouts at Culler's Creek (MP 51.3) and Bugstuffer Creek (MP 51.9) would be retained for the purpose of turning equipment around.

Road Surface Improvements

The road surface would be improved by adding a 6-inch wear layer in the project area, while reshaping the crown or superelevation and keeping the existing width of road travel surface. An average of ¼ inch of material wears off the road surface during each year. Superelevation is tilting the whole roadway to help offset inertial forces developed as the vehicle goes around a curve, and superelevations will be used on short radius corners that are now crowned. Superelevations and crowns are both limited to 6% for this segment of road, and 3% and 4% will typically be used in situations where a 6% superelevation would elevate the outside of the road too high and create a wider and deeper fill slope. The crown or superelevation will be varied as necessary to connect the curves and straight sections.

Road structure improvements

Seven sections of the project area would have about 24 inches of unsuitable material (silty organics mixed with clay and rocks) replaced. At this stage of design, these subexcavation areas would be approximately 2000 feet long, 470 feet long, 165 feet long, 300 feet long, 450 feet long, 440 feet long, and 20 feet long. Oversteep outside edges would be excavated and replaced in lifts of select borrow material. Some outside edges would be widened at the same time using sliver fills that match the desired 1:1.5 fill slope.

Drainage Improvements

Approximately 1250 feet of underdrain would be installed under the section of uphill ditch that is prone to weep all summer long (see Figure 4 and cover picture). There would be a Blanket Drain installed under approximately 400 feet of the road bed in this same area. This would include installing a perforated pipe every 100 feet and perpendicular to the road at the bottom of the subbase, which would allow water to drain through the road bed to the downhill side and away from the road through a ditch to a drainage window.

Culverts

Replace all (about 22) culverts (including 2 plugged culverts) in the project area and add two new ones. The smallest replacement culvert would have a 24" diameter. The largest, a 72" culvert, would be placed at the Culler's Creek crossing. The replacement of deep culverts at the Bugstuffer and Culler's creek crossings would close the whole road for at least 6 hours and would be scheduled to be done at night. Using a standard of a minimum of 12 inches of select borrow over the smaller culverts would raise the road profile in eight of the low spots in the project area.

Gravel Sources

Gravel for the project would come from the Toklat River at MP 54, a site approved in the 2003 park Gravel Acquisition Plan, from material excavated from the park road during the project and reused, and from material excavated from project area road backslopes. Material from the last two sources would be only be used if the material proves to be acceptable for processing into a product that meets specifications. Approximately 10,500 cy of select borrow would be needed and 4,200 cy of roadway aggregate would also be needed from Toklat. Approximately 817 six mile-long round trips would be needed to haul the gravel if 18 cy belly dumps are used. Gravel hauling would occur typically between 10pm and 6am. Gravel processing would occur for this project at the Toklat Road Camp in 2012.

As part of an ongoing project, approximately 22,000 cubic yards of gravel will be removed from the active floodplain of the Toklat River per the guidelines for that removal in the Gravel Acquisition Plan. The gravel will be stockpiled below the Toklat Road Camp and processed into road surfacing, select borrow or other road maintenance material. Road surfacing material may have natural binders, such as bentonite, added to reduce the loss of road surface material. The Porcupine Forest project would use about 14,700 cy of that material.

Water Sources

The Toklat River would be used as the water source for this project. A gas-powered pump would be set up near the west end of the west bridge to pump into a 3000 gallon water truck. Some water may be used to control road dust, and the rest would be used while compacting the lifts when rebuilding the subexcavated part of the road.

Revegetation of Disturbed Areas

No revegetation work is anticipated for this project.

Project Schedule

The project would likely be done during the summer of 2012.

Project Cost

The estimated cost of the project is $1.5 million.

Environmentally Preferable Alternative

Alternative 1 (No Action) is identified as the Environmentally Preferable Alternative because it affects the least wildlife habitat and vegetation acreage.

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 effects.

Vegetation. Construction limits would be marked at all work areas to help insure that vegetation outside the areas to be rehabilitated does not get trampled or torn up during the work. Disturbed areas would be monitored for any exotic plants. Silt fences would be installed to diminish erosion and turbidity where the larger culverts are being replaced.

Air Quality. Dust would be produced by the additional truck and construction traffic on the gravel park road. These impacts would be partially mitigated by use of a water truck during construction activities to keep the dust down.

