



Winter and Shoulder Season Visitor Services

Environmental Assessment

June 2020



Estimated NPS total costs associated with developing and producing this EA:
\$55,600



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.

NOTE TO REVIEWERS

If you wish to comment on this document, you may do so online at <http://parkplanning.nps.gov>. Retrieve Denali Winter and Shoulder Season Visitor Services to provide comments electronically.

You may also mail comments to:

Denali National Park Planning
PO Box 9
Denali Park, AK 99755

Before including your address, phone number, e-mail address, or other personal identifying information in your comment, be aware that your entire comment – including your personal identifying information – may be made publicly available at any time. You can ask us to withhold your personal identifying information from public review, but we cannot guarantee that we will be able to do so.

ON THE COVER

Visitors snowshoe across the winter landscape of Denali National Park and Preserve
National Park Service photo

Contents

	Page
1 Proposed Action	1
2 Purpose and Need.....	3
Objectives.....	4
Background	5
3 Issues	7
Issues Selected for Detailed Analysis	7
Issues Considered but Dismissed	7
4 Alternatives.....	9
Alternative 1: No Action.....	10
Alternative 2: Varied Experiences	11
Alternative 3: Light Touch.....	14
Alternative 4: Additional Plowing	15
Alternatives Considered but Dismissed	15
5 Affected Environment.....	17
Wildlife	17
Soundscape.....	18
Wilderness.....	19
Visitor Use and Experience.....	20
6 Impact Analysis	22
Alternative 1: No Action.....	22
Alternative 2: Varied Experiences	23
Alternative 3: Light Touch.....	30
Alternative 4: Additional Plowing	30
Cumulative Impacts	31
7 Consultation and Coordination	39
8 References	40
Appendix A: ANILCA Section 810(A) Subsistence – Summary Evaluation and Findings.....	A.1
I. Introduction	A.1
II. The Evaluation Process	A.1
III. Proposed Action on Federal Lands	A.2
IV. Affected Environment	A.4

V. Subsistence Uses and Needs Evaluation	A.5
VI. Availability of Other Lands.....	A.5
VII. Alternatives Considered	A.6
VIII. Findings.....	A.6
Appendix B: Extent Necessary Determination.....	A.7
Introduction.....	A.7
Part 1: Law, Policy, and Planning Guidance.....	A.8
The Wilderness Act of 1964	A.8
National Park Service Wilderness Policies	A.8
2006 Denali Backcountry Management Plan (BCMP).....	A.8
Purposes for which the Denali Wilderness was Established.....	A.10
Part 2: Define Activities that are Appropriate in Wilderness.....	A.11
1. Skiing and Snowshoeing	A.11
2. Dog Mushing.....	A.12
A Note about Camping.....	A.12
Part 3: Analysis of the Need for Commercial Services	A.13
1. Does the commercial use have to occur in wilderness (i.e., could you get the same experience elsewhere with a commercial provider outside of wilderness)?.....	A.13
2. Are there safety concerns related to the activity itself (rather than the wilderness setting for the activity) for which commercial support is the best solution?.....	A.15
3. Are there special resource concerns for which commercial support is the best solution?	A.16
4. Are there visitor use management concerns for which commercial support is the best solution?	A.17
5. Are introductory experiences appropriate?	A.18
6. Is commercial provision of primitive recreation supported in management documents?.....	A.19
Necessity Summary.....	A.21
Part 4: Extent of Commercial Services Determined Necessary for Non-motorized Winter Activities.....	A.25
Method	A.25
Overnight Use	A.26
Day Use.....	A.29
Extent Summary.....	A.31
Monitoring	A.34
References.....	A.35

Appendix C: 2019 Winter and Shoulder Season Plan - Desired Conditions	A.37
Entrance Area – Headquarters, Milepost 231 and Nenana River Trails	A.38
Plowed / Open Section of Park Road	A.41
Unplowed / Closed Section of Park Road.....	A.42
Mountain Vista / Teklanika Areas	A.43
Kantishna	A.47
Backcountry and Wilderness Areas	A.49
 Appendix D: Glossary.....	 A.51

List of Tables

Table 1. Summary of Alternatives	9
Table 2. Summary of Alternative Impacts	37

List of Figures

Figure 1. Winter and Shoulder Season Visitor Services EA area of interest in Denali National Park and Preserve.....	2
Figure 2. Existing and proposed visitor facilities near Mountain Vista under Alternatives 2 and 4	12
Figure 3. Entrance area trails proposed for grooming under Alternatives 2, 3, and 4	13
Figure 4. Spatial extent and intensity of soundscape impacts without winter plowing from Headquarters to Mountain Vista, as under the No Action Alternative and Alternative 3	26
Figure 5. Spatial extent and intensity of soundscape impacts from winter plowing from Headquarters to Mountain Vista under Alternatives 2 and 4	27

1 Proposed Action

The National Park Service (NPS) is considering implementing management decisions and constructing limited infrastructure to provide increased access and visitor opportunities in Denali National Park and Preserve (Denali) during the winter and shoulder seasons (approximately mid-September to mid-May). These actions are discussed in the Denali National Park *2019 Winter and Shoulder Season Plan*.

Actions proposed in this environmental assessment (EA) are:

- Allow private vehicle access to the Denali Park Road (Park Road) west of Headquarters to the Teklanika rest area after the first winter weather event of the fall
- Plow a portion of the Park Road during winter months, up to approximately mile 12 beginning in February
- Install a seasonal footbridge near Mountain Vista to facilitate access to traditional winter routes
- Create a connector trail for mushing access at the Mountain Vista rest area
- Allow commercial guiding for non-motorized winter recreation in some areas of the Denali wilderness
- Groom trails in the park entrance area, and potential trails in the Nenana River area
- Allow concessioner transit and tour bus service starting May 10
- Allow parking on the Park Road west of the Savage River for private vehicles during the shoulder seasons
- Open the Savage River and Teklanika campgrounds earlier in the spring and later into the fall
- Install facilities at the Teklanika rest area including parking lines, signs, and informational kiosks
- Provide seasonally specific detail to established desired conditions

The majority of the components of the proposed action concern the Park Road corridor from the entrance area west to the Teklanika rest area (Figure 1).

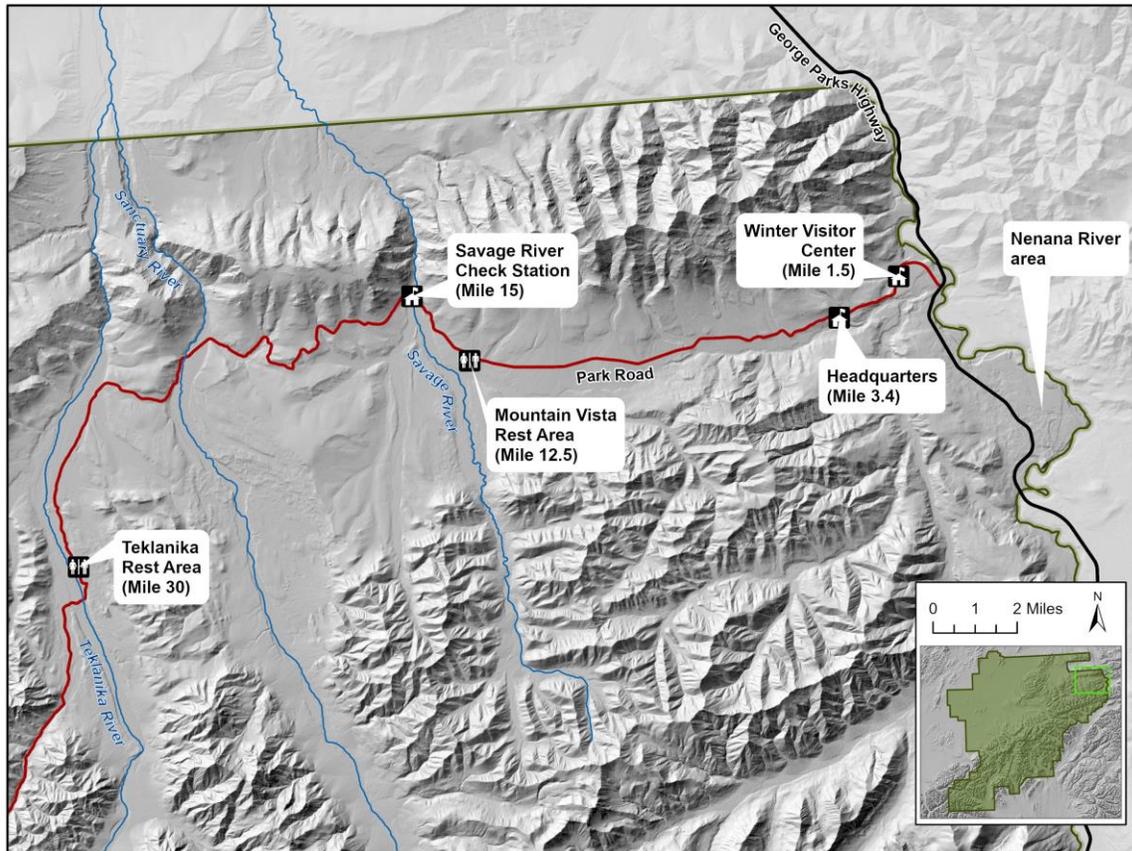


Figure 1. Winter and Shoulder Season Visitor Services EA area of interest in Denali National Park and Preserve

The 2019 *Winter and Shoulder Season Plan*, and the desired conditions and commercial guiding described in this environmental assessment (EA), pertain to all of Denali National Park and Preserve (see Appendices B and C).

For the purposes of this EA, the winter and shoulder seasons are defined based on the yearly cycle of park operations, particularly those concerning the accessibility of the Park Road. These operations shape the experiences available to visitors and the resource impacts from visitor use of the park. Many of these operations are contingent on weather conditions and are difficult to tie to a specific date each year.

- The fall shoulder season begins the day after the last day of Road Lottery, typically in mid to late September.
- The fall shoulder season transitions into the winter season when wintry weather closes the Park Road at the Headquarters gate near mile three of the Park Road, and it is not plowed open again when the weather breaks.

- The winter season transitions into the spring shoulder season when spring road opening operations permit private vehicle traffic west of the Mountain Vista rest area, typically in mid-April.
- The spring shoulder season transitions into summer when the full complement of summer services and facilities are open to the public, typically in mid to late May. This has included tour and transit bus service west of Teklanika, restriction of private vehicles west of the Savage River, operation of all entrance area facilities including the Denali Visitor Center and Denali Bus Depot, and the operation of all roadside campgrounds except Wonder Lake.
- The term “shoulder seasons” refers to both fall and spring, outside of both winter and summer.

Some of the actions discussed in the *2019 Winter and Shoulder Season Plan* are not proposed in this EA. These other actions include construction of a new or improved winter visitor center and implementation of a system of winter public use shelters. These actions may be proposed and analyzed in future compliance documents.

2 Purpose and Need

The purpose of the proposed actions is to equip the NPS to anticipate changes to winter and shoulder season visitation and more effectively manage visitor services and opportunities. Recent growth and diversification of off-season visitation necessitate a reexamination of the visitor experience offered in Denali during the winter and shoulder seasons, as well as the potential resource impacts from possible alterations to visitor services and facilities.

Changes to park visitation during the winter and shoulder seasons drive the need to define a management direction for these times of year. From fall 2012 to spring 2019, visitation between October and April grew by approximately 400% to 17,296 visitors during the 2018-2019 winter and shoulder seasons. Although these numbers are small relative to Denali’s total annual visitation (approximately 3% of the 601,152 total visitors in 2019), this rapid rate of increase during the non-summer months represents a substantial change in visitation patterns and is reflective of increasing winter and shoulder season visitation across Alaska (Alaska Department of Commerce, 2018; NPS, 2019e).

Winter and shoulder season visitation in Denali have also diversified since 2012. In the recent past there has been an increase in tour groups and international visitors to Denali during this time of year. Existing park management documents address management of the winter and shoulder seasons, but their focus is largely on the summer season and they do not anticipate the recently observed changes to visitation in the non-summer months.

In addition to marked changes in winter and shoulder season visitation, the 2018 end date of the winter road plowing trial period authorized by the 2013 Winter Road Plowing Finding of No Significant Impact (FONSI) requires the establishment of a more permanent direction for winter management of the Denali Park Road.

Objectives

Objectives of the proposed action include:

Provide visitor opportunities and facilities that the NPS can sustain, regardless of changes to visitation and factors beyond the control of the NPS (e.g., climate, wildlife behavior, length of daylight, funding levels).

Given the uncertainty of future visitation, the park must remain flexible and not commit to providing for visitor numbers or needs that may never materialize. Conditions beyond the control of the NPS, such as winter temperatures, the length of daylight, and the seasonal habits of wildlife also impact what the park can provide for visitors. The NPS intends to provide sustainable visitor opportunities and facilities that will help the park provide for increased visitor numbers, regardless of unexpected changes to visitation and factors beyond the control of the NPS.

Offer visitor services and opportunities that are consistent with park values and the NPS mission.

Affordable and straightforward access to wilderness and associated self-reliant recreation opportunities define Denali's role in visitor services during the winter and shoulder seasons. In addition to providing access to wilderness recreation, any visitor services or opportunities offered in Denali should be consistent with other park values and principles as described in the *2014 Denali National Park and Preserve Foundation Statement* and *2006 NPS Management Policies*. These principles include an emphasis on education, history, the NPS tradition, and direct experiences of the natural world. Resource protection is a primary park value, and visitor use during the winter and shoulder seasons will be managed to preserve the vitality and integrity of the biotic, abiotic, cultural, wilderness, and other resources of the park. Visitor uses that are incompatible with these values and resource protection goals or that have only an indirect connection to them would more appropriately be experienced outside of Denali.

Preserve the special character of the winter and shoulder seasons in Denali, and the contrast that these seasons provide to the summer.

The fall, winter, and spring in Denali are special times of year that provide a contrast to the heightened activity, constant daylight, and crowds of summer. Visitors during the winter and shoulder seasons have valued these distinctions and the opportunity to experience Denali at a different pace, when the quiet, solitude, and freedom offered by the park are more apparent (NPS, 2019b; NPS 2019d).

Provide adequate and appropriate access to the park.

Visitor access must be considered with the responsibility for protection of park resources, and access should not come at the expense of resource protection. Access is appropriate when it does not have substantial impacts to park resources, and access will be managed to minimize resource impacts.

Provide for diverse visitor skill levels, interests, and populations.

Denali should be a welcoming place for all visitors. Visitor services and opportunities in the park will be consistent with park values and might not meet every visitor desire but will provide an engaging and inspiring national park experience for a wide range of visitor skill levels and interests.

Concentrate development and services near the entrance area.

Previous park management documents have emphasized that the visitor experience transitions to increasingly primitive environments as one travels west along the Park Road corridor (NPS, 1997; NPS, 2007; NPS, 2012). This has an impact on the types of services and visitor opportunities that may be appropriate and feasible in different areas of the park. Similarly, visitor opportunities that are appropriate along the road corridor might not be appropriate away from the road or other frontcountry areas.

Foster safety in both the work environment and visitor experience.

A visit to Denali presents hazards at any time of year, but perhaps especially during the winter and shoulder seasons when park staffing is much lower than during the summer and environmental conditions can be extremely harsh. One way that the park can mitigate these hazards is by adequately communicating with potential visitors about the climate, driving conditions, daylight hours, and extent of visitor services and facilities that they can expect at these times of year. Inside park boundaries, the park should emphasize visitor safety while maintaining opportunities for self-reliant recreation by modifying park procedures, facilities, or messaging rather than the wilderness character or environment of the park.

Continue visitor communication and education efforts to inform and engage visitors and appropriately set visitor expectations.

Communications with visitors are integral to how the NPS manages the winter and shoulder seasons in Denali and prepares visitors to experience the park during these times of year. Key messages about the winter and shoulder seasons include: 1. Denali is a special place, and this is a special time of year. The winter and shoulder seasons in Denali are different from summer in Denali. 2. Denali is a great place to explore exceptional wilderness year-round. 3. Being prepared for a winter or shoulder season visit will help you stay safe and have an enjoyable visit.

Further explanation of these objectives is in the *2019 Winter and Shoulder Season Plan*.

Background

The winter and shoulder seasons in Denali span approximately eight months, during which park visitation patterns, visitor opportunities, access, climate, and operations change markedly. Additionally, the NPS has undertaken a variety of actions on a provisional basis until a decision is made following this EA. These provisional actions include plowing of the Park Road west of Headquarters to Mountain Vista beginning in mid-February, grooming trails in the entrance area with

snowmachines, and allowing private vehicles to park along the Park Road west of the Savage River during the shoulder seasons.

The following description is intended to provide some background information about these seasons that will aid understanding of this EA. It outlines the winter and shoulder seasons in roughly chronological order, beginning in the fall.

The fall shoulder season begins the day after the last day of Road Lottery, typically in mid to late September. After the conclusion of Road Lottery and until the beginning of the summer season in late May, many of the visitor facilities of the entrance area including the Denali Visitor Center (DVC) close and the Murie Science and Learning Center (MSLC) becomes the winter visitor center. The Park Road is accessible by private vehicles only as far west as the Teklanika rest area, at approximately mile 30. Tour buses operate during the very beginning of the fall season, but there are no shuttle or transit buses. Per 36 CFR 4.13, parking on the Park Road is not allowed without the permission of the Superintendent. Parking is currently allowed on the unrestricted section of the Park Road (east of the Savage River) and is allowed provisionally for private vehicles west of the Savage River during the fall and spring shoulder seasons. The first substantial snowfall of the fall closes the Park Road at Headquarters, approximately mile 3. This road closure initiates the winter season.

Prior to the winter road plowing trial that began in 2014, vehicles were not allowed on the Park Road west of Headquarters (mile 3) during winter months. Since 2014, an additional nine miles of road have been plowed west of Headquarters to the Mountain Vista rest area on a trial basis, beginning in February each year.

Approximately 6 miles of trails in the entrance area of the park have been groomed for skiing since 2017 under a provisional authorization for administrative snowmachine use for trail grooming. In the absence of the grooming that began in 2017, entrance area trails had been user-maintained.

Formal winter routes (trails marked for use during the winter; many follow summer trails) are primarily in frontcountry areas of the park. However, the park kennels typically follows the same traditional routes year after year in backcountry areas of the park. These traditional routes are not marked or formally maintained.

Since the winter road plowing trial that began in 2014, the Mountain Vista rest area near mile 12 has become an important winter trailhead. In the past, a wooden plank has been in place over a consistently open creek west of Mountain Vista to facilitate access to traditional winter routes to the west. Recreational mushers park at the road gate just west of the Mountain Vista rest area and are required to mush for a short distance on the Park Road before rejoining traditional winter routes south of the road. This is not possible after the road is plowed west of Mountain Vista with spring road opening activities, typically in April.

Spring road opening operations usher in the spring season, when private vehicle traffic is permitted west of the Mountain Vista rest area, typically beginning in mid-April. During the spring, private vehicles are allowed access to the Park Road as far west as the Teklanika rest area at mile 30. Tour buses have operated on the Park Road concurrently during the last several weeks of the spring

season, early to late May. The spring shoulder season transitions into summer when private vehicles are restricted west of the Savage River, and transit bus service begins operating west of the Teklanika rest area.

3 Issues

Issues Selected for Detailed Analysis

The following issues will be evaluated for each alternative:

Wildlife: Changes to the timing and nature of visitor use as a result of the proposed action could lead to increased disturbance and displacement of wildlife, physiological stress responses in wildlife as well as short- and long-term changes in wildlife behavior, travel patterns, and habitat use, potentially increasing human-wildlife interactions.

Soundscape: Trail grooming with snowmachines, plowing additional miles of the Park Road, and changing access to the Park Road in the shoulder seasons would increase mechanical noise in the park during times of year when natural quiet predominates.

Wilderness: Allowing commercial use in wilderness for non-motorized recreation could impact wilderness character and affect opportunities for primitive and unconfined recreation, and a small seasonal bridge near Mountain Vista would be an installation in wilderness. Although none of the other components of the proposed action take place within designated wilderness, these actions could change what is visible from wilderness areas (e.g., motorized vehicles on the Park Road, additional signs and kiosks, improved mushing access near the Mountain Vista rest area), introduce additional human-generated sounds to the natural soundscape, and introduce additional human activities in the vicinity.

Visitor Use and Experience: The proposed action centers on changes to visitor opportunities that would affect visitor use patterns and the visitor experience. These changes include increased opportunities for motorized access to the Park Road and an associated decrease in non-motorized access on some segments of the Park Road, increased campground opportunities, additional opportunities for guiding in wilderness, and the installation of a variety of signs and kiosks intended to inform and educate visitors. These actions may alter the visitor experience of the winter and shoulder seasons.

Issues Considered but Dismissed

The following issues were identified, considered, and dismissed from further analysis:

Safety: Elements of the proposed action that affect access into the park could increase the number of visitors recreating in the park during times of year when weather is often harsh and unpredictable.

While the proposed action may provide increased opportunities for exposure to the sometimes-dangerous environment of the park, the proposed actions do not increase the safety risks inherent in park recreation and the actions themselves do not present safety hazards.

Lightscares: Denali has exceptionally dark winter night skies beyond the developed portion of the frontcountry and manages outdoor lighting to minimize light pollution as required by the *2006 NPS Management Policies*. Although dark night skies are a key resource during the winter and shoulder seasons, none of the elements in the proposed action includes the addition of artificial light sources.

Vegetation: Most of the components of the proposed action would occur during winter months and/or in developed areas and would not alter or disturb vegetation. Constructing improved mushing access near the Mountain Vista rest area would involve limited brushing of approximately 0.3 acres adjacent to the Park Road. The 0.3 acres include vegetation common to the area. Impact to park vegetation from this proposed action is small, consistent with traditional mushing access to the park, and does not require further analysis.

Repeated travel over snow can compact the snow, leading to soil and vegetation impacts. Allowing commercial support for non-motorized winter recreation in areas where it is not currently allowed may increase the degree to which travel routes are repetitively used and lead to vegetation impacts. This can be mitigated by limiting the number of commercial users allowed, requiring commercial groups to disperse, requiring commercial use reporting so areas of frequent use can be monitored, and allowing commercial use only during periods of adequate snow cover. These mitigations are included in the Extent Necessary Determination authorizing commercial use (Appendix B), and greatly decrease the potential impacts to vegetation. Impact to vegetation therefore does not require further analysis.

Socioeconomics: Increasing visitation during non-summer months in and around Denali has coincided with an increase in businesses operating in the area during these times of year. It is possible that the proposed action may stimulate additional visitation and associated increases in economic activity. The effects that the proposed action may have on visitation numbers and any subsequent effects on socioeconomics are speculative and are not given further analysis.

Subsistence: ANILCA Section 810 requires federal agencies to evaluate the potential impacts of proposed actions on subsistence uses and needs. The proposed action occurs in the area of the park known as the Old Park or the Former Mount McKinley National Park. It was established prior to December 2, 1980 and is closed to ANILCA subsistence uses. The proposed action would not affect subsistence uses, access, and availability of resources in Denali National Park and Preserve lands added on December 2, 1980, which are open to subsistence uses. The subsistence analysis for this project is in Appendix A.

Other Issues Considered but Dismissed: The NPS also considered but dismissed from further analysis other possible resources that are not known to exist in the area, including Indian Trust Resources and threatened and endangered species.

4 Alternatives

This section describes a No Action alternative and three action alternatives, as well as a brief description of alternatives considered but dismissed from further analysis. The following table summarizes these alternatives, which are described in more detail below.

Table 1. Summary of Alternatives

Action	Alternative 1: No Action	Alternative 2: Varied Experiences (Preferred Alternative)	Alternative 3: Light Touch	Alternative 4: Additional Plowing
Fall Road Closing	First winter weather closes the Park Road at Headquarters	First winter weather closes the Park Road at Headquarters, but if conditions improve, traffic is resumed to Teklanika through October 15, to Mountain Vista afterwards (no active fall plowing)	Same as Alternative 1: First winter weather closes the Park Road at Headquarters	Road does not close in the fall, it is plowed open to Mountain Vista year-round
Winter Road Plowing	No winter road plowing west of mile 3	Road plowed to Mountain Vista no earlier than February 15	Same as Alternative 1: No winter road plowing west of mile 3	Road plowed to Mountain Vista year-round
Mountain Vista Foot Bridge	No bridge installed near Mountain Vista	Install seasonal bridge for foot and dogsled traffic near Mountain Vista	Same as Alternative 1: No bridge installed near Mountain Vista	Same as Alternative 2: Install seasonal bridge for foot and dogsled traffic near Mountain Vista
Mountain Vista Mushing Access	No mushing access established at Mountain Vista	Establish a trail for mushing access	Same as Alternative 1: No mushing access established at Mountain Vista	Same as Alternative 2: Establish a trail for mushing access
Commercial Opportunities	No additional non-motorized winter guiding in wilderness	Additional non-motorized winter guiding opportunities in wilderness	Same as Alternative 1: No additional non-motorized winter guiding in wilderness	Same as Alternative 2: Additional non-motorized winter guiding opportunities in wilderness
Trail Grooming	No trail grooming	Trails groomed at the entrance area and Nenana River trails area	Trails groomed at the entrance area only	Same as Alternative 2: Trails groomed at the entrance area and Nenana River trails area
Spring Road Vehicle Access	Bus tours begin mid-May, private vehicles access Teklanika until May 20	Bus tours operate to the Teklanika flats and bus transit shuttles operate daily to the Teklanika rest area beginning May 10. Private vehicles access Teklanika until May 10	Bus tours operate to the Teklanika flats and bus transit shuttles operate daily to the Teklanika rest area beginning May 15. Private vehicles access Teklanika until May 15	Bus tours operate to the Teklanika flats, a free or low-cost shuttle operates to Teklanika Friday - Sunday, and private vehicles access Teklanika Monday – Thursday beginning May 10

Action	Alternative 1: No Action	Alternative 2: Varied Experiences (Preferred Alternative)	Alternative 3: Light Touch	Alternative 4: Additional Plowing
Shoulder Season Roadside Parking	Per 36 CFR 4.13, shoulder season parking allowed with superintendent permission	Shoulder season roadside parking allowed	Same as Alternative 2: Shoulder season roadside parking allowed	Same as Alternative 2: Shoulder season roadside parking allowed
Savage and Teklanika Campground Access	No earlier spring / later fall shoulder season campground access	Earlier spring / later fall shoulder season campground access	Same as Alternative 2: Earlier spring / later fall shoulder season campground access	Same as Alternative 2: Earlier spring / later fall shoulder season campground access
Teklanika Rest Area Shoulder Season Facilities	No facilities installed at the Teklanika rest area	Install parking lines, parking signs, informational signs, and fee collection post	Same as Alternative 2: Install parking lines, parking signs, informational signs, and fee collection post	Same as Alternative 2: Install parking lines, parking signs, informational signs, and fee collection post
Desired Conditions	Do not adopt desired conditions from the <i>2019 Winter and Shoulder Season Plan</i> ; retain existing desired conditions as-is	Adopt desired conditions from the <i>2019 Winter and Shoulder Season Plan</i>	Same as Alternative 2: Adopt desired conditions from the <i>2019 Winter and Shoulder Season Plan</i>	Same as Alternative 2: Adopt desired conditions from the <i>2019 Winter and Shoulder Season Plan</i>

Alternative 1: No Action

If no action is taken, no additional infrastructure or visitor services would be provided. Any actions currently undertaken by the NPS on a provisional basis (e.g., trail grooming, shoulder season roadside parking, winter road plowing) would not resume after the conclusion of the 2019/2020 winter and spring seasons. Management of the fall road closure would continue as it has in the past, with the first winter weather of the season closing the Park Road at Headquarters until spring road opening operations commence, typically in mid-March. No facilities or trails would be developed in the Mountain Vista area. There would not be additional commercially guided snowshoe and ski opportunities in some portions of the Denali wilderness. Vehicle access to the Park Road in the spring would continue as at present, with tour buses beginning in mid-May and private vehicle traffic allowed to the Teklanika rest area until around May 20 at the beginning of the summer season. There would be no additional shoulder season access to the Savage and Teklanika campgrounds. No temporary facilities would be installed at the Teklanika rest area. Desired conditions would continue to be provided by previously approved park planning documents without the additional seasonally specific detail described in the *2019 Winter and Shoulder Season Plan*.

