

# **Environmental Assessment**

## **Little Missouri National Grassland** **Travel Management Plan**

**Little Missouri National Grassland  
Medora and McKenzie Ranger Districts  
Dakota Prairie Grasslands, Northern Region**

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*Individual copies of these tables are available on-line and on CD.*

*Paper copies are available for review at local Forest Service offices.*

# Introduction

The 36 Code of Federal Regulations (CFR) Parts 212, 251, 261, and 295; Travel Management; Designated Routes and Areas for Motor Vehicle Use (***Travel Management Rule***), was published on November 9, 2005. The Travel Management Rule *requires* that National Forest System (NFS) roads, NFS trails, or areas on NFS lands open to motor vehicles be designated on a Motor Vehicle Use Map.

This planning process applies *only* to NFS roads, NFS trails, and areas on NFS lands. The Motor Vehicle Use Map will show non-Forest System roads and trails as “other” roads in order to display connectivity of the road system.

There is now an extensive road system on the LMNG. The *Travel Management Rule* places these roads into two basic categories for use in this analysis – System Roads and Unauthorized Roads.

**System Roads** are inventoried, numbered, and mapped by the Forest Service. System roads include paved, gravel/scoria-surfaced, and native surface “two-track” roads. System roads were primarily used to develop the proposed action.

Other roads currently open to the public that are largely user-created are **Unauthorized Roads**. Unauthorized roads are not numbered, and may or may not be inventoried or mapped. Because there is not a complete inventory of these unauthorized roads they are not shown on Forest Service maps. Unauthorized roads were not used in developing the proposed action.

There are approximately **1,565** miles of System Roads open to general public motor vehicle travel on the Little Missouri National Grassland (LMNG). There is an unknown quantity of Unauthorized Roads open to general public motor vehicle travel as well, though 600 miles have been identified through a partial road inventory conducted in 2008. Currently, all open motorized routes are classified as “roads”. There are currently no motorized routes classified as “trails” on the Little Missouri National Grassland.

This total does *not* include 265 miles of single use oil & gas roads currently closed to general public motor vehicle travel, nor does it include any other roads currently closed to the public.

**Table 1 – Comparison of Alternatives – Miles of Roads Closed**

	<b>Miles of Closed System Roads</b>	<b>Miles of System Roads Converted to Motorized Trails</b>	<b>Miles of Closed Unauthorized Roads</b>	<b>Miles of Seasonally Closed Roads</b>
<b>No Action</b>	0	0	0	0
<b>Proposed Action</b>	703	0	600+ (all)	0
<b>Alternative 1</b>	97	1,153	600+ (all)	0
<b>Alternative 2</b>	870	0	600+ (all)	20

The full analysis and description of the alternatives follows. Detailed discussion of all the alternatives is in Chapter II.

## I PURPOSE OF AND NEED FOR ACTION

The primary purposes of this project, as identified by the interdisciplinary team are:

- Identify a system of roads that the public is invited to use.
- Bring road use into compliance with laws, regulations, and management direction provided in the LRMP.
- Provide public access to the LMNG for recreation and other uses.
- Develop and implement a travel plan that is easily understood by the public.

The 36 Code of Federal Regulations (CFR) Parts 212, 251, 261, and 295; Travel Management; Designated Routes and Areas for Motor Vehicle Use; Final Rule, hereinafter referred to as the **Travel Management Rule**, was published on November 9, 2005. The Travel Management Rule *requires* that National Forest System roads, National Forest System trails, or areas on National Forest System lands open to motor vehicles be designated on a Motor Vehicle Use Map (MVUM). Key portions of this rule are shown in *Figure 1*.

### A. Location and Setting

The USDA Forest Service manages the Little Missouri National Grassland, hereinafter referred to as the **LMNG**. The LMNG is approximately 1,026,300 acres and is located in western North Dakota. It is comprised of two Forest Service Ranger Districts: the Medora Ranger District includes approximately the south half of the LMNG, and the McKenzie Ranger District includes approximately the north half of the LMNG. *Map A* shows the vicinity of the project area. The topography of the area is characterized by badlands and rolling prairie.

The badlands topography includes drainages and draws dropping from grassy ridgelines or butte-like hills. Large slumps and earth flows typical of a highly erodible landscape can also be identified. The topography of the rolling prairie includes nearly level to rolling hills with some inclusions of scattered buttes and badlands landscapes. The soils are quite well developed and stable, and occur beneath a fairly consistent mosaic of grass cover.

### B. Identifying the Need for Action

The purpose of travel management planning, as provided in 36 CFR 212.50 (a) is to provide a system of National Forest System roads, National Forest System trails, and areas on National Forest System lands that are designated for motor vehicle use. After these roads, trails, and areas are designated, motor vehicle use, including the class of vehicle and time of year, not in accordance with these designations is prohibited by 36 CFR 261.13. Motor vehicle use off designated roads and trails and outside designated areas is prohibited by 36 CFR 261.13.

In 2001 the Northern Region of the Forest Service and the Montana Bureau of Land Management (BLM) developed the Off-Highway Vehicle (OHV) Environmental Impact Statement (EIS) and Record of Decision (ROD), or the **OHV Decision**, to “avoid future impacts from the increasing use of OHVs”. This decision brought consistency to travel management in the region and prohibits off road travel unless specifically authorized.

A key aspect of the OHV decision is what defines a travel route. Under the OHV decision, motorized use is allowed on “existing” roads and trails. These routes are either clearly constructed and

maintained roads and trails, or those where there is clearly evident two-track and single-track routes with regular use and continuous passage of motorized vehicles over a period of years for their continuous length (OHV EIS, page 12). This was intended to be the definition until site-specific planning to designate roads and trails was completed.

The Dakota Prairie Grasslands Land and Resource Management Plan, or **LRMP**, was completed for most resources in July 2002, and for the remaining grazing related decisions in September 2006. These efforts provide direction for the management of the LMNG, including the road system and the prohibition of off-road motor vehicle travel described in the OHV Decision.

The travel management law enforcement tool is the MVUM. Roads closed to general public motor vehicle travel are not required to be signed, gated, blocked, or identified by any means other than the MVUM. The MVUM, by regulation, will show only those NFS roads that are **open** to the public; closed roads will not be displayed on the MVUM.

The Medora and McKenzie Ranger Districts conducted travel analysis in 2008. Travel analysis assesses the current transportation system, identifies issues, and assesses benefits, problems, and risks to inform decisions related to designation of roads, trails and areas for motor vehicle use per 36 CFR part 212.51. Travel analysis is not a decision-making process. Rather, travel analysis informs decisions relating to administration of the forest transportation system and helps to identify proposals for changes in travel management direction.

The travel analysis was conducted to identify roads needed for management of the LMNG, and roads that had the potential for resource problems. In addition, travel analysis attempted to identify access to the LMNG across private property. Based on this framework, a proposed travel management plan was developed.

**The decisions to be made from this analysis only apply to NFS lands, roads, and trails. State and private lands and roads are shown in the analysis area only to provide a frame of reference for describing the proposed action and alternatives.**

**Figure 1 - Key Excerpts from the Travel Management Rule**

**§ 212.1 Definitions**

*Designated road, trail, or area.* A National Forest System road, a National Forest System trail, or an area on National Forest System lands that is designated for motor vehicle use pursuant to § 212.51 on a motor vehicle use map.

*National Forest System road.* A forest road other than a road which has been authorized by a legally documented right-of-way held by a State, county, or other local public road authority.

*National Forest System trail.* A forest trail other than a trail which has been authorized by a legally documented right-of-way held by a State, county, or other local public road authority.

*Motor vehicle.* Any vehicle which is self-propelled, other than: (1) A vehicle operated on rails; and (2) Any wheelchair or mobility device, including one that is battery powered, that is designed solely for use by a mobility-impaired person for locomotion, and that is suitable for use in an indoor pedestrian area.

*Road.* A motor vehicle route over 50" wide, unless identified and managed as a trail.

*Trail.* A route 50" wide or less or a route over 50" wide that is identified and managed as a trail.

*Unauthorized road or trail.* A road or trail that is not a forest road or trail or a temporary road or trail and that is not included in a forest transportation atlas.

**§ 212.50 Purpose, scope, and definitions.**

(a) *Purpose.* This subpart provides for a system of National Forest System roads, National Forest System trails, and areas on National Forest System lands that are designated for motor vehicle use. After these roads, trails, and areas are designated, motor vehicle use, including the class of vehicle and time of year, not in accordance with these designations is prohibited by 36 CFR 261.13. Motor vehicle use off designated roads and trails and outside designated areas is prohibited by 36 CFR 261.13.

(b) *Scope.* The responsible official may incorporate previous administrative decisions regarding travel management made under other authorities, including designations and prohibitions of motor vehicle use, in designating National Forest System roads, National Forest System trails, and areas on National Forest System lands for motor vehicle use under this subpart.

(c) For definitions of terms used in this subpart, refer to § 212.1 in subpart A of this part.

**§ 212.51 Designation of roads, trails, and areas.**

(a) *General.* Motor vehicle use on National Forest System roads, on National Forest System trails, and in areas on National Forest System lands shall be designated by vehicle class and, if appropriate, by time of year by the responsible official on administrative units or Ranger Districts of the National Forest System, provided that the following vehicles and uses are exempted from these designations:

- (1) Aircraft;
- (2) Watercraft;
- (3) Over-snow vehicles (see § 212.81);
- (4) Limited administrative use by the Forest Service;
- (5) Use of any fire, military, emergency, or law enforcement vehicle for emergency purposes;
- (6) Authorized use of any combat or combat support vehicle for national defense purposes;
- (7) Law enforcement response to violations of law, including pursuit; and
- (8) Motor vehicle use that is specifically authorized under a written authorization issued under Federal law or regulations.

(b) *Motor vehicle use for dispersed camping or big game retrieval.* In designating routes, the responsible official may include in the designation the limited use of motor vehicles within a specified distance of certain designated routes, and if appropriate within specified time periods, solely for the purposes of dispersed camping or retrieval of a downed big game animal by an individual who has legally taken that animal.

## ***C. Public Involvement***

Travel management information was provided at the following combination of open houses and events:

- County Commissioners meetings (Slope, McKenzie, Billings, Golden Valley) – January 6, 2009
- Bismarck Sports Show – February 20-22, 2009
- Fargo Sports Show – March 5-8, 2009
- Minot Sports Show – March 13-15, 2009
- Williston Sports Show – March 20-22, 2009
- Watford City open house – March 16, 2009
- Dickinson open house – March 17, 2009
- Bismarck open house – March 18, 2009

From March 2-4, 2009 a project proposal scoping letter was sent to interested or potentially affected individuals, groups, organizations, county, state and other Federal agencies, describing the proposal and encouraging comments and participation in the planning process. On March 4 the same information was e-mailed to 75 media contacts across the state.

The Dakota Prairie Grasslands website also provided access to the scoping letter and description of the proposal, maps, and tables identifying each road and the reason for its proposed closure (if closure was proposed). Comments were taken in person, through the mail, by phone, and by e-mail.

This project has been on the DPG Schedule of Proposed Actions since 10/1/2008.

The Forest Service received approximately 165 responses from the scoping effort.

## ***D. Key Issues***

Issues are defined as concerns about the potential effects of the proposed action. Issues about the proposal were identified through the public scoping process, as well as from the agency's interdisciplinary (ID) planning team of resource specialists. The following key issues were identified:

### **Access**

- Access to public land (using roads with jurisdiction other than NFS)
- Access on public land (available roads once on NFS land)

### **Resource-Related Issues**

- The spread of noxious weeds and invasive plants
- Water quality

## ***E. Dakota Prairie Grasslands Land & Resource Management Plan (LRMP) Management Area Direction***

The LRMP was signed on July 31, 2002 and provides long-term management direction for all uses in the project area. Management direction is expressed in terms of Grassland-wide Direction, Geographic Area Direction and Management Area Direction. Grassland-wide Direction consists of goals, objectives, standards and guidelines, which are generally applicable to the entire DPG. Geographic Area Direction applies to one of the four geographic areas covered by the plan and is in

addition to the Grassland-wide Direction. This project lies in the Badlands Geographic Area and the Rolling Prairie Geographic Area. Management Area Direction is specific to individual areas and is also applied in addition to the Grassland-wide and Geographic Area Direction.

Summarized below is the overall Management Area (MA) Direction specifically related to travel management.

**Management Area 1.2a (Suitable for Wilderness)**

**39,736 acres**

These areas are managed to protect wilderness characteristics. Motorized use is limited to administrative purposes only.

**Management Area 1.31 (Non-motorized Backcountry Recreation)**

**65,147 acres**

These areas are managed to provide non-motorized, semi-primitive recreation opportunities in a natural-appearing landscape. Motorized use is limited to administrative and emergency purposes.

**Management Area 2.1 (Special Interest Areas)**

**6,164 acres**

These areas are managed to protect sites with important physical, biological, and/or cultural characteristics for the purpose of public use and enjoyment. OHV trail construction is prohibited. Motorized use is prohibited in The Bog (SIA 2.1b, LRMP p. 3-10).

**Management Area 2.2 (Research Natural Areas)**

**18,815 acres**

These areas are managed by maintaining or restoring natural ecological processes. Motorized use is limited to administrative, emergency, and scientific purposes.

**Management Area 2.4 (Identified American Indian Traditional Use Areas)**

**6,283 acres**

These areas are managed to protect the traditional cultural landscape. Construction of developed recreation sites or trails is prohibited.

**Management Area 3.51 (Bighorn Sheep Habitat)**

**56,899 acres**

These areas are managed to provide quality forage, cover, escape terrain, and solitude for bighorn sheep. Travel is to be restricted to protect sheep concentrations during lambing, breeding, and winter use.

**Management Area 3.63 (Black-Footed Ferret Reintroduction Habitat)**

**28,636 acres**

These areas are intensively managed for black-tailed prairie dog colony complexes for reintroductions of black-footed ferrets. Travel is managed according to grasslands-wide direction (LRMP p.27, section Q).

**Management Area 3.65 (Rangelands with Diverse Natural-Appearing Landscapes)  
345,471 acres**

These areas are managed to maintain or restore a diversity of desired plants and animals and ecological processes and functions. Travel is managed according to grasslands-wide direction (LRMP p.27, section Q).

**Management Area 4.22 (River and Travel Corridors)  
20,435 acres**

These areas are managed to protect or preserve the scenic values and recreation uses of the Little Missouri River Corridor. OHV trail construction is prohibited in these areas.

**Management Area 4.32 (High Use Dispersed Recreation)  
7,990 acres**

These areas are managed for recreational opportunities and scenic qualities. Travel is managed according to grasslands-wide direction (LRMP p.27, section Q).

**Management Area 6.1 (Rangeland with Broad Resource Emphasis)  
426,249 acres**

These areas are managed to meet a variety of ecological conditions and human needs. Motorized transportation is common on designated roads and two-tracks.

**F. Travel Management not Considered in Developing the Proposal**

Per 36 CFR 212.50 (b), the Responsible Officials may incorporate previous administrative decisions regarding travel management. The following three points address these prior decisions.

*Game Retrieval*

Travel off of a road to retrieve game is prohibited by the OHV Decision, and this policy will not be revisited in this decision.

*Grasslands Supervisor Special Orders*

Roads and areas that are currently closed by Grasslands Supervisor's Special Order will remain closed. These Special Orders are in place because of prior specific resource concerns and will not be reviewed by this decision.

*Commercial Use (Oil & Gas) Roads*

With this planning effort the Forest Service is obligated to identify those roads which are legally open to the public, and to display those roads on a Motor Vehicle Use Map (MVUM). Because these oil roads are closed to the public, it would be a violation of both LRMP direction and mineral plans if these roads were displayed as open on the MVUM. Therefore, the Proposed Action has been adjusted from its original form to reflect the fact that these roads are closed by previous decisions, and these road mileages are not included in the total road mileages for any alternative.

**There are a total of 265 miles of these roads within the LMNG.**

The Elkhorn Ranchlands acquisition is currently undergoing other planning processes. Therefore the following apply to those lands.