Wildlife and Habitat. The NPS would follow established guidelines in the park's bear-human conflict management plan. The plan requires contractors and staff to use bear-proof containers for food and refuse and sets up guidelines for temporary closures. Vegetation clearing would be done outside of the May 1 to August 1 nesting season so as to not impact nesting or fledging. Any occupied nests discovered would be protected at all times. Shrubs within 5 meters of the road edge are subject to road maintenance activities and are available for removal at any time under an agreement with the U.S. Fish and Wildlife Service.

Cultural Resources. Surveys for cultural resources have taken place in the road corridor over the past two decades. If previously unknown cultural resources were located during construction, the project would be halted in the discovery area until cultural resource staff could determine the significance of the finding. Mitigation standards would be established to limit any damage to the cultural information present at the sites. An Assessment of Effects to Cultural Resources was prepared to evaluate impacts to the Denali Park Road, a historic property eligible for the National Register of Historic Places.

Visitor Use and Recreation. Visitors, Kantishna lodge owners, and bus drivers would be advised in park announcements, programs, and publications that there would be temporary inconveniences from construction work on the road. Culvert replacement or other work that would close the road for hours would be scheduled to be done at night.

Eastbound oversize vehicles bound for the worksite from Toklat may leave Toklat no earlier than the last scheduled westbound bus reaches Toklat or earlier than the last eastbound bus leaves Toklat for Headquarters. Oversize vehicles working on the project must reach Toklat at prior to the first eastbound buses arrive at Toklat or the first westbound buses reach the project location.

Oversize traffic to and from Toklat will travel in the normal 10:00 PM to 6:00 AM window.

Daytime project work that disrupts the road structure and surface within the project limits between milepost 50 and milepost 52 will be allowed. Accumulative maximum allowable traffic

delays shall total NO MORE than 5 minutes westbound and 5 minutes eastbound. NOT 5 minutes at each work site. The road shall be safe and passable for traffic.

Work throughout the project area off the road which does not disrupt the road surface, make the road structure unsafe or cause bus delays may be done at any time.

In all cases traffic control and safety shall be maintained. The Contractor shall include proposed daytime work protocols in its Quality Control Plan and its Safety Plan to show how their monitoring and controls will be implemented.

Table 1. Comparison of the Alternatives

Road Changes	Alt. 1 -- No Action	Alt. 2 -- Rehabilitate Mile 50-52 (NPS Preferred Alternative)
Passing Pullouts	Pullouts remain as existing. Many are not intervisible.	16 pullouts formalized. Most exist today, but not to standard.
Pulloffs	None added.	One added as viewing area above East Branch of Toklat River and tributary.
Uniform Sections	None added.	None added.
New Surfacing	New gravel surfacing added in slumps and wet spot digouts.	1.7 miles of 6 inches of new surfacing gravel added.
Culverts	None changed.	22 culverts replaced and 2 added.

Table 2. Summary Impacts of the Alternatives

Impact Topic	Alt. 1 – No Action	Alt. 2 – Rehabilitate Mile 50-52 (NPS Preferred Alternative)
Vegetation, Wetlands and Soils	Minor continued impact from snow removal and maintenance vegetation brushing.	0.1 acres of common scrub shrub vegetation removed. 0.1 acres of vegetation growing in disturbed areas removed. Soils removed from backslopes would be screened and used in road project. Minor impact.
Wildlife and Habitat	Continued minor localized avoidance during road use by vehicles.	0.2 acres of common habitat removed, with minor effect. Local avoidance during one summer of construction.
Cultural Resources	No impact.	Likely no impact to local resources.
Visitor Use and Recreation	No new recreational opportunities created. Minor impact from lack of intervisible pullouts.	Minor benefits to visitors from increased vehicle safety and 1 new pullout selected for interpretive opportunities.
Park Management	Does not conform to Park Road Standards for intervisible pullouts. Minor impact.	Minor benefit by conforming to Park Road Standards for intervisible pullouts.

III. AFFECTED ENVIRONMENT

Detailed descriptions of the environment in the entrance and road corridor areas may be found in the 1986 GMP and the 1996 DCP/EIS. This section summarizes the natural and human environment that may be affected by the proposal and alternatives under consideration.

Vegetation, Wetlands and Soils

The park road in the Porcupine Forest area is generally south-facing and traverses a mix of vegetation and soils types. The road is built on ridges, ridge benches, and valleys coming off of Polychrome Mountain, with colluvium building up on the shallower slopes. The road is generally dropping in elevation as it moves westward toward the Toklat River. The general drainage pattern is from the north to the south, flowing especially through two creek valleys, but also emerging in seeps in the backslopes above the roadside ditch. At one location the road passes by and is partially built on top of a small shallow pond.

