

**ENVIRONMENTAL ASSESSMENT
FOR CONSTRUCTION OF INTERVISIBLE PULLOUTS AND OTHER
IMPROVEMENTS BETWEEN MILE 73 AND MILE 86 ON THE DENALI
PARK ROAD OF DENALI NATIONAL PARK**

Prepared by
UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
DENALI NATIONAL PARK AND PRESERVE

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PURPOSE AND NEED

The National Park Service (NPS), in cooperation with the Federal Highway Administration (FHWA), is considering a project for safety improvements to the western end of the Denali Park Road (park road) in Denali National Park and Preserve (the park). The NPS is proposing to:

- Formalize approximately 73 intervisible passing pullouts between mileposts 73 and 86
- Create two additional interpretive opportunity pullouts
- Recondition the road surface between mileposts 79-84 by loosening the top two inches, reshaping the crown or superelevation, and adding 2 inches of gravel wear layer
- Establish a crown limited to 10% in the straight sections within the road improvement area
- Establish superelevations limited to 6% on curves within the road improvement area
- Add 4 inches of gravel wear layer to the road surface in the pullout work areas
- Superelevate short radius corners that are now crowned
- Maintain a 22 foot width in 5 short segments with good visibility
- Replace all 24 culverts in the project area
- Replace a road protection device at the outlet of a beaver pond

The project is necessary because this stretch of road has been identified as having had the fewest safety improvements through the years since it was constructed in the 1930s. A review of documented vehicle accidents between the years 1996 and 2004 shows that the Wonder Lake section of road, which carries only 24% of the unpaved park road vehicle traffic, accounted for 54% of all unpaved park road vehicle incidents, and 100% of all multi-vehicle incidents. Data collected since 1991 indicates that 71% of Wonder Lake area road accidents involve two vehicles in a passing situation.

This Environmental Assessment (EA) analyzes a No Action Alternative, and the NPS preferred action for the rehabilitation of gravel sections of the park road within the western road corridor of 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

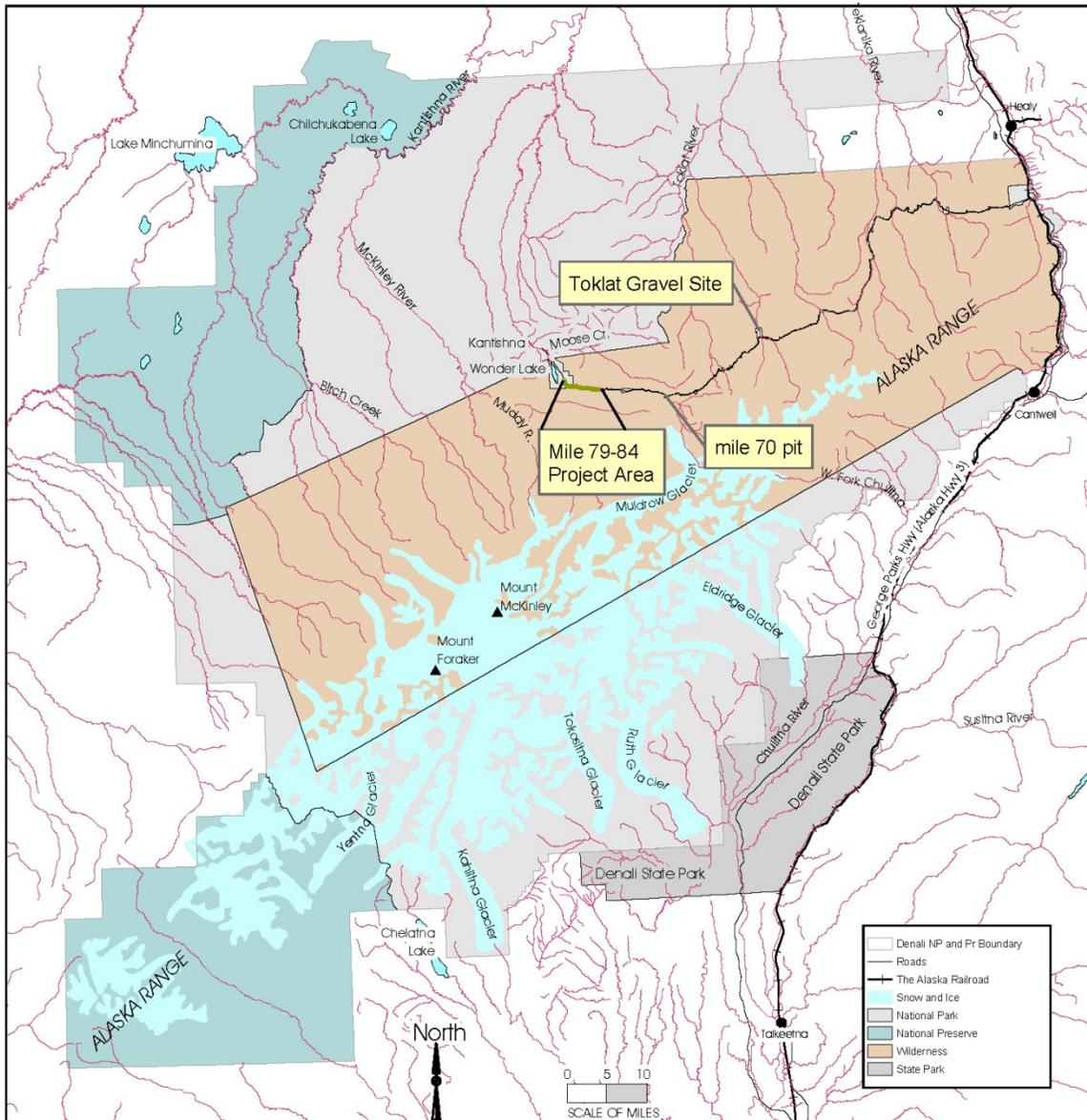


Figure 1
 Project Location
 Denali National Park and Preserve
 U.S. Department of the Interior National Park Service

Savage River Bridge to the Kantishna Airstrip. The park road was built by the Alaska Road Commission and was funded by annual Congressional appropriations as road construction park road beyond mile 73 was constructed during the mid-1930s.

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 never got far enough along to seriously confront what to do with the section of the road between Eielson and Wonder Lake, except to leave it primitive.