Alternative 2: Varied Experiences

(Proposed Action and Preferred Alternative)

Under Alternative 2, the first substantial snow or ice weather event of the fall would close the Park Road to public traffic. The road would not be actively plowed after this weather event to maintain public access west of Headquarters. However, if conditions improved, the road could re-open to public traffic as far west as the Teklanika rest area through October 15. After October 15, if weather conditions allow, the road would be open to public vehicle traffic as far west as the Mountain Vista rest area until closed at Headquarters (approximately mile 3 of the Park Road) by a season-ending weather event.

Beginning in mid to late February, the road would be plowed west from Headquarters to Mountain Vista (approximately mile 12 of the Park Road) to allow for public vehicle access. A temporary footbridge would be inserted across an open creek west of Mountain Vista for the winter season only to facilitate non-motorized recreational access to traditional winter mushing routes. A winter-only mushing access trail would be established through roadside vegetation off the south side of the road beginning at the gate near the Savage cabin and connecting with the traditional mushing trail to the southwest (Figure 2).

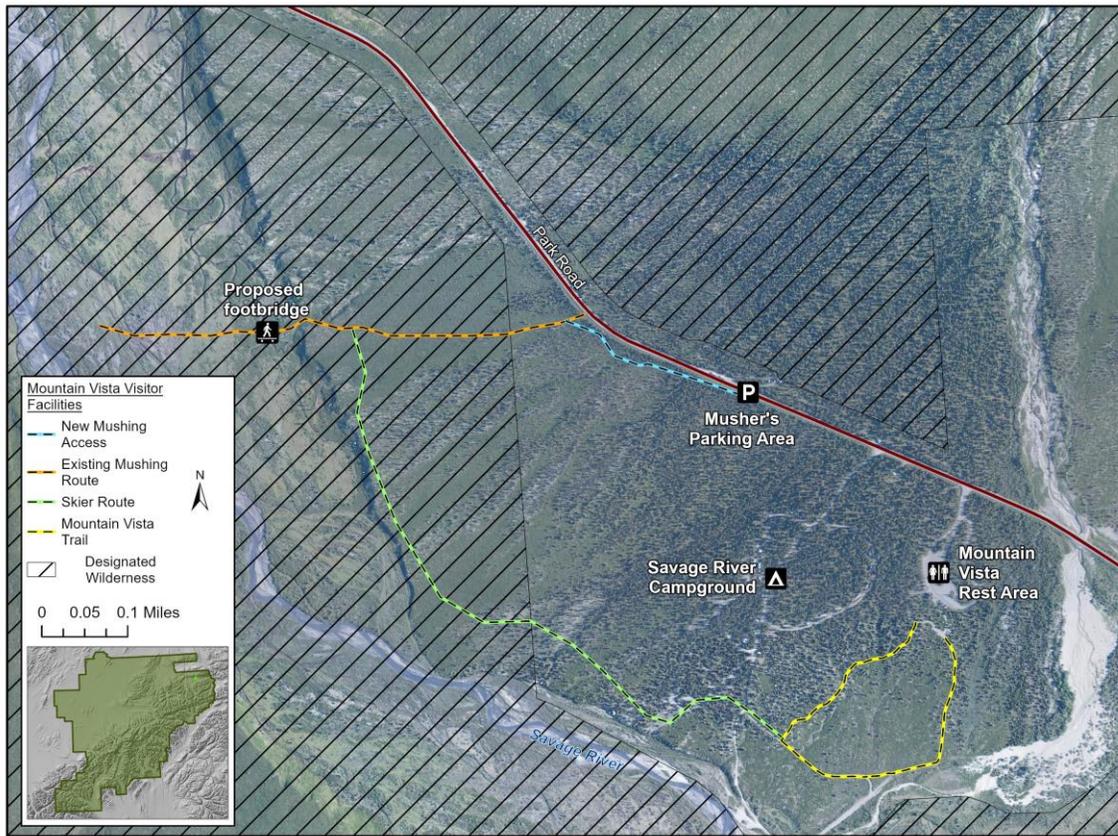


Figure 2. Existing and proposed visitor facilities near Mountain Vista under Alternatives 2 and 4

Commercial non-motorized winter guiding opportunities in wilderness areas would be allowed as described in the Extent Necessary Determination in Appendix B, with the addition of guided skiing and snowshoeing in wilderness areas surrounding the Park Road. Trail grooming in the entrance area could continue (Figure 3), and trails in the Nenana River area, if constructed, could be groomed as well (Figure 1).

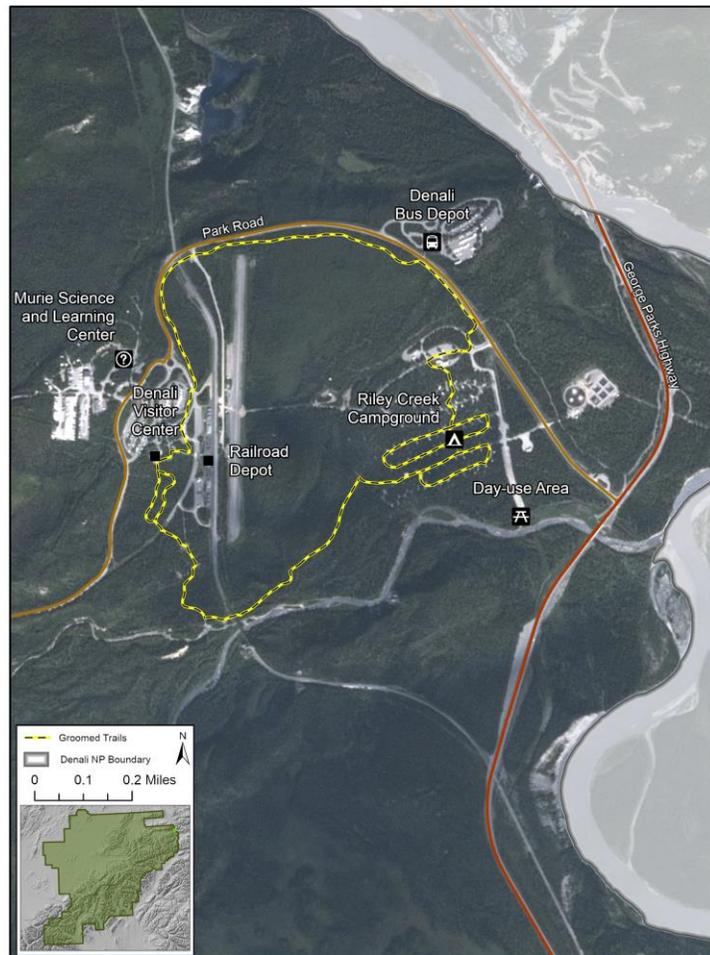


Figure 3. Entrance area trails proposed for grooming under Alternatives 2, 3, and 4

After the Park Road is opened west of Mountain Vista by spring road opening operations, typically in April, private vehicles would be allowed to drive to the Teklanika rest area until May 10. Beginning May 10, tour buses and transit shuttle buses would operate to the Teklanika rest area, with the normal summer season and transit service west of Teklanika beginning May 20. Buses operating outside of the allocation season (approximately Memorial Day – mid September) would be managed according to standards established in the *2012 Vehicle Management Plan*.

Common to All Action Alternatives

Additionally, the following actions would be taken in each of the action alternatives (Alternatives 2, 3, and 4):

- In the shoulder seasons when private vehicles are allowed west of the Savage River, visitors would be allowed to park their vehicles on the Park Road. Parking would only be allowed in

areas that do not obstruct traffic (e.g., wide gravel pullouts that completely remove the parked vehicle from the two lanes of traffic, inactive driveways that do not have a ‘no parking’ sign, rest stop parking lots). Overnight parking and/or parking for longer than 12 consecutive hours would be allowed only when the vehicle occupants have an active backcountry permit and are recreating in the backcountry.

- The NPS would allow the Savage and Teklanika campgrounds to open for camping earlier in the spring and stay open later into the fall, as conditions allow. Campground services such as running water and electricity would likely not be available. Similarly, the NPS would open portions of the Denali Visitor Center (DVC) campus earlier in the spring and later into the fall, as conditions allow, to accommodate the increased visitor numbers during the busiest portions of the shoulder seasons.
- During the shoulder seasons, when Teklanika is the terminus of private vehicle access to the Park Road, parking lines, parking signs, informational signs, and a self-pay fee collection station (fee post) may be installed at the Teklanika rest area. These facilities would be temporary and would not be in place during the summer season. The fee collection station could relocate to the Mountain Vista rest area under Alternatives 2 and 4 which incorporate the Mountain Vista rest area as the western terminus of vehicle access during winter months.
- In each of the action alternatives, the park would adopt the desired conditions from the *2019 Winter and Shoulder Season Plan*. These desired conditions do not replace pre-existing guidance but do add detail regarding desired visitor experience and resource conditions during non-summer months.
- Efforts to inform and educate visitors and appropriately set visitor expectations would continue. Key messages to be communicated include:
 - Denali is a special place, and this is a special time of year. The winter and shoulder seasons in Denali are different from summer in Denali.
 - Denali is a great place to explore exceptional wilderness year-round.
 - Being prepared for a winter or shoulder season visit will help you stay safe and have an enjoyable visit.

Alternative 3: Light Touch

Alternative 3 would incorporate several elements of Alternative 1, including closing of the Park Road at Headquarters after the first substantial snow event of the fall, with the road not opening west of Headquarters until approximately April. No winter plowing would take place west of Headquarters, and therefore no seasonal footbridge or mushing access would be established at Mountain Vista. No additional commercial guiding in wilderness areas would be allowed.

Alternative 3 would include trail grooming in the entrance area but not on any trails that may be developed in the Nenana River area.

In the spring, private vehicles would be allowed to drive to the Teklanika rest area until May 15. Beginning May 15, tour buses and transit shuttle buses would operate to the Teklanika rest area, and buses operating beyond the allocation season (approximately Memorial Day – mid September) would

be managed according to standards established in the *2012 Vehicle Management Plan*. The normal summer season and transit service west of Teklanika would begin May 20.

Alternative 4: Additional Plowing

Alternative 4 is substantially similar to Alternative 2. The differences between Alternative 2 and Alternative 4 concern winter road plowing and vehicle access to the Park Road in the spring.

Under Alternative 4, to the extent that conditions allow, the Park Road would be plowed open for public access as far west as the Mountain Vista rest area year-round. Because of this, the road would generally not close at Headquarters in the fall or would close only for short periods of time until the road is able to be plowed and reopened.

Additionally, vehicle access to the Park Road in the spring would be managed differently than under Alternative 2. Beginning May 10, tour buses could operate to the Teklanika flats turnaround. Private vehicles would continue to have access to the Teklanika rest area Monday – Thursday. A free or low-cost shuttle could operate to the Teklanika rest area Friday, Saturday, and Sunday. Buses operating beyond the allocation season (approximately Memorial Day – mid September) would be managed according to standards established in the *2012 Vehicle Management Plan*. All private vehicle traffic would be restricted west of the Savage River and transit service would operate west of the Teklanika rest area beginning May 20.

Alternatives Considered but Dismissed

Winter plowing west of Mountain Vista

Regular winter plowing of the gravel portion of the Park Road beyond the Savage River has the potential to damage the road surface and may impact the road's usability during the summer season. An increased extent of winter road plowing would also increase the impact of plowing on park resources, including wildlife and the natural soundscape. It would also require substantial investment in additional staff and equipment. The Mountain Vista rest area is an ideal location for the terminus of winter road plowing. It has necessary infrastructure such as ample parking, restrooms, and trails.

The Savage rest stop area on the east and west sides of the Savage River has many of the advantages of the Mountain Vista area and would provide access to approximately three additional miles of the Park Road. However, it is smaller, less developed, and more difficult for multiple buses and other vehicles to park and turn around in the Savage area. Additionally, there is often a great deal of snow and/or ice accumulation on the road between Mountain Vista and Savage that would require special attention. Trails in the Savage area are also more prone to ice accumulation and damage from visitor use when wet, snowpacked, or icy, presenting hazardous hiking conditions.

For these reasons, the NPS is not considering, and does not intend to consider, winter plowing of the gravel portion of the Denali Park Road for public access.

Formal grooming of the Park Road

During periods of the winter when the Park Road is not plowed west of Headquarters, Park Road maintenance staff monitor the buildup of aufeis on the road surface between Headquarters and approximately mile seven of the Park Road. To accomplish this, maintenance staff drive on one lane of the Park Road, leaving the other lane covered with undisturbed snow for winter recreationists and park dogsled teams. Since 2015, road maintenance staff has used equipment that leaves one lane of the Park Road groomed and the other lane covered in undisturbed snow. Additional or more formalized grooming of the unplowed Park Road surface is not considered.

Snowmobile use in the Old Park (including the Park Road corridor) was prohibited by federal regulation in 2000, and the park is not considering administrative use of snowmobiles for grooming the Park Road.

Use of other equipment for formal grooming of the Park Road is not considered in part because heavy compaction of snow on the road, especially on the gravel section, has the potential to create ice and damage the road surface or delay the spring opening of the road. The road is also often not an optimal winter travel corridor, as evidenced by traditional winter travel routes that do not follow the length of the road and the existence of stretches of road that are frequently blown clear of snow, drifted over, covered in aufeis, or otherwise not suited for travel. Furthermore, the wilderness character of park areas surrounding the road is uniquely intact in winter months, and extensive use of mechanized equipment along the Park Road corridor would degrade this park resource. Therefore, the NPS has determined that formal grooming of the Park Road is not feasible.

Informal grooming of the unplowed Park Road between Headquarters and approximately mile seven of the Park Road as described above and incidental to other road maintenance operations provides a recreational opportunity in a manner that is feasible, fiscally sustainable, and minimally impactful to park resources.

Not allowing shoulder season roadside parking

Wilderness recreation is foundational to Denali's purpose, significance, and values, and maintaining access for wilderness recreation is important. Without a shuttle service offered in the shoulder seasons, private vehicles are the only practical means of access for day and overnight trips in the park, and access to the backcountry adjacent to the Park Road necessitates parking along the Park Road. Vehicle parking on the Park Road is prohibited unless specifically authorized by the Superintendent (36 CFR 4.13(a)).

Unless an alternative means of access is offered during the shoulder seasons (i.e., a shuttle), allowing roadside parking during the shoulder seasons is the most feasible way to maintain access to the backcountry. If an alternative means of access is offered, visitors accessing the park backcountry

could be required to use that option, and authorized parking on the open section of Park Road for shoulder season visitors could be revoked.

5 Affected Environment

Wildlife

Denali National Park was established in 1917 to protect populations of wildlife, and the varied habitats throughout the park support numerous species. The area of the park where much of the proposed action takes place (the Park Road corridor between the entrance and mile 30) includes almost every vegetation type found in Denali and a range of elevations. The area consequently supports a diversity of wildlife species. The mature white spruce forest of the entrance and Nenana River areas provides habitat for a variety of wildlife including numerous bird species, small mammals such as red squirrels, voles, porcupines, and carnivores such as lynx and coyote. Moose also inhabit the white spruce forest and feed on the understory plants in the area. Long-ranging species such as caribou, wolves, and bears are found throughout the park.

The mature white spruce forest transitions into more open subalpine tundra westward along the Park Road corridor from the entrance area to the Savage River. This provides ideal habitat for many species of lowland wildlife, including moose, caribou, ptarmigan, and wolves. In the past, wolves have established dens near the road corridor from Headquarters at mile 3 to the Mountain Vista rest area at approximately mile 12.5. Although wolves do not occupy den sites in winter months, den sites and rendezvous sites (where family groups congregate after emerging from dens) are visited by wolves throughout the year.

In the fall, many moose congregate in the area near the Park Road between mile 5 and mile 12 to rut. The rutting season in this area lasts throughout the fall, and the NPS typically prohibits visitor movement off the road in this area during this time of year. Both spring and fall bird migration periods occur during the shoulder season at the park (late March through early June and late July through mid-October, respectively). A wide diversity of migrating bird species including raptors, shorebirds, and passerines rely on the park's habitats to rest and feed.

For many decades, mushing routes have made use of areas adjacent to the Park Road between Headquarters and the Savage River. Wildlife, including moose, caribou, wolves, and other species, frequently use these linear routes as easier travel corridors through snow. For ungulate species (e.g., moose, caribou), use of the packed trails through snow tends to be for transport between food sources, with the majority of time spent at the food source itself.

Most species of wildlife tend to be energy stressed during winter months, when food resources are typically less abundant, and climate and travel conditions require enormous energy expenditure. The same reaction to stimulus (e.g., movement away from an encounter with a human) will impose greater energy costs on an individual animal in winter months than it would in summer months. This is especially true for ungulate species such as moose and caribou.

In the spring, Dall sheep move downslope from Primrose Ridge to available habitat south of the Park Road. Sheep cross the road, and their movements may be impeded by vehicular, pedestrian, or bicycle traffic on the road at this time of year. Spring is also the time of year when bears emerge from their dens, typically beginning in April. Because vegetation along the plowed road is often the first to be exposed by spring snowmelt, bears make use of this food source next to the Park Road during spring months, particularly from the Savage River to the west.

Human-wildlife interactions are common in the spring, when private vehicles have access to the Park Road west of the Savage River to the Teklanika rest area and many visitors hike or bike on the road west of Teklanika. Wildlife interactions with pedestrians and cyclists are in some ways more impactful to wildlife than interactions with vehicles, as many animals near the Park Road are already habituated to the vehicle traffic that occurs throughout summer months.

Vehicle traffic on the Park Road is managed during the allocation season (approximately late May through mid-September) according to standards established in the *2012 Vehicle Management Plan* to minimize the effect of vehicles on park wildlife. Any vehicle traffic on the Park Road impacts wildlife. These impacts include alterations to wildlife behavior, physical and physiological stress responses to vehicle noise and movement, and improper behavior by motorists such as close approach and chasing. There is also the potential for direct wildlife injury or mortality from vehicle strikes, but this is rare for large wildlife species in the park. Generally speaking, buses operating on the Park Road west of the Savage River under standards from the *2012 Vehicle Management Plan* have less impact on wildlife than private vehicles, as bus drivers are specifically trained in wildlife protection and buses are scheduled to provide adequate vehicle-free time on the Park Road corridor. There is currently no regulation of private vehicle traffic on the Park Road outside of the allocation season.

Climate change is affecting all park resources, including wildlife species. This change is occurring rapidly and is especially pronounced during the winter and shoulder seasons. The long-term effects of climate change on wildlife populations are difficult to precisely predict.

Soundscape

Acoustic environments of Denali National Park have low natural ambient sound levels. The non-summer months are especially still, and uniquely undisturbed by noise. Winter conditions at Hines Creek near mile 7.5 of the Park Road reflect this. The natural ambient level of the site is one of the lowest on record in Alaska (Betchkal, 2013). Natural sounds present during winter are primarily from wind moving over vegetation and snow. Spring and fall represent transitional times of year, when the very low natural sound levels of winter relatively quickly increase to the annual highs of summer as water begins flowing and wildlife becomes more active. In the fall, the natural sounds of summer gradually decrease as flowing water freezes and snow mutes the intensity of natural and anthropogenic sound. Spring and fall also correspond respectively to changes in the noise generated from human activity.

Vehicle use in the park at any time of year introduces mechanical noise and impacts the natural soundscape. In general, the number of vehicles, timing of vehicle use, and type of vehicle used determine the extent of soundscape impacts from vehicle use. Noise-free periods are reduced in duration and rate of occurrence with a greater number of vehicles, vehicle use spread evenly over time rather than in clusters, and types of vehicles that produce a greater intensity of sound.

Noise from vehicle traffic on the Parks Highway and on open portions of the Park Road is audible year-round. Winter maintenance of the Park Road to mile 7 for the purposes of afeis monitoring and removal introduces occasional mechanical noise into the surrounding area. Since the 2014 start of a trial period for winter plowing from Headquarters to Mountain Vista beginning in February each year, plowing efforts and the vehicle access they provide have impacted the winter soundscape. Similarly, trails in the entrance area have been groomed since 2017, and the snowmachines used for grooming introduce additional mechanical noise into the area. Noise from aircraft overflights is also present year-round throughout the park.

Irrespective of the source, fewer noise events occur during winter months. However, because winter conditions are so quiet, the exact same noise source can generally be heard farther away and for a longer duration of time. Monitoring at Hines Creek in winter 2012 found that human-generated noise was audible approximately 10% of the time (Betchkal, 2013). For comparison, measurements alongside the Park Road in Igloo Canyon in summer 2013 found that noise was audible 16% of the time (Betchkal, 2015). Measurements near the Riley Creek suspension bridge in summer 2011 found that noise was audible 33% of the time (Betchkal, 2013). In general, the natural winter soundscape is quieter than the quietest places in the park during summer months, and the spring and fall tend to have ambient noise levels between the highs of summer and the quiet low of winter.

Wilderness

Denali National Park and Preserve encompasses 2.1 million acres of designated wilderness and an additional 3.7 million acres of land eligible for wilderness designation. The designated wilderness constitutes most of the former Mount McKinley National Park and is nearly bisected by the 92-mile Park Road. West of Headquarters at mile 3 the wilderness boundary is generally 150 feet from the centerline of the Park Road. The *2006 Backcountry Management Plan* allows for guided mushing throughout the entire park, including designated and eligible wilderness areas, and allows for guided skiing and snowshoeing in the 1980 new park additions and preserve, including eligible wilderness areas.

Denali is managed to preserve wilderness character (NPS, 2006a). In winter months, the “solitude” and “undeveloped” qualities of wilderness character (indicators of which include soundscape, viewshed, the use of motor vehicles, and opportunities for solitude) are virtually unimpacted, with few installations in wilderness and a recreational experience that is almost entirely self-reliant and solitudinous (Burrows et al., 2016). This is due in large part to the Denali Park Road being closed to vehicle traffic west of Headquarters in the winter prior to 2014, limited visitor services, and Denali’s extremely cold and harsh environment during the quiet winter season.

Actions that occur outside of wilderness, such as on the Park Road, can have a measurable effect on wilderness character and are monitored in Denali. For example, winter plowing of the Park Road west of Headquarters to Mountain Vista which has commenced each February since 2014 introduces mechanical noise and impacts visitors' ability to experience solitude in the surrounding wilderness. Additionally, any actions that impact wildlife or other park resources, such as vehicle use on the Park Road, impact the natural character of wilderness.

The *Wilderness Character Narrative* of the park describes the intangible and experiential aspects of wilderness in Denali.

Visitor Use and Experience

The winter and shoulder seasons have typically been the “off-season” in Denali, when visitation is much lower than during the summer months and the park is often described as “quiet” by visitors. Estimates of total park visitation for 2019 indicate that approximately 3% of annual park visitation occurred during October-April. Although the number of winter and shoulder season visitors is small relative to summer, winter and shoulder season visitation has increased nearly 400% from 2012 to 2019 (NPS, 2019e). Winter and shoulder season visitation in Denali have also diversified since 2012, with an increase in tour groups and international visitors to Denali during this time of year.

Visitor use varies throughout the winter and shoulder seasons. After the conclusion of Road Lottery in mid-September and until the beginning of the summer season in late May, many of the visitor facilities of the entrance area close and the Murie Science and Learning Center (MSLC) becomes the winter visitor center. The MSLC can become crowded in the early fall and especially in the late spring as visitation approaches summer levels. Winter camping is allowed for free in a portion of the Riley Creek campground. Entrance area trails and the park kennels remain available to visitors.

In the fall, the Park Road is accessible by private vehicles as far west as the Teklanika rest area, at approximately mile 30. The first substantial snowfall of the fall closes the Park Road at Headquarters, approximately mile 3. The road becomes accessible to Teklanika by private vehicles again in the spring, after spring road opening clears the road. During the fall and spring shoulder seasons, sightseeing and wildlife viewing are popular, and many visitors choose to hike or ski from the road or walk or bike on the road west of the Teklanika rest area. The Teklanika rest area, as the “end of the road” during the spring and fall, is a common destination and can get crowded on weekends. There is no shuttle service during these times of year, and vehicle access to the Park Road is by private vehicle only. In the recent past, tour buses have operated to the Teklanika flats turnaround (mile 26) beginning mid-May, and transit bus service has begun with the start of the summer season and restriction of private vehicle access, typically May 20.