Most of this section of park road passes through a treeline white spruce forest notable for the dense scattering of dead trees amongst the live ones. It is reported that a number of porcupines took up residence in this forest especially during one or two winters in the late 1940s and early 1950s. Being cut off from other food sources during the winter they ate so much of the tree cambium at hand that they killed the majority of the trees, hence the name of the local forest. Park Rangers were sent out in the early 1950s to deal with these vegetation predators. Mixed within the treeline forest is a dense understory of taller willows, such as *Salix glauca*, with *Salix alaxensis* and *Salix pulchra* found along the stream margins.

It is not known if and where permafrost would be found in this south-facing part of the road corridor. However, summer soft spot repairs and digouts within the project area usually encounter frozen soil and organics.

Past actions such as initial construction, annual snow and ice removal, and drainage improvements, have disturbed the soils and vegetation along a margin a few feet wide adjacent to the road prism and ditches. In cases where soil from the ditch or elsewhere has been mechanically moved (bermed) onto adjoining soils, a drier surface soil environment was created over the years – especially on the downhill side of the road--that aided the growth of some plant types, such as certain willow species.

Wildlife and Habitat

The most common wildlife species in the project area are red fox, snowshoe hares, voles and other small mammals, and various birds such as ptarmigan, ravens and numerous migratory species such as sparrows, warblers, northern harriers and short-eared owls. The area also provides moose habitat throughout, including willow browse. Grizzly bears forage on horsetails along the road edge in early summer and use the slopes above and below the road for blueberries and crowberries. Wolves and caribou may also be found traversing the area. Dall sheep forage on the steeper slopes above the road.

Cultural Resources

Few cultural resources are known from this section of road. It is likely that prehistoric sites exist near the road but vegetation growth has obscured their locations. The country is filled with small potential overlooks, but little evidence of use has been so far been discovered.

To many the park road itself is the biggest cultural resource in the area. The Denali Park Road was declared eligible for the National Register of Historic Places in 2009 by the State Historic Preservation Officer. A draft Cultural Landscape Report was produced in 1999, but it did not include a Treatment section and was not finalized. Most road projects of any size, including this one, will require formal consultation with the State Historic Preservation Officer.

The road in this section does not have a uniform width, most of the length is not two lanes wide, it is not paved, it has no guardrails, the ditches often do not carry the runoff as completely as they could, and floods on Bugstuffer Creek often overtop the road with water and mud. Some culverts have been lost to being filled with mud and the road has obvious soft spots that have surfaced off and on for decades.

Visitor Use and Recreation

Around 220,000 people travel this section of the Denali Park Road annually, with about half of those travelling on park concessioner Tundra Wilderness Tour buses, and the rest on park Shuttle or Camper buses or Kantishna Lodge buses. The 1996 DCP/EIS put all of this section of road into the Wildlife Viewing Sub-Zone 2.

> "This sub-zone includes the gravel section of the park road on which greater restrictions (Rules of the Road) apply. Buses are given the right-of-way and the primary purposes include wildlife and scenery viewing. Visitors must use one of the bus systems and private vehicles are restricted. The only facilities include the park road, one or two visitor contact stations, and generally one rest area for every hour of travel. Visitors can expect a lower level of traffic than in wildlife viewing sub-zone 1."

The backcountry surrounding the road is favored by hikers and backcountry campers for its views of the Alaska Range, its alpine terrain hiking opportunities and opportunities for seeing wildlife. The local backcountry units are generally filled to the limits all season with overnight campers (maximum 28 per night in 5 local units). The number of day hikers is not known, but likely peaks at about 30 per day.

About 25% of the Visitor Transportation System (Shuttle or VTS) buses turn around at Toklat, about 1 mile farther west from the project area. All of the Tundra Wilderness Tour buses stop at Toklat and about 20% turn around there, with the other 80% going on to the Stony picnic area at MP 62 before turning around.

Park Management

The Porcupine Forest section of the park road is maintained by a grader operator stationed at Toklat, and the whole section is graded generally at least once every other week during the summer season. A brush-removal crew has worked in the area in past years, and the brush along the road is under control in this section. It is planned that the vegetation on roadside areas will be maintained by using a tractor-mounted mower once the larger growth has been cut or removed.