A plan to improve the condition of the road was approved in 1982 (NPS, 1982). The road between MP 67 (Eielson Bluffs) and MP 87 (Wonder Lake Ranger Station) was to get a new top 6 inch wear layer of gravel. However, the identified source for the gravel was at Big Stony Creek (MP 62), and it was a long way to haul the gravel and the gravel was quickly used up in an effort to widen the road east of MP 66 after a fatal bus accident in 1981

The 1997 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 put together from 1995 – 2007. The final 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).

In 1999 a plan was agreed upon to straighten the road at the Northface Corner (MP 88) and utilize about 40,000 cys of gravel from that corner for road maintenance gravel (NPS, 1999). About 30,000 cys of crushed gravel was produced and most of that was placed as a 4 to 6 inch wear layer on the park road between MP 88 and 73. This new surfacing material allowed road maintenance staff to add more crown to the road, which improved drainage off the road and helped reduce potholing and road prism saturation.

Wide spots in the road that are presently used for passing vehicles have developed through the years without planning, were formed when vehicle use was very light and vehicles were shorter, are often very tight for a 40 foot long bus to fully get out of the travelway, and most may date from the time of initial construction.

Initial road construction developed small gravel pits and staging areas adjacent to the road. Some of these areas have remained as maintenance sites, ranging from large cleared areas – such as at MP 74.7 – where temporary construction camps have been set up or where project equipment can be staged, to pullouts (MP 79.2, 80.7, 81.7) where small amounts of gravel can be stored, to short service roads where cut brush has been dumped, or to short service roads or wide spots where graders or dump trucks can park or turn around. Three of these sites (MP 73.0, 74.3, 83.1) were improved in recent years as potential interpretive stops, and the one at MP 73.0 was used as an alternate rest stop during the three years (2005-2007) when the Eielson Visitor Center was not available.

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 Wonder Lake area of the park was added in 1932.

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.

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.

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 - Approximately one acre of alder, willow and dwarf birch-dominated vegetation would be affected by the proposed road rehabilitation. A few small cottonwood trees would also be removed. Wetlands and soils adjacent to the road prism would be filled or disturbed by the proposed road rehabilitation.

Wildlife and Habitat - Approximately one acre of wildlife habitat next to the road would be removed. One pond would be temporarily drained to install a new device to protect the road from beaver activity.

Cultural Resources – The project would affect the dimensions of the park road, which is often seen as a cultural resource.

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.

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.

Water Quality - Water will be pumped from 3-4 ponds or creeks along the roadside to be 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 pond sizes and inflow and the streams involved are 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. Individual projects 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 sites are 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 B.

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. Most use of the wilderness area (to the north) would have topographic barriers attenuating or blocking the noise from the project equipment. The project would have a negligible impact to the visual aspects of the park road as seen from nearby wilderness.

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.

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.

ALTERNATIVES

Alternative 1: No Action

Under the No Action Alternative, the NPS and FHWA would not complete the proposed road rehabilitation between mileposts (MP) 73 and 86. 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, 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).

Alternative 2: Proposed Action (NPS Preferred Alternative)

Under Alternative 2 the NPS and FHWA propose to improve safety for all users of the park road between MP 73 and mile 86 through the development of passing pullouts and interpretive pullouts, and improvements to the road surface (Figures 2 and 3). 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 attached as Appendix B.

Of the 75 pullouts and road edge improvement areas, about 23% (17) 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. For Typical Sections, see Figures 4 and 5.