Prior to the winter road plowing trial period that began in 2014, vehicles were not allowed on the Park Road west of Headquarters (mile 3) during winter months. Winter recreation resources are clustered at the entrance area. In the absence of grooming that began in 2017, entrance area trails were user-maintained. Without winter plowing of the Park Road west of Headquarters, the unplowed road corridor was available for non-motorized recreation, including skiing, snowshoeing, biking, and

mushing. A typical winter visit might include a stop at the winter visitor center, exploring user-maintained trails in the entrance area, visiting the park kennels, or using the unplowed road as a winter trail west of Headquarters.

Since 2014, an additional nine miles of road have been plowed west of Headquarters to the Mountain Vista rest area on a trial basis, beginning in February each year. This has provided an additional nine miles of road for motorized sightseeing as well as easier access to the Mountain Vista rest area, and easier access to the open tundra terrain of the Savage River valley for non-motorized winter recreation. Winter plowing has also made this stretch of road unavailable for non-motorized winter recreation after mid-February.

Approximately 6 miles of trails in the entrance area of the park have been groomed for skiing since 2017. Snowmachines are typically used to conduct the trail grooming, although other methods would also be permissible. As snow conditions allow, one lane of the Park Road west of Headquarters to approximately mile seven is often groomed by a maintenance vehicle or park dog teams, incidental to their other work. This ends when February road plowing operations begin.

In the past, a wooden plank has been informally placed over a consistently open creek west of Mountain Vista to facilitate access to traditional winter routes to the west. Without the bridge, recreationists must negotiate the open creek crossing on their own, whether on skis or mushing. The traditional routes west of Mountain Vista are unmarked and unmaintained but are typically followed year after year by mushers, including the park patrol teams. Recreational mushers park at the road gate just west of the Mountain Vista rest area and mush for a short distance on the Park Road before rejoining traditional winter routes south of the road. This is not possible after the road is plowed west of Mountain Vista with spring road opening activities, typically in April, greatly diminishing safe mushing access from the Mountain Vista area (Figure 2).

The backcountry of Denali is available year-round for wilderness recreation. Since 2008, an average of approximately 117 people each year have recreated overnight in the backcountry in the months of October-April (NPS, 2019a). Many more visitors recreate in the backcountry without spending the night in the park, though the NPS does not keep statistics on this day use. Winter monitoring on the Triple Lakes Trail (which is in designated wilderness) and on the mushing trail west of the Mountain Vista rest area indicate average use by approximately one party per day on each of these routes during the winter and shoulder seasons (Toubman, 2019). Currently, most recreation in frontcountry and backcountry areas is non-commercial.

Commercial operators facilitate excursions for some visitors into park during the winter and shoulder seasons. Narrated bus tours that operate during the summer season currently also operate during the first few days of the fall season and the last few weeks of the spring season. During the winter, guided skiing and snowshoeing take place in the entrance area, and since winter road plowing began in 2014, commercial operators have provided guided vehicle tours of the Park Road to the Mountain Vista rest area as well as guided snowshoeing on the Mountain Vista trails. Only one commercial operator is active beyond frontcountry areas of the park during the winter and shoulder seasons, providing dogsled trips and dogsled-supported ski trips. Guided skiing and snowshoeing are limited

but currently allowed in the entrance area of the park as well as the 1980 park additions and preserve, and guided mushing is allowed throughout the entire park and preserve.

Studies of visitor attitudes and behaviors regarding the winter and shoulder seasons indicate that many visitors value the lack of crowds and sense of freedom that is associated with a visit during these times of year, including the private vehicle access to the Park Road currently allowed in the shoulder seasons. In a 2017-2018 study of winter visitors, driving, hiking, and snowshoeing were the most common visitor activities (NPS, 2019d). A 2019 study of spring visitors found that driving and hiking were the most common primary activities visitors took part in during their visit (NPS, 2019b).

6 Impact Analysis

This section provides an evaluation of the potential impacts of each of the alternatives (defined in Section 5) on the resources described in the issue statements (outlined in Section 4). Direct, indirect, and cumulative impacts are described below.

Alternative 1: No Action

Direct and Indirect Impacts

The No Action Alternative assumes that any actions taken on a provisional basis would stop at the conclusion of the 2019/2020 winter and shoulder seasons. The provisional actions that would no longer be taken include plowing the Park Road west of Headquarters to Mountain Vista beginning in mid-February, grooming trails in the entrance area of the park, and allowing parking along the Park Road west of the Savage River during the shoulder seasons.

With the cessation of provisional actions and without implementing any new actions, Alternative 1 would generally reduce impacts to wildlife, soundscape, and wilderness, as compared to the existing condition. Without trail grooming in the entrance area and winter plowing of the Park Road west of Headquarters, there would be less potential for human-wildlife interactions on roads and trails, and less potential for vehicles to impact wildlife behavior or cause wildlife injury or mortality.

Alternative 1 would also introduce less noise into the natural soundscape. Mechanical noise fragments the soundscape into fewer and shorter quiet periods, produces startle and stress responses in wildlife, and diminishes opportunities for solitude in surrounding wilderness areas.

Eliminating winter plowing and trail grooming would impact visitor use and experience of the park, leaving all trails user-maintained and effectively removing motorized sightseeing opportunities in the park. The road corridor would be available for non-motorized recreation throughout the winter.

Spring season access would remain unchanged, with private vehicles accessing Teklanika until May 20, and no additional visitor management or infrastructure at the site. Existing impacts to wildlife from interactions with private vehicles would likely continue, including crowding, chasing, and preventing wildlife from crossing the road. Soundscape impacts would remain unchanged.

Eliminating parking along the Park Road west of the Savage River during the shoulder seasons would make it more difficult for visitors to access backcountry areas adjacent to the Park Road. Fewer people would likely access these areas for wilderness recreation, resulting in greater probability to experience solitude in a wilderness setting. However, this would also result in fewer people engaging in wilderness recreation in these areas which were set aside for the purpose of wilderness recreation, among other reasons.

Alternative 2: Varied Experiences

(Proposed Action and Preferred Alternative)

Wildlife Direct and Indirect Impacts

Increasing vehicle traffic and the subsequent amount of noise in the natural soundscape under Alternative 2 would adversely impact wildlife. Anthropogenic noise traveling across the landscape may elicit a stress or startle response in animals already energetically depleted during a difficult time of year (Creel et al., 2002). Opening the Park Road to vehicle traffic in the fall after the first substantial snowfall would increase the length of time that wildlife is impacted by vehicle noise by up to approximately two months in the fall, depending on weather conditions. Similarly, plowing the road west of Headquarters to Mountain Vista beginning in February would introduce noise from vehicles for an additional four to six weeks compared to the No Action Alternative. Together, fall and winter road access management would add up to four months of intermittent vehicle noise to wildlife habitat near the road corridor.

Grooming trails in the entrance and Nenana River areas, if conducted with a snowmachine or other motorized equipment, would also introduce anthropogenic noise and movement into the environment that could impact wildlife. However, noise from grooming would be of limited duration, would occur only occasionally, and would occur only in areas of the park where wildlife already encounters mechanical noise from highway traffic throughout the year. Snowmachines or other mechanical equipment would be an additional source of anthropogenic noise and associated wildlife stress.

In addition to generating noise, vehicle use in the park can impact wildlife by increasing the possibility for human-wildlife interactions and alterations to wildlife behavior. Allowing vehicle traffic on the Park Road for a larger portion of the winter and shoulder seasons long-term could also further habituate animals to vehicle traffic and make wildlife generally more comfortable around people, exacerbating and potentially amplifying existing impacts from summer vehicle traffic. Additionally, whenever there is vehicle traffic on the Park Road, there is the potential for accidents causing wildlife injury or mortality. Allowing increased private vehicle traffic on the road during fall and winter months increases the possibility of these wildlife impacts over a total of up to four months of the winter and shoulder seasons.

Plowing the road during winters with high snowfall may also create a “trench” on the road surface that animals follow, but have difficulty exiting. Wildlife, especially wolves and ungulates like

caribou and moose, are attracted to easy, linear travel routes such as that provided by a plowed road (James & Stuart-Smith, 2000). The difficulty of travel across the rest of the winter landscape makes plowed roads particularly attractive and increases the likelihood for wildlife injury or mortality and other impacts from vehicle use.

Although there is the potential for wildlife injury or mortality, human-wildlife interaction, and trenching, these wildlife impacts were generally not observed during five years of monitoring (2014-2018) of a winter plowing trial beginning in mid-February each year (NPS, 2019d). Similarly, although animals within immediate proximity or earshot of the nine miles of road between Headquarters and Mountain Vista would be adversely impacted by winter plowing beginning February 15, there are unlikely to be adverse wildlife impacts at the population or parkwide level.

Beginning transit and tour bus service earlier in the spring would reduce the number of private vehicles on the Park Road, reducing the overall number of vehicles on the road and existing adverse impacts to wildlife. Privately owned vehicles operated by visitors are generally more numerous and more disruptive to wildlife than buses operating on a schedule and driven by trained drivers (Singer & Beattie, 1986). Vehicles operated by visitors can be at any point on the open section of Park Road at any time of day, decreasing the amount of time that the road is traffic-free, and when wildlife have the chance to cross the road. Additionally, although the NPS attempts to educate visitors about safe vehicle operation and behavior around wildlife, visitors may not receive this information or may disregard it when driving on the Park Road. This can lead to wildlife being chased down the road, visitors approaching too closely, or other adverse wildlife impacts. Bus drivers, unlike visitors, are specifically trained in proper behavior around wildlife and encourage proper behavior among their passengers. Wildlife along the Park Road are generally habituated to the presence of vehicles but are more likely to react negatively to other stimuli, including opening and closing of doors or people stepping out of vehicles (NPS, 2019b). These impacts are less likely to occur if visitors access the park via a transit or tour bus rather than their own vehicles. Beginning transit and tour bus operations earlier in May would decrease the length of time that visitors could access the Park Road by approximately ten days from current conditions. Spring visitation tends to increase throughout May and limiting private vehicle access during the typically busiest last ten days of the spring season would reduce current adverse impacts to wildlife from this use.

Other elements of Alternative 2 could also increase the possibility for human-wildlife interactions. Increased commercial guiding in wilderness and allowing earlier and later shoulder season access to the Savage and Teklanika campgrounds would likely introduce more humans into wildlife habitat, increasing the likelihood that visitors would encounter wildlife and the opportunity for wildlife to receive human food. The NPS intends to have campground hosts and/or an increased level of NPS staff presence in these campgrounds during periods of extended spring and fall use to help lessen the possibility for human-wildlife interactions and resulting adverse impacts to wildlife.

Additional winter recreationists, especially larger commercial groups traveling together or users of groomed trails, generate and use trails in the snow. These linear travel features are attractive to wildlife, and human-wildlife interactions could increase along these routes. These human-wildlife interactions could be particularly dangerous during the late winter or early spring, when bears emerge

from their dens, are energy depleted, and encounters with bears are more likely to result in charges, injury, and other negative outcomes. Human-wildlife interactions are known to occur on current winter routes through the park, especially with moose, and these interactions would likely increase in frequency under Alternative 2.

Installing informational signs at the Teklanika rest area could help address some of the known human-wildlife conflict issues associated with visitor use of the area and especially with visitor use of the Park Road corridor west of the Teklanika rest area during the shoulder seasons. Additional signs could communicate wildlife safety information specific to the transportation and recreation patterns of the spring and fall (i.e., private vehicle use, cycling and walking on the Park Road), helping visitors to behave properly around wildlife at these times of year. However, visitor behavior is not always influenced by signage, and the effect of additional signage on wildlife impacts is expected to be minimal.

Soundscape Direct and Indirect Impacts

Several components of Alternative 2 would introduce new sources of mechanical noise into the natural soundscape, fragmenting the soundscape into fewer and shorter quiet periods. Allowing private vehicles access to the Park Road west of Headquarters after the first weather event of the fall would increase the number of days that the soundscape of the Park Road corridor is impacted by vehicle traffic by up to approximately two months, depending on weather conditions. Allowing this fall road access only if conditions improve and not actively plowing the road west of Headquarters in the fall to maintain access avoids the greater soundscape impacts from heavy plowing equipment.

Plowing the Park Road west of Headquarters beginning in mid-February would similarly impact the soundscape of the Park Road corridor by introducing noise sources that would not otherwise exist. Plowing activity and vehicle traffic increase the amount of time that noise is audible and fragments what is the longest naturally quiet time of year into shorter intervals (Toubman, Borg, Clark, & Schirokauer, 2015). Under this alternative, these impacts would occur approximately four to six weeks earlier than they would under the No Action alternative. The extent and intensity of soundscape impacts from winter road plowing under the No Action Alternative (Figure 4) and Alternative 2 (Figure 5) are shown in the figures below.

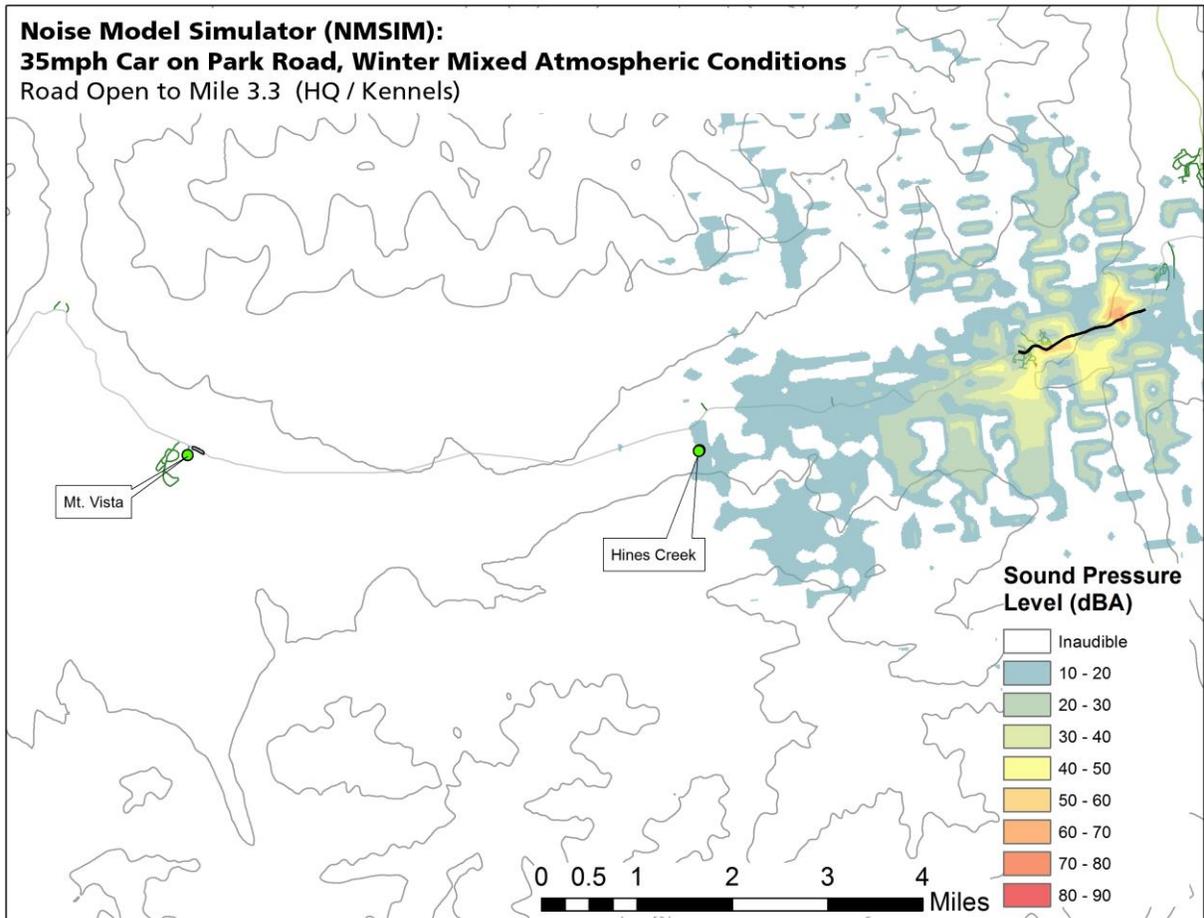


Figure 4. Spatial extent and intensity of soundscape impacts without winter plowing from Headquarters to Mountain Vista, as under the No Action Alternative and Alternative 3

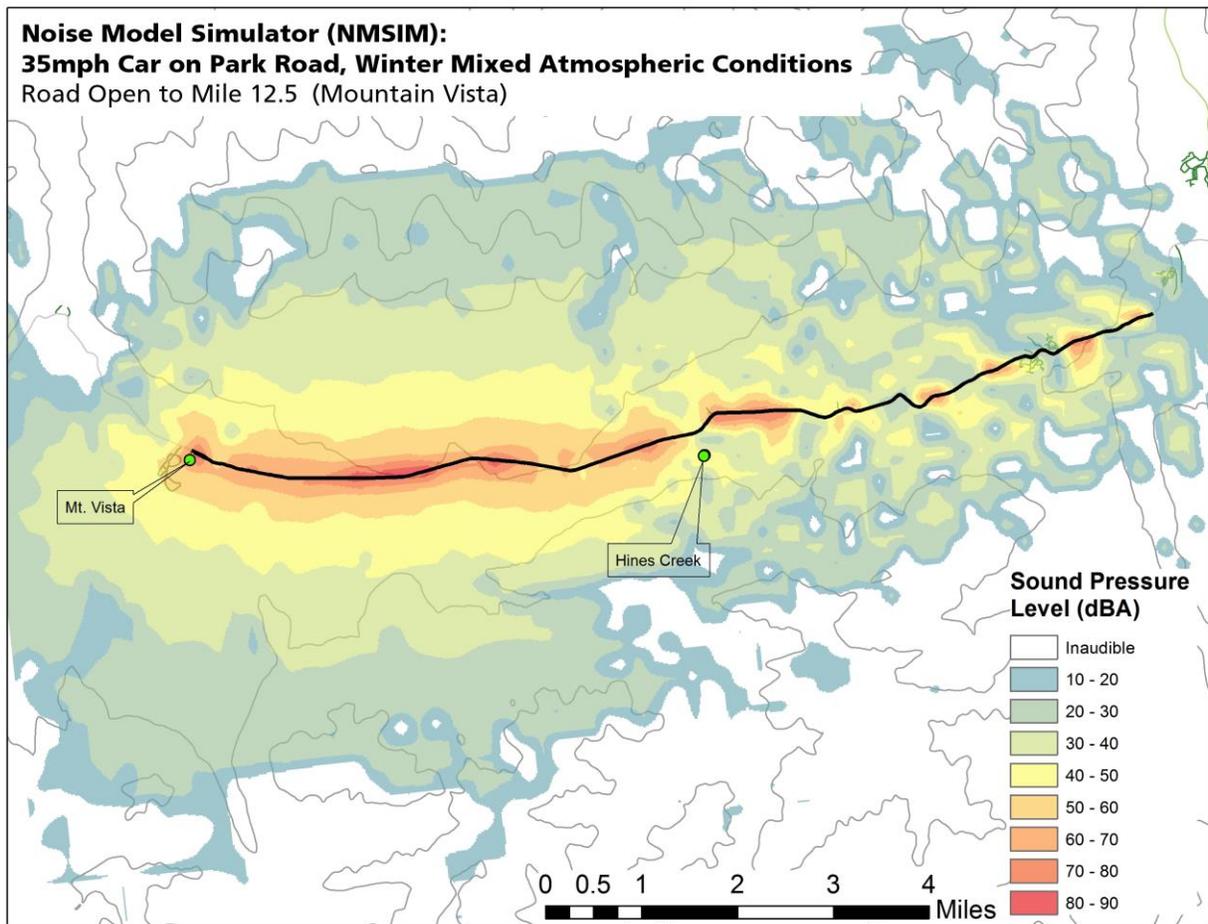


Figure 5. Spatial extent and intensity of soundscape impacts from winter plowing from Headquarters to Mountain Vista under Alternatives 2 and 4

The noise produced by snowmachines that may be used for grooming trails in the entrance area and Nenana River area tends to be of a higher pitch than that produced by vehicle traffic. It is therefore more noticeable by people in some ways and more of an impact to the soundscape than noise produced by other vehicles (Menge, Ross, & Ernenwein, 2002). The areas that would be groomed under Alternative 2 (entrance area, Nenana River area) are already impacted by vehicle noise throughout the year, but the noise from occasional grooming would be an additional impact. Trail grooming typically necessitates running motorized equipment such as snowmachines at a lower speed which reduces, but does not eliminate, the soundscape impacts from this use (Preide, 1971).

Providing access to the Savage and Teklanika campgrounds earlier in the spring and later into the fall would likely increase the use of generators during the additional weeks that the campgrounds are open to visitors. Generator use tends to be continuous, and this long-duration noise substantially reduces the possibility for noise-free intervals. Generator use in campgrounds is restricted to the hours of 8 am to 10 am and 4pm to 8pm. Alternative 2 would potentially add six hours per day of

generator use during the additional weeks of campground availability. The impact from this noise would affect an area of the park that currently does not have impacts from generator use during the shoulder seasons. Generator noise would be audible by nearby campers and backcountry users.

Beginning transit bus service and bus tours concurrently on May 10, approximately 10 days earlier than at present, would reduce the total number of vehicles on the Park Road and allow for more and longer noise-free periods compared to the No Action Alternative. Decreasing the number of days that the Park Road is available to private vehicles by ten days from current conditions (May 20 to May 10) would provide an additional ten days with the soundscape closer to natural levels near the Park Road.

Wilderness Direct and Indirect Impacts

The actions that would impact wildlife under Alternative 2 as described above (p. 23) would also degrade the natural quality of wilderness character by affecting wildlife behavior and increasing the possibility for human-wildlife interactions.

Opportunities for solitude in wilderness would be impacted by the actions described above (p. 25) that impact the natural soundscape by the introduction of anthropogenic noise into the wilderness experience. Opportunities for solitude in wilderness would also be impacted by increased commercial guiding in wilderness and allowing roadside parking west of the Savage River. Both actions would likely result in more recreationists in wilderness compared to the No Action Alternative, increasing the probability for visitors to encounter other people in wilderness. Commercial guiding in particular could increase the presence of larger groups (groups greater than six people; NPS, 2006b) in wilderness. However, commercial guiding and roadside parking also facilitate visitor opportunities for primitive recreation, helping to fulfill the recreational purpose of wilderness. See the Extent Necessary Determination in Appendix B for a detailed analysis of commercial use in wilderness for non-motorized winter activities.

The undeveloped quality of wilderness character would be diminished by the installation of a bridge west of Mountain Vista. Even if removed seasonally, this would be evidence of modern human use in designated wilderness. The bridge would also decrease the self-reliant nature of wilderness recreation in the area by assisting visitors over an open stream crossing. This impact is small relative to the unchanged opportunities for self-reliant recreation without developments in the remaining approximately six million acres of wilderness in Denali.

Visitor Use and Experience Direct and Indirect Impacts

The timing and nature of access to the Park Road corridor would be impacted by several actions in Alternative 2. Current visitors value the ability to access the Park Road west of the Savage River in their own vehicles during the shoulder seasons (NPS, 2019b). Studies have also shown that although some people highly value the ability to drive portions of the Park Road during winter months, this opportunity is not important to other visitors (NPS, 2019d). Allowing the Park Road to reopen west of Headquarters after the first snow of the fall and plowing to Mountain Vista beginning in February

would increase the amount of time that private vehicles have access to the Park Road west of Headquarters by approximately three to four months over the fall and winter.

This corresponds to a reduction in the availability or attractiveness of the Park Road for non-motorized recreation. Allowing vehicle access if road conditions improve after the first weather event of the fall could adversely impact the experience of visitors who hike or bike on the road. Winter plowing would make the Park Road unavailable for non-motorized winter recreation from Headquarters to Mountain Vista beginning in February each year. Opportunities for non-motorized recreation exist in other areas of the park, but the Park Road corridor is the only area available to vehicles within park boundaries.

Private vehicle access to the Park Road would be decreased under Alternative 2 by beginning transit and tour bus service ten days earlier than under the No Action Alternative. Private vehicles could access the Park Road during the spring as far west as the Teklanika rest area until May 10. Beginning transit bus service and bus tours on May 10 would allow visitors without private vehicles and those opting for a tour the ability to access the Park Road and would restrict private vehicle access west of the Savage River after May 9. Previous NPS studies have shown that private vehicle access to the Park Road is highly valued by current visitor populations (NPS, 2013; NPS, 2019b). Currently, the spring and fall shoulder seasons are the only time of year when private vehicles have access to the Park Road west of the Savage River. Restricting this access ten days earlier in the spring than at present may displace some visitors who come to the park for this opportunity.

Visitor use of the park would also be impacted under Alternative 2 by other actions that facilitate visitor access. Allowing roadside parking for private vehicles during the shoulder seasons would provide easy and efficient access to the park backcountry during a time of year when no other means of vehicular transport is available. Providing a mushing access trail and a bridge near Mountain Vista would improve the safety of visitors recreating in the area and facilitate access for mushers. Such additions would also increase the amount of NPS infrastructure visible to visitors and the size of the administrative footprint in the Mountain Vista area. Similarly, installing parking lines, parking signs, informational signs, and a fee collection post at the Teklanika rest area would facilitate visitor use of the area by maximizing parking space and providing information, but would also increase the amount of NPS infrastructure visible to visitors and the size of the administrative footprint at the Teklanika rest area.

Alternative 2 provides visitor opportunities that would not be provided under the No Action Alternative, including increased commercially guided opportunities, groomed trail experiences, and earlier and later access to the Savage and Teklanika campgrounds. These opportunities provide additional options for visitors and would also likely increase the number of visitors participating in non-motorized winter recreation in wilderness areas of the park, adversely impact the wilderness experience of existing non-commercially guided users, and increase noise, activity, and visitation levels over current conditions.