Much of this section has not had a formal lift of new surfacing material, although gravel is available at Toklat. The long-term need to do project-level subexcavation, culvert replacement and substantive drainage improvements, combined with the need to fix other west end known or out-of-the-blue road failures, has limited the work done in the area to a standard level of maintenance and spot repairs.

The road in the project area has a 35 mph speed limit. Travel by many of the larger vehicles, such as fuel delivery trucks, is restricted to night travel west of MP 30 so that they do not encounter buses.

IV. ENVIRONMENTAL CONSEQUENCES OF THE ALTERNATIVES

Assumptions for Impact Analysis

This section contains an evaluation of the direct and indirect environmental impacts of one action alternative and the no action alternative. The analysis assumes that the mitigation identified in the *Mitigation and Monitoring* section (page 20) of this environmental assessment would be implemented.

Cumulative impacts were analyzed to add up the incremental impacts to the environment resulting from adding the alternatives to other past, present, and reasonably foreseeable future actions. The cumulative impacts relate primarily to the construction and maintenance of the road itself and continued use of the park road by park and Kantishna lodge transportation systems as well as by other Kantishna inholders, park researchers, and staff. A Vehicle Management Plan and Environmental Impact Statement are being prepared over the next two years, but no draft document is presently available.

Alternative 1 – Existing Conditions (No Action)

Vegetation, Wetlands and Soils
No additional vegetation, soils or wetlands would be removed or disturbed to preserve the status quo. Previous road work, including during initial construction, has left drier berms alongside the road in places where willows and other vegetation grow that are not usually the same vegetation species as those from the surrounding wetter soils. The park mower and brush removal crew removes brush in the ditch, up back slopes, and up to 16 feet down fill slopes. These efforts would continue. The impacts to vegetation, wetlands and soils from the maintenance work inherent in this alternative would be minor given the tens of thousands of acres of similar vegetation and soils in this area of the park.

Wildlife and Habitat
No additional habitat would be lost for small mammals, birds, and moose. Continued vehicle use of the road would result in a certain amount of local avoidance of the corridor by moose, lynx, bears and other wary animals. This alternative would have a minor impact on wildlife values.

Cultural Resources
No known cultural resources would be affected under this alternative. Routine maintenance of the park road would not adversely affect the historic character and fabric of the park road.

Visitor Use and Recreation
This alternative would not provide additional safety improvements or any additional recreational opportunities. Both VTS and Kantishna Lodge bus drivers would continue to rely on safe driving skills, Rules of the Road, knowledge of the typical bus schedules, and the existing pullouts. Drivers of other vehicles, such as researchers, park staff, other Kantishna inholders, etc., would continue to be briefed on the Rules of the Road before driving here. They would, however, not be so aware of the bus schedules and would continue to need to be extra careful

when driving around the corners with limited sight distance. The park road between MP 50 and the Toklat Bridge has a couple of areas where a bus can pull off the road and safely off-load passengers. This would not change in this alternative.

This alternative would have a minor adverse impact on visitor use by not providing additional pullouts for off-loading of visitors at well-spaced points of interest, and by not providing intervisible pullouts, as standardized in the park's Road Design Standards.

Park Management

Under Alternative 1, the park may have to consider other safety improvements to the park road in the project area, such as lowering the speed limit, providing additional signage, extending brushing limits to improve sight distance, and/or providing a formal plan and hardware for bus-to-bus communication. These measures would not create an equal objective increase in safety as increasing correctly-sized passing pullouts would. Standard road maintenance actions, such as grading, road gravel replenishment, culvert replacement, roadside brushing, etc., would continue. Roadside brushing has improved in recent years, is almost on a maintainable 3-year cycle, and has improved sight distance in some areas. This alternative would have a minor adverse impact on park management in that the lack of intervisible pullouts may require alternate safety measures, and the lack of subgrade and drainage improvements would likely require spot digouts of saturated road material to be almost routine

Cumulative Effects: Approximately 15 acres of vegetation and wildlife habitat has been removed for road construction from this part of the park. The impacts from past, present and reasonably foreseeable human actions on resource values, including vegetation, wildlife habitat and cultural resources, would be moderate and this alternative would contribute minor impacts on resource values. There has been a major beneficial cumulative effect on visitor use and recreation from the initial road construction and this alternative would have a minor adverse impact due to not adding additional interpretive opportunities and safety measures. There has been a major beneficial cumulative effect on park management from the initial road construction and this alternative would have a minor adverse impact due to not following the Road Design Standards. There would not be a contribution to any impacts from other foreseeable local or regional projects.