*Elkhorn Ranchlands*

Roads within the Elkhorn Ranchlands purchase are being reviewed in a separate environmental document, and will not be part of this decision. Once the decision on the Elkhorn Ranchlands is made, roads that are opened by that decision will be added to the Motor Vehicle Use Map.

**G. Vehicles and Uses Exempted from the Regulation (36 CFR 212.51 (a))**

*Other Exceptions* - The following vehicles and uses are managed by other laws, regulations, Grasslands Plan direction, or permit and are not included in this analysis:

- Aircraft
- Watercraft
- Over-snow vehicles
- Limited administrative use by the Forest Service
- Emergency use of fire, military, emergency, or law enforcement vehicles
- Combat vehicles in support of national defense
- Motor vehicle use that is specifically authorized under a written authorization issued under Federal law or regulations

## **II ALTERNATIVES**

This chapter describes the No Action, Proposed Action, and Alternatives – the process used to develop each, actions common to some or all of the alternatives, a detailed description of each alternative, and a comparison of the potential effects that may result from implementation of each alternative.

### **A. Process Used to Develop Alternatives**

The interdisciplinary team utilized public scoping, internal scoping, specialist input, etc. to create the alternatives. Specific points used in the development of each alternative are identified below.

#### ***No Action***

The No Action Alternative is the current transportation system and includes all the Unauthorized Roads and System Roads. This alternative serves as a baseline to compare to the action alternatives for environmental impacts. If selected, this alternative would defer travel management as well as the production of a MVUM.

A map of this alternative is not provided. An inventory of roads was conducted October 2007 through February 2008 in an effort to identify and map those roads that were defined as “unauthorized”. Inventory efforts were suspended after that time because (1) it was determined that a complete inventory of unauthorized roads was not required nor necessary to complete travel management planning, and (2) it was determined that, due to on-the-ground management activities and ever-changing conditions, an accurate and complete inventory of unauthorized roads would be difficult to obtain and would require substantial resources to complete.

#### ***Proposed Action***

The Proposed Action is based on the results of Travel Analysis. During this process, System Roads were given a rating of “high value” or “low value”. High value roads had at least one of the following attributes:

1. Provides a loop opportunity or connection from one main road to another.
2. Needed to provide adequate access to public land.
3. Reliably passable and safe.
4. Needed to access private residences.

Typically, high value roads were not proposed to be closed under the Proposed Action unless there was a specific resource impact concern that could only be addressed by closing that road to the public.

System Roads were also evaluated for their existing and/or potential impacts relative to the following resource risk factors:

1. Steep slopes (15 percent or greater)
2. Known heritage/cultural resource sites (within 30 meters of a road)
3. Known areas of concentrated paleontological resources (within 30 meters of a road)
4. Known sensitive species locations and known suitable habitat conditions (within 15 meters of a road)
5. Riparian areas/streams based on National Wetlands Inventory (within 30 meters of a road)
6. Known grouse leks (within ¼ mile of a road)
7. Known golden eagle and raptor nest locations (within 1/2 mile of a road)
8. Known burrowing owl locations (within ¼ mile of a road)
9. Known prairie dog towns (adjacent to road)

10. Known noxious weed locations (adjacent to road)
11. Known high value native grasses (to protect from noxious weed infestation)
12. Bighorn sheep lambing, breeding, and winter habitat solitude
13. Black-footed Ferret Reintroduction Habitat Management Area

Risk factors were identified and used to help determine which roads would be proposed as open or closed.

During meetings of the Forest Service interdisciplinary team, the following criteria were used to further define the scope of the Proposed Action:

1. Roads on non-NFS land were considered available for public use to access NFS lands only if the County Commissioners identified them as open public roads. (Identifying these roads was done to be able to show the public a known route to NFS lands; there was no intent to claim that the Forest Service has jurisdiction over these roads.)
2. Roads on NFS land not accessed by a public road (as described above) were proposed “closed” to the general public.
3. Parallel roads that accessed the same general area and/or ended at the same spot and did not provide a true loop experience were reviewed, and the better quality road was proposed “open” while the poorer quality road was proposed “closed”. Loop opportunities were proposed “open” as long as the entire loop accessed a variety of terrain (different sides of a drainage or a butte, for example).
4. Safety of the road was reviewed, based on the professional judgment of a resource specialist (not an engineering study or review). This was applied only to two-track roads primarily because most of these roads are not constructed using any accepted road construction standards, nor are they maintained to any specific standard. If a resource specialist felt a road was not safe to operate on, the road was proposed as “closed”.
5. Roads on NFS land that are less than  $\sim\frac{1}{2}$  mile long and only access an oil well or oil/gas facility were proposed “closed”.
6. Roads on NFS land that are longer than  $\sim\frac{1}{2}$  mile and only access an oil well or oil/gas facility were proposed as “open” or “closed” based on other available public access to an area.  
\*\* Items 5 and 6 now reflect whether or not a road is permitted as “private”, or permitted to an individual or company for their exclusive use. These determinations were made in prior NEPA decisions and are not being revisited in this analysis.

From this evaluation a table was developed to identify each road and its value rating, risk factor identification, additional criteria such as legal access, and the proposal for the road to be kept open or closed to the public. These tables were made available during public scoping, and the information has been incorporated into the table in *Appendix B*.

### ***Alternative 1***

During public scoping, one segment of the public identified the desire to close fewer roads than proposed in the Proposed Action. Tourism, multiple use, accessibility, law enforcement, recreation, preventing overcrowding, and North Dakota heritage were all reasons that supported fewer closures. Lack of legal access through private land was not considered critical because people felt the roads on public land would not exist had access not been allowed through private land at some point in time. Wildlife, safety, and noxious weed issues were not considered by the commenting public as adequate reasons to close a road.

In addition, one segment of the public identified the need for motorized trails that offer recreation opportunities similar to those provided to the non-motorized recreationist.

Alternative 1 responds to these comments by:

- Proposing to close 97 miles of System Roads.
- All Unauthorized Roads would be closed.
- NFS roads beyond private land roads would only be closed if the landowner specifically informed the Forest Service that the road crossing their private land is closed to the public, and that private road is the only access to NFS land. Roads not having legal access but having no other risk factors warranting closure would not be closed on NFS land even though the MVUM may not show a way to get there.
- Roads were proposed closed for resource impacts only if the impact could not be mitigated.
- All System Roads that are native surface two-track roads would be converted to Motorized Trails (1,153 miles).
- If a scoping comment specifically identified a road, by number, to not be closed then that road was not proposed closed in this alternative.

### ***Alternative 2***

During public scoping, one segment of the public identified the desire to close more roads than proposed in the Proposed Action. Resource damage, public safety on commercial use roads and in high hydrogen sulfide (H<sub>2</sub>S) areas, protection of range developments, providing greater opportunities for solitude, and protection of specific areas (cultural sites, suitable for wilderness, special geologic features, etc.) were reasons identified in support of closing more roads.

Alternative 2 responds to these comments by:

- Closing the same roads as in the Proposed Action.
- Closing all two-track roads that dead-end at range developments (water tank, stock dam, etc), or end within 200' of a range development.
- Closing all roads in Inventoried Roadless Areas.
- Keeping all roads closed between Lone Butte road and roads on the east side of Lone Butte.
- Seasonally closing roads recommended as such but left open in the Proposed Action.
- Closing any other road that was identified, by road number, to be closed in a response to scoping.

### **B. Actions Common to No Action, Proposed Action, and Alternatives**

- The following types of motorized travel may occur on established (no action) or designated (action alternatives) roads and trails: passenger vehicle, high-clearance vehicle, ATV, and motorcycle as State Law allows. The Mixed Use Analysis, located in the project file, supports this. That is not to say that all roads are maintained for all types of vehicular travel, but rather that there is no critical safety concern associated with this type of mixed use.
- Off-road permits to drive cross-country or on closed roads would continue to be issued by the authorized officer on a case-by-case basis. This would include activities such as research and weed spraying contractors.
- Livestock grazing permittees are allowed to access their permitted area to administer the terms of their grazing permit. When and how the areas are accessed is set in the permit or annual operating plans. Examples of these permit activities include salting, herding, and checking and maintaining improvements.

- Access would be provided to private inholdings consistent with Section 1323(q) of the Alaska National Interest Lands Conservation Act (ANILCA; P.L. 96-487; 16 U.S.C. 3210)
- Any Federal, state, local official, or member of a rescue organization or fire-fighting organization, in the performance of an official duty related to law enforcement, emergency search and rescue, and/or fire suppression, would be exempt from travel restrictions.
- All Federal and State laws applying to motor vehicles are subject to enforcement. Title 36 CFR 261.13 is the primary Forest Service regulation for motor vehicle use.
- Non-motorized cross-country travel would be allowed (i.e. hiking, bicycling, horseback riding, etc.) consistent with LRMP Management Area direction.
- Current snowmobile travel rules and regulations would not be affected under this plan.
- Motorized travel for game retrieval would not be allowed.
- Motorized travel would be allowed up to 300 feet off of an open road to access a dispersed campsite.
- Private roads are identified as closed to the public if during this analysis the landowner contacted the Forest Service and specified their road as such.
- No new rights-of-way or easements are considered, no physical road barriers or earth-moving road closure activities are included in this analysis.

### **C. Actions Common to Proposed Action and Alternatives**

- The action alternatives – which include the Proposed Action, Alternative 1 and Alternative 2 – were developed using the definitions and direction provided in the Travel Management Rule. Once the travel planning process is completed, only those routes designated for motor vehicle use as shown on a MVUM would be open to the general public for motor vehicle travel.
- All Unauthorized Roads would be closed to public motor vehicle use.
- The current level of management intensity would not change on the designated roads.
- A Motor Vehicle Use Map (MVUM) would be produced that displays the roads open to public motor vehicle travel. The MVUM would be produced and available on the web by December 31, 2010.
- The proposal of “closed” means that the road is proposed to be closed to general public motor vehicle use, and would not be displayed on the MVUM. Signs may be posted. The placement of physical barriers or the physical removing of the road template and returning it to a natural condition are not part of this analysis. Any such actions would require additional analysis.

### **D. Alternatives**

For all alternatives, Appendix B contains a table that lists all System Roads and identifies, by alternative, roads that are proposed to be closed to public motor vehicle use. The reason for a road closure is also identified in the table.

#### **No Action**

Under the No Action Alternative, **all** System Roads and **all** Unauthorized Roads would remain open to the public except where motorized travel is prohibited by LRMP direction or specific road closure orders. Cross-country motor vehicle travel would be prohibited. Travel management planning would not be completed, and a MVUM would not be produced.

### **Proposed Action**

Under Proposed Action, **703** miles of System Roads would be closed. There would be no motorized trails or seasonal road closures. All Unauthorized Roads would be closed.

### **Alternative 1**

Under Alternative 1, **97** miles of System Roads would be closed to public motor vehicle travel, and **1,153** miles of System Roads would be converted to System Trails open to public motor vehicle travel. All Unauthorized Roads would be closed.

### **Alternative 2**

Under Alternative 2, **870** miles of System Roads would be closed to public motor vehicle travel, and **20** miles of System Roads would be closed on a seasonal basis. There would be no motorized trails. All Unauthorized Roads would be closed.

## **E. Comparison of Alternatives**

Table 2 provides a comparison of the alternatives, showing the miles of roads that would be closed to general public motor vehicle use.

**Table 2 – Comparison of Alternatives – Miles of Roads Closed**

	<b>Miles of Closed System Roads</b>	<b>Miles of System Roads Converted to Motorized Trails</b>	<b>Miles of Closed Unauthorized Roads</b>	<b>Miles of Seasonally Closed Roads</b>
<b>No Action</b>	0	0	0	0
<b>Proposed Action</b>	703	0	600+ (all)	0
<b>Alternative 1</b>	97	1,153	600+ (all)	0
<b>Alternative 2</b>	870	0	600+ (all)	20

**Table 3 – Comparison of Alternatives – Purpose and Need**

	<b>Identify a system of roads that the public is invited to use.</b>
<b>No Action</b>	DOES NOT MEET – an accurate map would not be produced; visitors would continue to have the Grasslands Visitor Map available
<b>Proposed Action</b>	MEETS – A Motor Vehicle Use Map (MVUM) would be produced and would be available free to the public. This map would receive annual updates
<b>Alternative 1</b>	MEETS – same as Proposed Action
<b>Alternative 2</b>	MEETS – same as Proposed Action
	<b>Bring road use into compliance with laws, regulations, and management direction provided in the LRMP.</b>
<b>No Action</b>	MEETS – Roads closed by previous decisions will remain closed.
<b>Proposed Action</b>	MEETS – same as No Action
<b>Alternative 1</b>	MEETS – same as No Action
<b>Alternative 2</b>	MEETS – same as No Action

	<b>Provide public access to the LMNG for recreation and other uses.</b>
<b>No Action</b>	DOES NOT MEET – Public access to the LMNG is not provided or guaranteed in many locations. BEST MEETS – Provides the most miles of road across the greatest amount of NFS land of all the alternatives.
<b>Proposed Action</b>	DOES NOT MEET – Public access to the LMNG is not provided or guaranteed in many locations. MEETS – Provides access in most areas of the LMNG where access to NFS land is provided.
<b>Alternative 1</b>	DOES NOT MEET – Public access to the LMNG is not provided or guaranteed in many locations. BETTER MEETS – Provides a great deal of motorized access but limits access to System Roads.
<b>Alternative 2</b>	DOES NOT MEET – Public access to the LMNG is not provided or guaranteed in many locations. MINIMALLY MEETS – Provides access primarily by surfaced roads; most two-track (Level 2) roads are closed.
	<b>Develop and implement a travel plan that is easily understood by the public.</b>
<b>No Action</b>	DOES NOT MEET – the lack of a MVUM or comprehensive road map leaves the public without a trip planning tool.
<b>Proposed Action</b>	MEETS – both a MVUM and a comprehensive road map would be published and available.
<b>Alternative 1</b>	MEETS – both a MVUM and a comprehensive road map would be published and available.
<b>Alternative 2</b>	MEETS – both a MVUM and a comprehensive road map would be published and available.

**Table 4 – Comparison of Alternatives – Key Issues**

	<b>Access to public land – using roads with jurisdiction other than NFS</b>
<b>No Action</b>	DOES NOT MEET – Public access to the LMNG is not provided or guaranteed in many locations.
<b>Proposed Action</b>	DOES NOT MEET – Public access to the LMNG is not provided or guaranteed in many locations. The comprehensive road map would include those roads where jurisdiction is not NFS and where public access status is unknown, in addition to displaying known access.
<b>Alternative 1</b>	DOES NOT MEET – Same as Proposed Action.
<b>Alternative 2</b>	DOES NOT MEET – Same as Proposed Action
	<b>Access on public land – road availability once on NFS land</b>
<b>No Action</b>	BEST MEETS – Provides the most miles of road across the greatest amount of NFS land of all the alternatives.
<b>Proposed Action</b>	MEETS – Provides access in most areas of the LMNG where access to NFS land is provided.
<b>Alternative 1</b>	MEETS – Provides a great deal of motorized access but limits access to System Roads.
<b>Alternative 2</b>	MEETS THE LEAST – Provides access primarily by surfaced roads; most two-track (Level 2) roads are closed.

	<b>Spread of noxious weeds and invasive plants</b>
<b>No Action</b>	GREATEST POTENTIAL for noxious weed and invasive plant spread.
<b>Proposed Action</b>	LOWER POTENTIAL for noxious weed and invasive plant spread.
<b>Alternative 1</b>	HIGH POTENTIAL for noxious weed and invasive plant spread.
<b>Alternative 2</b>	LOWEST POTENTIAL for noxious weed and invasive plant spread.
	<b>Water quality</b>
<b>No Action</b>	GREATEST POTENTIAL for impacts to soil and watershed resources. Average road density of 1.4 miles per square mile. Miles of road within riparian/stream buffers of 199.8 miles. Number of road stream crossings of 251.
<b>Proposed Action</b>	Average road density a 36% reduction from the No Action. Miles of road within riparian/stream buffers a 37% reduction from the No Action. Number of road stream crossings a 34% reduction from the No Action.
<b>Alternative 1</b>	Average road density a 7% reduction from the No Action. Miles of road within riparian/stream buffers a 6% reduction from the No Action. Number of road stream crossings a 9% reduction from the No Action.
<b>Alternative 2</b>	Average road density a 43% reduction from the No Action. Miles of road within riparian/stream buffers a 44% reduction from the No Action. Number of road stream crossings a 42% reduction from the No Action.