Alternative 3: Light Touch

Direct and Indirect Impacts

Impacts to wildlife, soundscape, wilderness, and visitor use and experience under Alternative 3 are anticipated to be the same as those discussed under the No Action Alternative (p. 22), with the exception of the following:

Grooming trails in the entrance area, if conducted with a snowmachine or other motorized equipment, would impact resources and visitors as described under Alternative 2 (p. 23). Grooming with motorized equipment would introduce occasional noise and the physical presence of mechanical equipment, adversely impacting wildlife and the natural soundscape. Groomed trails would also provide a new opportunity for visitors. Because Alternative 3 only includes trail grooming in the entrance area and not in the Nenana River area, wildlife impacts from grooming would be smaller in Alternative 3 compared to Alternative 2.

The impacts from beginning tour bus and transit bus service concurrently on May 15 under Alternative 3 would be similar to the impacts described under Alternative 2 (p. 23). Existing impacts to wildlife and soundscapes would be reduced, and visitors would have private vehicle access restricted compared to current conditions. Beginning bus service May 15 under Alternative 3 rather than May 10 under Alternative 2 would provide five fewer days of these impacts under Alternative 3 as compared to Alternative 2.

Shoulder season roadside parking west of the Savage River, earlier and later shoulder season access to the Savage and Teklanika campgrounds, and the installation of signs at the Teklanika rest area would impact resources and visitors as described under Alternative 2 (p. 23).

Alternative 4: Additional Plowing

Direct and Indirect Impacts

Impacts to wildlife, soundscape, wilderness, and visitor use and experience under Alternative 4 are anticipated to be similar to those discussed under Alternative 2 (p. 23). Actions taken under Alternatives 2 and 4 would generally increase stress on wildlife, increase the possibility for human-wildlife interactions, increase noise, increase visitor access to wilderness recreation, provide new visitor opportunities, and decrease existing impacts to wildlife and soundscapes from private vehicle use in the spring. Differences between Alternative 2 and Alternative 4 are related to winter plowing and spring road access:

Plowing the Park Road west of Headquarters to the Mountain Vista rest area year-round would adversely impact wildlife in similar ways as described in relation to the more limited winter plowing in Alternative 2 (p. 23). However, because Alternative 4 includes plowing throughout the year, the impacts would be of a much greater temporal extent, spread over approximately four additional months than under Alternative 2 and six additional months over the No Action Alternative.

Intermittent noise from vehicles would be present year-round, and visitors and wildlife near the nine miles of road between Headquarters and Mountain Vista would rarely experience the road corridor without the presence of vehicles.

Beginning tour bus operation on May 10 and restricting private vehicle access west of the Savage River on weekends beginning May 10 would impact wildlife, soundscapes, wilderness, and visitor use in a similar way as under Alternative 2 (p. 23). Existing impacts to wildlife and soundscapes from private vehicle use would be reduced, and private vehicle access to the Park Road would be reduced as well. Weekend days tend to receive the highest amount of private vehicle traffic, and most negative human-wildlife interactions stemming from private vehicle use have been observed on weekend days during the spring and fall shoulder seasons (NPS, 2019b). Requiring shuttle use on weekends would decrease the intensity of adverse wildlife, wilderness, and soundscape impacts resulting from current spring road access management. Under Alternative 4, private vehicle access would still be allowed on weekdays (i.e., Monday – Thursday) after May 10, however, and impacts from use during those times would not be addressed as effectively as they would under Alternative 2. Managing spring road access under Alternative 4 would overall reduce impacts to wildlife, wilderness, and soundscapes but to a lesser degree than under Alternative 2. Visitor use impacts from a reduction in private vehicle access to the Park Road in the spring would be similar to those under Alternative 2, but to a lesser degree since Alternative 4 maintains a greater amount of private vehicle access to the Park Road than Alternative 2.

Cumulative Impacts

The cumulative impacts discussion considers the contribution of the direct and indirect impacts to the past, present and reasonably foreseeable future actions in the project area. Past and present actions that have affected the project area focus on changes to visitor services and opportunities during the winter and shoulder seasons and management of Park Road access. The Park Road has been the primary travel corridor in the park since its construction began in the 1920s. Although the NPS did not allow vehicle access west of Headquarters in winter months until 2014, private vehicles have been allowed west to the Teklanika rest area in unrestricted numbers during the shoulder seasons since at least the early 1990s. The park kennels has followed traditional mushing routes through the park for decades, and the NPS has allowed guided mushing throughout the park since at least the 1970s. A removable plank footbridge west of Mountain Vista has been used in some winters to facilitate non-motorized recreational access into the park.

Prior to 2005 the park did not have a winter visitor center, as visitor numbers during winter months did not necessitate a dedicated visitor contact station. The MSLC opened as the winter visitor center in 2005. Beginning around 2010-2012 increasing numbers of winter tourism businesses began operating in Alaska, many based out of Fairbanks. Increased interest in Alaska winter tourism from independent travelers and tour groups began a steady increase in winter and shoulder season visitation to the park, beginning around 2012 (NPS, 2019e). The NPS began a trial period of plowing the Park Road west of Headquarters to Mountain Vista each February beginning in 2014 to provide

additional recreation opportunities to the increased numbers of winter visitors. The NPS also developed Mountain Vista as a winter visitor node, marking trails for visitors and improving trail safety for multiple user groups.

In 2017 the Alaska Railroad increased its winter and shoulder season traffic from two trains per week to six trains per week during the holiday season and from February to April. Increased winter and shoulder season visitation prompted the NPS to issue commercial use authorizations for guided winter activities in the frontcountry. The *2017 Denali National Park and Preserve Commercial Services Strategy* focused in part on winter and shoulder season business opportunities in the park, and the *2018 Denali Borough Land Use and Economic Development Plan* described the intent of the Denali Borough to increase winter and shoulder season visitation to the area.

Local tourism businesses continue to operate during the winter and shoulder seasons, with some area lodges building additional winterized accommodations. Cruise ships sail earlier in the spring season, and businesses have responded by opening earlier in the spring as well. These trends of increased tourism and business activity in the winter and shoulder seasons are expected to continue into the reasonably foreseeable future. The NPS also anticipates the development of trails and visitor facilities in and near park areas along the Parks Highway, including a trailhead and parking area at milepost 231, trails in the Nenana River area, and a parking lot and trailhead near Bison Gulch.

In 2020, the NPS plowed the Park Road to the Polychrome area during the late winter months to provide urgent year-round maintenance access to a failing section of road. This action is expected to continue into the foreseeable future; however, the NPS does not intend for this to affect visitor vehicle access to the Park Road. This Park Road plowing activity will remove snow from the Park Road and make it unusable for skiing, mushing, and other snow-dependent activities.

Alternative 1: No Action

The No Action alternative assumes that any actions taken on a provisional basis would stop at the conclusion of the 2019/2020 winter and shoulder seasons. The provisional actions that would no longer be taken include plowing the Park Road west of Headquarters to Mountain Vista beginning in mid-February, grooming trails in the entrance area of the park, and allowing parking along the Park Road west of the Savage River during the shoulder seasons.

With the cessation of the above actions and no further actions taken during the winter and shoulder seasons, human activity and presence in the park would likely decrease under the No Action alternative, reducing impacts to wildlife, soundscapes, and wilderness. This would contrast with past, present, and reasonably foreseeable actions that have typically facilitated increased visitation to the park and surrounding areas during the winter and shoulder seasons. Existing impacts to wildlife and soundscapes from current spring visitor use in private vehicles would be left unaddressed under the No Action alternative. This corresponds to the time of year when increases to visitation and business activity are particularly large and rapid, and resulting impacts are expected to increase if left unaddressed.

The No Action Alternative would also remove some recreation opportunities, including the use of groomed trails, vehicle access to the Park Road beyond mile 3 during winter months, and roadside parking west of the Savage River during the shoulder seasons. Removal of these opportunities would make access to areas west of Headquarters and the Savage River more difficult and may dissuade some visitors from visiting or recreating in the park.

Thus, the No Action alternative would reduce the diversity of recreation opportunities available in the park and the associated human activities in the proposed project area. Implementation of this alternative would generally reduce cumulative effects to wildlife, soundscapes, and wilderness, in some respects countervailing the general increase in visitor services and opportunities created in and around the park by past, present, and reasonably foreseeable actions.

Alternative 2: Varied Experiences

Wildlife

The proposed action as described in Alternative 2 would expose animals near the park entrance area and along the Park Road corridor to intermittent increased noise, stress, and the possibility for wildlife displacement, injury, and interactions with humans. These impacts are similar in nature to summer season wildlife impacts, and some animals on the Park Road corridor and other frontcountry locations may be habituated to vehicles, mechanical noise, and human presence (Burson et al., 2000).

Past and present actions in the winter and shoulder seasons have generally increased the amount of human activity in the park during these times of year. Alternative 2 would continue the trend of increased human presence in wildlife habitat during a time of year when noise, stress, and human-wildlife interactions can have a harmful effect on wildlife due to low energy reserves for most animals, especially during the winter season.

Restricting private vehicle access west of the Savage River beginning May 10 and installing informational signs at the Teklanika rest area would likely decrease existing impacts to wildlife, as buses are generally less disruptive to wildlife than private vehicles and informational signs could communicate wildlife safety messages. These elements of Alternative 2 may become more necessary as recreational and business activity near the park during the spring season has increased in recent years and is expected to continue. This increase in spring activity is particularly acute during the final days of the spring season, which is when the vehicle restrictions would be implemented. However, the magnitude of beneficial impact from these actions is expected to be small overall, as private vehicle use would be reduced by 10 days and informational signs are not always effective at changing behavior.

Overall, Alternative 2 would increase human activity in the park, thereby adding to cumulative wildlife impacts from past, present, and future actions. Changing spring road access as described in Alternative 2 would likely decrease existing wildlife impacts from private vehicle use on the Park Road.

Soundscape

Alternative 2 would increase sources of mechanical noise during what is naturally the quietest time of year in the park. Other actions occurring in the past, present, and reasonably foreseeable future also have or are expected to increase noise in the soundscape during the winter and shoulder seasons by introducing trains, vehicles, and human activity in and around the park. Alternative 2 would add to these impacts and further fragment the quiet natural soundscape. Alternative 2 would also expand the geographic extent of these impacts by introducing mechanical noise west of Headquarters during the winter and increasing the likelihood of generator use in the Savage and Teklanika campgrounds during the shoulder seasons.

Restricting private vehicle access west of the Savage River beginning May 10 would decrease existing impacts to the soundscape by reducing the number and frequency of vehicles on the Park Road for approximately 10 days of the roughly 30- to 40-day spring season. This would leave the acoustic environment of the Park Road corridor west of the Savage River more intact during a time of year when soundscape impacts from other actions are generally increasing.

Most of the components of Alternative 2 would add to the cumulative impacts to park soundscapes. The exception is management of spring road access as described in Alternative 2, which would reduce cumulative impacts to soundscapes during this time of year.

Wilderness

Alternative 2 would result in easier access to wilderness recreation, reducing opportunities for solitude and diminishing the natural and undeveloped qualities of wilderness character. Other actions taken in and around the park during the winter and shoulder seasons have increased the level of activity in park frontcountry areas, which have had spillover effects on soundscapes and wildlife in wilderness.

Alternative 2 would also add commercial activity and the temporary installation of a bridge inside of wilderness. These additional impacts would increase activity and decrease opportunities for solitude and self-reliance in wilderness in a way that actions focused on frontcountry areas would not. Installing a temporary footbridge along a traditional travel route and increasing commercial guiding in wilderness impact opportunities for solitude and self-reliance, but also facilitate wilderness recreation for a more diverse population of visitors.

Actions taken under Alternative 2 would add to the general increase in frontcountry activity, and subsequent impacts to the natural quality of wilderness adjacent to frontcountry areas. Although the natural quality of wilderness in proximity to frontcountry areas would be somewhat diminished under Alternative 2, Denali's wilderness would still function as a natural ecosystem, with wildlife populations and natural processes intact. As other actions increase visitation in and around the park, allowing commercial activity in wilderness and installing a winter footbridge in wilderness would encourage some of those visitors to participate in wilderness recreation, a primary reason for the establishment of wilderness in Denali.

Visitor Use and Experience

Winter and shoulder season visitation across Alaska have increased in recent years, leading to increased visitation and commercial activity and infrastructure development in and around Denali. While the NPS has not been a driving force behind these changes, the NPS has taken actions that are complementary to increasing visitation, including opening a winter visitor center, developing winter trails, and offering commercially guided winter experiences in frontcountry areas. Actions proposed under Alternative 2 would continue to support and manage the expected increasing levels of winter and shoulder season visitation by changing the timing and nature of access to the Park Road, facilitating access to other areas of the park, and providing additional recreation opportunities.

Collectively, these actions and others occurring in and around the park now and in the future will likely change to some degree how visitors use and experience the park. A winter or shoulder season visit in the past would likely have been independent, with little to no supporting services or infrastructure provided by the NPS or other entities. Under Alternative 2, in combination with other actions occurring or likely to occur, winter and shoulder season visitors would have a wider array of services, facilities, and opportunities available to them. The winter and shoulder season visitor experience may incrementally grow more crowded.

In total, Alternative 2 may make the winter and shoulder seasons more accessible to a wider diversity of park visitors and would help the NPS manage the increasing visitation levels driven by past and present actions and forces beyond the control of the NPS. However, Alternative 2 could also displace visitors who appreciate the winter and shoulder seasons for the contrast that they provide to the summer.

Alternative 3: Light Touch

Cumulative impacts under Alternative 3 would be similar to those under the No Action Alternative, in that impacts to wildlife, soundscapes, and wilderness would generally decrease and there would be an overall decrease in the diversity of recreation opportunities available during the winter and shoulder seasons.

However, Alternative 3 also includes beginning tour and transit bus service May 15, approximately five days earlier than under the No Action Alternative. This would in some ways address adverse impacts to wildlife and soundscapes during the time of year when past and present actions have most increased visitation and human activity in and around the park. Alternative 3 would address these impacts to a greater extent than the No Action Alternative, but not to the extent that Alternative 2 does.

Recreation opportunities under Alternative 3 would include groomed trails at the entrance area and shoulder season roadside parking. These recreation opportunities are in keeping with the general increase in visitor services during the winter and shoulder seasons created by past and present actions. Grooming trails in the entrance area of the park would also increase soundscape and wildlife impacts, adding to impacts created by the general increase in activity, traffic, and noise in the area.

This increase would not be as great as the impact from grooming trails in the entrance area and Nenana River area under Alternative 2.

Alternative 4: Additional Plowing

Alternative 4 is substantially similar to Alternative 2, and cumulative impacts would be similar as well, in that noise, activity, recreation opportunities, and human presence would generally increase leading to an overall increase in wildlife, soundscape, and wilderness impacts.

Alternative 4 differs from Alternative 2 in that the Park Road would be plowed to Mountain Vista year-round, and spring road access beginning May 10 would allow private vehicles Monday – Thursday and a shuttle bus Friday – Sunday. Plowing the Park Road to Mountain Vista year-round would expand existing impacts from increases in activity and visitation into a longer portion of the year and provide a motorized sightseeing opportunity in the park throughout the winter. This would likely add to the increases in visitation and business activity created by past and present actions.

Allowing private vehicles access to the Park Road west of the Savage River Monday – Thursday and a shuttle bus Friday – Sunday beginning May 10 would reduce impacts to wildlife and soundscapes to a somewhat lesser degree than under Alternative 2. However, Alternative 4 would not create as great of a change to existing recreation opportunities, namely private vehicle access to the Park Road, as Alternative 2.

Table 2. Summary of Alternative Impacts

Issue	Alternative 1: No Action	Alternative 2: Varied Experiences (Preferred Alternative)	Alternative 3: Light Touch	Alternative 4: Additional Plowing
Wildlife	<p>Reduction in wildlife stress responses due to reduction in noise</p> <p>Reduced potential for human-wildlife interactions on trails and roads</p> <p>Continuation of impacts from spring road use (i.e., wildlife crowding, chasing, few traffic-free periods)</p>	<p>Stress responses in wildlife due to introduced noise from fall/winter road access, trail grooming</p> <p>Increased potential for human-wildlife interactions on the Park Road during the fall and winter</p> <p>Increased potential for human-wildlife interactions on trails, in campgrounds, and in the backcountry</p> <p>Reduced potential for human-wildlife interactions on the Park Road during 10 days of the spring</p>	<p>Stress responses in wildlife due to introduced noise from trail grooming</p> <p>Reduced potential for human-wildlife interactions on the Park Road in winter</p> <p>Increased potential for human-wildlife interactions on groomed trails and in campgrounds</p> <p>Reduced potential for human-wildlife interactions on the Park Road during 5 days of the spring</p>	<p>Stress responses in wildlife due to introduced noise from year-round road plowing, trail grooming</p> <p>Increased potential for human-wildlife interactions on the Park Road year-round</p> <p>Increased potential for human-wildlife interactions on trails, in campgrounds, and in the backcountry</p> <p>Reduced potential for human-wildlife interactions on the Park Road during some spring weekends</p>
Soundscape	<p>Reduction in the frequency, duration, and spatial extent of mechanical noise during the fall and winter</p> <p>Fragmented soundscape due to current spring road access regime unaddressed</p>	<p>Fewer and shorter noise-free intervals on the Park Road during the fall and winter, near groomed trails, and near the Savage and Teklanika campgrounds in the shoulder seasons</p> <p>Longer and more numerous noise-free intervals for 10 days on the Park Road during the spring</p>	<p>Fewer and shorter noise-free intervals on the Park Road near groomed trails and near the Savage and Teklanika campgrounds in the shoulder seasons</p> <p>Longer and more numerous noise-free intervals for 5 days on the Park Road during the spring</p>	<p>Fewer and shorter noise-free intervals on the Park Road year-round, near groomed trails, and near the Savage and Teklanika campgrounds in the shoulder seasons</p> <p>Longer and more numerous noise-free intervals on the Park Road during some spring weekends</p>

Issue	Alternative 1: No Action	Alternative 2: Varied Experiences (Preferred Alternative)	Alternative 3: Light Touch	Alternative 4: Additional Plowing
Wilderness	Reduction in impacts to the natural quality of wilderness and the opportunity to experience solitude More difficult access to wilderness along the road corridor during the shoulder seasons	Wildlife and soundscape impacts from grooming and winter road plowing degrade the natural quality of wilderness character Decreased opportunities for solitude Temporary installation in wilderness decreases the undeveloped quality of wilderness	Wildlife and soundscape impacts from grooming degrade the natural quality of wilderness character	Wildlife and soundscape impacts year-round from grooming and winter road plowing degrade the natural quality of wilderness character Decreased opportunities for solitude Temporary installation in wilderness decreases the undeveloped quality of wilderness
Visitor Use and Experience	Reduced motorized opportunities on the Park Road in the winter and an associated increase in non-motorized opportunities No groomed trail experience available More difficult access to wilderness along the road corridor during the shoulder seasons	More private vehicle access in the fall and winter Less private vehicle access for 10 days in the spring Easier access for non-motorized recreation at Mountain Vista Easier access to backcountry areas in the shoulder seasons Increased opportunities for commercial guiding Groomed trail experiences available Additional opportunities for camping in the shoulder seasons	Reduced motorized opportunities on the Park Road in the winter and an associated increase in non-motorized opportunities Less private vehicle access for 5 days in the spring Easier access to backcountry areas in the shoulder seasons Groomed trail experiences available at the entrance area Additional opportunities for camping in the shoulder seasons	More private vehicle access throughout the year Less private vehicle access during some spring weekends Easier access for non-motorized recreation at Mountain Vista year-round Easier access to backcountry areas in the shoulder seasons Increased opportunities for commercial guiding Groomed trail experiences available Additional opportunities for camping in the shoulder seasons

7 Consultation and Coordination

National Park Service staff consulted:

Alaska Region

Kelly Chang – Chief of Concessions
Sarah Conlin – Planning Portfolio Manager
Mary Hake – Wildlife Biologist
Sharon Kim – Environmental Protection Specialist
Joan Kluwe – Regional Environmental Coordinator
Adrienne Lindholm – Regional Wilderness Coordinator

Denali National Park and Preserve

Elizabeth Beavers – East District Interpretive Supervisor
Davyd Betchkal – Soundscape Scientist
Bridget Borg – Wildlife Biologist
William Clark – Road Ecology Program Manager
Land Cole – Acting Chief of Maintenance
Greg Colligan – Lead Wildlife Technician
Paul Franke – Roads and Trails Supervisor
Erika Jostad – Chief Ranger
Rose Keller – Social Scientist
Kaija Klauder – Wildlife Technician
Landon Labahan – Concessions Specialist
Pat Owen – Wildlife Program Manager
Kristin Pace – Wilderness Coordinator
Dave Schirokauer – Chief of Resources
Miriam Valentine – Chief of External Affairs

Prepared by Jennifer Johnston – Outdoor Recreation Planner

8 References

- Alaska Department of Commerce, Community, and Economic Development, Division of Economic Development. (2018). *Alaska visitor volume report: Fall/winter 2015-16, 2016-17, and 2017-18*. Retrieved from <https://www.commerce.alaska.gov/web/ded/DEV/TourismDevelopment/TourismResearch.aspx>
- Betchkal, D. (2013). *Acoustic monitoring report, Denali National Park and Preserve – 2012*. Natural Resource Data Series NPS/DENA/NRDS—2013/589. National Park Service, Fort Collins, Colorado.
- Betchkal, D. (2015). *Acoustic monitoring report, Denali National Park and Preserve – 2013*. Natural Resource Data Series. NPS/DENA/NRDS—2015/989. National Park Service. Fort Collins, Colorado.
- Burrows, R., J. Tricker, D. Abbe, P. Landres, J. Paynter, D. Schirokauer, and P. Hooge. (2016). *Mapping wilderness character in Denali National Park and Preserve: Final report*. Natural Resource Report NPS/DENA/NRR—2016/1223. National Park Service, Fort Collins, Colorado.
- Burson, S.L., J.L. Belant, K.A. Fortier, and W.C. Tomkiewicz III. (2000). The effect of traffic on wildlife in Denali National Park. *Arctic*, 53(2), 146-151.
- Creel, S.C., E.F. Fox, A. Hardy, J. Sands, B. Garrot, and R.O. Peterson. (2002). Snowmobile activity and glucocorticoid stress responses in wolves and elk. *Conservation Biology*, 16(3), 809-814.
- Denali Borough, Alaska. (2018). *Denali Borough Land Use and Economic Development Plan*. Retrieved from <https://www.denaliborough.org/index.asp?SEC=DEEA5B13-7CD5-457B-ADD9-7053B7479F92&DE=1C661A41-391B-4673-BE19-597AF5983393>
- James, A.R.C., and A.K. Stuart-Smith. (2000). Distribution of caribou and wolves in relation to linear corridors. *Journal of Wildlife Management*, 64(1), 154-159.
- Menge, C.W., Ross, J.C. and Ernenwein, R.L. (2002). *Noise data from snowmobile pass-bys: The significance of frequency content* (No. 2002-01-2765). SAE Technical Paper.
- National Park Service. (1997). *Denali National Park and Preserve entrance area and road corridor development concept plan* (GPO Publication No. 1997-843-305).
- National Park Service. (2006a). *2006 management policies*. (GPO Publication No. 0-16-076874-8).
- National Park Service. (2006b). *Denali National Park and Preserve final backcountry management plan*. Retrieved from <https://irma.nps.gov/DataStore/Reference/Profile/654189>
- National Park Service. (2007). *Denali National Park and Preserve road design standards*. Unpublished report.

- National Park Service. (2012). *Denali park road final vehicle management plan and environmental impact statement*. Retrieved from <https://irma.nps.gov/DataStore/Reference/Profile/2259344>
- National Park Service. (2013). *2011 Denali National Park and Preserve visit characteristics*. (Natural Resource Technical Report NPS/AKR/NRTR-2013/669. Prepared by Fix, P.J., Ackerman, A., and Fay, G.
- National Park Service. (2014). *Denali National Park and Preserve Foundation Statement*.
- National Park Service. (2017a). *Denali National Park and Preserve Commercial Services Strategy*. Retrieved from <https://www.nps.gov/dena/getinvolved/upload/Denali-Commercial-Services-Strategy.pdf>
- National Park Service. (2017b). *Denali Wilderness Character Narrative*. Unpublished report.
- National Park Service. (2019a). [Denali National Park and Preserve backcountry permit database]. Unpublished raw data.
- National Park Service. (2019b). *Denali National Park and Preserve spring visitor use: Spring visitor experience survey and road ecology collaborative study*. Unpublished report.
- National Park Service. (2019c). *Denali National Park and Preserve Winter and Shoulder Season Plan*. Retrieved from <https://parkplanning.nps.gov/projectHome.cfm?projectID=83470>
- National Park Service. (2019d). *Denali National Park and Preserve winter visitor use: Winter visitor experience survey and early road opening collaborative study*. (Natural Resource Report NPS/DENA/NRR-2019/1893). Prepared by Aberg, M., Keller, R., and Clark, W.C.
- National Park Service. (2019e). *National Park Service visitor use statistics*. [Online dataset]. Retrieved from <https://irma.nps.gov/Stats/>
- Phillips, L.M., & Meier, T. (2010). Assessing impacts of traffic on large mammals in Denali National Park and Preserve. *Park Science*, 27(2), 42-47.
- Priede, J. (1971). Origins of automotive vehicle noise. *Journal of Sound and Vibration*, 15(1), 61-73.
- Singer, F.J, and J.B. Beattie. (1986). The controlled traffic system and associated wildlife responses in Denali National Park. *Arctic*, (39), 195-203.
- Toubman, J. (2019). *Denali National Park and Preserve 2019 trail counter report*. Unpublished report.
- Toubman, J., Borg, B., Clark, WC., and Schirokauer, D. (2015). *Winter road plowing in Denali National Park and Preserve: Monitoring 2014-2015*. Natural Resource Data Series NPS/DENA/NRDS—2015/790. National Park Service, Fort Collins, Colorado.