Mile 79-84 Project
Denali National Park and Preserve

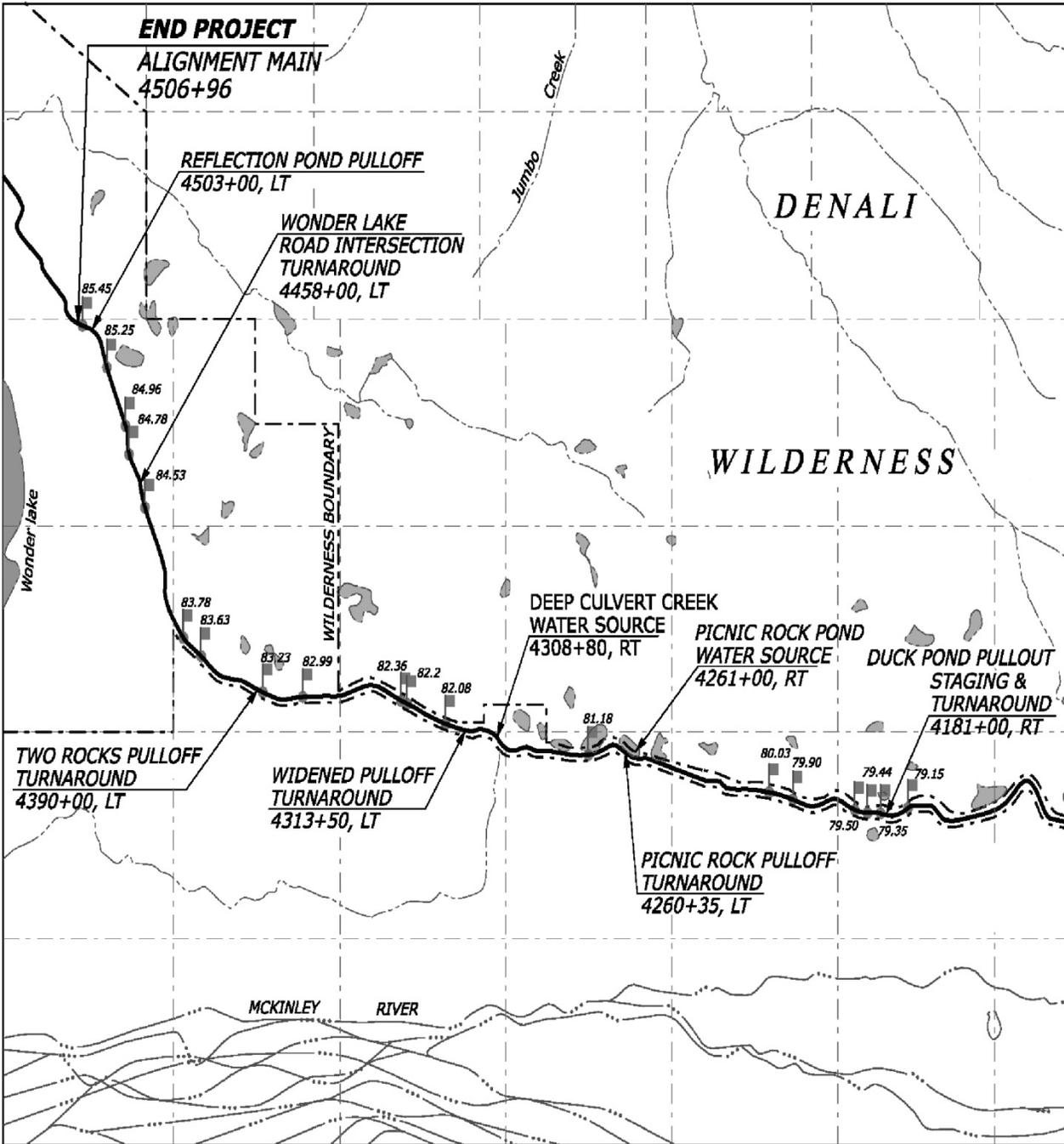


Figure 2 - Project Area - West End

Mile 79-84 Project

Denali National Park and Preserve

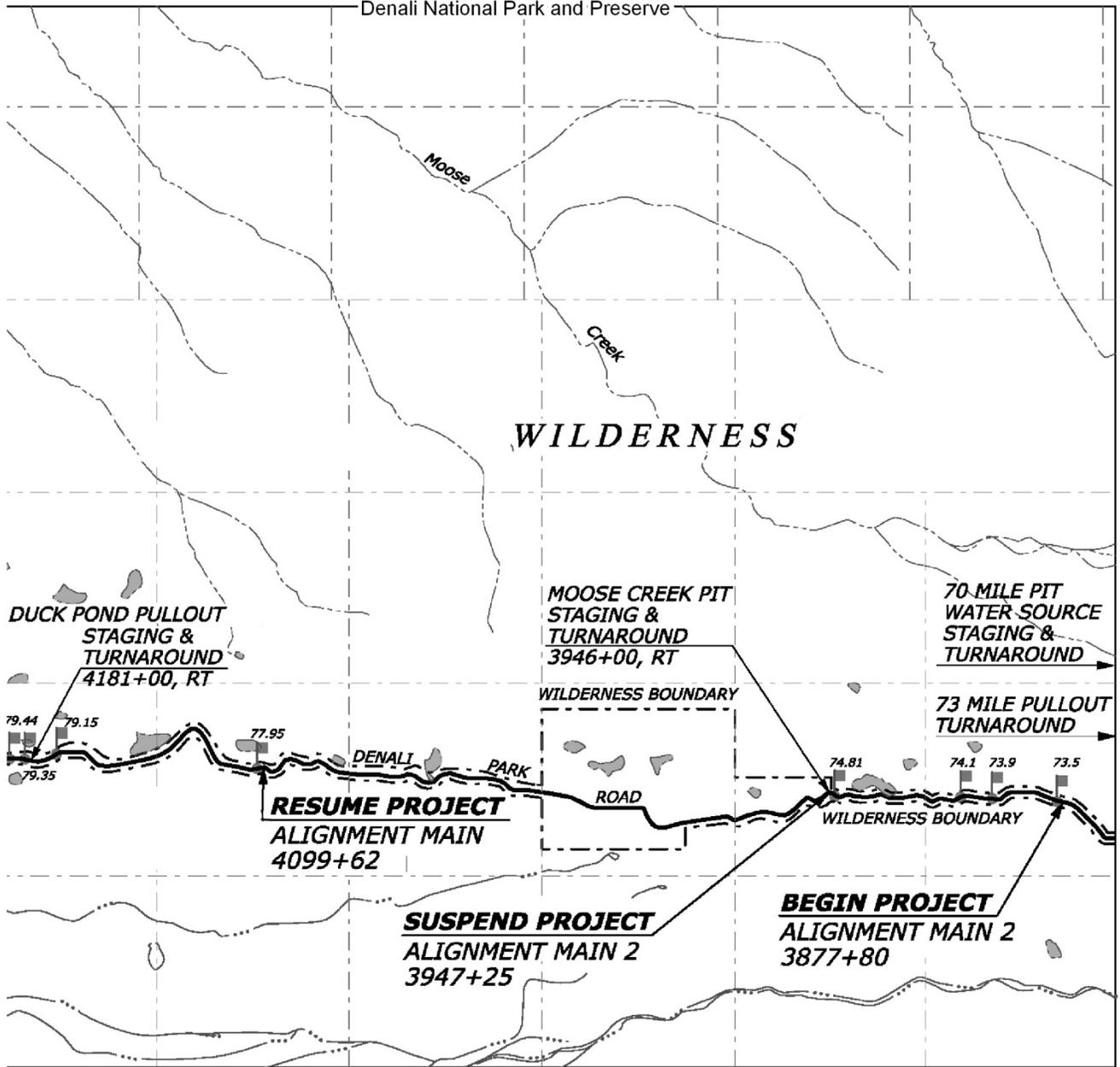
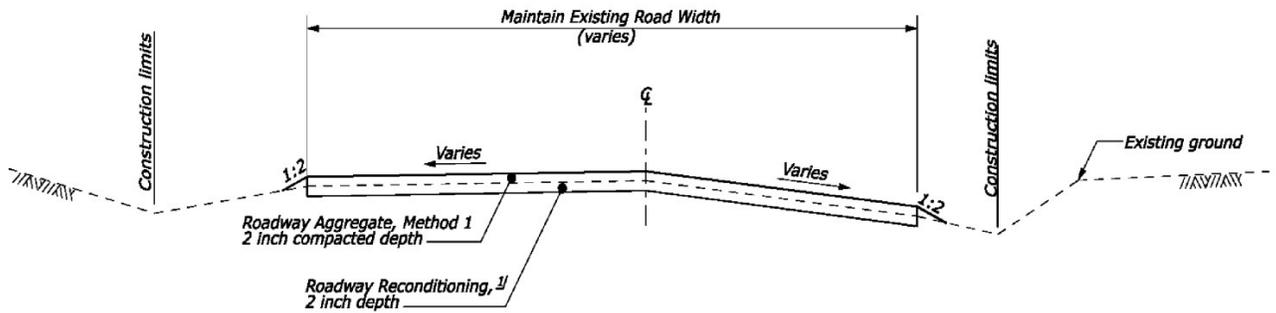