### III AFFECTED ENVIRONMENT and ENVIRONMENTAL CONSEQUENCES

#### A. Botany

##### Introduction

The extent of road networks and associated disturbances has the potential to effect the conservation of sensitive plant species and suitable habitat. In addition to direct disturbances to sensitive plant habitat associated with road use and maintenance, roads also serve as vectors for the spread of invasive/noxious weed species (Gelbard and Belnap 2003, USFS 2003). The potential spread of noxious species is of somewhat less concern than invasive species because the former are actively controlled on the LMNG while the latter are not. However, collateral impacts to native species occur with herbicide control treatments of noxious species and can assist the spread or increased dominance of invasive grass species (Renz 2009, Washington, personal observations (Figure 2)). Hereafter, invasive weeds collectively refers to both invasive and noxious weed species.



**Figure 2** - . Areas of herbicide treatment for the noxious weed species leafy spurge (*Euphorbia esula*). Photo a shows high proportion of bare ground/litter in the spring following the year of treatment.



**Figure 3** - A patch of invasive Japanese brome (*Bromus japonicus*) that established on a site similar to that shown in Figure 2 one to two years after treatment.

##### *Overview of Issues Addressed*

The occurrence of known sensitive plant populations was evaluated with regard to proposed road closures and their potential effects on the populations. Only one known population of the sensitive species Dakota buckwheat (*Eriogonum visheri*) occurred sufficiently close to an existing two-rack road to advocate closing of the road. The potential exists for other road closures to positively affect unknown sensitive plant populations or suitable habitat. However, the potential spread of invasive weeds associated with roads is of greater concern. The spread of invasive weeds affects sensitive plant species and habitat, and the maintenance of native plant communities. The miles of road closures with respect to the different alternatives was evaluated as an estimate of the degree to which invasive weeds have the potential to spread.

## Affected Environment

### Existing Condition

#### Sensitive Plant Species

Thirteen sensitive plant species are listed for the LMNG (*Table 5*). There are no shrub species on the sensitive list. Of twelve populations of smooth goosefoot documented along the Little Missouri River corridor, only one population has been active in recent years and its numbers decreased from about 1000 plants during 2004 to no plants during 2008. Only three populations of nodding buckwheat have been documented on the LMNG. All populations have numbered less than 100 individuals, and two of the three populations have exhibited sharp decreases in the number of individual plants in recent years.

**Table 5 - Sensitive plant species on the LMNG**

Scientific Name	Common Name	# of Known Active Populations	Habitat Affected by Existing Road Network?
<i>Chenopodium subglabrum</i>	smooth goosefoot	1	yes
<i>Collinsia parviflora</i>	Blue-eyed Mary	4	no
<i>Cryptantha torreyana</i>	Torrey's Cryptantha	1	yes
<i>Eriogonum cernuum</i>	nodding buckwheat	4	yes
<i>Eriogonum visherii</i>	Dakota buckwheat	~ 50	yes
<i>Leucocrinum montanum</i>	sand lily	1	yes
<i>Mentzelia pumila</i>	dwarf mentzelia	4 (two areas)	yes
<i>Myosurus aristatus</i>	bristly mousetail	0	no
<i>Phlox alyssifolia</i>	alyssum-leaved phlox	30 (one area)	yes
<i>Pinus flexillis</i>	limber pine	1	no
<i>Populus acuminata</i>	lanceleaf cottonwood	6	no
<i>Sporobolus airoides</i>	alkali sacaton	4	yes
<i>Townsendia hookeri</i>	Easter daisy	14	yes

Seven of the thirteen sensitive species occur in relatively harsh or barren habitat with poorly developed soils such as areas of exposed parent material or sediment derived from weathering and erosion - smooth goosefoot, Torrey's Cryptantha, nodding buckwheat, Dakota buckwheat, dwarf mentzelia, alyssum-leaved phlox, and Easter daisy. Affected habitat for these species occurs most frequently along ridge shoulders and toe slopes.

Sand lily habitat involves relatively short-grass communities that can occur among topographic settings ranging from valley bottoms to ridgelines, and can thus be affected by a large portion of the road network. Alkali sacaton occurs over a similarly broad range of topography in settings ranging from clay outwash at the mouth of drainage valleys or other ephemeral flooded areas, to gravel or weathered bedrock deposits that can occur along ridgelines or exposed parent material.

Blue-eyed Mary occurs in the understory of green ash or Rocky Mountain juniper woodlands or outlying shrub patches, while lanceleaf cottonwood generally occurs along intermittent drainages or sites of increased sub-surface moisture. Limber pine forms a woodland habitat type along with Rocky Mountain juniper. The single population site of limber pine occurs among scoria outcrops in the

Limber Pine Research Natural Area MA2.2. Habitat for bristly moustail involves shallow ephemeral wetlands predominately occurring along drainages. In general, roads do not occur directly within habitat for these four species due to periodic flooding, constraints of topography and vegetative structure, and prohibited vehicle travel in RNAs.

### **Invasive Weeds**

The invasive species of concern primarily involve grasses of Kentucky bluegrass (*Poa pratensis*), smooth brome (*Bromus inermis*), and annual brome (*Bromus japonicus* and *B. tectorum*). Crested wheatgrass (*Agropyron cristatum*) is a non-native grass that has been but is no longer planted for various reclamation projects. Although not highly aggressive in the northern Great Plains, crested wheatgrass can expand or invade under relatively high disturbance. Sweet clover (*Melilotus officinale*) is an invasive forb that exhibits large annual fluctuations in density and frequency that may increase nitrogen availability and thereby assist the establishments of some invasive grass species. Although seemingly mundane, dandelion (*Taraxacum* spp.) is probably the most abundant or frequent non-native forb that may be influential in the current scarcity of sand lily due to similar habitat preferences and growth periods. However, dandelion does not result in the displacement of entire native plant community assemblages as generally results from invasive grasses.

Major introductions of non-native grasses on the LMNG occurred during the 1930-50s when marginally suitable agriculture land was abandoned and reclaimed with crested wheatgrass due to its relative ease of establishment and tolerance of drought. Opportunities have occurred for the introduction of other invasive grasses and noxious weeds such as leafy spurge. Disturbances associated with oil and gas production involving access roads, pipelines, and well pads, were historically reclaimed with seed mixtures containing high proportions of invasive species. Although reclamation seed mixes have been changed to native species, invasive grasses continue to establish and gain dominance or co-dominance on many reclaimed sites (Washington and Gildar 2004).

There are strong indications that invasive grasses are expanding across the LMNG. Recent analysis in northern Billings County indicated sharp increases of invasive grass frequency among twenty-three Pace Transects that were measured in 1980 and 2009. Of eighty Sere Plots measured during 2005-2008, 90% contained prominent amounts of invasive grasses and 25% of the sites were dominated by these species (Washington 2009a). These sites involved relatively open rangeland with livestock grazing as the primary land use and without high intensity ground disturbances. Similar invasions have been measured in other portions of the LMNG (Drummond 2005, Nieto 2005, Washington 2009b). Kentucky bluegrass has been the primary invasive grass in most situations (*Figure 4*), but lesser amounts of Canada bluegrass (*P. compressa*), smooth brome, and annual brome are also involved. Areas of greater soil and vegetation disturbance such as associated with livestock water lines, water tanks, and sites of winter/spring hay feeding (*Figure 5*) often result in increased prominence of invasive grasses on a local scale. Invasions of annual brome have occurred over large areas of Slope County in the southeast quarter of the LMNG (*Figure 6*).



**Figure 4** - Mature Kentucky bluegrass patches indicated by light brown patches within stand of crested wheatgrass.



**Figure 5** - Japanese brome (brown vegetation) invasion within area of annual winter hay feeding/spring grazing.



**Figure 6** - Heavy annual brome invasion across two-track road in southeast Slope County.

## *Desired Condition*

### **Sensitive Plant Species**

Desired conditions for sensitive plant species involve maintaining the viability of existing populations and maintaining or increasing the amount of suitable habitat conditions for the natural dispersal and establishment of new populations. Natural ecosystem processes including disturbances such as wind and water erosion and fire, should be functioning across the landscape in order to create or maintain suitable habitat for the listed sensitive species, many of which occur on early successional sites.

Applicable LRMP Standards and Guidelines direct for ensuring that management actions do not contribute to a loss of population viability for Forest Service sensitive plant species (pp 1-15 and 1-16).

### **Invasive Weeds**

The desired vegetative condition across the LMNG is to maintain the full spectrum or diversity of species naturally occurring among mixed and short grass communities on the LMNG (LRMP, p 2-10).

In this context, invasive weeds are undesirable in that they displace native plant communities and inhibit their re-establishment.

The following goals and objectives regarding the management of invasive weeds or conservation of native plant communities that are adversely affected by invasive weeds are discussed in the current LRMP.

- Goal 1b (p 1-2) directs for sustaining viable populations of native and desirable non-native species.
- Goal 1c (p 1-3) directs for increasing the amount of grassland restored or maintained in a healthy condition.
  - Objective 1 directs calls for moving landscapes towards a specified mix of seral stages and structure.
  - Objective 4 directs for developing cooperative noxious and invasive weed species management programs.
  - Objective 7 directs for implementing an integrated prevention control program for noxious and invasive weed species.
- Goal 2c (p 1-5) directs for improving the capability of the nation's forests and grasslands to provide a desired sustainable level of uses, values, products, and services.

Several Standards and Guidelines of the LRMP (p 1-20) reiterate the above goals and objectives. The uncontrolled spread of invasive weeds conflicts with all of the above Goals, Objectives, Standards, and Guidelines.

## Environmental Consequences

### *Methodology*

The mileage of roads proposed to be closed under each alternative was assessed to estimate the potential impacts to sensitive plant species and the potential spread of invasive weeds, with the assumption that miles of road closed would result in improved habitat for sensitive plants. Surfaced roads were assumed to result in low levels of direct impact to current sensitive plant populations and suitable habitat because vehicle travel tends to remain on the immediate road surface relative to two-track roads. Because habitat conditions along two-tracks have not been as altered as surfaced roads, the two-track road and associated corridor has a greater potential to support or provide suitable habitat for sensitive plant species. Thus, there may be an improvement to existing populations or suitable habitat from closing two-track roads.

On the other hand, research by Gelbard and Belnap (2003) showed that surfaced roads with the greatest degree of maintenance result in the greatest weed invasions along the road shoulders and ditches relative to unimproved two-tracks.



**Figure 7**

Leafy spurge indicated by bright green vegetation and faint yellow flowers along road edge.

**Figure 8**

Seed head of annual brome caught in vehicle undercarriage.



### *Spatial and Temporal Context for Effects Analysis*

Based on recent vegetation sampling in northern Billings and southern Slope Counties, several parcels of the LMNG have already transitioned to Invaded Vegetation States (dominated by invasive species), and several additional areas were estimated to have the potential to transition to this state in 10-15 years. Thus, the effects analysis is limited to this time period.

### *Connected Actions, Past, Present, and Foreseeable Activities Relevant to Cumulative Effects Analysis*

Past, present, and foreseeable activities affecting sensitive plant resources and the maintenance of native plant diversity as affected by invasive weeds are discussed under Cumulative Effects for each alternative.

## *No Action*

This Alternative would defer implementing the travel management rule and no travel map would be produced. All roads would remain open as they are currently, including both system roads and unauthorized roads.

### Direct and Indirect Effects

As no roads would be closed, sensitive plant species and native plant communities and connected resource uses that are current impacted by the existing road network would continue to be impacted. Invasive weed spread would also be expected to continue at its current rate. Thus, this alternative would be expected to have the greatest negative impact on sensitive plant species and native plant communities, and the least impact on the spread of invasive weeds.

### Cumulative Effects

#### **Sensitive Plant Species**

Disturbances associated with range improvements, oil and gas developments, recreational facilities, and other ground disturbing projects that assist the introduction or spread of weed populations may accumulate adverse effects on the maintenance of sensitive species.

#### **Invasive Weeds**

The increasing trend of weed species, and particularly invasive grasses, is likely assisted by several direct and indirect effects of past and current management practices. Breaking or plowing of marginally suitable land for agricultural production during the early 1900s, followed by later abandonment and reseeded with crested wheatgrass during the 1930s-1950s, created opportunities for the introduction of invasive weeds into the project area. Invasive grasses are sufficiently established within a large portion of the LMNG landscape at present that they are likely to continue expanding through various competitive advantages and natural and human-assisted dispersal. Noxious weeds are actively controlled on the grasslands, while invasive grasses and invasive forbs such as sweet clover are not, and are therefore able to spread unchecked.

Some aspects of livestock grazing management that are likely assisting the spread of invasive weeds include premature turn-in dates, feeding of hay that is dominated by invasive grasses (Figure 8), high livestock densities in hay feeding areas, and high stocking levels on summer grazed pastures. Native grasses can be grazed during hay feeding periods during relatively open winters, but this use is not always accounted in the total use. The resulting levels of use and the introduction of invasive weed seed through the hay likely assists the establishment of these species by improving seed-soil contacts and decreasing the competitive ability of native grasses.

Livestock can also assist the spread of invasive weed seed when they are carried on hides and hoofs. Livestock permittees and forest service personnel regularly drive vehicles cross-country during the course of various fieldwork when invasive seed can be transported on vehicle undercarriages and tires.

Approximately 2,200 active or reclaimed well sites and numerous miles of access road and utility corridors occur in the project area, and additional developments will occur in the future. Soil and vegetation disturbances associated with these activities have assisted the establishment and spread of invasive weeds despite current reclamation with native grasses (Figure 9) (Washington and Gildar 2004). Oil field access roads experience high levels of maintenance with many opportunities for the

introduction and spread of weed seed. Whether accessible to the public or not, oil well access roads contribute to the introduction and spread of invasive weeds.

Many aspects of recreation have and would continue to have the potential to assist the spread of invasive species through vehicle, bicycle, and even foot travel by humans, dogs, and horses. Several wildlife species can be natural vectors of invasive plant species.

In summary, there is strong if not conclusive evidence that invasive grasses are increasing on the LMNG and adversely affecting the maintenance of native plant communities and native biodiversity. Past and current livestock management, oil and gas related disturbances, and recreation are contributing to the spread of invasive weeds and the composition of grassland communities in the project area has a high potential to continue trending away from historic vegetation states and into new vegetation states dominated by invasive grasses.

#### Summary of Effects

This alternative would be expected to have the greatest negative impact on sensitive plant species and native plant communities, and the least impact on the spread of invasive weeds, due to the lack of road closures.

#### *Proposed Action*

##### Direct and Indirect Effects

The type of direct and indirect effects would be the same as for the No-Action Alternative, but the degree of potential adverse effects to sensitive plant habitat would be reduced, as would the spread of invasive weeds as a result of road closures.

##### Cumulative Effects

The amount and degree of cumulative effects would be the same as those discussed for the No Action Alternative.

##### Summary of Effects

The Proposed Action would reduce potential impacts to sensitive plant species and would reduce the spread of invasive weeds as a result of road closures.

#### *Alternative 1*

##### Direct and Indirect Effects

Adverse effects of this alternative would remain very similar to the No Action Alternative. Re-classifying two-track roads to Motorized Trails has the potential to increase funding for trail maintenance or improvements which would likely increase OHV use, and increased OHV use would likely increase impacts to sensitive species and increase the spread of invasive weeds.

##### Cumulative Effects

Cumulative effects would be the same as discussed for the No Action Alternative.

### Summary of Effects

Alternative 1 would result in a similar level of potential impacts as the No Action Alternative because the number of road miles open to the public would remain very similar. Potentially increased use of Motorized Trails could greatly add to these adverse effects.