Appendix A: ANILCA Section 810(A) Subsistence – 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 evaluations of potential restrictions to subsistence activities which could result from constructing facilities and implementing management decisions to provide increased access and visitor opportunities in Denali National Park and Preserve (Denali) during the winter and shoulder seasons (approximately mid-September to mid-May).

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) for the following purposes:

"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

The proposed action and alternatives to the proposed action are described in detail in the accompanying Environmental Assessment.

A. Alternative 1 – No Action

If no action is taken, no additional infrastructure or visitor services would be provided. Any actions currently undertaken by the NPS on a provisional basis (e.g., trail grooming, shoulder season roadside parking, winter road plowing) would stop at the conclusion of the 2019/2020 winter season. Management of the fall road closure would continue as it has in the past, with the first winter weather of the season closing the Park Road at Headquarters until spring road opening operations commence, typically in mid-March. No facilities or trails would be developed in the Mountain Vista area. There would not be additional guided snowshoe and ski opportunities in some portions of the Denali wilderness. Vehicle access to the Park Road in the spring would continue as at present, with tour buses beginning in mid-May and private vehicle traffic allowed to the Teklanika rest area until around May 20 at the beginning of the summer season. There would be no additional shoulder season access to the Savage and Teklanika campgrounds. No temporary facilities would be installed at the Teklanika rest area. Desired conditions would continue to be provided by previously

approved park planning documents without the additional seasonally specific nuance described in the 2019 *Winter and Shoulder Season Plan*.

B. Alternative 2 – Varied Experiences (Proposed Action and Preferred Alternative)

- Allow private vehicle access to the Park Road after the first winter weather event of the fall
- Plow a portion of the Denali Park Road (Park Road) during winter months
- Allow guiding for non-motorized winter recreation in some areas of the Denali wilderness
- Groom trails in the park entrance area, and potential trails in the Nenana River area
- Install a seasonal bridge near Mountain Vista to facilitate access to traditional winter routes
- Create a connector trail for mushing access at the Mountain Vista rest area
- Allow concessioner transit and tour bus service May 10

Additionally, the following actions would be taken in any of the action alternatives (Alternatives 2, 3, and 4):

- Allow parking on the Park Road for private vehicles during the shoulder seasons
- Open the Savage River and Teklanika campgrounds earlier in the spring and later into the fall
- Install facilities at the Teklanika rest area including parking lines, signs, and informational kiosks
- Provide seasonally specific nuance to established desired conditions

C. Alternative 3 – Light Touch

In the fall under Alternative 3, the road would continue to close at Headquarters with the first winter weather, only opening again with spring road opening, typically in April.

No winter plowing would take place west of Headquarters, and therefore no bridge or mushing access would be established at Mountain Vista. No additional commercial guiding in wilderness areas would be allowed. Grooming of trails in the entrance area could continue but would not occur on any trails developed in the Nenana River area.

In the spring, private vehicles would be allowed to drive to the Teklanika rest area until May 15. Beginning May 15, tour buses and transit shuttle buses would operate to the Teklanika rest area, and buses operating beyond the allocation season (approximately Memorial Day – mid September) would be managed according to standards established in the 2012 Vehicle Management Plan. The normal summer season and transit service west of Teklanika would begin May 20.

D. Alternative 4 – Additional Plowing

Alternative 4 is substantially similar to Alternative 2: Varied Experiences. The differences between Alternative 2 and Alternative 4 concern winter road plowing and vehicle access to the Park Road in the spring.

Under Alternative 4, the Park Road would be plowed open for public access as far west as the Mountain Vista rest area year-round. Because of this, the road would not close at Headquarters in the fall.

Additionally, vehicle access to the Park Road in the spring would be managed differently than under Alternative 3. Beginning May 10, tour buses would operate to the Teklanika flats turnaround. Private vehicles would continue to have access to the Teklanika rest area Monday – Thursday. A free or low-cost shuttle would operate to the Teklanika rest area Friday, Saturday, and Sunday. Buses operating beyond the

allocation season (approximately Memorial Day – mid September) would be managed according to standards established in the 2012 Vehicle Management Plan. All private vehicle traffic would be restricted west of the Savage River and transit service would operate west of the Teklanika rest area beginning May 20.

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, 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 and Telida use park and preserve lands for trapping and occasional moose hunting along area rivers. Nikolai is a growing community and has used park resources in the past. Cantwell 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.

Primary subsistence species, by edible weight, are moose, caribou, furbearers, and fish. Varieties of subsistence fish include Coho, King, Pink and Sockeye salmon. 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. Shed (discarded) animal parts and plants are collected and used for subsistence purposes. Rock and willow ptarmigan, grouse, ducks and geese are important subsistence wildlife resources. Wild berries are also commonly harvested for subsistence use near the project site.

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.

The proposed actions take place in the former Mount McKinley National Park, which is closed to subsistence use.

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:

1. the potential to reduce important subsistence fish and wildlife populations by (a) reductions in abundance; (b) redistribution of subsistence resources; or (c) habitat losses;
2. the effect the action might have on subsistence fishermen or hunter access;
3. the potential for the action to increase fisherman or hunter competition for subsistence resources.

A. 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.

All the proposed actions and alternatives to the proposed actions take place within the former Mount McKinley National Park, which is closed to subsistence use. Although some components of the proposed action may adversely affect individual moose, caribou, or members of other wildlife species, the wildlife effects of the proposed action are not anticipated to reduce overall wildlife populations.

B. 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.” The proposed alternatives, which primarily involve the former Mount McKinley National Park, are not expected to significantly restrict traditional subsistence use patterns on federal public lands within the region. Components of the proposed action which involve lands beyond the former Mount McKinley National Park (i.e., establishing desired conditions, allowing additional non-motorized winter guiding) will not restrict access for subsistence purposes.

C. Increase in Competition:

The proposed alternatives are not expected to significantly increase competition for subsistence resources on federal public lands within the region, and the proposed alternatives do not restrict in any way the taking of subsistence resources or allow other users to take subsistence resources. Provisions of ANILCA and NPS regulations mandate that when it is necessary to restrict the taking of fish or wildlife, subsistence users will have priority over other user groups.

VI. Availability of Other Lands

The proposed project is site-specific to lands within Denali National Park and Preserve, because the proposed actions involve visitor services within the park. It is determined that no other federally managed lands would be suitable for this project. The proposed action is consistent with the mandates of ANILCA, including Title VIII, and the NPS Organic Act.

VII. Alternatives Considered

Alternative options for winter and shoulder season visitor services were discussed and detailed in the Environmental Assessment. All alternatives discussed occur generally within the same geographic area primarily within the former Mount McKinley National Park, which is closed to subsistence use. Although some of the alternatives considered would have somewhat greater or lesser impacts to wildlife resources, it is not anticipated that any of the considered alternatives would have an appreciable impact on subsistence resources or adjacent federally managed lands.

VIII. Findings

This analysis concludes that the proposed action and considered alternatives will not result in a significant restriction of subsistence uses.

Appendix B: Extent Necessary Determination

COMMERCIAL SERVICES FOR NON-MOTORIZED WINTER ACTIVITIES IN DENALI WILDERNESS

Introduction

The purpose of this document is to determine the extent to which commercial services for non-motorized winter recreation are necessary to realize the purposes for which the Denali Wilderness was established. This Extent Necessary Determination (END) was prepared according to guidance in Reference Manual (RM) 41: Wilderness Preservation and Management and fulfills requirements for allowing commercial use in wilderness under the 1964 Wilderness Act. This END addresses commercial activity associated with non-motorized winter recreation in both designated and eligible wilderness areas in Denali National Park (Denali) and will be used to inform park decision-making, such as environmental assessment processes. The *2006 Denali Backcountry Management Plan* (BCMP) acts as a wilderness stewardship plan for Denali and provides some preliminary guidance on commercial activity in park wilderness areas. An END for the Denali wilderness acts as an amendment or addendum to the BCMP.

There are four primary sections in the END:

- Part 1. Law, policy, and planning guidance.** This section briefly outlines some of the key regulations, policies, and previous park planning efforts that shape management of commercial activity in Denali National Park.
- Part 2. Define activities that are appropriate in wilderness.** This section defines the activities covered by this END and discusses their appropriateness in wilderness.
- Part 3. Analysis of the need for commercial services.** This section analyzes whether commercial support for the activities covered by this END is necessary.
- Part 4. Determination of the extent to which commercial services are necessary.** This section uses the analysis conducted in the previous section to determine the amount of commercial use that is necessary and appropriate in wilderness for the activities this END addresses.

Part 1: Law, Policy, and Planning Guidance

The Wilderness Act of 1964

The Wilderness Act of 1964 (Wilderness Act) secured for our nation an enduring resource of wilderness. Wilderness areas included in the National Wilderness Preservation System are to be administered for the use and enjoyment of the American people in such manner as will leave them unimpaired for future use and enjoyment as wilderness. The wilderness character of these areas is to be preserved.

In order to achieve these goals, the Wilderness Act includes a series of prohibitions related to particular activities. These prohibitions include to mining, permanent road construction, motorized equipment, landing of aircraft, installation of structures, and commercial enterprise. With regard to commercial services in wilderness, Section 4(d)(5) of the Wilderness Act states, “Commercial services may be performed within the wilderness areas designated by this Act to the extent necessary for activities which are proper for realizing the recreational or other wilderness purposes of the areas.” The “purposes” referred to in Section 4(d)(5) are those purposes enumerated in Section 4(b) of the Act, and include recreational, scenic, scientific, educational, conservation, and historical use.

National Park Service Wilderness Policies

In addition to the Wilderness Act, the National Park Service’s (NPS) management of wilderness areas is guided by the 2006 NPS Management Policies (§6.4.4), Director’s Order 41 and Reference Manual 41. The Management Policies state that commercial services such as guiding that “...contribute to public education and visitor enjoyment of wilderness values or provide opportunities for primitive and unconfined types of recreation may be authorized if they meet the ‘necessary and appropriate’ tests of the National Park Service Concessions Management Improvement Act of 1998 and Section 4(d)(5) of the Wilderness Act..., and if they are consistent with the wilderness management objectives contained in the park’s wilderness stewardship plan, including the application of the minimum requirement concept.” The application of the “minimum requirement” concept to commercial services is reemphasized in Director’s Order 41. Director’s Order 41 requires the NPS to prepare a documented determination setting forth the types and amounts of commercial services that are necessary to realize wilderness purposes. This END satisfies Director’s Order 41 requirements.

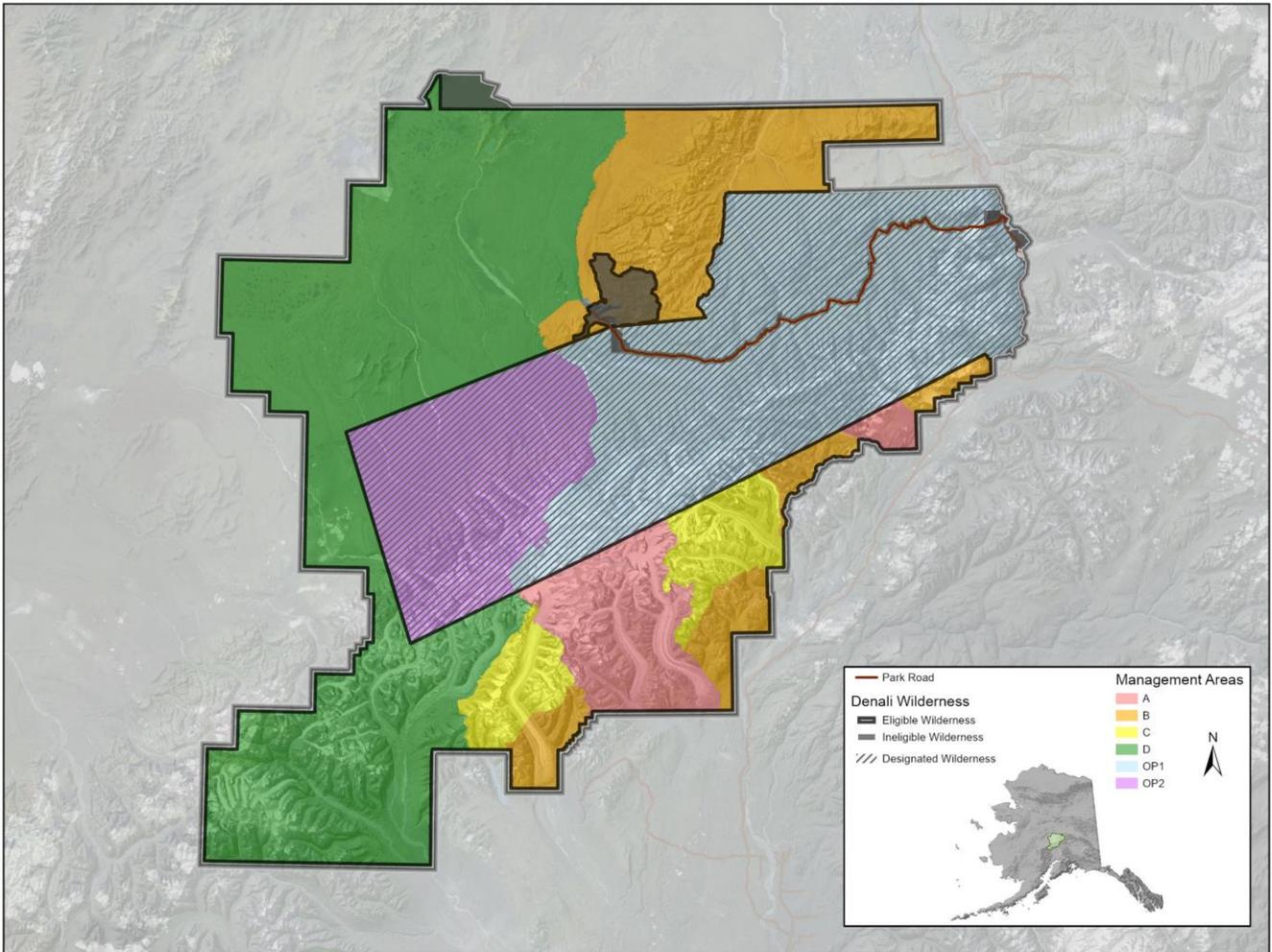
2006 Denali Backcountry Management Plan (BCMP)

Guidance from Director’s Order 41 indicates that an Extent Necessary Determination should be undertaken as part of a larger planning effort. This section of the END is intended to explain the relationship between the END and the associated planning effort – in this case, the *2006 Denali Backcountry Management Plan (BCMP)*.

The goal of the BCMP is to describe how the National Park Service will act to provide future generations with a variety of opportunities to experience the Denali backcountry while protecting

park wildlife and other natural resources, wilderness resource values, and subsistence resources. The BCMP addresses all non-frontcountry areas of the park, including designated and eligible wilderness.

The BCMP established management areas in the park with associated standards and monitoring protocols to ensure attainment of desired visitor experience and resource conditions. These management areas are depicted in Appendix B Figure 1 and are used throughout this END to determine whether and to what extent commercial services may be necessary in different areas of the park.



Appendix B, Figure 1. Management areas in Denali National Park and Preserve eligible, ineligible, and designated wilderness areas.

Additionally, the BCMP provides specific direction on commercial services in the Denali backcountry that further clarifies guidance provided in NPS policies and the Wilderness Act. Key principles from the BCMP pertaining to commercial use include:

- Commercial services are necessary and/or appropriate in the Denali backcountry if they depend on the unique character and environment of the Denali backcountry, and the same experience cannot be found on nearby public lands
- In the 1980 park additions and preserve (New Park) if a guided commercial activity takes place in an area where the numbers of visitors are limited, the allowable number of parties or visitors participating in the guided activity would be no more than 50% of the total potential use of the area during any visitor season (summer/winter) in order to allow for non-guided uses
- In the Old Park (former Mount McKinley National Park), the number of parties or visitors participating in the guided activity would be no more than 25% of the total potential use of the area during any visitor season (summer/winter) where such use is allowed
- Among commercial and educational programs, programs provided directly by the National Park Service and the Murie Science and Learning Center would have priority for available capacity
- To avoid adverse effects to resources, the NPS would be conservative in making available guided activities and similar educational programs

Purposes for which the Denali Wilderness was Established

The Denali Wilderness was formally designated in 1980 for recreational and other purposes. An Act of Congress designated this park in 1917 and it instructed park managers to craft "regulations being primarily aimed at the freest use of the said park for recreation purposes by the public and for the preservation of animals, birds, and fish and for the preservation of the natural curiosities and scenic beauties thereof" (Mount McKinley National Park Act, 1917).

Over the years, additional regulations impacted the size and management of the park, most significantly the passage of ANILCA (Alaska National Interest Lands Conservation Act) in 1980. ANILCA designated the Denali Wilderness of approximately 2.1 million acres. This area amounts to 99% of what is known as the Old Park or the former Mount McKinley National Park. Wilderness eligibility studies in the 1980s established a further 3.7 million acres of the park as eligible for wilderness designation. According to the 2006 NPS Management Policies, eligible wilderness areas must be managed to preserve their ability to be formally designated as wilderness.

Section 101 of ANILCA describes the broad purposes of the new conservation system units throughout Alaska, including enlarged national parks and preserves such as Denali. These purposes are:

- Preserve lands and waters for the benefit, use, education, and inspiration of present and future generations
- Preserve unrivaled scenic and geological values associated with natural landscapes
- Maintain sound populations of, and habitat for, wildlife species

- Preserve extensive, unaltered ecosystems in their natural state
- Protect resources related to subsistence needs
- Protect historic and archeological sites
- Preserve wilderness resource values and related recreational opportunities such as hiking, canoeing, fishing, and sport hunting
- Maintain opportunities for scientific research in undisturbed ecosystems
- Provide the opportunity for rural residents engaged in a subsistence way of life to continue to do so

Additionally, Denali’s Foundation Statement identifies wilderness recreation as an element of park significance.

Part 2: Define Activities that are Appropriate in Wilderness

For a commercial service to be considered a necessary form of support for an activity, that activity must be appropriate for realizing wilderness purposes. Any activity that occurs in designated wilderness must first be of a type that does not violate the prohibitions of section 4(c) of the Wilderness Act on the use of motor vehicles, motorized equipment or motorboats, the landing of aircraft, or other forms of mechanical transport, subject to allowances under ANILCA. NPS Management Policies 6.4.3 states that recreational uses in wilderness will be of a nature that:

- Enables the areas to retain their primeval character and influence;
- Protects and preserves natural conditions;
- Leaves the imprint of man’s work substantially unnoticeable;
- Provides outstanding opportunities for solitude or primitive and unconfined types of recreation; and
- Preserves wilderness in an unimpaired condition.

This END is specific to non-motorized winter recreation in both eligible and designated wilderness in Denali. The park defines non-motorized winter recreational activities as limited to the following two categories for the purposes of this END:

1. Skiing and Snowshoeing

Definition

Skiing and snowshoeing are non-motorized activities whereby travel over snow is facilitated by skis or snowshoes. Skiing includes both cross country or Nordic skiing as well as alpine or downhill skiing. Skijoring, when a skier is pulled by one or more dogs, is also included. Visitors may engage in these activities without spending the night in the park (day use), or over multiple days with one or more nights spent in the park.

Ski mountaineering or alpine touring in a mountaineering environment (i.e., activities that involve rock, ice, or snow climbing and/or glacier travel requiring the use of ropes, ice axes, harnesses, climbing hardware, and/or crampons, etc.) are not considered in this END. A 2011 environmental assessment and an associated 2012 END address the necessary extent of guided mountaineering on the Denali massif.

Determination of Appropriateness

In order to travel in the Denali wilderness for much of the year, snowshoes or skis are required. Visitors can currently check out snowshoes at the winter visitor center, a popular activity. Local residents and visitors ski or snowshoe to experience Denali, though backcountry use in Denali is much lower in winter than during summer months. Downhill ski touring in areas accessible from the open part of the park road is common among a small number of local residents. Cross-country skiing also is popular among independent visitors and clients of the dog mushing concessioner.

In this park that experiences long months of winter and promotes self-reliant recreation, skiing and snowshoeing are appropriate activities for realizing wilderness purposes. The BCMP supports guided day and multi-day ski and snowshoe trips in the new park areas and preserve (New Park).

2. Dog Mushing

Definition

Dog mushing (i.e., mushing or dogsledding) is a non-motorized activity whereby one or more dogs pull a sled over snow ridden by one or more people. This END addresses commercial dog mushing when guided visitors are involved in the mushing themselves and while traveling by ski or snowshoe supported by dog mushers, as well as dog mushing in support of other non-motorized winter recreation (i.e., freight hauling by dogsled). Visitors may engage in these activities without spending the night in the park (day use), or over multiple days with one or more nights spent in the park.

Determination of Appropriateness

The wilderness areas of Denali are steeped in the history of dog mushing. The park's first superintendents, park rangers and wildlife biologists all traveled the park via dogsled. Alaska Natives and later the homesteaders who made this land their home traveled by dogsled. The tradition continues today with the Denali Kennel, the only operating dogsled kennel in the NPS. Current use is dominated by the dogsled concessioner and the park kennel, with occasional private use.

Dog mushing is an appropriate activity for realizing wilderness purposes of Denali. The BCMP supports guided dog mushing expeditions and dogsled freight hauling services in the Old Park, New Park, and preserve.

A Note about Camping

Each of the non-motorized winter recreational activities discussed in this END could take place as day use, without any nights spent in the park, or as multiday activities requiring overnight stays in the

park. It is important to note that while this END acknowledges that overnight use of park wilderness areas requires camping, guided winter camping in and of itself is not an activity covered by this END. Overnight use of the park by commercial groups is incidental to the activities described in this END (snowshoeing, skiing, and dog mushing), and is not addressed as a separate wilderness-dependent activity. It is expected that guides will travel with clients or in support of clients and that camping equipment will be removed from the park at the conclusion of each overnight trip.

Any camping associated with the activities described in this END would have to be conducted in a manner that follows Leave No Trace principles and does not degrade park resources. The BCMP outlines desired conditions for park resources and the visitor experience, and any overnight camping associated with the activities addressed in this END should not have a negative impact on these desired conditions.

Part 3: Analysis of the Need for Commercial Services

This portion of the END represents a comparative and qualitative analysis of the relevant factors and determines whether commercial services are necessary to support primitive recreation in Denali National Park and Preserve. The non-motorized winter recreation activities appropriate in wilderness covered by this document (skiing, snowshoeing, mushing) are analyzed in the context of park management areas and desired conditions established by the *2006 Backcountry Management Plan* and depicted in Appendix B Figure 1.

A variety of factors inform the decision as to whether commercial services are necessary for these wilderness activities. Factors evaluated in this analysis include:

1. Does the commercial use have to occur in wilderness?
2. Are there safety concerns for which commercial support is the best solution?
3. Are there special resource concerns for which commercial support is the best solution?
4. Are there visitor use management concerns for which commercial support is the best solution?
5. Are introductory experiences appropriate?
6. Is commercial provision of non-motorized winter recreation supported in management documents?

In the final portion of this need analysis, these factors are balanced against one another so that wilderness character is preserved to the greatest extent.

1. Does the commercial use have to occur in wilderness (i.e., could you get the same experience elsewhere with a commercial provider outside of wilderness)?

When assessing whether an activity such as commercial provision of non-motorized winter recreation is necessary and appropriate within a wilderness area, the first crucial question comes from the philosophy of minimum requirements analysis: can this be accomplished outside of wilderness?

For the purposes of the END, this question is intended to address whether the activity is dependent on the specific wilderness area under analysis, and whether the same experience could be commercially offered outside of wilderness.

Expanses of wild lands are common in interior Alaska. Denali is bordered by or is close to state parks, other state lands, municipal land, and land managed by other federal agencies. Though it may not be formally designated as wilderness, much of this publicly accessible land retains a high degree of wilderness character, and the variance in how these lands are managed provides for a wide range of opportunity for recreational uses in the area.

The former Mount McKinley National Park (Old Park) area of Denali is somewhat exceptional in Alaska in that snowmachine use is not allowed.

Analysis by Management Area

OP1, Backcountry Hiker

- Yes, non-motorized winter recreation activities are dependent on the unique wilderness here and the same experience could not happen elsewhere

OP1 is managed to provide opportunities for day use and overnight wilderness recreation activities that are remote and require self-reliance in areas that have limited opportunities for motorized access. Visitors should encounter little evidence of human use although they may encounter other visitors, including large groups. The Backcountry Hiker management area is intended to provide day use trails into the backcountry in areas that are accessible to many visitors. Visitors could frequently see evidence of human use and are expected to encounter other visitors, possibly including large groups.

In Alaska, the Denali winter recreation experience in OP1 and existing Backcountry Hiker areas is unique. Recreational snowmachine use is generally allowed on state land in Alaska and is allowed for traditional activities and travel to homesites under ANILCA on some federal lands, including new park additions and preserve areas in Denali. In contrast to the wide use of snowmachines on surrounding lands, snowmachine use is prohibited in the former Mount McKinley National Park, of which OP1 and existing Backcountry Hiker areas are a part. This provides a degree of solitude and wilderness character in the OP1 and Backcountry Hiker management areas during winter that is difficult to find elsewhere.

OP2, D

- Yes, non-motorized winter recreation activities are dependent on the unique wilderness here

These areas are managed for extended expeditions that are remote and require self-reliance. While other remote lands exist near the park, these other lands may still be accessible by snowmachine, or may have more evidence of other modern human use and impacts. The remote nature of the OP2 and

D management areas in combination with the restrictions on motorized access and uses makes the primitive recreation experience in these areas of Denali unique.

A, B, C

- No, non-motorized winter recreation activities are not dependent on the unique wilderness here

These areas are managed to be accessible to all users. They are also managed to provide for a variety of experiences including hiking and climbing, and for introductory experiences. The access and uses in these areas are similar to those that can be found outside of the park boundary.

2. Are there safety concerns related to the activity itself (rather than the wilderness setting for the activity) for which commercial support is the best solution?

Any recreational activity taking place in wilderness carries some degree of risk. The NPS does not try to eliminate this risk, and wilderness areas in particular should not be managed or modified to produce a safer, more sanitized experience. As the 2006 NPS Management Policies state, “park visitors need to accept wilderness on its own unique terms” (§6.4.1).