Conclusion: The lack of sufficient intervisible pullouts between MP 50.8 and 52.4 on the park road requires a high level of vigilance by all vehicle drivers. The opportunity to encourage drivers to pull off the travelway and allow passengers to get out of their vehicle would remain limited due to the limited pulloffs along this section of road. This alternative includes a minor level of adverse impacts to safety as part of the visitor experience and park management. Impacts from continuing the status quo to other park resources such as vegetation, wetlands, soils, and wildlife habitat would be minor and the impacts to cultural resources would be negligible.

These impacts would not result in an impairment of park resources that fulfill specific purposes identified in legislation establishing the park or key to the natural or cultural integrity of the park.

Alternative 2 – Rehabilitation of the Park Road in the Porcupine Forest Area (NPS Preferred)

Vegetation, Wetlands and Soils

Under this alternative approximately 0.1 acres of roadside between Mile 50.8 and Mile 52.4 of the park road would be formalized into park road pullouts. Today, approximately ¼ of this roadside is unvegetated and is used - and may have a veneer of gravel on it – for pulling off the roadway. Another ¼ of this total acreage is covered with vegetation and soils that have been affected by past road construction and maintenance activities and which are likely to be disturbed by future maintenance actions. This vegetation has a different character than the natural community surrounding the road corridor due to removal of mosses and lichens, some decades-old berming, and drying out of the soil. The remainder, less than 0.05 acres of scrub shrub community would be removed for the construction of the formalized pullouts. Most of the removal would come as backslopes are cut back to accommodate the pullouts, but some of the removal would be at the base of the road prism where some fill slopes are broadened with additional fill (sliver fills). The limited vegetation removal from this alternative would have a minor impact on the thousands of acres of similar scrub shrub vegetation resources adjacent to this section of the park road corridor.

Less than 0.02 acre of palustrine scrub shrub broad-leaved saturated soil wetlands (Cowardin et al., 1979) would be affected by the sliver fills added to the base of some fill slopes. These wetlands are not jurisdictional wetlands requiring a Clean Water Act, Section 404 fill permit because these wetlands are not directly connected to any navigable waters. This type of wetland is common locally and regionally and filling less than 0.02 acre would not affect the flood retention, habitat or other values received from wetlands in the area.

Cumulative Effects: Approximately 15 acres of vegetation has been removed for road construction from this part of the park. This alternative would increase that loss, but only by less than 0.1 acre. The loss of wetlands would increase marginally under this alternative. The impacts from past, present and reasonably foreseeable human actions on vegetation, wetlands and soils would be minor due to the limited acreage involved and the large undisturbed nearby acreage which provides and protects similar resources and this alternative would contribute minor impacts to those types of resources. There would not be a contribution to any impacts from other foreseeable local or regional projects.

Conclusion: The clearing of shrubs, other vegetation, and the disturbance to soil on less than 0.1 acre would result in a minor adverse impact to vegetation and soil. The filling of no more than 0.02 acres of palustrine scrub shrub wetlands for pullout construction would result in a minor net loss of wetlands and wetlands functions in the project area. These impacts would not result in an impairment of park resources that fulfill specific purposes identified in legislation establishing the park or key to the natural or cultural integrity of the park.

Wildlife and Habitat

Wildlife habitat for large mammals, small mammals, and birds would be reduced by less than 0.1 acre of shrub vegetation for this project. During the construction period noise and human activity would disturb wildlife and cause them to be temporarily displaced from the affected and

adjacent areas. The temporary displacement at any one site would likely ebb and flow, from initial vegetation removal progressing to culvert replacement and then to digouts and road material laydown and compaction. There would be breaks in between the phases where not much is going on at any one site.

No bird nests would be disturbed during the fledging season. Any trees needed to be removed would be removed between August 1 and May 1, or generally after nesting and fledging has occurred. Shrubs within 5 meters of the road edge are subject to road maintenance activities and are available for removal at any time under an agreement with the U.S. Fish and Wildlife Service. Any occupied nests discovered would be protected at all times. Both large mammals, small mammals and birds would find extensive acreage of similar habitat adjacent to the roadside acreage lost for at least one mile to the south and for one-half mile to the north.

Cumulative Effects: Approximately 15 acres of wildlife habitat has been removed for road construction from this part of the park. This alternative would increase by no more than 0.1 acres of habitat loss. Because thousands of acres of similar habitat exist in the vicinity, there has been a minor cumulative impact on wildlife and habitat in the project area and this alternative would be a minor contributor to that impact. There would not be a contribution to any impacts from other foreseeable local or regional projects.