### *Alternative 2*

#### Direct and Indirect Effects

The greatest benefit potential would occur to sensitive plant species and native plant communities as a result of the reduced invasive weed spread, based on the miles of roads closed under this alternative.

#### Cumulative Effects

Cumulative effects would be the same as discussed for the No Action Alternative.

### Summary of Effects

Alternative 2 would result in the lowest potential impact to sensitive plant species and lowest potential spread of invasive weeds as a result of the most miles of road closed to the public.

## **B. Heritage Resources**

### Introduction

This report focuses on what effect the 2005 Travel Planning Rule will have on the cultural resources of the LMNG.

#### *Overview of Issues Addressed*

Historic travel routes to homesteads, farms, ranches, mineral extraction operations and pioneer communities are part of the current road system. Some of these routes began as early game trails, American Indian trail systems, military trails and wagon routes (Fox and Turck 2009). Subsequent travel development on the LMNG included road construction spurred by mineral development, fire protection, rangeland management, and recreation. This accelerated motor vehicle use on public lands, and off-road motorized travel became common place.

In 2005, the Forest Service in consultation with the Advisory Council on Historic Preservation (ACHP) released a draft policy for NHPA compliance for the travel planning rule. The policy states existing USFS system roads and trails currently open are exempt from re-evaluation, and further analysis would apply only in the following categories:

1. New road or trailhead construction (motorized and non-motorized)
2. Authorization of motorized vehicle use on routes and in areas currently closed to vehicles.
3. Authorization of user-created roads and trails as open, designated routes.
4. Roads and trails proposed for physical closure especially obliteration.

## Affected Environment

### *Existing Condition*

The Draft Policy for NHPA Compliance in Travel Management recognized the need to eliminate cross-country travel and establish a designated route system in order to protect historic properties. It stated: “The establishment of a national policy for motor vehicle use on national forests and grasslands is a planning effort that does not have the potential to cause effects to cultural resources because the policy does not itself designate any routes for motor vehicle travel (US Forest Service, 2005).” All roads and trails to be identified on the final Travel Map are currently System Roads with identifying FS road numbers.

### *Desired Condition*

NHPA and its implementing regulations found in FSM 36 CFR 800, provide the legal framework for considering cultural resources in project planning (US Forest Service 2009a). Section 106 of NHPA requires that federal agencies take into account, in consultation with SHPOs, Tribes, ACHP and other historic preservation interests, the effects [of travel plan implementation] on cultural resources (ACHP 1999).

Thus, existing, formally designated roads and trails that are currently open to motor vehicle travel need not be re-evaluated for the purposes of the travel rule. In effect, there is no changed condition to cultural resources, although there may be existing management and protection concerns (i.e., vandalism, erosion) to address as basic heritage program responsibilities. None of the four above-mentioned categories considered “undertakings” apply in this instance.

## Environmental Consequences

### *Methodology*

Analysis will focus on miles of closed road for each Alternative (i.e., the more miles of closed road there are, the greater the positive effect will be on cultural resources).

### *Spatial and Temporal Context for Effects Analysis*

Other than the No Action Alternative, the short term effects are either nonexistent or positive. Long term effects apply only to future undertakings. Section 106 archaeological survey, mitigation and SHPO concurrence will be completed on any new or improved roads resulting in a likely No Adverse Effect finding.

## *No Action*

### Direct and Indirect Effects

Effects of the No Action Alternative are postponement of the Travel Planning Rule's implementation and production of a MVUM. New damage would likely result to cultural resources by continued unrestricted public use of all roads.

### Cumulative Effects

The No Action Alternative would likely result in new and continued damage to cultural properties.

### Summary of Effects

Overall Negative Effect: New and continued damage to cultural properties would likely occur.

## *Proposed Action*

### Direct and Indirect Effects

There would likely be a reduction in damage to cultural resources due to the road closures.

### Summary of Effects

Overall Positive Effect: Cultural properties would be less likely to receive damage than in the No Action Alternative and Alternative 1, because fewer miles of roads are open to the public.

## *Alternative 1*

### Direct and Indirect Effects

Implementation of this alternative would likely result in less damage to cultural resources than the No Action alternative due to the road closures.

### Summary of Effects

Cultural properties are less likely to receive damage than in the No Action Alternative, because of the road closures.

## *Alternative 2*

### Direct and Indirect Effects

This alternative would likely provide the least amount of damage and the most protection to cultural resources because it proposes the most miles of road closures.

### Summary of Effects

Cultural properties are likely to receive the least amount of new damage because this alternative contains the most miles of road closures.

## C. Recreation

### Introduction

This document describes the existing recreation opportunities as related to travel management, and discloses potential effects of the alternatives on the recreating public as well as on the available recreation opportunities.

The project area encompasses all NFS lands within the LMNG.

#### *Overview of Issues Addressed*

The primary issue identified by recreationists is **access**. This issue has several facets and includes both motorized and non-motorized access; access to NFS land through State and private land; road access across NFS land; equal access to the recreating public and permittees; reciprocal access; legal access as defined by the North Dakota Century Code.

The only indicator of available access is miles of roads and/or trails open to the general public for motor vehicle travel; or more correctly it is the change in available miles of roads or trails from the existing condition. This indicator is chosen because it can be quantified based on a fairly accurate set of data. Numbers of recreationists, recreation activities, etc. can be generally discussed based on some available data, but this information is more general.

#### Issue Indicators

For the recreating public, the issue indicator is the change in the available motor vehicle transportation system.

### Affected Environment

#### *Existing Condition*

##### ***The Recreation Setting***

LMNG field staff observations indicate that the majority of recreation activities occur in conjunction with the motorized travel corridors on the LMNG, and the majority of activity occurs during the fall hunting seasons.

The National Visitor Use Monitoring (NVUM) program is conducted every 5 years on each National Forest and Grassland in the nation. The primary mission of this program is to identify recreation activities that people are participating in, and to determine with the number of people participating in these activities.

Nationally, 45% of National Forest visitors are within 50 miles of home. The top five primary recreation activities are hiking/walking, viewing natural features, downhill skiing, fishing, and hunting. The top five activities that people participate in at sometime during their recreation visit are viewing natural features, hiking/walking, viewing wildlife, relaxing, and driving for pleasure (NVUM Results, National Summary Report FY03-08).

According to the preliminary results of the 2008 NVUM conducted on the Dakota Prairie Grasslands, there were approximately 181,000 recreation visits to the DPG in fiscal year 2008 (10/1/07 – 9/30/08). Over 65% of those were within 50 miles of home. The top five primary recreation activities were hunting (24%), viewing scenery (22%), hiking (17%), horseback riding (11%), and viewing wildlife (7%). (NVUM Results, DPG Preliminary Report 2/2009). *\*\*These results are for the DPG and are not specific to the LMNG, though the majority of surveys were conducted on the LMNG.*

### **Non-Motorized Recreation**

Approximately 125,000 acres, or slightly more than 12 percent, of the LMNG lies within three management areas where public motorized use is prohibited – MA 1.2a Suitable for Wilderness, MA 1.31 Non-Motorized Backcountry Recreation, and MA 2.2 Research Natural Areas. These areas provide opportunities for solitude and non-motorized activities. In addition, there are nearly 200 miles of non-motorized system trails.

While these areas are non-motorized for the general public, they are not completely non-motorized. Grazing permittees and other permit holders are authorized motor vehicle access within the bounds of their permit while they are administering the terms of their permit. So while the amount of motor vehicle traffic in these non-motorized areas is greatly reduced, they do not provide a true non-motorized experience.

### **Motorized Recreation**

Currently there are 1,565 miles of system roads open yearlong in the LMNG. These roads are currently open to all types and classes of vehicles. The *Motorized Mixed Use Analysis*, completed as part of this travel analysis, supports the continuation of motorized mixed use within the LMNG. This is also consistent with state regulations.

There are currently no motorized system trails on the LMNG. Current management allows motorized use of *any* road unless it is specifically identified as closed. This includes an unknown quantity of two-track roads in addition to the system roads. Off-road travel is prohibited.

### *Desired Condition*

For the LMNG badlands geographic area (LRMP 2-10) as well as the rolling prairie geographic area (LRMP 2-18), “existing recreation developments would be maintained and new recreation opportunities would be developed as the demand for recreation increases. Recreation experiences would focus on open and undeveloped landscapes.” “Infrastructure would be maintained as needed for various uses. Opportunities to reduce or eliminate unnecessary improvements would be pursued.”

The Dakota Prairie Grasslands Recreation Facility Analysis (RFA) describes the desired condition in a niche statement; “From the sweeping tall grass prairies and the eastern hard woods to the rugged, colorful badlands the DPG offers a welcome contrast from crop land agriculture that surrounds these islands of public land. These unique natural communities offer important public access to solitude, scenery and discovery of the natural world. A well-managed system of roads and trails allow visitors to move through these landscapes and explore places that were once traveled by dinosaurs, American Indians, homesteaders, General Custer, and Teddy Roosevelt. Recreation experiences and new opportunities provide a greater awareness and understanding of this unique and diverse place. Exceptional wildlife viewing, hunting and mountain biking and valued by local residents and attract regional and national visitors.” (RFA, June 2008)

In other words, the desired condition is a variety of recreation opportunities throughout the various landscapes of the LMNG.

## Environmental Consequences

### *Methodology*

Environmental consequences of changes in recreation opportunities were analyzed in the 2002 LRMP, as non-motorized management areas were developed. The Travel Management analysis only looks at changes in available motorized recreation access (miles of road/trail); no new roads or access routes are proposed. Consequences will generally reflect the social impacts of the anticipated changes in motorized vs/ non-motorized recreation opportunities based on those proposed changes.

Professional judgment and experience will be relied on heavily in the consequences analysis. There is very limited data regarding number of recreationists, types of recreation activities, and time of year these activities occur, though what is available will be used to the extent possible. Results of the most recent National Visitor Use Monitoring will also be used.

### *Spatial and Temporal Context for Effects Analysis*

Once the decision is made to close a road to the general public for recreation purposes, the recreation opportunity provided by that road ends and a new recreation opportunity begins. This is true immediately as well as in the future until another change occurs; the opportunity does not change over time unless a new decision is made.

The following table identifies activities that have resulted in a cumulative effect on recreation opportunities, particularly over the past 10 years.

<b>Project/Activity</b>	<b>Location</b>	<b>Effects</b>
Livestock grazing	Throughout the project area.	Fences, water developments, and other range facilities were constructed and two-track roads were created.
Oil and gas Development	Throughout project area	Construction of roads, well pads, pipelines, and production facilities. The construction of all –season roads for oil and gas activities opened up country that was historically accessible only by horseback or seasonal two-track road systems. The improved road system has improved access for livestock and permittees, but largely this road system is closed to the public ( <i>see I.G. Commercial Use (Oil &amp; Gas) Roads section for details</i> ).
2001 OHV Decision	Throughout the project area	Prohibited cross-country motorized travel by the general public.
2002 LRMP	Throughout the project area	Closed roads associated with MA 1.2a, MA 1.31, MA 2.1b, MA 2.2, and MA 3.51 (see Chapter 1 for Management Area descriptions).
Development of campgrounds, trailheads, trails	Throughout the project area	Nearly 200 miles of non-motorized trails have been developed over the past 10 years, along with campgrounds and trailheads to support the trail users. Equivalent trail opportunities have not been developed for motorized recreationists, though the campgrounds are available to all recreationists.

### *Effects Common to All Alternatives*

*Purpose and Need: develop and implement a travel plan that is easily understood by the public.*

All of the alternatives meet this criterion, though in different ways. No Action would mean that motorized use would continue to be allowed on “existing” roads and trails as defined in the OHV Decision. On the ground that is easily understood – if it looks like a road then it is a road. The difficult part is that a map would be nearly impossible to produce that would display all the roads that exist on the ground, and without a map there would be a segment of the public that would neither understand nor enjoy the motorized opportunities that existed.

*Purpose and Need - Provide public access to the Little Missouri National Grassland for recreational and other uses.*

None of the alternatives are able to secure public access to the LMNG within the context of this document or the ensuing decision. Where public access has already been secured, it will remain. Where public access is unavailable or in question because of private land ownership, this document will help to identify those locations so that Forest Service officials can work toward securing needed access.

*Purpose and Need: bring road use into compliance with laws, regulations, and management direction provided in the LRMP.*

All system roads currently meet LRMP management direction, so this would not differ by alternative.

### *Effects Common to Proposed Action, Alternative 1 and Alternative 2*

*Purpose and Need: identify a system of safe roads that the public is invited to use.*

One of the comments received during public scoping explained that road *safety* is a matter of opinion, particularly on two-track roads where there may not be any constructed features. While a particular road may not be safe to travel in a passenger car, it may provide the exact experience an OHV rider is looking for. The matter of *inviting* the public to use the road system indicates that the road system can be identified, mapped, or somehow shared with the public so that the opportunities can be explored and enjoyed, and that the road system provided is the road system the Forest Service manages for public use. Therefore, it can be argued that any action alternative would meet this purpose and need criteria. Since many of the roads on the LMNG are user-created, there has been no conscious management effort to review either safety of these roads or the opportunity they provide. Thus No Action would not meet this purpose and need criteria.

*Purpose and Need: bring road use into compliance with laws, regulations, and management direction provided in the LRMP.*

The No Action Alternative would not meet the requirements of the Travel Rule to complete travel management planning and produce a MVUM.

### *No Action*

#### Direct and Indirect Effects

This Alternative would defer implementing the travel management rule and no travel map would be produced. All roads would remain open as they are currently, including both system roads and unauthorized roads.

The lack of a mapped road system would make it difficult for groups to plan their trips.

Camping, hunting, motorized game retrieval, and other dispersed activities would have the highest potential for dispersal in this alternative because the entire road network would remain available to

them. Mobility-impaired individuals would have the greatest opportunity to discover the LMNG as well, because of the extensive road system.

The general public may feel that they are treated the most equitably in this alternative, as they would have motorized access nearly everywhere grazing permittees do.

The greatest variety of motorized recreation opportunities would be provided in this alternative, because most of the unauthorized roads are native surface two-track roads which offer a very different opportunity than does a surfaced road.

Non-motorized recreation experiences would largely be limited to the non-motorized management areas, and even then these areas are not entirely non-motorized (as explained above in the existing condition, non-motorized). This alternative provides the fewest opportunities for non-motorized recreation.

### Cumulative Effects

A travel map is not produced under this alternative, so travelers would need to rely on the existing Grasslands Visitor Map. Because the current LMNG map doesn't identify which roads are oil and gas roads and therefore closed to public travel, it can be confusing for new visitors to the LMNG. Trip planning would remain difficult, even though motor vehicle access would be plentiful. New unauthorized roads would likely appear each year as the public either created new roads or discovered those created by livestock permittees. Non-motorized opportunities would continue to be largely confined to those non-motorized management areas, though the construction of non-motorized trails would likely continue.

### *Proposed Action*

All unauthorized roads (600 miles inventoried plus an additional unknown quantity un-inventoried) would be closed to the public, which would eliminate the motorized recreation opportunity these roads provide. Most of these roads would likely still be used by grazing permittees, Forest Service personnel, and others exempt from the Travel Rule. In addition, 703 miles of system roads would be closed to the public, based on the criteria identified in Chapter 1 of the EA – an estimated 632 miles of native surface (Level 2) roads and 71 miles of surfaced roads.

### Direct and Indirect Effects

Large areas of public land, such as T135N, R105W would become unavailable to motorized recreation.

This alternative would provide more non-motorized opportunities than the No Action Alternative and Alternative 1, and fewer than Alternative 2. Conversely, this alternative would provide more motorized opportunities than Alternative 2 and fewer than the No Action Alternative and Alternative 1.

Motorized recreation activities would become more concentrated within those corridors with open roads, increasing the potential for conflict, particularly during the fall hunting seasons. The motorized experience would be changed since the alternative proposes to close a majority of native surface two-track roads, leaving surfaced roads to provide access and opportunities. Motorized dispersed camping opportunities would be reduced to approximately one-third of what is now available.