Figure 3 - Project Area - East End

Mile 79-84 Project
Denali National Park and Preserve



TYPICAL SECTION "A"
RECONDITIONED ROADWAY AREAS

4191+70 to 4194+20
4197+80 to 4200+50
4202+00 to 4203+40
4206+75 to 4207+70
4211+75 to 4215+25
4222+50 to 4225+00
4226+70 to 4235+70
4238+60 to 4240+60
4245+50 to 4249+55
4252+50 to 4254+00
4259+50 to 4262+00
4269+50 to 4272+10
4273+75 to 4275+65

4279+25 to 4281+00
4282+50 to 4283+75
4285+25 to 4287+00
4288+50 to 4290+00
4291+25 to 4292+50
4293+40 to 4296+25
4305+25 to 4311+40
4317+80 to 4320+60
4329+90 to 4332+25
4339+30 to 4341+65
4343+15 to 4344+45
4346+05 to 4349+10
4353+30 to 4357+00

4358+05 to 4359+30
4360+75 to 4362+60
4373+90 to 4376+25
4377+65 to 4380+50
4386+50 to 4392+70
4395+05 to 4396+70
4398+15 to 4400+00
4401+20 to 4405+90
4410+00 to 4413+15
4414+25 to 4415+40
4420+40 to 4422+60
4424+40 to 4426+05
4428+80 to 4432+10

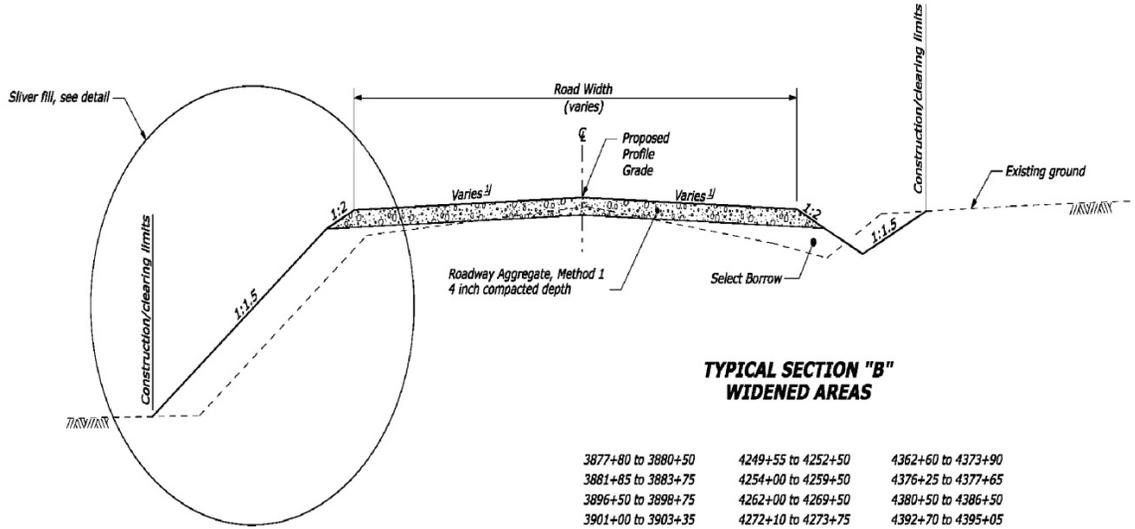
FOOTNOTE:

^{1/2} Do not remove more than 2" of existing roadway aggregate to achieve superelevation improvements.

Figure 4 - Typical Section "A"

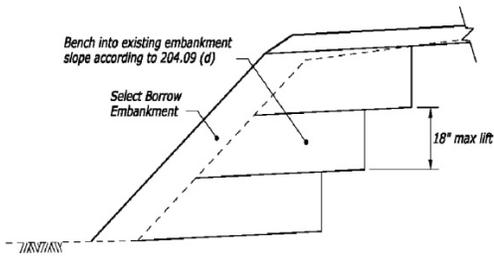
Mile 79-84 Project
Denali National Park and Preserve

**ROADWAY
TYPICAL SECTION B**



**TYPICAL SECTION "B"
WIDENED AREAS**

3877+80 to 3880+50	4249+55 to 4252+50	4362+60 to 4373+90
3881+85 to 3883+75	4254+00 to 4259+50	4376+25 to 4377+65
3896+50 to 3898+75	4262+00 to 4269+50	4380+50 to 4386+50
3901+00 to 3903+35	4272+10 to 4273+75	4392+70 to 4395+05
3905+10 to 3909+30	4275+65 to 4279+25	4396+70 to 4398+15
4100+00 to 4104+00	4281+00 to 4282+50	4400+00 to 4401+20
4106+15 to 4107+85	4283+75 to 4285+25	4405+90 to 4410+00
4165+80 to 4169+10	4287+00 to 4288+50	4413+15 to 4414+25
4170+00 to 4171+40	4290+00 to 4291+25	4415+40 to 4420+40
4175+75 to 4181+00	4292+50 to 4293+40	4422+60 to 4424+40
4183+00 to 4191+70	4296+25 to 4305+50	4426+05 to 4428+80
4194+20 to 4197+80	4311+40 to 4317+80	4432+10 to 4434+20
4200+50 to 4202+00	4320+60 to 4329+90	4448+90 to 4450+90
4203+40 to 4206+75	4332+25 to 4339+30	4452+90 to 4454+60
4207+70 to 4211+75	4341+65 to 4343+15	4462+80 to 4467+00
4215+25 to 4222+50	4344+45 to 4346+05	4472+30 to 4477+10
4225+00 to 4226+70	4349+10 to 4353+30	4486+55 to 4492+50
4235+70 to 4238+60	4357+00 to 4358+05	4497+30 to 4499+30
4240+60 to 4245+50	4359+30 to 4360+75	4502+30 to 4504+50



SLIVER FILL DETAIL

FOOTNOTE:

1/ Superelevate roadway on curves at the rate "e" as indicated in the curve data shown on the plan profile.

2/ Construct slopes as shown in the staking report (See FAR 52.236-4).