Although wilderness itself presents challenges and dangers that the NPS should not manage away, some recreation activities present risks inherent in the activity, rather than the wilderness setting of the activity, that the NPS can mitigate. Commercial support for these activities can be one way to mitigate safety concerns.

Analysis

Non-Motorized Winter Recreation Activities

- Yes, commercial support could mitigate the risks associated with non-motorized winter recreation activities

Winter travel requires highly specialized skills and knowledge to participate in safely. Dogsledding in particular requires a great deal of equipment and skill for safe participation that is not easily acquired. Other forms of winter travel in Denali necessarily require exposure to the Interior Alaska winter, where extended periods of darkness and intense cold are common. Although the NPS cannot and should not attempt to change the conditions that winter travelers are exposed to (i.e., change the nature of the wilderness itself), commercial support for winter activities could be one way to mitigate the safety concerns presented by engaging in non-motorized recreation activities during winter months (i.e., change the way the activity is conducted), especially for visitors unfamiliar with extreme winter conditions.

3. Are there special resource concerns for which commercial support is the best solution?

Non-motorized winter recreation, like any human activity, has the potential to adversely impact the setting in which it takes place. In Denali National Park, for example, the largely trail-less wilderness is susceptible to vegetation trampling and informal trail creation. Although snow cover lessens many of the potential resource impacts from recreation during winter months, improper waste disposal and informal trail creation has the potential to adversely impact the wilderness year-round.

Although Denali's wilderness resources may be impacted by recreation, it does not automatically follow that these are special resource concerns, or that commercial support is necessary to address resource impacts. Indeed, current levels of non-motorized winter recreation are relatively low in many areas of the park. In wilderness settings where use is relatively low, and particularly in trail-less settings, dispersal of use is the preferred management tactic to mitigate resource impacts rather than the concentration of use that is associated with commercial services (Marion, 2016; Monz, Pickering, & Hadwen, 2013). Denali has been recognized as managing wilderness recreation particularly effectively through dispersed use (Leung & Marion, 2000), though there are some areas of concern related to informal trail creation during summer months (NPS, 2012; NPS, 2019a; Stamberger, van Riper, Keller, Brownlee, & Rose, 2018).

Analysis by Management Area

OP1, OP2, A, B, C, D, Backcountry Hiker

- No, there are not special resource concerns for which commercial support is the best solution

The vast majority of these areas receive very low levels of winter recreation use, and there are no special resource concerns related to that use for which commercial support would be the optimal remedy. Furthermore, the actions outlined in the BCMP to manage access in the event of resource concerns does not include commercial support for recreation (NPS, 2006b).

Additionally, commercial provision of recreation tends to concentrate, rather than disperse, use. In Denali, the average group of overnight users during winter months is two people (NPS 2019b). Guided groups, which include clients and guides, are typically larger, and larger group size is related to a greater degree of impacts to the landscape. This is particularly true in areas with dispersed use, such as Denali (Monz, Roggenbuck, Cole, Brame, & Yoder, 2000). Furthermore, encounters with other groups and especially large groups can negatively impact the visitor experience (Manning, 2011). Resource impacts from concentrated use associated with commercial operations during summer months have already been noted in Denali (NPS, 2015). Because of impacts due to the repetitive commercial nature of the activity and the associated concentration of use, commercial provision of non-motorized winter recreational activities is unlikely to be an appropriate tool to mitigate resource impacts.

4. Are there visitor use management concerns for which commercial support is the best solution?

Wilderness character is fragile and may be negatively impacted by the recreational activities of those who seek to experience wild landscapes. Visitor use management in wilderness employs a variety of strategies and tools to manage recreational use in order to protect both the quality of wilderness character and the experiences of wilderness recreationists. Commercial provision of recreational opportunities can be one tool that may help manage visitor use to achieve and maintain desired conditions.

Commercial providers, for instance, can influence the timing, location, and nature of recreational activity in ways that can otherwise be difficult to effect. Guided recreation is one way to manage use when desired conditions have been damaged by too much use, use in the wrong areas, or improper use by inexperienced recreationists or those who disregard rules (Marion, 2016). However, when desired conditions are being met with existing, non-commercial use patterns, commercial use in wilderness for the purpose of visitor use management may be unnecessary.

Commercial services could also be unnecessary when other management actions are adequately managing visitor use. In Denali National Park, the BCMP stipulates that visitor use in wilderness areas will be managed using the least restrictive means possible to ensure desired conditions are met. Management of commercial activity is on the list of possible visitor use management actions as more restrictive, and therefore less preferable, than education, increased enforcement of existing regulations, voluntary restrictions, required registration, and technology requirements or other requirements governing means of access (NPS, 2006b).

Analysis by Management Area

OP1, OP2, A, B, C, D, Backcountry Hiker

- No, there are no visitor use management concerns for which commercial support is the best solution

The vast majority of these areas receive very low levels of non-motorized winter recreation use and desired resource and visitor experience conditions are adequately met with existing management actions (NPS, 2014a). There are no visitor use management concerns in these areas for which commercial support would be the optimal remedy.

OP1 receives a greater amount of recreational use, and informal trails related to summer use have been a concern for a number of years (NPS, 2014a; NPS 2014b; Stamberger et al., 2018).

Commercial provision of primitive recreation could be one tool to manage the visitor use that creates informal trails. However, due to the concentration of use associated with commercially provided primitive recreation as well as the direction provided by the BCMP, commercial support may not be the best solution to this visitor use management concern.

5. Are introductory experiences appropriate?

Commercial service providers can assist to visitors who lack the experience or confidence to attempt a wilderness adventure on their own. These types of trips can introduce a diverse public to a variety of ways to experience their public wildlands. However, not all wilderness areas may be appropriate for introductory or beginner experiences. Wilderness must be approached and managed with humility and restraint, including the recognition that some wilderness areas may not be accessible to all who do not have prior wilderness experience. This is particularly true in some areas of the Denali Wilderness, which are specifically managed to require self-reliance. For the activities that have been deemed appropriate in wilderness, we will examine whether introductory winter experiences are appropriate in the existing management zones of Denali National Park.

Analysis by Management Area

OP1

- Yes, introductory experiences are appropriate here

Management Area OP1 encompasses the majority of the former Mount McKinley National Park and most of the designated wilderness in present-day Denali National Park. This area is managed to provide opportunities for “wilderness recreational activities that are remote and require self-reliance.”

This may indicate that introductory experiences would not be appropriate here. However, this area differs in important ways from other areas that are managed for self-reliance. First, OP1 is much more accessible than other areas of the park, due to the 92-mile Denali Park Road that nearly bisects the management area. This road facilitates access particularly in the summer months, when shuttle service takes visitors to any destination along the park road. Although access via the Park Road is not as easy in winter months, OP1 is different from other park areas in its proximity to the park entrance area and the information and services available there. OP1 is also intended to provide opportunities for day use and is managed to provide medium to high accessibility and to allow for encounters with large groups. Taken together, the accessibility and management direction for OP1 indicated in the BCMP suggest that introductory experiences may be appropriate here.

OP2, D

- No, introductory experiences are not appropriate here

Both management areas OP2 and D are managed for extended expeditions that are remote and require a high degree of self-reliance, significant time commitment, and thorough advance planning. This indicates that introductory experiences are not appropriate here, and that other areas of the park would be more appropriate for those beginning to try non-motorized winter recreation. Indicators for social conditions in these management areas also specify that accessibility should be low, and visitors should not expect to encounter large groups in either management area OP2 or D. Introductory experiences are therefore inappropriate in these areas.

A, B, Backcountry Hiker

- Yes, introductory experiences are appropriate here

Each of these management areas is managed to provide wilderness experiences to diverse groups of recreationists, including day users and those engaging in winter recreation involving overnight stays. These management areas, with the exception of management area B, are also expressly managed to be accessible to many users. This indicates that beginners seeking introductory experiences ought to be accommodated in these management areas, as well as more experienced recreationists.

C

- Yes, introductory experiences are appropriate here

In Denali's BCMP, management area C is managed specifically to provide wilderness climbing and mountaineering experiences. Although access is managed to be very low to low, encounters with large groups, including perhaps guided groups, are possible in management area C. The terrain in this area is likely too challenging for most beginners engaged in non-motorized winter recreation. The mountainous and heavily glaciated nature of the regions of the park in management area C, combined with the relative difficulty of access indicate that most beginners would choose to recreate elsewhere. However, provided that recreationists can access this area, management direction does not preclude introductory experiences here.

6. Is commercial provision of primitive recreation supported in management documents?

The 2006 Backcountry Management Plan guides management of the wilderness areas in Denali National Park and outlines where commercial use is and is not supported. The following analysis is based from guidance from the BCMP.

Analysis by Management Area

OP1, OP2

- Yes, management documents support commercial provision of dog mushing activities

The only commercial non-motorized winter recreation activities supported by management documents in these areas are dog mushing expeditions and dog team freight hauling services. Guided snowshoeing and skiing are not supported in these areas by management documents.

A

- Yes, management documents support commercial provision of all non-motorized winter recreation activities considered

Commercial provision of all winter recreation activities considered in this END (snowshoeing, skiing, dog mushing) is supported in management documents. Additionally, any new activity or

service not discussed in the BCMP could only be considered in Management Area A. According to park management documents, Management Area A is the area of the park that is most permissive with commercial services.

B, C, D

- Yes, management documents support all non-motorized winter recreation activities considered

The BCMP supports commercial support for “existing” uses in these areas. This includes guided snowshoeing, skiing, and mushing.

Backcountry Hiker

- Yes, management documents support commercial provision of dog mushing activities

Because the trails in the Backcountry Hiker management area are all within the Old Park (former Mount McKinley National Park), dog mushing would be supported as it is approved for the entirety of the Old Park.

Summary table of commercial use supported by the BCMP

	A	B	C	D	OP1	OP2	BCH
Skiing	x	x	x	x			
Snowshoeing	x	x	x	x			
Mushing	x	x	x	x	x	x	x

Necessity Summary

OP1

Wilderness Dependent?	Safety Concerns?	Resource Concerns?	Visitor Use Management?	Introductory Experiences?	Supported in documents?
Yes	Yes	No	No	Yes	<ul style="list-style-type: none"> • Snowshoeing, skiing = No • Mushing = Yes

- Yes, commercial support for non-motorized winter recreation is necessary

Commercial support for non-motorized winter activities is necessary. The lack of motorized use in OP1 in the winter makes experiences here unique in the state, and entirely dependent on the wilderness character of this area. Additionally, commercial services could mitigate the hazards presented by non-motorized recreation in the Denali winter in an area that is managed to provide introductory experiences. The BCMP supports mushing in this area, but does not support guided skiing or snowshoeing, and would have to be amended to allow for commercial provision of these activities.

OP2

Wilderness Dependent?	Safety Concerns?	Resource Concerns?	Visitor Use Management?	Introductory Experiences?	Supported in documents?
Yes	Yes	No	No	No	<ul style="list-style-type: none"> • Snowshoeing, skiing = No • Mushing = Yes

- No, commercial support for non-motorized winter recreation is not necessary

It is not necessary to provide commercial support for non-motorized winter recreation in OP2 in order to fulfill the purposes of the Denali wilderness in OP2. Although the extremely remote nature of this area makes experiences here unique and dependent on the wilderness character of the area, OP2 is managed for a high degree of self-reliant extended expeditions, and there are other areas of the park where commercial support for winter recreation would be more appropriate.

Management documents do support commercial mushing in this area, and commercial provision of other winter activities could take place in the non-motorized wilderness environment of OP2 and help mitigate the safety concerns of winter travel. However, OP2 is managed to provide a remote and highly self-reliant experience that is not suited for those needing an introductory experience. OP1 is a

similar and more appropriate area for guided winter activities that fulfill the purposes of the Denali wilderness. Upon expiration of the current contract authorizing commercial mushing in this area, this use would no longer be allowed in OP2.

A

Wilderness Dependent?	Safety Concerns?	Resource Concerns?	Visitor Use Management?	Introductory Experiences?	Supported in documents?
No	Yes	No	No	Yes	Yes

- Yes, commercial support for non-motorized winter recreation is necessary

The analysis conducted here could indicate that commercial support for winter recreation is not necessary in Management Area A: experiences here could happen outside of wilderness and there are generally not resource or visitor use management concerns for which commercial support would be the best solution. However, management documents indicate that introductory experiences are appropriate and allow for the freest provision of recreational commercial services of any area in the park.

Previous planning efforts have indicated that Management Area A is the most appropriate place for commercial guiding. Although commercial support for primitive winter recreation may not be necessary to fulfill the recreational purpose of this management area specifically, commercial use here is necessary to fulfill the purposes of the Denali wilderness writ large. When considered in concert with the rest of the Denali wilderness, Management Area A is the most appropriate place for commercial services to reach people who otherwise might not participate in non-motorized winter recreation, and to expose more people to wilderness and wilderness recreation. Allowing for commercial support of primitive winter recreation in Management Area A is an appropriate way to fulfill the recreational purpose of the Denali wilderness, and is necessary to provide maximum use, enjoyment, and preservation of the wilderness character of Denali.

B

Wilderness Dependent?	Safety Concerns?	Resource Concerns?	Visitor Use Management?	Introductory Experiences?	Supported in documents?
No	Yes	No	No	Yes	Yes

- Yes, commercial support for non-motorized winter recreation is necessary in Management Area B

Commercial support for winter primitive recreation activities is necessary in Management Area B. Although these experiences could happen outside of wilderness and there are no resource or visitor use management concerns for which commercial use is the best solution, such use is supported in management documents, introductory experiences are appropriate in the area, and commercial support may help mitigate the safety concerns associated with primitive recreation in the Alaskan winter. It is also worth noting that mushing in particular has a long tradition in many areas of Management Area B, and commercial provision of mushing could help connect visitors to this historic aspect of the Denali wilderness.

C

Wilderness Dependent?	Safety Concerns?	Resource Concerns?	Visitor Use Management?	Introductory Experiences?	Supported in documents?
No	Yes	No	No	Yes	Yes

- Yes, commercial support for non-motorized winter recreation is necessary

Commercial support for winter primitive recreation activities is necessary in Management Area C. Although these experiences could happen outside of wilderness and there are no resource or visitor use management concerns for which commercial use is the best solution, such use is supported in management documents, introductory experiences are appropriate in the area, and commercial support may help mitigate the safety concerns associated with primitive recreation in the Alaskan winter.

D

Wilderness Dependent?	Safety Concerns?	Resource Concerns?	Visitor Use Management?	Introductory Experiences?	Supported in documents?
Yes	Yes	No	No	No	Yes

- No, commercial support for non-motorized winter recreation is not necessary

It is not necessary to provide commercial support for primitive recreation in order to fulfill the purposes of the Denali wilderness in Management Area D. Although the extremely remote nature of

this area makes experiences here unique and dependent on the wilderness character of the area, Management Area D is managed for self-reliant extended expeditions, and there are other areas of the park where commercial use is more appropriate.

Management documents support commercial mushing in this area, and provision of other winter activities could take place in Management Area D to help mitigate the safety concerns of winter travel. However, Management Area D is intended to provide a remote and highly self-reliant experience that is not suited for those needing an introductory experience. OP1 and Management areas A, B, and C share some of the characteristics of Management Area D and offer more appropriate areas for guided winter activities that fulfill the purposes of the Denali wilderness. Upon expiration of the current contract authorizing commercial mushing in this area, this use would no longer be allowed in Management Area D.

Backcountry Hiker

Wilderness Dependent?	Safety Concerns?	Resource Concerns?	Visitor Use Management?	Introductory Experiences?	Supported in documents?
Yes	Yes	No	No	Yes	<ul style="list-style-type: none"> • Snowshoeing, skiing = No • Mushing = Yes

- Yes, commercial support for non-motorized winter recreation day use is necessary

The Backcountry Hiker Management Area currently consists of formal trails that extend into wilderness and do not allow for overnight use. Although similar on-trail experiences could happen outside of wilderness and there are no resource or visitor use management concerns for which commercial support would be the best solution, these areas can sustain a high concentration of visitor use and are ideally suited for introductory experiences. Management documents are also supportive of mushing in these areas. Because of this, the Backcountry Hiker Management Area is an appropriate place for commercial use to fulfill the purposes of the Denali wilderness writ large.

Management documents do not currently support guided snowshoeing or skiing in the Backcountry Hiker Management Area. Snowshoeing and skiing are similar to hiking in some ways, but add the safety concern of winter conditions. Management documents that do not currently support guided snowshoeing and skiing in the Backcountry Hiker Management Area could be amended to support commercial provision of these activities given their similarity to hiking and the added safety concern of recreating in winter conditions.

Part 4: Extent of Commercial Services Determined Necessary for Non-motorized Winter Activities

This section considers each activity in terms of the wilderness management goals and desired conditions of the Denali wilderness and discusses the extent to which commercial services for non-motorized winter activities are appropriate. Other mechanisms available for the management of commercially supported activities are discussed where relevant.

Method

The 2006 Backcountry Management Plan (BCMP) acts as Denali's wilderness stewardship plan and provides much of the guidance for this and other sections of this END. According to the BCMP, commercial use in the park additions and preserve where the numbers of visitors are limited "would be no more than 50% of the total potential use of the area during any visitor season (summer/winter) in order to allow for non-guided uses" (p. 54). In areas of the Old Park where visitor numbers are limited, commercial use would be no more than 25% of the total potential use of the area. Areas of the park where visitor numbers are unlimited do not have a specific proportion of commercial use provided, but the BCMP emphasizes that education partner programs have priority over commercial use, and that the NPS "would be conservative in making available guided activities" (p. 54). This guidance from the BCMP indicates that although commercial use may be necessary for some winter recreation in some areas of the park, commercial use should not be as great as the potential for either independent or purely educational uses (NPS, 2006b).

Denali is different from many other wilderness areas in that visitor use in large areas of the park is low, there are generally not established routes, facilities, or access points, and visitor capacities or limits are not established in many areas. This is particularly true in winter months when the non-motorized winter recreation considered in this END takes place. Provided that resources are not damaged, unlimited independent visitor use enhances the wilderness character of these areas. Establishing limits on independent use in these areas with the sole purpose of determining how much commercial use should be allowed would not protect the wilderness character of Denali.

Given these circumstances, it is more feasible to define allowable extent of commercial use in terms of the geography, timing, and intensity of commercial use that is appropriate in addition to or instead of setting a numerical capacity or amount of appropriate commercial use. This is particularly salient in those areas of the park where visitor use is currently unlimited. The descriptions below outline the extent of commercial support for winter recreation that best achieves the purposes for which the Denali wilderness was created.

Additional activity-specific guidance shaping the nature and extent of commercial services for non-motorized winter recreation can be included in commercial use authorization (CUA) and contract documents. These documents would be the appropriate place to stipulate that commercial use occurring in the Denali wilderness should be primarily educational and/or instructional in nature. This requirement ensures that commercial use in wilderness helps fulfill the educational purpose of wilderness in addition to the recreational and scenic purposes.

Contract and CUA documents are also the appropriate place to define the time of year during which commercial use may take place. Because the activities addressed in this END are intended to take place on snow, commercial support for these activities should only take place when there is adequate snow cover to reduce impacts to vegetation. The NPS already makes a determination of adequate snow cover for snowmachine operation in the 1980 new park additions, and this same determination should be applied to commercial non-motorized winter recreation as well.

Non-motorized winter recreation day use and overnight use have distinct patterns and needs, and the extent to which commercial support is needed for these uses is described separately.

Overnight Use

Current overnight visitation to wilderness areas in Denali is light during non-summer months; there were an average of 245 backcountry user nights each winter 2008-2018 during the months of October – April (NPS, 2019b). Current commercial overnight use is limited to one dogsled concessioner and has averaged a total of 22 guided clients each winter season since 2013¹.

Wilderness character and resource monitoring in addition to reports from NPS staff indicate that there is likely capacity for additional use before wilderness character is negatively impacted (NPS, 2019a; NPS, 2019b; NPS, 2019c).

The chart below summarizes some of the key standards set forth in the BCMP for ensuring wilderness character is preserved. Standards that relate to the degree of solitude visitors might expect are highlighted, as winter recreation presents opportunities for extreme solitude, an experience that can be impacted by the sights, sounds, or presence of the tracks of other parties left in the snow. The chart below only includes management areas where this END has determined that commercial support for winter recreation is necessary. Overnight use is not allowed on the formal trails included in the Backcountry Hiker area. For all management areas, camping density and the presence of litter and human waste are intended to be low. Reference the BCMP for full descriptions of standards.

¹ Based on required commercial activity reporting.

Appendix B, Table 1. Management areas and associated standards relevant to this END. Management areas are listed in descending order based on their ability to support commercial use.

Management Area	Purpose	Standard	Group Size Limit	% Commercial Use
Backcountry Hiker	Provide day use trails into the backcountry in areas that are accessible to many visitors. *No camping is allowed on the trails	<i>Evidence of modern human use: High</i> <i>Encounters with people: Very High</i>	12	≤ 25%
A	Provide a diversity of opportunities for wilderness recreational activities that are relatively easily accessible to day-users and to those who have limited wilderness travel skills or equipment.	<i>Evidence of modern human use: Medium</i> <i>Encounters with people: High</i>	12	≤ 50%
C	Provide opportunities for climbing and mountaineering in a wilderness setting.	<i>Evidence of modern human use: Medium</i> <i>Encounters with people: High</i>	12	≤ 50%
B	Provide opportunities for wilderness recreational activities suitable for day-users and overnight users that are remote and require self-reliance.	<i>Evidence of modern human use: Low</i> <i>Encounters with people: Medium</i>	12	≤ 50%
OP1	Provide for day use and overnight wilderness recreational activities that are remote and require self-reliance in an area that has limited opportunities for motorized access.	<i>Evidence of modern human use: Low</i> <i>Encounters with people: Medium</i>	12	≤ 25%

This guidance from the BCMP suggests that some areas of the park could support a greater intensity and extent of commercial non-motorized winter recreation than other areas. The management areas are listed below in descending order beginning with areas of the park most conducive to commercial winter recreation. When allocating commercial opportunities for overnight non-motorized winter recreation, the relative abilities of these management areas to support commercial use should be considered. Non-wilderness areas of Denali are not discussed in this END but are the most appropriate for commercial uses.

Additional Mechanisms for Managing Overnight Use

Commercial use in wilderness is managed with contracts or CUAs, and the stipulations associated with these instruments can mitigate potential impacts.

To ensure that BCMP standards are achieved, contracts and CUAs authorizing commercial support for non-motorized winter recreation could require advance notification to the NPS of where and when a guided trip will take place. Such advance notification would allow the NPS to ensure geographic and temporal dispersal of commercial groups, lessening the impact that these groups would have on resources and on the experiences of other visitors. This notification would also allow the NPS to ensure that most commercial overnight trips take place in areas of the park that are more conducive to commercial use, and that areas less conducive to commercial use do not receive a disproportionate amount of commercial activity.

Additionally, commercial groups using the popular Mountain Vista rest area to begin their trips could be required to disperse a set distance away from the rest area in order to avoid overlapping with commercially guided and independent day users.

Possibilities for Future Management

There are a variety of ways that the extent of overnight commercial use for winter activities could be managed if the guidance in the BCMP and described above becomes insufficient. These possible means are briefly described below and could be developed further if needed.

- Use backcountry unit quotas to establish the total allowable amount of commercial use

The wilderness areas of the park are divided into backcountry units. Many of these units have nightly quotas established, which limit the number of people allowed to spend the night in that unit each night. These quotas could be used to establish a total user night capacity (unit quota x number of nights in the commercially available winter season). The amount of this total capacity for the season allocated to commercial use would be the 50% (New Park) or 25% (Old Park) limits established in the BCMP.

A similar user night calculation could be used in the event public use shelters are established and commercial use of the shelters is permitted.

- Establish limits on the number of nights allowed per operator or per unit

Limits could be established on commercial use based on existing backcountry units or groups of backcountry units. With existing backcountry units, the limit could be based on a total number of

nights allowed in that unit per operator. If existing backcountry units are grouped together into larger regions, limits could be set in relation to the number of guided groups allowed in each region each night.

Day Use

Denali currently receives far more day use than overnight winter recreation. Numbers of visitors who recreate in the wilderness on a day use basis are not tracked and can only be roughly estimated for non-motorized winter recreation. Data collected during a 2017-2018 study of winter visitors, if extrapolated, suggests that there were approximately 8,000 visitors who recreated outside during the 2018-2019 October to April season, though this likely greatly overestimates how many of these visitors recreated beyond frontcountry areas (NPS, 2019c)². Commercial day use for winter recreation primarily takes place in the frontcountry. Commercial day use in wilderness areas currently consists of a very small number of day trips offered by the dogsled concessioner.

Similar to assessments of the levels of overnight use, wilderness character and resource monitoring in addition to reports from NPS staff indicate that there is likely capacity for additional day use before wilderness character is negatively impacted (NPS, 2019a; NPS, 2019b; NPS, 2019c).

However, because day users are generally limited to relatively few access points, the extent of permissible commercial day use can be defined more precisely than overnight use. The desired conditions, standards, and the relative abilities of management areas to accommodate commercial recreation, discussed above in relation to overnight use, apply equally to day use.

Managing amounts of visitor use by managing access points is a common technique and could be applied to non-motorized winter recreation by regulating the number of commercial providers allowed to use specified access points. Limits are also described in terms of the total number of commercial users able to use common access points. Access points exist along the Denali Park Road and along the boundary of the park or other locations away from the Park Road. Numbers of commercial users include guides.

Denali Park Road

The Denali Park Road corridor is the focal point of many park visits, even in winter months when the majority of the road is inaccessible to vehicles. Although the Park Road itself is outside of wilderness, it provides easy access to wilderness just off the road. The sections of Park Road considered here extend from the park entrance to the Mountain Vista rest area (approximately mile 13 of the Park Road). Points west of Headquarters would only be access nodes if winter plowing of this section of road is continued.

² The winter visitor study asked respondents to indicate the activities they participated in, but did not distinguish between overnight and day use, or use occurring in frontcountry (non-wilderness) and wilderness areas.