Non-motorized opportunities would be improved, particularly in large areas of road closures. The recreation experience is not likely to meet the expectations consistent with a non-motorized recreation opportunity, however, because the roads will remain open to grazing permittees, administrative uses, emergency personnel, etc.

#### Cumulative Effects

Non-motorized recreation opportunities would be expanded and enhanced despite the continued livestock grazing and oil/gas development. Motorized recreation opportunities, relegated to on-road only in 2001, would be substantially reduced further and limited more to the surfaced roads as two-track roads are closed.

#### *Alternative 1*

Under this alternative there would be 1,153 miles of motorized trails available yearlong for motorized recreation opportunities. These are current Level 2 roads that would be converted to motorized trails. Sixty-nine miles of Level 2 roads and 28 miles of surfaced roads would be closed under this alternative. All unauthorized roads (600 miles inventoried plus an additional unknown quantity un-inventoried) would be closed to the public

#### Direct and Indirect Effects

Routes proposed as motorized trails are currently those system roads that are not surfaced, and are currently not maintained to a standard to be passable by passenger car. Converting these lower standard roads to motorized trails would provide a new recreation opportunity on the LMNG. A "trail" is defined in the Travel Rule as "a route 50" wide of less, or a route over 50" wide that is identified and managed as a trail."

This alternative may limit motorized recreation opportunities for visitors with passenger cars, because motorized trails would likely be closed to these vehicles. These routes are not currently maintained to be passable by passenger car, so the impact to these users is expected to be low, though certainly some of the 1,153 miles of these low-level roads are currently passable by passenger car whether maintained for that use or not.

This alternative would provide the most motorized recreation opportunities of the action alternatives, and conversely would provide the least amount of non-motorized recreation opportunities of the action alternatives. There would be more non-motorized recreation opportunities than with the No Action Alternative because the 600+ miles of Unauthorized Roads would be closed under this alternative.

Based on miles of routes, this alternative would be expected to provide more opportunities for persons with disabilities or limited mobility to access the LMNG with motor vehicles than any of the action other alternatives.

#### Cumulative Effects

Availability of a travel map (MVUM) would make travel and trip planning on the LMNG easier. There would be the potential to develop a motorized trail system as well as continuing to develop the non-motorized trail system. The non-motorized recreation opportunities would be enhanced by the public's inability to use unauthorized roads; even though permittees and others would continue to use those roads the volume of traffic would be considerably decreased. Motorized recreation, though no

longer allowed off-road, would be enhanced with the availability of a map and the development of a wider variety of opportunities.

## *Alternative 2*

There would be 870 miles of roads closed to the general public; 763 miles of Level 2 roads and 107 miles of Level 3 and 4 roads. An additional 20 miles of roads would be closed seasonally for resource protection. Seasonal road closures would occur in the spring, primarily to protect wildlife mating and rearing areas. All unauthorized roads (600 miles inventoried plus an additional unknown quantity un-inventoried) would be closed to the public

### Direct and Indirect Effects

This alternative would provide the least amount of motor vehicle access to and around the LMNG, limiting dispersed camping opportunities, concentrating motorized recreation in the open road corridors and particularly on the gravel roads, and increasing the potential for conflicts between motorized recreationists.

The available motorized recreation opportunities would change because the open roads would primarily be surfaced (gravel or scoria) 2-lane roads. Most of the two-track roads would be closed to public motor vehicle use. Public safety may become an issue as ATVs and dirt bikes share fewer miles of higher development roadways with other vehicles.

This alternative would provide the greatest potential for those seeking a non-motorized recreation opportunity. Closed roads would provide a system of hiking, biking, and horseback trails through the LMNG. Even though these roads would remain open to grazing permittees, administrative uses, emergency personnel, etc., the amount of motorized traffic would be greatly reduced from current levels.

### Cumulative Effects

Same as the Proposed Action

## *Summary of Effects*

**Table 6 – Miles of Closed Road**

	Level 2	Level 3 & 4	Unauthorized
No Action	0	0	0
Proposed Action	632	71	600+
Alternative 1	69	28	600+
Alternative 2	763	106	600+

Level 2 – Typically a native surface single lane road, more commonly referred to as “two-tracks” because they appear most often as two tracks across the landscape. These roads do not receive maintenance, and typically do not have any constructed features, but are numbered and are part of the Forest Service road System (and so are System Roads).

Level 3 & 4 – Typically surfaced with gravel or scoria and constructed with pull-outs, ditches, more than one lane, bridges, and/or other constructed features. These roads receive routine maintenance, and are numbered and part of the Forest Service road System (and so are System Roads).

## **D. Soils and Watershed**

### **Introduction**

This section addresses the soil and water resources within the Travel Management project area. The goal to protect watershed conditions, providing for water quality and soil productivity, in order to support ecological function cannot be achieved without a well managed and maintained road system.

### *Overview of Issues Addressed*

The key issue related to the soil and water resources is the maintenance and improvement of water quality where applicable to meet state standards. The majority of the surface drainage in the Travel Management project area flows to the Little Missouri River with the remaining to the Yellowstone River, which are tributaries to the Missouri River. The Little Missouri River and Deep Creek have water quality impairment or are threatened as described in the water quality section below.

### **Affected Environment**

#### *Desired Condition*

Federal and state laws, policies and regulations control the management of soil and water resources on NFS lands; these include the Federal Water Pollution Control Act (Clean Water Act (CWA) and amendments. The Water Quality Act of 1987 created the Nonpoint Source Management Program under CWA section 319 to address nonpoint source pollution to our nation's waterbodies. CWA section 303 requires states to list their water quality-limited waters needing the establishment of load allocations referred to as total maximum daily loads (TMDLs). TMDL plans are developed to address nonpoint source pollution that has resulted in the loss of beneficial use and water quality impairment. The National Forest Management Act requires that land is managed for long term site productivity and sustainability. Regional guidelines define soil disturbance and monitoring with the goal of long term soil viability (USDA 2005). The DPG similarly requires the improvement and protection of soil productivity necessary to support ecological functions and intended beneficial water uses (USDA 2001).

#### **Grassland Management Objectives for soil and water resources (USDA 2001)**

Goal: Improve and protect watershed conditions to provide the water quality and quantity and soil productivity necessary to support ecological functions and intended beneficial water uses.

Pertinent standards and guidelines related to this project include:

- Allow only those actions next to perennial and intermittent streams, seeps, springs, lakes, and wetlands that maintain or improve long-term proper functioning of riparian ecosystem conditions.
- To provide protection for riparian areas, locate activities and facilities away from the water's edge or outside the riparian areas, woody draws, wetlands, and floodplains unless alternatives have been assessed and determined to be more environmentally damaging.
- Design and construct all stream crossings and other in-stream structures to provide for sufficient passage of flow and sediment, withstand expected flood flows, and allow free movement of aquatic life.
- Design projects to minimize sediment discharge into streams, lakes, and wetlands.
- Cross streams at right angles during construction of new roads.

- Keep ground disturbances to a minimum when constructing roads and other facilities. Insure road length and road width fit the purpose and are compatible with local topography.
- Stabilize and maintain roads and other facilities sites during and after construction to minimize erosion.
- Reclaim roads and other structures when use ends, to prevent resource damage.
- Prohibit soil disturbing activities, (e.g., road construction, well pad construction), on slopes greater than 40% and on soils susceptible to mass failure, unless the alternative causes more environmental damage.

## *Existing Condition*

### **Soils**

The soils in the LMNG are complex and vary widely. The LMNG is comprised of the Badlands geographical area totaling approximately 56% of the project area and the Rolling Prairie geographical area which totals the remaining 44% (USDA 2001).

Soils of the Badlands are typically shallow in depth and have developed in soft rock or rock-like substances such as siltstones, clay stones, shale, and sandstones. They have primarily developed in steep topography including intricately dissected drainages and draws dropping from grassy ridgelines or butte-like hills and color-banded mounds typical of a badlands landscape (USDA 2001).

Soils of the Rolling Prairie are typically moderately deep to deep and are either of glacial origin in the north part of the project area or have derived from soft sedimentary residual bedrock. The soils are well developed, stable and occupy nearly level to rolling hills with some inclusions of scattered buttes and badlands landscapes (USDA 2001).

Soils within the Travel Management plan project area have been inventoried and classified by the Natural Resources Conservation Service (NRCS). Detailed information on specific soil map unit components and their properties can be found in the following published soils surveys:

- Soil Survey of McKenzie County, North Dakota (USDA NRCS 2006)
- Soil Survey of Golden Valley County, North Dakota (USDA NRCS 1989)
- Soil Survey of Billings County, North Dakota (USDA NRCS 1944)
- Soil Survey of Slope County, North Dakota (USDA NRCS 1978)

### **Soil Condition**

Soil condition is an evaluation of soil quality based on an interpretation of factors which affect three primary soil functions. The primary soil functions evaluated are: soil hydrology, soil stability and nutrient cycling (USDA 1999).

Soil condition objectives apply to lands where long-term soil productivity and satisfactory watershed condition are principle objectives such as on the LMNG. Past management activities that can negatively affect soil condition include road construction in particular when maintenance is not regularly performed. Also there are 602.8 miles of unauthorized roads inventoried to date on the LMNG. This number represents only a portion of the total unauthorized roads on the LMNG. These routes were user created, are not designed to FS standards including proper location, and receive no maintenance. The vehicular use of these roads results in detrimental soil disturbance. Detrimental soil disturbance is the alteration of natural soil characteristics that results in immediate or prolonged

loss of soil productivity and soil-hydrologic conditions. Detrimental soil disturbance can produce unacceptable levels of soil degradation by compacting, moving, eroding, or puddling the soil.

### Soil Erosion

Erosion occurs when energy from rainfall and runoff is sufficient to detach and move soil particles. Erosion and sediment occur in all watersheds as a natural geologic phenomenon. When roads are constructed, however, they create an interference with the natural systems and collect water, increasing its volume and velocity, resulting in accelerated erosion (Anderson and Gesford, 2006). Management activities associated with roads and trail use can accelerate erosion and sediment delivery beyond the historic range of variation and geological rate (Satterlund and Adams 1992).

Forest Service roads have been well documented as major sources of accelerated erosion and sediment (Reid and Dunne 1984). The majority of increased erosion occurs initially after construction. Accelerated erosion and sediment from roads continue over the long-term as a result of traffic use, compaction, high runoff, and concentrated water on the road surface, ditch lines, and from relief culverts. Generally, increased road traffic correlates with increased sediment production (Reid and Dunne 1984). So a reduction in vehicular use would benefit the watershed from a reduction in erosion and sediment delivery to nearby streams. Cut and fill slopes can also be a chronic source of surface erosion and mass failures (Satterlund and Adams 1992). Accelerated erosion and sediment delivery from motorized trails follow the same processes that occur from roads.

Road density in a watershed affects the collection and transport of water out of the watershed (Burroughs et al. 1984). The potential for increase in runoff rates increases with more miles of road. A reduction in road use would be beneficial to water quality.

### **Watersheds**

Water quality and riparian conditions are the two elements potentially affected by road use. The 1,028,086 acres of grasslands identified in the Travel Management Plan project area exists within 35 5th field Hydrologic Unit Code (HUC) watersheds on the LMNG.

### Water Quality

Section 303(d) of the CWA requires that states develop a list of waterbodies that do not meet standards and submit the list for approval to the U.S. Environmental Protection Agency (EPA). North Dakota developed its most recent 303(d) list in 2008 (NDDH 2008). These water quality streams and their parameters are shown in *Table 7* for the project area. Fecal coliform is the listed impairment for all streams. The probable sources on the LMNG are from livestock grazing and wildlife. Fecal coliforms are mobilized through erosion and delivered with sediment to the streams (Southam 2000).

**Table 7 - 2008 List of Section 303(d) TMDL Waters for the Missouri River Basin in North Dakota.**

<b>Waterbody</b>	<b>Size (Mi)</b>	<b>Designated Use</b>	<b>Use Support</b>	<b>Impairment</b>
Little Missouri River from its confluence with Little Beaver Creek downstream to its confluence with Deep Creek.	75.79	Recreation	Fully Supporting But Threatened	Fecal Coliform
Deep Creek from the confluence of East Branch Deep Creek and West Branch Deep Creek downstream to its confluence with the Little Missouri River.	42.51	Recreation	Fully Supporting But Threatened	Fecal Coliform
West Branch Deep Creek, including tributaries.	117.25	Recreation	Fully Supporting But Threatened	Fecal Coliform
Little Missouri River from its confluence with Deep Creek, downstream to its confluence with Andrew's Creek.	48.25	Recreation	Not Supporting	Fecal Coliform
Little Missouri River from its confluence with Beaver Creek downstream to Hwy 85.	58.94	Recreation	Fully Supporting But Threatened	Fecal Coliform
Little Missouri River from Hwy 85 downstream to its confluence with Cherry Creek.	23.79	Recreation	Fully Supporting But Threatened	Fecal Coliform

All but one of the above listed waterbodies are still fully supporting water quality standards but are threatened. The implementation of Best Management Practices (BMPs) is the preferred treatment to mitigate potential water quality impairment. Applicable BMPs would be proper road design, road placement away from streams, and regular scheduled maintenance.

If a waterbody becomes impaired then by direction of the CWA the North Dakota Department of Health (NDDH) is required to prepare a Total Maximum Daily Load plan to improve water quality to support beneficial uses. For water quality limited streams on NFS lands, the Forest Service provides information, analysis, and site-specific planning efforts to support TMDL plan development.

#### Riparian Condition

Riparian-wetland areas are functioning properly when adequate vegetation, landform, or large woody debris is present to:

- Dissipate stream energy associated with high water flows, thereby reducing erosion and improving water quality;
- Filter sediment, capture bedload, and aid floodplain development;

- Improve flood-water retention and ground-water recharge;
- Develop root masses that stabilize streambanks against cutting action; develop diverse ponding and channel characteristics to provide the habitat and the water depth, duration, and temperature necessary for fish production, waterfowl breeding, and other uses;
- Support greater biodiversity (USDI 1998).

Riparian habitat on the LMNG occurs typically in linear features along streams. The majority of stream reaches are functioning properly but there are localized reaches that are at risk or are non-functioning.

Roads affect riparian habitat primarily from occupancy. Road corridors through riparian habitat result in habitat loss, fragmentation, and bank instability. Nearby roads can also affect riparian habitat if there is not an adequate vegetative (>30m) buffer present. The vegetative buffer serves to filter sediment delivery to riparian habitats that if delivered would result in reduced function.

#### Motorized Vehicle Use by Watershed

##### **Key Indicators for Soil and Watersheds**

- Road density per 5<sup>th</sup> Field HUC
- Total miles of road within 30m riparian/stream buffer per 5<sup>th</sup> Field HUC
- Total number of road stream crossings per 5<sup>th</sup> Field HUC

The indicators provide a way to estimate the relative effects on soil productivity, water quality, and riparian condition. *Table 8* shows existing 5<sup>th</sup> Field HUC watershed acres within the project area. Also included are the open roads, densities, riparian/stream buffers and stream crossings. The table only includes System roads.