Figure 5 - Typical Section "B"

Intervisible Passing Pullouts

The core of this project is that the NPS would rehabilitate the park road for five miles beginning at MP 79. Approximately 50 intervisible passing pullouts would be formalized, most of them on top of existing wide spots. The pullouts would include a middle section typically 60 feet long at 24 feet wide. Pullouts would be intervisible, so that buses and other vehicles travelling the road at the speed limit have a sufficient safety margin when meeting 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 change width at a 1 foot in 10 foot ratio. Thus, if the existing road segment is 19 feet wide, a pullout would start with a 50 foot long taper into a 60 foot long, 24 foot wide passing area and continue with a 50 foot long taper back to the existing 19 foot width. The existing road west of the Eielson Bluffs is never narrower than 16 feet, so the longest individual pullout widening should be 220 feet, including tapers, unless topographic limitations suggest otherwise. Pullouts can also safely be used for wildlife and scenery stops.

Pullouts and 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 gravel crushing operation is scheduled for summer 2010 and the road work is scheduled for the summers of 2010 and 2011.

Improve Oversteep Outside Road Edges

Correct fourteen areas between MP 73 and 79 and nine areas between mileposts 84 and 86 with oversteep outside edges for safety purposes. When corrected, these sites would be formalized as passing pullouts.

Oversteep outside edges form when grading operations pull material from the uphill side of the road or ditch and drop it over the downhill side. The over-boarded material is often caught by vegetation and a non-structural (soft) extension of the road prism gets built up through the years. Oversteep outside edges will be excavated and then built back up at a 1V:1.5 H slope. The outside edges will be built back up in lifts, with each lift compacted to standard specifications before adding the next lift. This method is used to create structural stability in the outside edge. Some of these repairs may extend horizontally to the middle of the road to help tie in to native ground. Material excavated from this embankment work may be reused if suitable, or would be trucked to the Mile 70 pit for screening and re-use.

Approximately 9,500 cys of material would be excavated from the roadway during the project. This material would be put into dump trucks with a front-end loader and taken to the Mile 70 for screening and reuse or to be placed in the pit as reject material used for pit reclamation. Most of the trucks carrying excavated material from the road to the pit would return to the road project site with material for the roadwork.

Interpretive Pullouts

As part of the project two additional interpretive pullouts would be created along the road. One pullout would be 26 feet wide near the edge of a pond at MP 81.0 (first pond west of Picnic Rock). The other pullout would be 34 feet wide. Pullouts are defined as widened road sections onto which a bus can pull and be completely off the road travel surface. The pullout would be at MP 83.5, where there is a good view of the wetlands between the Wonder Lake Campground and the Big Timber area.

Road Grader Pullouts

Expand two road grader pullouts at MP 80.7 and MP 81.7 by 10 feet x 30 feet for the purpose of turning equipment around.

Road Surface Improvements

The road surface would be reconditioned in those segments between mileposts 79-84 where no pullout work is happening (see Figure 4) by loosening the top two inches, reshaping the crown or superelevation, and adding 2 inches of gravel wear layer, while keeping the existing width of road travel surface. Superelevation is tilting the whole roadway to help offset centripetal forces developed as the vehicle goes around a curve. An average of 1/4" of material wears off the road surface during each year.

- Establish a 10% crown to the 4 miles of (relatively) straight sections within the road improvement area
- Establish a 6% superelevation in the one mile of curves within the road improvement area
- Vary the crown or superelevation as necessary to connect the curves and straight sections
- Superelevate short radius corners that are now crowned in at least 3 locations.
- Maintain a 22-foot width in 5 short segments totaling 1,130 feet.
- Add 4 inches of gravel wear layer to the road surface in the pullout work areas (see Figure 5).

Equipment used would be the same used to construct the pullouts.

Culverts

Replace all (about 24) culverts in the project area. The smallest replacement culvert would have a 24" diameter. Larger culverts would be placed where small streams reach the road. The replacement of 4 deep culverts would close the whole road for at least 6 hours and would be scheduled to be done at night. Equipment used would be the same used to construct the pullouts.

Road Protection Device

Replace a road protection device at the outlet of a beaver pond at MP 81.9. This would require draining the pond to the level of the lower existing culvert. The new device would be a long 24" diameter culvert under the road elbowed to a vertical 24" culvert that would extend to the desired (existing) height of the pond. The upright section of pipe would be guyed to the pond bottom.

Excess water in the pond would go into the device rather than raise the pond against the side of the road prism. A backup 24" culvert would be installed in the road bed above the device culvert in case the beavers plug up the main culvert. The pond would be partially drained to replace the two existing culverts and old protection device and would refill with a day or two. No beaver occupied the pond last year.

Gravel Sources

Gravel for the project would come from Toklat at MP 54 and the MP 70 Pit, two sites approved in the 2003 park Gravel Acquisition Plan, and from material excavated from the Eielson Visitor Center Project and stored at the MP 74.7 Pit, material excavated from the park road during the project and reused, and material excavated from project area road backslopes. Approximately 4,656 cubic yards (cy) of select borrow would be needed from MP 70 pit and that 8,165 cy of roadway aggregate would be needed from Toklat. Approximately 715 trips would be needed to haul the gravel if 18 cy belly dumps are used. Gravel hauling would occur between 10pm and 6am. Gravel processing would occur for this project at Toklat and at the MP 70 Pit.

As part of the project approximately 22,000 cubic yards of gravel would be removed from the active floodplain of the Toklat River per the guidelines for that removal in the Gravel Acquisition Plan. The gravel would be stockpiled below the Toklat Road Camp and a 400 cubic yard/hour crusher would be set up to process the material into bindable surfacing material. At the Mile 70 pit a screening plant would be set up to process the pit run from the pit and to salvage good material from road and backslope excavation as well as from the stockpiled material left over from the Eielson Visitor Center excavation.

Water Sources:

Four sites have been identified as water sources for the project. A pond close to the road at MP 80.8 (just west of "Picnic Rock," the pond at MP 81.9 with the beaver (deceiver) device, the stream crossing under the road at MP 81.6 (Raina Creek), and the stream downhill of the Mile 70 pit. A gas-powered pump would be set up near the water 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 outside edges of the road.

Revegetation of Disturbed Areas

No revegetation work is anticipated for this project.