- Park entrance area trailheads (entrance to mile 2 of the Park Road, and Triple Lakes Trail)
Maximum of 24 commercial users per day

Commercial day use in wilderness near the entrance area will only take place on existing trails. The Triple Lakes Trail is the only trail in this area that extends into wilderness. A variety of parking areas in the entrance area of the park provide access to the Triple Lakes Trail. Irrespective of which parking area is used, a total maximum of 24 commercial users per day provided by up to four commercial operators could use the trail each day. The southern trailhead for the Triple Lakes Trail is included in the total of four commercial operators using the trail each day. Commercial operators using only trails in the frontcountry (non-wilderness) are not included in this number.

- Park Headquarters (mile 3 of the Park Road)
Maximum of 24 commercial users per day

Commercial operators could reach wilderness from the Park Headquarters area on a day trip. A total of up to four commercial operators could access wilderness from the Headquarters access point with a total maximum of 24 commercial users per day.

- Park Road pullouts (mile 3 to mile 12 of the Park Road)
Maximum of 12 commercial users per pullout at a time

A number of pullouts exist along this section of the Park Road. Parking for commercial users could be allowed in pullouts that completely remove vehicles from the lane of traffic, do not obstruct driveways, and have enough space for parking multiple vehicles. Pullouts available for commercial use would be identified by the NPS. In order to maintain opportunities for independent wilderness exploration, one commercial group in one vehicle could park in each pullout at a time for a maximum of 12 commercial users per pullout at a time.

- Mountain Vista rest area (mile 13 of the Park Road)
Maximum of 24 commercial users per day

If road plowing west of Headquarters during winter months occurs, the Mountain Vista rest area is a natural access point for independent wilderness day use and would be a natural access point for commercial users as well. Because of its popularity with independent recreationists, commercial use must be managed conservatively to ensure desired conditions for the surrounding OP1 wilderness are met. It is relatively easy to disperse from the Mountain Vista rest area, and commercial groups would be expected to disperse to minimize contact with other groups, independent and commercial. A total maximum of 24 commercial users per day provided by up to four commercial operators could use Mountain Vista as an access point.

Access points away from the Park Road Corridor

Maximum of 24 commercial users per access point per day

There are also a number of access points outside of the Park Road corridor that are commonly used for winter recreation in the park, and these access points could be considered as a means of managing commercial use in wilderness. Because the NPS is not able to patrol or monitor these areas as frequently as the Park Road, regulating commercial access based on number of commercial vehicles is less feasible. Instead, the total number of operators allowed to use these access points could be limited, and/or the total number of trips originating from any non-Park-Road access point per operator could be established.

Potential access points away from the Park Road and originating on the park boundary include the Tokositna River, Broad Pass, Cantwell, Carlo Creek, and the Stampede corridor. Air taxi landings are also currently allowed in new park additions, and this use makes winter recreation day trips throughout new park areas a possibility. Commercial day use for winter activities does not currently exist in wilderness areas in Denali beyond one dog mushing concessioner.

With current low levels of commercial use, it is difficult to predict which access points future commercial operations will use, and this END does not define allowable access points. However, the overarching need to maintain desired conditions for solitude and wilderness character indicates that total commercial use based out of any access point / region should be limited. To begin with, each access point or region could be limited by up to two total commercial operators per day or a total maximum of 24 commercial users per day per access node. If monitoring indicates that there is increased capacity for commercial use, this level could be increased in the future, or decreased if this level of commercial use exceeds resource and visitor experience standards established in the BCMP.

Extent Summary

Existing Guidance in BCMP

- Group size (including guides) not to exceed 12
- Commercial use no more than 50% (New Park areas) or 25% (Old Park areas) of total allowable use

Total amount of recreational use should not cause exceedance of desired conditions and standards described in the BCMP. Guidance from the BCMP suggests that some areas of the park could support a greater intensity and extent of commercial non-motorized winter recreation than other areas. The management areas are listed below in descending order beginning with areas of the park most conducive to commercial winter recreation. Non-wilderness areas are not addressed by this END but are the most conducive areas of the park for commercial uses.

Management Area	Purpose	Standard	Group Size Limit	% Commercial Use
Backcountry Hiker	Provide day use trails into the backcountry in areas that are accessible to many visitors. *No camping is allowed on the trails	<i>Evidence of modern human use: High</i> <i>Encounters with people: Very High</i>	12	≤ 25%
A	Provide a diversity of opportunities for wilderness recreational activities that are relatively easily accessible to day-users and to those who have limited wilderness travel skills or equipment.	<i>Evidence of modern human use: Medium</i> <i>Encounters with people: High</i>	12	≤ 50%
C	Provide opportunities for climbing and mountaineering in a wilderness setting.	<i>Evidence of modern human use: Medium</i> <i>Encounters with people: High</i>	12	≤ 50%
B	Provide opportunities for wilderness recreational activities suitable for day-users and overnight users that are remote and require self-reliance.	<i>Evidence of modern human use: Low</i> <i>Encounters with people: Medium</i>	12	≤ 50%
OP1	Provide for day use and overnight wilderness recreational activities that are remote and require self-reliance in an area that has limited opportunities for motorized access.	<i>Evidence of modern human use: Low</i> <i>Encounters with people: Medium</i>	12	≤ 25%

As long as desired conditions and standards are met, management areas receive an appropriate intensity of commercial use relative to other management areas, and commercial use does not exceed its established allocation of use if total use is capped, the extent of commercial overnight use can be considered appropriate.

The overall ceiling, or maximum extent, of commercial use allowed in each area of the park is ultimately defined by:

- All desired conditions and standards for resources and visitor experience described in the BCMP are met
- If levels of total recreational use (independent and commercial) allow standards and desired conditions to be met, the extent of commercial services can be considered acceptable
- If levels of total recreational use (independent and commercial) exceed desired conditions and standards, limits will be placed on commercial use before independent use is limited
- If use limits are needed, commercial use will not exceed the proportions described in the BCMP (25% or 50% of total use)

Limits on commercial use described in this END are intentionally conservative, in keeping with existing guidance in the BCMP. These limits could be increased in the future if monitoring efforts demonstrate that increases would not have an adverse impact on park resources, the visitor experience, or the wilderness character of the park. Increases in commercial use for non-motorized winter recreation would be most appropriate in non-wilderness areas of the park (e.g., entrance area, Nenana River trails area), or in management areas that are more permissive of commercial use (e.g., Backcountry Hiker areas, Management Area A).

Additional Guidance to Include in Contracts or CUA Documents

- Commercial operations should include an educational or instructional element to ensure the educational as well as recreation / scenic purposes of wilderness are met.
- Commercial operators will provide advance notification to the NPS of where and when trips will take place. NPS will use this notification to ensure geographic and temporal dispersal of commercial trips and identify areas of high use for monitoring.
- Commercial contract or CUA documents should specify a season of operation that helps ensure adequate snow cover to reduce impacts to vegetation. This could be accomplished by allowing commercial use only when the determination is made that there is adequate snow cover for snowmachine operations in the 1980 new park additions, or by conservatively defining the allowable season.

Overnight Use

Contracts and CUAs authorizing overnight commercial use in wilderness should require advance notification to the NPS of where and when trips will take place. NPS will use this notification to ensure geographic and temporal dispersal of commercial overnight trips.

Day Use

Denali Park Road		Maximum Commercial Users
<ul style="list-style-type: none">• Park entrance area (Triple Lakes trail)	Up to four commercial operators per day	24 per day
<ul style="list-style-type: none">• Park Headquarters area	Up to four commercial operators per day	24 per day
<ul style="list-style-type: none">• Park Road pullouts	One commercial group in one vehicle per pullout	12 per pullout at a time
<ul style="list-style-type: none">• Mountain Vista rest area	Up to four commercial operators per day	24 per day
Access Away from the Park Road Corridor		
<ul style="list-style-type: none">• Access nodes originating outside of park boundaries or within new park areas	Up to two commercial operators per node	24 per access node per day

Monitoring

The extent of commercial activity described above requires conformance with standards described in the BCMP. The park will only know if these standards are met or exceeded if commercial use, resource conditions, and the experiences of visitors are monitored. There are a number of ways this could be accomplished:

- Required commercial activity reporting could include dates, group size, location, and activity in addition to documentation of the educational or instructional elements of the activity
- Interpretive coaching of commercial operators by NPS staff could help ensure that educational elements and Leave No Trace principles are incorporated into all commercial offerings
- NPS field staff could report on the overall recreational use, commercial use, and resource conditions that they encounter
- Occasional concerted monitoring efforts could be conducted, especially if information collected previously suggests the level of commercial use may be approaching standards
- The park could establish a baseline wilderness character assessment

References

- Alaska National Interest Lands Conservation Act, 16 U.S.C. §§ 3101-3233 (1980).
- Leung, Y.F., & Marion, J.L. (2000). Recreation impacts and management in wilderness: A state-of-knowledge review. *USDA Forest Service Proceedings*, RMRS-P-15-VOL-5.
- Manning, R.E. (2011). *Studies in outdoor recreation: Search and research for satisfaction*. Corvallis, Oregon: Oregon State University Press.
- Marion, J.L. (2016). A review and synthesis of recreation ecology research supporting carrying capacity and visitor use management decisionmaking. *Journal of Forestry*, 114, 1-13.
- Monz, C.A., Pickering, C.M., & Hadwen, W.L. (2013). Recent advances in recreation ecology and the implications of different relationships between recreation use and ecological impacts. *Frontiers in Ecology and the Environment*, doi:10.1890/120358.
- Monz, C., Roggenbuck, J., Cole, D., Brame, R., & Yoder, A. (2000). Wilderness party size regulations: Implications for management and a decisionmaking framework. *USDA Forest Service Proceedings*, RMRS-P-15-VOL-4.
- Mount McKinley National Park Act, 39 Stat. 938 (1917).
- National Park Service. (2006a). *2006 management policies*. (GPO Publication No. 0-16-076874-8).
- National Park Service. (2006b). *Denali National Park and Preserve final backcountry management plan*. Retrieved from <https://irma.nps.gov/DataStore/Reference/Profile/654189>.
- National Park Service (2013a). *Director's order #41: Wilderness stewardship*.
- National Park Service (2013b). *Reference manual #41: Wilderness stewardship*.
- National Park Service (2014a). *Denali National Park and Preserve state of the backcountry – 2012*. (Natural Resource Report NPS/DENA/NRR-2014/865). Prepared by Abbe, J.D. & Burrows, R.
- National Park Service (2014b). *Informal trail status along the Denali National Park road corridor 2012-2013*. (Natural Resource Data Series NPS/DENA/NRDS-2014/687). Prepared by Milone, K., Abbe, D., & Burrows, R.
- National Park Service (2015). *2014 Backside Lake Visitor Use and Impacts Summary*. (Unpublished report). Prepared by Burrows, R., Betchkal, D., Armington, M., & Abbe, D.
- National Park Service (2019a). *2019 trail counter report: Denali National Park and Preserve*. (Unpublished report). Prepared by Toubman, J.
- National Park Service (2019b). [Denali National Park and Preserve backcountry permit database]. Unpublished raw data.

- National Park Service (2019c). *Denali National Park and Preserve winter visitor use: Winter visitor experience survey and early road opening collaborative study*. (Natural Resource Report NPS/DENA/NRR-2019-1893). Prepared by Aberg, M., Keller, R., & Clark, W.C.
- Stamberger, L. van Riper, C.J., Keller, R., Brownlee, M., & Rose, J. (2018). A GPS tracking study of recreationists in an Alaskan protected area. *Applied Geography*, 93, 90-102.
- Wilderness Act of 1964, 16 U.S.C. §§ 1131-1136.

Appendix C: 2019 Winter and Shoulder Season Plan - Desired Conditions

Previous park planning documents have established desired conditions for backcountry areas of the park (*2006 Backcountry Management Plan*) as well as the Park Road corridor and other frontcountry locations (*1997 Entrance Area and Road Corridor Development Concept Plan, 2012 Vehicle Management Plan*). Each of these documents also established management areas or zones of the park in which the desired conditions apply. The desired conditions and management areas designated by these previous planning documents apply year-round unless specifically stated otherwise.

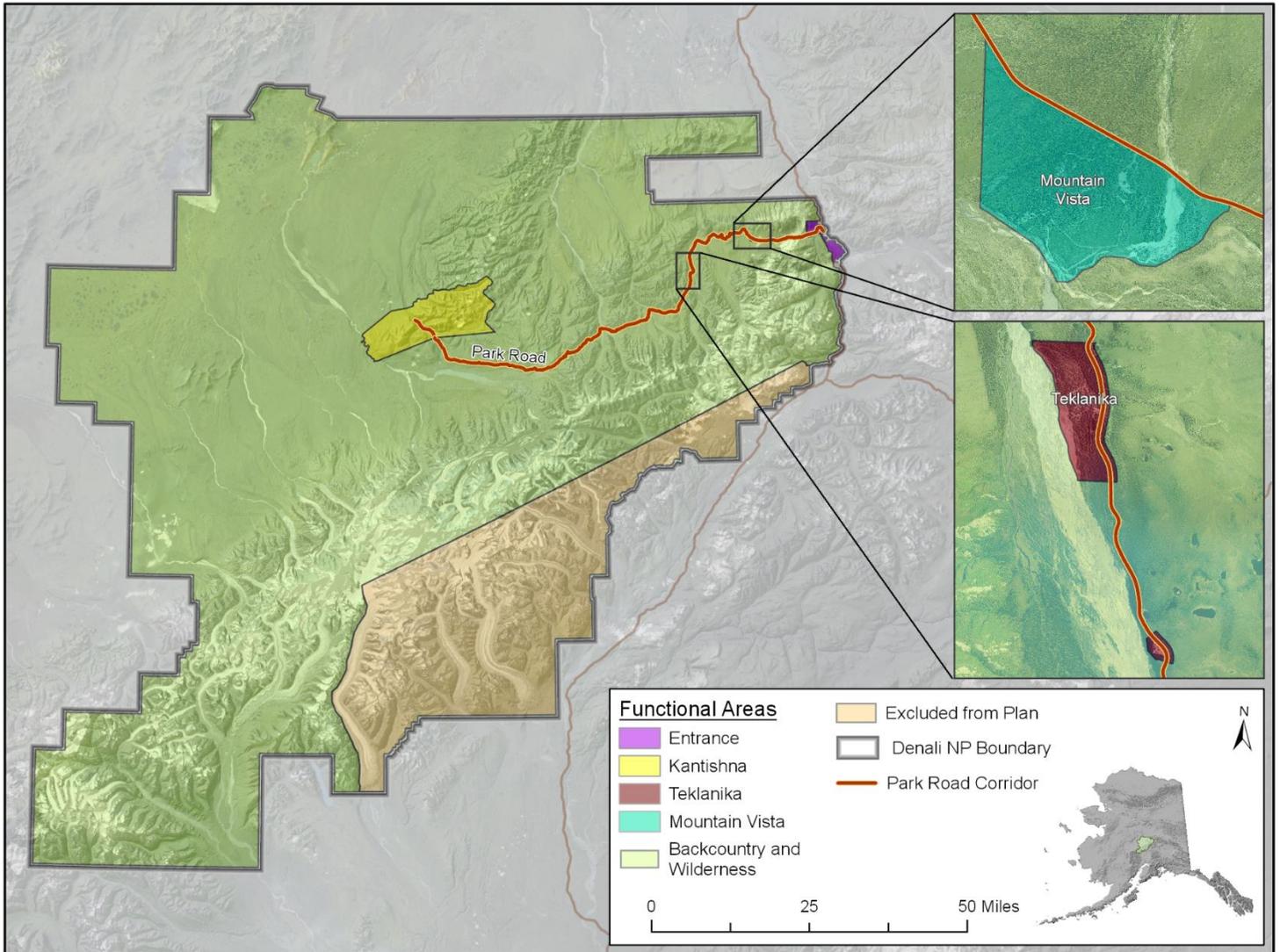
The desired conditions outlined in the *2019 Winter and Shoulder Season Plan* (Tables 1 - 6) add seasonally appropriate nuance and detail to the management areas and desired conditions established by previous planning documents, but do not replace or supplant the pre-existing guidance. This added level of detail will help the park focus on resource issues of particular importance in the winter and shoulder seasons as well as more fully articulate the desired visitor experience during these seasons.

The desired conditions are grouped below by functional areas that categorize the park into regions that are useful when considering winter and shoulder season park use (Figure 1). These functional areas facilitate discussion of park management during these seasons, but do not replace the management areas and zones established by previous planning documents.

For the purposes of this plan, the winter and shoulder seasons are defined based on the yearly cycle of park operations, particularly those concerning the accessibility of the Park Road. These operations largely shape the experiences available to visitors and the resource impacts from visitor use of the park. Many of these operations are contingent on weather conditions and are difficult to tie to a specific date each year.

- The fall shoulder season begins the day after the last day of Road Lottery, typically in mid to late September.
- Fall transitions into the winter season when wintry weather closes the Park Road, typically at the Headquarters gate near mile three of the Park Road, and it is not plowed open again when the weather breaks.
- Winter transitions into the spring shoulder season when spring road opening operations permit public vehicle traffic west of the Mountain Vista rest area, typically in mid-April.

- The spring shoulder season transitions into summer when the full complement of summer services and facilities are open to the public, typically in mid to late May. This has included tour and transit bus service west of Teklanika, restriction of private vehicles west of the Savage River, operation of all entrance area facilities including the Denali Visitor Center and Denali Bus Depot, and the operation of all roadside campgrounds except Wonder Lake.

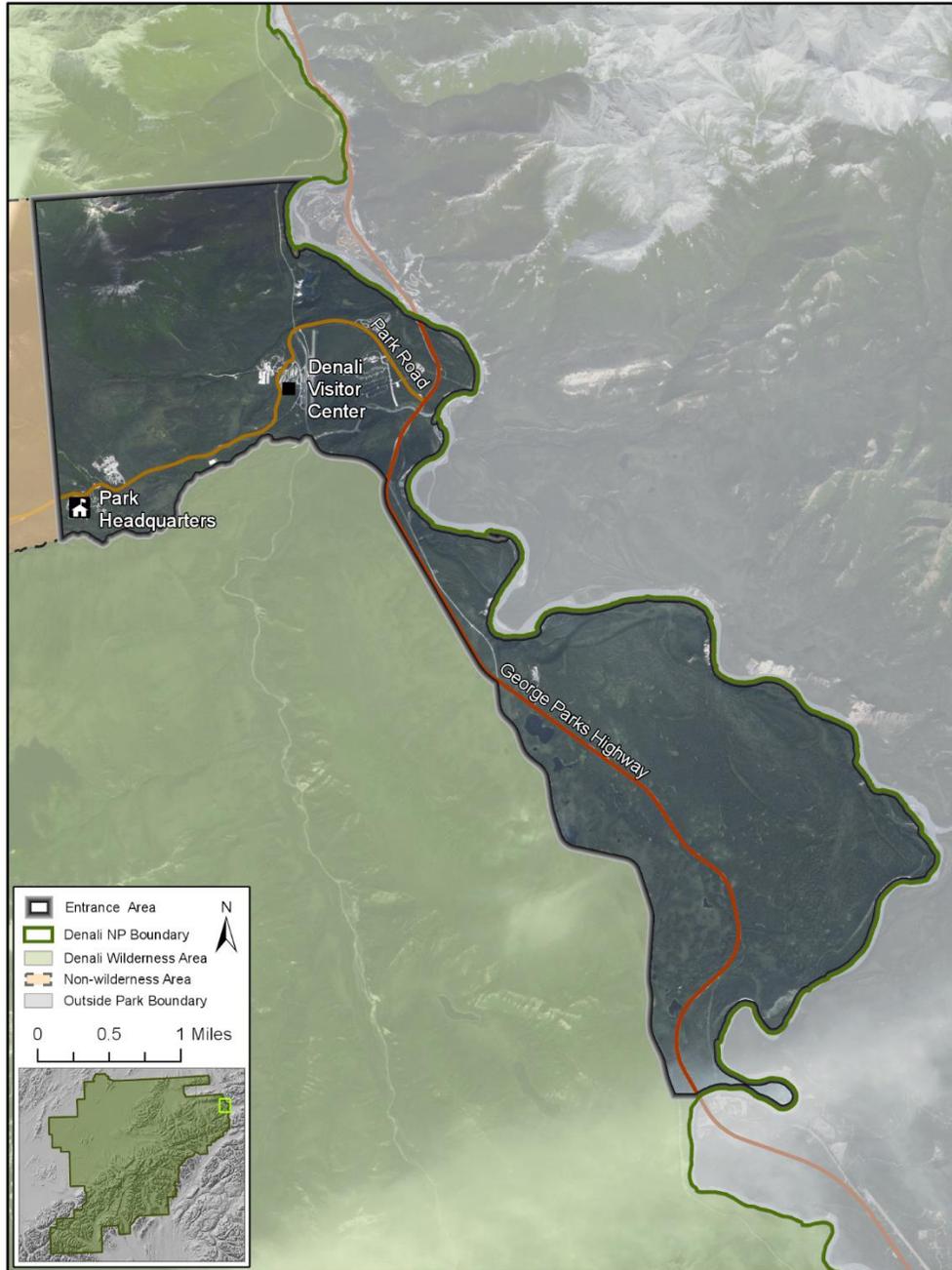


Appendix C, Figure 1. Winter and Shoulder Season Plan functional areas.

Entrance Area – Headquarters, Milepost 231 and Nenana River Trails

This area includes the ineligible wilderness from the bridge over the Nenana River at mile 231 of the Parks Highway north to the former Mount McKinley National Park boundary near Mt. Healy, and west along the Park Road corridor until just west of Headquarters, including the Headquarters area.

The areas between the Parks Highway and the Nenana River and any development proposed there are also included.



Appendix C, Figure 2. Entrance area - Headquarters and MP 231 / Nenana River trails area

Appendix C, Table 3. Desired conditions for the entrance area to Headquarters and milepost 231 / Nenana River trails areas

	Winter	Shoulder Seasons
Entrance – HQ & MP 231 / Nenana River Trails		
Overview	This area serves as a relatively structured gateway to other, wilder portions of the park. Compared to other areas in the park, this area most heavily moderates visitor interactions with the Alaskan winter through the availability of services, information, and facilities. Visitors can also have a less structured winter experience here. Facilities and trails are relatively easy to navigate, and the entrance area is a welcoming place for people with varying degrees of skill, available time, and desire to interact directly with the winter environment.	In the shoulder seasons, the entrance area feels and functions like a quieter, less active version of what occurs here in summer. Visitors can spend their time exploring the area or pass through on their way to other adventures in the park. Administrative presence is high, and facilities and trails are relatively easy to navigate. The visitor center appropriately accommodates the level of shoulder season visitation. Trails may be closed seasonally, especially during the spring thaw, to prevent resource damage.
Visitor Experience	A variety of visitor opportunities that accommodate a diversity of skill levels is easily accessible in this area, including indoor time at the visitor center, on-trail experiences, and the opportunity to independently venture off-trail. Visitors are equally well-served by this area whether it is their sole destination or the beginning of a longer experience that includes other areas of the park.	The entrance area provides a gateway to the park as well as an interesting destination in its own right during the shoulder seasons. Although many of the amenities of summer may not be available (e.g., baggage claim, bus ticketing), visitors can expect information, interpretation of park resources, and reasonable comfort here. The visitor center provides adequate space and facilities for shoulder season visitation levels. Hiking, biking, and other recreational opportunities are available in the shoulder seasons, although some trails may be closed for portions of the season.
Resources	Although sounds of human use (vehicles, large groups) are present, the soundscape is often in its natural state, and visitors have the opportunity to experience stretches of silence, especially as distance from roads and facilities increases. This area of the park has the highest concentration of artificial light. Even so, artificial light sources are kept to a minimum to provide for visitor and employee safety. Night skies are clearly visible. Wildlife that exists in this area is largely undisturbed by	Although sounds of human use (vehicles, large groups) are present, the soundscape is often in its natural state, and visitors have the opportunity to experience stretches of silence, especially as distance from roads and facilities increases. Wildlife that exists in this area is largely undisturbed by visitor activity, and human-wildlife interactions are minimal. Management actions, including temporary

	<p>visitor activity, and human-wildlife interactions are minimal. Visitor use of off-trail areas beyond existing winter travel routes has minimal to no adverse impact on vegetation.</p>	<p>closures, may be instituted when necessary to protect wildlife and visitor safety.</p>
--	---	---

Plowed / Open Section of Park Road

Winter

In the winter season, the plowed section of Park Road includes any portion of the Park Road that is plowed for public vehicle access west of the gate at Headquarters. When unplowed, these portions of road would be considered part of the unplowed section of Park Road functional area.

Shoulder Seasons

During the spring and fall, the open section of Park Road area includes any portion of the Park Road that is open to public vehicle traffic. This has typically encompassed the Park Road from the entrance to the gate near the Teklanika rest area.

Appendix C Table 4. Desired conditions for the plowed or open section of Park Road area

	Winter	Shoulder Seasons
Plowed / Open Section of Park Road	<p>Portion of road plowed west of Headquarters</p> <p>Only relevant in concepts where the road is plowed west of Headquarters</p>	<p>Portion of Park Road accessible to private vehicles</p>
Overview	<p>The plowed portion of the Park Road provides vehicular and non-motorized (pedestrian, bicycle) access to the park. The road is open only when safe driving conditions are present. The emphasis is on viewing wildlife and scenery as well as providing access for non-motorized excursions off the road corridor.</p>	<p>Affordable, sustainable access that provides opportunities for independent exploration is a priority. Although commercial users and / or shuttles may be operating, independent access remains important. Vehicular road access west of the Savage River allows for private vehicles to a greater extent than during the summer season. Limits on the number of vehicles allowed west of Savage or other management actions affecting vehicle access may be instituted if needed to provide for wildlife protection and visitor experience.</p>
Visitor Experience	<p>The plowed portion of the Park Road offers relatively easy access farther into the park for</p>	<p>Visitors are able to independently explore this section of road which is normally closed to</p>

	visitors wishing to view wildlife and scenery or begin an overnight or day trip into the backcountry. Other visitors are frequently encountered, including independent travelers and commercial groups. Visitors can expect the road to be closed when safe driving conditions cannot be maintained.	most private traffic. Visitors may travel in an unhurried, uncrowded manner. Encounters with other visitors may be common, but the road has an open, remote quality, and traffic congestion does not adversely impact the visitor experience.
Resources	The natural soundscape of the plowed road is disturbed by vehicle traffic at times. Although there may be long periods of time without the presence of vehicles, vehicle traffic and its associated noises can be present any time the road is open. Night skies are generally unaffected by artificial light. The NPS does not provide any artificial light installations. Wildlife on the road are treated in the same manner as they are during the summer, with little to no disruption of wildlife movement, feeding, or other behaviors.	The natural soundscape of the open section of the road may be disturbed by vehicle traffic with portions of time when natural sounds dominate. Night skies are generally unaffected by artificial light. The NPS does not provide any artificial light installations. Wildlife on the road are treated in the same manner as they are during the summer, with little to no disruption of wildlife movement, feeding, or other behaviors.