**Table 8 - 5<sup>th</sup> Field HUC Watershed data.**

<b>Watershed (5<sup>th</sup> Field HUC)</b>	<b>Total Acres</b>	<b>FS Acres</b>	<b>Open Road FS Miles</b>	<b>Road Density (miles of road per square mile)</b>	<b>Miles of Roads in Riparian/Stream Buffer (30m)</b>	<b># of Road Stream Crossings</b>
Achenbach Hills	232,078	110,296	185.8	1.1	15.8	25
Andrews Creek	36,649	19,739	54.8	1.8	7.1	3
Antelope Creek	50,751	5,334	19.6	2.4	0.4	2
Bear Den Creek	73,290	2,434	5.7	1.5	0.5	1
Beicegel Creek	182,174	103,730	179.0	1.1	14.9	12
Bennie Peer Creek	158,232	91,456	242.7	1.7	32.7	35
Bullion Creek	37,854	12,138	25.2	1.3	3.5	1
Burnt Creek	44,121	10,082	11.3	0.7	0.9	1
Cannonball Creek	62,301	5,440	13.0	1.5	0.5	4
Charbonneau Creek	153,886	29,573	57.9	1.3	3.7	8
Cherry Creek	204,422	26,001	54.0	1.3	4.0	12
Crosby Creek	114,763	21,015	25.3	0.8	0.9	3
Davis Creek	165,444	93,702	139.5	1.0	12.6	27
Deep Creek	181,908	27,976	72.1	1.7	5.4	7
Elk Creek	19,253	1,111	1.2	0.7	0	0
Garner Creek	33,431	10,214	37.4	2.3	4.1	4
Green River	86,530	1,886	5.5	1.9	0.9	0
Headwaters Knife River	62,291	1,132	1.6	0.9	0.1	0
Headwaters U. Cannonball River	144,506	12,410	31.3	1.6	1.8	4
Horse Creek	122,977	47,789	103.6	1.4	13.7	11

<b>Watershed (5<sup>th</sup> Field HUC)</b>	<b>Total Acres</b>	<b>FS Acres</b>	<b>Open Road FS Miles</b>	<b>Road Density (miles of road per square mile)</b>	<b>Miles of Roads in Riparian/ Stream Buffer (30m)</b>	<b># of Road Stream Crossings</b>
Knutson Creek	40,954	13,121	47.0	2.3	2.8	0
L. Missouri River-Marmarth	131,754	32,193	65.8	1.3	2.6	7
L. Missouri River-Medora	224,364	96,406	235.5	1.6	28.5	25
Lower Beaver Creek	78,771	27,058	59.0	1.4	7.5	8
Lower Little Beaver Creek	58,630	2,968	7.3	1.6	0.3	0
Sand Creek	170,920	36,942	103.7	1.8	6.6	7
Sanish Bay	43,014	5,,067	12.3	1.6	1.5	1
Smith Creek	66,867	23,789	68.7	1.8	5.1	9
S. Branch U. Heart River	97,287	14,,240	41.1	1.8	3.1	1
Spring Coulee	158,590	54,696	135.7	1.6	4.0	12
Tobacco Garden Creek	144,624	16,378	35.4	1.4	1.9	4
Town of Newlan Junction	52,358	51,11	20.8	2.6	3.3	0
Upper Beaver Creek	25,143	869	2.8	2.1	0.1	0
Wannagan Creek	40,929	20,618	24.8	0.8	4.3	5
Whitetail Creek	68,808	45,173	92.7	1.3	5.1	12
Grand Total	3,651,406	1,028,086	2219.4	1.4	199.8	251

## Environmental Consequences

### *Methodology*

For direct, indirect, and cumulative effects, the soils and watershed analysis area encompasses the entire LMNG. Analysis of effects was conducted on data for 5th field Hydrologic Unit Code (5<sup>th</sup> level watershed) and aggregated to the project area for comparison of alternatives.

The analysis of effects will address the environmental consequences of the Travel Management Plan alternatives to soils, water quality, and riparian condition. Generalizations of resource condition in the analysis area can be inferred from road density, location of roads, and road stream crossings. Sediment delivery and detrimental soil disturbance are generally positively related to road density. There is a higher risk of sediment reaching channels from roads located within riparian/stream buffer areas, so road miles in riparian areas are a useful indicator of conditions. Another useful indicator for sediment delivery risk is the number of road stream crossings. Stream crossings and roads in riparian areas can therefore be a surrogate for most potential effects in this analysis.

Sediment delivery is generally positively related to road density and generally indicative of reduced aquatic habitat capability (Furniss et al. 1991). The primary concern for this analysis is erosion and sediment delivery from roads within riparian/stream buffer areas. In general, lower slope position roads have much greater impact on stream channels and water quality than mid and upper slope position roads.

Roads within riparian/stream buffer areas can alter or remove riparian vegetation which can have direct and indirect effects on water quality and riparian condition. Removal of riparian vegetation may result in stream bank instability and reduced sediment filtering capacity from vegetation, both of which can result in increased sediment delivery rates and fecal coliform transport leading to a

reduction in water quality. These impacts are of most concern at road stream crossings. Where numerous crossings exist in a watershed these impacts can be more pronounced.

The analysis of effects will use the following Key Indicators for describing the effects on the soils, water quality and riparian condition:

- Road density per 5<sup>th</sup> Field HUC, expressed as miles of road per square mile
- Total miles of road within 30m riparian/stream buffer per 5<sup>th</sup> Field HUC
- Total number of road stream crossings per 5<sup>th</sup> Field HUC

**Table 9 – Key Watershed Indicators by Alternative**

<b>Key Indicator</b>	<b>No Action</b>	<b>Proposed Action</b>	<b>Alternative 1</b>	<b>Alternative 2</b>
Road Density (miles of road/square mile)	1.4	0.9	1.3	0.8
Miles of Roads in riparian/stream buffers	199.8	126.3	186.9	112.7
Total number of road stream crossings	251	165	229	145

**Figure 9 - Forest Road 702 Crossing Magpie Creek.**



### *No Action*

#### Direct and indirect effects

This Alternative would defer implementing the travel management rule and no MVUM would be produced. All roads would remain open as they are currently, including both system roads and unauthorized roads.

The current road network and level of vehicular use would continue and would result in the greatest direct and indirect effects to the soil and watershed resources. Average road density of 1.4 miles per square mile, miles of road within riparian/stream buffer of 199.8 miles, and the number of road stream crossings of 251 would be the highest levels for all the alternatives, and would result in a continuation of the current impacts.

#### All Action Alternatives

Since there are no roads being physically closed, and no roads being closed to all users, the data generated for the action alternatives is relative to the anticipated reduction in traffic on roads closed to the public. Some travel (permittees, Forest Service personnel, etc.) would still be anticipated on these roads.

## *Proposed Action*

### Direct and indirect effects

In relation to the existing condition, there would be a 36% reduction in the average road density (miles of road per square mile open to the public), a 37% reduction in the miles of road within riparian/stream buffers open to the public, and a 34% reduction in the number of stream crossings open to the public. These reductions would directly result in positive effects to the soil and watershed resource, because fewer vehicles would be traveling the closed roads.

## *Alternative 1*

### Direct and indirect effects

In relation to the existing condition, there would be a 7% reduction in the average road density (miles of road per acre square mile open to the public), a 6% reduction in the miles of road within riparian/stream buffers open to the public, and a 9% reduction in the number of stream crossings open to the public. These reductions would directly result in positive effects to the soil and watershed resource because fewer vehicles would be traveling the closed roads, though the positive effects would be less than those in the Proposed Action. The conversion of Level 2 roads to motorized trails would result in no change in effects to the soil and watershed resource since the roads would still remain open for vehicular use.

## *Alternative 2*

### Direct and indirect effects

In relation to the existing condition, there would be a 43% reduction in the average road density (miles of road per square mile open to the public), a 44% reduction in the miles of road within riparian/stream buffers open to the public, and a 42% reduction in the number of stream crossings open to the public. These reductions would directly result in positive effects to the soil and watershed resource, because fewer vehicles would be traveling the closed roads.

### Cumulative Effects for All Alternatives

The unauthorized road network has been user created without the proper design input for proper placement and construction. Unauthorized roads do not receive maintenance which results in additional negative effects to the soil and watershed resources. The No Action alternative would result in the greatest negative cumulative effects as result of continuing the use of unauthorized roads. Alternative 1 would provide some beneficial effects as all unauthorized roads would be closed. The Proposed Action would benefit the soil and watershed resources more than No Action and Alternative 1 because of the number of miles of Unauthorized and System Roads that would be closed. Alternative 2 would provide the greatest benefit to these resources by closing the most miles of roads of all the alternatives.

## **E. Wildlife**

### **Introduction**

This section summarizes the existing condition of pertinent fish and wildlife resources as related to travel management, and discloses potential effects given the different alternatives. The complete report is available as part of the project record.

### **Spatial and Temporal Context**

The project area encompasses all National Forest System lands within the LMNG. Any cumulative effects discussed can include all lands (regardless of ownership) within the administrative boundaries of the national grassland. The analysis period covered by this document is the same as that of the Grasslands Plan, estimated to 2016.

#### *Overview/Issues Addressed*

No fish or wildlife species or group of species was identified as a significant issue for travel management assessment. Analysis of fish and wildlife species is included as required by law and regulation, and for informational purposes. Species addressed include federally threatened and endangered species (T&E), Forest Service sensitive species (S), Dakota Prairie Grasslands Management Indicator Species (MIS), raptors, international migratory birds, fisheries and big game.

All Action Alternatives will reduce noxious weed and invasive plant spread and will reduce human-caused disturbance by closing roads as they relate to wildlife habitat (Gelbard & Belnap 2003, Gelbard J. & Harrison S. 2003 and Knight & Cole 1995). A decrease in noxious weeds and invasive species in native wildlife habitat is a beneficial effect.

During Travel Analysis, 22 roads were identified for seasonal closures to reduce disturbance to currently known active raptor nest locations (excluding golden eagle nests), currently known sharp-tailed grouse leks (¼ mile disturbance areas), and prairie dog colonies. If any two of these wildlife resources were found on or near a road, the road was proposed to be seasonally closed in Alternative 2. The seasonal closure would be from April 1 to July 15 to protect wildlife resources. Active golden eagle nests within ½ mile of roads not closed for other reasons were proposed closed under the Proposed Action and Alternative 2.

#### *Issue Indicators*

Even though wildlife was not identified as a significant issue, miles of roads in a general sense will be the indicator to determine effects in this document.

### **Affected Environment**

#### **Threatened and Endangered Species (T&E)**

##### *Existing Condition*

The U.S. Fish and Wildlife Service identified the following Threatened and Endangered (T&E) species

that may occur on the LMNG: Whooping Crane, Black-footed ferret, Gray Wolf, Interior Least Tern, Pallid sturgeon, Piping Plover. Dakota skipper is a candidate species but is covered under the sensitive species section. There are no nesting, breeding or yearlong resident T&E species, only the rarely observed transient.

There is no designated critical habitat (which is designated by the USFWS) for the any of these species in the analysis area. On the LMNG, the DPG LRMP designates MA 3.63 to manage prairie dogs for black-footed ferret recovery, though at this time there are no plans for reintroduction.

*Desired Condition*

Desired condition for the T&E species identified above is to have no negative effect on any of the species or any of their potential habitats. .

**Environmental Consequences  
Threatened and Endangered Species (T&E)**

There will be no effects to T&E species under any Alternative. There is no to rare occurrence of the species. There are no significant direct, indirect or cumulative effects to any of the T&E species regardless of alternative. There is no need for further analysis due to unoccupied habitat conditions and the rare or seasonal use by a few of the species in the analysis area. *Table 10* summarizes the effect determinations.

**Table 10: Determination of Effect on T& E Species from the Alternatives**

<b>Common Name</b>	<b>Determination of Effect</b>	<b>Rationale for Determination of Effect</b>
Whooping crane	No effect	Whooping cranes are not known to utilize the analysis area and any migration through the area is not common. It is anticipated that activities associated with any of the Alternatives will result in “no effect” to the whooping crane.
Interior least tern	No effect	Little suitable habitat is present in the analysis area. This species is not known to utilize the analysis area. Given the aforementioned considerations, it is fully expected that activities associated with the proposal will result in “no effect” to the tern or its habitat under any of the Alternatives.
Piping plover	No effect	Little suitable habitat is present in the analysis area. This species is not known to utilize the analysis area. Given the aforementioned considerations, it is fully expected that activities associated with the proposal will result in “no effect” to the plover or its habitat under any of the Alternatives.
Black-footed ferret	No effect	There are no BFF in the analysis area and their presence is not expected. Given the aforementioned considerations, it is fully expected that activities associated with the proposal will result in “no effect” to the BFF or its habitat under any of the Alternatives.

<b>Common Name</b>	<b>Determination of Effect</b>	<b>Rationale for Determination of Effect</b>
Pallid sturgeon	No effect	Little if any of the suitable habitat that is present in analysis area could be effected by any Alternative. Given the aforementioned considerations, it is fully expected that activities associated with the proposal will result in “no effect” to the sturgeon or its habitat under any of the Alternatives.
Gray wolf	No effect	Rare occurrence on the LMNG of dispersing juveniles from Canada. This species prefers low human disturbance. Scope of Alternatives, distance from potential source population centers, and the existing high human presence (oil and gas activity; ranching) in the area make the area marginal for wolves. Given the aforementioned considerations, it is fully expected that activities associated with the proposal will result in “no effect” to the wolf or its habitat under any of the Alternatives.

## Affected Environment

### USFS Northern Region Sensitive Species on the LMNG

#### *Existing Condition*

The Forest Service identifies plant and animal species for which population viability is a concern as evidenced by significant past or predicted downward trends in population numbers and/or density, or for which there are significant current or predicted downward trends in habitat capability that would reduce a species existing distribution. There are currently 17 Forest Service Northern Region Sensitive Species identified for the LMNG.

Suitable occupied habitat for regal fritillary butterfly, ottoe skipper, arogos skipper, Dakota skipper, tawny crescent butterfly, bald eagle, Baird’s sparrow, Sprague’s pipit, long-billed curlew, burrowing owl, loggerhead shrike, bighorn sheep, sage grouse and black-tailed prairie dog is present in the analysis area that could be impacted from one of the Alternatives.

#### *Desired Condition*

The policy of the Forest Service (FSM 2670.32) is to avoid or minimize impacts to species whose viability has been identified as a concern (sensitive species). Viability concerns have been identified for a relatively large number of Great Plains plant and animal species on the LMNG that are not currently protected under the Endangered Species Act.

## Environmental Consequences

### USFS Northern Region Sensitive Species on the LMNG

#### *Methodology*

The methods used to analyze effects to sensitive species from travel management are determined by how the closing of roads will affect habitat and the species. The overall effects common to the Action Alternatives will be the effect of reducing noxious weed, invasive plant spread and reducing human-

caused disturbance by closing roads as it relates to wildlife habitat. The general difference in miles of roads closed is used if needed to further discriminate effects between action alternatives. There should be a beneficial overall effect for Sensitive Species.

In *Table 11*, a “MIIH” means that implementation of the alternative may impact individuals or habitat but will not likely contribute to a trend towards Federal listing or loss of viability to the population or the species.

There will be **no impacts** to peregrine falcons, bald eagle, northern redbelly dace and sturgeon chub under any alternative.