Project Schedule

The project would likely last for two summers, with gravel extraction and processing during the summer of 2010, and road work set for 2010 and 2011.

Project Cost

The estimated cost of the project is \$4.5 to \$5 million dollars.

Alternatives Considered and Eliminated from Further Evaluation

1. Consideration was given to an alternative that would rehabilitate only those sites where vehicle accidents have occurred on this section of road during the past 35 years. Approximately two straight sections and four corners would be either widened to create additional intervisible pullouts or the road prism would be partially excavated and replaced to create a more structurally sound outside edge. This measure would not bring the whole section of road up to the standard of fully intervisible pullouts decided upon in the 1997 DCP/EIS and 2007 RDS.
2. One way to increase safety on a road is to decrease the vehicle speed limit. The 1984 Park Road Standards document says that: "The stopping sight distance for a two-way, one-lane road must be approximately twice the stopping sight distance for a two-lane road" (NPS, 1994, p.25). Use of a lower speed limit would allow vehicles to stop in a shorter distance when they sight another vehicle approaching, lessening the chance for a collision. However, without sufficient pullouts, the vehicle pass could still either have to include one vehicle dropping into the ditch or backing up to existing pullouts, and neither maneuver is approved as part of a modern visitor transportation scheme.
3. Consideration was given to an alternative that would rehabilitate only those 20 sites that were identified in a 2004 FHWA study as having unstable outside edges to the road prism. Soft outside edges have contributed to accidents along the Eielson - Wonder Lake section of road by giving way under the weight of a vehicle trying to pass a yielding vehicle at a narrow spot. This measure could reduce vehicle accidents and damage, but would not bring the whole section of road up to the standard of fully intervisible pullouts decided upon in the 1997 DCP/EIS and 2007 RDS.

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. Any revegetation work would be accomplished by using locally-collected seeds or saved tundra mats. 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, or at the base of expanded fill slopes in wetlands.

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 July 15 nesting season so as to impact nesting or fledging.

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.

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.

Daytime trucking from stockpile locations between milepost 80 and milepost 84 to work locations between those mileposts will be allowed to take place within the scheduled "windows" when no buses are scheduled to be traveling through the area. Trucks may immediately follow a bus travelling the same direction through the section as long as no opposite traveling bus is scheduled to be in the section.

Westbound oversize vehicles may leave Toklat no earlier than 8:00 pm and eastbound oversize vehicles must reach Toklat no later than 7:30 am. Oversize traffic to and from Toklat will be in the normal 10:00 PM to 6:00 AM window.

Daytime project work (culvert install prep work, cleanup/shaping work, surfacing, etc...) **between** milepost 80 and milepost 84 that disrupts the road structure and surface will also be allowed to take place. **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.

Daytime project work, **excluding trucking**, that disrupts the road structure and surface on specific locations **outside** of the area between milepost 80 and milepost 84 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 it will monitoring and controls will be implemented.

Table 1. Comparison of the Alternatives

<u>Road Changes</u>	<u>Alt. 1 (No action)</u>	<u>Alt. 2 Rehabilitate Mile 79-84 (NPS preferred alternative)</u>
Passing Pullouts	Pullouts remain as existing. Many are not intervisible.	73 pullouts formalized. Most exist today, but not to standard.
Pulloffs	None added.	One added as viewing area above Big Timber. One passing pullout is given extra width at a pond viewpoint.
Uniform Sections	None added.	1130 feet total of road length in seven sections is made 22 foot wide.
New Surfacing	No new surfacing.	5 miles of 2-4 inches of new surfacing gravel added.

Table 2. Summary Impacts of the Alternatives

IMPACT TOPIC	Alt. 1 – No Action	Alt. 2 – Rehabilitate Mile 79-84 (NPS preferred alternative)
Vegetation, Soils and Wetlands	Minor continued impact from snow removal and maintenance vegetation brushing.	0.7 acres of common scrub shrub vegetation removed. 0.3 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.	0.7 acres of common habitat removed, with minor effect. Local avoidance during one-two years of construction.
Cultural Resources	No impact	Likely no impact to local resources.
Visitor Use and Recreation	No new recreational opportunities created.	Moderate benefits to visitors from increased vehicle safety and 2 new pullouts selected for interpretive opportunities.
Park Management	Does not conform to Park Road Standards for intervisible pullouts.	Moderate 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 area between MP 73-86 is generally south-facing and traverses a mix of vegetation, soils, and wetland types. The road is built on glacial drift or moraine deposited by the formerly larger Muldrow Glacier in past millennia. The road was routed to where the soils are often gravelly, but there are intermixed low areas draining the higher ground that have thick organic layers (peat). The general drainage pattern is from the north to the south, flowing down from the higher ground separating the Moose Creek drainage area from the Thorofare/McKinley River. The road passes by numerous lakes and ponds, with some right at the edge of the road prism, and the road often is surrounded by wetlands associated with the lakes or with the drainages connecting the lakes. Most of the lakes are kettle lakes, formed by melting stagnant icebergs from the glacial retreat. Some of the lakes either were formed by drainages being dammed by beavers, or were enlarged by such damming.

As the road gradually descends in elevation from east to west, the surrounding vegetation gradually gets taller. Shorter dwarf birch and willows give way to taller dwarf birch, tall willows, alders, and some white spruce and cottonwoods.

Wetlands dominate the landscape between the Eielson Bluffs and Wonder Lake, and the often thick shrub and moss layers help protect discontinuous (patchy) permafrost. In addition to the emergent vegetation at the margins of the lakes and ponds, there are thousands of acres of palustrine scrub-shrub wetlands and strips of riverine streambed wetlands.

Past actions such as initial construction, annual snow 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 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 pond vegetation and willow browse. Grizzly bears use the slopes for blueberries and crowberries. Wolves and caribou may also be found traversing the area.

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. The Wonder Lake Ranger Station was built in 1939, sits a mile beyond the project area, and may be eligible for the National Register of Historic Places.

To many the park road itself is the biggest cultural resource in the area, but it does not have any historic resource designation. A draft Cultural Landscape Report was produced in 1999, but it did not include a Treatment section and was not finalized. No park road Determination of Eligibility for the National Register of Historic Places has been made or approved by the State Historic Preservation Officer.