Unplowed / Closed Section of Park Road

Winter

In winter, the unplowed section of Park Road includes any portion of the Park Road that is not plowed to allow public vehicle access. Because this area begins at the western terminus of winter road plowing, the sections of road included in this area depend on whether winter road plowing is continued, and to what extent. For example, depending on decisions about winter road plowing the unplowed section of Park Road may include all of the road west of Headquarters, or the portion of road west of Mountain Vista. When plowed for public vehicle access, any portion of the Park Road would be included in the plowed section of Park Road area.

Shoulder Seasons

The closed section of Park Road includes portions of the Park Road that are closed to public vehicle access. During the height of the shoulder seasons, this has typically included the Park Road west of the gate near the Teklanika rest area.

Appendix C, Table 5. Desired conditions for the unplowed or closed section of Park Road area

	Winter	Shoulder Seasons
Unplowed / Closed Section of Park Road		
Overview	The unplowed Park Road provides non-motorized visitor access into the winter wilderness of Denali, as well as an easier-to-navigate winter route. From the visitor perspective, there is little that distinguishes the unplowed Park Road from the surrounding wilderness.	The closed section of the Park Road is essentially a trail for non-motorized recreational use in the shoulder seasons. Pedestrians and bicycles dominate the traffic, and although administrative motorized traffic maintains a presence, it does not adversely impact the visitor experience.
Visitor Experience	The unplowed section of the Park Road provides a backcountry experience for users of many ability levels. It is easy to access, and its width and relatively gentle grades make portions of it suitable for beginner-level recreationists. For more experienced visitors and those desiring to go further into the park, the unplowed Park Road provides easier-to-navigate access. Multiple uses and a variety of ability levels may be accommodated simultaneously.	Visitors are encouraged to use non-motorized means to explore the park on the closed section of the Park Road. Although visitors may encounter other recreationists on the road and occasional motorized administrative use, crowding and administrative vehicular traffic does not adversely impact the visitor experience. Vault toilet restroom facilities on the closed portion of the Park Road are available for shoulder season use.
Resources	Resource conditions of the unplowed portion of the Park Road are nearly indistinguishable from resource conditions in surrounding wilderness, and wilderness character quality is high. Silence and natural sounds dominate. The NPS does not provide any artificial light installations on the unplowed portion of the Park Road, and the night sky is unaffected by artificial light. Wildlife that exists in this area is largely undisturbed by visitor activity, and human-wildlife interactions are minimal.	Silence and natural sounds dominate the soundscape. The NPS does not provide any artificial light installations, and the night sky is unaffected by artificial light. Wildlife on the road are treated in the same manner as they are during the summer, with little to no disruption of wildlife movement, feeding, or other behaviors.

Mountain Vista / Teklanika Areas

Winter

The Mountain Vista area includes the entire frontcountry developed area / ineligible wilderness surrounding the Mountain Vista rest stop and Savage campground. This area does not extend into

surrounding designated wilderness. This area is an easily accessible visitor node during winter when the road is plowed as far as the Mountain Vista rest stop. If the park did not plow the road west of Headquarters during portions of the winter prior to spring road opening, this area would be treated as part of the unplowed section of Park Road area.

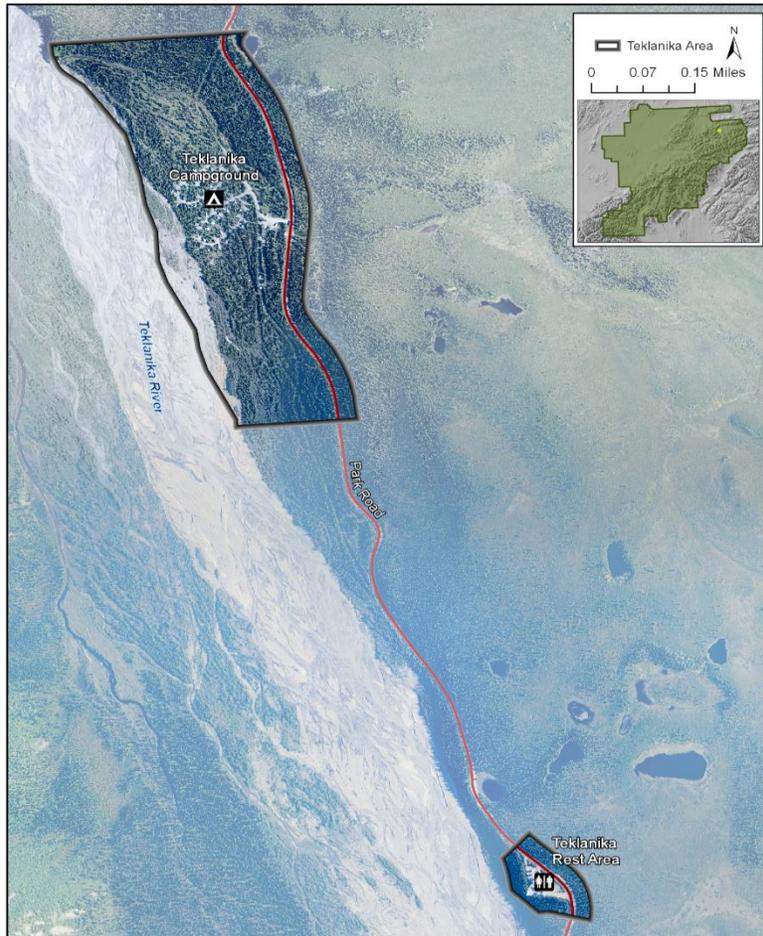
Appendix C, Figure 3. Mountain Vista area



Shoulder Seasons

The Teklanika area acts as a visitor node during the shoulder seasons when it is accessible to private vehicle traffic and includes the Teklanika rest stop and the Teklanika campground. Current visitor use in this area is focused on the Teklanika rest stop, and the Teklanika campground is dormant and unused during the shoulder seasons. In the future, the Teklanika campground may play a larger role as overflow parking for the Teklanika rest stop or as a campground available during portions of the shoulder seasons (see the discussion of facilities for the Teklanika area).

Appendix C, Figure 4. Teklanika area as described in the *Winter and Shoulder Season Plan*



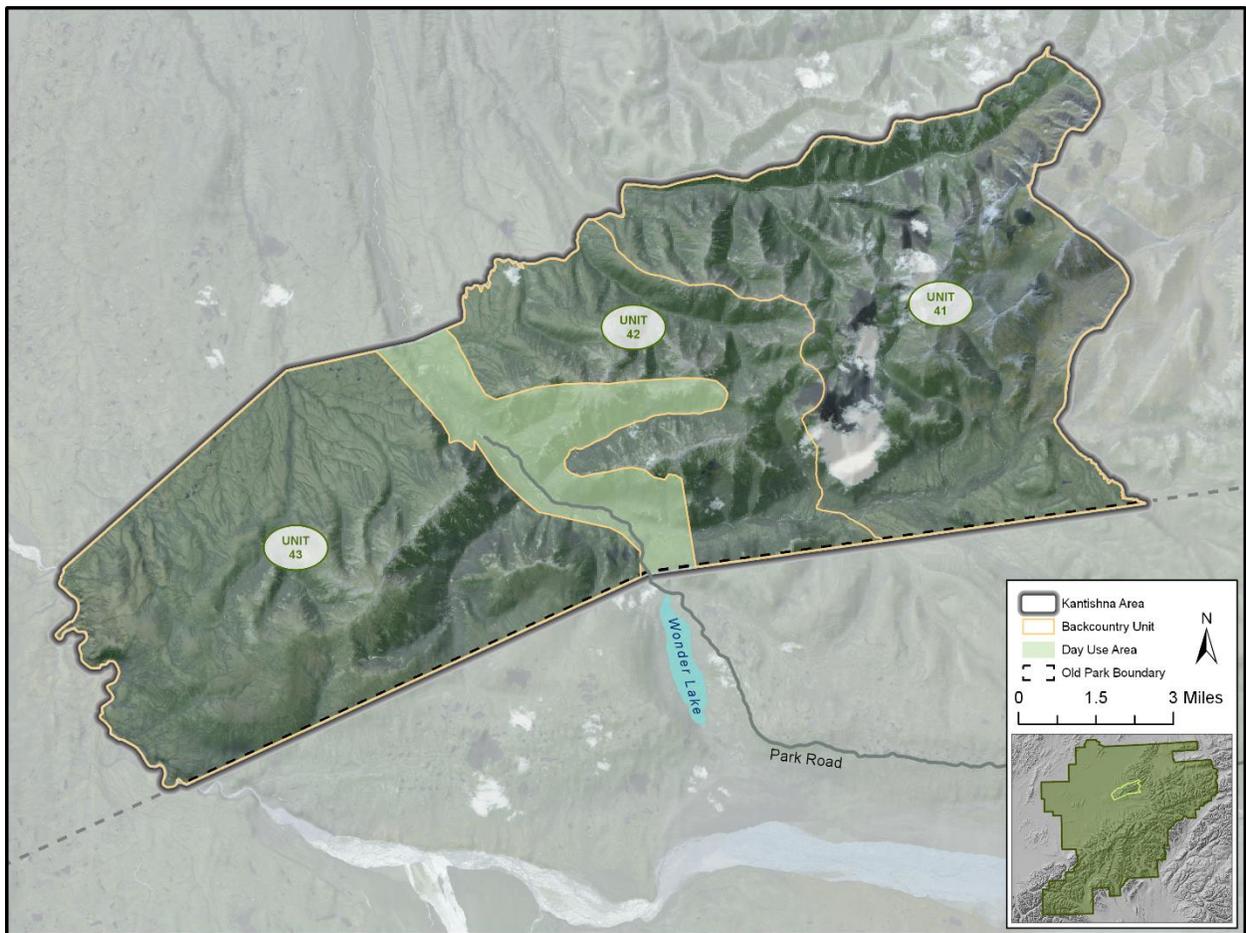
Appendix C, Table 6. Desired conditions for the Mountain Vista and Teklanika areas

	Winter	Shoulder Seasons
	<p>Mountain Vista</p> <p>Only relevant when the road is plowed west of Headquarters. Otherwise, this area would have conditions similar to the surrounding areas</p>	<p>Teklanika</p>
Overview	<p>This area provides a wilderness threshold experience in concepts where the road is plowed to Mountain Vista. Rest areas, parking areas, and NPS facilities are maintained. Trails and winter routes are available for visitors to explore. Established trails may have signage or wands to improve visitor experience and increase safety but are generally maintained to a lesser degree than trails near the entrance area. Visitors may use these areas as a portal into the park and are largely left to their own devices beyond plowed parking areas and maintained facilities.</p>	<p>As weather allows during the shoulder seasons, the Teklanika rest stop area is the terminus of vehicle traffic and a gateway for further non-motorized exploration of the park. As a visitor hub, the area includes maintained restrooms, parking areas, and interpretive installations. NPS presence is higher here than at other points along the open portion of the road, but typically not as high as in the entrance area. Parking use is managed according to the demand and may require future restrictions if demand outpaces capacity.</p>
Visitor Experience	<p>This area provides a gateway into the wilderness of Denali. Facilities exist but are relatively minimal and the overall experience is not as managed and structured as the majority of the experiences visitors have at the entrance area. For many visitors unaccustomed to route finding and the Alaskan winter, this area will provide all the characteristics of a wilderness experience. For other visitors, this area will feel like the last development on the edge of a vast wilderness.</p>	<p>As the terminus of vehicle traffic on the Park Road, the Teklanika rest stop area is a visitor hub in the shoulder seasons, though to a lesser extent than the entrance area. Visitors can expect to encounter many vehicles and other people in this area, but crowding does not adversely affect the visitor experience. Maintained restrooms and interpretive or educational signs and opportunities facilitate visitor use of the area although the overall visitor experience is not as structured as the majority of the experiences visitors have at the entrance area.</p>
Resources	<p>The soundscape in and around parking areas might be impacted by vehicle noise. This impact diminishes with greater distance from the road and parking areas. Vehicles are not allowed to idle in parking areas. Night skies are generally unaffected by artificial light. The NPS does not provide any artificial light installations. Wildlife in this area are largely undisturbed by visitor activity, and human-wildlife interactions are minimal. Visitor use of off-trail areas beyond</p>	<p>The soundscape in and around parking areas might be impacted by vehicle noise and a relatively high concentration of people. This impact diminishes with greater distance from the road and parking areas. The NPS does not provide any artificial light installations and the night sky is unaffected by artificial light. Wildlife in this area are largely undisturbed by visitor activity, and human-wildlife interactions are minimal.</p>

	existing winter travel routes has minimal to no adverse impact on vegetation.	
--	---	--

Kantishna

The Kantishna area includes the 1980 park additions north of Wonder Lake that consist of the backcountry day use area established by the 2006 BCMP and backcountry units 41, 42, and 43. This definition is consistent with the definition of the Kantishna area outlined in the 2019 *Kantishna and Wonder Lake Area Plan*.



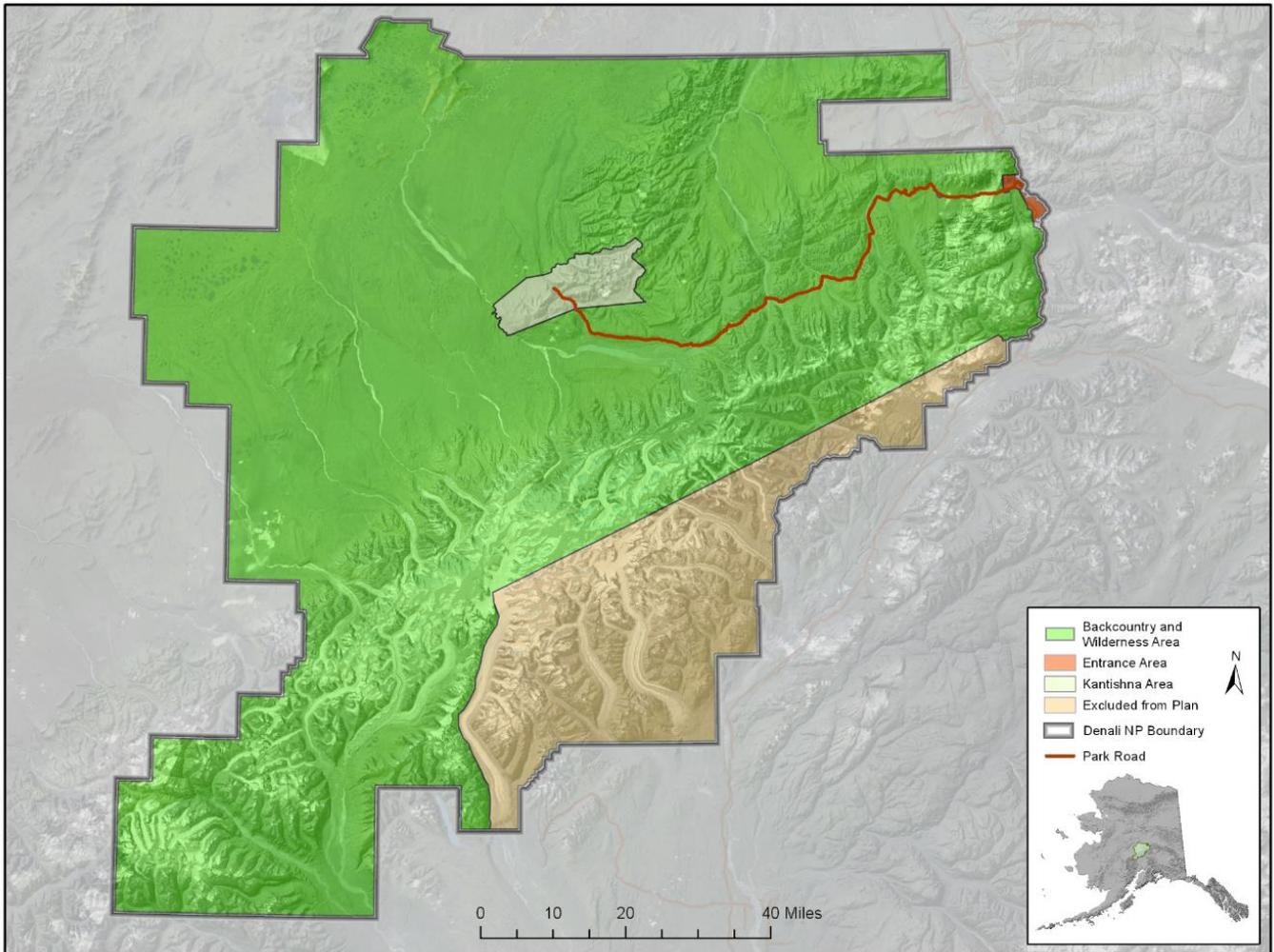
Appendix C, Figure 5. Kantishna area as described in the *Winter and Shoulder Season Plan*

Appendix C, Table 7. Desired conditions for the Kantishna area

	Winter	Shoulder Seasons
Kantishna		
Overview	This area provides a visitor experience that is largely similar to that of the areas that surround it (backcountry and designated wilderness). It shares many characteristics of a wilderness experience, but there are signs of development (e.g., buildings, lodge activity). Winter access to the area is limited to traditional methods, such as aviation, skiing, and dog mushing.	This area provides a visitor experience that is largely similar to that of the areas that surround it (backcountry and designated wilderness). It shares many characteristics of a wilderness experience, but there are signs of development (e.g., buildings, lodge activity). Access to the area is limited.
Visitor Experience	The visitor experience in Kantishna is similar to that of the surrounding designated wilderness and backcountry areas. Because of the possibility of air taxi landings on the Kantishna airstrip, motorized use in the area, existing facilities, and private development or commercial use, this area feels more developed than other surrounding areas and is more accessible.	The visitor experience in Kantishna is similar to that of the surrounding designated wilderness and backcountry areas. Because of the possibility of air taxi landings in Kantishna, existing facilities, and private development or commercial use, this area feels more developed than other surrounding areas and is more accessible.
Resources	Motorized use might be present in the Kantishna area for traditional activities, but at relatively low levels. Usually, the soundscape is relatively undisturbed and there are long periods of time where natural sounds dominate. Night skies are generally unaffected by artificial light. The NPS does not provide any artificial light installations. Wildlife are largely unaffected by human presence. Visitor use of off-trail areas beyond existing winter travel routes has minimal to no adverse impact on vegetation.	The soundscape is relatively undisturbed, despite any private development in Kantishna. Natural sounds dominate the vast majority of time. Night skies are generally unaffected by artificial light; the NPS does not provide any artificial light installations. Wildlife are largely unaffected by human presence during these sensitive times of year.

Backcountry and Wilderness Areas

The backcountry and wilderness areas consist of any park areas included in the *Winter and Shoulder Season Plan*, and not otherwise categorized. This includes, for example, the designated wilderness of the park as well as the preserve areas and the 1980 new park additions not excluded by the plan or in the Kantishna area.



Appendix C, Figure 6. Backcountry and Wilderness areas as described in the *Winter and Shoulder Season Plan*

Appendix C, Table 8. Desired conditions for backcountry and wilderness areas

	Winter	Shoulder Seasons
Backcountry and Wilderness Areas		
Overview	The wilderness and backcountry areas of Denali National Park offer solitudinous and self-reliant visitor experiences in backcountry and wilderness settings. The winter environment functions as naturally as possible and is undisturbed by development.	During the shoulder seasons, the wilderness and backcountry areas of Denali National Park function much the same as they do during the summer season. Visitor use is dominated by day hiking and overnight backpacking.
Visitor Experience	The emphasis in these areas is on wild and backcountry experiences. Visitors must be prepared to be fully self-reliant, and trails, facilities, and NPS personnel are present at much lower levels than in other areas of the park. However, NPS staff do occasionally patrol and may informally create routes that visitors follow.	The visitor experience in these areas of Denali during the shoulder seasons is largely similar to that of the summer. In most areas, visitors can expect to see few, if any, other people and signs of modern human use are rare. Use is dominated by day hiking and overnight backpacking.
Resources	The wilderness character of these areas is intact and preserved to the greatest extent. The soundscape is as close to natural as is possible. Silence and natural sounds dominate. Night skies are unaffected by artificial light. Wildlife are largely unaffected by human presence. Visitor use of off-trail areas beyond existing winter travel routes has minimal to no adverse impact on vegetation.	The wilderness character of these areas is intact and preserved to the greatest extent. The soundscape is as close to natural as is possible. Silence and natural sounds dominate. Night skies are unaffected by artificial light. Wildlife are largely unaffected by human presence during these sensitive times of year. Visitor use of off-trail areas has minimal to no adverse impact on vegetation.

Appendix D: Glossary

1980 Additions – See Park Additions.

Allocation Season – The portion of the year during which the number of vehicles on the Park Road west of the Savage River is restricted. Defined in 36 CFR 13.932 as the Saturday of Memorial Day weekend through the second Thursday following Labor Day or September 15, whichever comes first.

Aufeis – Ice that forms from the freezing of successive flows of groundwater over previously formed layers of ice.

Backcountry – Any area of Denali National Park and Preserve that is not in the frontcountry developed area. Backcountry areas include designated and eligible wilderness, as well as areas that are ineligible for wilderness designation.

Designated Wilderness – Areas of the park that have been formally designated by Congress as wilderness under the 1964 Wilderness Act. In Denali, this includes the majority of the former Mount McKinley National Park, which was designated as wilderness in the 1980 Alaska National Interest Lands Conservation Act (ANILCA).

Eligible Wilderness – Areas of the park that have been determined eligible for formal wilderness designation but have not yet been either formally designated as wilderness or deemed ineligible for wilderness designation by Congress. According to the *2006 National Park Service Management Policies*, eligible wilderness is to be managed in a way that does not diminish its ability to be formally designated as wilderness in the future.

Extent Necessary Determination – A specific evaluation required by the 1964 Wilderness Act whereby the NPS determines whether commercial use is necessary in wilderness, and to what extent.

Formal Grooming – Intentional grooming of snow for recreational use, conducted for no other reason than to provide a recreational opportunity (i.e., not conducted opportunistically as a secondary aspect of a different activity).

Former Mount McKinley National Park – See Old Park

New Park – See Park Additions.

Old Park – The land included in the former Mount McKinley National Park, prior to the 1980 addition of park and preserve lands under the Alaska National Interest Lands Conservation Act

(ANILCA, see Park Additions). These approximately 2 million acres of land were largely designated as wilderness within Denali National Park and Preserve by ANILCA.

Park Additions – Approximately 4 million acres of land added to the former Mount McKinley National Park by the Alaska National Interest Lands Conservation Act of 1980 (ANILCA), creating Denali National Park. These 4 million acres of park additions include approximately 2.5 million acres of national park land and 1.3 million acres of preserve land.

Road Lottery – Four or five days at the end of the summer season when 400 permits per day are issued for private vehicle access to the entirety of the Park Road, weather permitting. In this EA and the *2019 Winter and Shoulder Season Plan* the fall shoulder season begins after the last day of Road Lottery.

Shoulder Seasons – The term ‘shoulder seasons’ refers to the fall and spring seasons. When used in this EA and the *2019 Winter and Shoulder Season Plan*, these seasons are:

Fall Shoulder Season – The time of year between the day immediately following the last day of Road Lottery (typically in mid to late September) until wintry weather closes the Park Road and it is not plowed open again when the weather breaks (typically sometime in October).

Spring Shoulder Season – The time of year between when spring road opening operations permit public vehicle traffic west of the Mountain Vista rest area (typically in mid-April) and the full complement of summer services and facilities are open to the public, (typically in mid to late May).

Spring Road Opening – The road plowing effort that typically commences in mid to late March to clear the Park Road of snow and ice and prepare it for summer traffic. Spring road opening typically progresses from east to west from Headquarters, and in the past has allowed for private vehicle access at far west as the Teklanika rest area during the spring shoulder season.

Snowmachine – Also referred to as ‘snowmobile’. A self-propelled vehicle intended for off-road travel primarily on snow having a curb weight of not more than 1,000 pounds (450 kg), driven by a track or tracks in contact with the snow and steered by a ski or skis on contact with the snow.

Summer Season – When used in this EA and the *2019 Winter and Shoulder Season Plan*, the ‘summer season’ is the time of year between when the full complement of summer services and facilities are open to the public (typically in mid to late May) and the last day of Road Lottery (typically mid to late September).

User-maintained – Trails or routes that are not maintained by the NPS. In the winter season, this includes winter routes and winter trails that the NPS does not shovel, groom, or otherwise formally maintain.

Winter Route – A travel corridor used in the winter that may or may not follow a formal year-round trail surface or a maintained cut through the brush. Winter routes may remain the same or vary in location year to year.

Winter Season – When used in this EA and the *2019 Winter and Shoulder Season Plan*, the ‘winter season’ refers to the time of year between when wintry weather closes the Park Road and it is not plowed open again when the weather breaks (typically sometime in October) until spring road opening operations permit public vehicle traffic west of the Mountain Vista rest area, (typically in mid-April).

Winter Trail – A trail specifically designed and maintained for winter season use, typically by providing a cut through trees and brush, but not by establishing a year-round trail surface. Examples include the Spring Trail and the Aufeis Trail.

Winter Plowing – Any effort to plow the Park Road open for public vehicle access during the winter season, from the first winter weather in the fall until spring road opening plowing begins.