**Table 11 – Effects on USFS Northern Region Sensitive species\* +**

Existing or Potential Habitat	No Action	Proposed Action	Alt. 1	Alt.2	Rationale for Effects Determination
<i>Arogos Skipper Atrytone Arogos</i>					
YES	MIIH	MIIH	MIIH	MIIH	All Alternatives would allow vehicles to use roads in the rolling prairie, so vehicle strikes are possible to varying degrees given miles of road proposed closed by each alternative. All action alternatives would result in fewer impacts than No Action.
<i>Baird's Sparrow Ammodramus bairdii</i>					
YES	MIIH	MIIH	MIIH	MIIH	All Alternatives would allow vehicles to use roads in the rolling prairie, so vehicle strikes are possible to varying degrees given miles of road proposed closed by each alternative. All action alternatives would result in fewer impacts than No Action.
<i>Bighorn sheep Ovis Canadensis</i>					
YES	MIIH	No Impact	MIIH	No Impact	Road closures in the Proposed Action and Alternative 2 would result in a No Impact determination. Fewer road closures in sheep habitat (No Action and Alternative 1) would lead to less security which May Impact individual sheep.
<i>Black-tailed Prairie Dog Cynomys ludovicianus</i>					
YES	MIIH	MIIH	MIIH	MIIH	All of the Alternatives would produce the same may impact determination. Road closures near prairie dog towns will likely result in fewer human- caused mortalities from shooting as compared to the No Action Alternative, but any access to prairie dog towns produces a shooting danger and possible vehicle strikes which still warrants a May Impact determination.
<i>Burrowing Owl Speotyto cunicularia</i>					
YES	MIIH	MIIH	MIIH	MIIH	Action Alternatives will reduce access to some prairie dog towns, reducing shooter caused mortalities to prairie dogs and accidental shooter mortalities to owls. This could disperse more young dogs to establish more prairie dog towns, resulting in more habitat for Burrowing Owls in the future. But all the Alternatives allow some access to dog towns in varying degrees given amounts of miles closed by Action Alternative

Existing or Potential Habitat	No Action	Proposed Action	Alt. 1	Alt.2	Rationale for Effects Determination
					which will still produces a shooting danger and vehicle strikes to owls.
<b>Dakota Skipper Butterfly</b> <i>Hesperia dakotae</i>					
YES	MIIH	MIIH	MIIH	MIIH	All Alternatives would allow vehicles to use roads in the rolling prairie, so vehicle strikes are possible to varying degrees given miles of road proposed closed by each alternative. All action alternatives would result in fewer impacts than No Action.
<b>Loggerhead Shrike</b> <i>Lanius ludovicianus</i>					
YES	MIIH	MIIH	MIIH	MIIH	All Alternatives would allow vehicles to use roads in the rolling prairie, so vehicle strikes are possible to varying degrees given miles of road proposed closed by each alternative. All action alternatives would result in fewer impacts than No Action.
<b>Long-billed Curlew</b> <i>Numenius americanus</i>					
YES	MIIH	MIIH	MIIH	MIIH	All Alternatives would allow vehicles to use roads in the rolling prairie, so vehicle strikes are possible to varying degrees given miles of road proposed closed by each alternative. All action alternatives would result in fewer impacts than No Action.
<b>Ottoo Skipper Butterfly</b> <i>Hesperia ottoe</i>					
YES	MIIH	MIIH	MIIH	MIIH	All Alternatives would allow vehicles to use roads in the rolling prairie, so vehicle strikes are possible to varying degrees given miles of road proposed closed by each alternative. All action alternatives would result in fewer impacts than No Action.
<b>Regal Fritillary Butterfly</b> <i>Speyeria idalia</i>					
YES	MIIH	MIIH	MIIH	MIIH	All Alternatives would allow vehicles to use roads in the rolling prairie, so vehicle strikes are possible to varying degrees given miles of road proposed closed by each alternative. All action alternatives would result in fewer impacts than No Action.
<b>Sage Grouse</b> <i>Centrocercus urophasianus</i>					
YES	MIIH	MIIH	MIIH	MIIH	All Alternatives would allow vehicles to use roads in the rolling prairie, so vehicle strikes are possible to varying degrees given miles of road proposed closed by each alternative. All action alternatives would result in fewer impacts than No Action.
<b>Sprague's Pipit</b> <i>Anthus spragueii</i>					
YES	MIIH	MIIH	MIIH	MIIH	All Alternatives would allow vehicles to use roads in the rolling prairie, so vehicle strikes are possible to varying degrees given miles of road proposed closed by each alternative. All action alternatives would result in fewer impacts than No Action.
<b>Tawny Crescent Butterfly</b> <i>Phycoides batesii</i>					
YES	MIIH	MIIH	MIIH	MIIH	All Alternatives would allow vehicles to use roads in the rolling prairie, so vehicle strikes are possible to varying degrees given miles of road proposed closed by each alternative. All action alternatives would result in fewer impacts than No Action.

Existing or Potential Habitat	No Action	Proposed Action	Alt. 1	Alt.2	Rationale for Effects Determination
Bald eagle <i>Haliaeetus leucocephalus</i>					
YES	No Impact	No Impact	No Impact	No Impact	The analysis area provides unsuitable to marginal bald eagle nesting and foraging habitat. Sporadic winter use is documented on the LMNG but neither historic or active nests nor communal winter roost sites are suspected or known. Given the aforementioned considerations, it is fully expected that activities associated with the proposal will result in No Impact to the bald eagle or its habitat under any of the alternatives.
Northern Redbelly Dace <i>Phoxinus eos</i>					
YES	No Impact	No Impact	No Impact	No Impact	Suitable habitat may exist in the analysis area. Given the scope and low potential to impact dace habitat, all of the alternatives will produce the same No Impact determination.
Peregrine Falcon <i>Falco peregrinus anatum</i>					
YES	No Impact	No Impact	No Impact	No Impact	Suitable unoccupied nesting habitat does exist within the analysis area. This species is only seen in spring and fall of year migrating though the LMNG. All of the alternatives will produce the same No Impact determination.
Sturgeon Chub <i>Hybopsis gilida</i>					
YES	No Impact	No Impact	No Impact	No Impact	Suitable habitat may exist in the analysis area. Given the scope and low potential to impact chub habitat, all of the alternatives will produce the same No Impact determination.

\* List based on USFS Northern Region Sensitive Species List (Kimball, USFS October 2004)

+ Options in Determination of Effects: (1) No Impact; (2) (MIIH) May impact individuals or habitat but will not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species; (3) Will impact individuals or habitat with a consequence of that the action may contribute to a trend towards federal listing or cause a loss of viability to the population or species; and (4) Beneficial Impact.

### Summary of Effects

Overall impacts to many of the Sensitive Species and habitat can be viewed as positive over the current situation. There are no determinations that may contribute to a trend towards federal listing or cause a loss of viability to the population or species. There are no significant direct, indirect or cumulative effects to any of the Sensitive Species regardless of Action Alternative. Due to the lack of impacts, compliance with the DPG LRMP, Regulations and Policies are assured.

## Affected Environment

### Management Indicator Species (MIS)

#### Sharp-tailed Grouse, Black-tailed Prairie Dog and Sage Grouse

### Existing Condition

A MIS is “a plant or animal species selected because their status is believed to (1) be indicative of the status of a larger group of species, (2) be reflective of the status of a key habitat type, or (3) act as an early warning of an anticipated stressor to ecological integrity”. The key characteristics of

Management Indicator Species (MIS) are that its status and trend provide insights to the integrity of the larger ecological system to which it belongs (USDA 2001b: LRMP). The selected species for the LMNG are the sharp-tailed grouse, black-tailed prairie dog and sage grouse.

### **Sharp-tailed grouse**

Sharp-tailed grouse habitat consists of several components; the critical components are lek/breeding and nesting/brooding habitat components. A lek is the breeding ground for the sharp-tailed grouse, and normally forms the hub of nesting habitat. The size of a lek is normally about an acre. A complete sharp-tailed grouse lek survey has not been conducted for the analysis area.

Nesting habitat is considered to be a critical factor affecting populations (USGS 2000, USDA 2001d). Sharp-tailed grouse typically nest within one mile of lek sites (Connelly, Gratson, and Reese 1998 and Prose 1987). Buffering known lek locations by one mile using geographic information systems (GIS) will give the primary nesting area used by nesting hens.

High structure grasslands is considered optimal nesting habitat (LMRP Chapter 2-7, 2-15, 2-23, Appendix H-2 and LMRP EIS, 3-264, 3-487). The quality of nesting habitat can be determined by the amount of high structure grasslands and measured using Visual Obstruction Readings (VOR) (Robel et al 1970, USDA 2001c). The VOR is the measurement of the height (in inches) of herbaceous vegetation that obscures 100% of a 3 centimeter (3 cm.) wide round pole. High structure is defined as a VOR transect with an average VOR greater-than-or-equal to 3.5 inches (USDA 2001e).

### **Black-tailed Prairie Dog**

Prairie dog colonies are mapped approximately every three years on the LMNG. Currently, the LMNG has approximately 6,900 acres of prairie dog towns or less than 1% of the acreage on the LMNG. The LRMP contains information and objectives for increasing prairie dogs colonies (Chapter 1-3, 1-16, 1-18, 1-19 and 2-22).

The black-tailed prairie dog is designated as a sensitive species and as a management indicator species on the LMNG. Management is guided by the LRMP, which gives management direction for the Badlands Geographic Area and the Rolling Prairie Geographic Area. The LRMP's objective is to have two or more prairie dog complexes in each of these Geographic Areas within the next 15 years. A complex is a grouping of 10 or more prairie dog colonies, encompassing at least 1,000 acres. Prairie dog populations would have to substantially increase to achieve that objective. Other LRMP direction includes emphasizing prairie dog expansion in the Horse Creek and Alkali Creek drainages, and facilitating black-footed ferret reintroduction into Management Area 3.63. LRMP implementation, however, must be done in accordance with the Forest Service's "good neighbor" policy, which directs that prairie dog encroachment onto non-NFS lands be managed. These points raise the question of where and how prairie dog increases and control actions should occur. The DPG has a Black-tailed Prairie Dog Conservation Assessment and Strategy to address these issues for the LMNG.

### **Sage Grouse**

The greater sage grouse is the largest grouse in North America. Like several other grouse species, greater sage grouse utilize communal display grounds for courtship and breeding called leks. Populations within the analysis areas are basically nonmigratory, but they do move 15 miles to the west into Montana in the winter (Kohn 2010). Approximately 26 active sage grouse display grounds have been documented on private and public lands within the administrative boundary of the LMNG since 2000. Currently there are 16 active leks in the extreme southwest part of the LMNG administrative boundary, all located on private land. The six leks that were once found on the LMNG

are gone. Long-term trends in 5 states that monitor sage grouse production indicate that productivity has fallen 26% over the last 10 years.

Sagebrush shrubland is the habitat of the greater sage grouse. Sagebrush is the primary food of sage grouse during the summer and is almost the exclusive diet during winter. Almost all sage grouse activity occurs in sagebrush or in meadows or openings adjacent to sagebrush. Because of this, they are considered habitat specialists. The sagebrush habitat for this species on the national grasslands is much less varied than is typical for montane populations of sage grouse, due to the flat to gently rolling topography and other factors. This may make the species and its habitat on the northern plains more vulnerable (USDA Forest Service 2001i).

## Environmental Consequences

### **Sharp-tailed grouse**

#### *Methodology*

Road closures, including miles of roads closed, were used to determine effects.

#### Direct and Indirect Effects

All the action alternatives would reduce behavioral disturbances to sharp-tailed grouse and would generally reduce weed spread across the LMNG, which in turn would help to maintain native vegetation for habitat. This is especially true in Alternative 2. There would still be direct impacts by vehicle strikes to this species, but there should be fewer vehicle strikes under any action alternative as compared to No Action.

Surveys have indicated grouse leks in numerous locations through the LMNG adjacent to two-track trails. Motorized travel along such routes could disturb displaying birds and can produce vehicle strikes. The biological impact of such disturbance, however, is judged to be low for the following reasons: 1) disturbed birds will return usually in fewer than 15 minutes to lek to resume displaying (Foli 2003 Per. Obs.) 2) travel along these routes is light within the first 2 hours post-dawn (other than oil and gas activities) during April and early May (Foli 2003 Per. Obs.) which is the most critical displaying time on leks. So direct and indirect impacts are positive in a general sense as related to sharp-tailed grouse over the current situation.

#### Cumulative Effects

The action alternatives will contribute positively to cumulative effects, particularly Alternative 2.

#### Summary of Effects

Overall impacts to sharp-tailed grouse and habitat can be viewed as positive over the current situation. Since effects are positive there should be no significant direct, indirect or cumulative effects regardless of Action Alternative.

## Environmental Consequences

### **Black-tailed Prairie Dog**

#### *Methodology*

Road closures, including miles of roads closed, were used to determine effects.

### Direct and Indirect Effects

The Action Alternatives should not have a negative direct or indirect effect on black-tailed prairie dogs as compared to the current situation (baseline the No Action Alternative) due to road closures near or on prairie dog colonies. With the Action Alternatives there may actually be benefits by reducing shooter-caused mortality to prairie dogs, because shooters typically drive to the colonies rather than walk. Reducing shooter-caused mortality can increase new prairie dog colony starts near existing colonies because more young prairie dogs will disperse. Fewer open roads would also mean fewer vehicle strikes. Of the action alternatives, Alternative 2 closes the most roads and thus would be the most beneficial to prairie dogs.

### Cumulative Effects

The action alternatives would contribute positively toward cumulative effects.

### Summary of Effects

Overall impacts to black-tailed prairie dogs and habitat can be viewed as positive over the current situation. Since effects are positive there should be no significant direct, indirect or cumulative effects regardless of Action Alternative.

## Environmental Consequences

### **Sage Grouse**

#### *Methodology*

Effects to sage grouse were determined by how the closing of roads would affect habitat and the species. Since there are no sage grouse leks on the LMNG, analysis could only be done on possible nesting habitat.

### Direct and Indirect Effects

The overall effects common to all the action alternatives would be reductions in noxious weeds, invasive plant spread and human caused disturbance by closing roads. The more miles of closed road, the greater the positive effect on the habitat, with Alternative 2 being the most beneficial over the current situation.

### Cumulative Effects

The action alternatives would contribute positively toward cumulative effects.

### Summary of Effects

Effects from implementation of any action alternative would be positive, so there should be no significant direct, indirect or cumulative effects regardless of Action Alternative.

## Affected Environment

### **Raptors**

Raptors are birds of prey such as owls, hawks, and eagles. Their significance arises from their sensitivity to human disturbance and protection under various laws like the Eagle Act. The most sensitive habitat component for raptors is nesting habitat. Human disturbance near active nests may result in abandonment and loss of young. The LRMP gives guidelines for disturbances near nests (Chapter 1-17) and covers the following species in the analysis area: golden eagles, merlins,

ferruginous hawks, peregrine and prairie falcons, bald eagles and burrowing owls.

Surveys in the 1980's (USFWS), and updates for golden eagles in 2001 (Knowles 2001, Coyle 2004 unpublished) and miscellaneous contract surveys that have occurred for previous oil and gas related activities have located nests within the analysis area. Some of these inactive nests may no longer be used but are considered active until surveys determine inactivity for a period of 7 years, unless a timely survey clears the area for an activity (USDA, 2001f). Throughout the analysis area, raptor nest habitat is present in the form of trees and exposed clay buttes (offering small cliffs), which serve as potential nesting habitat. The area is relatively undisturbed by human activity except oil and gas activities. Activities from any USFS decisions such as these require a timely raptor survey.

## Environmental Consequences

### Raptors

#### Direct and Indirect Effects

Overall, road closures will have beneficial effects to raptors by reducing vehicle strikes and human activities in existing and potential nesting habitat. There will be no benefits to raptors if the No Action Alternative is chosen.

#### Cumulative Effects

Cumulative impacts include drought, poor prey base, and climatic events like damaging thunderstorms that can kill young. There is also the potential of illegal shooting of raptors. None of the Alternative would add to these existing impacts.

#### Summary of Effects

Overall impacts to raptors and habitat can be viewed as positive over the current situation. Since effects are positive there should be no significant direct, indirect or cumulative effects regardless of Action Alternative.

## Affected Environment

### Migratory Birds

Migratory birds are species that use areas seasonally, migrating between breeding and winter ranges. Many species migrate through the LMNG, but some species stay to breed during the summer or migrate from northern regions to stay during the winter. The Northern Great Plains FEIS lists priority migratory birds for the LMNG (USDA 2001a p. 3-471). Of the migrants, grassland-nesting birds are among the fastest declining bird groups in North America.

There have been some surveys to determine the presence of specific migratory species within the analysis area, and LMNG wide general observations by the wildlife biologists have also been made. The species with concerns that have been found in the analysis area are Bairds sparrows, Long-billed curlew, Loggerhead Shrike and Sprague's pipits.

Overall, migratory birds are a large and diverse group of species with diverse habitat requirements. Practically every acre is habitat for one or more species of migratory birds. To help accommodate this diversity, the LRMP provides vegetative objectives for habitat diversity in terms of grassland structure and composition as well as providing for more late-seral woody draws.

## Environmental Consequences

### **Migratory Birds**

#### Direct and Indirect Effects

One important potential indirect impact to habitat for birds is the spread of noxious and invasive plants species along open roads. All the action alternatives will close roads, with Alternative 2 closing the most roads. Such action should reduce noxious and invasive plant spread which will benefit bird habitats. There would be some reduction of bird strike but noxious and invasive plant spread in native habitat would be more important for these species.

#### Cumulative Effects

The action alternatives will contribute positively toward cumulative effects.