Conclusion: The clearing of shrubs, other vegetation, and the disturbance to soil on less than 0.1 acres would result in a minor adverse impact to wildlife habitat. The incremental impact from this project to wildlife and habitat would add about 1% to the total habitat loss in the project area. These impacts would not result in an impairment of park resources that fulfill specific purposes identified in legislation establishing the park or key to the natural or cultural integrity of the park.

Cultural Resources

The park road in the section between Mile 50 and Mile 52 retains some of the flavor of a rustic road. The improvements proposed in this alternative would retain the existing width in 75% of the project road segment length, would generally leave the road as a “one-lane road with pullouts,” would not change the surfacing and would not install guardrails. The project would make the identified soft outside edges structurally sound through reconstruction, but would do it without changing the surface look of the road. Almost all of the culverts would be resized to fit standards and two culverts would be added to improve drainage. Subexcavation of poor soils would improve the road structural strength, and installation of ditch underdrains would remove water from the subbase to reduce saturation of the road prism. Construction limits would be established along the whole project length to help prevent damage to areas not being worked on.

These improvements should have the effect of making the road safer and less in need of maintenance, which could help it retain its rustic and historic nature. There would, however, be a permanent minor adverse effect to the historic park road from the formalization of pullouts and from upgrades to the visible road structure, such as making dips more shallow.

Consultation with the State Historic Preservation Officer would be required for this project to assess impacts to the historical integrity of the Denali Park Road.

Should presently unidentified cultural resources be discovered during the project, the superintendent and cultural resources manager would be notified immediately.

Cumulative Effects: No known historic sites have been affected by modern activities in the vicinity of the project road segment. All known archeological and historic sites in the project area would remain intact. The cumulative impact to cultural resources from past, present and known future actions is negligible and this alternative would contribute a minor impact.

Conclusion: There should be a positive impact to the rustic nature of the road by improving structural and safety components of its daily use, while not essentially changing the width, surface material, or horizontal alignment. Changes to pullout dimensions and short changes to vertical alignment (filling some dips) would create a minor impact to the rustic nature of the road. The project would not result in an impairment of park cultural resources that fulfill specific purposes identified in legislation establishing the park and effects would be consistent with the mandates of the NHPA.

Visitor Use and Recreation

There would be a temporary impact to recreational opportunities for visitors heading to Toklat, including visitors on the bus systems, from the construction activities between Mile 50 and Mile 52. Rock crushing and screening actions below the Toklat Road Camp would have been completed as part of other projects if the project is moved to 2011, or could be occurring concurrently if the project is slated for 2012. Material hauling and equipment staging would occur out of the Toklat Road Camp. The impacts would extend for one season. Vehicles and visitors would still use the road while it is under construction but there would likely be short delays while travelling through the sections of road under repair.

Although the road has some level of constant activity in summer from vehicles, the adjacent forest and tundra is relatively quiet. The noise and visibility of construction activities would negatively affect backcountry users in the areas next to the road. However, since backcountry camping is required to happen at least ½ mile away from and out of sight of the park road, most of the camping experience would be unaffected by the project. The day hikers and bicyclists using that segment of road would be the most affected visitors since their activities are most closely tied to the road corridor. Wildlife watching and bird watching from the road would be adversely affected by the temporary wildlife displacement due to the construction noise and activity. The day hiking opportunities in that area would be negatively affected by construction noise over most of the summer.

Some of the pullout work would be within the hearing of visitors using the Toklat Rest Stop. Those projects would negatively affect the experience at the Rest Stop, but that facility is close to the Toklat Road Camp, where construction vehicles may be moving at any time during the daytime hours or during emergency operations, and the Rest Stop is also close to the sometimes loud Toklat River.

While the 2012 gravel processing areas at the Toklat road Camp would be off-limits to visitors during working hours, the noise from crushing and screening operations would be heard within a

½ mile radius of the sites. The area immediately around the Toklat Road Camp is not open for camping, so the greatest impact from the noise could be on the 30-40 park employees residing at Toklat. The park visitors taking a break at the Toklat Rest Stop would see and hear the crushing operations but the prevailing down valley winds would lessen the noise.