Visitor Use and Recreation

Around 45,000 people travel this section of the Denali Park Road annually, with almost half of those travelling on Kantishna Lodge buses, and the rest on park Shuttle or Camper buses. The 1997 DCP/EIS requires that school bus-type buses would continue to be used for Shuttle or Camper buses west of Eielson instead of the forward control-type buses used east of Eielson. This limitation would be lifted "...upon completion of repairs to the park road west of Eielson..."

The backcountry surrounding the road is favored by hikers and backcountry campers for its views of the Alaska Range, but is at the same time less favored because of the high mosquito population, the often dense wetland vegetation, and the difficulty in getting out of sight of the road, at least when south of the road. It is an interesting place to travel by bicycle because the road gradients are generally not steep, there is less vehicle traffic and the road has great views.

The Wonder Lake Campground is two miles from the project area, has 30 sites, and is a long-time favorite for camping because of the views available of Mt. McKinley.

Park Management

The road west of Eielson is generally maintained by a grader operator stationed at Wonder Lake or Kantishna, 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, but they are often spread thin and are trying to catch up to the optimum 3-year cycle of reaching all sections of the road. The grader operator also does some roadside brush removal, and has been using an excavator to remove entire willow and alder clumps, rather than the traditional flush cutting, as this should reduce re-growth. 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.

Prior to new 4-6" wear layer of crushed material being put on the road in 2000, and because of the lack of gravel material available, the grader operator usually removed some material from the uphill ditch to bring across the road surface with his blade. Some of this material, including the

oversize, fell off the downhill side to create a spill slope. Over time this spill slope had willows, alders, and other vegetation growing on it and the slope was able to get steeper, exceeding the natural angle of repose. As the spill slope widened outward (and the ditch also widened) drivers sometimes used the outside edge, and sometimes found that the outside edge had very little structural strength, especially when saturated. The ditch was also not structural, but this rarely led to anything more than the annoyance of having to get pulled out of the ditch.

The road in the project area has a 35 mph speed limit west to MP 75.5, where it begins a standard 30 mph limit. There is a short section of road between 82.0 and 82.3 that is posted at 25 mph. West of MP 84.2 the standard limit is 25 mph, with a 0.1 mile section of 15 mph at Dalle-MolleVille (a park maintenance shop and office) at MP 84.6.

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 three action alternatives and the no action alternative. The analysis assumes that the mitigation identified in the *Mitigation and Monitoring* section (page 10) 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 Road 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 Values 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.

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. School bus-type buses would continue to be used for the VTS instead of the forward control-type buses used east of Eielson, and they may have an advantage if use of the ditch is needed during an awkward pass. 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 73 and the Wonder Lake Campground road intersection at MP 85 has few 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 moderate adverse impact on visitor use by not providing additional pullouts for off-loading of visitors at well-spaced points of interest, and by not correcting soft road edges at and between pullouts.

Park Management

Under Alternative 1, the park may have to consider other safety improvements to the park road west of MP 73, 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. Those measures would not create an equal objective increase in safety as would increasing correctly-sized passing pullouts. 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 moderate adverse impact on park management in that the lack of intervisible pullouts may require alternate safety measures.

Cumulative Effects: Approximately 65 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 minor 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 moderate 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 79 and 84 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 moderate 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, 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 – Construction of Intervisible Pullouts in the Mile 79-84 Area of the Denali Park Road (NPS Preferred)

Vegetation, Wetlands and Soils

Under this alternative approximately 1 to 1.4 acres of roadside between Mile 73 and Mile 86 of the park road would be formalized into park road pullouts. Approximately ¼ of this roadside is unvegetated and is used - and may have a veneer of gravel on it – for pulling off the roadway today. 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, or up to 0.7 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. The limited vegetation removal from this alternative would not have a significant impact on the thousands of acres of similar scrub shrub vegetation resources adjacent to this section of the park road corridor.

Less than 0.1 acre of palustrine scrub shrub broad-leaved saturated soil wetlands 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 0.1 acre would not affect the flood retention, habitat or other values received from wetlands in the area.

Cumulative Effects: Approximately 65 acres of vegetation has been removed for road construction from this part of the park. This alternative would increase that to about 66 acres of vegetation loss. 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 1.4 acres would result in a minor adverse impact to vegetation and soil. The filling of less than 0.1 acres of palustrine scrub shrub wetlands for pullout construction would result in a negligible 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 approximately 1.4 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 vegetation removal to ground preparation to material laydown and compaction, with breaks in between the phases where not much is going on at that site.

No bird nests would be disturbed during the fledging season. Vegetation would be removed after August 1, or generally after fledging has occurred. 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 six miles to the north. A beaver pond would be temporarily drained to allow for the installation of a new culvert protection device, but beavers did not occupy the pond last year and should not be affected.

Cumulative Effects: Approximately 65 acres of wildlife habitat has been removed for road construction from this part of the park. This alternative would increase that to about 66 acres of habitat loss. Because thousands of acres of similar habitat exist in the vicinity, there exists 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 1.4 acres would result in a minor adverse impact to wildlife habitat. The incremental impact from this project to wildlife and habitat in the entrance area 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 73 and Mile 86 retains much of the flavor of a rustic road. It does not have a uniform width, it is not usually two lanes wide, it is not paved, it has no guardrails, and the ditch and edge of the fill slopes are often softer than the rest of the road prism, especially after extended rainfall. The improvements proposed in this alternative would retain the existing width in 85-90% 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. These improvements should have the effect of making the road safer, which could help it retain its rustic and historic nature. Construction limits would be established along the whole project length to help prevent damage to areas not being worked on.

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 negligible impact.

Conclusion: The proposed project would not adversely impact known cultural resources. There should be a positive impact to the rustic nature of the road by improving structural and safety components of its daily use. 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 west end visitors, including visitors on the bus systems, from the construction activities between Mile 73 and Mile 86. Visitors would also see and hear rock crushing and screening actions below the Toklat Road Camp and at the Mile 70 pit. Material hauling and equipment staging would occur at the Mile 74.7 pit. The impacts would likely extend for two seasons. 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 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 the course of two summers.

Some of pullout work would be within sight and hearing of Wonder Lake Campground users. Those projects would negatively affect the experience at the Campground during the daytime hours.