#### Summary of Effects

Overall impacts to Migratory Birds and habitat can be viewed as positive over the current situation. Since effects are positive there should be no significant direct, indirect or cumulative effects regardless of action alternative.

## Affected Environment

### **Fisheries**

The analysis area is drained by many intermittent streams with most entering the Little Missouri River. Land-use practices that increase permanent flows would provide access, more water, and increased habitat for small streams. Land-use practices that resulted in more and deeper pools in interments streams would help persistence and re-colonization after drought periods.

Some of the small streams could harbor fish from the family *Cyprinidae* like plains minnows, fathead chubs, creek chubs and sand shiners (Scarnecchia, 2002).

Man-made reservoirs within the analysis are used primarily for livestock watering. The vast majority of these reservoirs may support amphibians but likely don't support fish populations. The LMNG has usually 3 or 4 reservoirs that support game fisheries in any given year depending on winter fish kill.

## Environmental Consequences

### **Fisheries**

#### Direct and Indirect Effects

There are no fish populations that would be negatively impacted from any of the action alternatives as compared to No Action. There may be a very slight benefit of decreased sediment input from road closures, the greater benefit being related to more miles of road closures.

There have been some studies in the analysis area like (Scarnecchia 2002) that discuss impacts to fisheries in small stream, mostly related to livestock and fish passage problems. The action alternatives will have little direct or indirect impact on the fisheries in streams or reservoirs on the LMNG.

#### Cumulative Effects

The action alternatives would contribute positively toward cumulative effects.

### Summary of Effects

Overall impacts to fisheries and habitat can be viewed as positive over the current situation. Since effects are positive there should be no significant direct, indirect or cumulative effects regardless of action alternative.

## Affected Environment

### **Big Game**

Antelope, mule and white-tailed deer are common in the analysis area. Elk occur but are less common. Bighorn sheep also occur and are covered in the sensitive species section above. Big game is an important public resource as watchable wildlife and for hunting. Within the analysis area, a diversity of habitats (vegetative and topographical), road densities, and general lack of human disturbances (e.g. oil and gas, recreation) provides a good setting for big game.

The analysis area falls into both the Rolling Prairie and Badlands Geographic Association landforms (Landforms of the LMNG Grassland Key). The varying topography found in these landforms provides for a diversity of forage and security (e.g. connectivity) for big game species. The woodlands of the LMNG badlands areas are in good condition for the two species of deer. In rolling prairie the woodlands are more scarce and more impacted by livestock as compared to the woodlands in the badlands.

*Pronghorn antelope* – Pronghorn inhabit open rangelands where sagebrush and forbs make up much of their diet. Many parts of the analysis area offer relatively open rangelands.

*Mule deer* – Mule deer use a variety of habitats including grasslands, badlands, shrub lands, and woodlands. Vegetation is used for food and cover. Topography can also be used as escape or thermal cover. The vegetative and topographical diversity in the badlands provides good habitat and connectivity for mule deer in the area.

*White-tailed deer* – As compared to mule deer, whitetail deer prefer more woodland habitat with an agriculture interface, which is plentiful within the analysis area, especially on private land where woodland and crop co-exist.

*Elk* – Elk have the lowest population of big game species on the LMNG and are mostly located on private land and within Theodore Roosevelt National Park (TRNP). Currently, they use LMNG land near the south unit of TRNP and the Lone Butte and Cheery Creek areas on the McKenzie Ranger District.

## Environmental Consequences

### **Big Game**

#### Direct and Indirect Effects

Roads are considered to be one of the primary controllable habitat modifiers for big game species. Any action alternative would benefit big game habitat effectiveness by reducing miles of open roads, which will benefit big game security by reducing human activities. There will be no benefits to big game if the No Action Alternative is chosen.

### Cumulative Effects

The action alternatives would contribute positively toward cumulative effects.

### Summary of Effects

Overall impacts to big game and habitat can be viewed as positive over the current situation. Since effects are positive there should be no significant direct, indirect or cumulative effects regardless of Action Alternative.

## **F. Compliance with Relevant Laws, Regulations, Policies, and Plans**

### *No Action*

This alternative would not meet the requirements of the Travel Rule, which requires the production of a MVUM.

This alternative would be in compliance with LRMP direction for motor vehicle use.

Since there are no effects to T&E and no significant direct, indirect or cumulative effects to any of the T&E species, compliance with the LRMP, T&E Law, Regulation and Policies is assured. There is no need for further analysis due to unoccupied habitat conditions and the rare or seasonal use by a few of the species on the LMNG.

Due to the lack of impacts on sharp-tailed grouse, black-tailed prairie dog, sage grouse, raptors, migratory birds, fisheries, and big game, compliance with the LRMP, Regulations and Policies are assured.

### *Proposed Action, Alternative 1, and Alternative 2*

The LRMP outlines several directives, goals, or objectives for managing invasive plants and noxious weeds, and maintaining the sustainability of native plant communities. All action alternatives would meet LRMP direction.

These alternatives would be in compliance with the Draft Policy for NHPA Compliance in Travel Management and 2009 Region I, Heritage Program Travel Planning Guidance for Travel Planning Rule.

The Clean Water Act provides overall direction for the protection of waters of the United States, from both point source and non-point source pollutants. North Dakota Department of Health implements the Clean Water Act in the State of North Dakota. Under section 303(d) of the act NDDH publishes a listing of impaired water bodies for the State. This Travel Management Plan will comply with the Clean Water Act requirements.

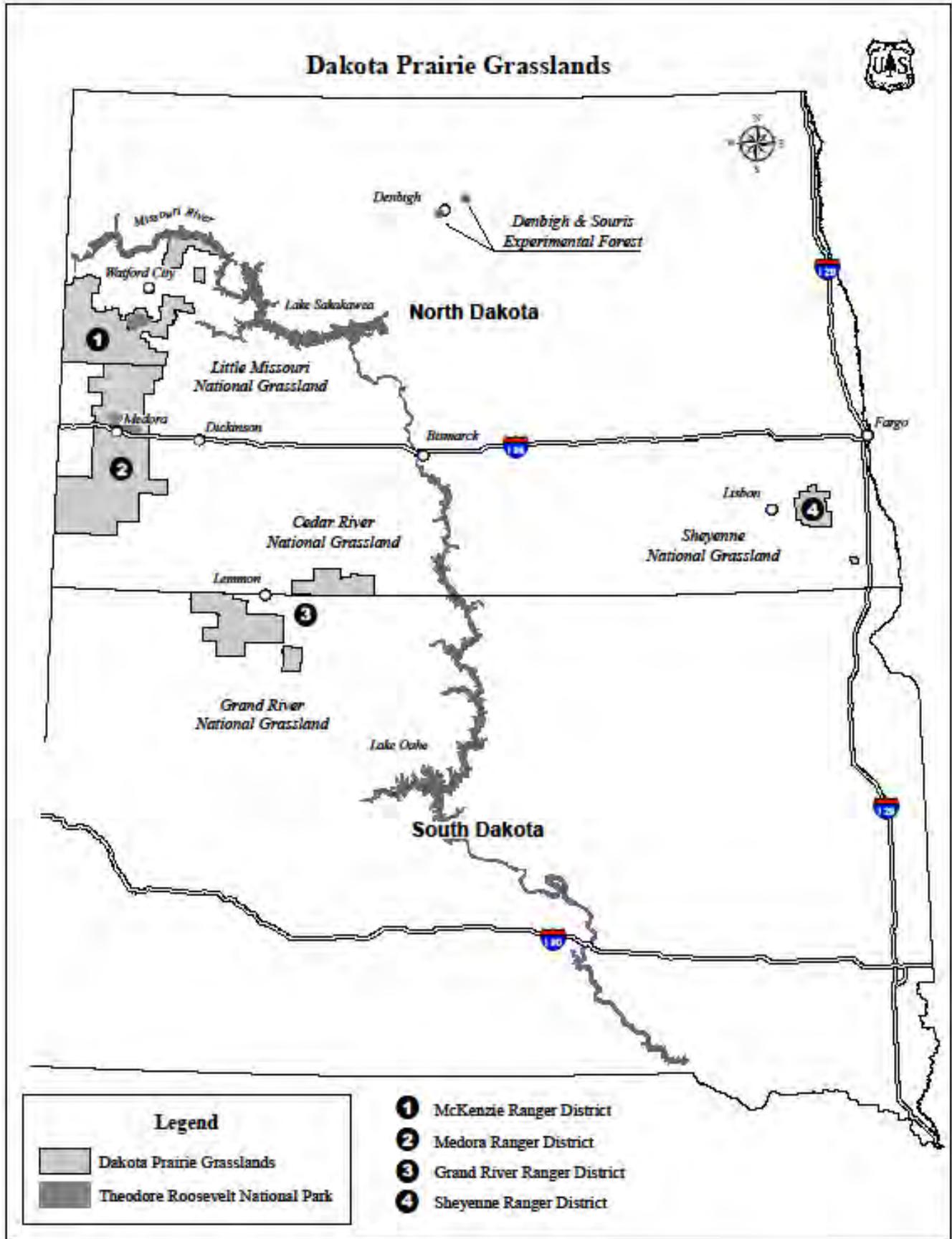
Executive Order 11988, Floodplains requires that the Forest Service “avoid to the extent possible the long and short term adverse impacts associated with the occupation or modification of floodplains. The Travel Management Plan is consistent with this executive order as it does not propose to occupy or modify any floodplains. Any actions that come out of the Travel Management Plan will lead to a reduction in the occupation or modification of floodplains by closing roads.

Executive Order 11990, Wetlands requires the Forest Service “avoid to the extent possible the long and short term adverse impacts associated with the destruction or modification of wetlands.” The Travel Management Plan is consistent with this executive order as it does not propose to cause the destruction or modification of any wetland. Any actions that come out of the Travel Management Plan will lead to a reduction in destroying or modifying wetlands by implementing road closures.

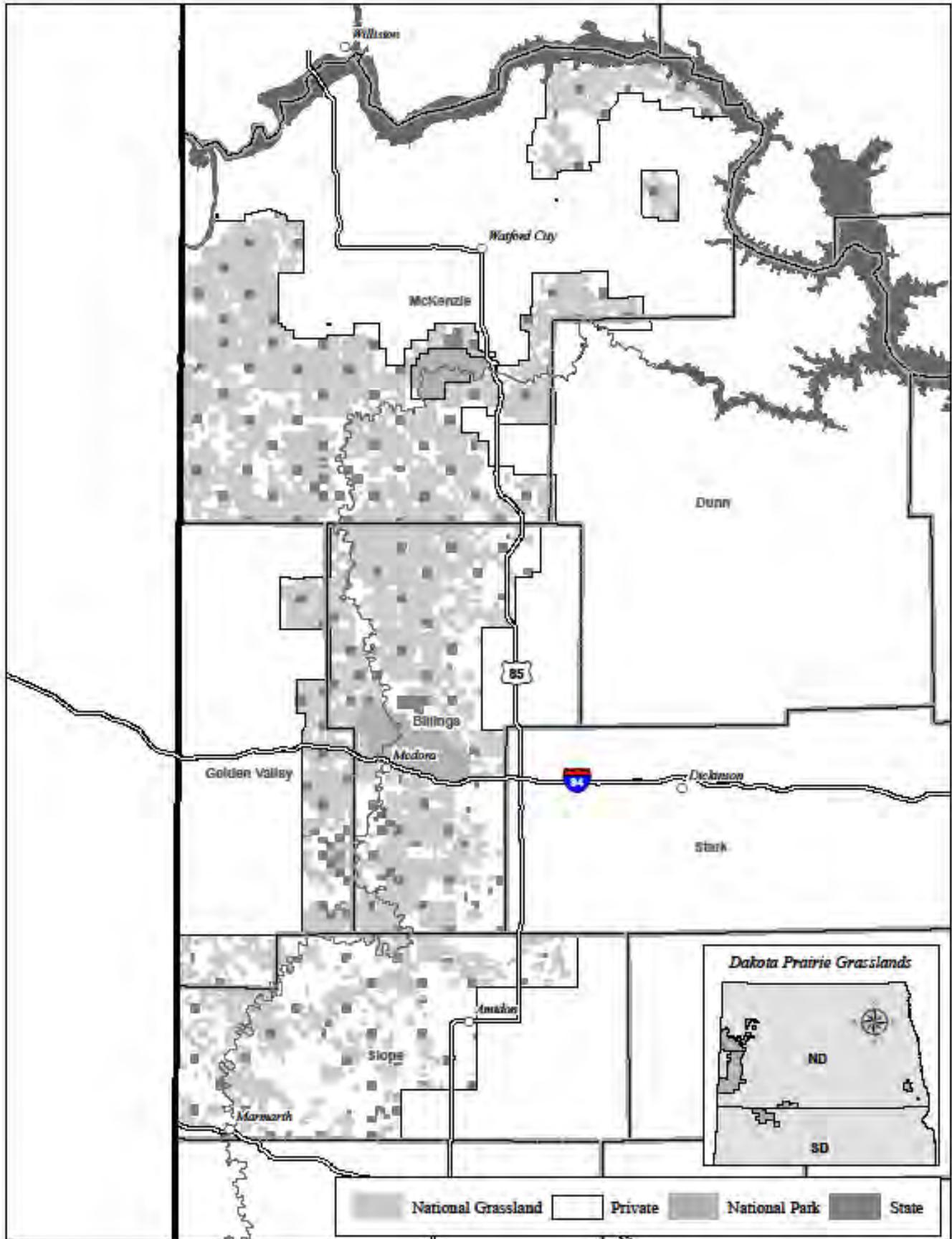
Since there are no effects to T&E and no significant direct, indirect or cumulative effects to any of the T&E species regardless of Alternative, compliance with the Grassland Plan, T&E Law, Regulation and Policies is assured. There is no need for further analysis due to unoccupied habitat conditions and the rare or seasonal use by a few of the species on the LMNG.

Due to the lack of impacts on sharp-tailed grouse, black-tailed prairie dog, sage grouse, raptors, migratory birds, fisheries, and big game, compliance with the LRMP, Regulations and Policies are assured.

# Map A – Vicinity Map



# Map B – Vicinity Map



# Appendix A

## Definitions and Acronyms

### Definitions

*Level 2 Road:* A System Road that is managed for high-clearance vehicles. Most often these are native surface two-track roads. \*\* Levels 3, 4, and 5 are collectively referred to as “surfaced roads.”

*OHV Decision:* 2001 Northern Region of the Forest Service and the Montana Bureau of Land Management (BLM) Off-Highway Vehicle (OHV) Environmental Impact Statement (EIS) and Record of Decision (ROD).

*Road.* A motor vehicle route over 50” wide, unless identified and managed as a trail.

*System Road:* Inventoried, numbered, and mapped by the Forest Service. System roads include paved, gravel/scoria-surfaced, and native surface “two-track” roads.

*Trail:* A route 50” wide or less **or** a route over 50” wide that is identified and managed as a trail.

*Travel Management Rule:* The 36 Code of Federal Regulations (CFR) Parts 212, 251, 261, and 295; Travel Management; Designated Routes and Areas for Motor Vehicle Use; Final Rule.

*Unauthorized Road:* Roads other than System Roads that are currently open to the public and are largely user-created. Unauthorized roads are not numbered, and may or may not be inventoried or mapped.

### Acronyms

*ACHP:* Advisory Council on Historic Preservation

*BLM:* Bureau of Land Management

*CFR:* Code of Federal Regulations

*DPG:* Dakota Prairie Grasslands

*EA:* Environmental Analysis

*EIS:* Environmental Impact Statement

*FSH:* Forest Service Handbook

*FSM:* Forest Service Manual

*LMNG:* Little Missouri National Grassland

*LRMP:* 2002 Dakota Prairie Grasslands Land and Resource Management Plan

*MA:* Management Area

*MVUM:* Motor Vehicle Use Map

*NHPA:* National Historic Preservation Act

*NFS:* National Forest System

*OHV:* Off-highway vehicle

*RNA:* Research Natural Area

*ROD:* Record of Decision

*USDA:* United States Department of Agriculture

*USFS:* United States Forest Service

# **Appendix B**

## **Proposed Road Closures by Alternative**