There would be a moderate beneficial impact to visitors, whether travelling by bus or by other vehicle, from the increased safety margin of having intervisible pullouts added to the narrow road. Close calls, in terms of vehicles being surprised by other vehicles, should decrease. At the same time, some will see an adverse impact from those modifications to a road that is viewed as being safe when driven cautiously, and will see this project as unnecessary progress. The newly constructed backslopes, pullouts, and fill slopes will look raw for many years, reminding visitors of the changes. The road as it stands now is often viewed as a good mix of safe enough and rustic enough, even as the average vehicle has gotten heavier, travels more frequently, and carries more passengers.

Cumulative Effects: Noise and commotion from bus use on the road would diminish the quality of the experience for users of this section of the park who are seeking an experience of the landscape uninterrupted by human actions. The park road in this section is not used in winter over other logical routes through the landscape and has a negligible impact during those seasons. There would be a permanent minor adverse effect to the visitor experience from the perception that the formalization of pullouts and upgrades to the visible road structure signifies some compromise of rustic/historic character.

Initial road construction and past use present the foundation of almost all summer park use in this section of the park and, on balance, are seen as having a major beneficial set of impacts to visitor use and recreation. This alternative would be responsible for a minor beneficial impact by formalizing places to pull out for bus drivers to add interpretive opportunities and safety measures.

No other projects are planned that would affect recreational use in this section of the park.

Conclusion: The actions proposed in this alternative would have a temporary moderate negative effect on visitor experience due primarily to the construction activity along 2 miles of roadway, large number of gravel trucks moving between Toklat and the project area, and additional noise from the Toklat pit gravel screening operation and traffic delays. There would be a permanent minor adverse effect to the visitor experience of some from the perception that the formalization of pullouts and upgrades to the visible road structure signifies some loss of rustic/historic character.

This alternative would have a moderate beneficial impact to the visitor experience by providing an increased level of safety for visitors travelling in vehicles and by providing additional interpretive opportunities along the roadside.

The level of impacts to visitor experience anticipated from this alternative would not result in an impairment of park resources that fulfill specific purposes identified in the establishing legislation or that are key to the integrity of the park.

Park Management

This alternative would have a minor beneficial impact on park management. Park management is concerned about resource protection as well as both visitor safety and the visitor experience. During numerous planning opportunities, the public has emphatically backed the retention of the "accessible wilderness" qualities for which Denali is famous. The rustic park road, including the undulating country in the Porcupine Forest, is a resource that contributes to the element of the visitor experience that reminds people that they are in (surrounded by) a place protected and preserved for wilderness resource values, and which is, in the words of the 1963 Leopold Report, "a vignette of primitive America." The natural dynamics of the landscape and biotic associations are best seen when the access method and means make the least impact on that landscape, and that has been the guiding principle behind recent management of the park road. With the character of the park road being an integral part of the park experience, "improvements" must be reviewed and re-reviewed.

The one to one and one-half lane nature of the road in the Porcupine Forest area has continued since construction in the 1930s. No widening was done during the Mission 66 days between 1956 and 1966, though routine grading has likely widened the perceived travel surface since 1972 when the Shuttle system started. However, traffic on that section has increased since the 1930s (from an upper estimate of 3 per day to a present experience of 80-100 per day) and the vehicles have gotten heavier, longer, faster, and carry more people. The pullouts that are presently available for use are not always intervisible and likely developed at a borrow site or viewpoint and are not necessarily part of a network of pullouts whereby either eastbound or westbound vehicles have a place to pull over after spotting an oncoming bus on the narrow road.

Providing intervisible pullouts for buses (the park road design vehicle) would not ensure that all vehicle travel on the road would be safe. It would, however, provide a place for drivers to pull over when travelling the speed limit and being surprised by a vehicle coming the other way. That vehicle could otherwise easily be hidden by the rolling and forested or brushy landscape, and rather than widen or straighten the whole road this alternative would provide those pullouts so that no vehicles should be surprised and lack a place to pull over.

Cumulative Effects: Past construction of the park road and the present continuing use of the road are the main human actions that have affected the management of this landscape. All of these actions are considered of major benefit to park management. This alternative would add a minor beneficial impact to park management by increasing the margin of safety for visitors and employees. The road has allowed manageable access through a large wilderness area for millions of visitors who would otherwise only have a vicarious experience with the landscapes and daily activities of the wildlife of interior Alaska.

Conclusion: This alternative would have a minor beneficial impact on park management by providing visitors and employees with an additional safety margin while traveling this section of the park road. After construction the park road would still allow the rustic frontier experience that a primitive, low-speed road located in a wild and pristine land can embody.