While the gravel processing areas 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 having had minimal changes since its construction in the mid-1930s, 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 historically favored in winter for use over other logical routes through the landscape and has a negligible impact during those seasons. There would be a permanent moderate adverse effect to the visitor experience from the perception that the formalization of pullouts and upgrades to the visible road structure signifies some loss 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 moderate beneficial impact by adding additional 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 13 miles of roadway, large number of gravel trucks moving between Toklat and Mile 70 and the project areas, additional noise from the Mile 70 pit gravel screening operation and traffic delays. There would be a permanent moderate 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 moderate 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, and perhaps especially that section between EVC and Kantishna, 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 single lane nature of the road west of EVC has continued since construction in the 1930s. However, traffic on that section has increased since then (from an upper estimate of 2 per day to a present experience of 20 per day) and the vehicles have gotten heavier, longer, faster, and carry more people. Park 10-ton dump trucks are perhaps most at risk because of their size and that the drivers usually don’t travel that section regularly enough to know the details of the bus schedule. The vehicle-meeting-vehicle occurrences have increased to where every vehicle travelling west of EVC will pass an average of 20 vehicles, which means that the number of vehicle passes has increased 400 fold. The pullouts that are presently available for use were either 1) constructed so that the one ton pick-up truck-like dump trucks of the 1930s could pass each other, or 2) developed by private automobile traffic in the late 1950s and 1960s at logical view spots, lake shores, or trail head areas such as at blueberry patches.

Providing intervisible pullouts for buses (the park road design vehicle) would not insure 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 landscape and rather than widen or straighten the whole road this alternative would provide those pullouts so that no vehicles should be surprised and have no 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 moderate 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 moderate 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.

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APPENDIX A
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 73 and mile 86 west of the Eielson Visitor Center 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."

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 the one-lane gravel road west of the Eielson Visitor Center 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 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 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 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:

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:

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.

Alternative 1 (No Action), the status quo would not significantly limit or restrict access to subsistence resources in Denali National Park and Preserve.

Alternative 2 (Proposed Action), will not limit or restrict the access of subsistence users to natural resources 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 Alternative), maintaining the status quo would not result in increased competition for fish, wildlife or other resources that would significantly impact subsistence users in Denali National Park and Preserve.

Alternative 2 (Proposed Action). The proposed action would not 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. If it is necessary to restrict the taking of fish and wildlife to assure the continued viability of a fish or wildlife population or the continuation of subsistence uses of such population, subsistence uses are given a priority over other consumptive uses.

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.

VII. ALTERNATIVES CONSIDERED

The alternatives considered for this project were limited to the lands along the park road west of the Eielson Visitor Center. 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 2-4 inches of wear-surface gravel on five miles of the road section, replacing culverts, and adding a couple of interpretive pulloffs.

VIII. FINDINGS

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

APPENDIX B

Stationing and length of Treatment Sections for Denali Park Road starting at Milepost 73.3 and going west to Milepost 85.4

Typical Section A and Section B in Figures 4 and 5 in EA.

Sub-Section lengths are in feet.

Column totals are at the bottom of the spreadsheet.

Alignment column is for internal tracking

Section	Beginning Station	Ending Station	Length (ft)	Alignment	Station	Typical Section B					Typical Section A		No Treatment		Atypical Sections		Description	
						Begin Typical Section B	Begin Pullout Taper	Begin 24' Width	End 24' Width	End Pullout Taper	End Typical Section B	Begin Typical Section A	End Typical Section A	Begin No Treatment	End No Treatment	Begin Station		End Station
Section B	3877+80	3880+50	270	Main 2														
					3877+80													
					3878+65	85												Taper Rt
					3879+05		40											Widen Rt
				E-L	3879+65			60										
					3880+05				40									
					3880+50					45								
Section B	3881+50	3883+75	225	Main 2														
					3881+50									100				
					3881+85	35												Taper Lt
					3882+25		40											Widen Lt
				E-L	3882+85			60										
					3883+25				40									
					3883+75					50								
Section B	3896+50	3898+75	225	Main 2														
					3896+50									1275				
					3897+25	75												Taper Lt & Rt
					3897+45		20											Widen Lt & Rt
				E-L	3898+05			60										
					3898+25				20									
					3898+75					50								
Section B	3901+00	3903+35	235	Main 2														
					3901+00									225				
					3901+40	40												Taper Lt
					3901+80		40											Widen Lt
				P-L	3902+40			60										
					3902+85				45									
					3903+35					50								
Section B	3905+10	3909+30	420	Main 2														
					3905+10									175				Taper Lt & Rt
					3905+50		40											Widen Lt & Rt
				P-L	3907+00			150										
					3907+40				40									
					3908+00	60												Taper Lt & Rt
					3908+50		50											Widen Lt & Rt
				P-L	3909+10			60										

					4329+00					80								
					4329+90						90							
Section A	4329+90	4332+25	235	Main														
					4329+90													
					4332+25								235					
Section B	4332+25	4336+75	450	Main														
					4332+25													
					4332+95	70												Taper Rt
					4333+35		40											Widen Rt
				P-L	4333+95			60										
					4334+35				40									
					4334+80					45								Taper 22' Rt
					4335+05		25											Widen 22' Rt
					4335+65											60		
					4335+90				25									
					4336+75						85							
Section A	4336+75	4341+65	490	Main														
					4336+75													
					4341+65								490					
Section B	4341+65	4343+15	150	Main														
					4341+65													Taper 22' Lt & Rt
					4342+00		35											Widen 22' Lt & Rt
					4342+80											80		
					4343+15				35									
Section A	4343+15	4344+45	130	Main														
					4343+15													
					4344+45								130					
Section B	4344+45	4346+05	160	Main														
					4344+45													Taper Rt
					4344+95		50											Widen Rt
				P-R	4345+55			60										
					4346+05				50									
Section A	4346+05	4349+10	305	Main														
					4346+05													
					4349+10								305					
Section B	4349+10	4353+30	420	Main														
					4349+10													Taper Lt & Rt
					4349+80		70											Widen Lt & Rt
				N	4350+40			60										
					4350+75													End Taper Lt
					4351+15				75									End Taper Rt
					4351+95					80								Taper Lt
					4352+20		25											Widen Lt
				P-L	4352+80			60										
					4353+00				20									
					4353+30													
Section A	4353+30	4357+00	370	Main														
					4353+30													