V. CONSULTATION AND COORDINATION

List of Persons and Agencies Consulted:

Don Rice, Unit Leader, Regulatory Branch, Alaska District, U.S. Army Corps of Engineers, Anchorage, AK
Ted Swem, U.S. Fish and Wildlife Service, Endangered Species Coordinator, Ecological Services Office, Fairbanks, AK
Brad Ebel, West District Road Foreman, Denali National Park and Preserve
Charles Lawson, former detailed Archeologist, Denali National Park and Preserve
Susan Pobar, Designer, Western Design Center, Federal Highways Administration
Betty Chon, Project Manager, Western Design Center, Federal Highways Administration

List of Preparers:

Steve Carwile, Compliance Program Manager, Denali National Park and Preserve
Jon Paynter, GIS Specialist, Denali National Park and Preserve

VI. SELECTED REFERENCES

Cowardin, Lewis M., Virginia Carter, Francis C. Golet, and Edward T. LaRoe
1979. Classification of Wetlands and Deepwater Habitats of the United States. For the U.S. Department of the Interior, Fish and Wildlife Service, Office of Biological Services, FWS/OBS-79/31.

U.S. Department of the Interior, National Park Service (NPS)

1982. Park Road Rehabilitation Program and Environmental Assessment, Denali National Park and Preserve, Alaska. Denver Service Center

1986. General Management Plan, Land Protection Plan, Wilderness Suitability Review, Denali National Park and Preserve, Alaska. Denver Service Center, NPS D-96-A.

1996. Draft Development Concept Plan/Environmental Impact Statement, Entrance Area and Road Corridor, Denali National Park, Alaska. NPS Denver Service Center, NPS D-244.

2007. Road Design Standards, Denali National Park, Alaska, at: http://www.nps.gov/dena/parkmgmt/parkroadplan.htm

APPENDIX

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). It summarizes the evaluation of potential restrictions to subsistence activities that could result from the rehabilitation of the park road between mile 50 and mile 52 east of Toklat in Denali National Park and Preserve.

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."

ANILCA Section 202(3) also states: "Subsistence uses by local residents shall be permitted in the additions to the park where such uses are traditional in accordance with the provisions in title VIII."

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 1 and 2 are described in detail in the environmental assessment. 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 rehabilitate the park road by improving and adding intervisible pullouts to a two-mile long section of the gravel road in the Porcupine Forest section east of Toklat in Denali National Park. The sites are 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 allows local residents to engage in subsistence uses in the ANILCA additions to the park where such uses are traditional in accordance with the provisions in Title VIII. 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 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 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.

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 are important subsistence wildlife resources.

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 many 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 effect 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:

Provisions of ANILCA and Federal and State regulations provide protection for fish and wildlife populations within Denali National Park and Preserve.

Construction and use of pullouts and other improvements to the western end of the Denali Park Road would have a long-term but minor impact on wildlife habitat and populations. 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:

Section 811 of ANILCA addresses "Access" for subsistence as follows: "The Secretary shall ensure that rural residents engaged in subsistence uses shall have reasonable access to subsistence resources on public lands." Traditional access for Title VIII subsistence uses should not be significantly restricted under the proposed action.

Alternative 1 (No Action), the status quo, and Alternative 2 (Proposed Action), are not anticipated to significantly limit or restrict the access to subsistence uses within the ANILCA additions of Denali National Park or Denali National Preserve. Federal and State regulations assure the continued viability of fish and wildlife populations.

Increase in Competition:

Alternative 1 (No-Action), maintaining the status quo and Alternative 2 (Proposed Action) are not expected to result in increased competition for fish, wildlife or other resources that would significantly impact subsistence users in Denali National Park and Preserve. Federal and State regulations assure the continued viability of particular fish or wildlife populations

VI. AVAILABILITY OF OTHER LANDS

The preferred alternative is consistent with the mandates of ANILCA, including Title VIII, and the NPS Organic Act.

VII. ALTERNATIVES CONSIDERED

The alternatives considered for this project were limited to the lands along the park road east of Toklat. The alternatives are: 1) continue the existing conditions (No Action) which includes annual

maintenance of the park road by snow removal operations, grading the gravel surface, culvert cleaning, ditch management, vegetation brushing and small repairs; and 2) improving and adding intervisible pullouts to the edge of the road prism to allow vehicles safe passing opportunities, adding 6 inches of wear-surface gravel on 2 miles of the road section, replacing culverts and improving drainage, and adding an interpretive pulloffs.

VIII. FINDINGS

This evaluation concludes that the preferred alternative would not result in a significant restriction of subsistence uses within Denali National Park and Preserve.